LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 35

2018

Bate Stamp Numbers
00889356 – 00890789

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976 – 2018

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

VOLUME 35

2018

A. Title: Report (cont'd) – Draft Final, Third Annual Remedial Action Operation Report, LHAAP-50, Former Sump Water Tank (LAB DATA)
Author(s): Department of the Army
Recipient: Environmental Protection Agency
Date: August 14, 2018
Bate Stamp: 00889356 – 00890789

Data File : C:\MSDCHEM\1\DATA\052316\6M139546.D Vial: 5
Acq On : 23 May 2016 11:53 Operator: TMB
Sample : WG569852-01 VBLK0523 BLANK STD 8260 Inst : HPMS6
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 24 06:29:31 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

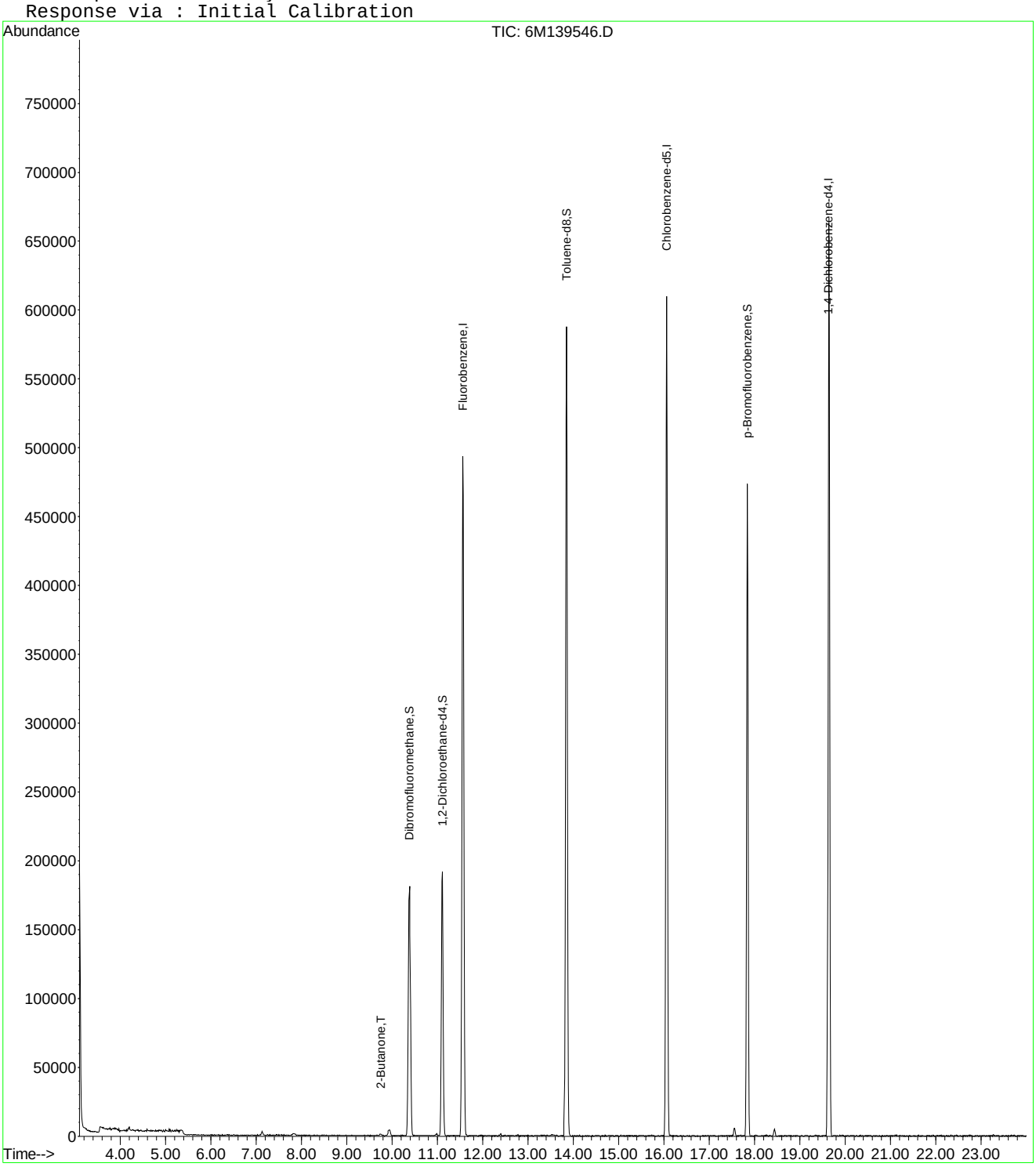
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	11.56	96	635186	25.00	ug/L	0.00
57) Chlorobenzene-d5	16.07	117	463133	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	19.64	152	240026	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	10.39	111	167691	25.1491	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 100.60%			
43) 1,2-Dichloroethane-d4	11.11	65	180554	24.3117	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 97.24%			
58) Toluene-d8	13.85	98	557699	24.4684	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 97.88%			
80) p-Bromofluorobenzene	17.84	95	219387	24.6576	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 98.64%			
Target Compounds						Qvalue
29) 2-Butanone	9.75	43	3050	1.0581	ug/L	# 57
36) Tetrahydrofuran	10.35	42	2541	Below Cal		# 54

(#) = qualifier out of range (m) = manual integration
6M139546.D 8260WTR.M Tue May 24 06:29:32 2016 Page 1

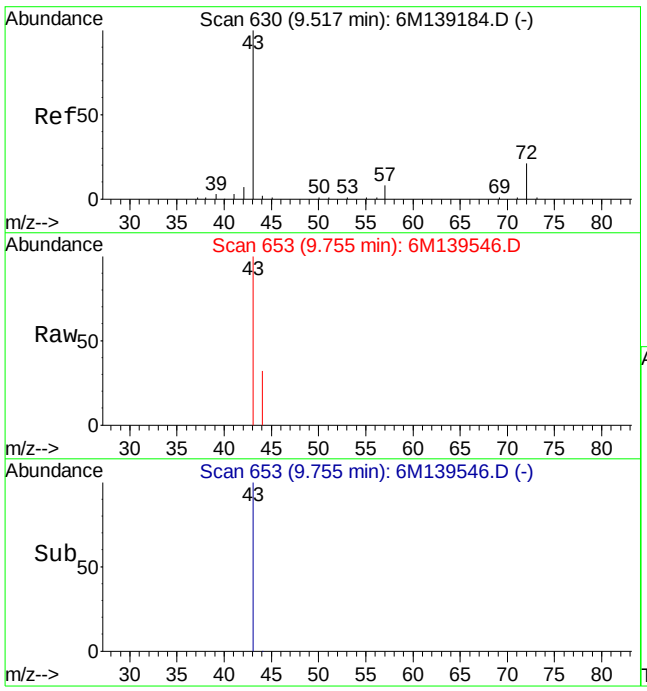
Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\052316\6M139546.D Vial: 5
Acq On : 23 May 2016 11:53 Operator: TMB
Sample : WG569852-01 VBLK0523 BLANK STD 8260 Inst : HPMS6
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 24 6:29 2016 Quant Results File: 8260WTR.RES

Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration



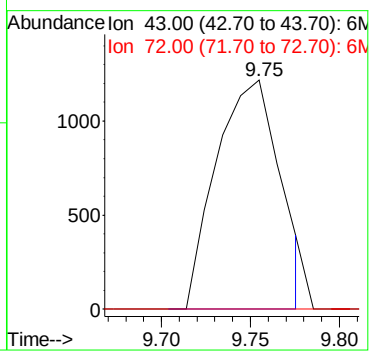
6M139546.D 8260WTR.M Tue May 24 06:29:32 2016 Page 2

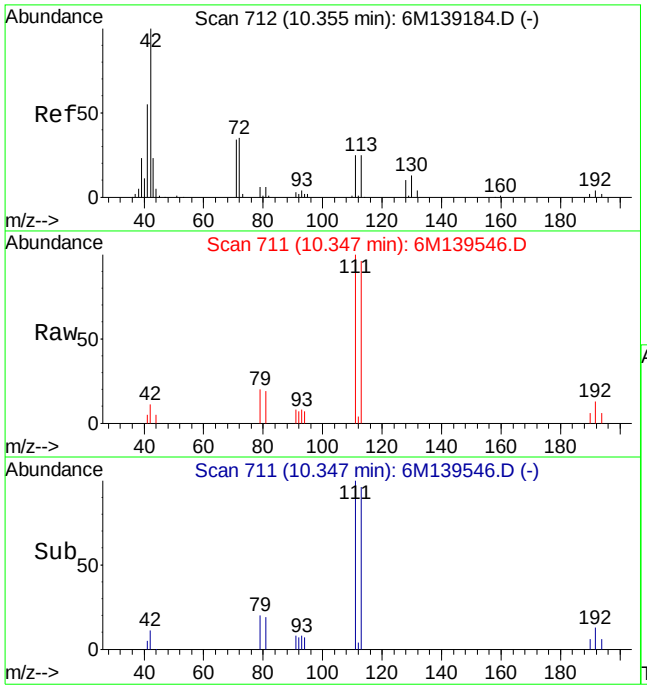


#29
2-Butanone
Concen: 1.06 ug/L
RT: 9.75 min Scan# 653
Delta R.T. 0.24 min
Lab File: 6M139546.D
Acq: 23 May 2016 11:53

Tgt Ion: 43 Resp: 3050

Ion	Ratio	Lower	Upper
43	100		
72	0.0	11.9	27.9#

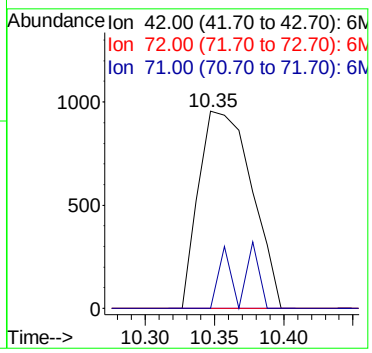




#36
Tetrahydrofuran
Concen: Below Cal
RT: 10.35 min Scan# 711
Delta R.T. -0.01 min
Lab File: 6M139546.D
Acq: 23 May 2016 11:53

Tgt Ion: 42 Resp: 2541

Ion	Ratio	Lower	Upper
42	100		
72	0.0	20.8	48.4#
71	15.0	19.9	46.5#



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\052216\8M412476.D Vial: 4
Acq On : 22 May 2016 13:57 Operator: FJB
Sample : WG569794-01 VBLK0522 BLANK 8260 Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 24 11:17:11 2016 Quant Results File: 8260WT.RES

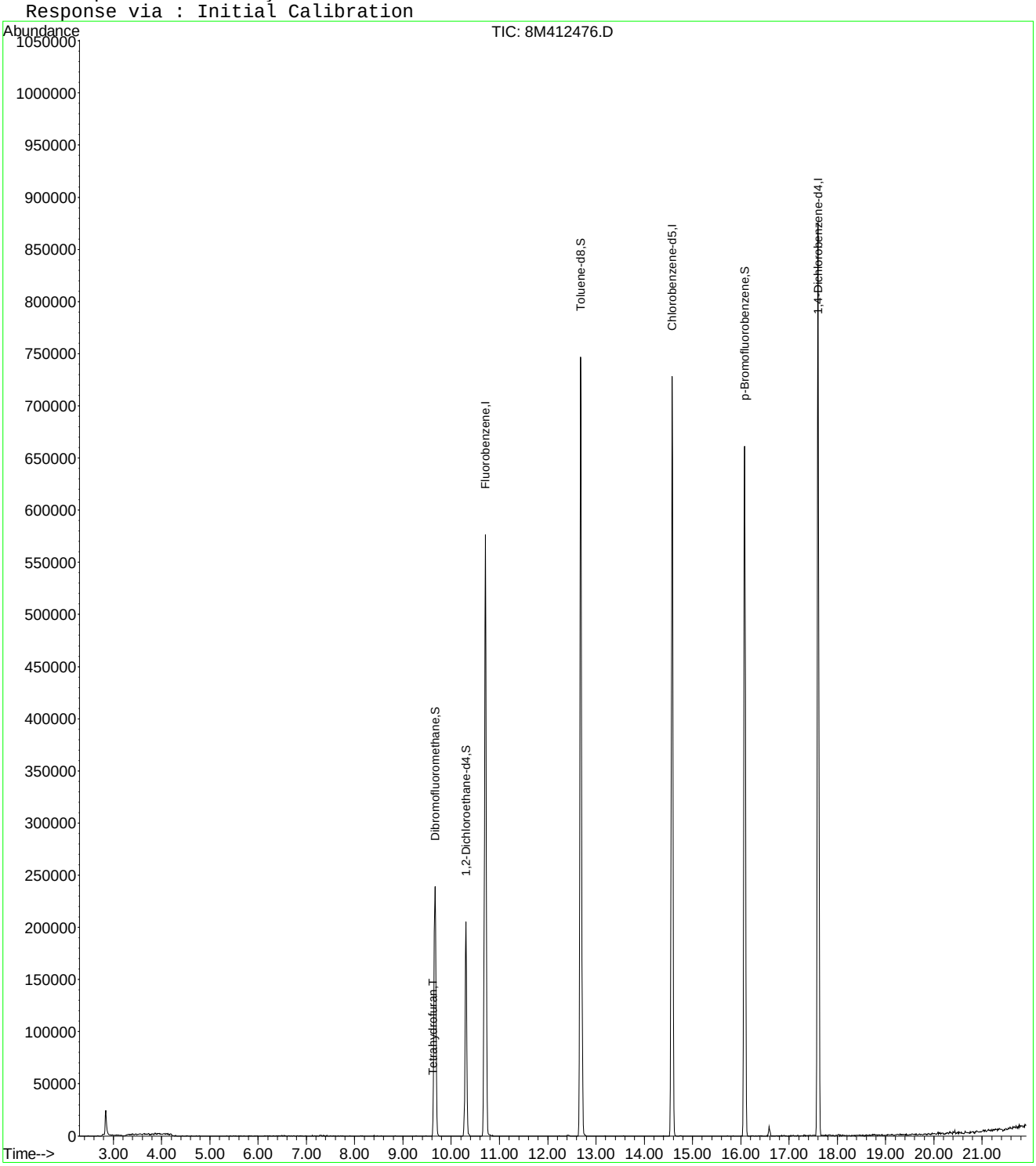
Quant Method : K:\ORGANICS\V...\8260WT.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 05-13-16 HPMS 8
Last Update : Sat May 14 18:08:06 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

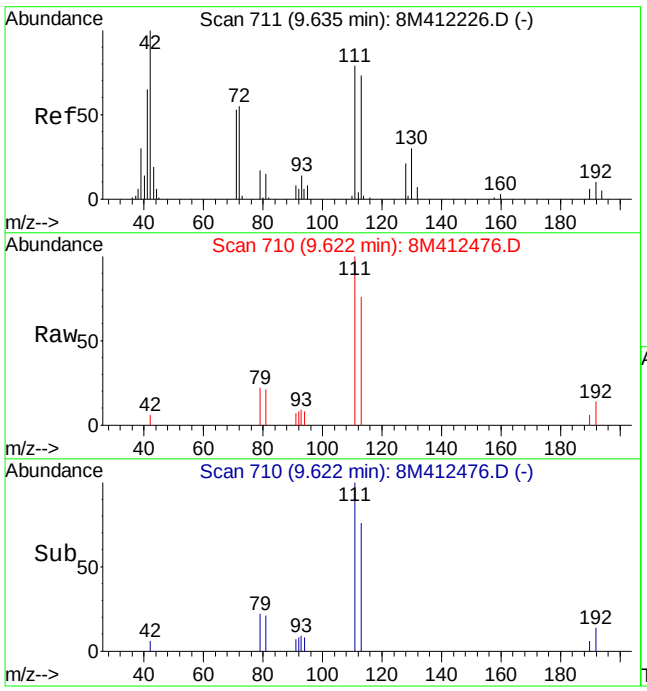
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	698177	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.57	117	516752	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.60	152	281901	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	196962	26.2570	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 105.04%			
43) 1,2-Dichloroethane-d4	10.30	65	215310	26.7689	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 107.08%			
58) Toluene-d8	12.68	98	702634	25.9808	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 103.92%			
80) p-Bromofluorobenzene	16.08	95	291050	24.9342	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 99.72%			
Target Compounds						Qvalue
36) Tetrahydrofuran	9.62	42	202	0.2657	ug/L #	18

(#) = qualifier out of range (m) = manual integration
8M412476.D 8260WT.M Tue May 24 11:17:13 2016 Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\052216\8M412476.D Vial: 4
Acq On : 22 May 2016 13:57 Operator: FJB
Sample : WG569794-01 VBLK0522 BLANK 8260 Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 24 11:16 2016 Quant Results File: 8260WT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WT.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 05-13-16 HPMS 8
Last Update : Sat May 14 18:08:06 2016
Response via : Initial Calibration

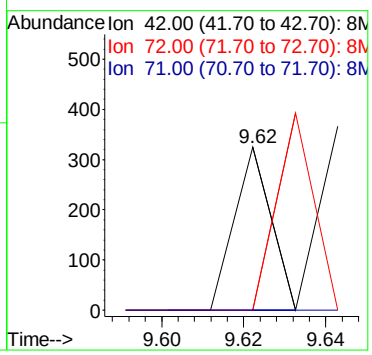




#36
Tetrahydrofuran
Concen: 0.27 ug/L
RT: 9.62 min Scan# 710
Delta R.T. -0.01 min
Lab File: 8M412476.D
Acq: 22 May 2016 13:57

Tgt Ion: 42 Resp: 202

Ion	Ratio	Lower	Upper
42	100		
72	120.8	33.8	78.8#
71	0.0	32.0	74.8#



Data File : C:\MSDchem\1\data\052216\6M139521.D Vial: 6
Acq On : 22 May 2016 15:01 Operator: FJB
Sample : WG569796-02 20ug/L LCS 8260 Inst : HPMS6
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 22 15:25:14 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	11.57	96	665490	25.00	ug/L	0.00
57) Chlorobenzene-d5	16.06	117	487656	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	19.65	152	273302	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	10.39	111	174354	24.9577	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 99.84%			
43) 1,2-Dichloroethane-d4	11.11	65	186794	24.0066	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 96.04%			
58) Toluene-d8	13.85	98	590844	24.6190	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.48%			
80) p-Bromofluorobenzene	17.84	95	236965	23.3905	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 93.56%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.44	85	154626	14.7538	ug/L	97
3) Chloromethane	3.93	50	222354	15.4706	ug/L	99
4) Vinyl Chloride	4.16	62	174114	18.8388	ug/L	99
5) 1,3-Butadiene	4.20	54	93323	101.3224	ug/L	98
6) Bromomethane	5.08	94	80281	15.3651	ug/L	97
7) Chloroethane	5.23	64	116590	19.7434	ug/L	99
8) Trichlorofluoromethane	5.73	101	230535	19.6588	ug/L	99
9) Diethyl ether	6.29	59	647364	104.2854	ug/L	100
10) Isoprene	6.32	67	60280	10.2947	ug/L	100
11) Acrolein	6.55	56	114824	123.1644	ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.55	101	135826	20.2777	ug/L	100
13) Acetone	6.66	43	36258	15.0915	ug/L	100
14) 1,1-Dichloroethene	6.88	61	217471	17.9199	ug/L	99
15) Tert-Butyl Alcohol	7.02	59	96032	159.5140	ug/L	97
16) Dimethyl Sulfide	7.16	62	66540	16.8272	ug/L	99
17) Iodomethane	7.43	142	24303	8.4804	ug/L	98
18) Methyl acetate	7.45	43	92471	16.3062	ug/L	99
19) Methylene Chloride	7.72	84	140778	19.6399	ug/L	98
20) Carbon Disulfide	7.77	76	94901	7.5577	ug/L	99
21) Acrylonitrile	7.92	53	45487	18.3483	ug/L	97
22) Methyl Tert Butyl Ether	7.96	73	300364	16.2499	ug/L	99
23) trans-1,2-Dichloroethene	8.21	96	134907	19.4411	ug/L	99
24) n-Hexane	8.28	57	73053	9.9772	ug/L	99
25) Diisopropyl ether	8.67	45	2974462	104.7913	ug/L	100
26) Vinyl Acetate	8.86	43	236335	24.1071	ug/L	100
27) 1,1-Dichloroethane	8.89	63	253659	18.3340	ug/L	99
28) Ethyl-Tert-Butyl ether	9.30	59	2253201	95.4888	ug/L	100
29) 2-Butanone	9.52	43	55510	18.3802	ug/L	98
30) Propionitrile	9.63	54	78855	95.1200	ug/L	99
31) 2,2-Dichloropropane	9.75	77	200657	19.7122	ug/L	100
32) cis-1,2-Dichloroethene	9.82	96	151358	19.7448	ug/L	98
33) Chloroform	10.06	83	240122	18.9520	ug/L	99
34) 1-Bromopropane	10.21	122	25226	24.4284	ug/L	99
35) Bromochloromethane	10.32	130	83145	19.7731	ug/L	100
36) Tetrahydrofuran	10.35	42	179335	92.7195	ug/L	99
38) 1,1,1-Trichloroethane	10.65	97	212114	19.1040	ug/L	100
39) Cyclohexane	10.68	56	144251	12.9733	ug/L	99
40) 1,1-Dichloropropene	10.88	75	180343	18.7009	ug/L	97
41) Tert-Amyl-Methyl ether	11.00	73	1845918	100.4219	ug/L	98
42) Carbon Tetrachloride	11.04	117	192602	19.5329	ug/L	99

(#) = qualifier out of range (m) = manual integration
6M139521.D 8260WTR.M Sun May 22 15:25:23 2016 Page 1

Data File : C:\MSDchem\1\data\052216\6M139521.D Vial: 6
Acq On : 22 May 2016 15:01 Operator: FJB
Sample : WG569796-02 20ug/L LCS 8260 Inst : HPMS6
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 22 15:25:14 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

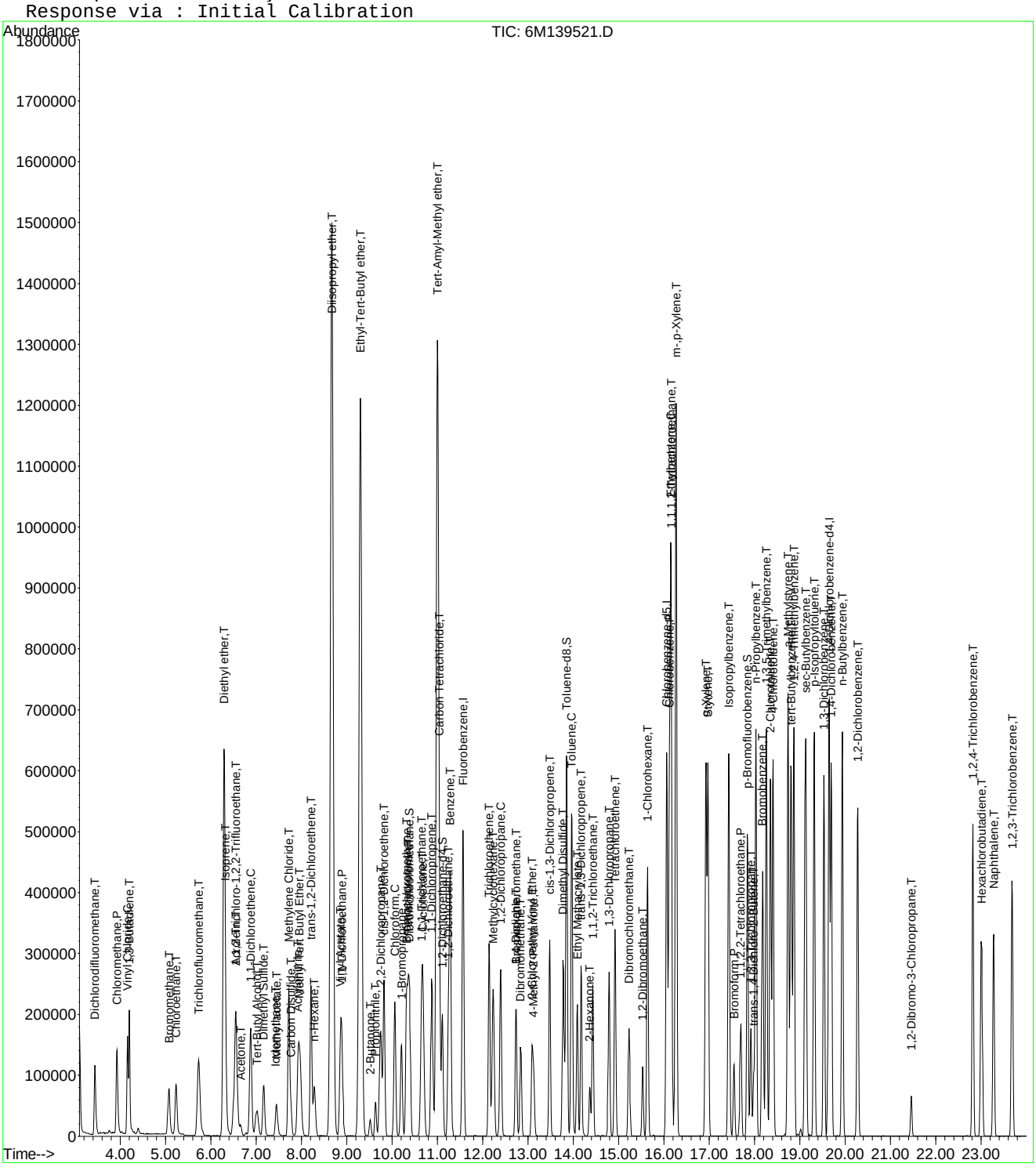
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
45)	1,2-Dichloroethane	11.24	62	188458	19.3691 ug/L	99
46)	Benzene	11.28	78	535875	19.2865 ug/L	99
47)	Trichloroethene	12.14	130	142351	19.5873 ug/L	99
48)	Methylcyclohexane	12.23	83	156829	16.3887 ug/L	99
49)	1,2-Dichloropropane	12.40	63	153377	19.6696 ug/L	100
50)	1,4-Dioxane	12.73	88	6289	116.1408 ug/L	94
51)	Bromodichloromethane	12.74	83	186682	19.6778 ug/L	100
52)	Dibromomethane	12.84	93	75299	19.1656 ug/L	99
53)	2-Chloroethyl Vinyl Ether	13.09	63	74467	19.4404 ug/L	99
54)	4-Methyl-2-Pentanone	13.12	58	44477	19.0284 ug/L	100
55)	cis-1,3-Dichloropropene	13.48	75	232556	20.9077 ug/L	99
56)	Dimethyl Disulfide	13.78	79	115195	18.8210 ug/L	99
59)	Toluene	13.96	91	562776	19.4707 ug/L	100
60)	Ethyl Methacrylate	14.09	69	160815	19.1435 ug/L	96
62)	trans-1,3-Dichloropropene	14.17	75	192670	19.5831 ug/L	99
63)	1,1,2-Trichloroethane	14.43	97	107542	20.0800 ug/L	99
64)	2-Hexanone	14.36	43	85688	18.2669 ug/L	99
65)	1,3-Dichloropropane	14.79	76	196433	20.6274 ug/L	98
66)	Tetrachloroethene	14.92	166	143824	19.1219 ug/L	99
67)	Dibromochloromethane	15.24	129	136194	20.7451 ug/L	100
68)	1,2-Dibromoethane	15.53	107	103104	19.6283 ug/L	99
69)	1-Chlorohexane	15.64	91	195583	19.6506 ug/L	99
70)	Chlorobenzene	16.12	112	388375	20.2792 ug/L	98
71)	1,1,1,2-Tetrachloroethane	16.17	131	139804	20.0365 ug/L	99
72)	Ethylbenzene	16.15	106	200573	19.3578 ug/L	98
73)	m-,p-Xylene	16.27	106	499362	40.0837 ug/L	100
74)	o-Xylene	16.93	106	247082	20.0199 ug/L	99
75)	Styrene	16.97	104	415543	19.4875 ug/L	100
76)	Bromoform	17.55	173	82119	19.4991 ug/L	99
77)	Isopropylbenzene	17.43	105	634437	20.3302 ug/L	100
79)	1,1,2,2-Tetrachloroethane	17.70	83	134491	20.4781 ug/L	99
81)	1,2,3-Trichloropropane	17.92	110	39511	20.6437 ug/L	86
82)	trans-1,4-Dichloro-2-Buten	17.98	53	35674	15.3893 ug/L	94
83)	n-Propylbenzene	18.03	91	787513	20.8868 ug/L	100
84)	Bromobenzene	18.18	156	167275	18.9714 ug/L	99
85)	1,3,5-Trimethylbenzene	18.26	105	541209	19.8796 ug/L	99
86)	2-Chlorotoluene	18.35	91	505079	20.1784 ug/L	100
87)	4-Chlorotoluene	18.41	91	484362	20.2476 ug/L	100
88)	a-Methylstyrene	18.74	118	327044	21.6367 ug/L	100
89)	tert-Butylbenzene	18.81	134	123370	20.6796 ug/L	81
90)	1,2,4-Trimethylbenzene	18.87	105	560420	20.0965 ug/L	100
91)	sec-Butylbenzene	19.13	105	693934	21.1070 ug/L	100
92)	p-Isopropyltoluene	19.32	119	585357	20.6058 ug/L	99
93)	1,3-Dichlorobenzene	19.53	146	344087	20.5153 ug/L	99
94)	1,4-Dichlorobenzene	19.69	146	347101	20.4086 ug/L	99
95)	n-Butylbenzene	19.94	91	553577	20.4693 ug/L	99
96)	1,2-Dichlorobenzene	20.28	146	325065	20.4706 ug/L	100
97)	1,2-Dibromo-3-Chloropropan	21.46	75	23490	19.0385 ug/L	98
98)	1,2,4-Trichlorobenzene	22.82	180	225612	19.8802 ug/L	99
99)	Hexachlorobutadiene	23.02	225	102946	20.6878 ug/L	99
100)	Naphthalene	23.28	128	396752	17.7035 ug/L	99
101)	1,2,3-Trichlorobenzene	23.69	180	205236	19.2444 ug/L	100

(#) = qualifier out of range (m) = manual integration
6M139521.D 8260WTR.M Sun May 22 15:25:23 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\052216\6M139521.D Vial: 6
Acq On : 22 May 2016 15:01 Operator: FJB
Sample : WG569796-02 20ug/L LCS 8260 Inst : HPMS6
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 22 15:25 2016 Quant Results File: 8260WTR.RES

Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration



Data File : C:\MSDchem\1\data\052316\6M139552.D Vial: 11
Acq On : 23 May 2016 15:07 Operator: TMB
Sample : WG569852-02 20ug/L LCS STD 8260 Inst : HPMS6
Misc : 1,1 STD76254 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 15:31:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	11.56	96	636634	25.00	ug/L	0.00
57) Chlorobenzene-d5	16.07	117	469200	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	19.64	152	263709	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	10.38	111	166516	24.9161	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 99.68%			
43) 1,2-Dichloroethane-d4	11.11	65	178675	24.0040	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 96.00%			
58) Toluene-d8	13.85	98	570846	24.7213	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.88%			
80) p-Bromofluorobenzene	17.84	95	229473	23.4749	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 93.88%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.44	85	87206	8.6980	ug/L	97
3) Chloromethane	3.92	50	163321	11.8784	ug/L	99
4) Vinyl Chloride	4.16	62	137600	15.5629	ug/L	100
5) 1,3-Butadiene	4.20	54	86068	97.3258	ug/L	99
6) Bromomethane	5.07	94	81718	16.3490	ug/L	99
7) Chloroethane	5.23	64	100394	17.7713	ug/L	98
8) Trichlorofluoromethane	5.73	101	202255	18.0290	ug/L	99
9) Diethyl ether	6.29	59	597993	100.6985	ug/L	99
10) Isoprene	6.32	67	212830	37.9949	ug/L	100
11) Acrolein	6.54	56	106856	119.8128	ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.54	101	122369	19.0968	ug/L	100
13) Acetone	6.65	43	35418	15.5107	ug/L	99
14) 1,1-Dichloroethene	6.87	61	195240	16.8173	ug/L	99
15) Tert-Butyl Alcohol	7.01	59	85251	148.0246	ug/L	96
16) Dimethyl Sulfide	7.16	62	195063	51.5651	ug/L	99
17) Iodomethane	7.44	142	134233	40.3369	ug/L	98
18) Methyl acetate	7.45	43	106551	19.6406	ug/L	99
19) Methylene Chloride	7.72	84	129108	18.8282	ug/L	100
20) Carbon Disulfide	7.76	76	429189	35.7288	ug/L	99
21) Acrylonitrile	7.93	53	46510	19.6113	ug/L	99
22) Methyl Tert Butyl Ether	7.96	73	339743	19.2135	ug/L	99
23) trans-1,2-Dichloroethene	8.21	96	123782	18.6464	ug/L	98
24) n-Hexane	8.28	57	208097	29.7091	ug/L	100
25) Diisopropyl ether	8.66	45	2783558	102.5106	ug/L	100
26) Vinyl Acetate	8.86	43	207384	22.1128	ug/L	99
27) 1,1-Dichloroethane	8.89	63	236171	17.8437	ug/L	100
28) Ethyl-Tert-Butyl ether	9.31	59	2093909	92.7603	ug/L	99
29) 2-Butanone	9.51	43	54443	18.8440	ug/L	97
30) Propionitrile	9.63	54	72379	91.2655	ug/L	100
31) 2,2-Dichloropropane	9.74	77	175817	18.0548	ug/L	99
32) cis-1,2-Dichloroethene	9.83	96	139255	18.9893	ug/L	100
33) Chloroform	10.06	83	223770	18.4619	ug/L	99
34) 1-Bromopropane	10.20	122	31484	31.8705	ug/L	99
35) Bromochloromethane	10.32	130	77906	19.3669	ug/L	99
36) Tetrahydrofuran	10.35	42	170832	92.3107	ug/L	98
38) 1,1,1-Trichloroethane	10.65	97	197377	18.5825	ug/L	99
39) Cyclohexane	10.68	56	263194	24.7434	ug/L	99
40) 1,1-Dichloropropene	10.88	75	165818	17.9741	ug/L	99
41) Tert-Amyl-Methyl ether	11.00	73	1725571	98.1298	ug/L	98
42) Carbon Tetrachloride	11.04	117	175326	18.5868	ug/L	98

(#) = qualifier out of range (m) = manual integration
6M139552.D 8260WTR.M Mon May 23 15:31:22 2016 Page 1

Data File : C:\MSDchem\1\data\052316\6M139552.D Vial: 11
Acq On : 23 May 2016 15:07 Operator: TMB
Sample : WG569852-02 20ug/L LCS STD 8260 Inst : HPMS6
Misc : 1,1 STD76254 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 15:31:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

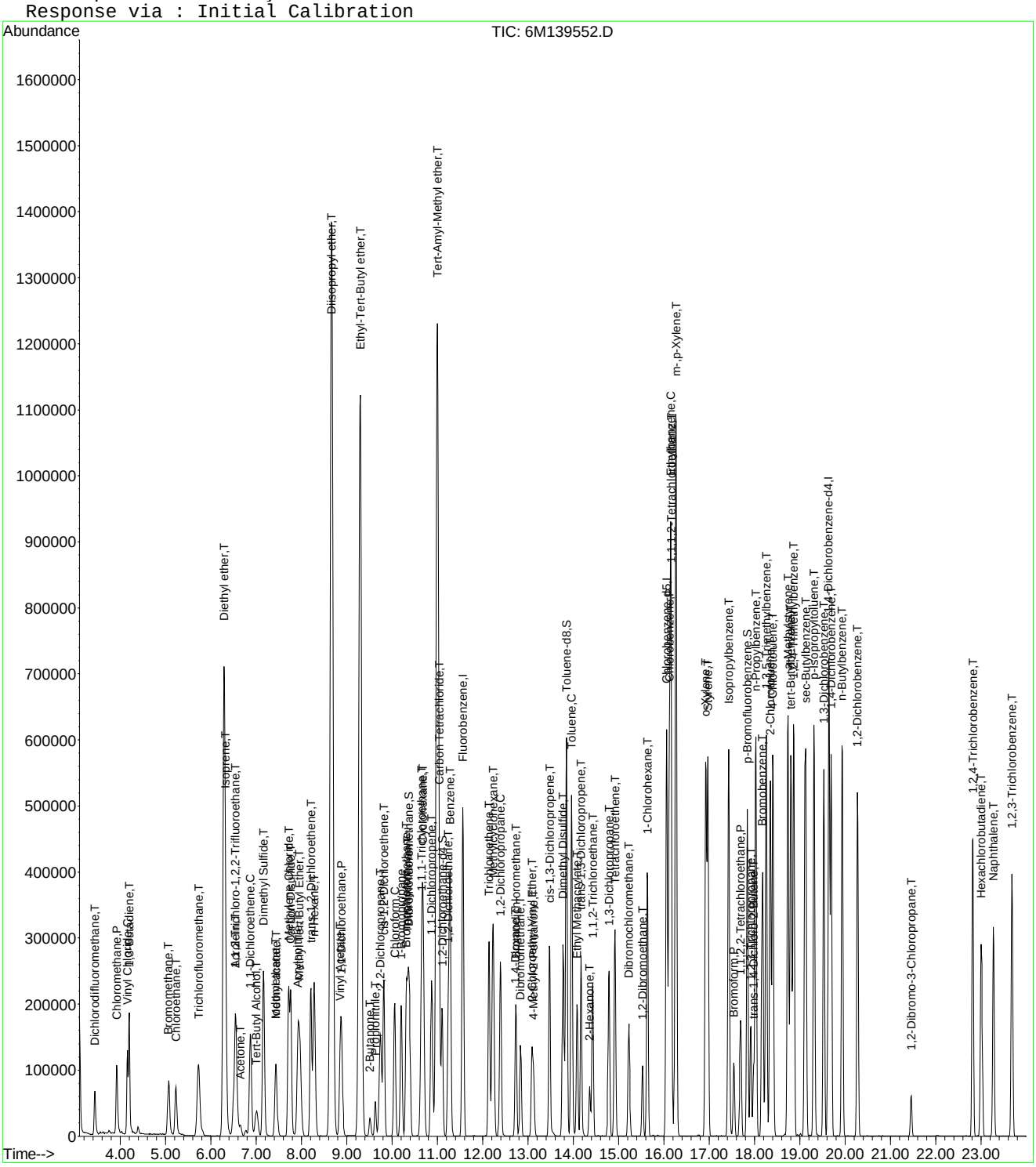
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45)	1,2-Dichloroethane	11.25	62	177253	19.0432	ug/L	100
46)	Benzene	11.29	78	503047	18.9257	ug/L	99
47)	Trichloroethene	12.14	130	132930	19.1201	ug/L	98
48)	Methylcyclohexane	12.24	83	207055	22.6180	ug/L	99
49)	1,2-Dichloropropane	12.39	63	143197	19.1965	ug/L	100
50)	1,4-Dioxane	12.73	88	5409	104.4172	ug/L	91
51)	Bromodichloromethane	12.74	83	172495	19.0065	ug/L	98
52)	Dibromomethane	12.84	93	70219	18.6827	ug/L	99
53)	2-Chloroethyl Vinyl Ether	13.09	63	65623	17.9081	ug/L	99
54)	4-Methyl-2-Pentanone	13.12	58	40427	18.0797	ug/L	99
55)	cis-1,3-Dichloropropene	13.48	75	214868	20.1930	ug/L	99
56)	Dimethyl Disulfide	13.78	79	112386	19.1943	ug/L	98
59)	Toluene	13.96	91	526338	18.9264	ug/L	100
60)	Ethyl Methacrylate	14.08	69	150138	18.5755	ug/L	98
62)	trans-1,3-Dichloropropene	14.18	75	180280	19.0445	ug/L	99
63)	1,1,2-Trichloroethane	14.43	97	102049	19.8038	ug/L	100
64)	2-Hexanone	14.36	43	76868	17.0312	ug/L	99
65)	1,3-Dichloropropane	14.79	76	186339	20.3371	ug/L	99
66)	Tetrachloroethene	14.92	166	133683	18.4727	ug/L	99
67)	Dibromochloromethane	15.23	129	128131	20.2846	ug/L	100
68)	1,2-Dibromoethane	15.53	107	97549	19.3013	ug/L	100
69)	1-Chlorohexane	15.65	91	177344	18.5190	ug/L	99
70)	Chlorobenzene	16.13	112	359195	19.4933	ug/L	100
71)	1,1,1,2-Tetrachloroethane	16.17	131	131763	19.6269	ug/L	99
72)	Ethylbenzene	16.16	106	186627	18.7203	ug/L	98
73)	m-,p-Xylene	16.27	106	462268	38.5657	ug/L	99
74)	o-Xylene	16.92	106	229374	19.3161	ug/L	98
75)	Styrene	16.97	104	389966	19.0074	ug/L	100
76)	Bromoform	17.55	173	76250	18.8177	ug/L	99
77)	Isopropylbenzene	17.43	105	587249	19.5583	ug/L	100
79)	1,1,2,2-Tetrachloroethane	17.69	83	127133	20.0619	ug/L	100
81)	1,2,3-Trichloropropane	17.92	110	37720	20.4249	ug/L	89
82)	trans-1,4-Dichloro-2-Buten	17.99	53	35700	15.9608	ug/L	96
83)	n-Propylbenzene	18.04	91	735262	20.2104	ug/L	99
84)	Bromobenzene	18.18	156	160012	18.8079	ug/L	98
85)	1,3,5-Trimethylbenzene	18.26	105	506274	19.2729	ug/L	100
86)	2-Chlorotoluene	18.35	91	489372	20.2621	ug/L	98
87)	4-Chlorotoluene	18.40	91	437192	18.9406	ug/L	99
88)	a-Methylstyrene	18.74	118	290468	19.9160	ug/L	99
89)	tert-Butylbenzene	18.80	134	113140	19.6547	ug/L	94
90)	1,2,4-Trimethylbenzene	18.86	105	524422	19.4898	ug/L	98
91)	sec-Butylbenzene	19.13	105	647423	20.4087	ug/L	99
92)	p-Isopropyltoluene	19.31	119	544492	19.8645	ug/L	99
93)	1,3-Dichlorobenzene	19.54	146	320199	19.7855	ug/L	100
94)	1,4-Dichlorobenzene	19.69	146	323078	19.6872	ug/L	99
95)	n-Butylbenzene	19.94	91	505780	19.3822	ug/L	100
96)	1,2-Dichlorobenzene	20.27	146	305135	19.9145	ug/L	100
97)	1,2-Dibromo-3-Chloropropan	21.47	75	22602	18.9852	ug/L	98
98)	1,2,4-Trichlorobenzene	22.83	180	207164	18.9187	ug/L	99
99)	Hexachlorobutadiene	23.01	225	93086	19.3868	ug/L	99
100)	Naphthalene	23.27	128	365258	16.8911	ug/L	100
101)	1,2,3-Trichlorobenzene	23.68	180	192503	18.7071	ug/L	99

(#) = qualifier out of range (m) = manual integration
6M139552.D 8260WTR.M Mon May 23 15:31:22 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\052316\6M139552.D Vial: 11
Acq On : 23 May 2016 15:07 Operator: TMB
Sample : WG569852-02 20ug/L LCS STD 8260 Inst : HPMS6
Misc : 1,1 STD76254 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 15:31 2016 Quant Results File: 8260WTR.RES

Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\052216\8M412477.D Vial: 5
Acq On : 22 May 2016 14:26 Operator: FJB
Sample : WG569794-02 20ug/L LCS 8260 Inst : HPMS8
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 08:18:33 2016 Quant Results File: 8260WT.RES

Quant Method : K:\ORGANICS\V...\8260WT.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 05-13-16 HPMS 8
Last Update : Sat May 14 18:08:06 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	716005	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.57	117	534438	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.60	152	295006	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	202903	26.3755	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 105.52%			
43) 1,2-Dichloroethane-d4	10.30	65	219952	26.6652	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 106.68%			
58) Toluene-d8	12.68	98	713192	25.4985	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 102.00%			
80) p-Bromofluorobenzene	16.08	95	302639	24.7753	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 99.12%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.16	85	189317	15.7705	ug/L	99
3) Chloromethane	3.62	50	108100	15.4268	ug/L	100
4) Vinyl Chloride	3.85	62	166935	20.0794	ug/L	100
5) 1,3-Butadiene	3.88	54	144817	20.7713	ug/L	98
6) Bromomethane	4.72	94	77186	16.1061	ug/L	99
7) Chloroethane	4.89	64	89928	19.6581	ug/L	97
8) Trichlorofluoromethane	5.38	101	328485	21.2344	ug/L	100
9) Diethyl ether	5.90	59	379840	102.8517	ug/L	98
10) Isoprene	5.94	67	230877	24.5768	ug/L	97
11) Acrolein	6.14	56	39790	120.3351	ug/L	100
12) 1,1,2-Trichloro-1,2,2-Trif	6.15	101	154094	21.1914	ug/L	98
13) Acetone	6.23	43	17681	21.9484	ug/L	99
14) 1,1-Dichloroethene	6.46	61	224418	19.3833	ug/L	100
15) Tert-Butyl Alcohol	6.58	59	46199	178.9604	ug/L	96
16) Dimethyl Sulfide	6.73	62	166391	40.1938	ug/L	100
17) Iodomethane	6.99	142	34060	12.9379	ug/L	89
18) Methyl acetate	7.00	43	43263	19.8679	ug/L	96
19) Methylene Chloride	7.26	84	148453	20.1484	ug/L	98
20) Carbon Disulfide	7.29	76	524778	21.6592	ug/L	100
21) Acrylonitrile	7.43	53	21978	21.0272	ug/L	96
22) Methyl Tert Butyl Ether	7.46	73	363858	22.8174	ug/L	99
23) trans-1,2-Dichloroethene	7.70	61	222870	20.9529	ug/L	99
24) n-Hexane	7.78	57	173376	21.9507	ug/L	99
25) Diisopropyl ether	8.12	45	1745097	105.2520	ug/L	98
26) Vinyl Acetate	8.30	43	143702	18.9299	ug/L	98
27) 1,1-Dichloroethane	8.33	63	267376	20.2408	ug/L	100
28) Ethyl-Tert-Butyl ether	8.70	59	1828410	102.9261	ug/L	98
29) 2-Butanone	8.88	43	23449	19.8119	ug/L	99
30) Propionitrile	8.99	54	32414	93.9767	ug/L	99
31) 2,2-Dichloropropane	9.11	77	332439	23.8809	ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	171936	20.9198	ug/L	98
33) Chloroform	9.37	83	339873	21.7906	ug/L	98
34) 1-Bromopropane	9.51	122	37949	32.2355	ug/L	100
35) Bromochloromethane	9.60	130	87063	20.6576	ug/L	96
36) Tetrahydrofuran	9.63	42	67690	86.8330	ug/L	97
38) 1,1,1-Trichloroethane	9.90	97	338083	22.8196	ug/L	100
39) Cyclohexane	9.94	56	222790	21.7204	ug/L	96
40) 1,1-Dichloropropene	10.11	75	237912	21.0679	ug/L	99
41) Tert-Amyl-Methyl ether	10.21	73	1749023	108.4032	ug/L	100
42) Carbon Tetrachloride	10.25	117	294608	22.3934	ug/L	99

(#) = qualifier out of range (m) = manual integration
8M412477.D 8260WT.M Mon May 23 08:18:35 2016 Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\052216\8M412477.D Vial: 5
Acq On : 22 May 2016 14:26 Operator: FJB
Sample : WG569794-02 20ug/L LCS 8260 Inst : HPMS8
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 08:18:33 2016 Quant Results File: 8260WT.RES

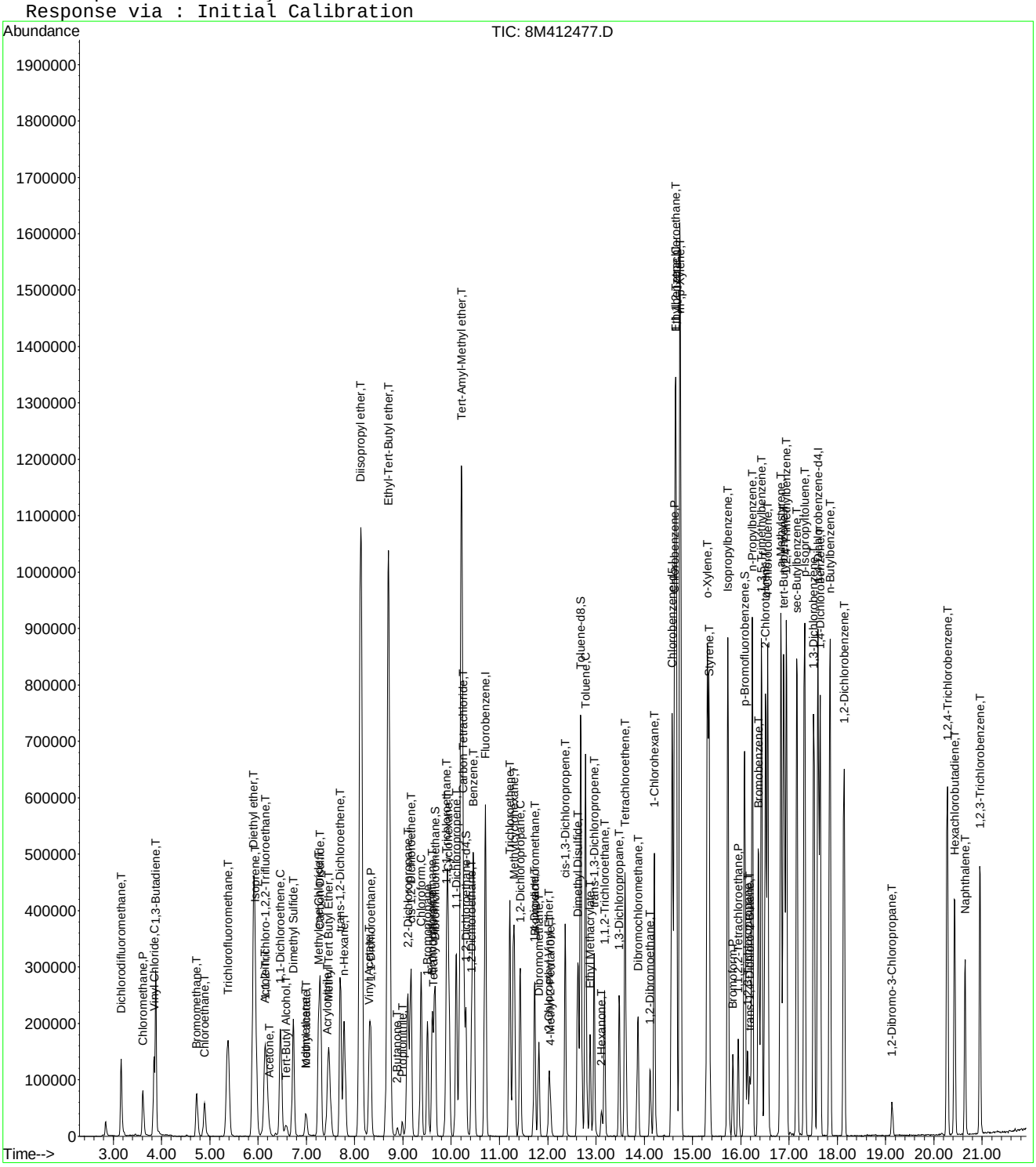
Quant Method : K:\ORGANICS\V...\8260WT.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 05-13-16 HPMS 8
Last Update : Sat May 14 18:08:06 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
45)	1,2-Dichloroethane	10.42	62	227504	22.6623	ug/L		99
46)	Benzene	10.46	78	623389	21.1953	ug/L		99
47)	Trichloroethene	11.21	130	175632	22.3895	ug/L		98
48)	Methylcyclohexane	11.30	83	272983	22.9069	ug/L		99
49)	1,2-Dichloropropane	11.43	63	135335	20.6702	ug/L		91
50)	Bromodichloromethane	11.73	83	252951	21.9813	ug/L		99
51)	1,4-Dioxane	11.72	88	4493	136.6100	ug/L		98
52)	Dibromomethane	11.81	93	73707	19.0177	ug/L		99
53)	2-Chloroethyl Vinyl Ether	12.02	63	59615	21.1842	ug/L		96
54)	4-Methyl-2-Pentanone	12.05	58	22725	19.7690	ug/L		94
55)	cis-1,3-Dichloropropene	12.36	75	271106	23.1456	ug/L		99
56)	Dimethyl Disulfide	12.62	79	137774	22.0378	ug/L		92
59)	Toluene	12.79	91	670482	20.2082	ug/L		100
60)	Ethyl Methacrylate	12.88	69	134325	21.0810	ug/L		100
62)	trans-1,3-Dichloropropene	12.96	75	233621	21.0113	ug/L		100
63)	1,1,2-Trichloroethane	13.18	97	101084	19.3074	ug/L		98
64)	2-Hexanone	13.12	58	19551	17.7705	ug/L	#	96
65)	1,3-Dichloropropane	13.48	76	195962	21.0231	ug/L		98
66)	Tetrachloroethene	13.60	164	142069	19.9857	ug/L		99
67)	Dibromochloromethane	13.87	129	154491	20.2094	ug/L		100
68)	1,2-Dibromoethane	14.12	107	101910	19.5310	ug/L		99
69)	1-Chlorohexane	14.21	91	245321	21.6606	ug/L		98
70)	Chlorobenzene	14.63	112	463216	20.7038	ug/L		99
71)	1,1,1,2-Tetrachloroethane	14.66	131	179425	20.7002	ug/L		100
72)	Ethylbenzene	14.66	106	245862	20.0849	ug/L		99
73)	m-,p-Xylene	14.75	106	604052	42.0703	ug/L		96
74)	o-Xylene	15.31	106	297477	21.1915	ug/L		97
75)	Styrene	15.35	104	490435	21.3012	ug/L		98
76)	Bromoform	15.83	173	88225	19.4574	ug/L		98
77)	Isopropylbenzene	15.73	105	823558	22.0844	ug/L		99
79)	1,1,2,2-Tetrachloroethane	15.95	83	110687	18.6919	ug/L		99
81)	1,2,3-Trichloropropane	16.14	110	35911	19.6934	ug/L		74
82)	trans-1,4-Dichloro-2-Buten	16.19	53	30535	16.8407	ug/L		88
83)	n-Propylbenzene	16.24	91	1005393	21.8449	ug/L		100
84)	Bromobenzene	16.37	156	188510	19.9131	ug/L		98
85)	1,3,5-Trimethylbenzene	16.42	105	716418	21.3691	ug/L		100
86)	2-Chlorotoluene	16.51	91	692878	21.5628	ug/L		100
87)	4-Chlorotoluene	16.56	91	598748	20.6285	ug/L		100
88)	a-Methylstyrene	16.83	118	361510	22.7279	ug/L		100
89)	tert-Butylbenzene	16.89	134	136028	20.7396	ug/L		95
90)	1,2,4-Trimethylbenzene	16.94	105	719907	20.8829	ug/L		100
91)	sec-Butylbenzene	17.16	105	853756	21.6465	ug/L		100
92)	p-Isopropyltoluene	17.32	119	715103	21.3538	ug/L		100
93)	1,3-Dichlorobenzene	17.51	146	384672	21.1028	ug/L		98
94)	1,4-Dichlorobenzene	17.64	146	384191	20.9055	ug/L		99
95)	n-Butylbenzene	17.85	91	691411	20.8842	ug/L		100
96)	1,2-Dichlorobenzene	18.14	146	339726	20.9548	ug/L		97
97)	1,2-Dibromo-3-Chloropropan	19.13	75	23051	19.3923	ug/L		100
98)	1,2,4-Trichlorobenzene	20.28	180	244898	20.2091	ug/L		99
99)	Hexachlorobutadiene	20.43	225	126627	22.3640	ug/L		99
100)	Naphthalene	20.65	128	316945	17.6040	ug/L		100
101)	1,2,3-Trichlorobenzene	20.96	180	199259	19.4901	ug/L		99

(#) = qualifier out of range (m) = manual integration
8M412477.D 8260WT.M Mon May 23 08:18:35 2016 Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\052216\8M412477.D Vial: 5
Acq On : 22 May 2016 14:26 Operator: FJB
Sample : WG569794-02 20ug/L LCS 8260 Inst : HPMS8
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 8:17 2016 Quant Results File: 8260WT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WT.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 05-13-16 HPMS 8
Last Update : Sat May 14 18:08:06 2016
Response via : Initial Calibration



Data File : C:\MSDchem\1\data\052216\6M139522.D Vial: 7
Acq On : 22 May 2016 15:33 Operator: FJB
Sample : WG569796-03 20ug/L LCS2 8260 Inst : HPMS6
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 22 15:57:20 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	11.57	96	665687	25.00 ug/L	0.00
57) Chlorobenzene-d5	16.06	117	490201	25.00 ug/L	0.00
78) 1,4-Dichlorobenzene-d4	19.65	152	275393	25.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	10.39	111	175378	25.0968 ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 100.40%		
43) 1,2-Dichloroethane-d4	11.11	65	187543	24.0957 ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 96.40%		
58) Toluene-d8	13.85	98	590411	24.4732 ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 97.88%		
80) p-Bromofluorobenzene	17.84	95	238871	23.3996 ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 93.60%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.44	85	156279	14.9072 ug/L	99
3) Chloromethane	3.93	50	227851	15.8484 ug/L	98
4) Vinyl Chloride	4.16	62	171770	18.5797 ug/L	100
5) 1,3-Butadiene	4.20	54	93642	101.6703 ug/L	98
6) Bromomethane	5.07	94	79602	15.2306 ug/L	100
7) Chloroethane	5.23	64	116070	19.6495 ug/L	98
8) Trichlorofluoromethane	5.73	101	232243	19.7986 ug/L	99
9) Diethyl ether	6.29	59	647233	104.2335 ug/L	99
10) Isoprene	6.32	67	60923	10.4014 ug/L	100
11) Acrolein	6.55	56	116777	125.2222 ug/L	97
12) 1,1,2-Trichloro-1,2,2-Trif	6.55	101	137470	20.5171 ug/L	99
13) Acetone	6.66	43	37004	15.4941 ug/L	100
14) 1,1-Dichloroethene	6.88	61	218450	17.9953 ug/L	99
15) Tert-Butyl Alcohol	7.02	59	104127	172.9090 ug/L	97
16) Dimethyl Sulfide	7.16	62	67695	17.1142 ug/L	97
17) Iodomethane	7.43	142	29263	9.8400 ug/L	100
18) Methyl acetate	7.45	43	93507	16.4840 ug/L	100
19) Methylene Chloride	7.72	84	138257	19.2825 ug/L	99
20) Carbon Disulfide	7.77	76	95699	7.6190 ug/L	100
21) Acrylonitrile	7.92	53	45370	18.2957 ug/L	99
22) Methyl Tert Butyl Ether	7.96	73	303890	16.4358 ug/L	99
23) trans-1,2-Dichloroethene	8.21	96	133254	19.1972 ug/L	100
24) n-Hexane	8.28	57	72771	9.9358 ug/L	99
25) Diisopropyl ether	8.67	45	2979019	104.9208 ug/L	100
26) Vinyl Acetate	8.86	43	231562	23.6132 ug/L	99
27) 1,1-Dichloroethane	8.89	63	254942	18.4212 ug/L	100
28) Ethyl-Tert-Butyl ether	9.30	59	2272092	96.2609 ug/L	100
29) 2-Butanone	9.52	43	57033	18.8789 ug/L	99
30) Propionitrile	9.63	54	81625	98.4322 ug/L	99
31) 2,2-Dichloropropane	9.75	77	197947	19.4402 ug/L	99
32) cis-1,2-Dichloroethene	9.82	96	150913	19.6809 ug/L	98
33) Chloroform	10.06	83	240802	19.0000 ug/L	99
34) 1-Bromopropane	10.21	122	25887	25.0611 ug/L	99
35) Bromochloromethane	10.32	130	83051	19.7449 ug/L	100
36) Tetrahydrofuran	10.35	42	180810	93.4844 ug/L	100
38) 1,1,1-Trichloroethane	10.65	97	214289	19.2942 ug/L	99
39) Cyclohexane	10.69	56	147587	13.2694 ug/L	100
40) 1,1-Dichloropropene	10.88	75	180161	18.6765 ug/L	98
41) Tert-Amyl-Methyl ether	11.00	73	1862859	101.3136 ug/L	98
42) Carbon Tetrachloride	11.04	117	193371	19.6051 ug/L	99

(#) = qualifier out of range (m) = manual integration
6M139522.D 8260WTR.M Sun May 22 15:57:20 2016 Page 1

Data File : C:\MSDchem\1\data\052216\6M139522.D Vial: 7
Acq On : 22 May 2016 15:33 Operator: FJB
Sample : WG569796-03 20ug/L LCS2 8260 Inst : HPMS6
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 22 15:57:20 2016 Quant Results File: 8260WTR.RES

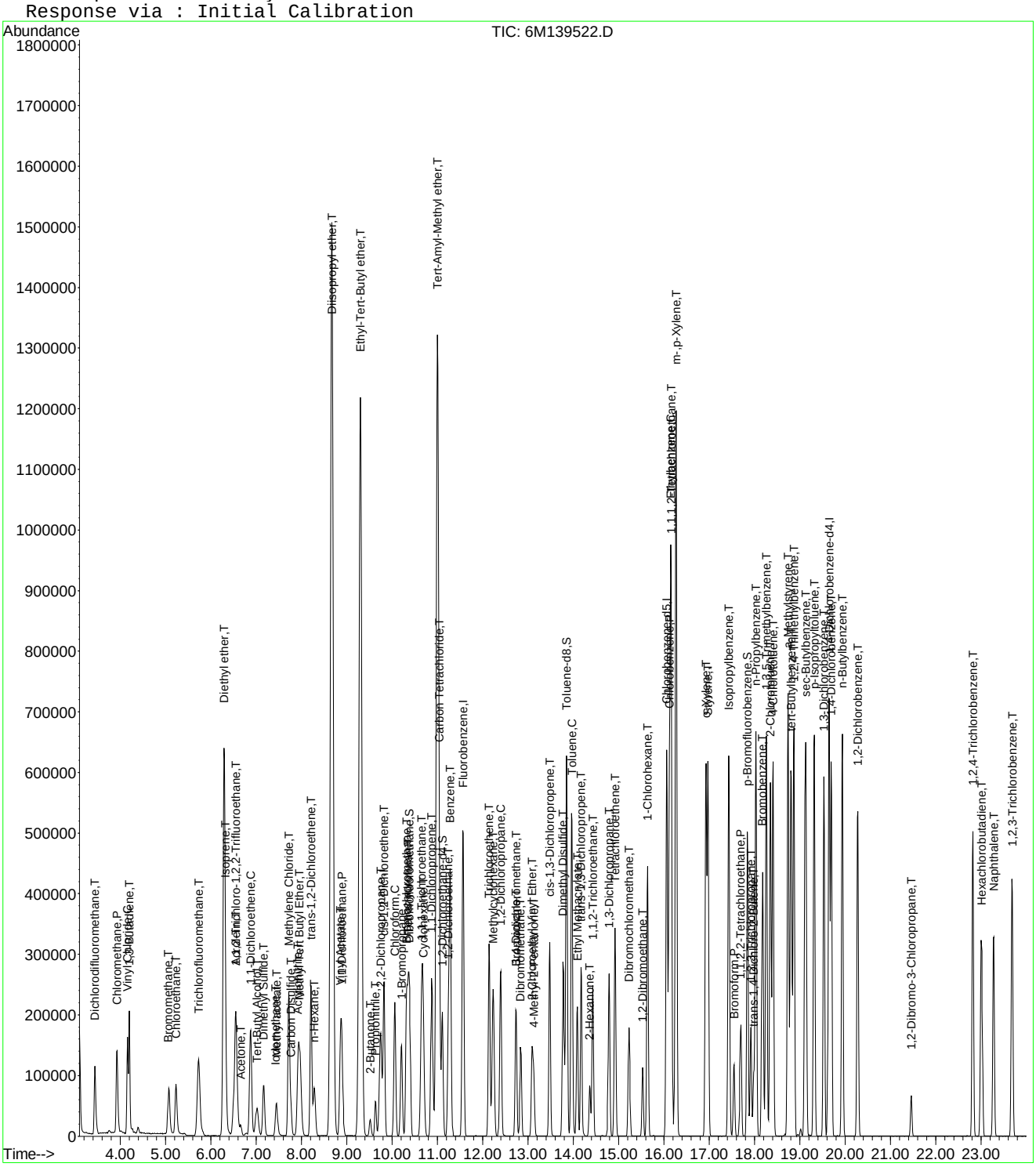
Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
45)	1,2-Dichloroethane	11.24	62	185736	19.0837 ug/L	100
46)	Benzene	11.28	78	539091	19.3965 ug/L	98
47)	Trichloroethene	12.14	130	142202	19.5610 ug/L	100
48)	Methylcyclohexane	12.23	83	157440	16.4477 ug/L	99
49)	1,2-Dichloropropane	12.40	63	152145	19.5059 ug/L	99
50)	1,4-Dioxane	12.73	88	8633	159.3810 ug/L	90
51)	Bromodichloromethane	12.74	83	184115	19.4015 ug/L	99
52)	Dibromomethane	12.84	93	75332	19.1683 ug/L	99
53)	2-Chloroethyl Vinyl Ether	13.09	63	74112	19.3420 ug/L	98
54)	4-Methyl-2-Pentanone	13.13	58	45650	19.5245 ug/L	99
55)	cis-1,3-Dichloropropene	13.48	75	233021	20.9433 ug/L	99
56)	Dimethyl Disulfide	13.78	79	116002	18.9472 ug/L	97
59)	Toluene	13.97	91	562727	19.3680 ug/L	100
60)	Ethyl Methacrylate	14.09	69	161461	19.1206 ug/L	97
62)	trans-1,3-Dichloropropene	14.17	75	192366	19.4507 ug/L	99
63)	1,1,2-Trichloroethane	14.43	97	108258	20.1087 ug/L	100
64)	2-Hexanone	14.36	43	87971	18.6562 ug/L	99
65)	1,3-Dichloropropane	14.79	76	196611	20.5389 ug/L	97
66)	Tetrachloroethene	14.92	166	144555	19.1193 ug/L	99
67)	Dibromochloromethane	15.24	129	133934	20.2949 ug/L	100
68)	1,2-Dibromoethane	15.53	107	102658	19.4419 ug/L	99
69)	1-Chlorohexane	15.64	91	196533	19.6435 ug/L	100
70)	Chlorobenzene	16.12	112	384332	19.9639 ug/L	100
71)	1,1,1,2-Tetrachloroethane	16.17	131	140332	20.0078 ug/L	99
72)	Ethylbenzene	16.16	106	199851	19.1880 ug/L	98
73)	m-,p-Xylene	16.27	106	497336	39.7138 ug/L	99
74)	o-Xylene	16.93	106	247076	19.9154 ug/L	100
75)	Styrene	16.97	104	416379	19.4253 ug/L	100
76)	Bromoform	17.55	173	82467	19.4800 ug/L	100
77)	Isopropylbenzene	17.43	105	635576	20.2610 ug/L	100
79)	1,1,2,2-Tetrachloroethane	17.70	83	133060	20.1064 ug/L	100
81)	1,2,3-Trichloropropane	17.92	110	39694	20.5819 ug/L	87
82)	trans-1,4-Dichloro-2-Buten	17.98	53	35946	15.3889 ug/L	96
83)	n-Propylbenzene	18.03	91	784520	20.6494 ug/L	99
84)	Bromobenzene	18.18	156	166638	18.7557 ug/L	99
85)	1,3,5-Trimethylbenzene	18.26	105	546203	19.9107 ug/L	100
86)	2-Chlorotoluene	18.35	91	509750	20.2104 ug/L	99
87)	4-Chlorotoluene	18.41	91	482625	20.0218 ug/L	100
88)	a-Methylstyrene	18.74	118	325662	21.3817 ug/L	99
89)	tert-Butylbenzene	18.81	134	123416	20.5302 ug/L	81
90)	1,2,4-Trimethylbenzene	18.87	105	561170	19.9706 ug/L	99
91)	sec-Butylbenzene	19.13	105	695031	20.9799 ug/L	100
92)	p-Isopropyltoluene	19.32	119	589207	20.5838 ug/L	99
93)	1,3-Dichlorobenzene	19.54	146	342581	20.2704 ug/L	100
94)	1,4-Dichlorobenzene	19.69	146	345487	20.1595 ug/L	99
95)	n-Butylbenzene	19.94	91	555996	20.4026 ug/L	99
96)	1,2-Dichlorobenzene	20.28	146	324870	20.3030 ug/L	99
97)	1,2-Dibromo-3-Chloropropan	21.47	75	23491	18.8948 ug/L	95
98)	1,2,4-Trichlorobenzene	22.82	180	226651	19.8201 ug/L	99
99)	Hexachlorobutadiene	23.02	225	103531	20.6474 ug/L	100
100)	Naphthalene	23.28	128	400342	17.7280 ug/L	100
101)	1,2,3-Trichlorobenzene	23.69	180	209391	19.4850 ug/L	99

(#) = qualifier out of range (m) = manual integration
6M139522.D 8260WTR.M Sun May 22 15:57:20 2016 Page 2

Data File : C:\MSDchem\1\data\052216\6M139522.D Vial: 7
Acq On : 22 May 2016 15:33 Operator: FJB
Sample : WG569796-03 20ug/L LCS2 8260 Inst : HPMS6
Misc : 1,1 STD76207 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 22 15:57 2016 Quant Results File: 8260WTR.RES

Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration



Data File : C:\MSDchem\1\data\052316\6M139553.D Vial: 12
Acq On : 23 May 2016 15:39 Operator: TMB
Sample : WG569852-03 20ug/L LCS2 STD 8260 Inst : HPMS6
Misc : 1,1 STD76254 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 16:03:41 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	11.57	96	646968	25.00	ug/L	0.00
57) Chlorobenzene-d5	16.06	117	474208	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	19.65	152	265551	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	10.38	111	170105	25.0466	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 100.20%			
43) 1,2-Dichloroethane-d4	11.11	65	183168	24.2145	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 96.84%			
58) Toluene-d8	13.85	98	575755	24.6706	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.68%			
80) p-Bromofluorobenzene	17.84	95	231429	23.5108	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 94.04%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.44	85	89604	8.7945	ug/L	97
3) Chloromethane	3.93	50	171535	12.2765	ug/L	99
4) Vinyl Chloride	4.16	62	140119	15.5946	ug/L	100
5) 1,3-Butadiene	4.20	54	87477	97.3404	ug/L	98
6) Bromomethane	5.06	94	74359	14.6391	ug/L	99
7) Chloroethane	5.23	64	101172	17.6230	ug/L	99
8) Trichlorofluoromethane	5.73	101	202735	17.7831	ug/L	98
9) Diethyl ether	6.29	59	608430	100.8195	ug/L	100
10) Isoprene	6.32	67	219167	38.5012	ug/L	98
11) Acrolein	6.54	56	105243	116.1194	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.54	101	123597	18.9803	ug/L	99
13) Acetone	6.66	43	37416	16.3126	ug/L	100
14) 1,1-Dichloroethene	6.88	61	197913	16.7752	ug/L	100
15) Tert-Butyl Alcohol	7.01	59	94791	161.9603	ug/L	96
16) Dimethyl Sulfide	7.17	62	201575	52.4354	ug/L	99
17) Iodomethane	7.43	142	177129	51.8376	ug/L	98
18) Methyl acetate	7.45	43	110039	19.9596	ug/L	99
19) Methylene Chloride	7.72	84	131279	18.8390	ug/L	99
20) Carbon Disulfide	7.77	76	443283	36.3127	ug/L	99
21) Acrylonitrile	7.92	53	48219	20.0072	ug/L	100
22) Methyl Tert Butyl Ether	7.95	73	353904	19.6946	ug/L	99
23) trans-1,2-Dichloroethene	8.21	96	125320	18.5766	ug/L	100
24) n-Hexane	8.28	57	214193	30.0910	ug/L	99
25) Diisopropyl ether	8.67	45	2839434	102.8981	ug/L	100
26) Vinyl Acetate	8.86	43	204581	21.4655	ug/L	99
27) 1,1-Dichloroethane	8.89	63	242710	18.0448	ug/L	100
28) Ethyl-Tert-Butyl ether	9.30	59	2136541	93.1370	ug/L	100
29) 2-Butanone	9.52	43	55360	18.8553	ug/L	99
30) Propionitrile	9.64	54	76006	94.3081	ug/L	99
31) 2,2-Dichloropropane	9.75	77	178430	18.0305	ug/L	100
32) cis-1,2-Dichloroethene	9.82	96	140743	18.8857	ug/L	100
33) Chloroform	10.06	83	228181	18.5251	ug/L	99
34) 1-Bromopropane	10.21	122	32474	32.3475	ug/L	98
35) Bromochloromethane	10.32	130	77706	19.0086	ug/L	99
36) Tetrahydrofuran	10.35	42	171406	91.0935	ug/L	99
38) 1,1,1-Trichloroethane	10.66	97	201153	18.6355	ug/L	99
39) Cyclohexane	10.69	56	269982	24.9761	ug/L	100
40) 1,1-Dichloropropene	10.87	75	167117	17.8255	ug/L	98
41) Tert-Amyl-Methyl ether	11.00	73	1750380	97.9506	ug/L	98
42) Carbon Tetrachloride	11.04	117	177905	18.5589	ug/L	98

(#) = qualifier out of range (m) = manual integration
6M139553.D 8260WTR.M Mon May 23 16:03:41 2016 Page 1

Data File : C:\MSDchem\1\data\052316\6M139553.D Vial: 12
Acq On : 23 May 2016 15:39 Operator: TMB
Sample : WG569852-03 20ug/L LCS2 STD 8260 Inst : HPMS6
Misc : 1,1 STD76254 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 16:03:41 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration
DataAcq Meth : 8260WTR

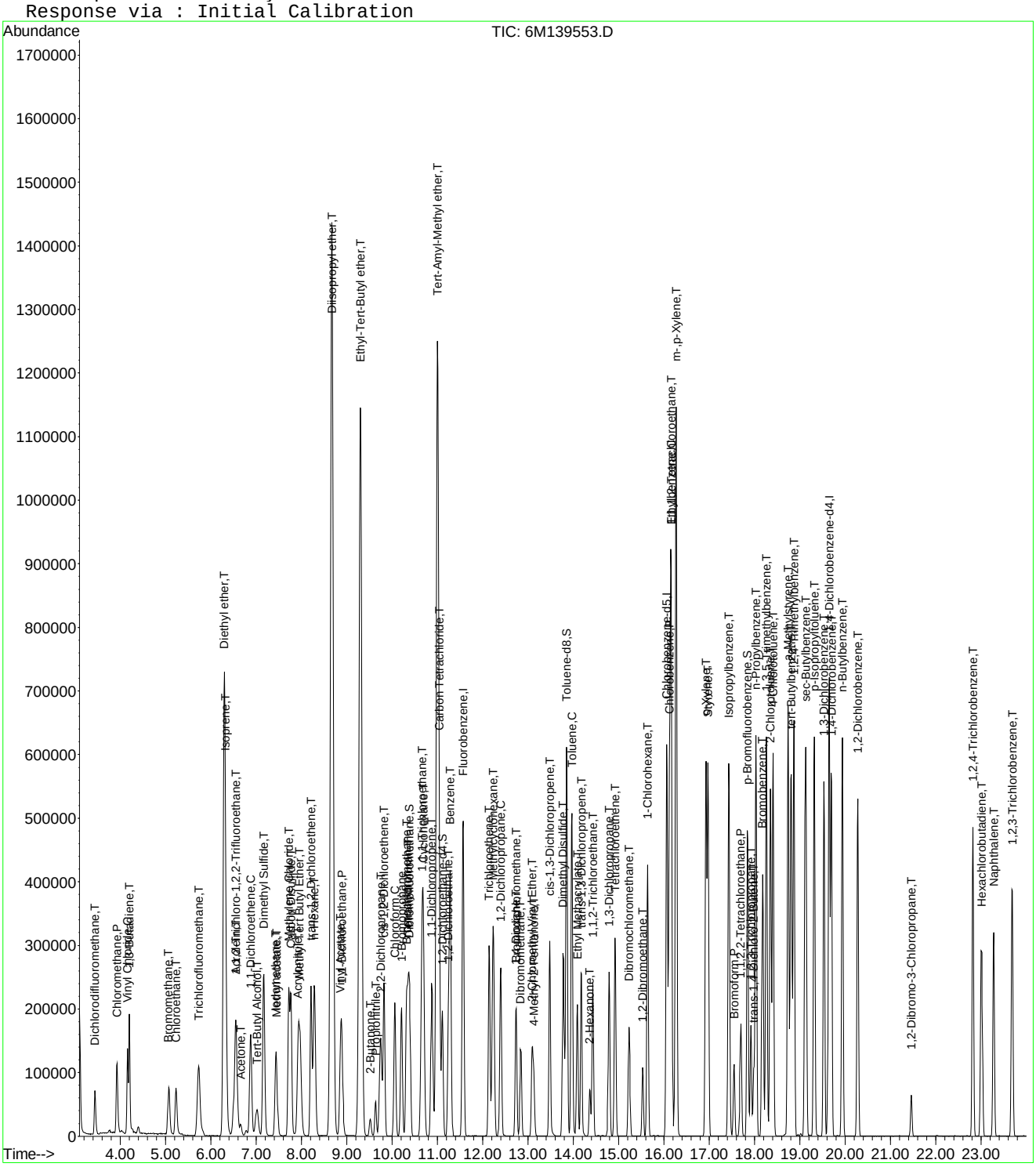
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45)	1,2-Dichloroethane	11.24	62	177697	18.7860	ug/L	99
46)	Benzene	11.28	78	506745	18.7603	ug/L	99
47)	Trichloroethene	12.14	130	134075	18.9767	ug/L	99
48)	Methylcyclohexane	12.23	83	216617	23.2846	ug/L	99
49)	1,2-Dichloropropane	12.40	63	144952	19.1214	ug/L	100
50)	1,4-Dioxane	12.73	88	8079	153.4686	ug/L	87
51)	Bromodichloromethane	12.74	83	177283	19.2221	ug/L	100
52)	Dibromomethane	12.83	93	71659	18.7613	ug/L	100
53)	2-Chloroethyl Vinyl Ether	13.09	63	70337	18.8879	ug/L	98
54)	4-Methyl-2-Pentanone	13.13	58	42177	18.5610	ug/L	99
55)	cis-1,3-Dichloropropene	13.48	75	219888	20.3347	ug/L	99
56)	Dimethyl Disulfide	13.77	79	114543	19.2502	ug/L	98
59)	Toluene	13.97	91	529491	18.8387	ug/L	99
60)	Ethyl Methacrylate	14.09	69	154615	18.9274	ug/L	96
62)	trans-1,3-Dichloropropene	14.18	75	178149	18.6207	ug/L	99
63)	1,1,2-Trichloroethane	14.43	97	102426	19.6671	ug/L	99
64)	2-Hexanone	14.36	43	80463	17.6394	ug/L	97
65)	1,3-Dichloropropane	14.79	76	188616	20.3682	ug/L	97
66)	Tetrachloroethene	14.92	166	133854	18.3010	ug/L	99
67)	Dibromochloromethane	15.23	129	127953	20.0425	ug/L	100
68)	1,2-Dibromoethane	15.53	107	100023	19.5818	ug/L	99
69)	1-Chlorohexane	15.64	91	184847	19.0986	ug/L	99
70)	Chlorobenzene	16.12	112	363696	19.5291	ug/L	100
71)	1,1,1,2-Tetrachloroethane	16.16	131	132627	19.5470	ug/L	99
72)	Ethylbenzene	16.16	106	190023	18.8597	ug/L	98
73)	m-,p-Xylene	16.27	106	470515	38.8392	ug/L	100
74)	o-Xylene	16.93	106	233304	19.4396	ug/L	98
75)	Styrene	16.97	104	399482	19.2656	ug/L	100
76)	Bromoform	17.55	173	77653	18.9615	ug/L	100
77)	Isopropylbenzene	17.43	105	598669	19.7281	ug/L	99
79)	1,1,2,2-Tetrachloroethane	17.70	83	127221	19.9365	ug/L	100
81)	1,2,3-Trichloropropane	17.92	110	38660	20.7887	ug/L	87
82)	trans-1,4-Dichloro-2-Buten	17.98	53	36738	16.3109	ug/L	95
83)	n-Propylbenzene	18.03	91	743832	20.3041	ug/L	99
84)	Bromobenzene	18.18	156	158662	18.5198	ug/L	99
85)	1,3,5-Trimethylbenzene	18.26	105	515845	19.5010	ug/L	100
86)	2-Chlorotoluene	18.35	91	473560	19.4714	ug/L	99
87)	4-Chlorotoluene	18.41	91	466841	20.0848	ug/L	99
88)	a-Methylstyrene	18.74	118	300652	20.4712	ug/L	99
89)	tert-Butylbenzene	18.81	134	114182	19.6981	ug/L	77
90)	1,2,4-Trimethylbenzene	18.87	105	534838	19.7390	ug/L	100
91)	sec-Butylbenzene	19.13	105	653691	20.4633	ug/L	99
92)	p-Isopropyltoluene	19.32	119	549403	19.9046	ug/L	99
93)	1,3-Dichlorobenzene	19.53	146	324113	19.8885	ug/L	100
94)	1,4-Dichlorobenzene	19.70	146	331743	20.0749	ug/L	100
95)	n-Butylbenzene	19.94	91	519773	19.7803	ug/L	99
96)	1,2-Dichlorobenzene	20.28	146	312206	20.2347	ug/L	100
97)	1,2-Dibromo-3-Chloropropan	21.46	75	22828	19.0420	ug/L	98
98)	1,2,4-Trichlorobenzene	22.82	180	212630	19.2831	ug/L	100
99)	Hexachlorobutadiene	23.02	225	94088	19.4596	ug/L	100
100)	Naphthalene	23.28	128	374163	17.1828	ug/L	100
101)	1,2,3-Trichlorobenzene	23.69	180	195259	18.8433	ug/L	99

(#) = qualifier out of range (m) = manual integration
6M139553.D 8260WTR.M Mon May 23 16:03:41 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\052316\6M139553.D Vial: 12
Acq On : 23 May 2016 15:39 Operator: TMB
Sample : WG569852-03 20ug/L LCS2 STD 8260 Inst : HPMS6
Misc : 1,1 STD76254 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 23 16:03 2016 Quant Results File: 8260WTR.RES

Method : C:\MSDCHEM\1\METHODS\8260WTR.M (RTE Integrator)
Title : 8260B/624_WATER SOP:MSV01 05-11-16 - HPMS6
Last Update : Thu May 12 12:57:41 2016
Response via : Initial Calibration



2.2 General Chromatography Data

2.2.1 6850 LC/MS Data

2.2.1.1 Summary Data

Microbac

Lab Report #: L16050972
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L16050972-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW19T-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 17:46
Collect Date:	05/13/2016 09:45	**Dilution:**	1	**File ID:**	1LM.LM35102
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.338	J	0.400	0.200	0.100

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16050972
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L16050972-02	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW19M-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 18:05
Collect Date:	05/13/2016 10:25	**Dilution:**	1	**File ID:**	1LM.LM35103
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16050972
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L16050972-03	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW19B-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 18:24
Collect Date:	05/13/2016 11:10	**Dilution:**	1	**File ID:**	1LM.LM35104
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16050972
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L16050972-04	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW17T-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 18:43
Collect Date:	05/13/2016 13:30	**Dilution:**	1	**File ID:**	1LM.LM35105
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.149	J	0.400	0.200	0.100

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16050972
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L16050972-05	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW17M-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 19:59
Collect Date:	05/13/2016 14:05	**Dilution:**	1	**File ID:**	1LM.LM35109
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.119	J	0.400	0.200	0.100

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16050972
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L16050972-06	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW17B-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 20:18
Collect Date:	05/13/2016 14:35	**Dilution:**	1	**File ID:**	1LM.LM35110
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16050972
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L16050972-07	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW13T-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 20:37
Collect Date:	05/13/2016 15:40	**Dilution:**	100	**File ID:**	1LM.LM35111
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	493		40.0	20.0	10.0

Certificate of Analysis

Sample #:	L16050972-08	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW13B-051316	**Prep Method:**	6850	**Prep Date:**	05/26/2016 13:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570422	**Analyst:**	JWR	**Run Date:**	05/26/2016 20:56
Collect Date:	05/13/2016 16:10	**Dilution:**	100	**File ID:**	1LM.LM35112
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	256		40.0	20.0	10.0

2.2.1.2 QC Summary Data

Example Calculation 6850 - Perchlorate

Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of internal standard (IS) = Rx/Ristd

x = amount ratio = concentration analyte/concentration internal standard (IS) = Cx / Cistd

m = slope from curve (1.45)

b = intercept from curve (-0.00242)

y = 1.45x + -0.00242

Step 2: Substitute the value for y

where y = 12600/226000 = 0.055752

Step 3: Solve for x

x = (y - b)/m = 0.0040119

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(x) = (5 ug/L)(0.040119) = 0.200594 ug/L

Example Calculation - Water:

Slope from curve, m:	1.45
Intercept from curve, b:	-0.00242
Response of analyte, Rx:	12600
Response of Internal Standard , Ristd:	226000
Concentration of IS, Cistd (ug/L):	5.00
Response Ratio:	0.05575
Amount Ratio:	0.04012
Analyte Concentration, Cx (ug/L) :	0.200594

Example Calculation - Soil:

Analyte Concentration, Cx (ug/L):	0.20059
Amount of soil extracted (g):	5.00
Final volume of extract (mL):	50.00
Percent solids (Pct wt.)	100
Concentration in soil (ug/kg):	2.005938

Perchlorate Conductivity Check
(perchlorate1)

Conductivity Probe Calibration Check: 1431 /1410 µs/cm

Working MCT Level: 10,000 µs/cm

Sample	Conductivity (µs/cm)	Pretreatment or Dilution Needed
WG570422-01 MCT	10,040.	
-02 Blank	0.23	
-03 LCS	0.52	
L16050972-01	1,208.	
-02	1,161.	
-03	1,181.	
-04	2,730.	
-05	2,320.	
-06	2,400.	
-07	2,600.	
-08	2,610.	
L16050978-08	446.	

Analyst: John Richards

Date/Time: 05/26/16 / 17:30

DCN#118738

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG567013 (soils)

Internal STD: COA18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD75510 LCS STD: STD75512 MS/MSD STD: STD75512

Comments: ICAL WG567320 : Alternate Source STD75512
Analytical Column : RPPX 5um (250x4.6mm)
K'Prime S/N RPPX250-02115

Samples L16041363(-05 and -10) were analyzed at dilutions based on their pre-run screen results.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM34686	WG567320-01 CCB	1	1		05/03/16 15:06
2	1LM.LM34687	WG567320-02 STD (0.1 ug/L)	1	1	STD75510	05/03/16 15:25
3	1LM.LM34688	WG567320-03 STD (0.2 ug/L)	1	1	STD75510	05/03/16 15:43
4	1LM.LM34689	WG567320-04 STD (0.5 ug/L)	1	1	STD75510	05/03/16 16:02
5	1LM.LM34690	WG567320-05 STD (1.0 ug/L)	1	1	STD75510	05/03/16 16:21
6	1LM.LM34691	WG567320-06 STD (2.0 ug/L)	1	1	STD75510	05/03/16 16:40
7	1LM.LM34692	WG567320-07 STD (5.0 ug/L)	1	1	STD75510	05/03/16 16:59
8	1LM.LM34693	WG567320-08 STD (10 ug/L)	1	1	STD75510	05/03/16 17:18
9	1LM.LM34694	WG567320-09 SSCV (1.0 ug/L)	1	1	STD75512	05/03/16 17:37
10	1LM.LM34695	WG567321-01 CCB	1	1		05/03/16 17:56
11	1LM.LM34696	WG567321-02 CCV (1.0ug/L)	1	1	STD75510	05/03/16 18:15
12	1LM.LM34697	WG567013-07 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 18:34
13	1LM.LM34698	WG567013-01 MCT (2.0ug/kg)	7	1	STD75512	05/03/16 18:53
14	1LM.LM34699	WG567013-02 BLANK	7	1		05/03/16 19:12
15	1LM.LM34700	WG567013-03 LCS (2.0ug/kg)	7	1	STD75512	05/03/16 19:31
16	1LM.LM34701	L16041363-07 RS	7	1		05/03/16 19:50
17	1LM.LM34702	L16041363-08 MS	7	1	STD75512	05/03/16 20:09
18	1LM.LM34703	L16041363-09 MSD	7	1	STD75512	05/03/16 20:28
19	1LM.LM34704	L16041363-01	7	1		05/03/16 20:46
20	1LM.LM34705	L16041363-02	7	1		05/03/16 21:05
21	1LM.LM34706	L16041363-03	7	1		05/03/16 21:24
22	1LM.LM34707	L16041363-04	7	1		05/03/16 21:43
23	1LM.LM34708	WG567321-03 CCV (1.0ug/L)	1	1	STD75510	05/03/16 22:02
24	1LM.LM34709	WG567013-08 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 22:21
25	1LM.LM34710	WG567321-04 CCB	1	1		05/03/16 22:40
26	1LM.LM34711	L16041363-05 (5x)	7	5		05/03/16 22:59
27	1LM.LM34712	L16041363-06	7	1		05/03/16 23:18
28	1LM.LM34713	L16041363-10 (5x)	7	5		05/03/16 23:37
29	1LM.LM34714	WG567321-05 CCV (1.0ug/L)	1	1	STD75510	05/03/16 23:56
30	1LM.LM34715	WG567013-09 MRL (2.0ug/kg)	7	1	STD75510	05/04/16 00:15
31	1LM.LM34716	WG567321-06 CCB	1	1		05/04/16 00:34

Comments

Page: 1 Approved: 05-MAY-16

Microbac

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT

Analyst1: JWR Analyst2: NA

Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254

Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA

Analytical WG567013 (soils)

Internal STD: COA18071 Surrogate STD: NA STD75510 (05/03/2016)

CCV STD: STD75510 LCS STD: STD75512 STD75512

Comments

Seq.	Rerun	Dil.	Reason	Analytes
17				
	L16041363-08 MS : The MS %Rec is 129%. This is above the advisory limit of 120%. The parent sample to this MS had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MS %Rec would be 93.9%.			
18				
	L16041363-09 MSD : The MSD %Rec is 131%. This is above the advisory limit of 120%. The parent sample to this MSD had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MSD %Rec would be 95.4%.			

Page: 2 Approved: 05-MAY-16

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 052616_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG570422 (waters)
Internal STD: COA18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD75510 LCS STD: STD75512 MS/MSD STD: STD75512

Comments: Samples L16050972(-07,-08) were analyzed at dilutions based on their pre-run screen results.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM35093	WG570423-01 CCB	1	1		05/26/16 14:56
2	1LM.LM35094	WG570423-02 CCV (1.0ug/L)	1	1	STD75510	05/26/16 15:15
3	1LM.LM35095	WG570422-07 MRL (0.2ug/L)	1	1	STD75510	05/26/16 15:34
4	1LM.LM35096	WG570422-01 MCT (0.2ug/L)	1	1	STD75512	05/26/16 15:53
5	1LM.LM35097	WG570422-02 BLANK	1	1		05/26/16 16:12
6	1LM.LM35098	WG570422-03 LCS (0.2ug/L)	1	1	STD75512	05/26/16 16:30
7	1LM.LM35099	L16050978-08 REF	1	1		05/26/16 16:49
8	1LM.LM35100	L16050978-08 MS	1	1	STD75512	05/26/16 17:08
9	1LM.LM35101	L16050978-08 MSD	1	1	STD75512	05/26/16 17:27
10	1LM.LM35102	L16050972-01	1	1		05/26/16 17:46
11	1LM.LM35103	L16050972-02	1	1		05/26/16 18:05
12	1LM.LM35104	L16050972-03	1	1		05/26/16 18:24
13	1LM.LM35105	L16050972-04	1	1		05/26/16 18:43
14	1LM.LM35106	WG570423-03 CCV (1.0ug/L)	1	1	STD75510	05/26/16 19:02
15	1LM.LM35107	WG570422-08 MRL (0.2ug/L)	1	1	STD75510	05/26/16 19:21
16	1LM.LM35108	WG570423-04 CCB	1	1		05/26/16 19:40
17	1LM.LM35109	L16050972-05	1	1		05/26/16 19:59
18	1LM.LM35110	L16050972-06	1	1		05/26/16 20:18
19	1LM.LM35111	L16050972-07 (100x)	1	100		05/26/16 20:37
20	1LM.LM35112	L16050972-08 (100x)	1	100		05/26/16 20:56
21	1LM.LM35113	WG570423-05 CCV (1.0ug/L)	1	1	STD75510	05/26/16 21:14
22	1LM.LM35114	WG570422-09 MRL (0.2ug/L)	1	1	STD75510	05/26/16 21:33
23	1LM.LM35115	WG570423-06 CCB	1	1		05/26/16 21:52

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1 Approved: 27-MAY-16

Microbac Laboratories Inc.

Data Checklist

Date: 03-MAY-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: WG567320
Runlog ID: 74891
Analytical Workgroups: L16041363 (SOILS)

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	WTD

Primary Reviewer:
04-MAY-2016
John Richards

Secondary Reviewer:
05-MAY-2016
Wade D

CHECKLIST1 - Modified 03/05/2008
Generated: MAY-05-2016 16:23:46

Microbac

Microbac Laboratories Inc.

Data Checklist

Date: 26-MAY-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: NA
Runlog ID: 75350
Analytical Workgroups: L16050972, 0978

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	MCT-ONLY
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	WTD

Primary Reviewer:
27-MAY-2016

John Richards

Secondary Reviewer:
27-MAY-2016

Wade D

CHECKLIST1 - Modified 03/05/2008
Generated: MAY-27-2016 14:05:11

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6850 AAB#: WG570422

Login Number: L16050972

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW19T-051316	01	05/13/16					05/26/2016	13.2	28		05/26/16	.2	28	
50WW19M-051316	02	05/13/16					05/26/2016	13.1	28		05/26/16	.2	28	
50WW19B-051316	03	05/13/16					05/26/2016	13.1	28		05/26/16	.2	28	
50WW17T-051316	04	05/13/16					05/26/2016	13	28		05/26/16	.2	28	
50WW17M-051316	05	05/13/16					05/26/2016	13	28		05/26/16	.3	28	
50WW17B-051316	06	05/13/16					05/26/2016	13	28		05/26/16	.3	28	
50WW13T-051316	07	05/13/16					05/26/2016	12.9	28		05/26/16	.3	28	
50WW13B-051316	08	05/13/16					05/26/2016	12.9	28		05/26/16	.3	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 4784137
Report generated 05/27/2016 14:41

METHOD BLANK SUMMARY

Login Number: L16050972
Work Group: WG570422
Blank File ID: 1LM.LM35097
Blank Sample ID: WG570422-02
Prep Date: 05/26/16 13:30
Instrument ID: LCMS1
Analyzed Date: 05/26/16 16:12
Method: 6850
Analyst: JWR

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
QCMRL	WG570422-07	1LM.LM35095	05/26/16 15:34	01
MCT	WG570422-01	1LM.LM35096	05/26/16 15:53	01
LCS	WG570422-03	1LM.LM35098	05/26/16 16:30	01
50WW19T-051316	L16050972-01	1LM.LM35102	05/26/16 17:46	01
50WW19M-051316	L16050972-02	1LM.LM35103	05/26/16 18:05	01
50WW19B-051316	L16050972-03	1LM.LM35104	05/26/16 18:24	01
50WW17T-051316	L16050972-04	1LM.LM35105	05/26/16 18:43	01
QCMRL	WG570422-08	1LM.LM35107	05/26/16 19:21	01
50WW17M-051316	L16050972-05	1LM.LM35109	05/26/16 19:59	01
50WW17B-051316	L16050972-06	1LM.LM35110	05/26/16 20:18	01
50WW13T-051316	L16050972-07	1LM.LM35111	05/26/16 20:37	DL01
50WW13B-051316	L16050972-08	1LM.LM35112	05/26/16 20:56	DL01
QCMRL	WG570422-09	1LM.LM35114	05/26/16 21:33	01

Report Name: BLANK_SUMMARY
PDF File ID: 4784138
Report generated 05/27/2016 14:41

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L16050972 Prep Date: 05/26/16 13:30 Sample ID: WG570422-02
Instrument ID: LCMS1 Run Date: 05/26/16 16:12 Prep Method: 6850
File ID: 1LM.LM35097 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570422 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Perchlorate	0.100	0.400	0.100	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 4784139
27-MAY-2016 14:41

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16050972 Run Date: 05/26/2016 Sample ID: WG570422-03
Instrument ID: LCMS1 Run Time: 16:30 Prep Method: 6850
File ID: 1LM.LM35098 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570422 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD75512 Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Perchlorate	0.200	0.210	105	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 4784140
Report generated: 05/27/2016 14:41

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L16050972
Analytical Method: 6850
ICAL Workgroup: WG567320

Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Perchlorate		1.699	4.81	1.00000	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 4784586
Report generated 05/27/2016 14:41

Login Number: L16050972
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-02			WG567320-03			WG567320-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	0.100	17900.0000	1.792	0.200	34100.0000	1.718	0.500	82200.0000	1.637

INT_CAL - Modified 03/06/2008
PDF File ID: 4784586
Report generated 05/27/2016 14:41

Login Number: L16050972
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-05			WG567320-06			WG567320-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	1.00	168000.000	1.697	2.00	330000.000	1.672	5.00	810000.000	1.695

INT_CAL - Modified 03/06/2008
PDF File ID: 4784586
Report generated 05/27/2016 14:41

Login Number: L16050972
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-08		
	CONC	RESP	RF
Perchlorate	10.0	1530000.00	1.680

INT_CAL - Modified 03/06/2008
PDF File ID: 4784586
Report generated 05/27/2016 14:41

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L16050972 Run Date: 05/03/2016 Sample ID: WG567320-09
Instrument ID: LCMS1 Run Time: 17:37 Method: 6850
File ID: 1LM.LM34694 Analyst: JWR QC Key: DOD4
ICal Workgroup: WG567320 Cal ID: LCMS1 - 03-MAY-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Perchlorate		1.00	0.985	ug/L	1.66	1.50	15	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 4784590
Report generated 05/27/2016 14:41

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16050972	Run Date:	05/26/2016	Sample ID:	WG570423-01
Instrument ID:	LCMS1	Run Time:	14:56	Method:	6850
File ID:	1LM.LM35093	Analyst:	JWR	Units:	ug/L
Workgroup (AAB#):	WG570422	Cal ID:	LCMS1 - 03-MAY-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4784143
Report generated 05/27/2016 14:41

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16050972	Run Date:	05/26/2016	Sample ID:	WG570423-04
Instrument ID:	LCMS1	Run Time:	19:40	Method:	6850
File ID:	1LM.LM35108	Analyst:	JWR	Units:	ug/L
Workgroup (AAB#):	WG570422	Cal ID:	LCMS1 - 03-MAY-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4784143
Report generated 05/27/2016 14:41

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16050972	Run Date:	05/26/2016	Sample ID:	WG570423-06
Instrument ID:	LCMS1	Run Time:	21:52	Method:	6850
File ID:	1LM.LM35115	Analyst:	JWR	Units:	ug/L
Workgroup (AAB#):	WG570422	Cal ID:	LCMS1 - 03-MAY-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4784143
Report generated 05/27/2016 14:41

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16050972 Run Date: 05/26/2016 Sample ID: WG570423-02

Instrument ID: LCMS1 Run Time: 15:15 Method: 6850

File ID: 1LM.LM35094 Analyst: JWR QC Key: DOD4

Workgroup (AAB#): WG570422 Cal ID: LCMS1 - 03-MAY-16

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	1.02	ug/L	1.72	2.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 4784142

Report generated 05/27/2016 14:41

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16050972 Run Date: 05/26/2016 Sample ID: WG570423-03

Instrument ID: LCMS1 Run Time: 19:02 Method: 6850

File ID: 1LM.LM35106 Analyst: JWR QC Key: DOD4

Workgroup (AAB#): WG570422 Cal ID: LCMS1 - 03-MAY-16

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.996	ug/L	1.68	0.400	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 4784142

Report generated 05/27/2016 14:41

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16050972 Run Date: 05/26/2016 Sample ID: WG570423-05

Instrument ID: LCMS1 Run Time: 21:14 Method: 6850

File ID: 1LM.LM35113 Analyst: JWR QC Key: DOD4

Workgroup (AAB#): WG570422 Cal ID: LCMS1 - 03-MAY-16

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	1.01	ug/L	1.71	1.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 4784142

Report generated 05/27/2016 14:41

Login Number: L16050972 Run Date: 05/26/2016 Sample ID: WG570422-07
Instrument ID: LCMS1 Run Time: 15:34 Prep Method: 6850
File ID: 1LM.LM35095 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570422 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.200	100	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4784141
Report generated 05/27/2016 14:41

Login Number: L16050972 Run Date: 05/26/2016 Sample ID: WG570422-08
Instrument ID: LCMS1 Run Time: 19:21 Prep Method: 6850
File ID: 1LM.LM35107 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570422 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.203	102	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4784141
Report generated 05/27/2016 14:41

Login Number: L16050972 Run Date: 05/26/2016 Sample ID: WG570422-09
Instrument ID: LCMS1 Run Time: 21:33 Prep Method: 6850
File ID: 1LM.LM35114 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570422 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.200	100	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4784141
Report generated 05/27/2016 14:41

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number:L16050972
Instrument ID:LCMS1
Workgroup (AAB#):WG570422

ICAL CCV Number:WG567320-05
CAL ID: LCMS1-03-MAY-16
Matrix:WATER

Sample Number	Dilution	Tag	IS-1
WG567320	NA	NA	489000
Upper Limit	NA	NA	733500
Lower Limit	NA	NA	244500
L16050972-01	1.00	01	427000
L16050972-02	1.00	01	437000
L16050972-03	1.00	01	435000
L16050972-04	1.00	01	426000
L16050972-05	1.00	01	440000
L16050972-06	1.00	01	445000
L16050972-07	100	DL01	543000
L16050972-08	100	DL01	571000
WG570422-02	1.00	01	487000
WG570422-03	1.00	01	497000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 4784144
Report generated 05/27/2016 14:42

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-01
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35102
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 17:46	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	49100	18000	2.73	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-02
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35103
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 18:05	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	13700	4910	2.79	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-03
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35104
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 18:24	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	2130	630	3.38	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-04
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35105
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 18:43	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	21800	7430	2.93	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-05
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35109
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 19:59	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	18200	6140	2.96	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Microbac

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-06
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35110
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 20:18	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	13800	4460	3.09	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-07
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35111
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 20:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	901000	304000	2.96	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	L16050972-08
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35112
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 20:56	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	492000	165000	2.98	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34687
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 15:25	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	17900	6950	2.58	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34688
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 15:43	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34100	11900	2.87	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34689
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 16:02	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	82200	29400	2.80	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34690
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 16:21	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	168000	56600	2.97	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34691
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 16:40	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	330000	108000	3.06	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-07
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34692
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 16:59	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	810000	269000	3.01	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-08
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34693
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 17:18	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	1530000	512000	2.99	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG567320-09
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34694
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/03/2016 17:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	169000	56300	3.00	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	WG570422-01
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35096
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 15:53	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	31800	11600	2.74	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	WG570422-02
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35097
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 16:12	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	WG570422-03
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35098
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 16:30	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	35700	12600	2.83	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	WG570422-07
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35095
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 15:34	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34100	12000	2.84	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	WG570422-08
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35107
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 19:21	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	40100	13700	2.93	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**	6850	**Samplenum:**	WG570422-09
Instrument:	LCMS1	**Prep Date:**	05/26/2016 13:30	**File ID:**	1LM.LM35114
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 21:33	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	40400	13900	2.91	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG570423-01
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35093
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 14:56	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG570423-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35094
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 15:15	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	164000	58500	2.80	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG570423-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35106
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 19:02	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	186000	63600	2.92	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG570423-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35108
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 19:40	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG570423-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35113
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 21:14	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	206000	68600	3.00	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16050972	**Prep Method:**		**Samplenum:**	WG570423-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35115
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570422	**Analysis Date:**	05/26/2016 21:52	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	572	0.000	2.3	3.8	*

2.2.1.3 Sample Data

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Data File	LM35102.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 5:46:43 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

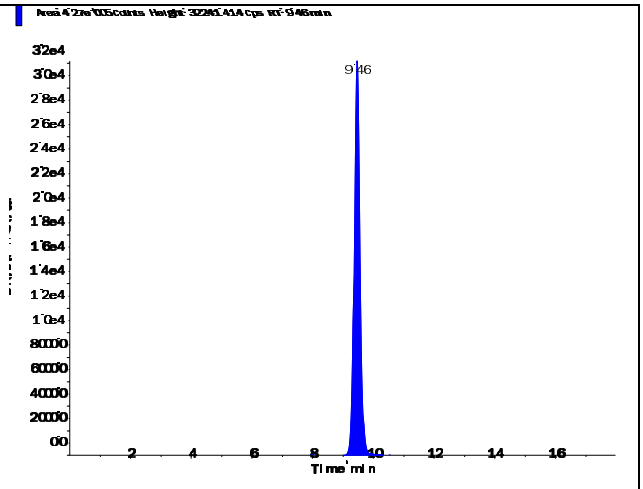
Sample Name	L16050972-01	**Injection Vial**	10.00
Data File	LM35102.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 5:46:43 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-01	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

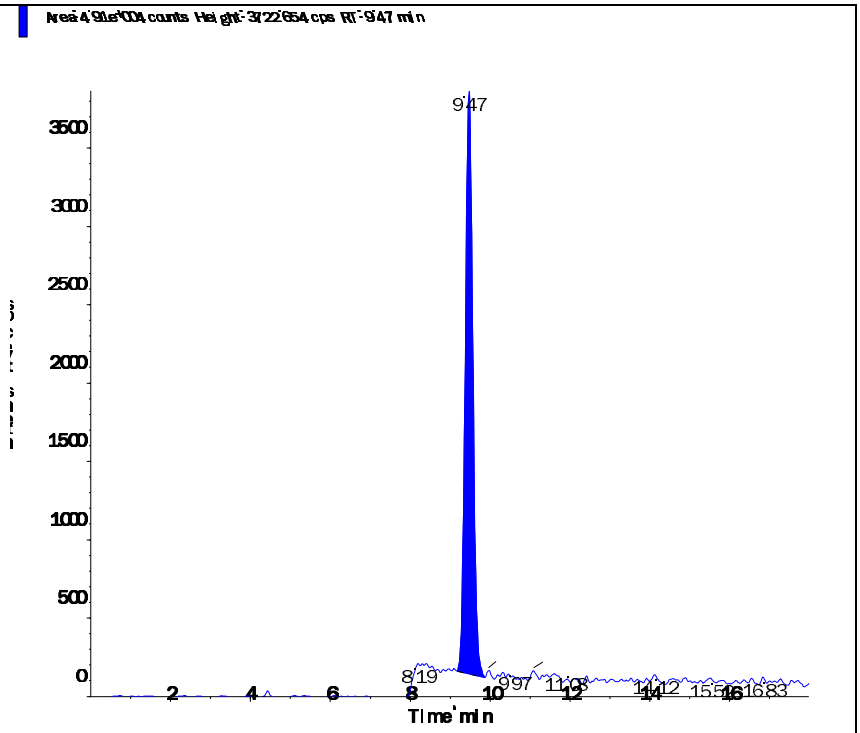
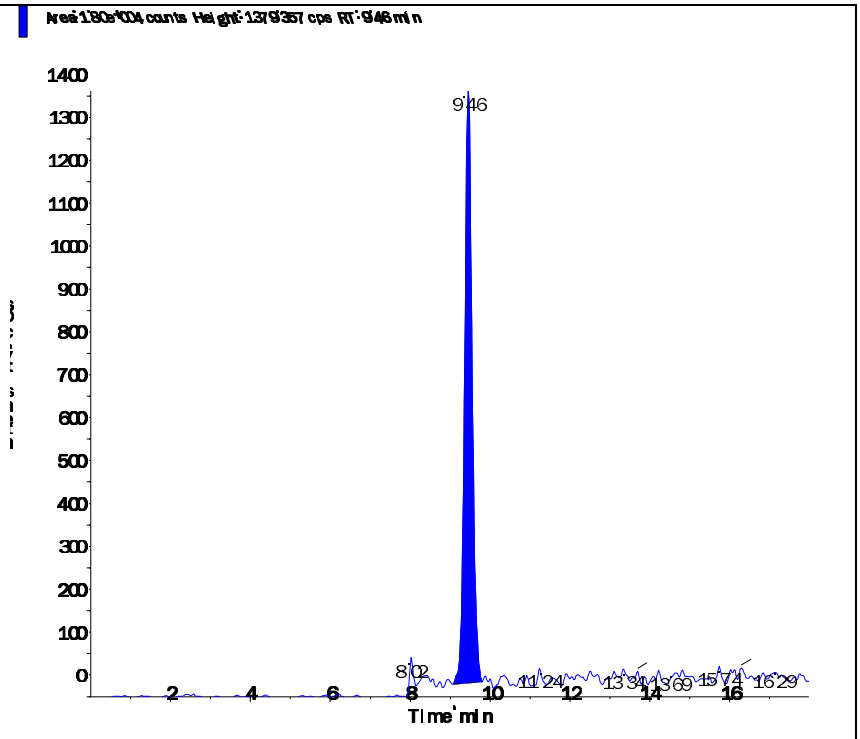
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.270e+05	9.46	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	4.910e+04	9.47	N/A	0.338
Perchlorate conf	1.800e+04	9.46	N/A	0.358

O18LP (Internal Standard)

RT (Exp. RT): 9.46(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.47 (9.84) min Calculated conc: 0.338 ng/ml Area Ratio: 0.115 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.46 (9.84) min Calculated conc: 0.358 ng/ml Area Ratio: 0.042 Sample Type: (Unknown)	

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Data File	LM35103.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 6:05:38 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

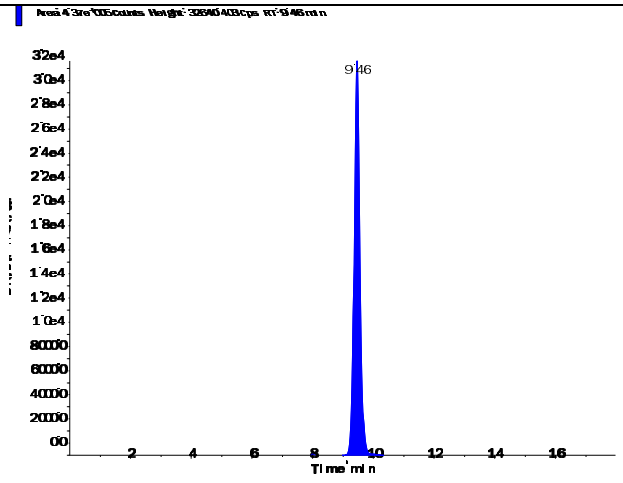
Sample Name	L16050972-02	**Injection Vial**	11.00
Data File	LM35103.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 6:05:38 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-02	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

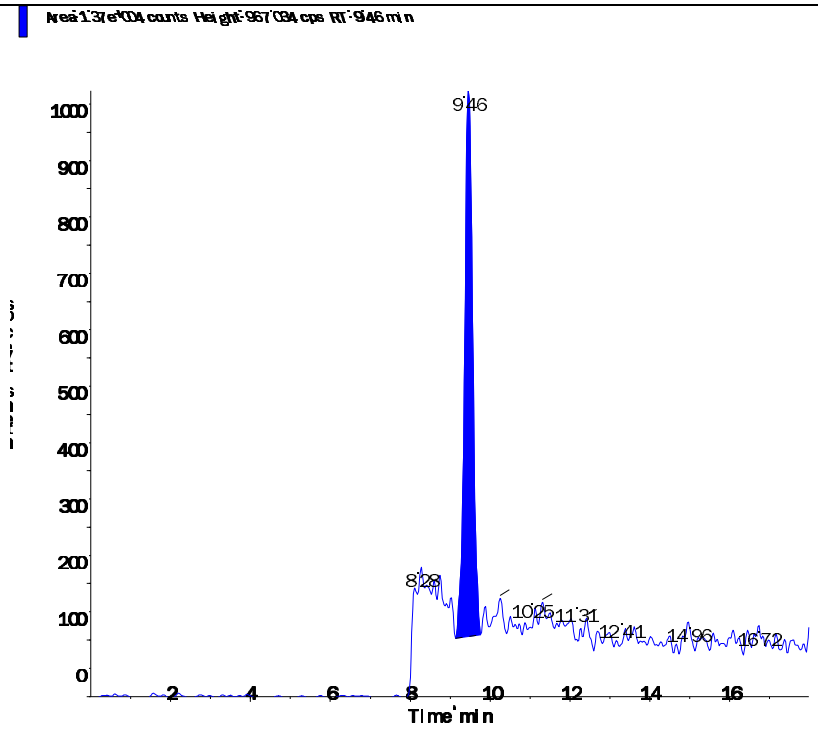
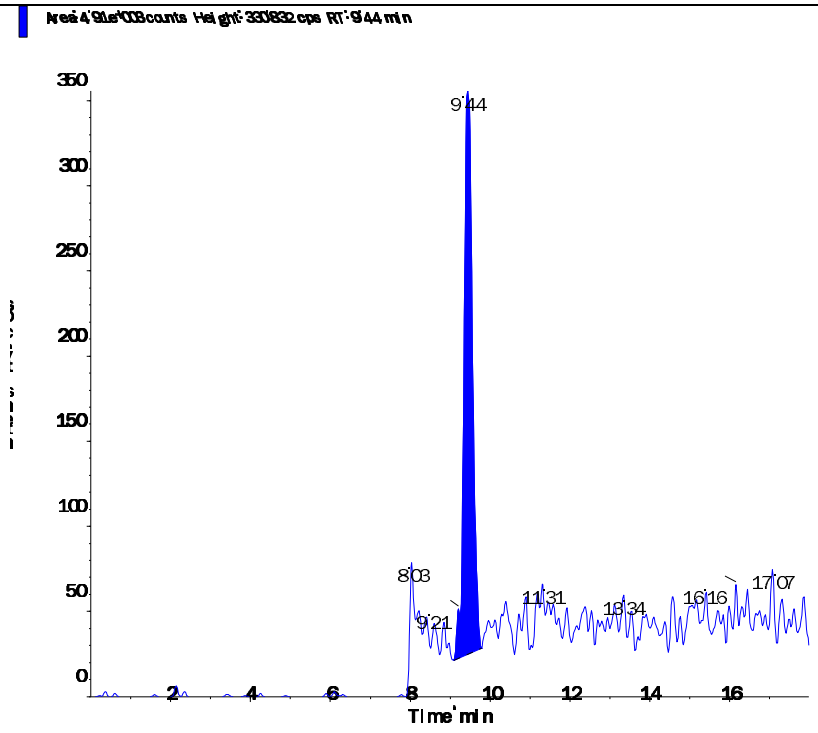
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.370e+05	9.46	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.370e+04	9.46	N/A	0.0891
Perchlorate conf	4.910e+03	9.44	N/A	0.0801

O18LP (Internal Standard)

RT (Exp. RT): 9.46(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.46 (9.84) min Calculated conc: 0.0891 ng/ml Area Ratio: 0.031 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.44 (9.84) min Calculated conc: 0.0801 ng/ml Area Ratio: 0.011 Sample Type: (Unknown)	

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Data File	LM35104.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 6:24:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

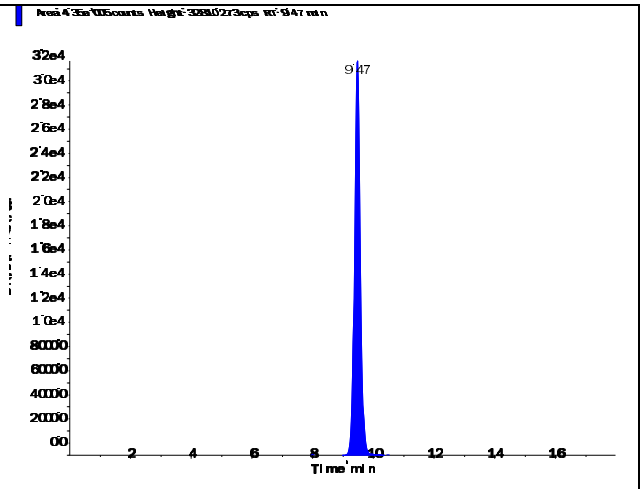
Sample Name	L16050972-03	**Injection Vial**	12.00
Data File	LM35104.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 6:24:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-03	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

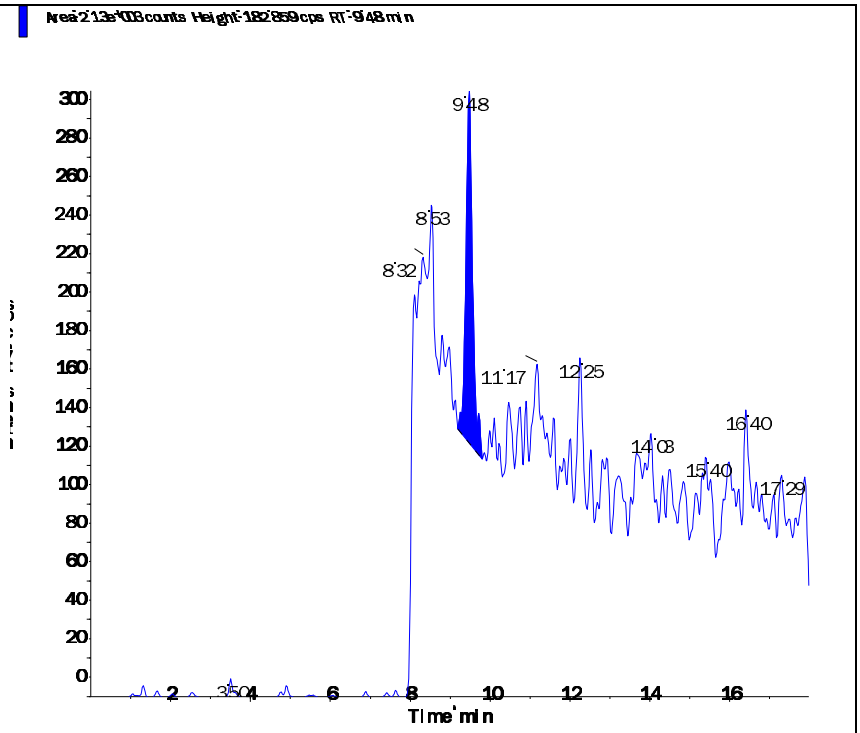
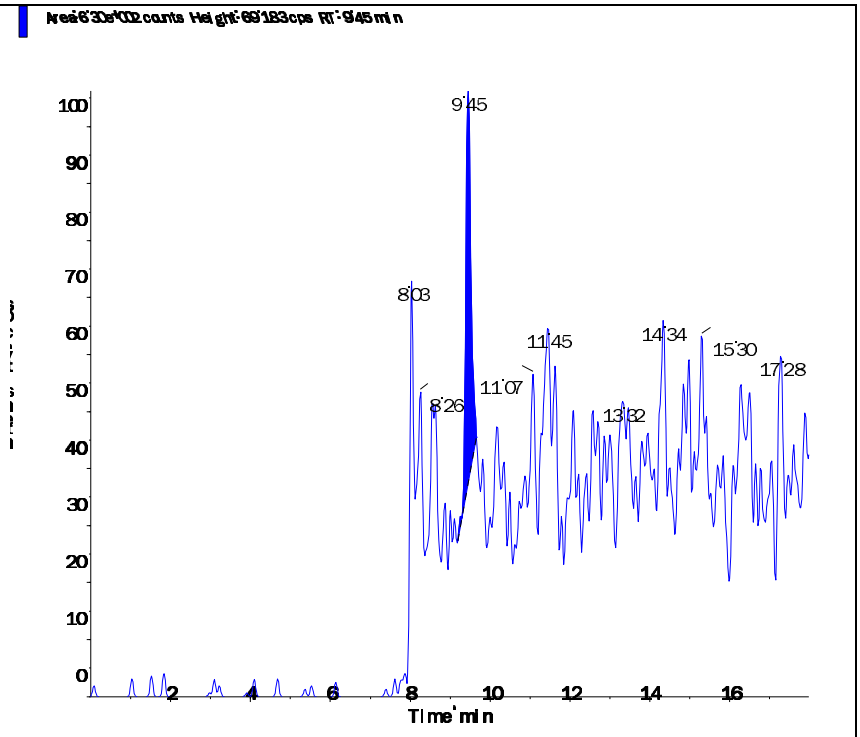
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.350e+05	9.47	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.130e+03	9.48	N/A	0.0108
Perchlorate conf	6.300e+02	9.45	N/A	< 0

O18LP (Internal Standard)

RT (Exp. RT): 9.47(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.48 (9.84) min Calculated conc: 0.0108 ng/ml Area Ratio: 0.005 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.45 (9.84) min Calculated conc: < 0 ng/ml Area Ratio: 0.001 Sample Type: (Unknown)	

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Data File	LM35105.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 6:43:30 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

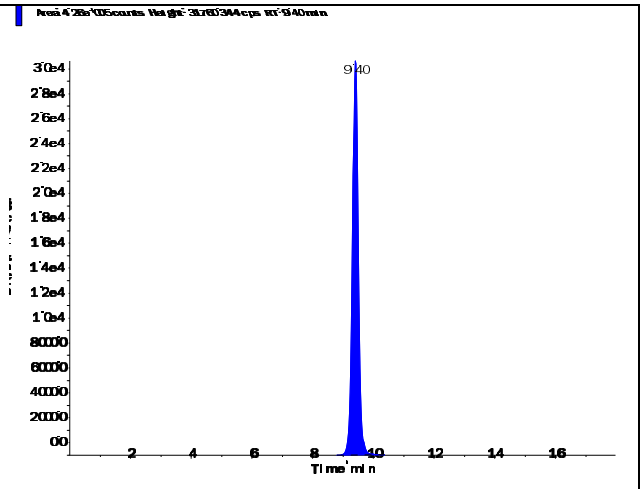
Sample Name	L16050972-04	**Injection Vial**	13.00
Data File	LM35105.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 6:43:30 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-04	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.260e+05	9.40	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.180e+04	9.41	N/A	0.149
Perchlorate conf	7.430e+03	9.42	N/A	0.136

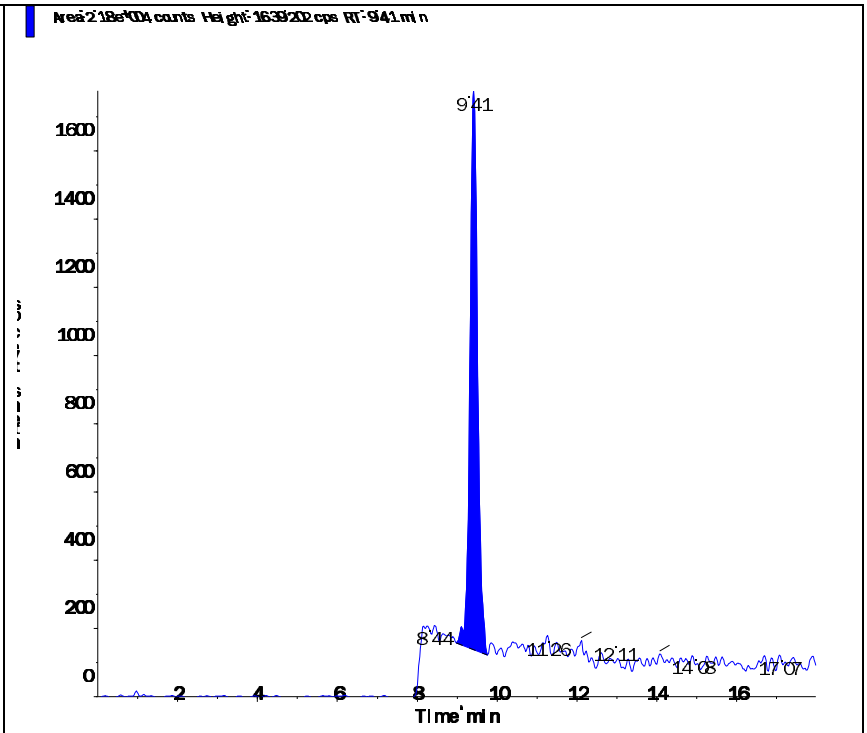
O18LP (Internal Standard)

RT (Exp. RT): 9.40(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



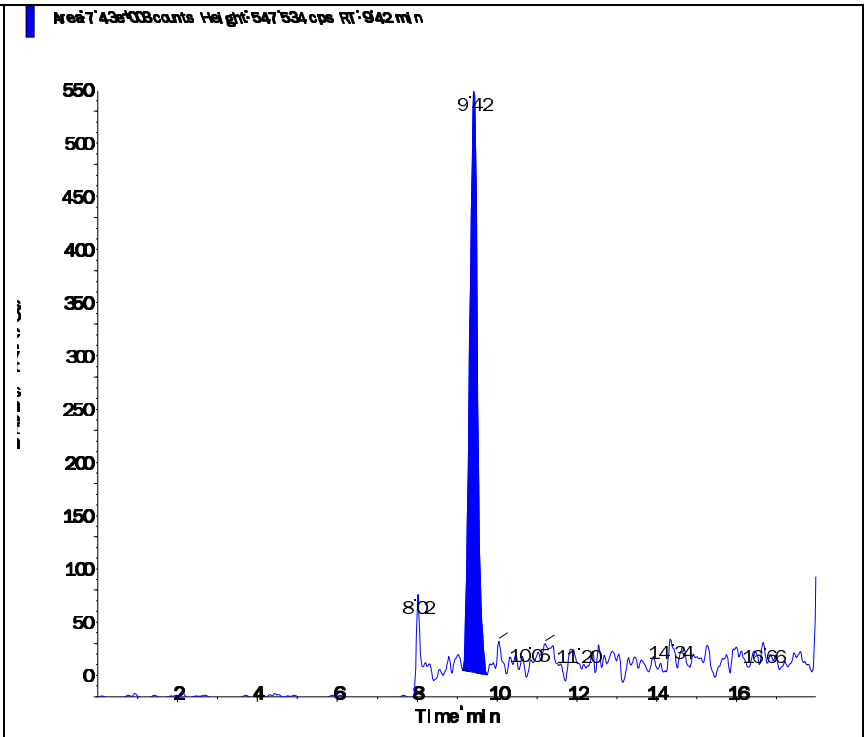
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	9.41 (9.84) min
Calculated conc:	0.149 ng/ml
Area Ratio:	0.051
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	9.42 (9.84) min
Calculated conc:	0.136 ng/ml
Area Ratio:	0.017
Sample Type:	(Unknown)



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Data File	LM35109.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 7:59:13 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

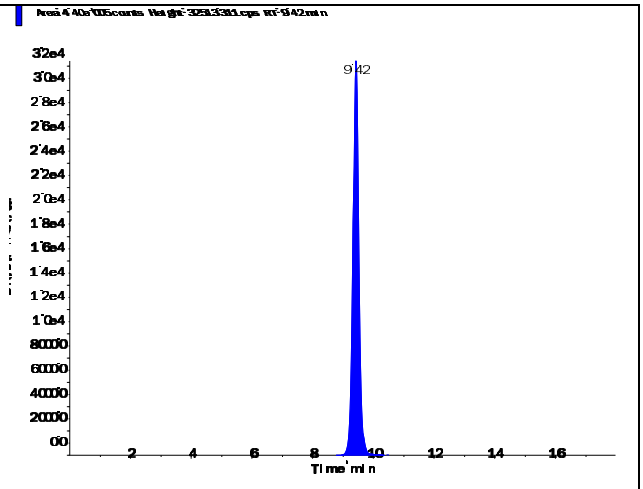
Sample Name	L16050972-05	**Injection Vial**	14.00
Data File	LM35109.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 7:59:13 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-05	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

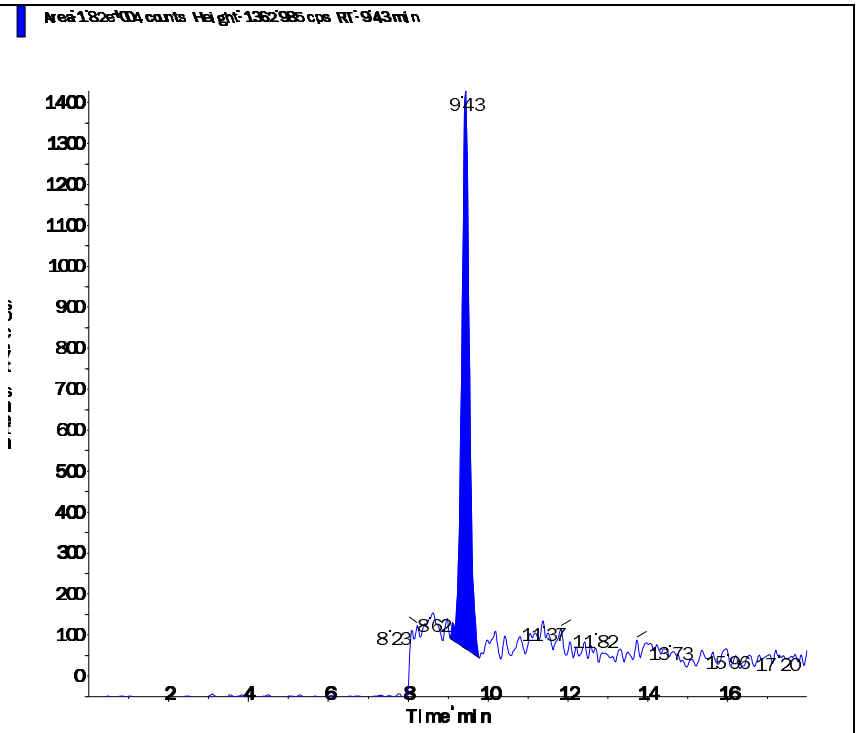
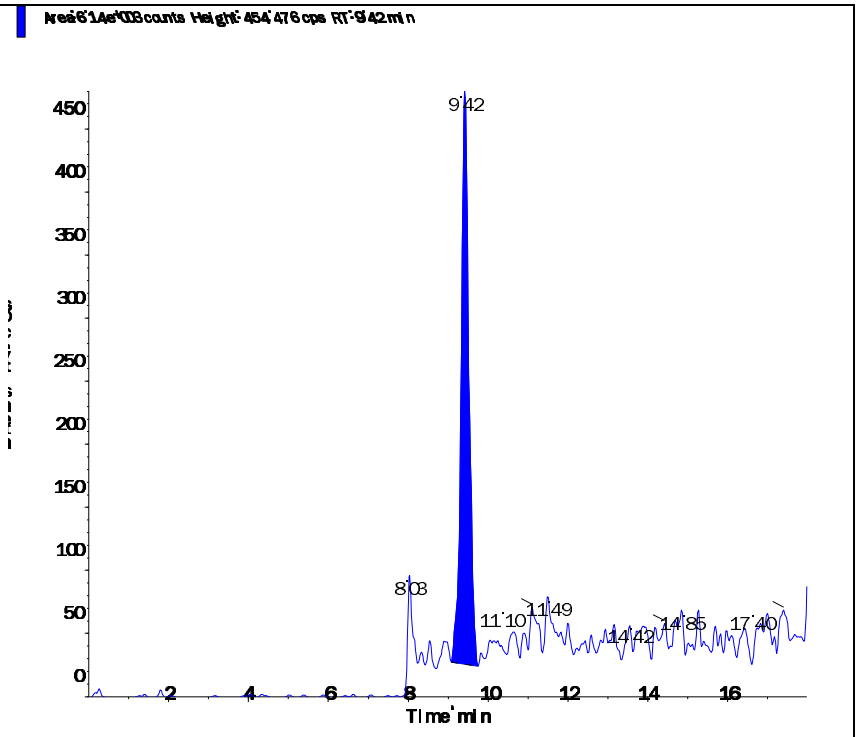
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.400e+05	9.42	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.820e+04	9.43	N/A	0.119
Perchlorate conf	6.140e+03	9.42	N/A	0.105

O18LP (Internal Standard)

RT (Exp. RT): 9.42(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.43 (9.84) min Calculated conc: 0.119 ng/ml Area Ratio: 0.041 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.42 (9.84) min Calculated conc: 0.105 ng/ml Area Ratio: 0.014 Sample Type: (Unknown)	

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Data File	LM35110.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 8:18:10 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

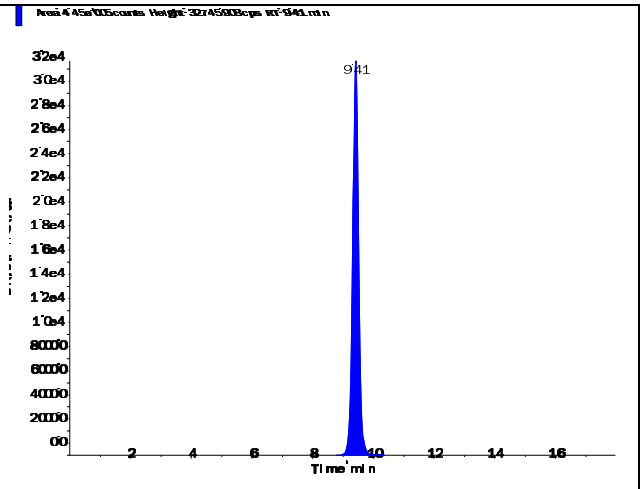
Sample Name	L16050972-06	**Injection Vial**	15.00
Data File	LM35110.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 8:18:10 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-06	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

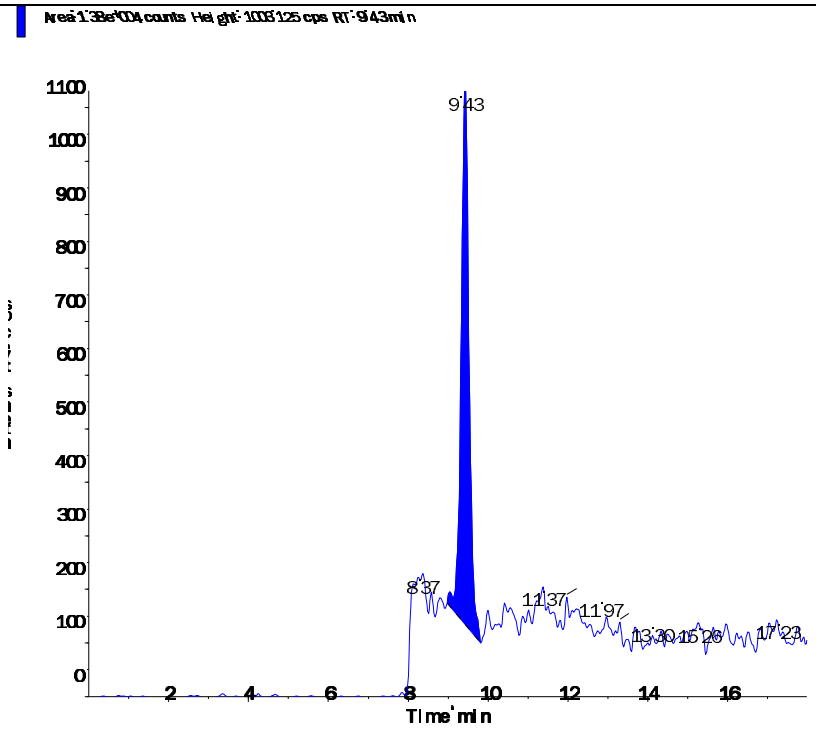
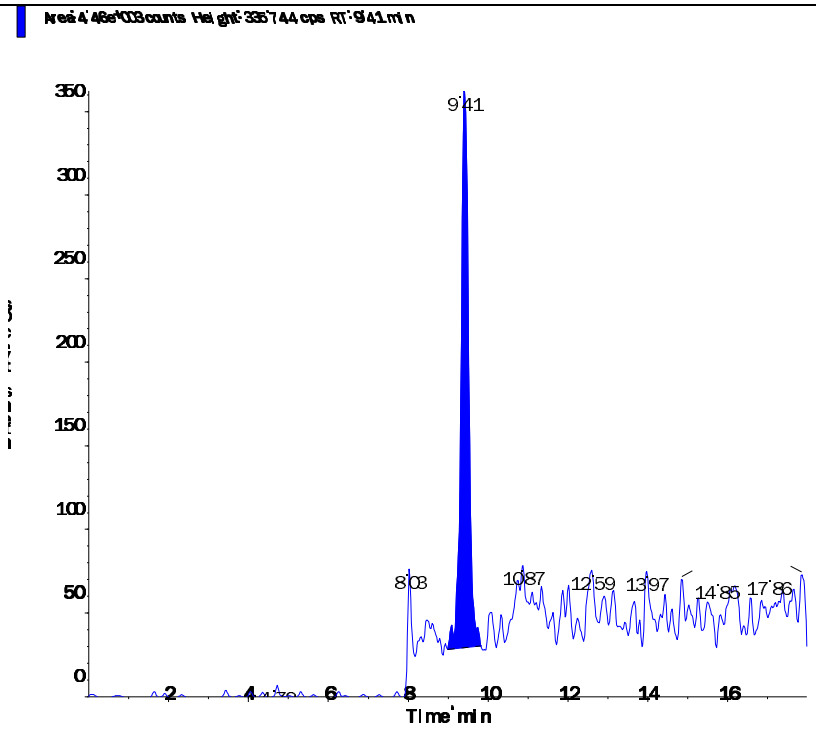
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.450e+05	9.41	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.380e+04	9.43	N/A	0.0888
Perchlorate conf	4.460e+03	9.41	N/A	0.0694

O18LP (Internal Standard)

RT (Exp. RT): 9.41(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.43 (9.84) min Calculated conc: 0.0888 ng/ml Area Ratio: 0.031 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.41 (9.84) min Calculated conc: 0.0694 ng/ml Area Ratio: 0.01 Sample Type: (Unknown)	

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Data File	LM35111.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 8:37:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

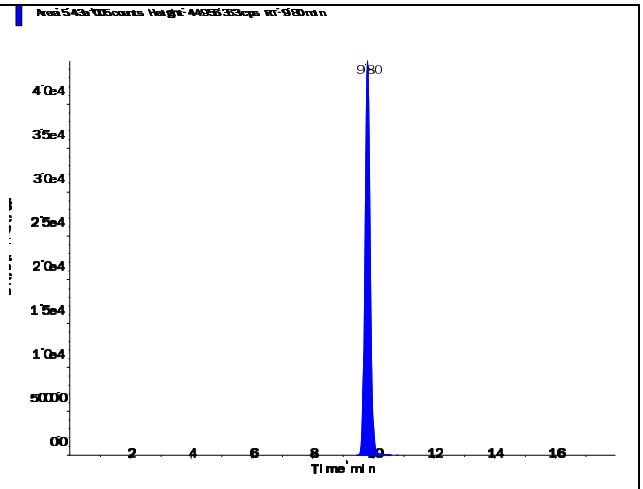
Sample Name	L16050972-07 (100x)	**Injection Vial**	16.00
Data File	LM35111.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 8:37:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-07	**Dilution Factor**	1.00
Sample Comment	1,100 (screened)	**Weight to Volume**	0.00

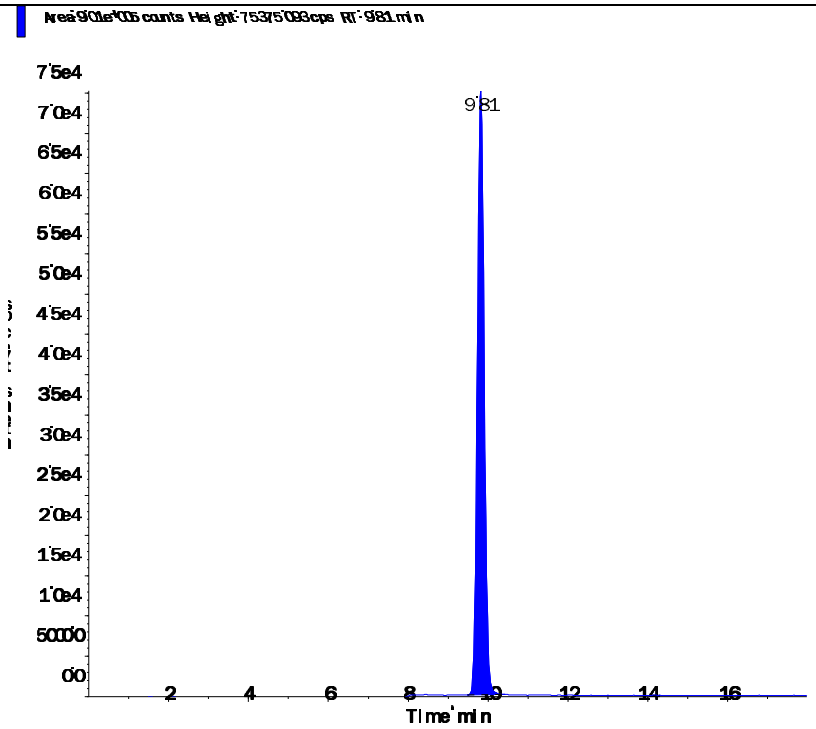
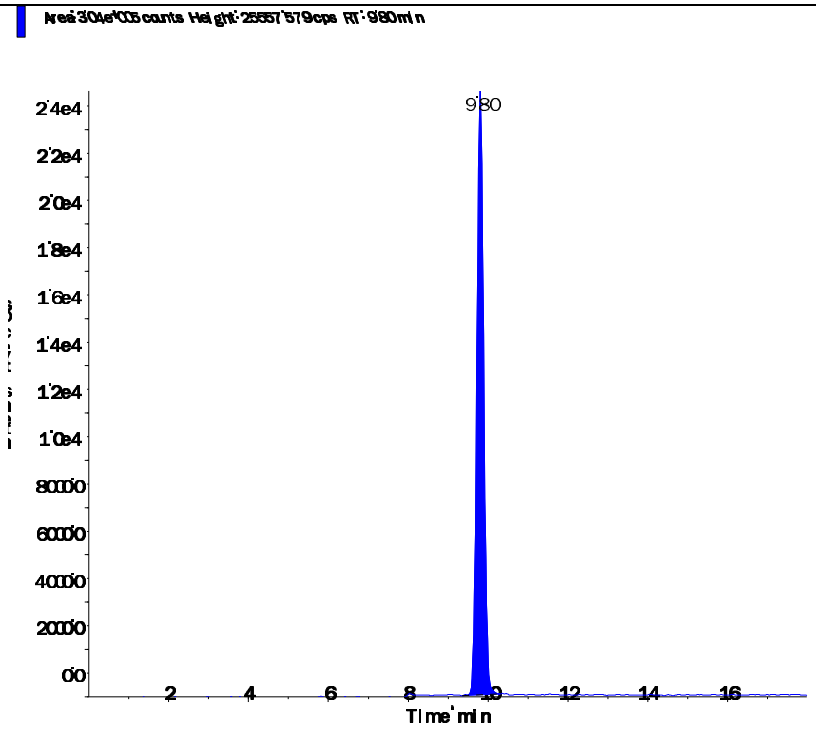
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.430e+05	9.80	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	9.010e+05	9.81	N/A	4.93
Perchlorate conf	3.040e+05	9.80	N/A	4.99

O18LP (Internal Standard)

RT (Exp. RT): 9.80(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.81 (9.84) min Calculated conc: 4.93 ng/ml Area Ratio: 1.659 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.80 (9.84) min Calculated conc: 4.99 ng/ml Area Ratio: 0.559 Sample Type: (Unknown)	

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Data File	LM35112.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 8:56:01 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

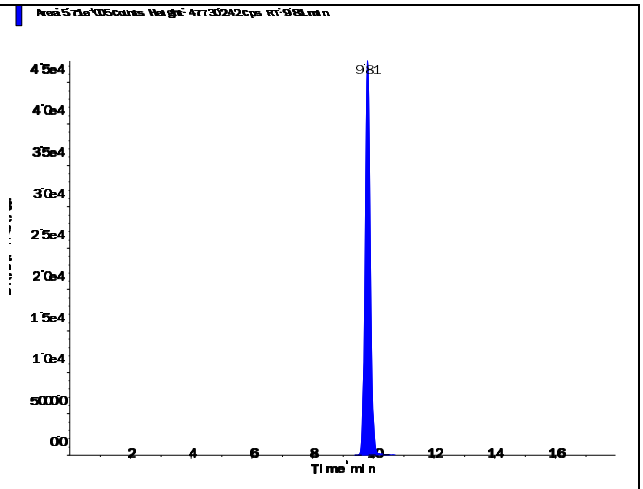
Sample Name	L16050972-08 (100x)	**Injection Vial**	17.00
Data File	LM35112.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 8:56:01 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	L16050972-08	**Dilution Factor**	1.00
Sample Comment	1,100 (screened)	**Weight to Volume**	0.00

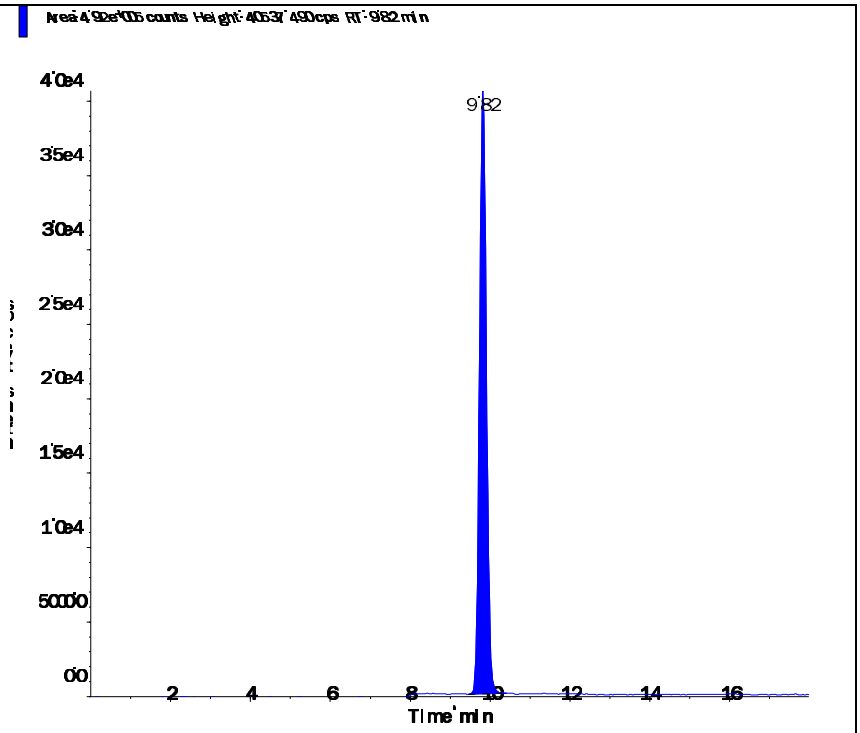
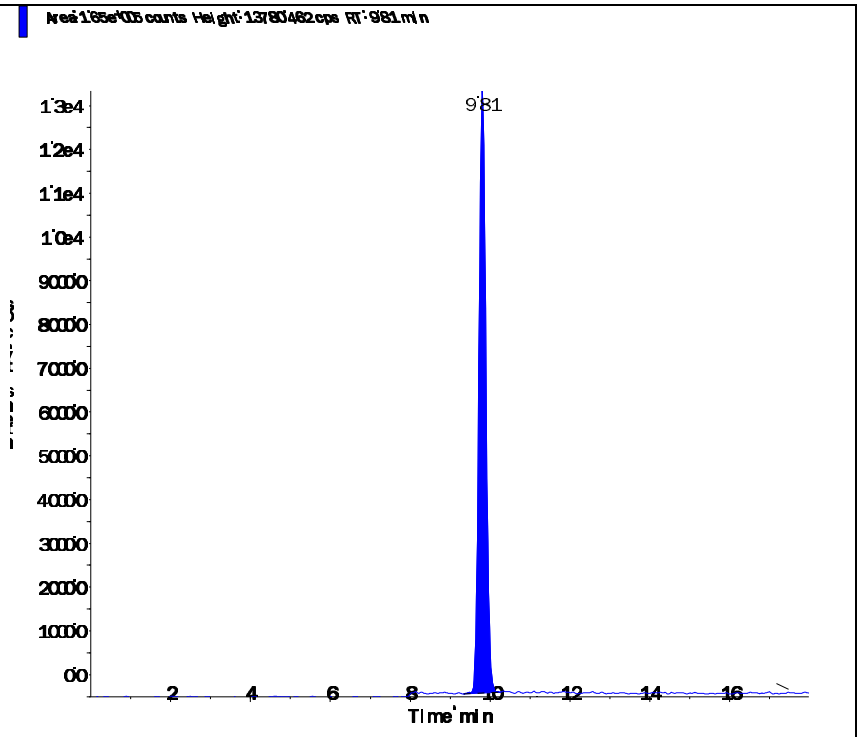
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.710e+05	9.81	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	4.920e+05	9.82	N/A	2.56
Perchlorate conf	1.650e+05	9.81	N/A	2.58

O18LP (Internal Standard)

RT (Exp. RT): 9.81(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.82 (9.84) min Calculated conc: 2.56 ng/ml Area Ratio: 0.861 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.81 (9.84) min Calculated conc: 2.58 ng/ml Area Ratio: 0.29 Sample Type: (Unknown)	

2.2.1.4 Standards Data

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Data File	LM34686.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

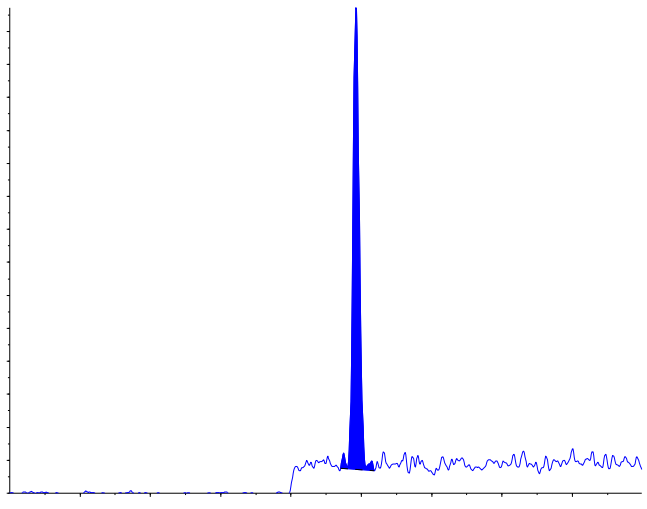
Sample Name	WG567320-01 CCB	**Injection Vial**	1.00
Data File	LM34686.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.020e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

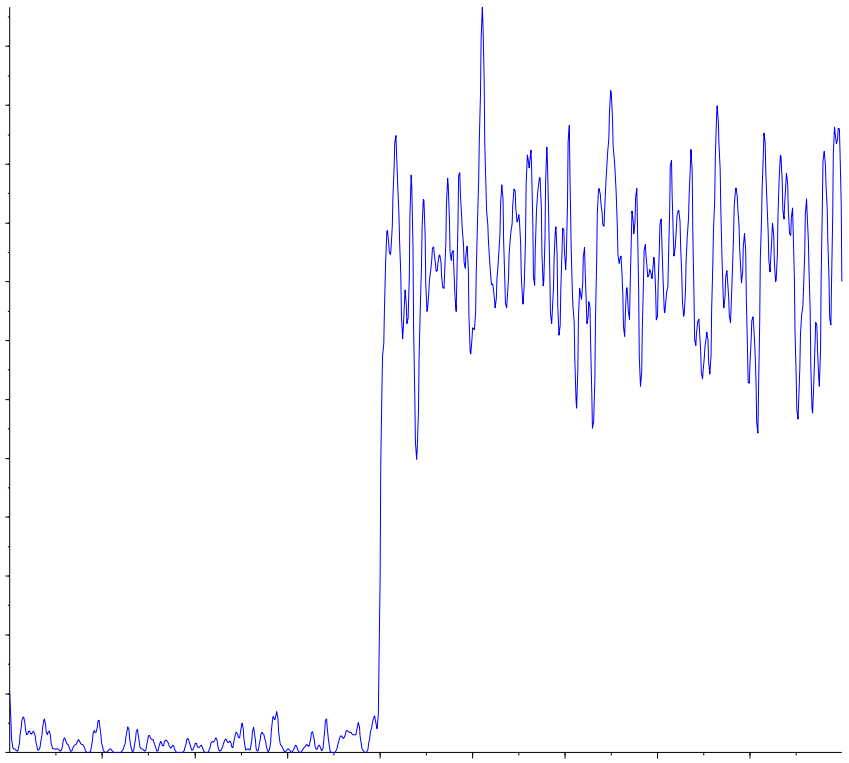
O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



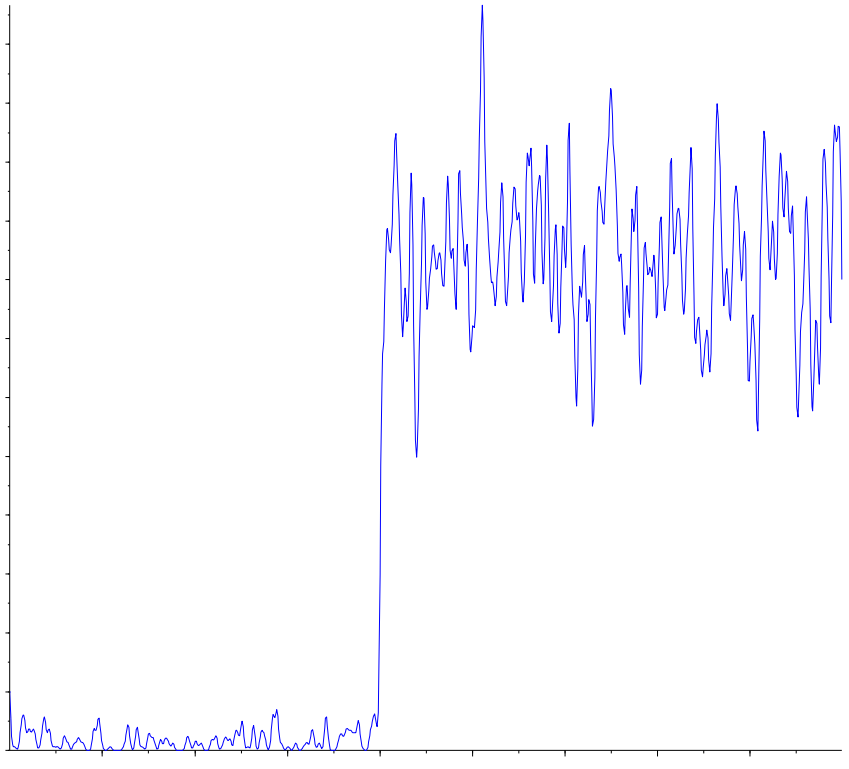
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



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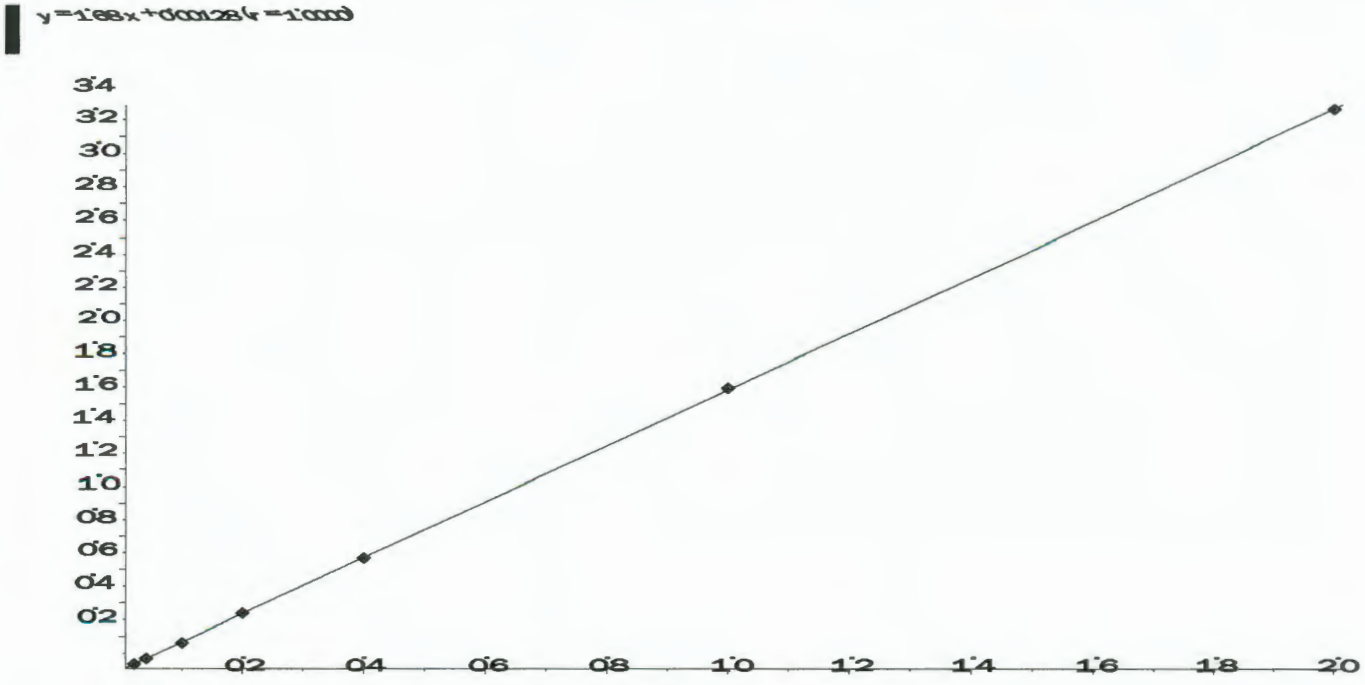
Analyte Name: **Perchlorate**
Internal Standard: O18LP

Data File	LM34686.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 1.68 x + 0.00128 (r = 1.0000)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	102.8	N/A	N/A
0.20	1	0.20	100.3	N/A	N/A
0.50	1	0.48	96.6	N/A	N/A
1.00	1	1.01	100.5	N/A	N/A
2.00	1	1.99	99.3	N/A	N/A
5.00	1	5.04	100.7	N/A	N/A
10.00	1	9.99	99.9	N/A	N/A



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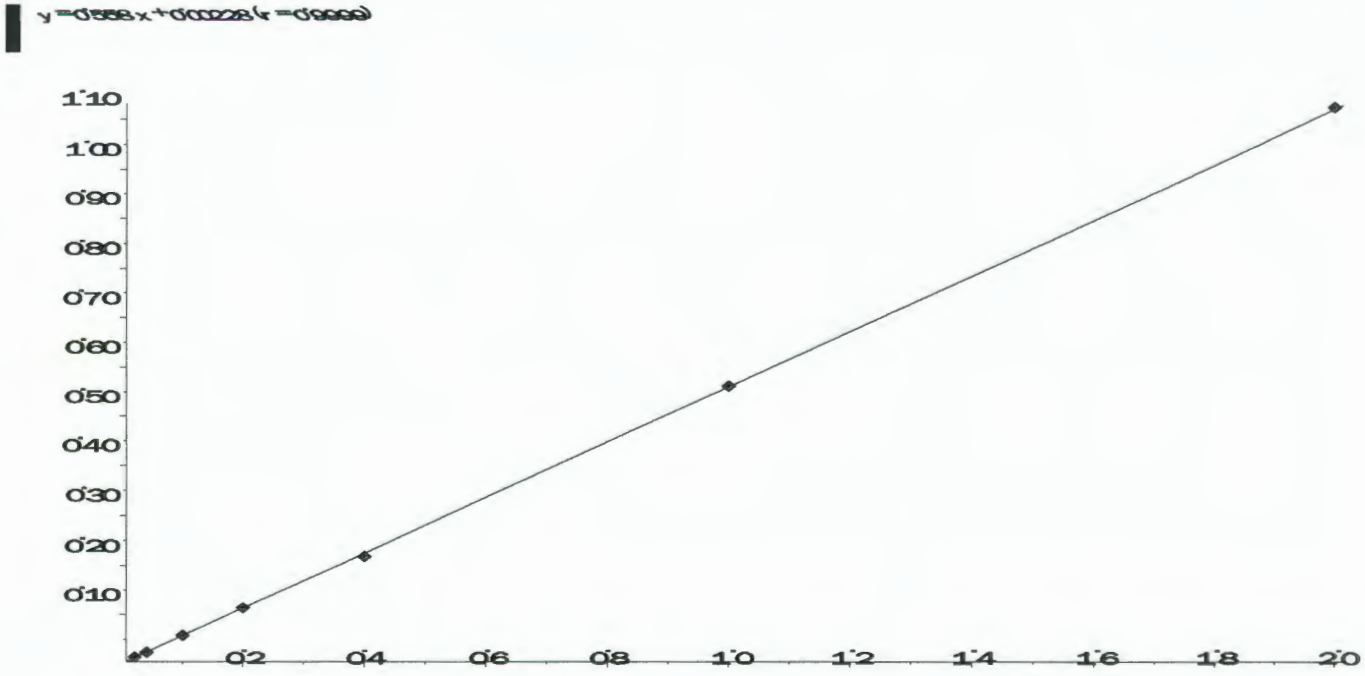
Analyte Name: **Perchlorate conf**
Internal Standard: O18LP

Data File	LM34686.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 0.558 x + 0.00228 (r = 0.9999)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	104.3	N/A	N/A
0.20	1	0.19	96.8	N/A	N/A
0.50	1	0.50	100.6	N/A	N/A
1.00	1	1.00	100.5	N/A	N/A
2.00	1	1.94	97.2	N/A	N/A
5.00	1	5.02	100.4	N/A	N/A
10.00	1	10.03	100.3	N/A	N/A



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Data File	LM34687.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 3:25:04 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

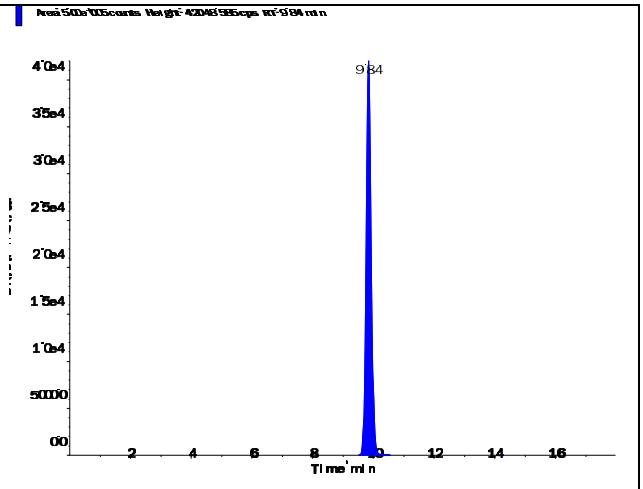
Sample Name	WG567320-02 STD (0.1 ug/L)	**Injection Vial**	2.00
Data File	LM34687.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:25:04 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

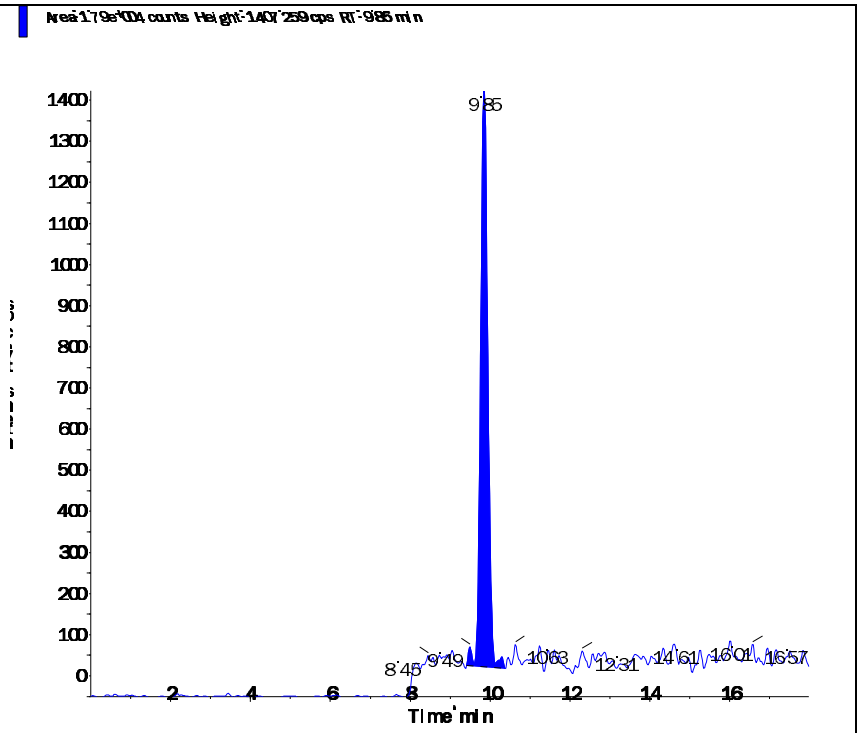
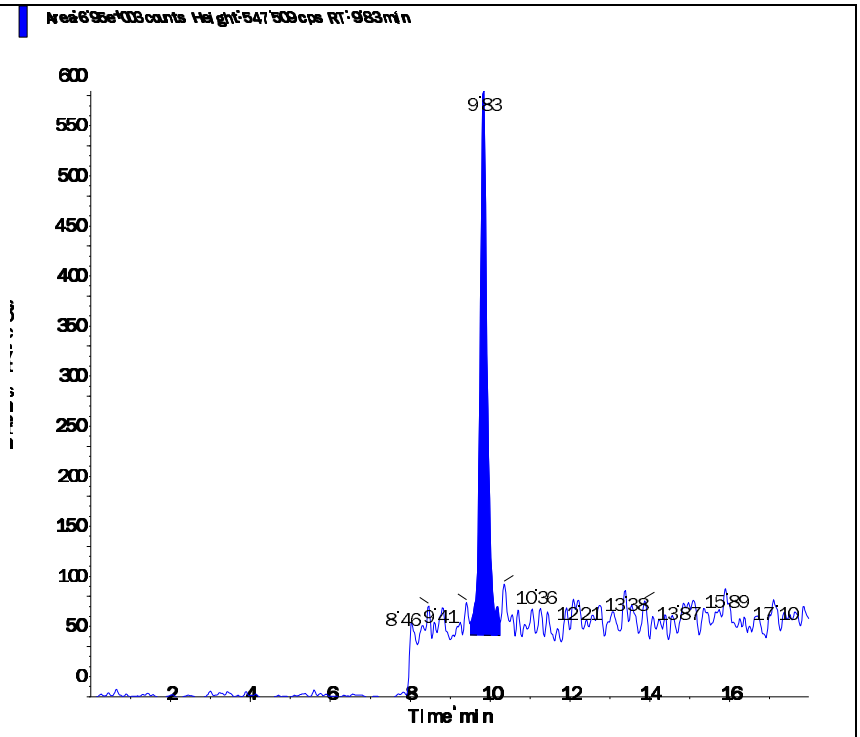
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.000e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.790e+04	9.85	0.10	0.103
Perchlorate conf	6.950e+03	9.83	0.10	0.104

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.85 (9.84) min Calculated conc: 0.103 ng/ml Area Ratio: 0.036 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 0.104 ng/ml Area Ratio: 0.014 Sample Type: (Standard)	

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Data File	LM34688.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 3:43:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

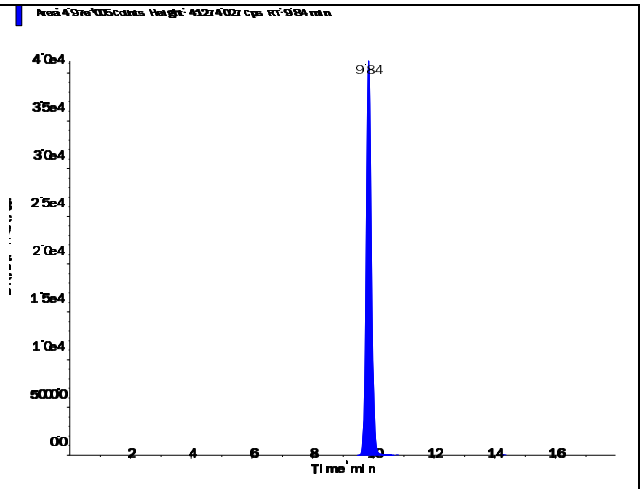
Sample Name	WG567320-03 STD (0.2 ug/L)	**Injection Vial**	3.00
Data File	LM34688.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:43:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.970e+05	9.84	5.00	-

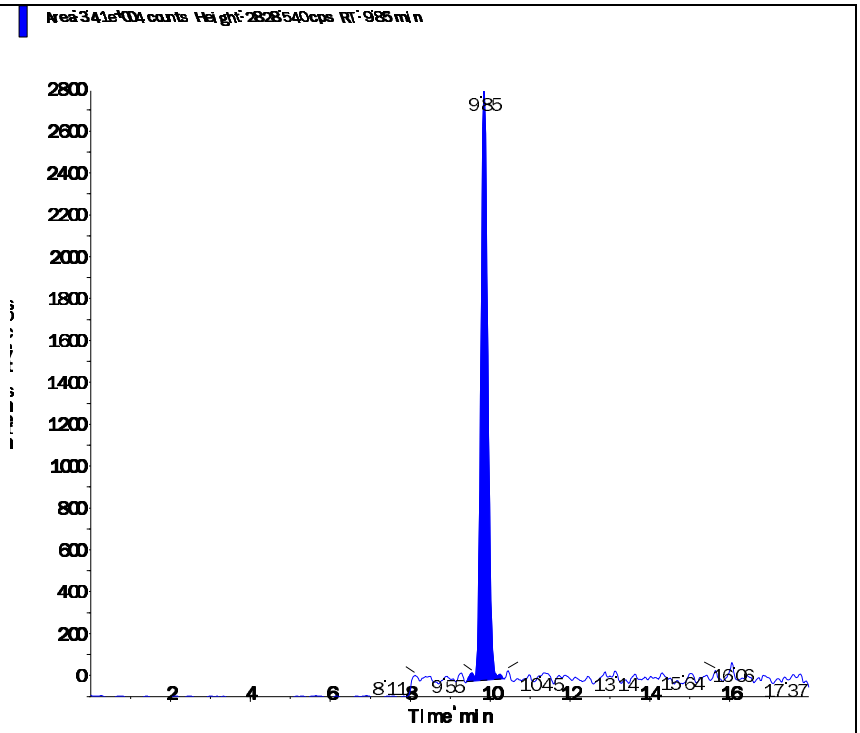
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.410e+04	9.85	0.20	0.201
Perchlorate conf	1.190e+04	9.84	0.20	0.194

O18LP (Internal Standard)

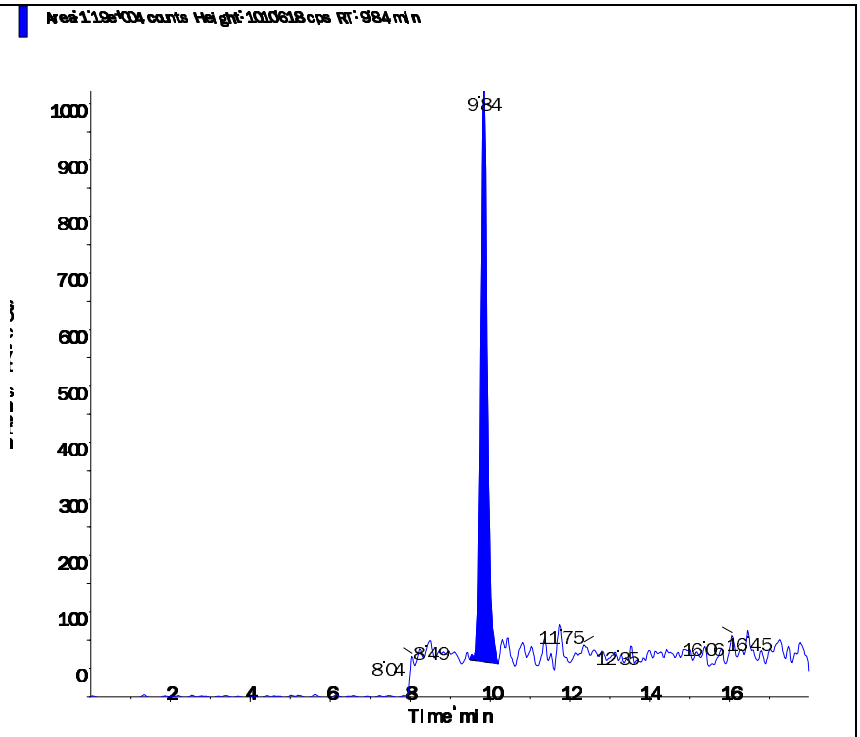
RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.85 (9.84) min 0.201 ng/ml 0.069 (Standard)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.84 (9.84) min 0.194 ng/ml 0.024 (Standard)



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Data File	LM34689.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 4:02:52 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

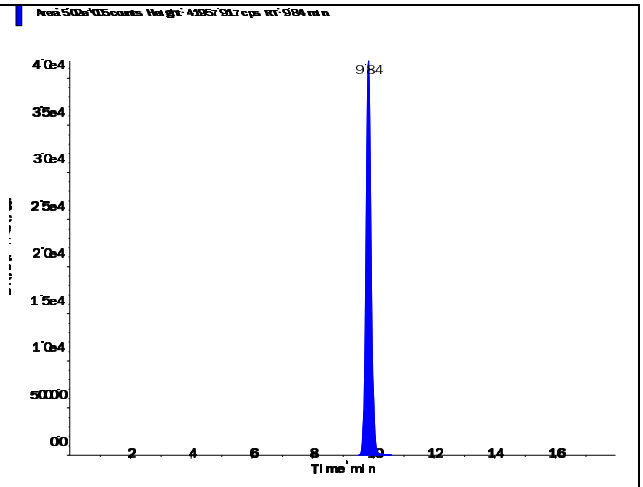
Sample Name	WG567320-04 STD (0.5 ug/L)	**Injection Vial**	4.00
Data File	LM34689.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:02:52 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-04	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.020e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	8.220e+04	9.85	0.50	0.483
Perchlorate conf	2.940e+04	9.84	0.50	0.503

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



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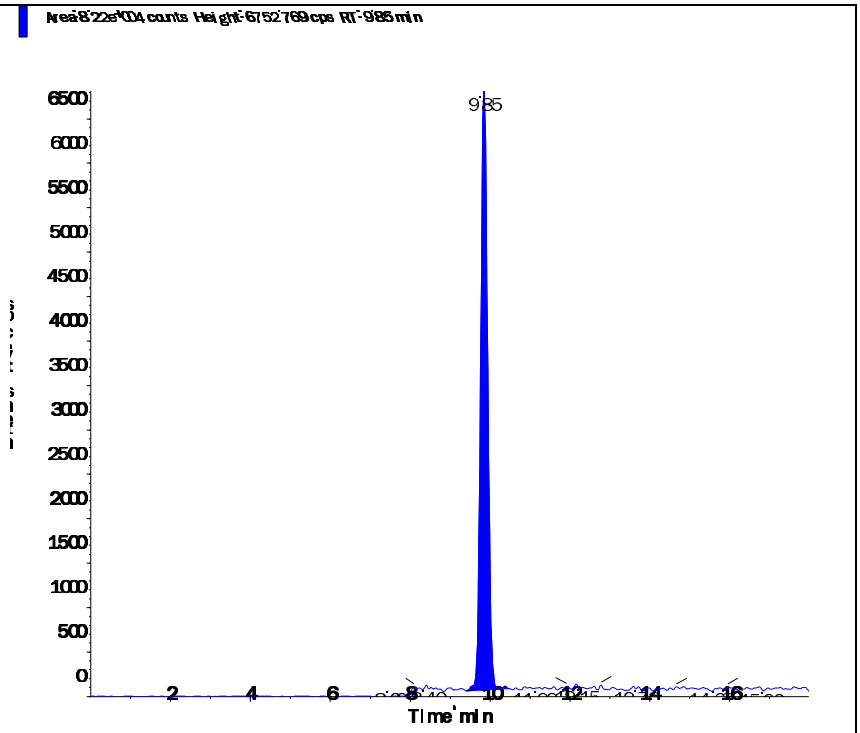
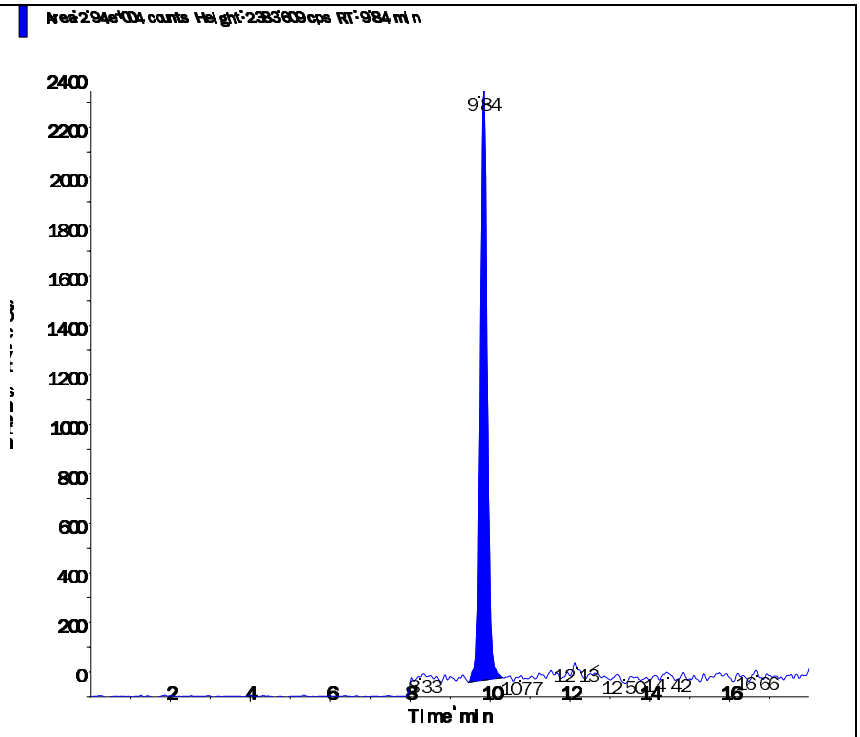
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.85 (9.84) min 0.483 ng/ml 0.164 (Standard)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.84 (9.84) min 0.503 ng/ml 0.058 (Standard)



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Data File	LM34690.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 4:21:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

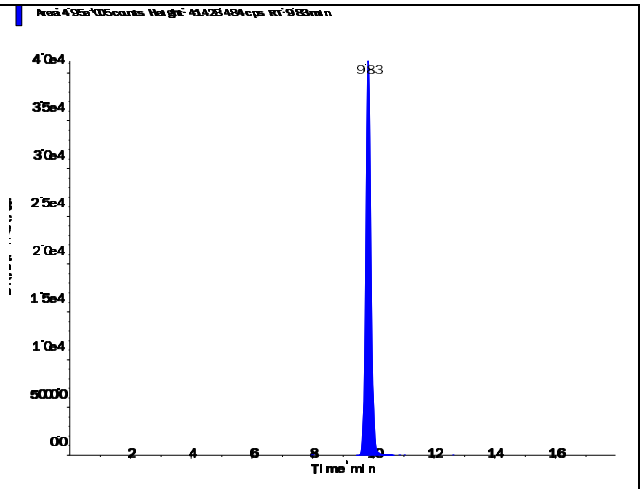
Sample Name	WG567320-05 STD (1.0 ug/L)	**Injection Vial**	5.00
Data File	LM34690.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:21:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

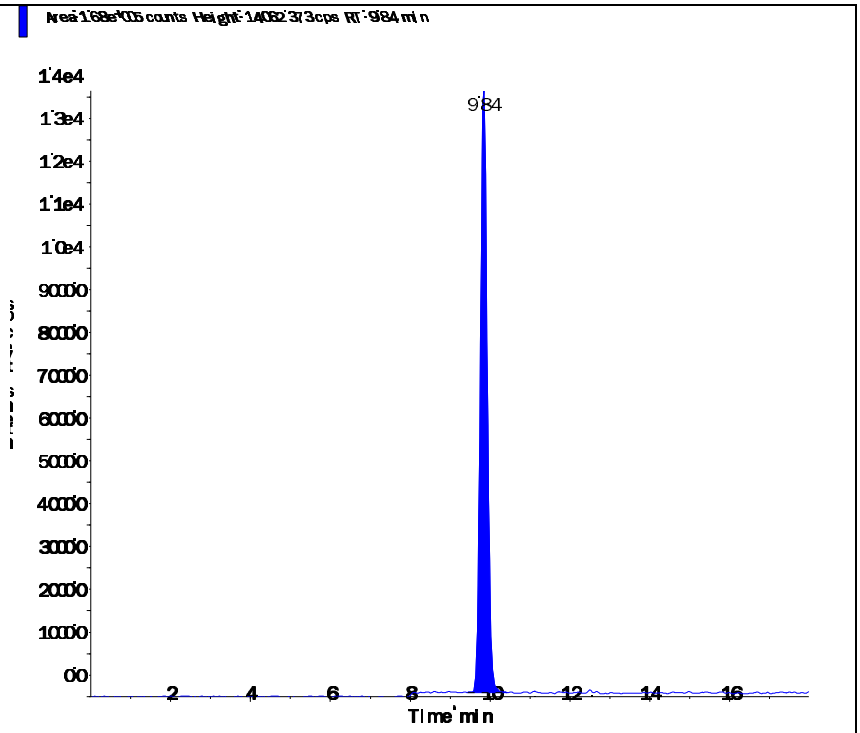
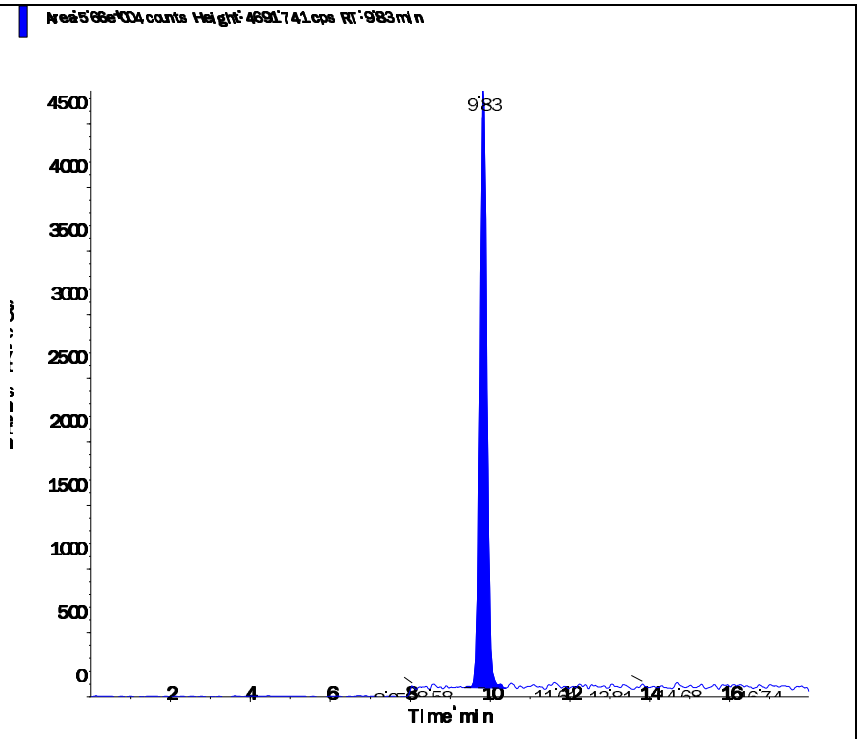
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.950e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.680e+05	9.84	1.00	1.01
Perchlorate conf	5.660e+04	9.83	1.00	1.00

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 1.01 ng/ml Area Ratio: 0.339 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 1.00 ng/ml Area Ratio: 0.114 Sample Type: (Standard)	

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Data File	LM34691.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 4:40:45 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

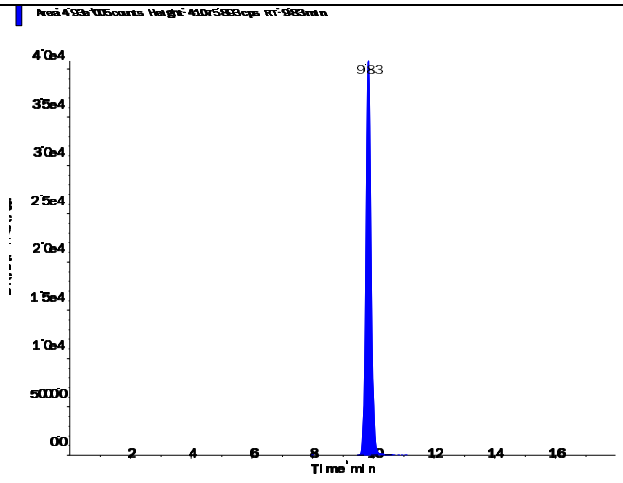
Sample Name	WG567320-06 STD (2.0 ug/L)	**Injection Vial**	6.00
Data File	LM34691.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:40:45 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-06	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

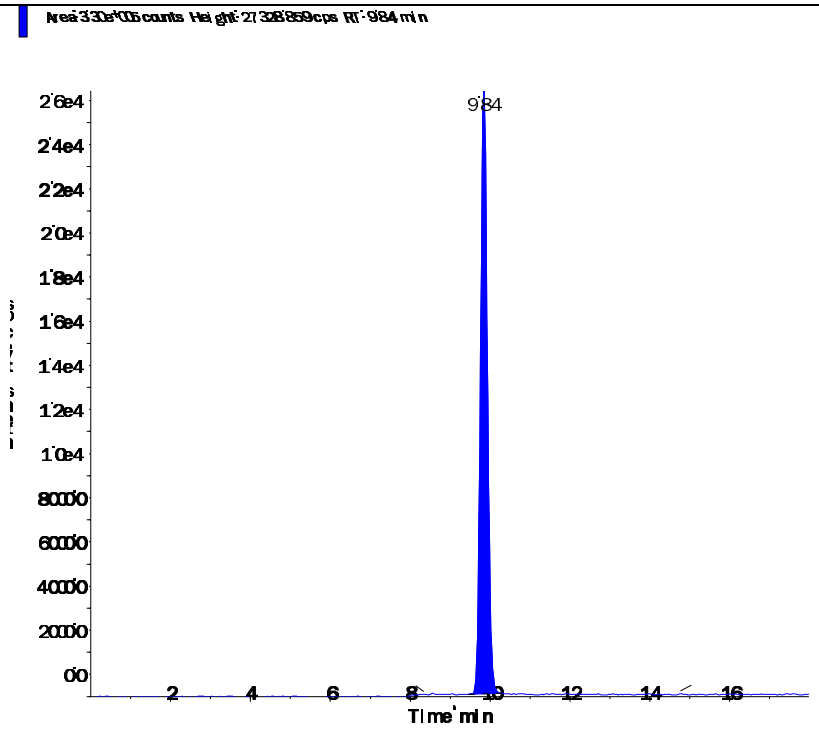
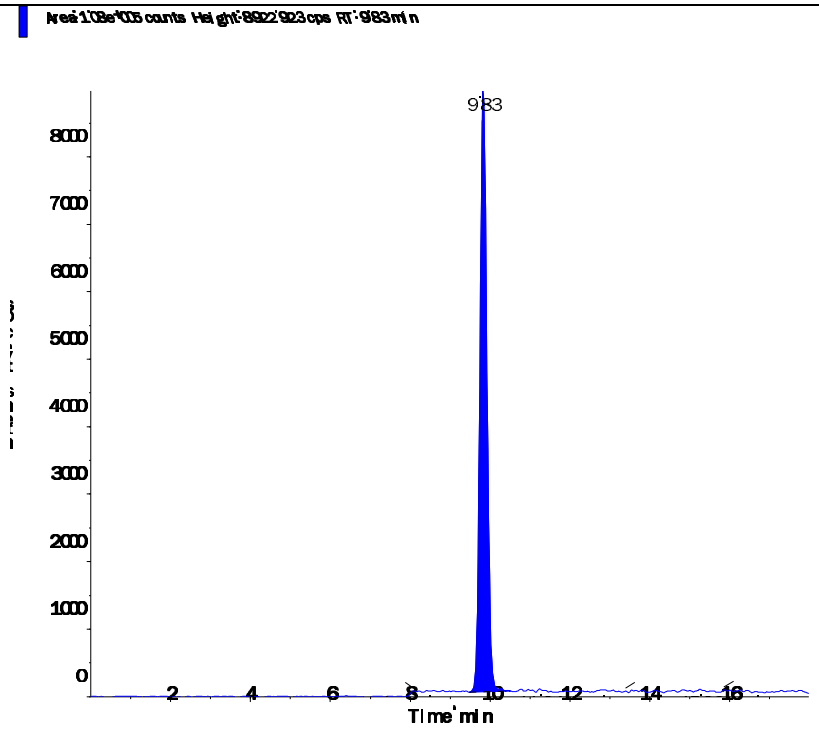
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.930e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.300e+05	9.84	2.00	1.99
Perchlorate conf	1.080e+05	9.83	2.00	1.94

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 1.99 ng/ml Area Ratio: 0.669 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 1.94 ng/ml Area Ratio: 0.219 Sample Type: (Standard)	

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Data File	LM34692.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 4:59:42 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

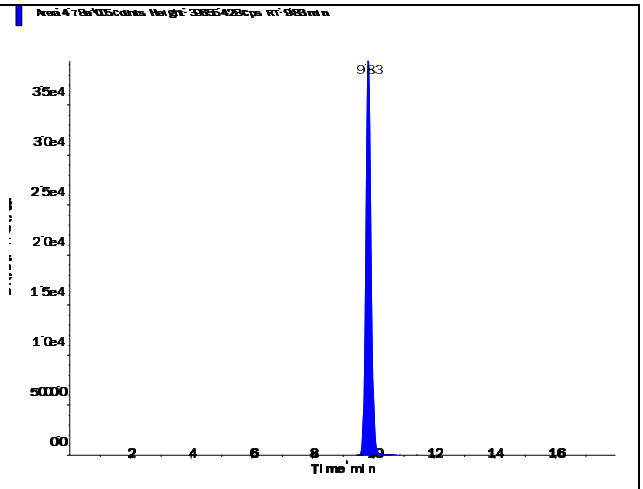
Sample Name	WG567320-07 STD (5.0 ug/L)	**Injection Vial**	7.00
Data File	LM34692.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:59:42 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

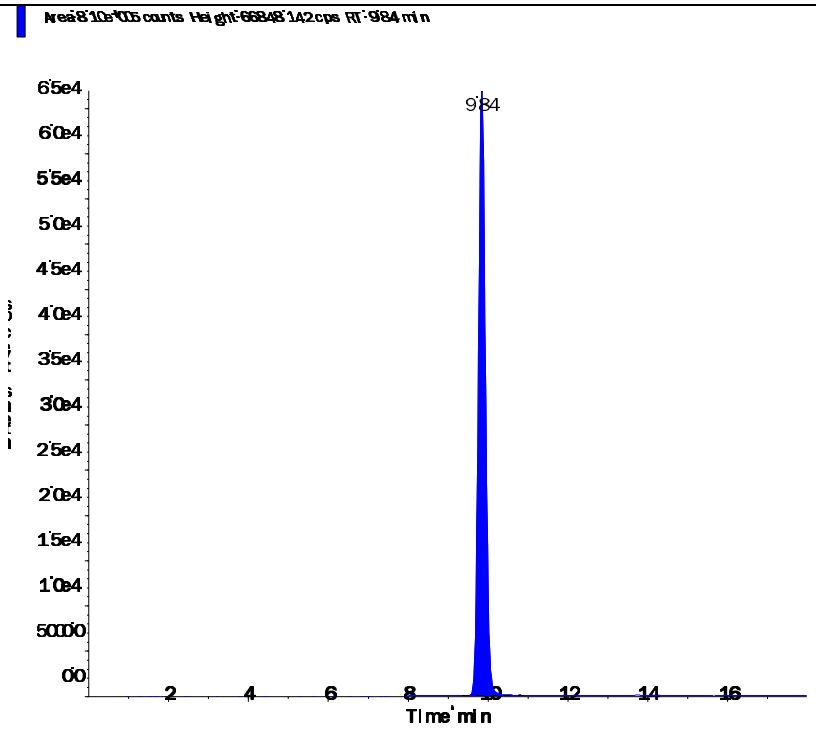
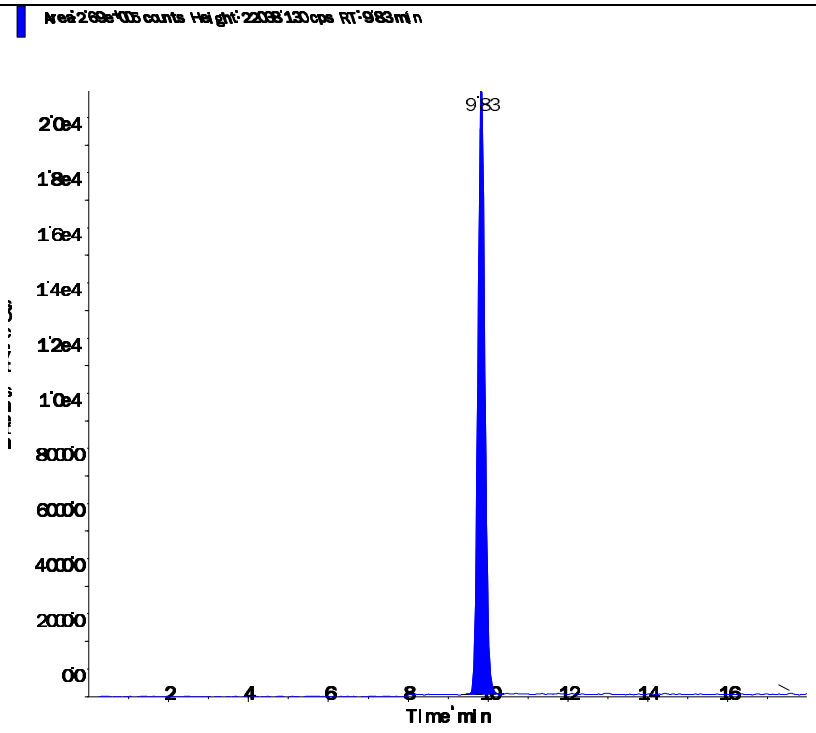
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.780e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	8.100e+05	9.84	5.00	5.04
Perchlorate conf	2.690e+05	9.83	5.00	5.02

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 5.04 ng/ml Area Ratio: 1.695 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 5.02 ng/ml Area Ratio: 0.562 Sample Type: (Standard)	

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Data File	LM34693.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/3/2016 5:18:37 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

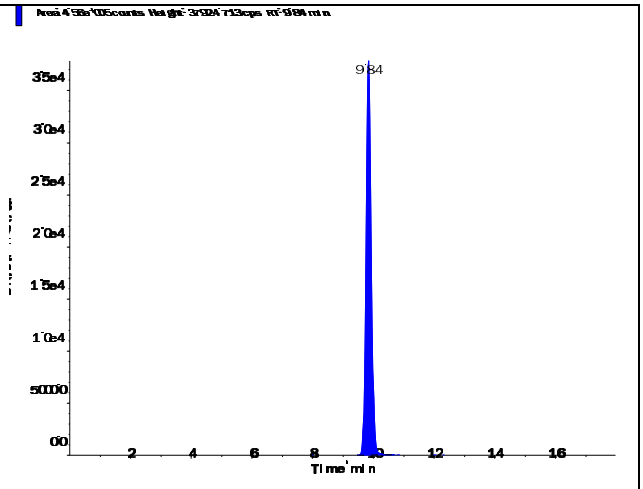
Sample Name	WG567320-08 STD (10 ug/L)	**Injection Vial**	8.00
Data File	LM34693.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 5:18:37 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG567320-08	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

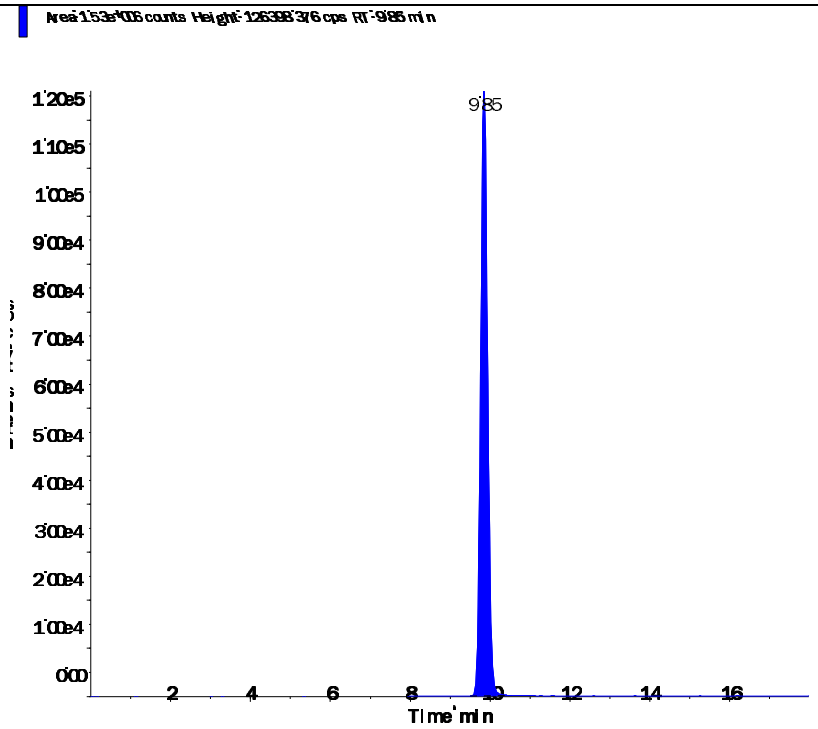
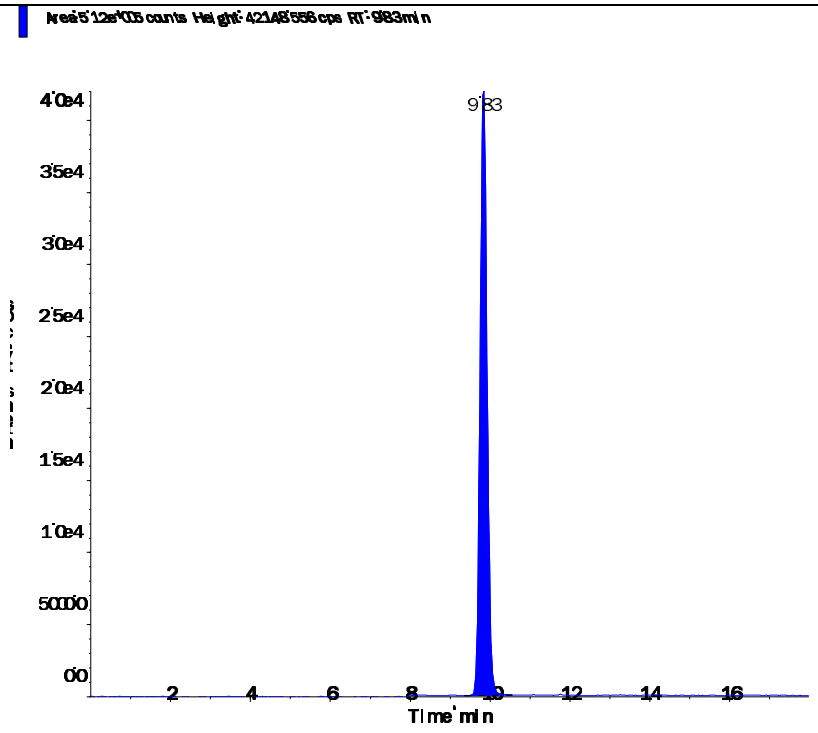
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.560e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.530e+06	9.85	10.00	9.99
Perchlorate conf	5.120e+05	9.83	10.00	10.00

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.85 (9.84) min Calculated conc: 9.99 ng/ml Area Ratio: 3.36 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 10.00 ng/ml Area Ratio: 1.122 Sample Type: (Standard)	

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Data File	LM34694.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 5:37:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

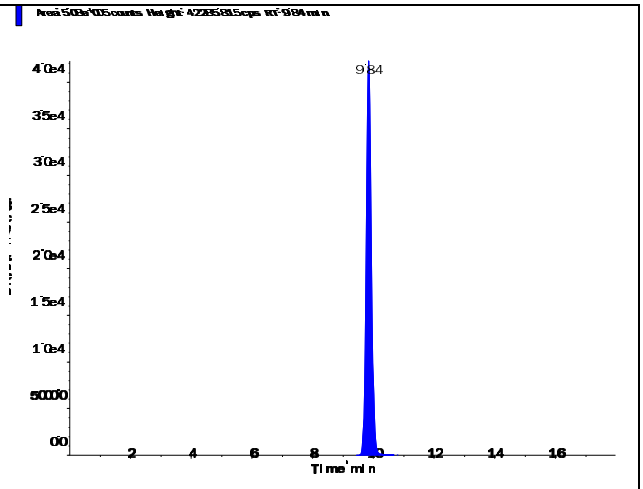
Sample Name	WG567320-09 SSCV (1.0 ug/L)	**Injection Vial**	9.00
Data File	LM34694.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 5:37:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	050316_JWR.rdb
Sample ID	WG567320-09	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

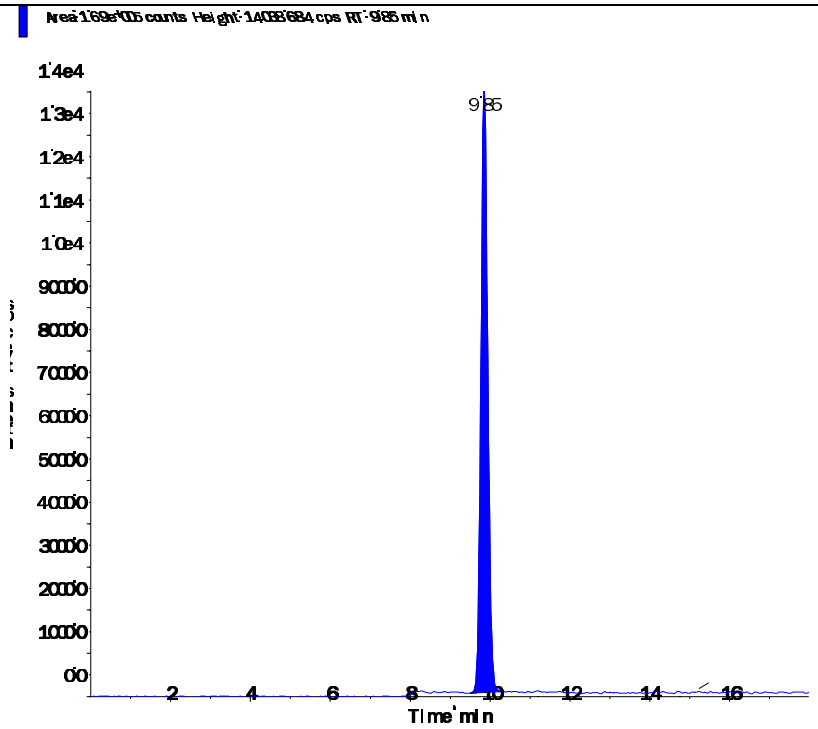
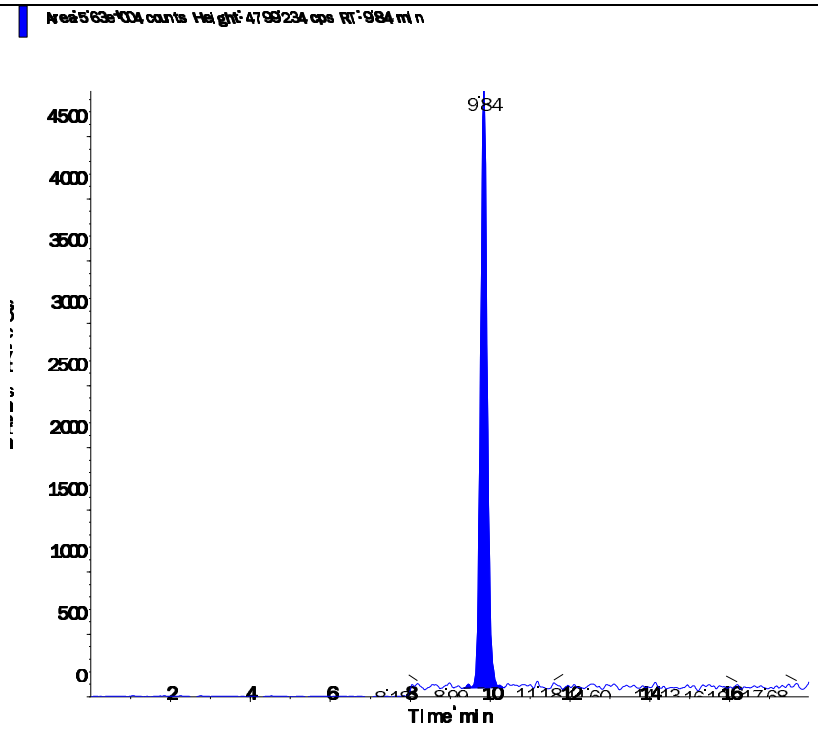
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.080e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.690e+05	9.85	1.00	0.985
Perchlorate conf	5.630e+04	9.84	1.00	0.973

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.85 (9.84) min Calculated conc: 0.985 ng/ml Area Ratio: 0.332 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 0.973 ng/ml Area Ratio: 0.111 Sample Type: (Quality Control)	

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Data File	LM35094.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 3:15:11 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

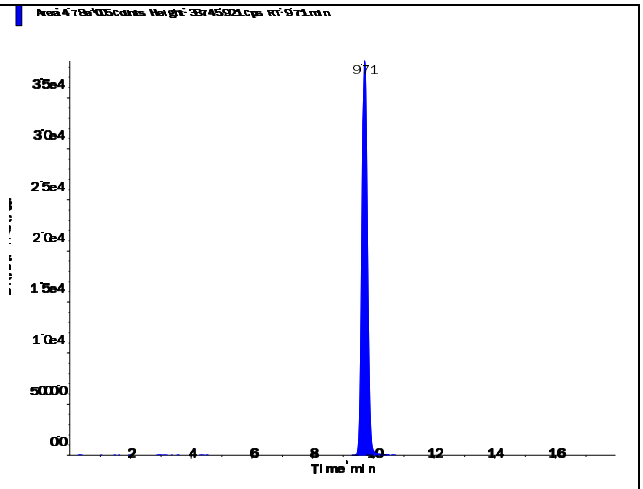
Sample Name	WG570423-02 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM35094.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 3:15:11 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570423-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

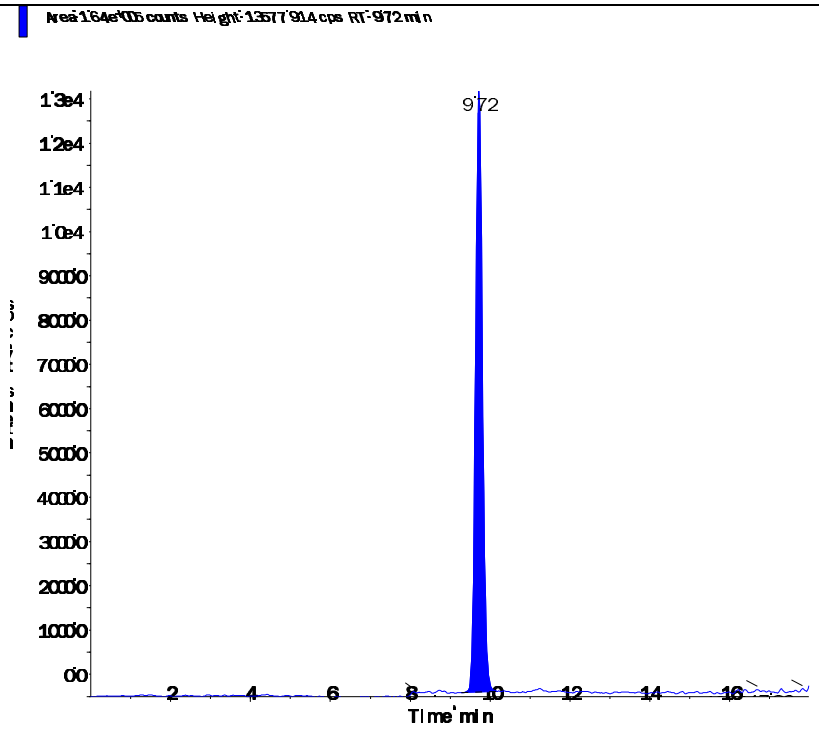
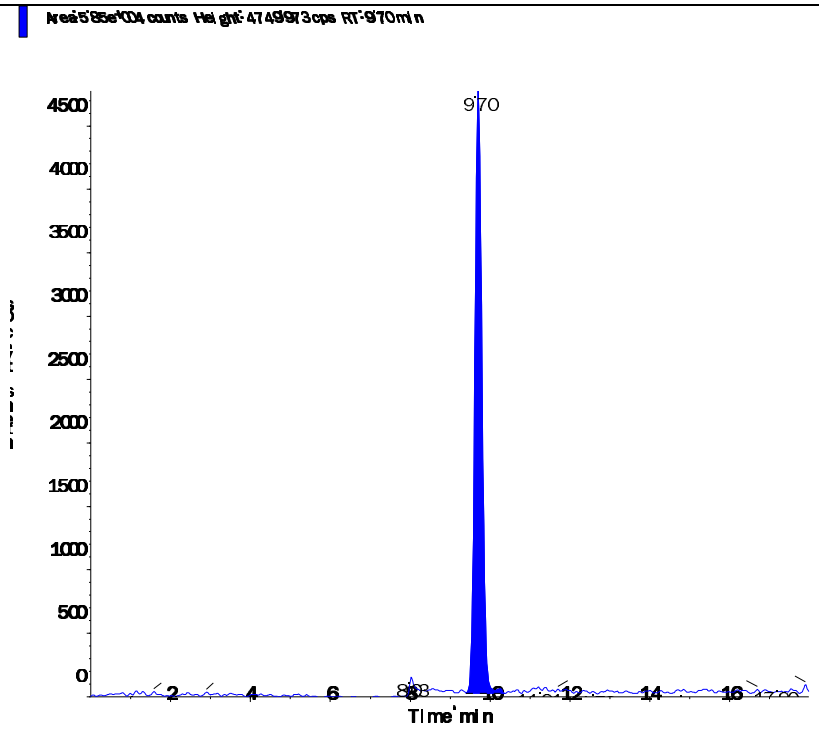
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.780e+05	9.71	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.640e+05	9.72	1.00	1.02
Perchlorate conf	5.850e+04	9.70	1.00	1.08

O18LP (Internal Standard)

RT (Exp. RT): 9.71(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.72 (9.84) min Calculated conc: 1.02 ng/ml Area Ratio: 0.344 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.70 (9.84) min Calculated conc: 1.08 ng/ml Area Ratio: 0.122 Sample Type: (Quality Control)	

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Data File	LM35106.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 7:02:27 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

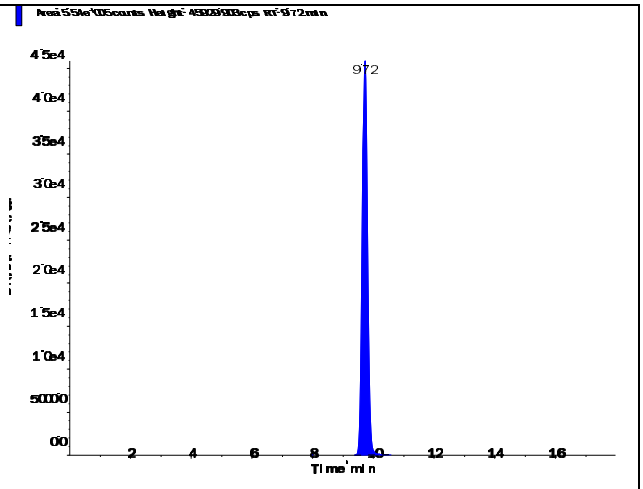
Sample Name	WG570423-03 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM35106.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 7:02:27 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570423-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

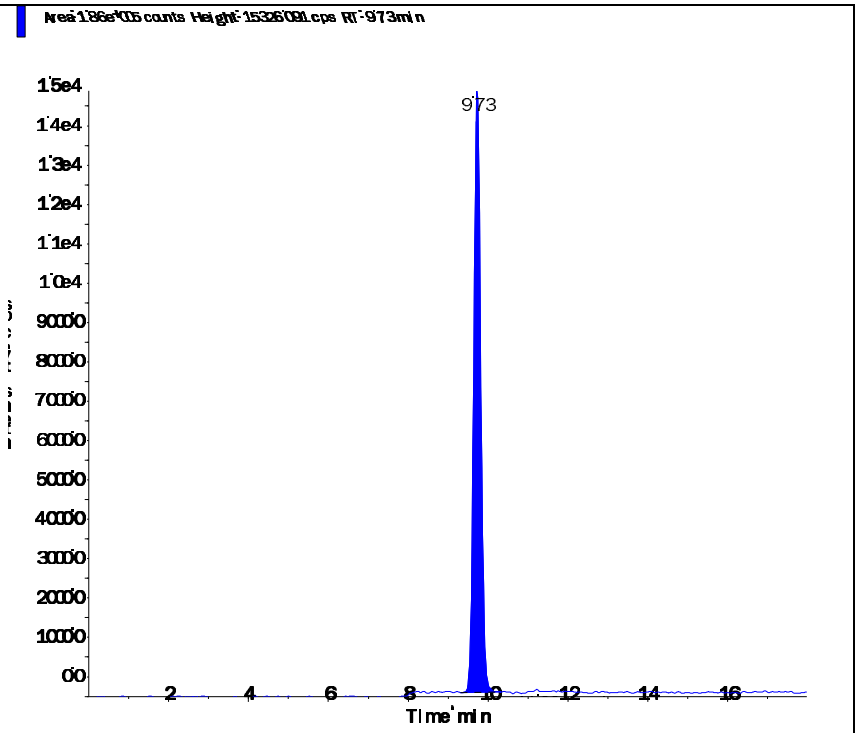
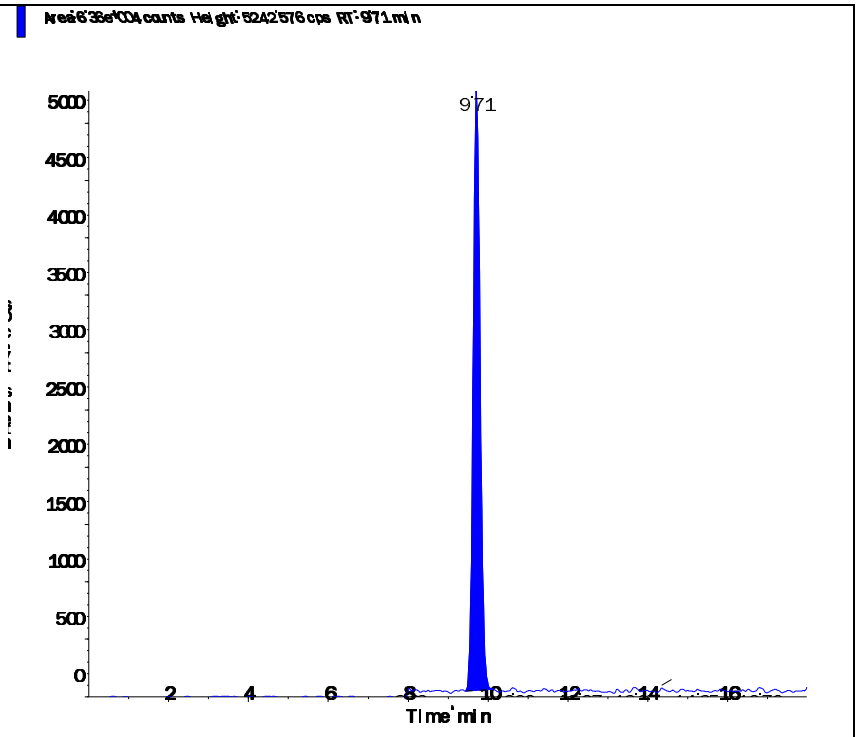
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.540e+05	9.72	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.860e+05	9.73	1.00	0.996
Perchlorate conf	6.360e+04	9.71	1.00	1.01

O18LP (Internal Standard)

RT (Exp. RT): 9.72(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.73 (9.84) min Calculated conc: 0.996 ng/ml Area Ratio: 0.336 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.71 (9.84) min Calculated conc: 1.01 ng/ml Area Ratio: 0.115 Sample Type: (Quality Control)	

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Data File	LM35113.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 9:14:56 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

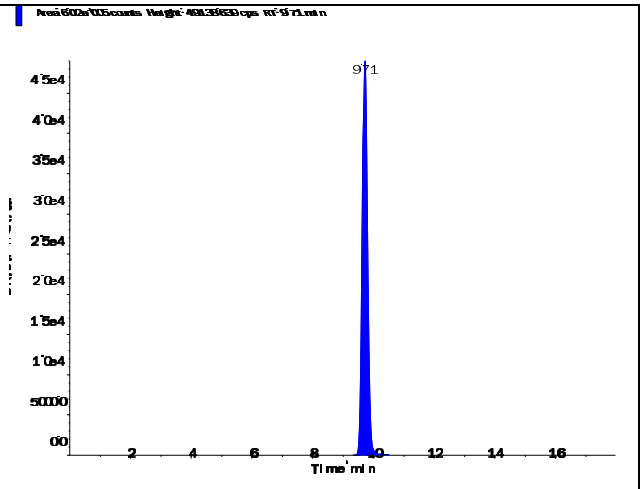
Sample Name	WG570423-05 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM35113.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 9:14:56 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570423-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	6.020e+05	9.71	5.00	-

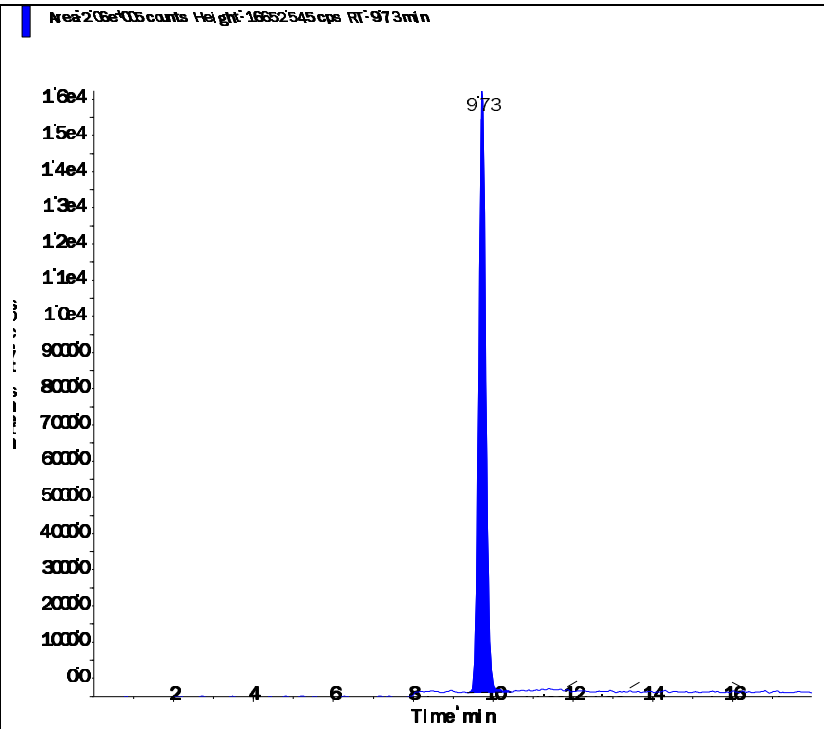
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.060e+05	9.73	1.00	1.01
Perchlorate conf	6.860e+04	9.72	1.00	1.00

O18LP (Internal Standard)

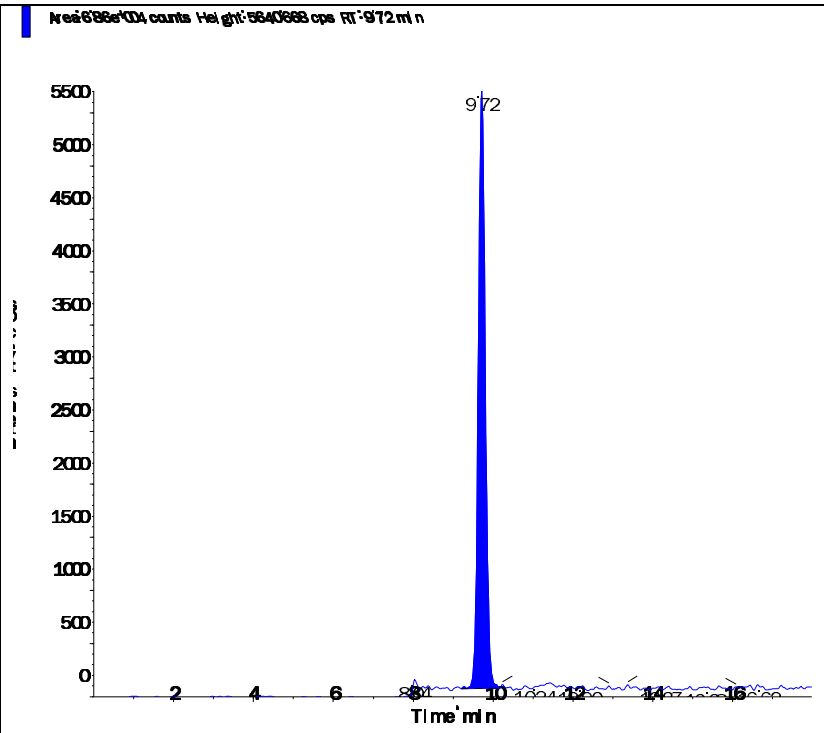
RT (Exp. RT): 9.71(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.73 (9.84) min 1.01 ng/ml 0.342 (Quality Control)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.72 (9.84) min 1.00 ng/ml 0.114 (Quality Control)



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Data File	LM35095.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 3:34:06 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

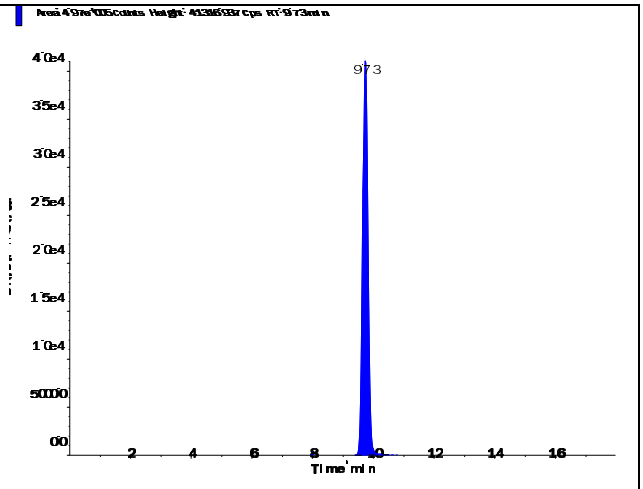
Sample Name	WG570422-07 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM35095.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 3:34:06 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570422-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.970e+05	9.73	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.410e+04	9.74	N/A	0.20
Perchlorate conf	1.200e+04	9.73	N/A	0.195

O18LP (Internal Standard)

RT (Exp. RT): 9.73(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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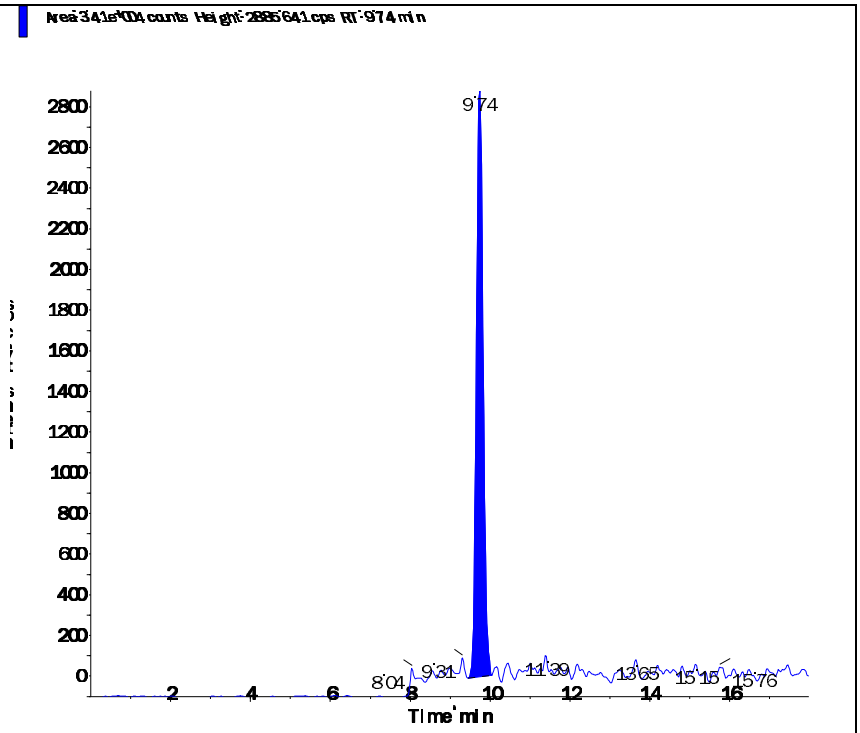
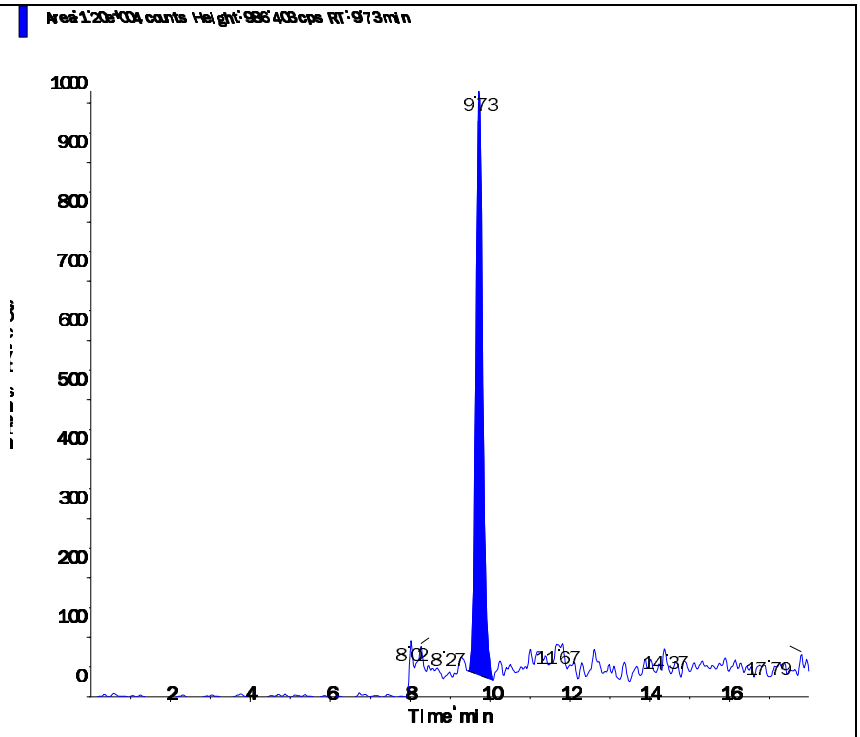
Perchlorate (98.8/83.3 amu)	
RT (Exp. RT): 9.74 (9.84) min	
Calculated conc: 0.20 ng/ml	
Area Ratio: 0.069	
Sample Type: (Unknown)	

Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT): 9.73 (9.84) min	
Calculated conc: 0.195 ng/ml	
Area Ratio: 0.024	
Sample Type: (Unknown)	

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Data File	LM35107.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 7:21:22 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

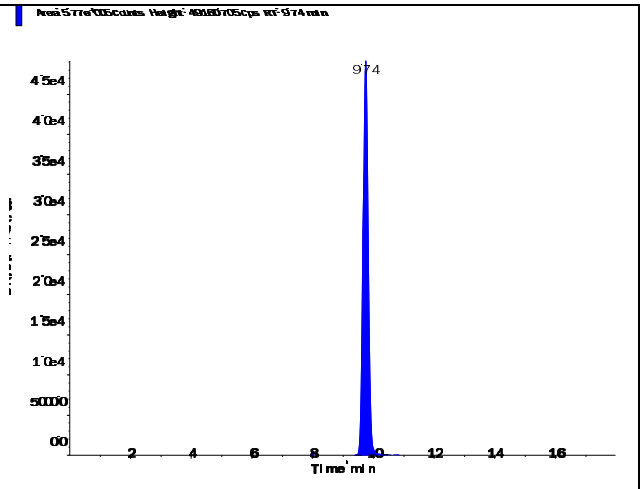
Sample Name	WG570422-08 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM35107.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 7:21:22 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570422-08	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.770e+05	9.74	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	4.010e+04	9.76	N/A	0.203
Perchlorate conf	1.370e+04	9.74	N/A	0.192

O18LP (Internal Standard)

RT (Exp. RT): 9.74(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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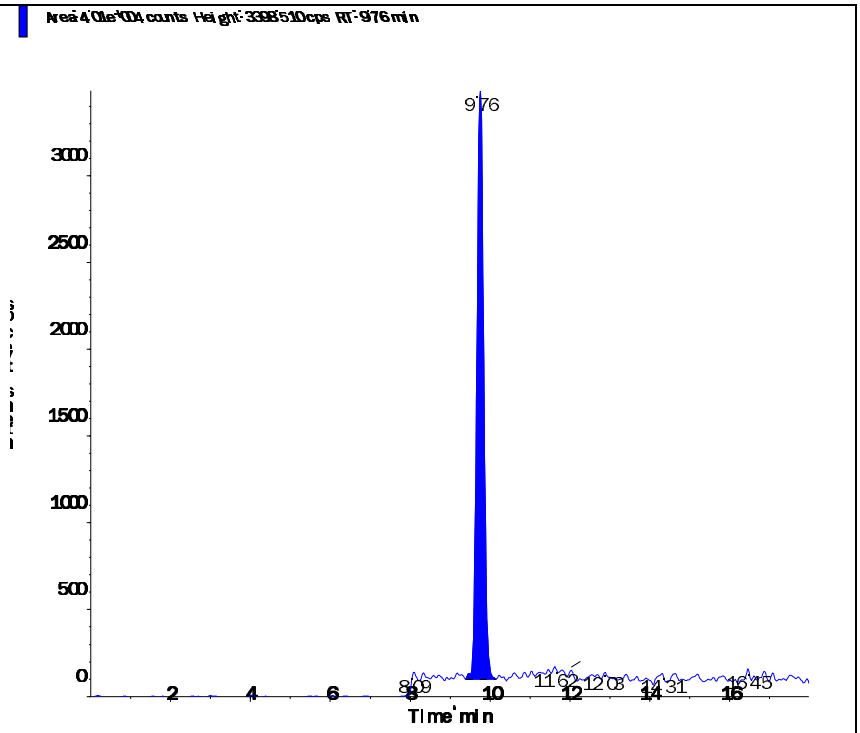
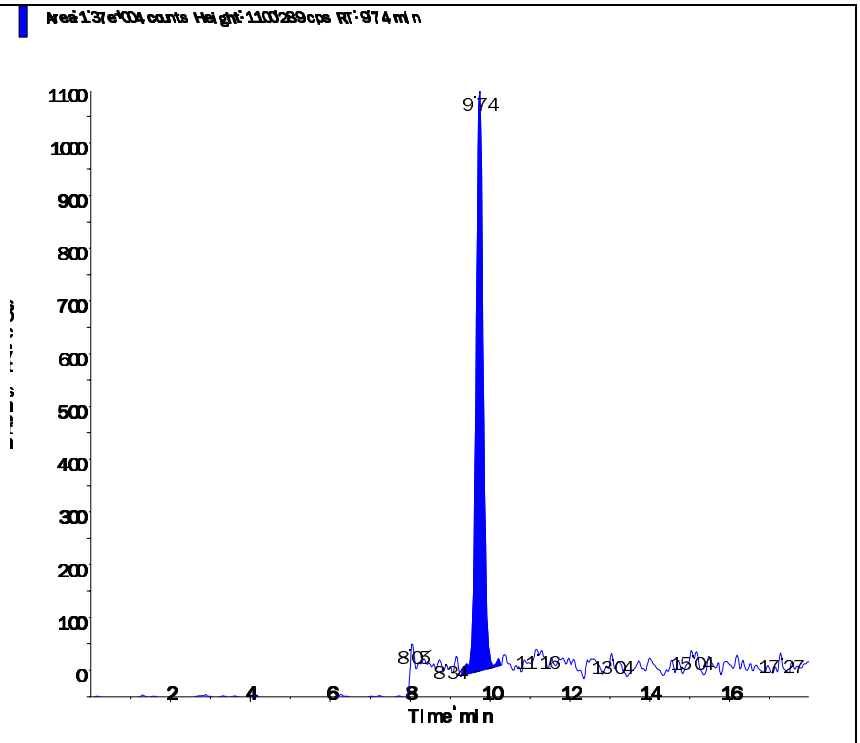
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.76 (9.84) min 0.203 ng/ml 0.07 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.74 (9.84) min 0.192 ng/ml 0.024 (Unknown)



s.dataFile Page 2 of 2

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Data File	LM35114.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 9:33:55 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

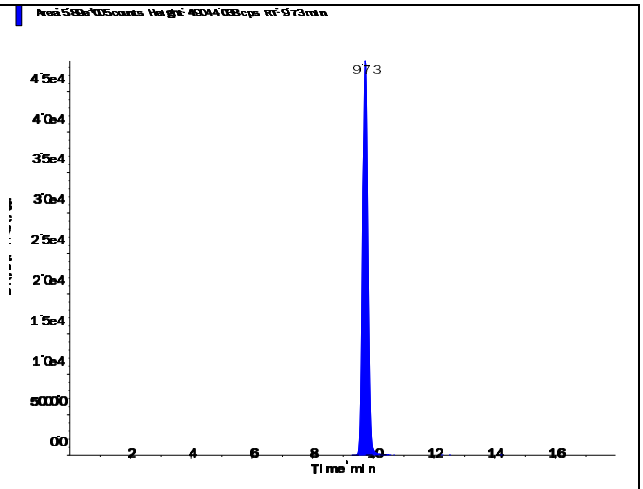
Sample Name	WG570422-09 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM35114.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 9:33:55 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570422-09	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.890e+05	9.73	5.00	-

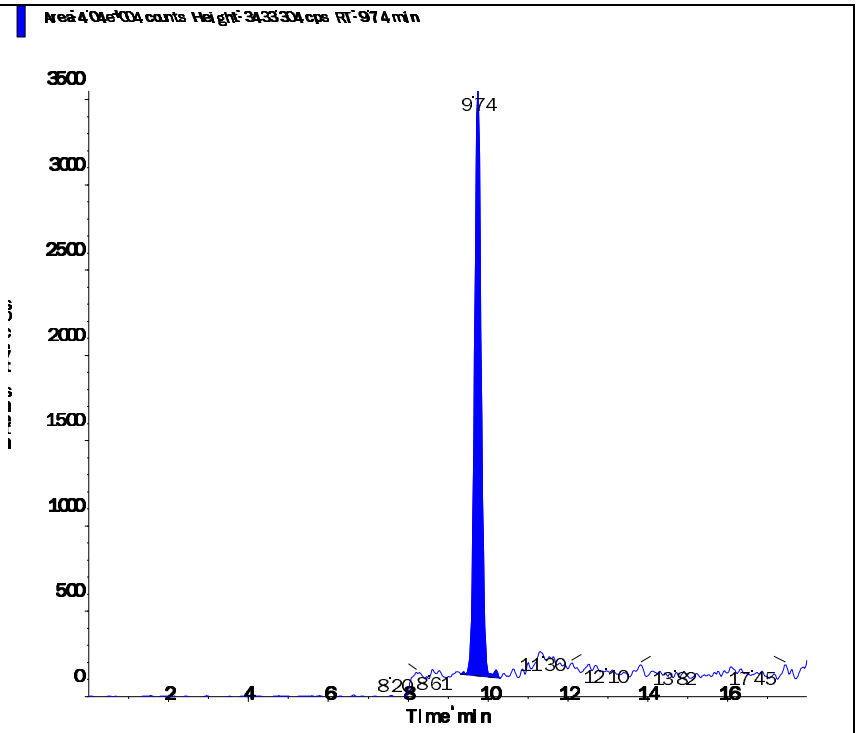
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	4.040e+04	9.74	N/A	0.20
Perchlorate conf	1.390e+04	9.72	N/A	0.191

O18LP (Internal Standard)

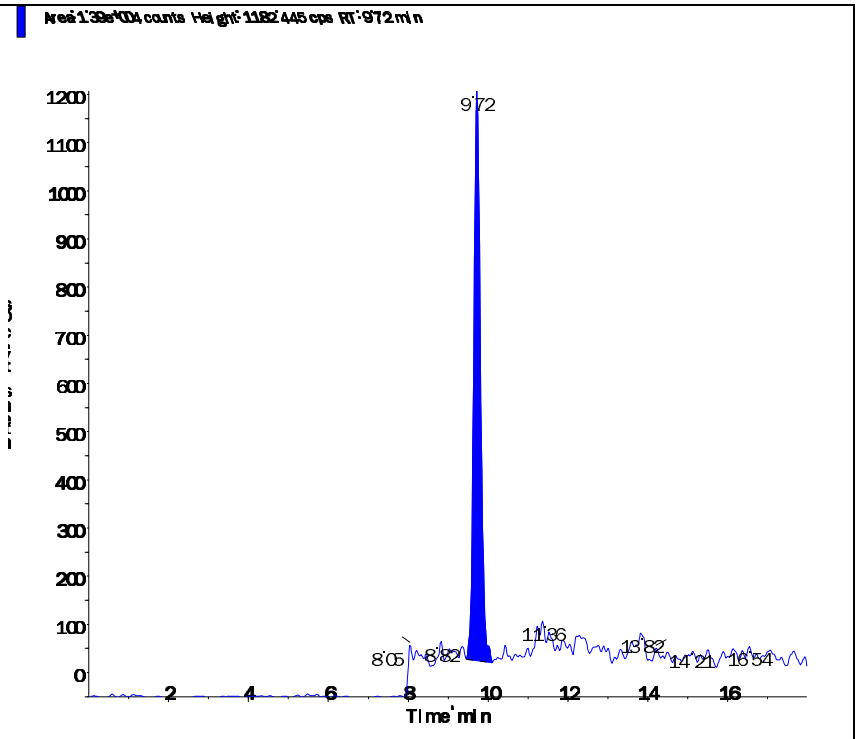
RT (Exp. RT): 9.73(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.74 (9.84) min 0.20 ng/ml 0.069 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.72 (9.84) min 0.191 ng/ml 0.024 (Unknown)



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Data File	LM35093.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 2:56:16 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

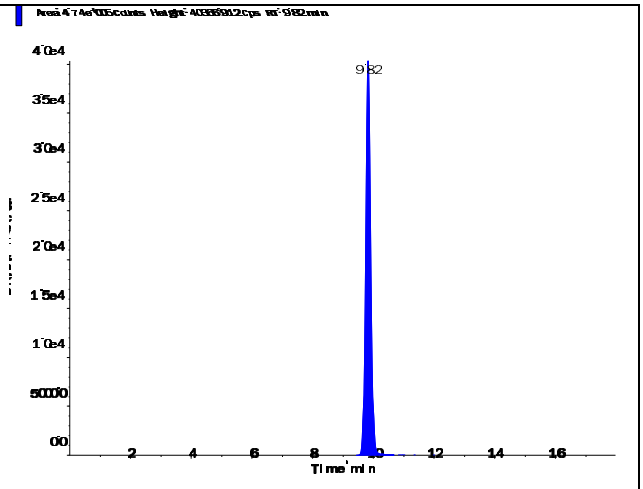
Sample Name	WG570423-01 CCB	**Injection Vial**	1.00
Data File	LM35093.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 2:56:16 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570423-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.740e+05	9.82	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.82(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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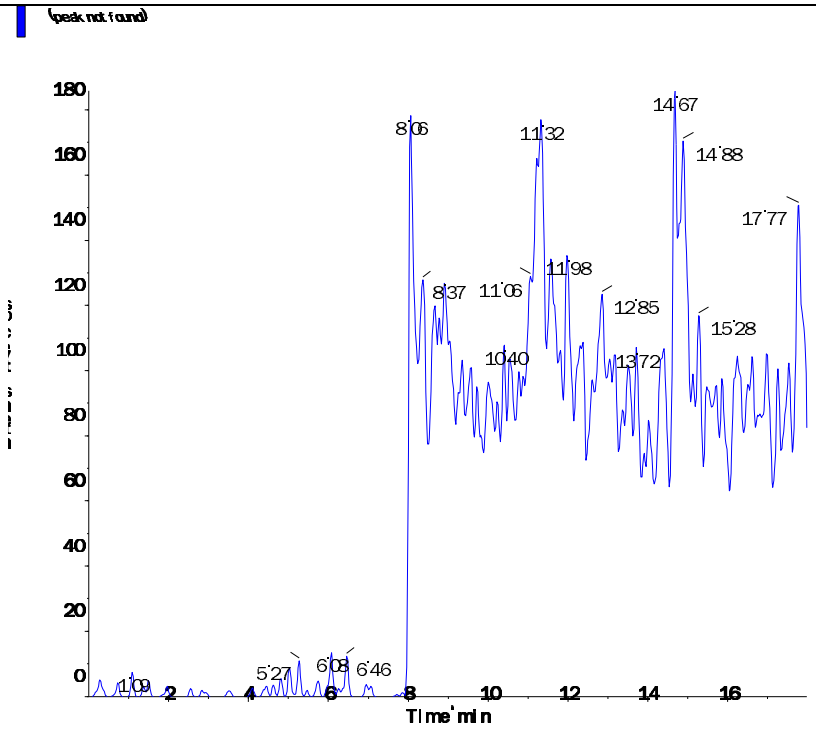
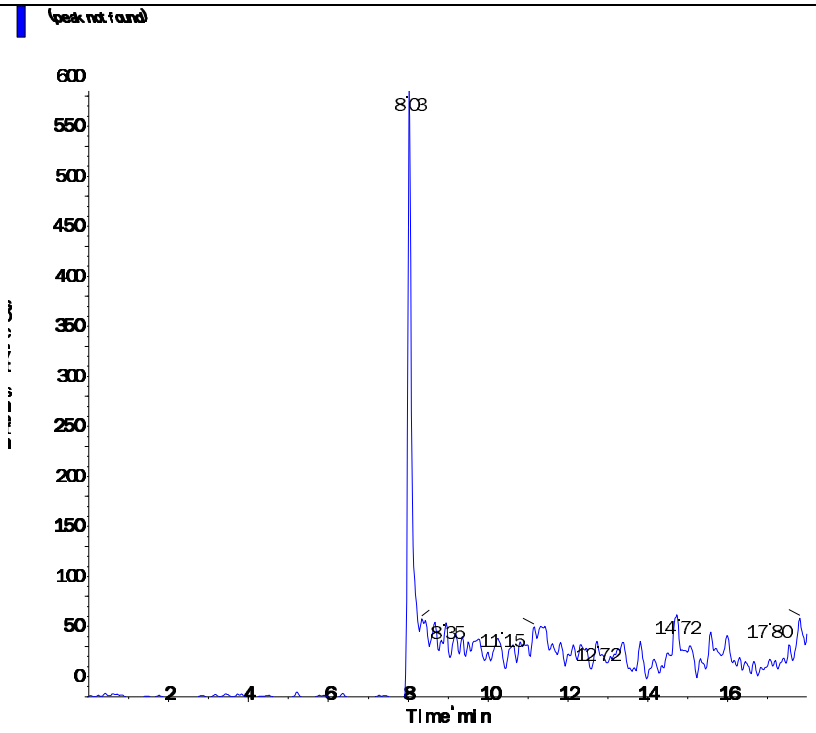
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



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Printed: 5/27/2016 10:32 AM

Data File	LM35108.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 7:40:18 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

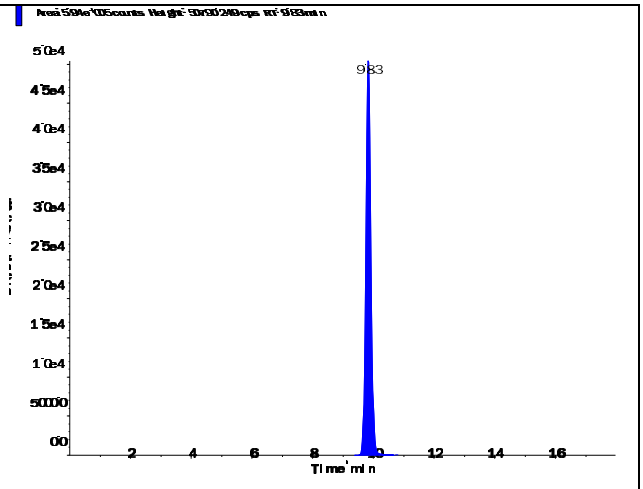
Sample Name	WG570423-04 CCB	**Injection Vial**	1.00
Data File	LM35108.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 7:40:18 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570423-04	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.940e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

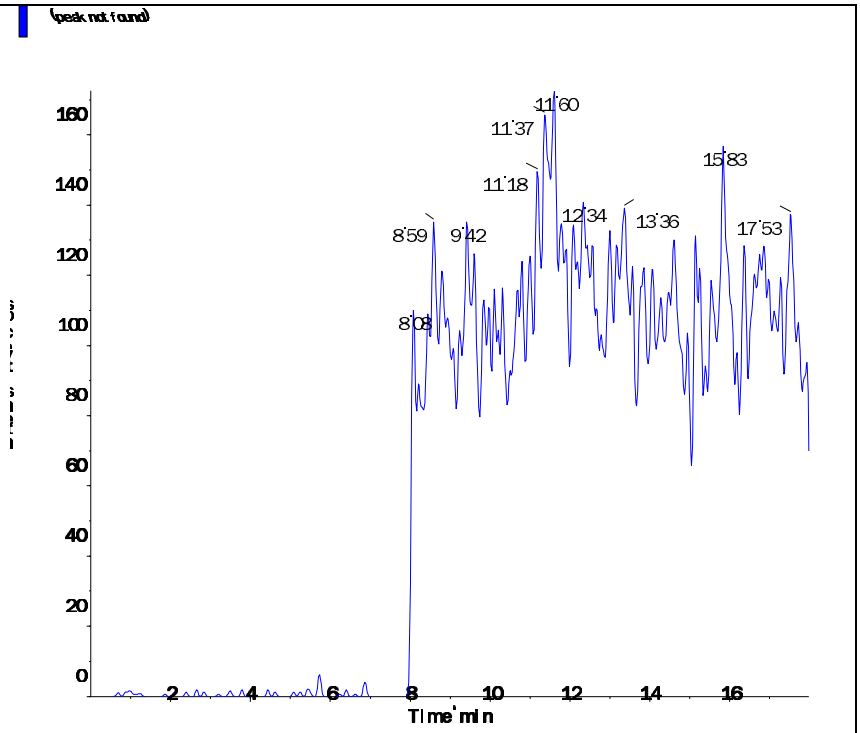
O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



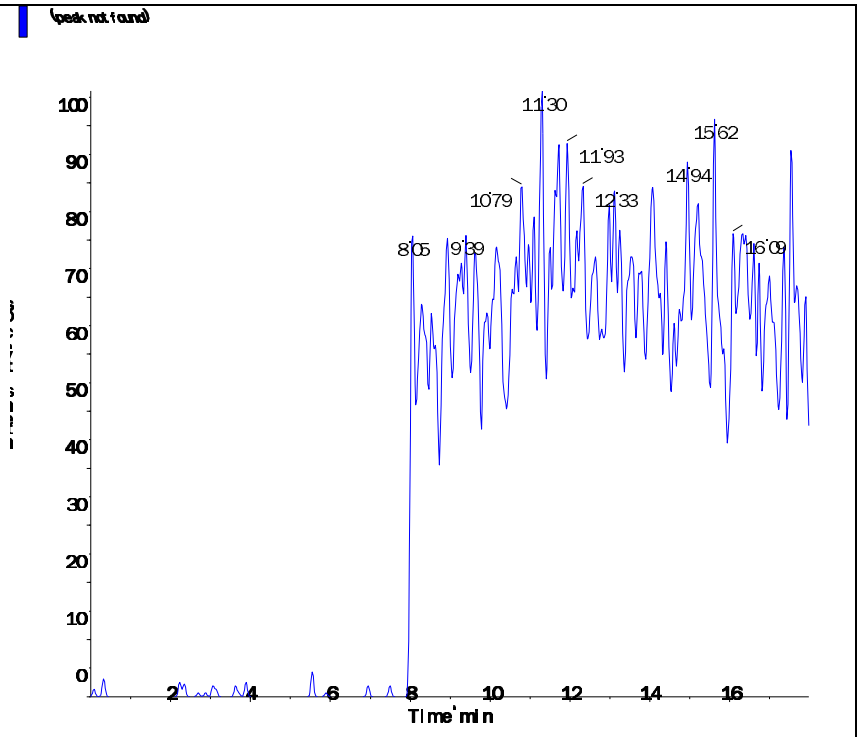
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



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Data File	LM35115.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 9:52:50 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

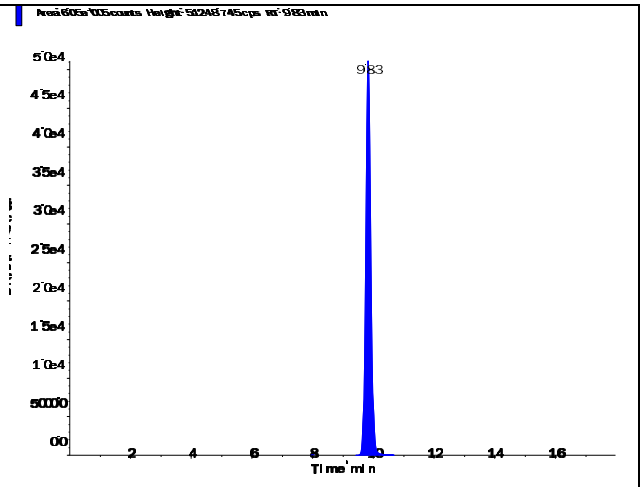
Sample Name	WG570423-06 CCB	**Injection Vial**	1.00
Data File	LM35115.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 9:52:50 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570423-06	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	6.050e+05	9.83	5.00	-

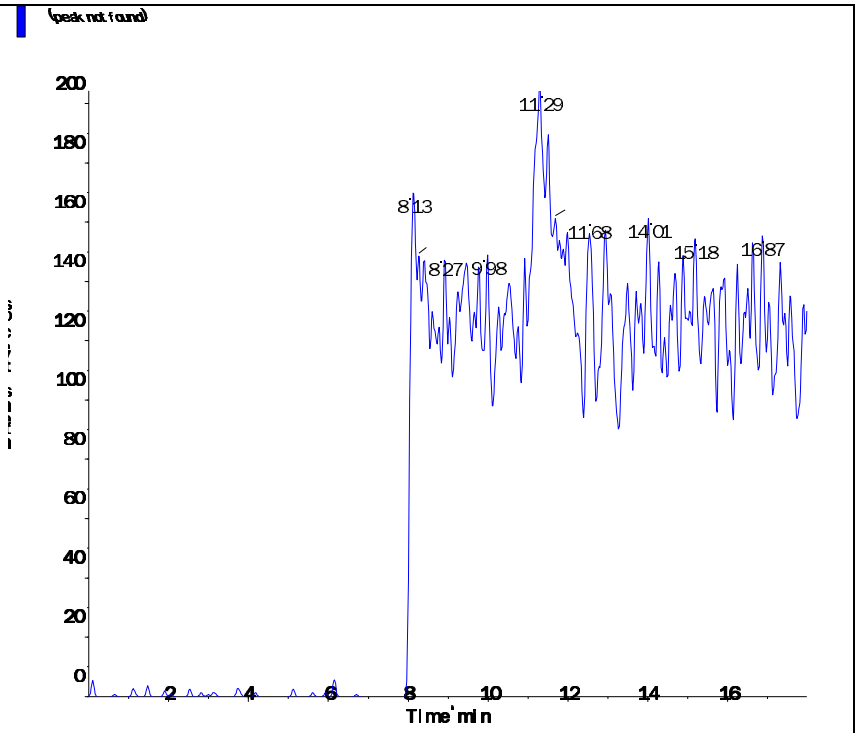
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	5.720e+02	9.82	N/A	< 0

O18LP (Internal Standard)

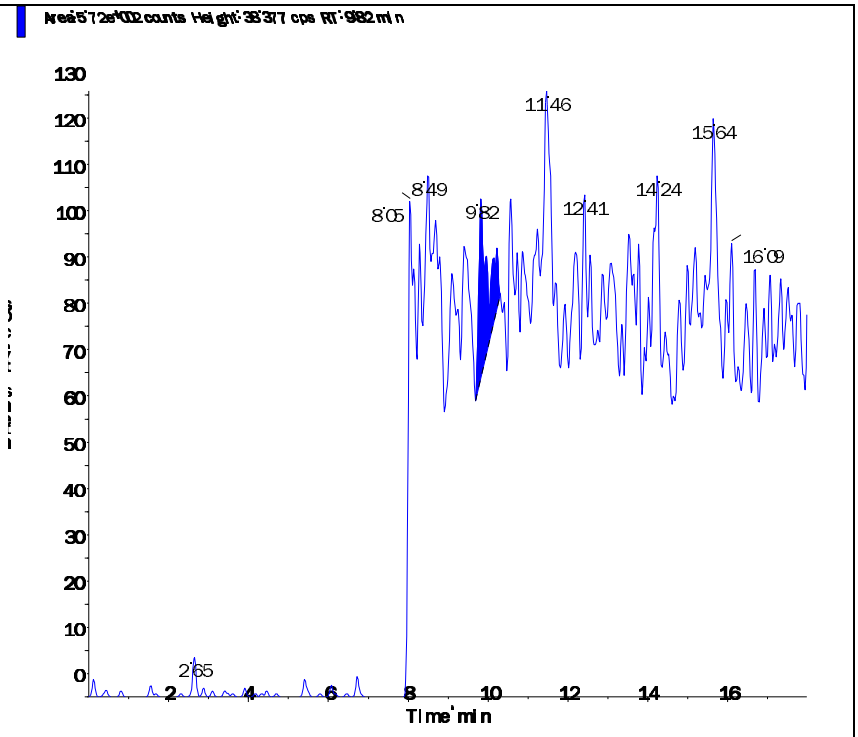
RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.82 (9.84) min < 0 ng/ml 0.001 (Unknown)



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Data File	LM35096.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 3:53:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

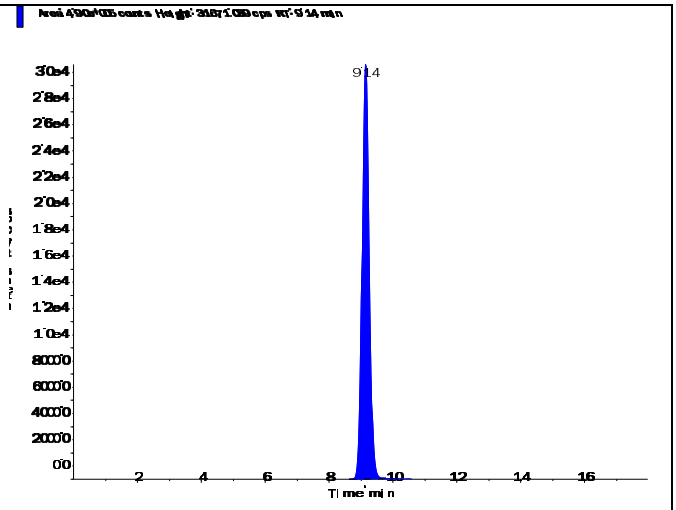
Sample Name	WG570422-01 MCT (0.2ug/L)	**Injection Vial**	4.00
Data File	LM35096.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 3:53:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570422-01	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

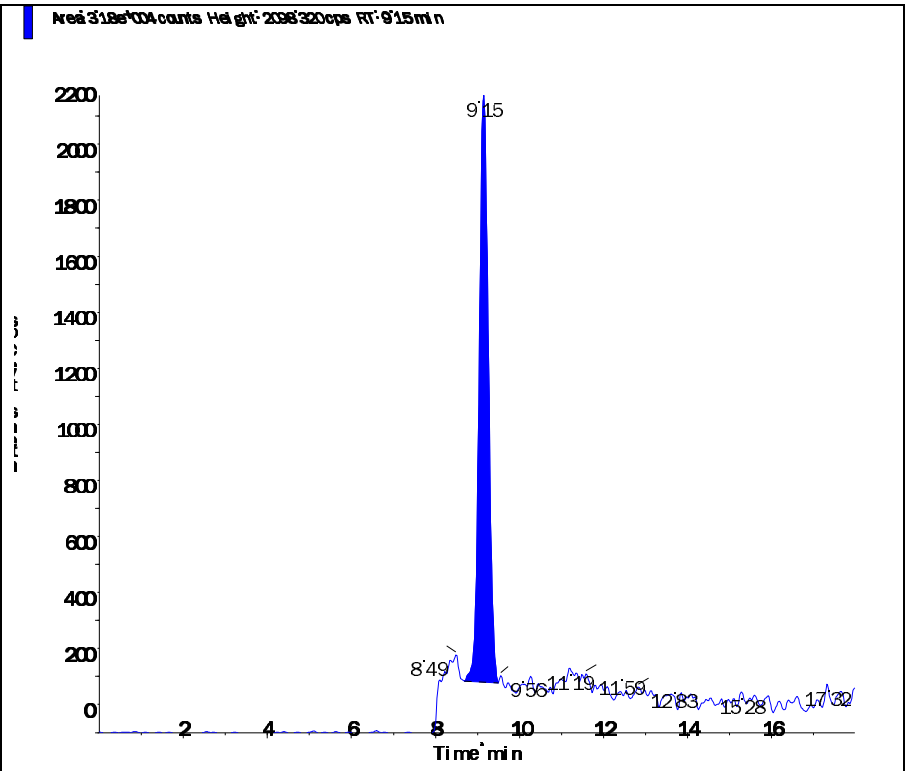
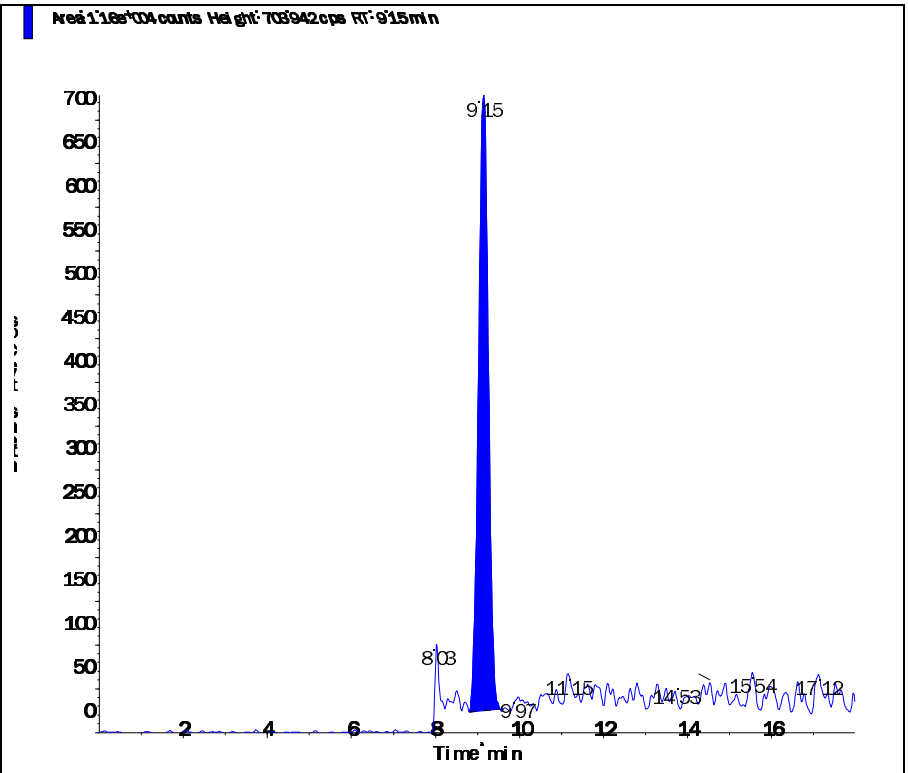
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.900e+05	9.14	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.180e+04	9.15	N/A	0.189
Perchlorate conf	1.160e+04	9.15	N/A	0.192

O18LP (Internal Standard)

RT (Exp. RT): 9.14(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)

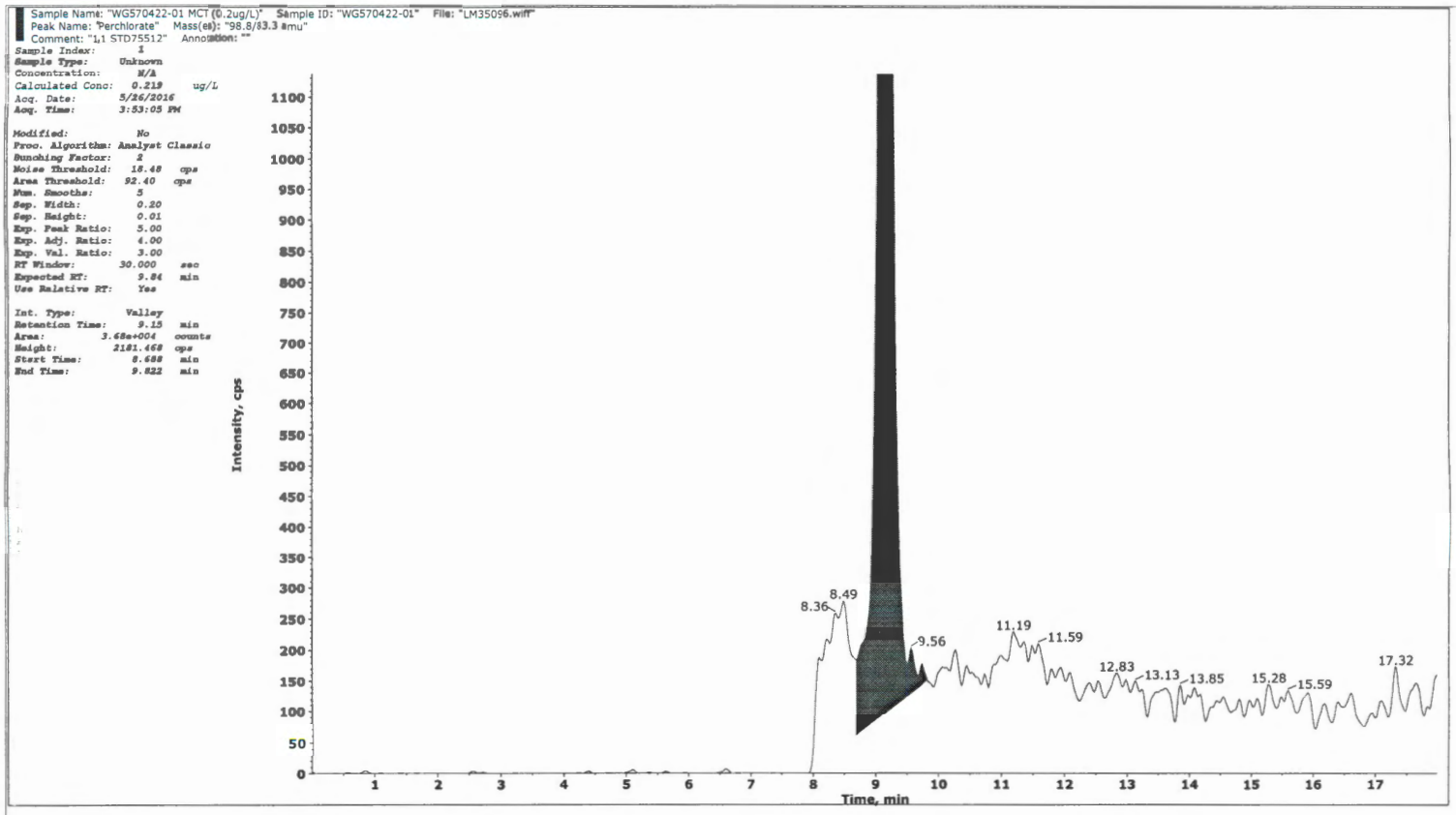


Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.15 (9.84) min Calculated conc: 0.189 ng/ml Area Ratio: 0.065 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.15 (9.84) min Calculated conc: 0.192 ng/ml Area Ratio: 0.024 Sample Type: (Unknown)	

Printing Time: 9:54:59 AM
Printing Date: Friday, May 27, 2016

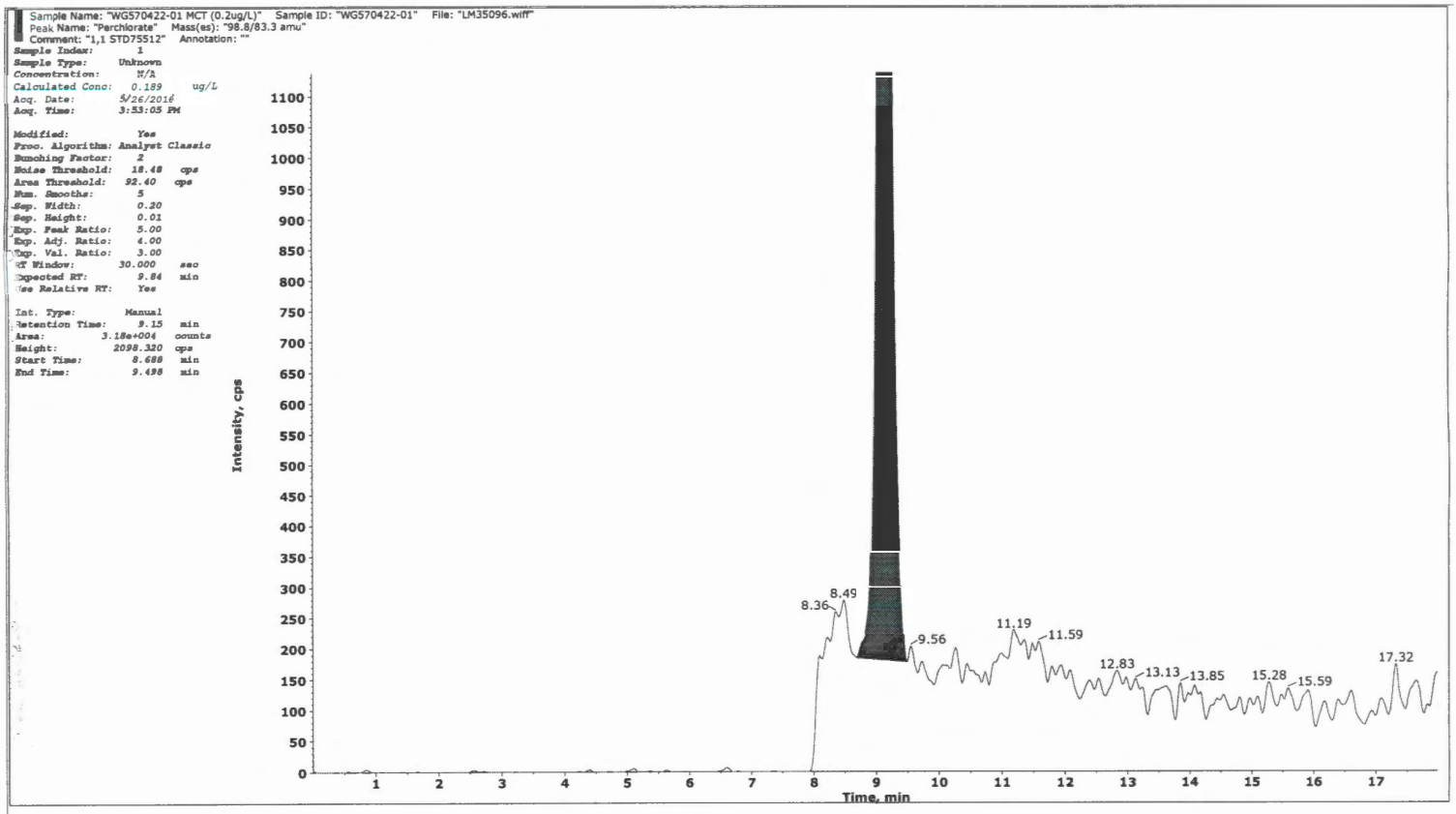
Sample Name: "WG570422-01 MCT (0.2ug/L)" Sample ID: "WG570422-01" File: "LM35096.wiff"
Peak Name: "Perchlorate" Mass(es): "98.8/83.3 amu"
Comment: "L1 STD75512" Annotation: ""

Sample Index:	1	
Sample Type:	Unknown	
Concentration:	N/A	
Calculated Conc:	0.219	ug/L
Acq. Date:	5/26/2016	
Acq. Time:	3:53:05 PM	
Modified:	No	
Proc. Algorithm:	Analyst Classic	
Bunching Factor:	2	
Noise Threshold:	18.48	cps
Area Threshold:	92.40	cps
Num. Smooths:	5	
Sep. Width:	0.20	
Sep. Height:	0.01	
Exp. Peak Ratio:	5.00	
Exp. Adj. Ratio:	4.00	
Exp. Val. Ratio:	3.00	
RT Window:	30.000	sec
Expected RT:	9.84	min
Use Relative RT:	Yes	
Int. Type:	Valley	
Retention Time:	9.15	min
Area:	3.68e+004	counts
Height:	2181.468	cps
Start Time:	8.688	min
End Time:	9.822	min



Collected by: N/A
Electronic Signature: no
Operator: lcmsl

Printing Time: 9:58:51 AM
Printing Date: Friday, May 27, 2016



#4
JWR/05/27/16

✓ WD
5-27-16

Collected by: N/A
Electronic Signature: no
Operator: lcms1

2.2.1.5 Raw QC Data

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Data File	LM35097.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 4:12:00 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

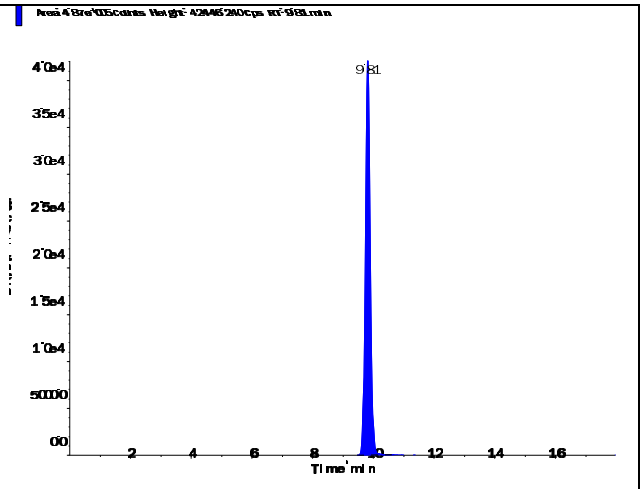
Sample Name	WG570422-02 BLANK	**Injection Vial**	5.00
Data File	LM35097.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 4:12:00 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570422-02	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

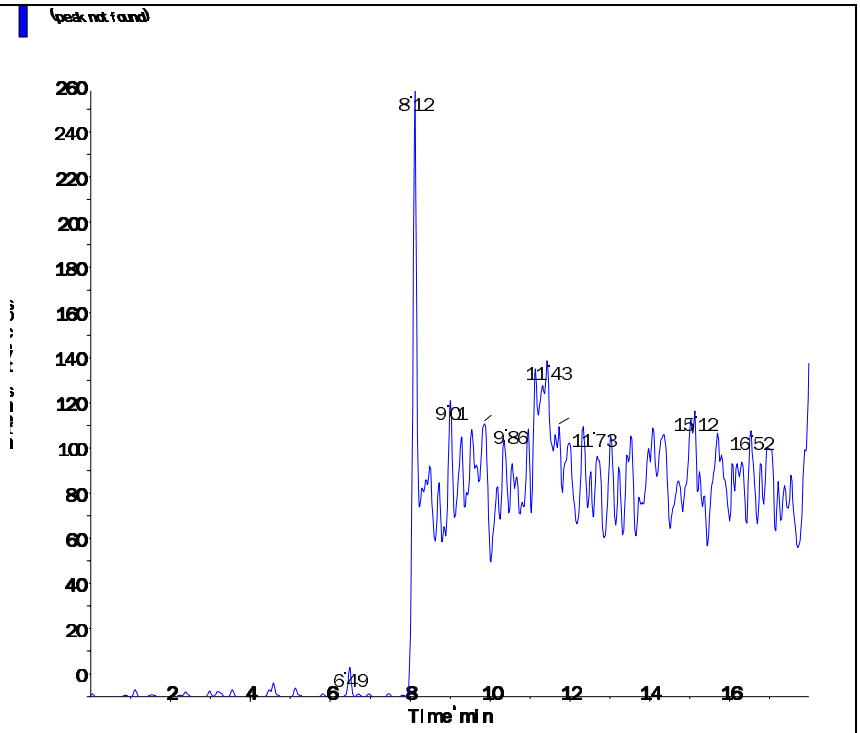
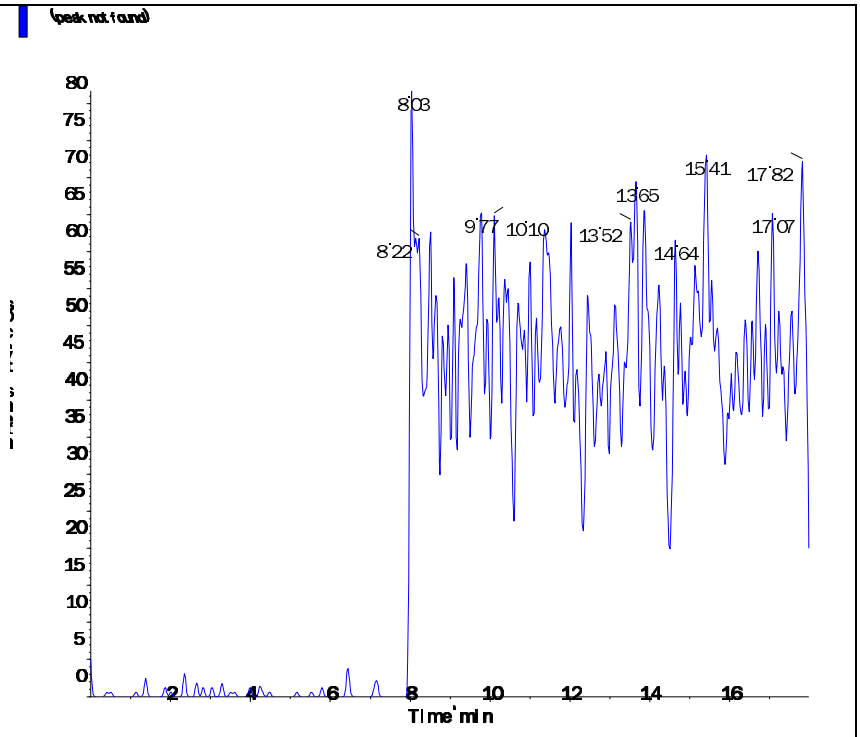
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.870e+05	9.81	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.81(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 0.00 (9.84) min Calculated conc: No Peak ng/ml Area Ratio: 0.00 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 0.00 (9.84) min Calculated conc: No Peak ng/ml Area Ratio: 0.00 Sample Type: (Unknown)	

Applied Biosystems | MDS SCIEX

Created with Analyst Reporter
Printed: 5/27/2016 10:29 AM

Data File	LM35098.wiff	**Result Table**	052616_JWR.rdb
Acquisition Date	5/26/2016 4:30:55 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

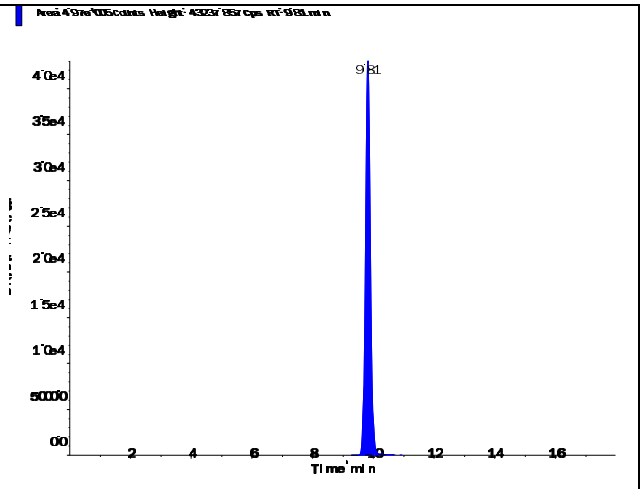
Sample Name	WG570422-03 LCS (0.2ug/L)	**Injection Vial**	6.00
Data File	LM35098.wiff	**Injection Volume**	10.00
Acquisition Date	5/26/2016 4:30:55 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	052616_JWR.rdb
Sample ID	WG570422-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

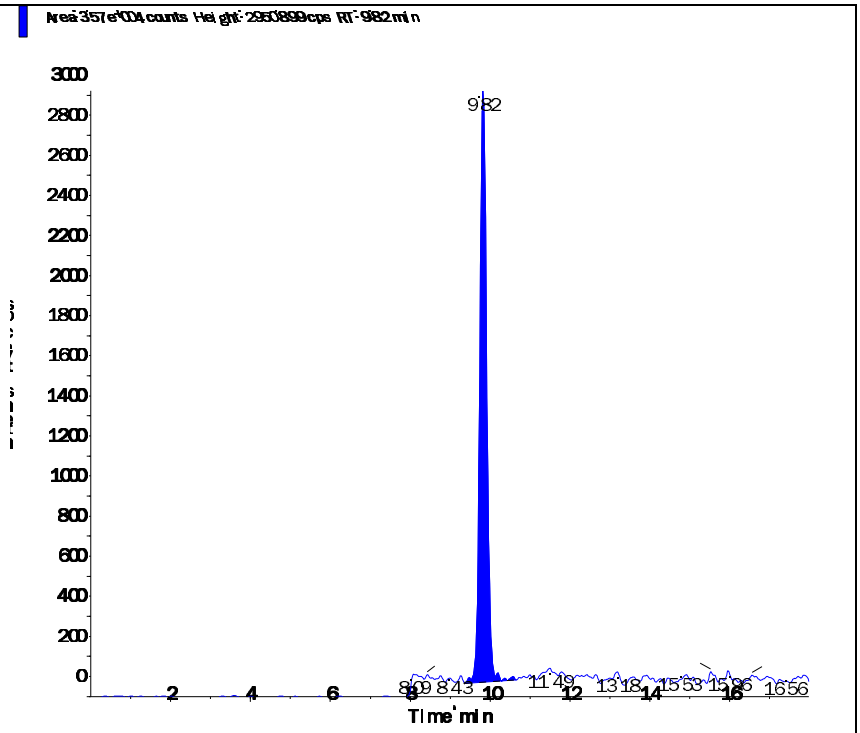
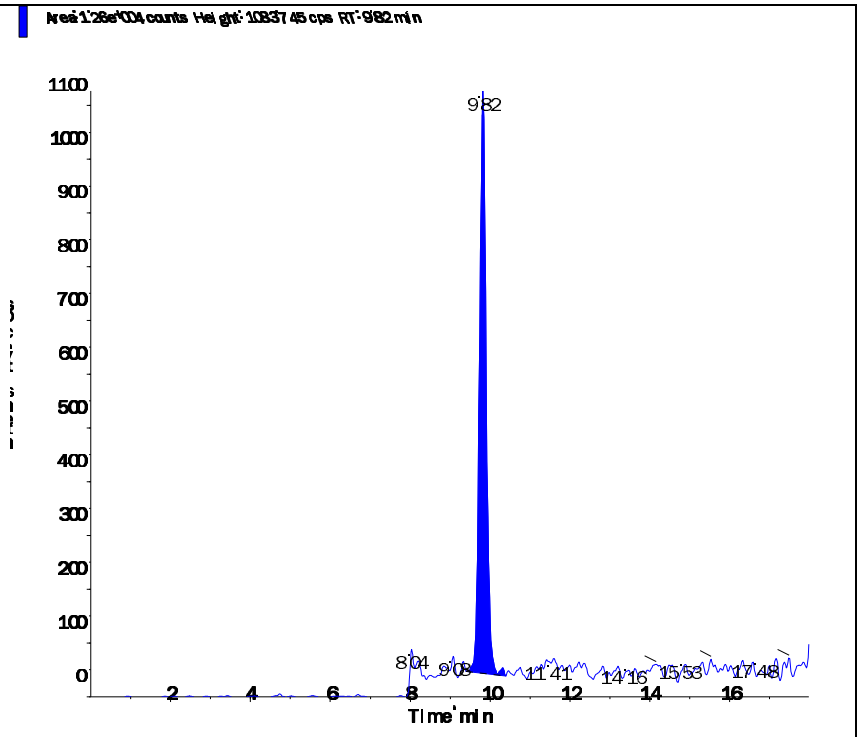
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.970e+05	9.81	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.570e+04	9.82	N/A	0.21
Perchlorate conf	1.260e+04	9.82	N/A	0.207

O18LP (Internal Standard)

RT (Exp. RT): 9.81(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.82 (9.84) min Calculated conc: 0.21 ng/ml Area Ratio: 0.072 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.82 (9.84) min Calculated conc: 0.207 ng/ml Area Ratio: 0.025 Sample Type: (Unknown)	

3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
May 27, 2016

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001 – BIO-CHEM TESTING WVDEP 220	002 – REIC Consultants, Inc. WVDEP 060
003 – Sturm Environmental	004 – MICROBAC PITTSBURGH
005 – ES LABORATORIES	006 – ALCOSAN LABORATORIES
007 – ALS LABORATORIES	008 – BENCHMARK LABORATORIES
010 – MICROBAC CHICAGOLAND	AC – AMBER R. CARMICHAEL
ADC – ANTHONY D. CANTER	ADG – APRIL D. GREENE
AED – ALLEN E. DAVIS	ALS – ADRIANE L. STEED
AMA – ALEXANDRA M. ALFRED	AWE – ANDREW W. ESSIG
AZH – AFTER HOURS	BJO – BRIAN J. OGDEN
BKT – BRENDAN TORRENCE	BLG – BRENDA L. GREENWALT
BRG – BRENDA R. GREGORY	CAA – CASSIE A. AUGENSTEIN
CAF – CHERYL A. FLOWERS	CEB – CHAD E. BARNES
CJR – COURTNEY J. REXROAD	CLC – CHRYS L. CRAWFORD
CLS – CARA L. STRICKLER	CLW – CHARISSA L. WINTERS
CPD – CHAD P. DAVIS	CSH – CHRIS S. HILL
DAK – DEAN A. KETELSEN	DCM – DAVID C. MERCKLE
DEV – DAVID E. VANDENBERG	DIH – DEANNA I. HESSON
DLB – DAVID L. BUMGARNER	DLP – DOROTHY L. PAYNE
DLW – DIANA L. WRIGHT	DSM – DAVID S. MOSSOR
ECL – ERIC C. LAWSON	EMW – ERIC M. WILKEN
ENY – EMILY N. YOAK	ERP – ERIN R. PORTER
FJB – FRANCES J. BOLDEN	JBK – JEREMY B. KINNEY
JDH – JUSTIN D. HESSON	JDS – JARED D. SMITH
JJS – JOHN J. STE MARIE	JKP – JACQUELINE K. PARSONS
JLD – JESSICA L. DELONG	JLL – JOHN L. LENT
JMW – JEANA M. WHITE	JTP – JOSHUA T. PEMBERTON
JWR – JOHN W. RICHARDS	JWS – JACK W. SHEAVES
JYH – JI Y. HU	KAJ – KELLIE A. JOHNSON
KAT – KATHY A. TUCKER	KDW – KATHRYN D. WELCH
KEB – KATIE E. BARNES	KHR – KIM H. RHODES
KKB – KERRI K. BUCK	KRA – KATHY R. ALBERTSON
KRB – KAELY R. BECKER	KRP – KATHY R. PARSONS
LEC – LAURA E. CARPENTER	LKN – LINDA K. NEDEFF
LLS – LARRY L. STEPHENS	LSB – LESLIE S. BUCINA
MAP – MARLA A. PORTER	MBK – MORGAN B. KNOWLTON
MDA – MIKE D. ALBERTSON	MDC – MIKE D. COCHRAN
MES – MARY E. SCHILLING	MLB – MEGAN L. BACHE
MMB – MAREN M. BEERY	MRT – MICHELLE R. TAYLOR
MSW – MATT S. WILSON	PDM – PIERCE D. MORRIS
PIT – MICROBAC WARRENDALE	PRL – PAIGE R. LAMB
PSW – PEGGY S. WEBB	QX – QIN XU
RAH – ROY A. HALSTEAD	REK – BOB E. KYER
RLB – BOB BUCHANAN	RM – RAYMOND MALEKE
RNP – RICK N. PETTY	RST – ROBIN S. TURNER
SAV – SARAH A. VANDENBERG	SCB – SARAH C. BOGOLIN
SDC – SHALYN D. CONLEY	SLM – STEPHANIE L. MOSSBURG
SLP – SHERI L. PFALZGRAF	TB – TODD BOYLE
TGF – TIM G. FELTON	TMB – TIFFANY M. BAILEY
TMM – TAMMY M. MORRIS	VC – VICKI COLLIER
WJB – WILL J. BEASLEY	WRR – WESLEY R. RICHARDS
WTD – WADE T. DELONG	XXX – UNAVAILABLE OR SUBCONTRACT

Microbac Laboratories Inc.
List of Valid Qualifiers
May 27, 2016

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Greater than
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B,H1	Analyte present in method blank. Sample analysis performed past holding time.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	Cooler temperature at sample reciept exceeded regulatory limit.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
E,CT1	Estimated results. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
F,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
FL	Free Liquid
FP1	Did not ignite.
H1	Sample analysis performed past holding time.
H1,CT1	Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guidelines for reque
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated value ; the analyte concentration was less than the LOQ. Cooler temperature at sample reciept exceeded regu
J,H1	Estimated value ; the analyte concentration was less than the LOQ. Sample analysis performed past holding time.
J,H1	The reported result is an estimated value. Sample was analyzed past holding time.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	The reported result is an estimated value. The reported result is also associated with a contaminated method blank.
JQ	The reported result is an estimated value and one or more quality control criteria failed. See narrative.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentativlely identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
ND, B	Not detected at or above the reporting limit (RL). Analyte present in method blank.
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
ND,H1	Not detected; Sample analysis performed past holding time.
ND,H1,CT1	Not detected; Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guide
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
Q,H1	One or more quality control criteria failed. Sample analyzed past holding time. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
T5	Laboratory not licensed for this parameter
TIC	Library Search Compound
TNTC	Too numerous to count

Microbac Laboratories Inc.
List of Valid Qualifiers
May 27, 2016

Qualkey: DOD

TNTC, B	Too numerous to count. Analyte present in method blank.
TNTC,CT1	Too numerous to count. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
TNTC,H1	Too numerous to count. Sample analysis performed past holding time.
U	Analyte was not detected. The concentration is below the reported LOD.
U,CT1	Analyte was not detected. The concentration is below the reported LOD. Cooler temperature at sample reciept exceeded
U,H1	Not detected; Sample analysis performed past holding time.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

00889511

AECOM

Chain of Custody Record

COC Number:

Laboratory:	Microbac POC: Stephanie Mossburg	Project Manager:	Debra Richmann
Address:	158 Starlite Drive	Phone/Fax Number:	210-296-2000
	Marietta, OH 45750	Sampler (print):	Scott Beesinger
Phone:	1-800-373-4071		
Client:	AECOM	Signature:	Scott Beesinger
Address:	112 East Pecan Ste. 400		
	San Antonio, TX 78205	pH:	
Turn Around Time:	STANDARD		
Project Name/Location:	Longhorn		
Project Number:	60256135.0002GA		

Mail to: Linda Raabe, 112 East Pecan STE. 400, San Antonio, TX 78205, 210-296-2000

Fed Ex Airbill No:

Program:

ERPIMS REQUIRED FIELDS

Site Name	Sample ID/Location ID	SBD	SED	Date	Time	Comp-	Grab	Matrix	Number of Containers	VOC	Perchlorate	SA CODE	Cooler ID	LOT CONTROL NUMBERS ABLOT	EBLOT	TBLOT
SITE 50	50WW19T-051316			5/13/16	0945		✓	W	4	✓	✓					
	50WW19M-051316			5/13/16	1025		✓	W	4	✓	✓					
	50WW19B-051316			5/13/16	1110		✓	W	4	✓	✓					
	50WW17T-051316			5/13/16	1330		✓	W	4	✓	✓					
	50WW17M-051316			5/13/16	1405		✓	W	4	✓	✓					
	50WW17B-051316			5/13/16	1435		✓	W	4	✓	✓					
	50WW13T-051316			5/13/16	1540		✓	W	4	✓	✓					
	50WW13B-051316			5/13/16	1610		✓	W	4	✓	✓					
	TRIP BLANK			5/13/16			✓	W	2	✓						

Comments: **STANDARD TAT**

Microbac OVD
Received: 05/17/2016 10:05
By: CARA STRICKLER
221000086033

Relinquished by: (Signature)	Scott Beesinger	Date: 5/16/16	Time: 1500	Received by:	Relinquished by: (Signature)
Relinquished by: (Signature)		Date	Time	Received for (Signature): Cara Strickler	Remarks:

*Homogenize all composite samples prior to analysis

Distribution: White to Laboratory, Canary to Project Manager, Pink QA/QC Manager

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16050972
Account: 2551
Project: 2551.096
Samples: 9
Due Date: 27-MAY-2016

Samplenum	Container ID	Products
L16050972-01	746168	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Samplenum	Container ID	Products
L16050972-01	746169	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:34	CLS	JWR	

Samplenum	Container ID	Products
L16050972-02	746170	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16050972
Account: 2551
Project: 2551.096
Samples: 9
Due Date: 27-MAY-2016

Samplenum	Container ID	Products
L16050972-02	746171	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:35	CLS	JWR	

Samplenum	Container ID	Products
L16050972-03	746172	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Samplenum	Container ID	Products
L16050972-03	746173	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:35	CLS	JWR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16050972
Account: 2551
Project: 2551.096
Samples: 9
Due Date: 27-MAY-2016

Samplenum	Container ID	Products
L16050972-04	746174	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		17-MAY-2016 15:41	BRG		

Samplenum	Container ID	Products
L16050972-04	746175	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:35	CLS	JWR	

Samplenum	Container ID	Products
L16050972-05	746176	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16050972
Account: 2551
Project: 2551.096
Samples: 9
Due Date: 27-MAY-2016

Samplenum	Container ID	Products
L16050972-05	746177	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:35	CLS	JWR	

Samplenum	Container ID	Products
L16050972-06	746178	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:11	AWE	CLS	

Samplenum	Container ID	Products
L16050972-06	746179	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:35	CLS	JWR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16050972
Account: 2551
Project: 2551.096
Samples: 9
Due Date: 27-MAY-2016

Samplenum	Container ID	Products
L16050972-07	746180	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

Samplenum	Container ID	Products
L16050972-07	746181	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:35	CLS	JWR	

Samplenum	Container ID	Products
L16050972-08	746182	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16050972
Account: 2551
Project: 2551.096
Samples: 9
Due Date: 27-MAY-2016

Samplenum	Container ID	Products
L16050972-08	746183	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	17-MAY-2016 15:41	BRG		
2	ANALYZ	W1	SEM	26-MAY-2016 08:54	JWR	CLS	
3	STORE	SEM	A1	27-MAY-2016 11:35	CLS	JWR	

Samplenum	Container ID	Products
L16050972-09	746184	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	17-MAY-2016 15:41	BRG		
2	ANALYZ	V1	ORG4	17-MAY-2016 16:10	AWE	CLS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

NELAP Addendum - January 4, 2016

Non-NELAP LIMS Product and Description

The following is a list of those tests that are not included in the Microbac – OVD NELAP Scope of Accreditation:

Heat of Combustion (BTU)
Total Halide by Bomb Combustion (TX)
Particle Sizing - 200 Mesh (PS200)
Specific Gravity/Density (SPGRAV)
Total Residual Chlorine (CL-TRL)
Total Volatile Solids (all forms) (TVS)
Total Coliform Bacteria (all methods)
Fecal Coliform Bacteria (all methods)
Sulfite (SO3)
Propionaldehyde (HPLC-UV)

SOLID AND HAZARDOUS CHEMICALS
Nitrogen, Ammonia by Method 350.1
Chromium, Hexavalent, Leachable by SM3500 Cr-B 2009
Phenolics, Total by Method 420.1
ASTM D3987-06

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD HPLC02/HPLC-UV

Nitroglycerin
Acetic acid
Butyric acid
Lactic acid
Propionic acid
Pyruvic acid

OVD MSS01/GC-MS

1,4-Phenylenediamine
1-Methylnaphthalene
1,4-Dioxane
Atrazine
Benzaldehyde
Biphenyl
Caprolactam
Hexamethylphosphoramide (HMPA)
Pentachlorobenzene
Pentachloroethane

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD MSV01/GC-MS

1, 1, 2-Trichloro-1,2,2-trifluoroethane
1,3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
T-amylmethylether (TAME)
Tetrahydrofuran (THF)

OVD HPLC07/HPLC-MS-MS

Hexamethylphosphoramide (XMPA-LCMS)

OVD HPLC12/HPLC/UV

Acetate
Formate

OVD RSK01/GC-FID

Acetylene
Propane

OVD K9305/ISE

Fluoroborate

SOLID AND HAZARDOUS CHEMICALS

OVD MSS0I/GC-MS

1-Methylnaphthalene
Benzaldehyde
Biphenyl
Caprolactam
Pentachloroethane

NELAP Accreditation by Laboratory SOP

SOLID AND HAZARDOUS CHEMICALS

OVD MSV0I/GC-MS

1.3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
n-Hexane
T-amylmethylether (TAME)

Microbac

Laboratory Report Number: L16051583

Kayla Teague
AECOM Technical Services, Inc.
16000 Dallas Parkway
Dallas, TX 75248

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Michelle Taylor – Client Services Specialist
(740) 373-4071
Michelle.Taylor@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on June 03 2016

David Vandenberg – Managing Director

State of Origin: TX
Accrediting Authority: Texas Commission on Environmental Quality ID:T104704252-07-TX
QAPP: DOD Ver 4.1

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

The following discrepancies were noted:

Discrepancy	Resolution
HBW 1 - 022516 on COC but the label has HBW 1 - 052716. CLS	Please log per the COC. SLM

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00113835	H	3.0		J2317165161	X

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	No
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	All samples were checked for pH and met the standard. Exceptions are noted above under discrepancy. (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	NA
12	Were VOA samples free of headspace (less than 6mm)?	NA

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
GPW 1 - 052716	L16051583-01	05/27/2016 08:50	05/28/2016 11:36
GPW 3 - 052716	L16051583-02	05/27/2016 09:05	05/28/2016 11:36
HBW 1 - 022516	L16051583-03	05/27/2016 09:20	05/28/2016 11:36
HBW 10 - 052716	L16051583-04	05/27/2016 09:33	05/28/2016 11:36
HBW 7 - 052716	L16051583-05	05/27/2016 09:50	05/28/2016 11:36

Microbac REPORT L16051583
PREPARED FOR AECOM Technical Services, Inc.
WORK ID:

1.0 Summary Data

1.1 Narratives

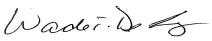
Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16051583
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG570932	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-06-02 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Wade DeLong		Chemist I	2016-06-02 20:26:04

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16051583
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG570932	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-06-02 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?			X		
Were % moisture (or solids) reported for all soil and sediment samples?			X		
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples	X				
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16051583
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG570932	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-06-02 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?			X		
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16051583
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG570932	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-06-02 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?	X				
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?	X				
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?			X		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?	X				
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
Method detection limit (MDL) studies					

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16051583
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG570932	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-06-02 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16051583
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG570932	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-06-02 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

1.2 Certificate of Analysis

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16051583-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 1 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:00
Collect Date:	05/27/2016 08:50	**Dilution:**	1	**File ID:**	1LM.LM35128
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	6.59		0.400	0.200	0.100

Certificate of Analysis

Sample #:	L16051583-02	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 3 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:19
Collect Date:	05/27/2016 09:05	**Dilution:**	1	**File ID:**	1LM.LM35129
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.457		0.400	0.200	0.100

Certificate of Analysis

Sample #:	L16051583-03	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 1 - 022516	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:38
Collect Date:	05/27/2016 09:20	**Dilution:**	1	**File ID:**	1LM.LM35130
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16051583-04	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 10 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:57
Collect Date:	05/27/2016 09:33	**Dilution:**	1	**File ID:**	1LM.LM35131
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16051583-05	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 7 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 17:16
Collect Date:	05/27/2016 09:50	**Dilution:**	1	**File ID:**	1LM.LM35132
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

2.0 Full Sample Data Package

2.1 General Chromatography Data

2.1.1 6850 LC/MS Data

2.1.1.1 Summary Data

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16051583-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 1 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:00
Collect Date:	05/27/2016 08:50	**Dilution:**	1	**File ID:**	1LM.LM35128
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	6.59		0.400	0.200	0.100

Certificate of Analysis

Sample #:	L16051583-02	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 3 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:19
Collect Date:	05/27/2016 09:05	**Dilution:**	1	**File ID:**	1LM.LM35129
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.457		0.400	0.200	0.100

Certificate of Analysis

Sample #:	L16051583-03	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 1 - 022516	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:38
Collect Date:	05/27/2016 09:20	**Dilution:**	1	**File ID:**	1LM.LM35130
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16051583-04	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 10 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 16:57
Collect Date:	05/27/2016 09:33	**Dilution:**	1	**File ID:**	1LM.LM35131
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16051583-05	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 7 - 052716	**Prep Method:**	6850	**Prep Date:**	06/01/2016 12:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG570932	**Analyst:**	JWR	**Run Date:**	06/01/2016 17:16
Collect Date:	05/27/2016 09:50	**Dilution:**	1	**File ID:**	1LM.LM35132
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16051583
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

2.1.1.2 QC Summary Data

Example Calculation 6850 - Perchlorate

Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of internal standard (IS) = Rx/Ristd

x = amount ratio = concentration analyte/concentration internal standard (IS) = Cx / Cistd

m = slope from curve (1.45)

b = intercept from curve (-0.00242)

y = 1.45x + -0.00242

Step 2: Substitute the value for y

where y = 12600/226000 = 0.055752

Step 3: Solve for x

x = (y - b)/m = 0.0040119

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(x) = (5 ug/L)(0.040119) = 0.200594 ug/L

Example Calculation - Water:

Slope from curve, m:	1.45
Intercept from curve, b:	-0.00242
Response of analyte, Rx:	12600
Response of Internal Standard , Ristd:	226000
Concentration of IS, Cistd (ug/L):	5.00
Response Ratio:	0.05575
Amount Ratio:	0.04012
Analyte Concentration, Cx (ug/L) :	0.200594

Example Calculation - Soil:

Analyte Concentration, Cx (ug/L):	0.20059
Amount of soil extracted (g):	5.00
Final volume of extract (mL):	50.00
Percent solids (Pct wt.)	100
Concentration in soil (ug/kg):	2.005938

Perchlorate Conductivity Check
(perchlorate1)

Conductivity Probe Calibration Check: 1403 /1410 µs/cm

Working MCT Level: 10,000 µs/cm

Sample	Conductivity (µs/cm)	Pretreatment or Dilution Needed
WG570932-01 MCT	9,940.	
-02 BLK	0.37	
-03 LCS	0.41	
-04 LCS2	0.43	
L16051581-01	3,020.	
L16051583-01	155.1	
-02	147.1	
-03	198.7	
-04	198.1	
-05	253.	

Analyst: John Richards

Date/Time: 06/01/16 / 14:30

DCN#118818

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG567013 (soils)
Internal STD: COA18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD75510 LCS STD: STD75512 MS/MSD STD: STD75512

Comments: ICAL WG567320 : Alternate Source STD75512
Analytical Column : RPPX 5um (250x4.6mm)
K'Prime S/N RPPX250-02115

Samples L16041363(-05 and -10) were analyzed at dilutions based on their pre-run screen results.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM34686	WG567320-01 CCB	1	1		05/03/16 15:06
2	1LM.LM34687	WG567320-02 STD (0.1 ug/L)	1	1	STD75510	05/03/16 15:25
3	1LM.LM34688	WG567320-03 STD (0.2 ug/L)	1	1	STD75510	05/03/16 15:43
4	1LM.LM34689	WG567320-04 STD (0.5 ug/L)	1	1	STD75510	05/03/16 16:02
5	1LM.LM34690	WG567320-05 STD (1.0 ug/L)	1	1	STD75510	05/03/16 16:21
6	1LM.LM34691	WG567320-06 STD (2.0 ug/L)	1	1	STD75510	05/03/16 16:40
7	1LM.LM34692	WG567320-07 STD (5.0 ug/L)	1	1	STD75510	05/03/16 16:59
8	1LM.LM34693	WG567320-08 STD (10 ug/L)	1	1	STD75510	05/03/16 17:18
9	1LM.LM34694	WG567320-09 SSCV (1.0 ug/L)	1	1	STD75512	05/03/16 17:37
10	1LM.LM34695	WG567321-01 CCB	1	1		05/03/16 17:56
11	1LM.LM34696	WG567321-02 CCV (1.0ug/L)	1	1	STD75510	05/03/16 18:15
12	1LM.LM34697	WG567013-07 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 18:34
13	1LM.LM34698	WG567013-01 MCT (2.0ug/kg)	7	1	STD75512	05/03/16 18:53
14	1LM.LM34699	WG567013-02 BLANK	7	1		05/03/16 19:12
15	1LM.LM34700	WG567013-03 LCS (2.0ug/kg)	7	1	STD75512	05/03/16 19:31
16	1LM.LM34701	L16041363-07 RS	7	1		05/03/16 19:50
17	1LM.LM34702	L16041363-08 MS	7	1	STD75512	05/03/16 20:09
18	1LM.LM34703	L16041363-09 MSD	7	1	STD75512	05/03/16 20:28
19	1LM.LM34704	L16041363-01	7	1		05/03/16 20:46
20	1LM.LM34705	L16041363-02	7	1		05/03/16 21:05
21	1LM.LM34706	L16041363-03	7	1		05/03/16 21:24
22	1LM.LM34707	L16041363-04	7	1		05/03/16 21:43
23	1LM.LM34708	WG567321-03 CCV (1.0ug/L)	1	1	STD75510	05/03/16 22:02
24	1LM.LM34709	WG567013-08 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 22:21
25	1LM.LM34710	WG567321-04 CCB	1	1		05/03/16 22:40
26	1LM.LM34711	L16041363-05 (5x)	7	5		05/03/16 22:59
27	1LM.LM34712	L16041363-06	7	1		05/03/16 23:18
28	1LM.LM34713	L16041363-10 (5x)	7	5		05/03/16 23:37
29	1LM.LM34714	WG567321-05 CCV (1.0ug/L)	1	1	STD75510	05/03/16 23:56
30	1LM.LM34715	WG567013-09 MRL (2.0ug/kg)	7	1	STD75510	05/04/16 00:15
31	1LM.LM34716	WG567321-06 CCB	1	1		05/04/16 00:34

Comments

Page: 1 Approved: 05-MAY-16

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT

Analyst1: JWR Analyst2: NA

Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254

Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA

Analytical WG567013 (soils)

Internal STD: COA18071 Surrogate STD: NA STD75510 (05/03/2016)

CCV STD: STD75510 LCS STD: STD75512 STD75512

Comments

Seq.	Rerun	Dil.	Reason	Analytes
17				
	L16041363-08 MS : The MS %Rec is 129%. This is above the advisory limit of 120%. The parent sample to this MS had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MS %Rec would be 93.9%.			
18				
	L16041363-09 MSD : The MSD %Rec is 131%. This is above the advisory limit of 120%. The parent sample to this MSD had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MSD %Rec would be 95.4%.			

Page: 2 Approved: 05-MAY-16

Wade D

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 060116_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG570932 (waters)
Internal STD: COA18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD75510 LCS STD: STD75512 MS/MSD STD: NA

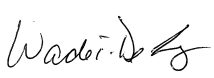
Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM35120	WG570935-01 CCB	1	1		06/01/16 13:28
2	1LM.LM35121	WG570935-02 CCV (1.0ug/L)	1	1	STD75510	06/01/16 13:47
3	1LM.LM35122	WG570932-05 MRL (0.2ug/L)	1	1	STD75510	06/01/16 14:06
4	1LM.LM35123	WG570932-01 MCT (0.2ug/L)	1	1	STD75512	06/01/16 14:25
5	1LM.LM35124	WG570932-02 BLANK	1	1		06/01/16 14:44
6	1LM.LM35125	WG570932-03 LCS (0.2ug/L)	1	1	STD75512	06/01/16 15:03
7	1LM.LM35126	WG570932-04 LCS2 (0.2ug/L)	1	1	STD75512	06/01/16 15:22
8	1LM.LM35127	L16051581-01	1	1		06/01/16 15:41
9	1LM.LM35128	L16051583-01	1	1		06/01/16 16:00
10	1LM.LM35129	L16051583-02	1	1		06/01/16 16:19
11	1LM.LM35130	L16051583-03	1	1		06/01/16 16:38
12	1LM.LM35131	L16051583-04	1	1		06/01/16 16:57
13	1LM.LM35132	L16051583-05	1	1		06/01/16 17:16
14	1LM.LM35133	WG570935-03 CCV (1.0ug/L)	1	1	STD75510	06/01/16 17:35
15	1LM.LM35134	WG570932-06 MRL (0.2ug/L)	1	1	STD75510	06/01/16 17:54
16	1LM.LM35135	WG570935-04 CCB	1	1		06/01/16 18:13

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1 Approved: 02-JUN-16



Microbac Laboratories Inc.

Data Checklist

Date: 03-MAY-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: WG567320
Runlog ID: 74891
Analytical Workgroups: L16041363 (SOILS)

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	WTD

Primary Reviewer:
04-MAY-2016
John Richards

Secondary Reviewer:
05-MAY-2016
Wadei D

CHECKLIST1 - Modified 03/05/2008
Generated: MAY-05-2016 16:23:46

Microbac Laboratories Inc.

Data Checklist

Date: 01-JUN-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: NA
Runlog ID: 75450
Analytical Workgroups: L16051581, 1583

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	WTD

Primary Reviewer:
02-JUN-2016
John Richards

Secondary Reviewer:
02-JUN-2016
Wadei D

CHECKLIST1 - Modified 03/05/2008
Generated: JUN-02-2016 16:19:53

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6850 **AAB#:** WG570932

Login Number: L16051583

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
GPW 1 - 052716	01	05/27/16					06/01/2016	5.1	28		06/01/16	.2	28	
GPW 3 - 052716	02	05/27/16					06/01/2016	5.1	28		06/01/16	.2	28	
HBW 1 - 022516	03	05/27/16					06/01/2016	5.1	28		06/01/16	.2	28	
HBW 10 - 052716	04	05/27/16					06/01/2016	5.1	28		06/01/16	.2	28	
HBW 7 - 052716	05	05/27/16					06/01/2016	5.1	28		06/01/16	.2	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 4791100
Report generated 06/03/2016 09:05

METHOD BLANK SUMMARY

Login Number: L16051583
Work Group: WG570932
Blank File ID: 1LM.LM35124
Blank Sample ID: WG570932-02
Prep Date: 06/01/16 12:00
Instrument ID: LCMS1
Analyzed Date: 06/01/16 14:44
Method: 6850
Analyst: JWR

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
QCMRL	WG570932-05	1LM.LM35122	06/01/16 14:06	01
MCT	WG570932-01	1LM.LM35123	06/01/16 14:25	01
LCS	WG570932-03	1LM.LM35125	06/01/16 15:03	01
LCS2	WG570932-04	1LM.LM35126	06/01/16 15:22	01
GPW 1 - 052716	L16051583-01	1LM.LM35128	06/01/16 16:00	01
GPW 3 - 052716	L16051583-02	1LM.LM35129	06/01/16 16:19	01
HBW 1 - 022516	L16051583-03	1LM.LM35130	06/01/16 16:38	01
HBW 10 - 052716	L16051583-04	1LM.LM35131	06/01/16 16:57	01
HBW 7 - 052716	L16051583-05	1LM.LM35132	06/01/16 17:16	01
QCMRL	WG570932-06	1LM.LM35134	06/01/16 17:54	01

Report Name: BLANK_SUMMARY
PDF File ID: 4791101
Report generated 06/03/2016 09:05

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L16051583 Prep Date: 06/01/16 12:00 Sample ID: WG570932-02
Instrument ID: LCMS1 Run Date: 06/01/16 14:44 Prep Method: 6850
File ID: 1LM.LM35124 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570932 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Perchlorate	0.100	0.400	0.100	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 4791102
03-JUN-2016 09:05

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16051583 Analyst: JWR Prep Method: 6850
Instrument ID: LCMS1 Matrix: Water Method: 6850
Workgroup (AAB#): WG570932 Units: ug/L
QC Key: DOD4 Lot #: STD75512

Sample ID: WG570932-03 LCS File ID: 1LM.LM35125 Run Date: 06/01/2016 15:03
Sample ID: WG570932-04 LCS2 File ID: 1LM.LM35126 Run Date: 06/01/2016 15:22

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Perchlorate	0.200	0.200	100	0.200	0.201	101	0.499	80 - 120	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 4791103
Report generated: 06/03/2016 09:05

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L16051583
Analytical Method: 6850
ICAL Workgroup: WG567320

Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Perchlorate		1.699	4.81	1.00000	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 4791179
Report generated 06/03/2016 09:05

Login Number: L16051583
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-02			WG567320-03			WG567320-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	0.100	17900.0000	1.792	0.200	34100.0000	1.718	0.500	82200.0000	1.637

INT_CAL - Modified 03/06/2008
PDF File ID: 4791179
Report generated 06/03/2016 09:05

Login Number: L16051583
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-05			WG567320-06			WG567320-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	1.00	168000.000	1.697	2.00	330000.000	1.672	5.00	810000.000	1.695

INT_CAL - Modified 03/06/2008
PDF File ID: 4791179
Report generated 06/03/2016 09:05

Login Number: L16051583
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-08		
	CONC	RESP	RF
Perchlorate	10.0	1530000.00	1.680

INT_CAL - Modified 03/06/2008
PDF File ID: 4791179
Report generated 06/03/2016 09:05

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L16051583 Run Date: 05/03/2016 Sample ID: WG567320-09
Instrument ID: LCMS1 Run Time: 17:37 Method: 6850
File ID: 1LM.LM34694 Analyst: JWR QC Key: DOD4
ICal Workgroup: WG567320 Cal ID: LCMS1 - 03-MAY-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Perchlorate		1.00	0.985	ug/L	1.66	1.50	15	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 4791180
Report generated 06/03/2016 09:06

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L16051583 | Run Date: 06/01/2016 | Sample ID: WG570935-01
Instrument ID: LCMS1 | Run Time: 13:28 | Method: 6850
File ID: 1LM.LM35120 | Analyst: JWR | Units: ug/L
Workgroup (AAB#): WG570932 | Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER | QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4791106
Report generated 06/03/2016 09:06

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L16051583 | Run Date: 06/01/2016 | Sample ID: WG570935-04
Instrument ID: LCMS1 | Run Time: 18:13 | Method: 6850
File ID: 1LM.LM35135 | Analyst: JWR | Units: ug/L
Workgroup (AAB#): WG570932 | Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER | QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4791106
Report generated 06/03/2016 09:06

Login Number: L16051583 Run Date: 06/01/2016 Sample ID: WG570935-02
Instrument ID: LCMS1 Run Time: 13:47 Method: 6850
File ID: 1LM.LM35121 Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG570932 Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	1.02	ug/L	1.72	2.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 4791105
Report generated 06/03/2016 09:06

Login Number: L16051583 Run Date: 06/01/2016 Sample ID: WG570935-03
Instrument ID: LCMS1 Run Time: 17:35 Method: 6850
File ID: 1LM.LM35133 Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG570932 Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.983	ug/L	1.66	1.70	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 4791105
Report generated 06/03/2016 09:06

Login Number: L16051583 Run Date: 06/01/2016 Sample ID: WG570932-05
Instrument ID: LCMS1 Run Time: 14:06 Prep Method: 6850
File ID: 1LM.LM35122 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570932 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.201	101	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4791104
Report generated 06/03/2016 09:05

Login Number: L16051583 Run Date: 06/01/2016 Sample ID: WG570932-06
Instrument ID: LCMS1 Run Time: 17:54 Prep Method: 6850
File ID: 1LM.LM35134 Analyst: JWR Method: 6850
Workgroup (AAB#): WG570932 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.200	100	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4791104
Report generated 06/03/2016 09:05

Microbac Laboratories Inc.
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number:L16051583
Instrument ID:LCMS1
Workgroup (AAB#):WG570932

ICAL CCV Number:WG567320-05
CAL ID: LCMS1-03-MAY-16
Matrix:WATER

Sample Number	Dilution	Tag	IS-1
WG567320	NA	NA	489000
Upper Limit	NA	NA	733500
Lower Limit	NA	NA	244500
L16051583-01	1.00	01	440000
L16051583-02	1.00	01	482000
L16051583-03	1.00	01	430000
L16051583-04	1.00	01	437000
L16051583-05	1.00	01	439000
WG570932-02	1.00	01	490000
WG570932-03	1.00	01	500000
WG570932-04	1.00	01	499000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 4791107
Report generated 06/03/2016 09:06

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	L16051583-01
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35128
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 16:00	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	977000	340000	2.87	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	L16051583-02
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35129
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 16:19	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	74700	26400	2.83	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	L16051583-03
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35130
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 16:38	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	3570	1320	2.70	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	L16051583-04
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35131
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 16:57	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	2780	813	3.42	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	L16051583-05
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35132
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 17:16	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	7820	2990	2.62	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34687
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 15:25	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	17900	6950	2.58	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34688
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 15:43	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34100	11900	2.87	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34689
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 16:02	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	82200	29400	2.80	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34690
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 16:21	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	168000	56600	2.97	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34691
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 16:40	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	330000	108000	3.06	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-07
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34692
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 16:59	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	810000	269000	3.01	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-08
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34693
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 17:18	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	1530000	512000	2.99	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG567320-09
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34694
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	05/03/2016 17:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	169000	56300	3.00	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	WG570932-01
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35123
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 14:25	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	32300	11700	2.76	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	WG570932-02
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35124
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 14:44	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	WG570932-03
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35125
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 15:03	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34300	12300	2.79	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	WG570932-04
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35126
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 15:22	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34300	12600	2.72	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	WG570932-05
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35122
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 14:06	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	33800	12300	2.75	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**	6850	**Samplenum:**	WG570932-06
Instrument:	LCMS1	**Prep Date:**	06/01/2016 12:00	**File ID:**	1LM.LM35134
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 17:54	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	39600	13800	2.87	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG570935-01
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35120
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 13:28	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG570935-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35121
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 13:47	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	167000	57700	2.89	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG570935-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35133
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 17:35	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	184000	64500	2.85	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16051583	**Prep Method:**		**Samplenum:**	WG570935-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35135
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG570932	**Analysis Date:**	06/01/2016 18:13	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

2.1.1.3 Sample Data

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Created with Analyst Reporter
Printed: 6/2/2016 2:51 PM

Data File	LM35128.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 4:00:24 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

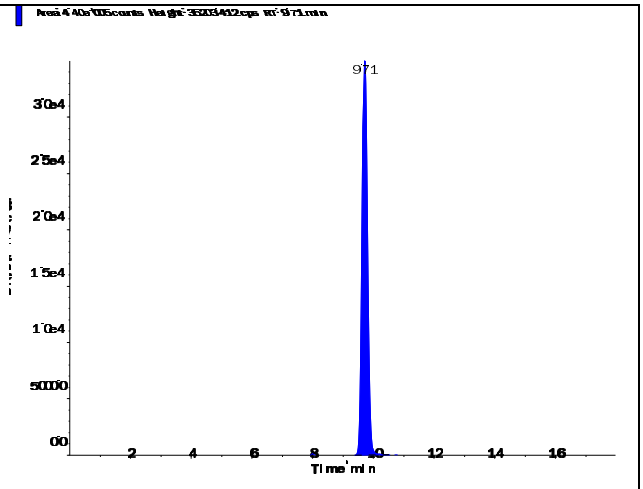
Sample Name	L16051583-01	**Injection Vial**	9.00
Data File	LM35128.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 4:00:24 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	L16051583-01	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

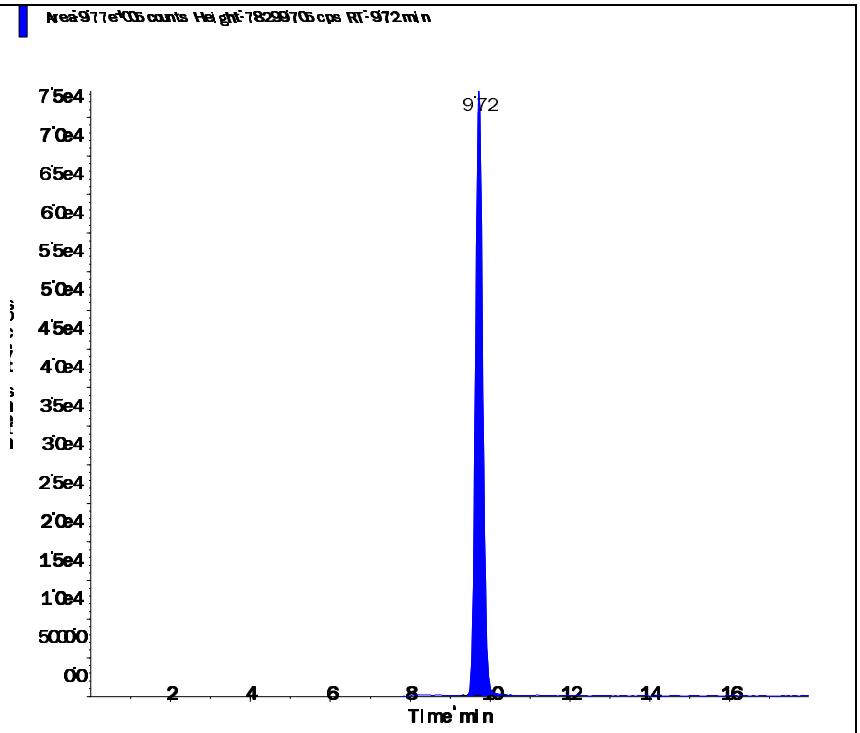
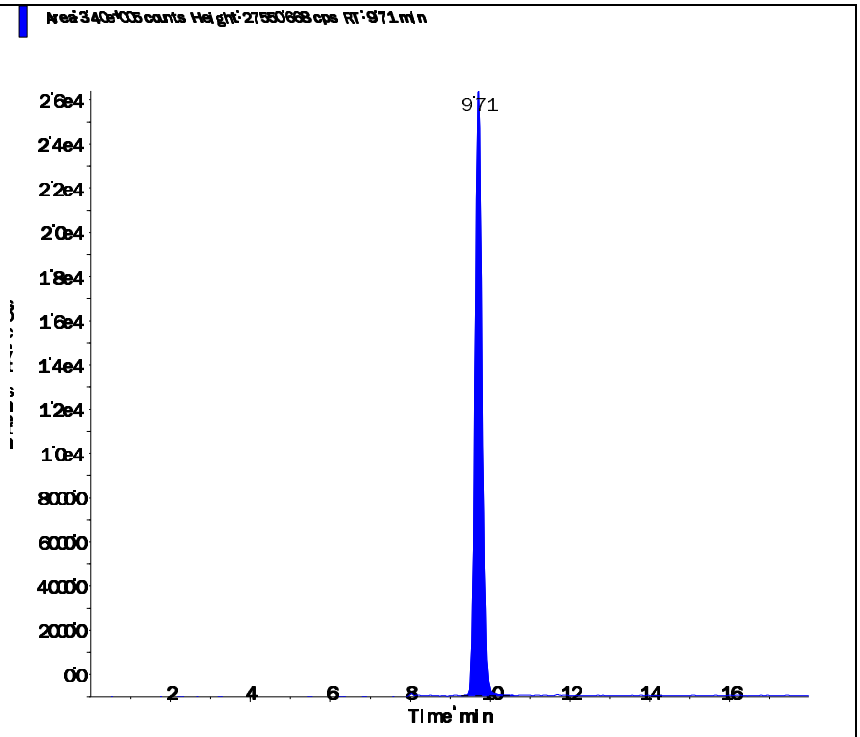
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.400e+05	9.71	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	9.770e+05	9.72	N/A	6.59
Perchlorate conf	3.400e+05	9.71	N/A	6.91

O18LP (Internal Standard)

RT (Exp. RT): 9.71(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.72 (9.84) min Calculated conc: 6.59 ng/ml Area Ratio: 2.217 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.71 (9.84) min Calculated conc: 6.91 ng/ml Area Ratio: 0.773 Sample Type: (Unknown)	

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Created with Analyst Reporter
Printed: 6/2/2016 2:51 PM

Data File	LM35129.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 4:19:21 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

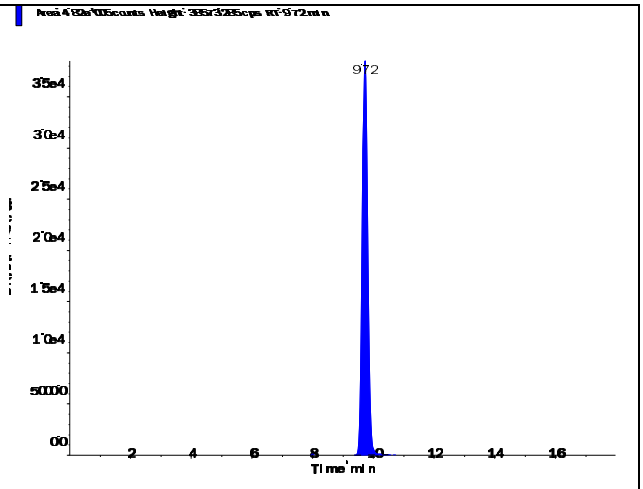
Sample Name	L16051583-02	**Injection Vial**	10.00
Data File	LM35129.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 4:19:21 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	L16051583-02	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

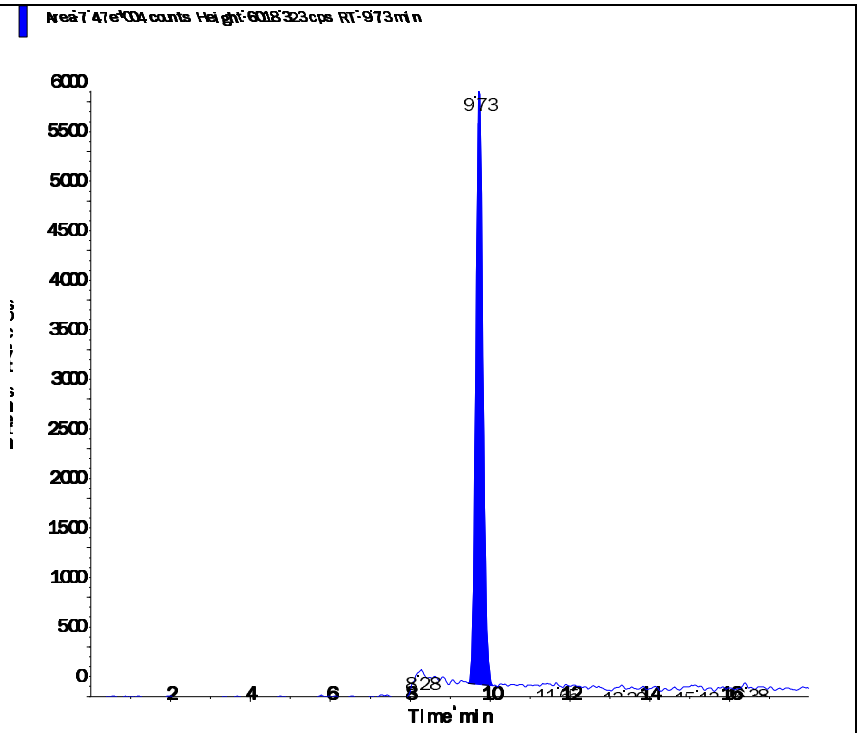
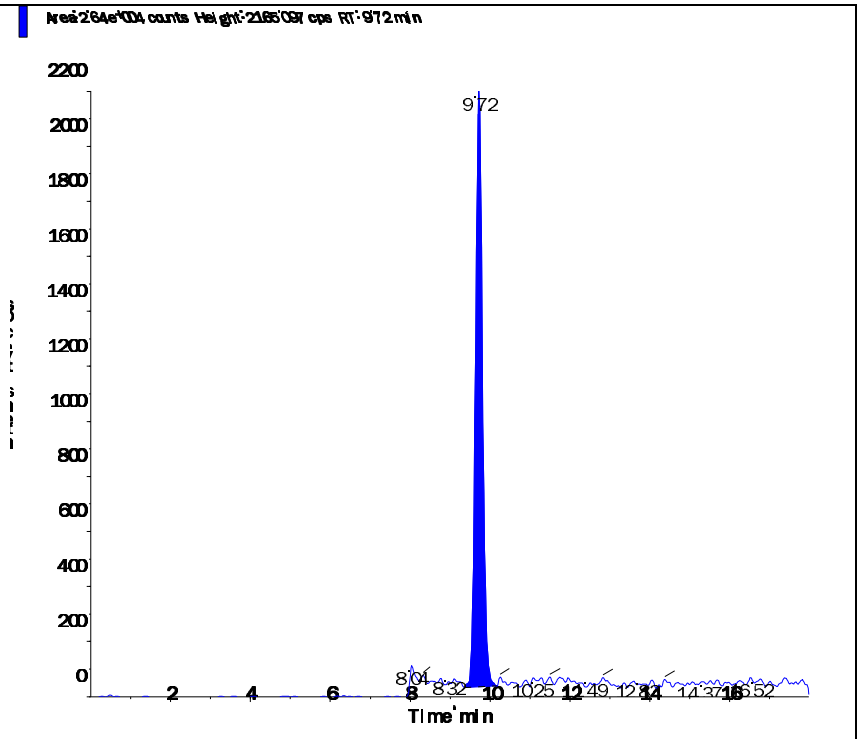
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.820e+05	9.72	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	7.470e+04	9.73	N/A	0.457
Perchlorate conf	2.640e+04	9.72	N/A	0.471

O18LP (Internal Standard)

RT (Exp. RT): 9.72(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.73 (9.84) min Calculated conc: 0.457 ng/ml Area Ratio: 0.155 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.72 (9.84) min Calculated conc: 0.471 ng/ml Area Ratio: 0.055 Sample Type: (Unknown)	

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Printed: 6/2/2016 2:52 PM

Data File	LM35130.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 4:38:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

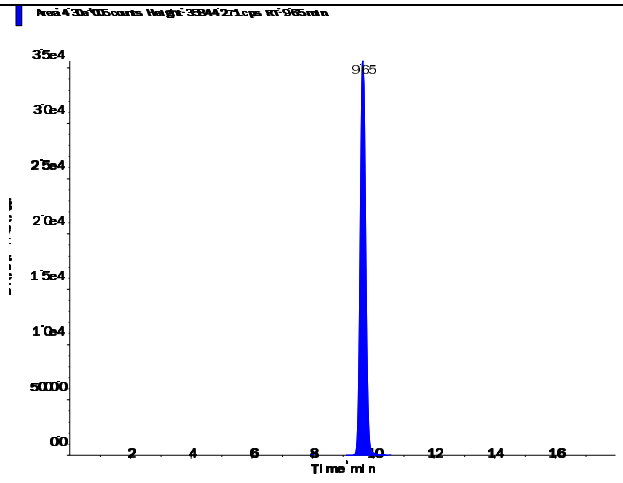
Sample Name	L16051583-03	**Injection Vial**	11.00
Data File	LM35130.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 4:38:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	L16051583-03	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.300e+05	9.65	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.570e+03	9.65	N/A	0.0209
Perchlorate conf	1.320e+03	9.63	N/A	0.0071

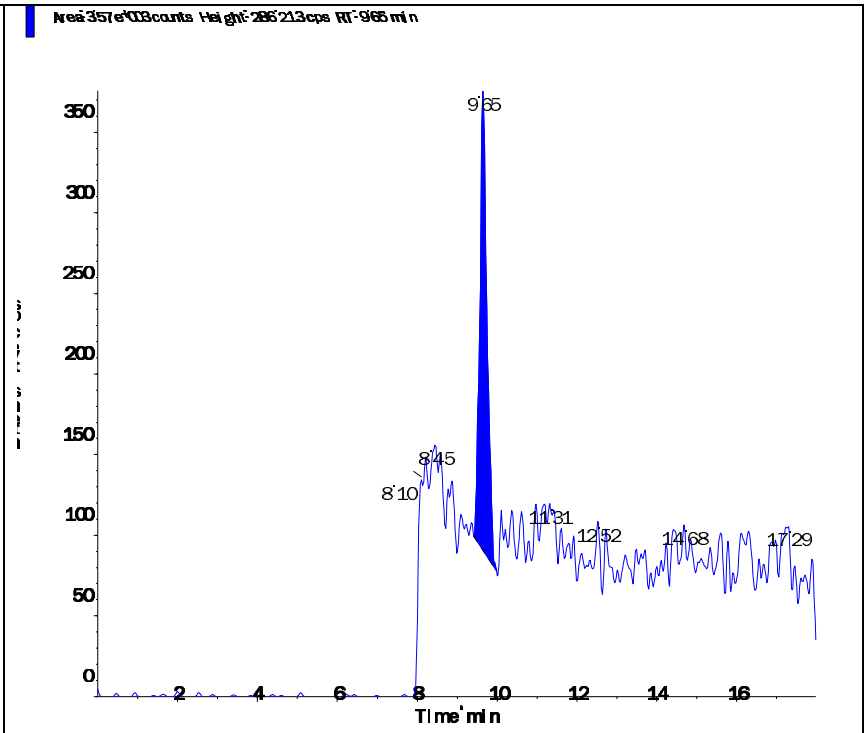
O18LP (Internal Standard)

RT (Exp. RT): 9.65(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



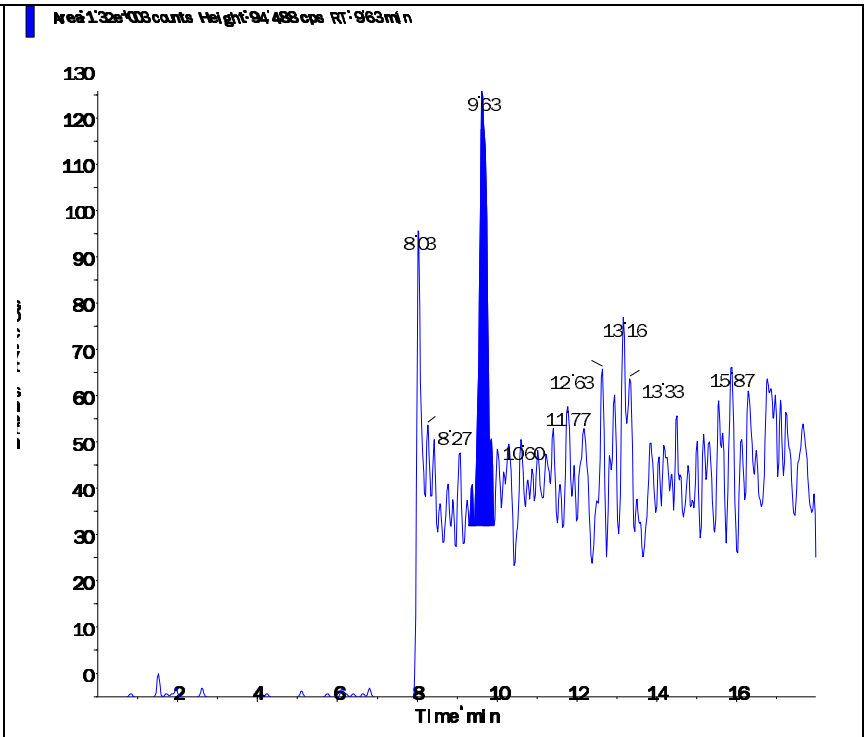
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	9.65 (9.84) min
Calculated conc:	0.0209 ng/ml
Area Ratio:	0.008
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	9.63 (9.84) min
Calculated conc:	0.0071 ng/ml
Area Ratio:	0.003
Sample Type:	(Unknown)



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Data File	LM35131.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 4:57:15 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

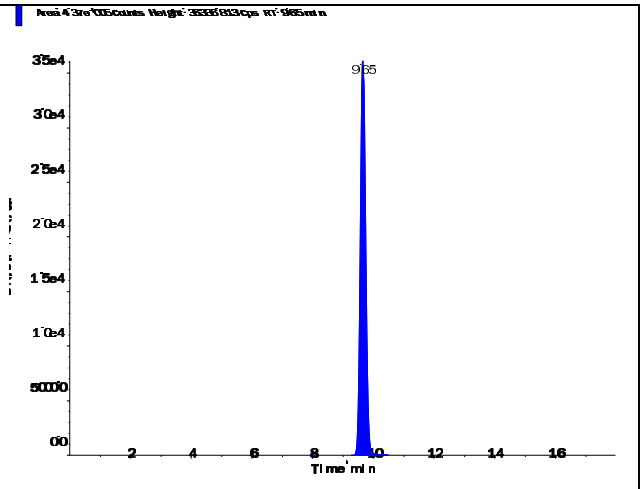
Sample Name	L16051583-04	**Injection Vial**	12.00
Data File	LM35131.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 4:57:15 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	L16051583-04	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.370e+05	9.65	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.780e+03	9.64	N/A	0.0151
Perchlorate conf	8.130e+02	9.66	N/A	< 0

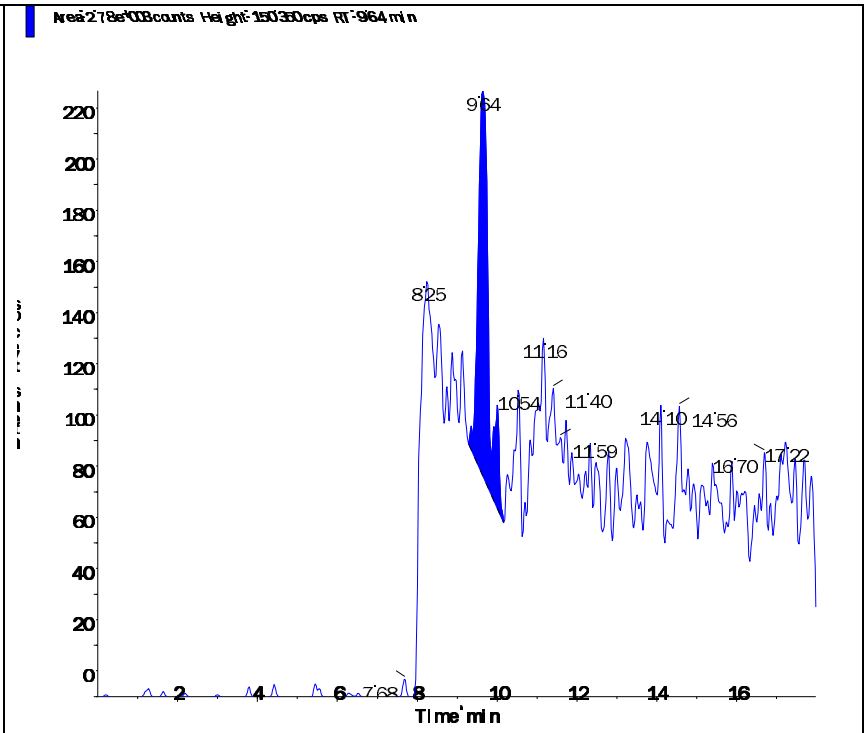
O18LP (Internal Standard)

RT (Exp. RT): 9.65(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



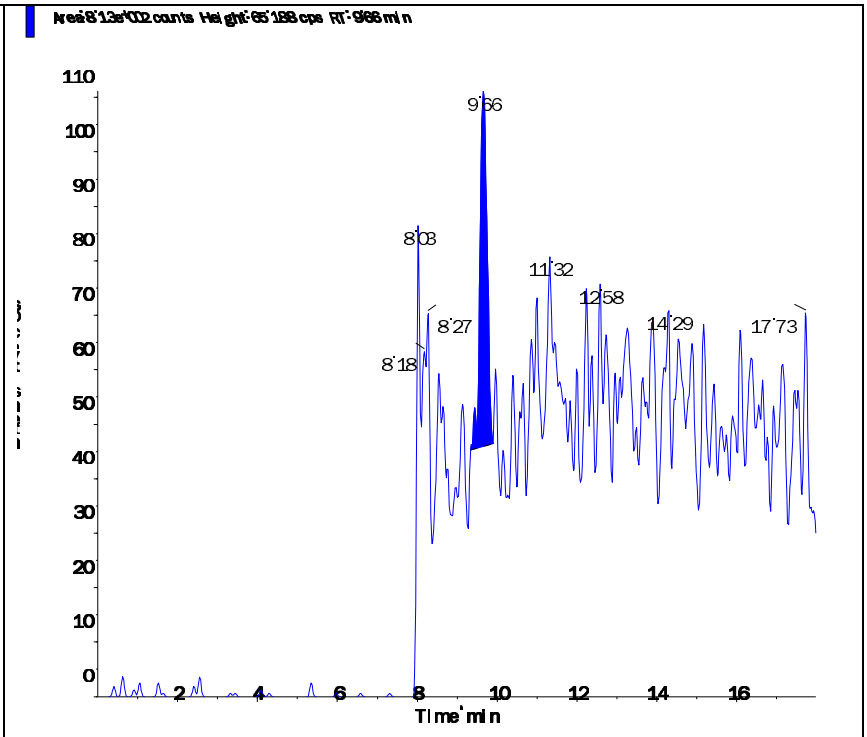
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	9.64 (9.84) min
Calculated conc:	0.0151 ng/ml
Area Ratio:	0.006
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	9.66 (9.84) min
Calculated conc:	< 0 ng/ml
Area Ratio:	0.002
Sample Type:	(Unknown)



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Data File	LM35132.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 5:16:10 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

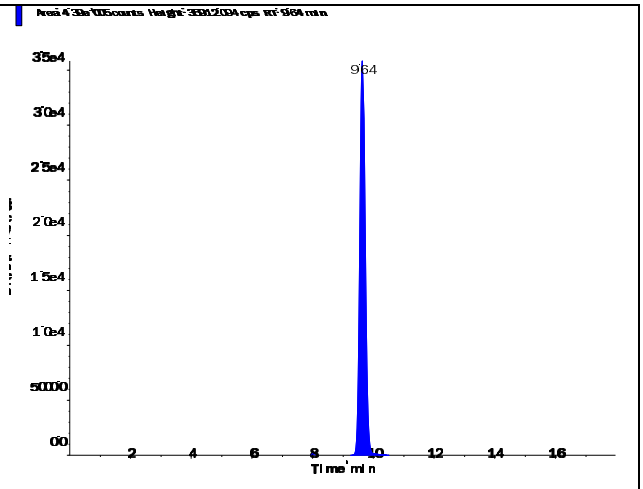
Sample Name	L16051583-05	**Injection Vial**	13.00
Data File	LM35132.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 5:16:10 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	L16051583-05	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.390e+05	9.64	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	7.820e+03	9.65	N/A	0.0492
Perchlorate conf	2.990e+03	9.62	N/A	0.0406

O18LP (Internal Standard)

RT (Exp. RT): 9.64(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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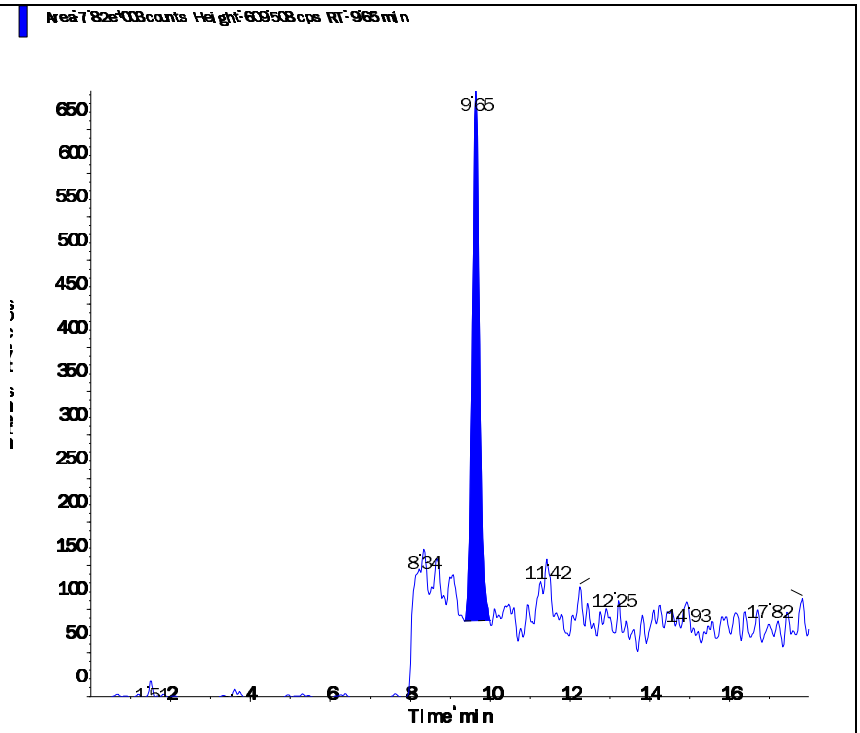
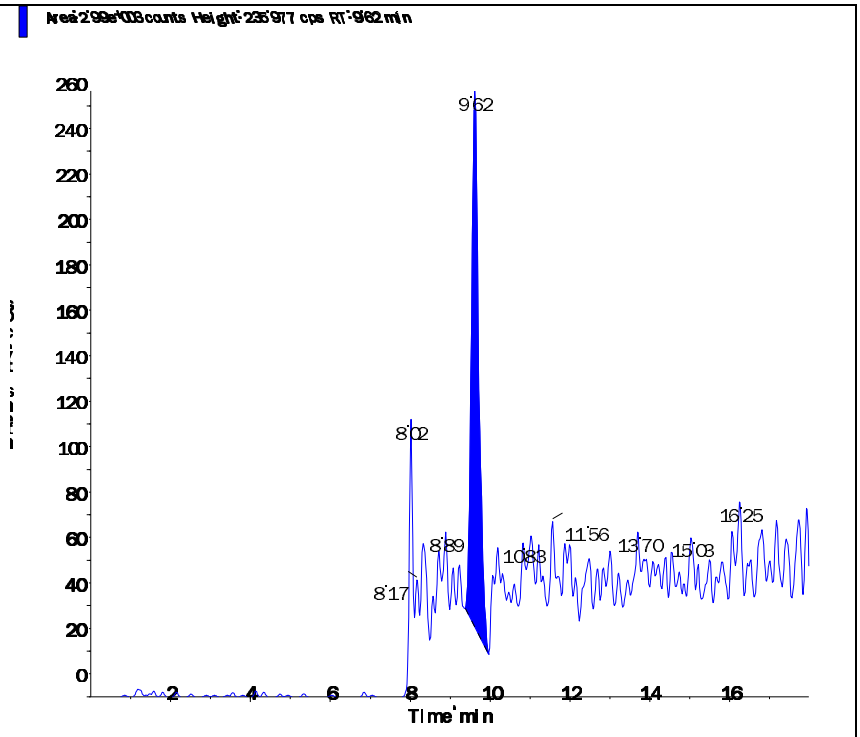
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.65 (9.84) min 0.0492 ng/ml 0.018 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.62 (9.84) min 0.0406 ng/ml 0.007 (Unknown)



2.1.1.4 Standards Data

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Data File	LM34686.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

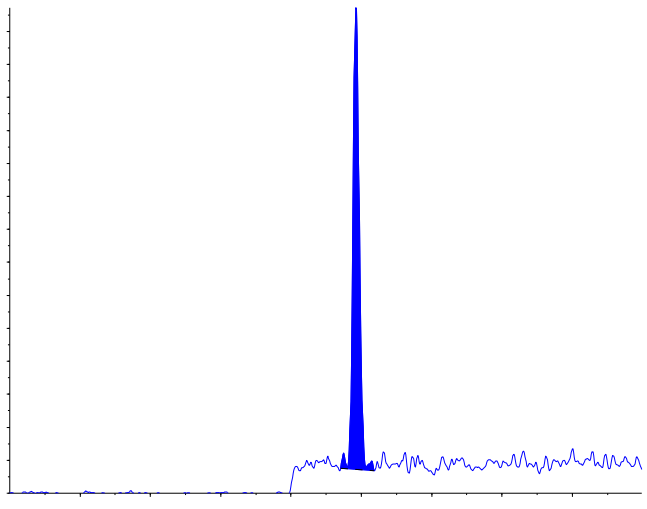
Sample Name	WG567320-01 CCB	**Injection Vial**	1.00
Data File	LM34686.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.020e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

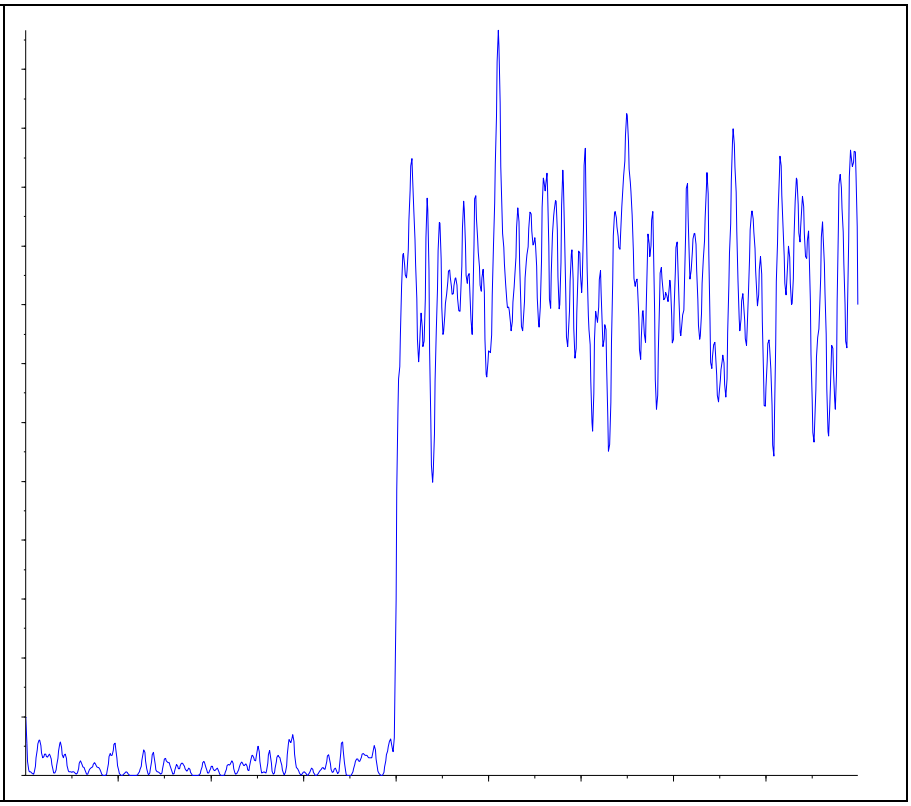
O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



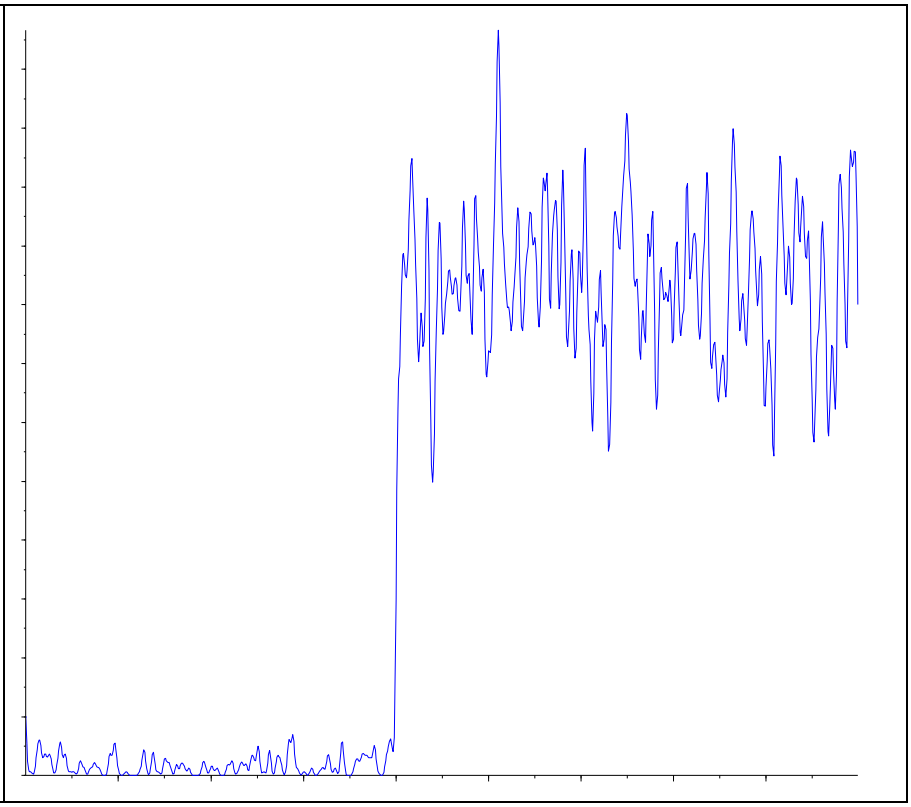
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



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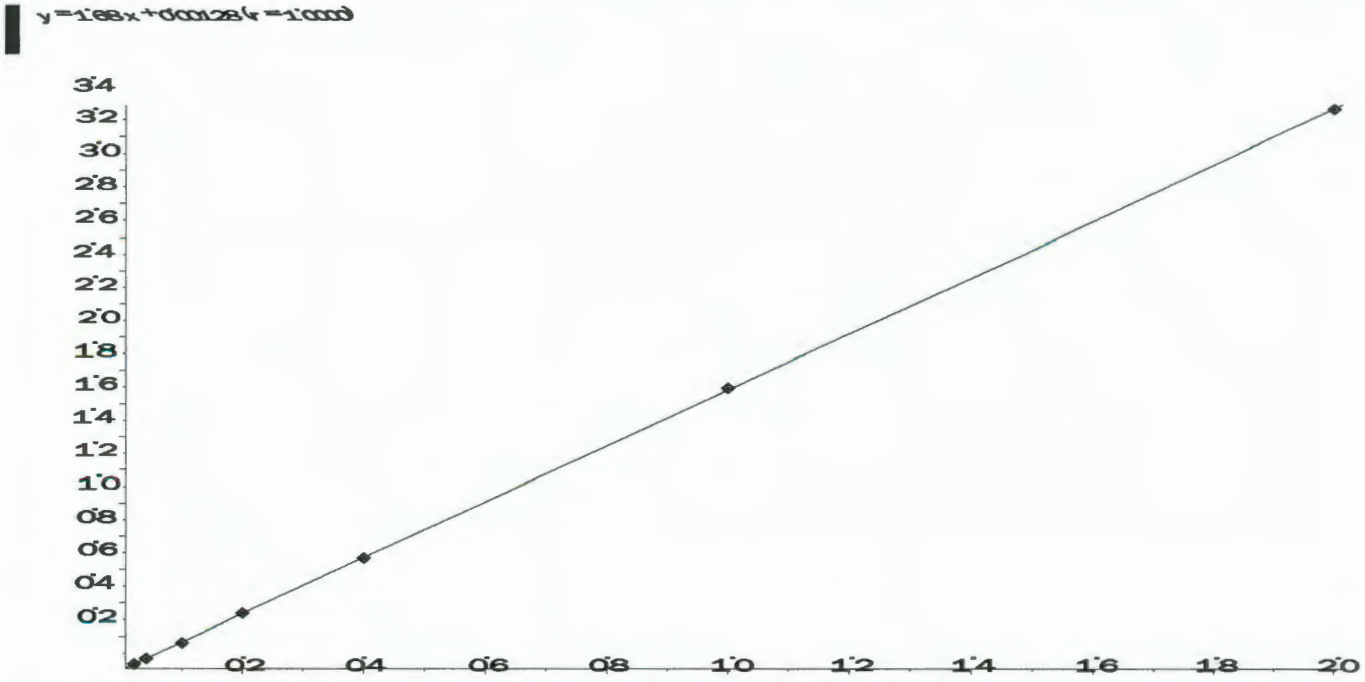
Analyte Name: **Perchlorate**
Internal Standard: O18LP

Data File	LM34686.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 1.68 x + 0.00128 (r = 1.0000)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	102.8	N/A	N/A
0.20	1	0.20	100.3	N/A	N/A
0.50	1	0.48	96.6	N/A	N/A
1.00	1	1.01	100.5	N/A	N/A
2.00	1	1.99	99.3	N/A	N/A
5.00	1	5.04	100.7	N/A	N/A
10.00	1	9.99	99.9	N/A	N/A



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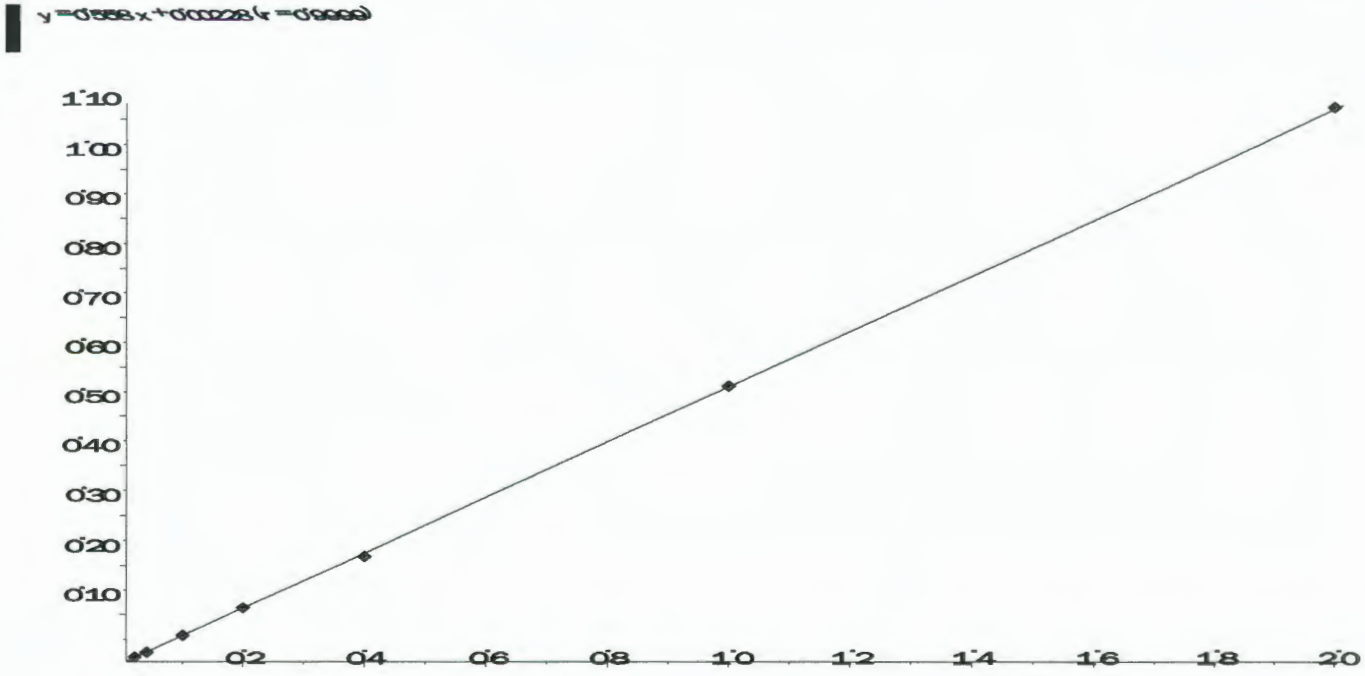
Printed: 5/4/2016 1:20 PM

Analyte Name: **Perchlorate conf**
Internal Standard: O18LP

Data File	LM34686.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 0.558 x + 0.00228 (r = 0.9999)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	104.3	N/A	N/A
0.20	1	0.19	96.8	N/A	N/A
0.50	1	0.50	100.6	N/A	N/A
1.00	1	1.00	100.5	N/A	N/A
2.00	1	1.94	97.2	N/A	N/A
5.00	1	5.02	100.4	N/A	N/A
10.00	1	10.03	100.3	N/A	N/A



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Data File	LM34687.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 3:25:04 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

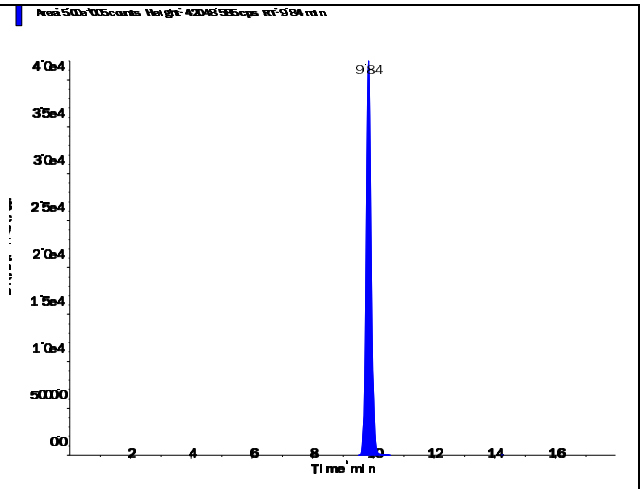
Sample Name	WG567320-02 STD (0.1 ug/L)	**Injection Vial**	2.00
Data File	LM34687.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:25:04 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

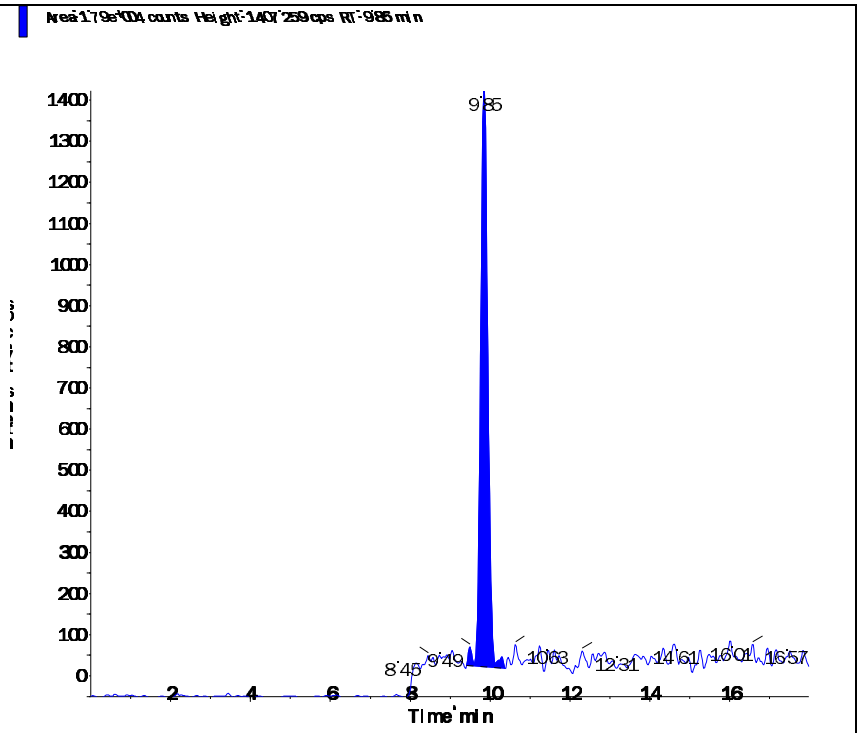
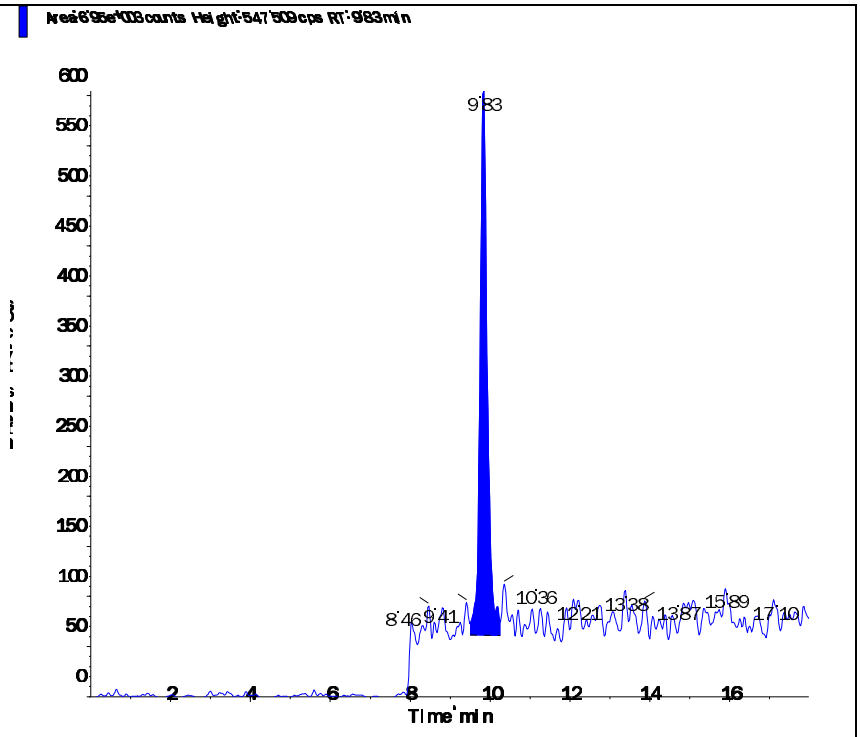
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.000e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.790e+04	9.85	0.10	0.103
Perchlorate conf	6.950e+03	9.83	0.10	0.104

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.85 (9.84) min Calculated conc: 0.103 ng/ml Area Ratio: 0.036 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 0.104 ng/ml Area Ratio: 0.014 Sample Type: (Standard)	

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Data File	LM34688.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 3:43:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

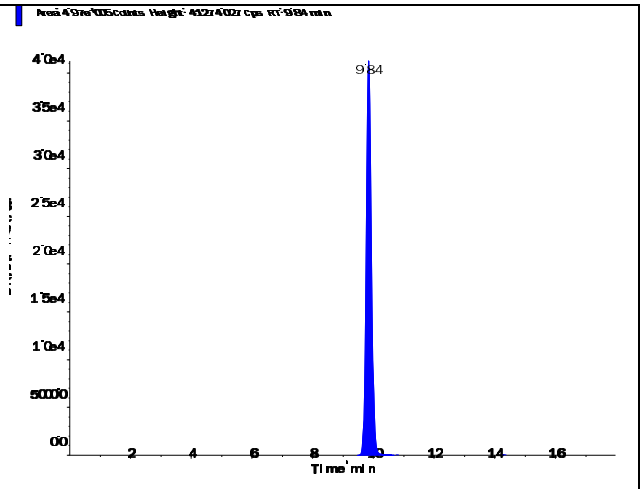
Sample Name	WG567320-03 STD (0.2 ug/L)	**Injection Vial**	3.00
Data File	LM34688.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:43:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

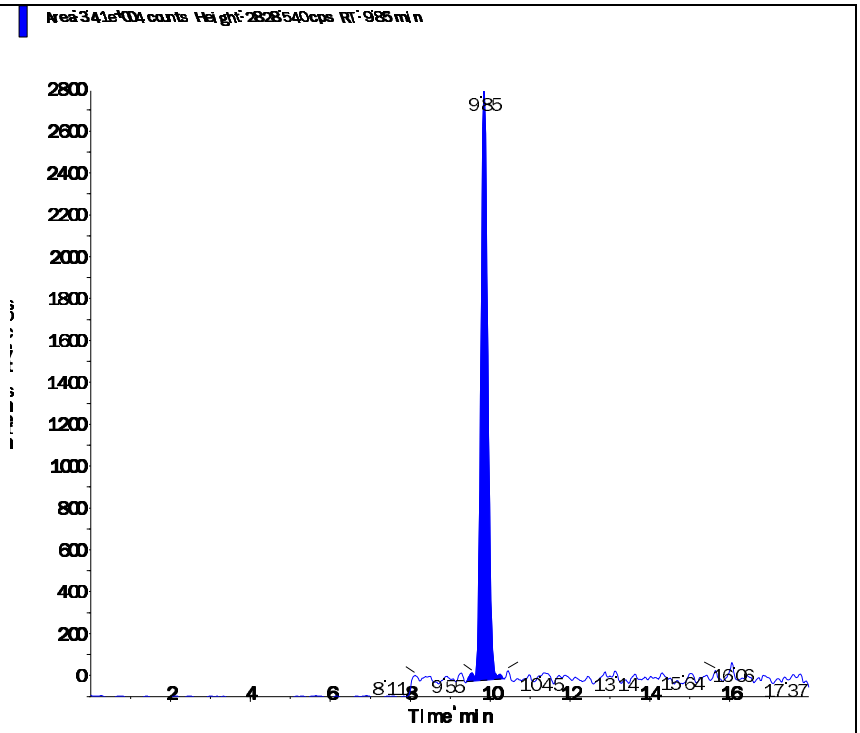
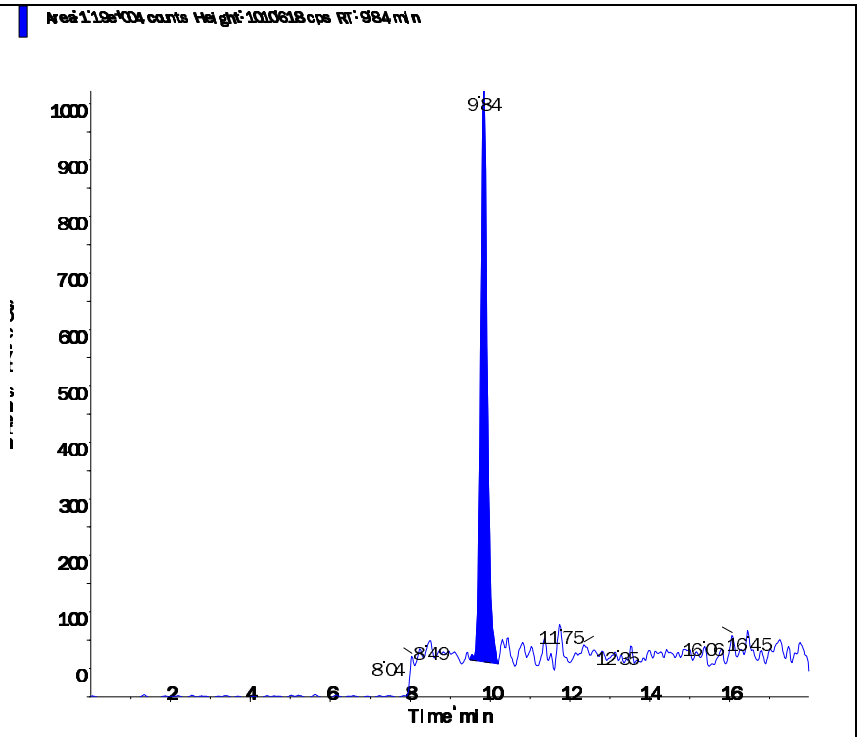
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.970e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.410e+04	9.85	0.20	0.201
Perchlorate conf	1.190e+04	9.84	0.20	0.194

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.85 (9.84) min Calculated conc: 0.201 ng/ml Area Ratio: 0.069 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 0.194 ng/ml Area Ratio: 0.024 Sample Type: (Standard)	

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Data File	LM34689.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 4:02:52 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

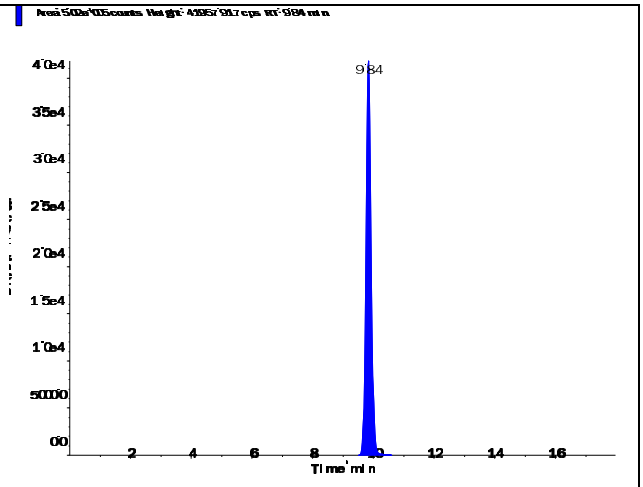
Sample Name	WG567320-04 STD (0.5 ug/L)	**Injection Vial**	4.00
Data File	LM34689.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:02:52 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-04	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.020e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	8.220e+04	9.85	0.50	0.483
Perchlorate conf	2.940e+04	9.84	0.50	0.503

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



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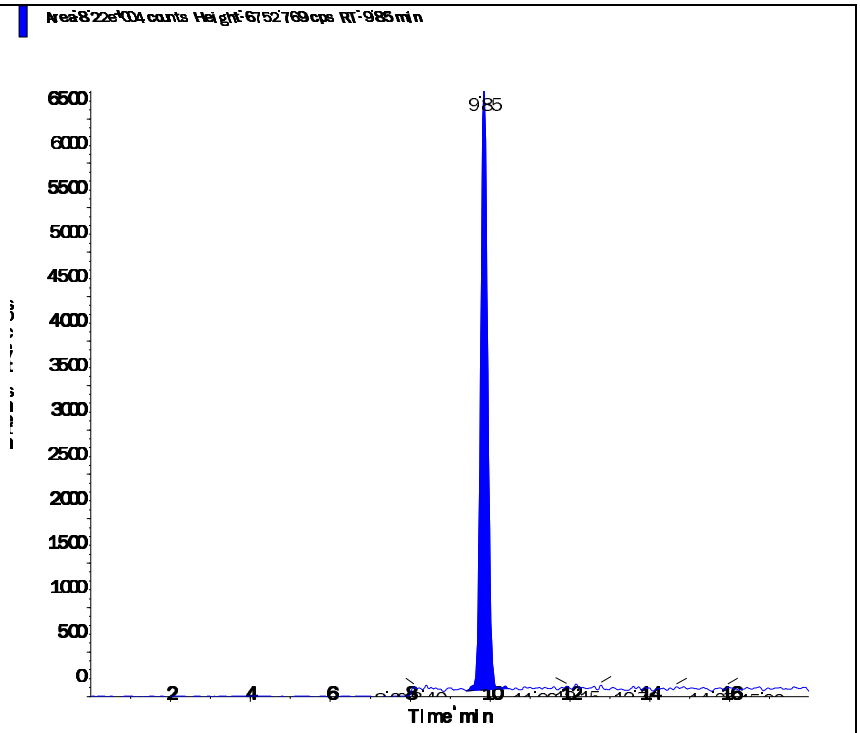
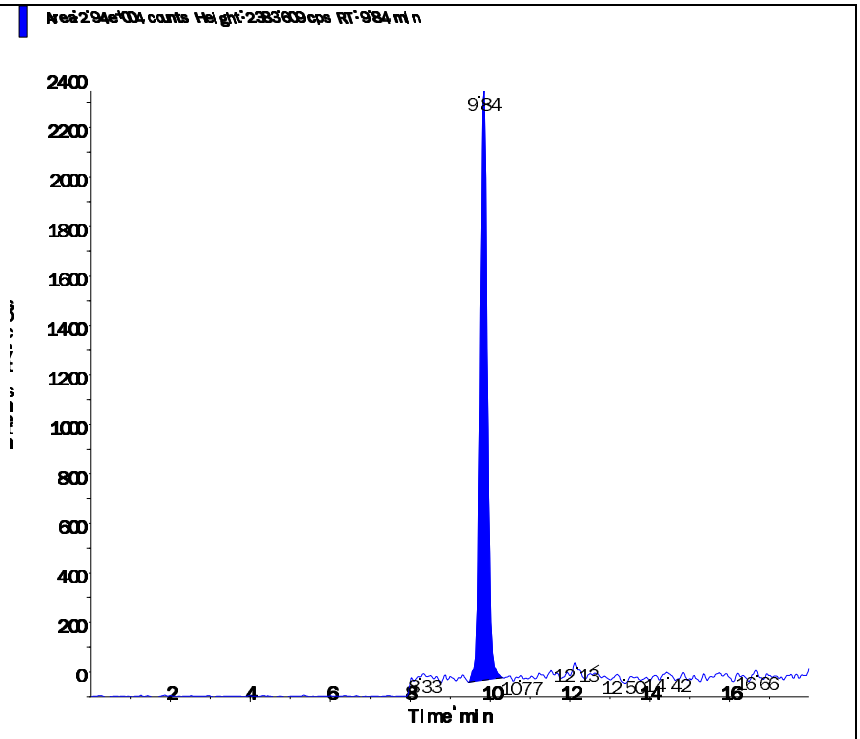
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.85 (9.84) min 0.483 ng/ml 0.164 (Standard)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.84 (9.84) min 0.503 ng/ml 0.058 (Standard)



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Data File	LM34690.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 4:21:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

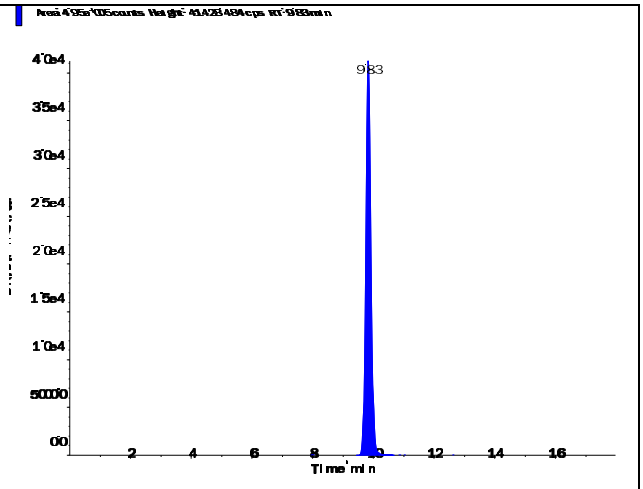
Sample Name	WG567320-05 STD (1.0 ug/L)	**Injection Vial**	5.00
Data File	LM34690.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:21:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

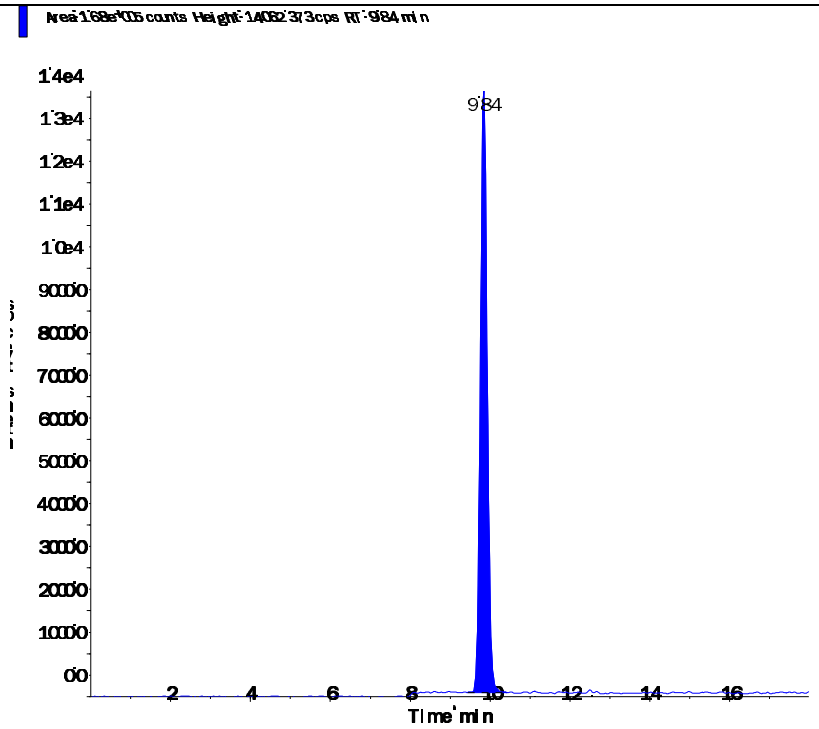
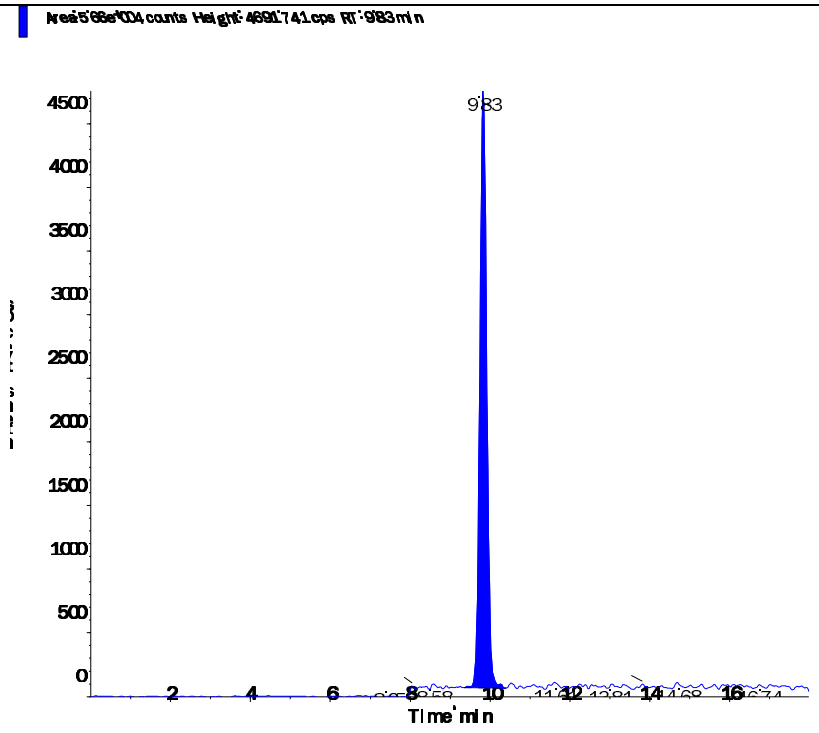
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.950e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.680e+05	9.84	1.00	1.01
Perchlorate conf	5.660e+04	9.83	1.00	1.00

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 1.01 ng/ml Area Ratio: 0.339 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 1.00 ng/ml Area Ratio: 0.114 Sample Type: (Standard)	

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Data File	LM34691.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 4:40:45 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

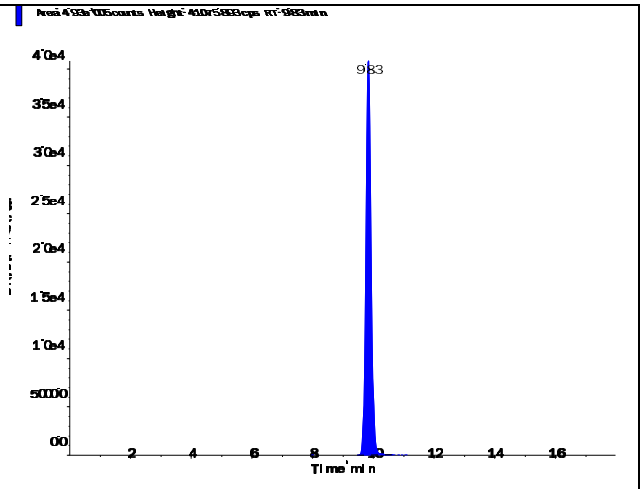
Sample Name	WG567320-06 STD (2.0 ug/L)	**Injection Vial**	6.00
Data File	LM34691.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:40:45 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-06	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

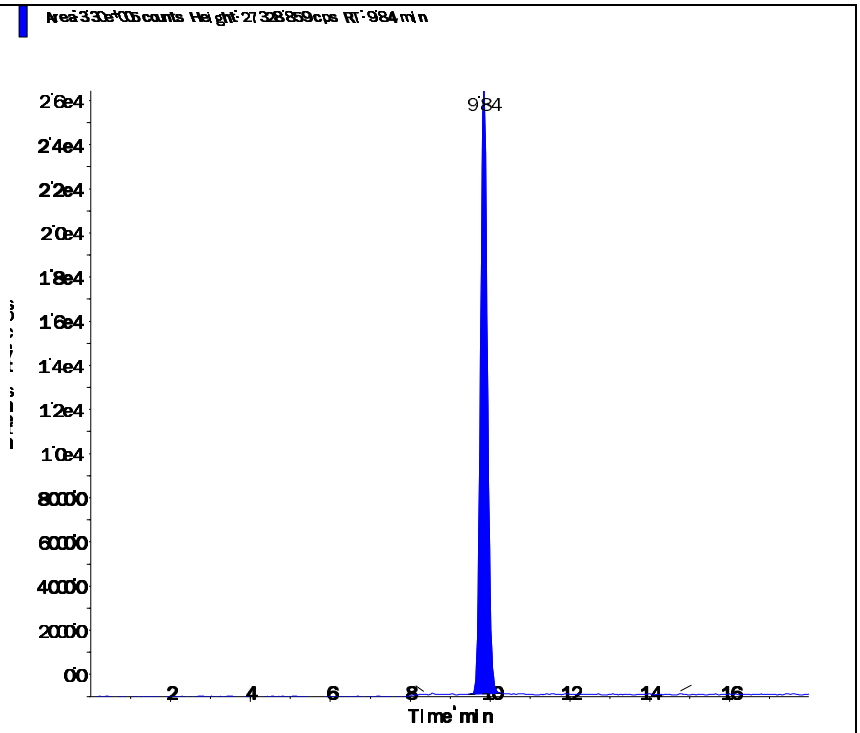
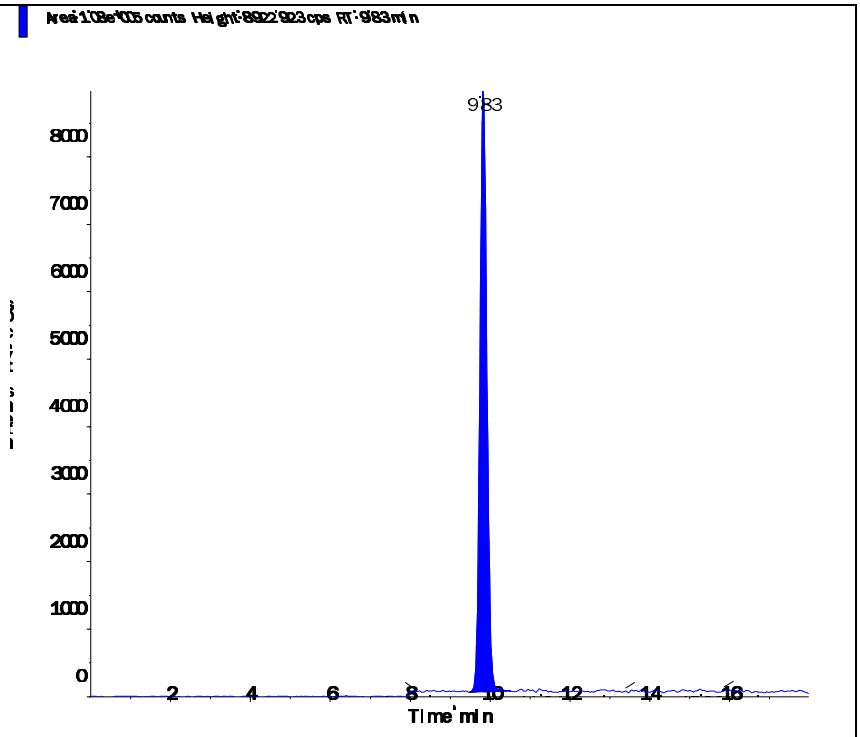
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.930e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.300e+05	9.84	2.00	1.99
Perchlorate conf	1.080e+05	9.83	2.00	1.94

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 1.99 ng/ml Area Ratio: 0.669 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 1.94 ng/ml Area Ratio: 0.219 Sample Type: (Standard)	

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Data File	LM34692.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 4:59:42 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

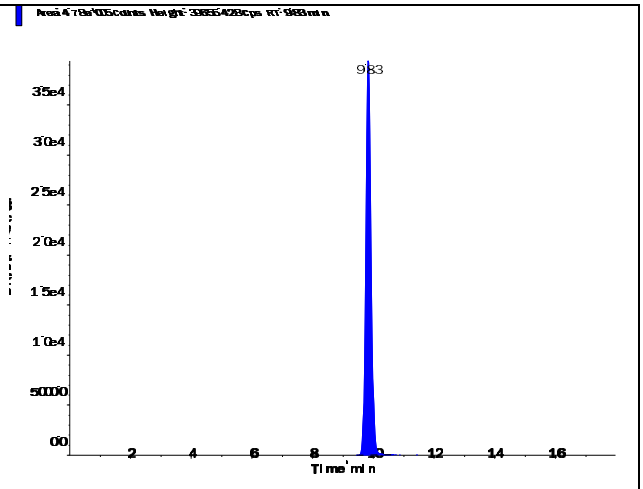
Sample Name	WG567320-07 STD (5.0 ug/L)	**Injection Vial**	7.00
Data File	LM34692.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:59:42 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

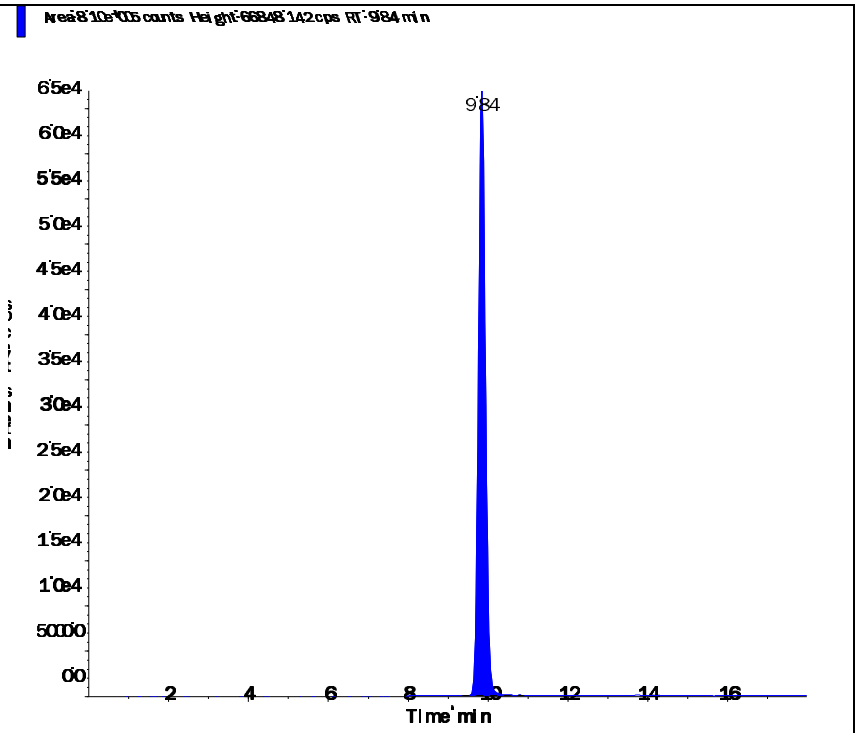
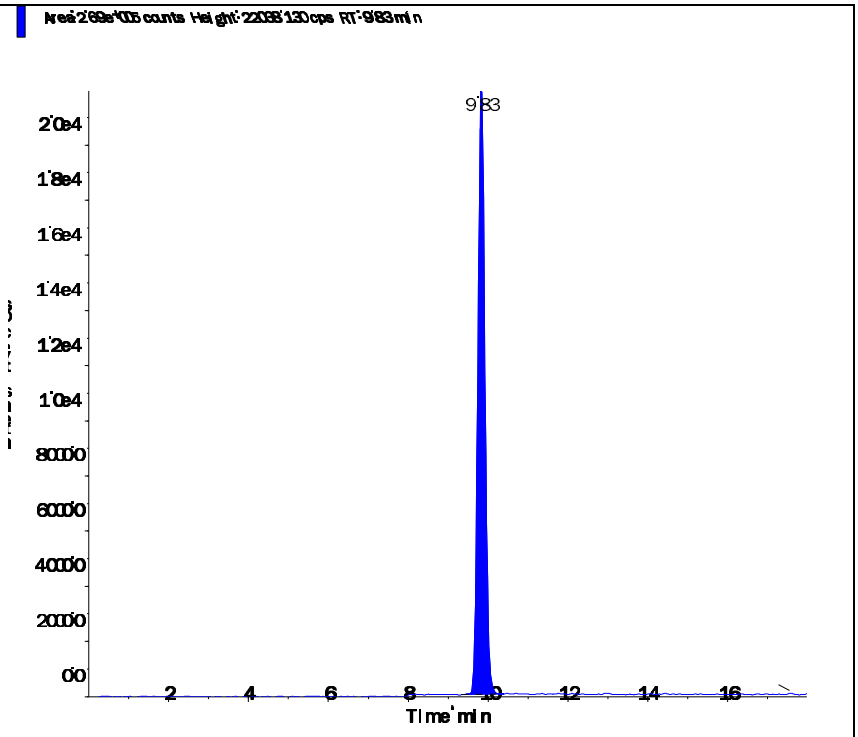
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.780e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	8.100e+05	9.84	5.00	5.04
Perchlorate conf	2.690e+05	9.83	5.00	5.02

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 5.04 ng/ml Area Ratio: 1.695 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 5.02 ng/ml Area Ratio: 0.562 Sample Type: (Standard)	

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Data File	LM34693.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	5/3/2016 5:18:37 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

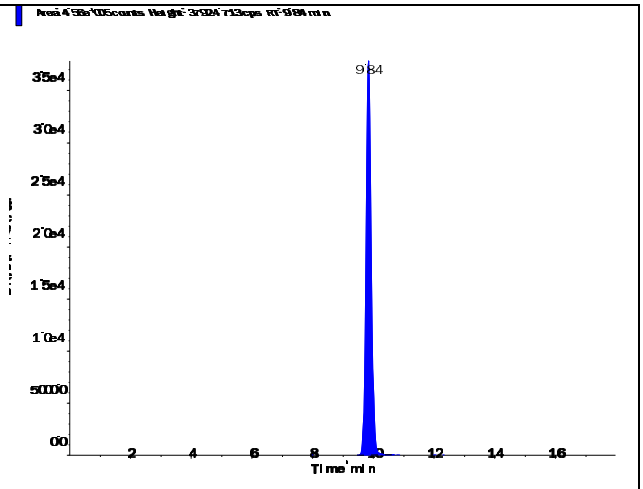
Sample Name	WG567320-08 STD (10 ug/L)	**Injection Vial**	8.00
Data File	LM34693.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 5:18:37 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG567320-08	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.560e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.530e+06	9.85	10.00	9.99
Perchlorate conf	5.120e+05	9.83	10.00	10.00

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



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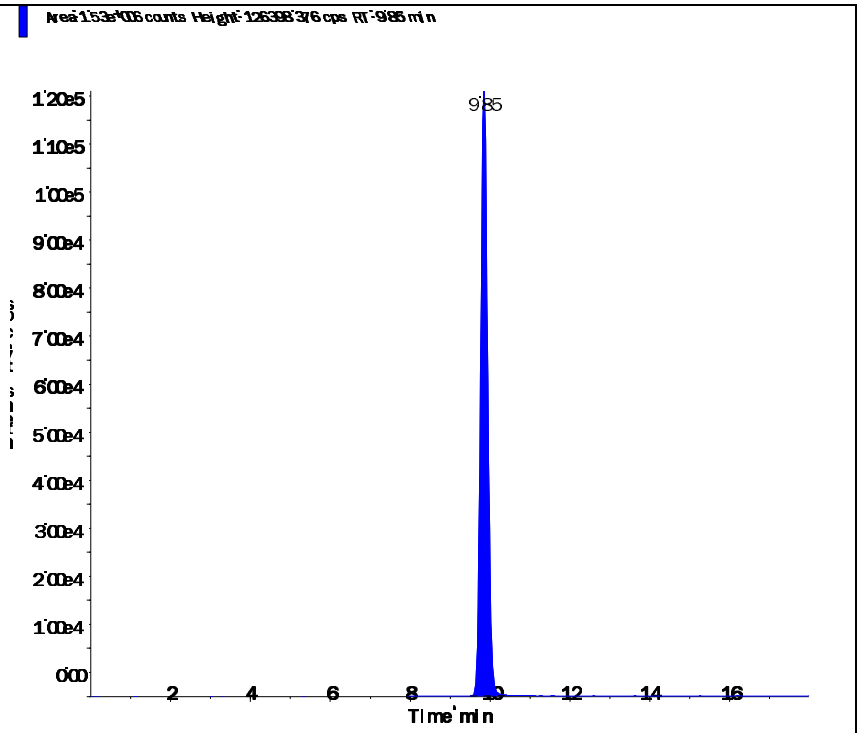
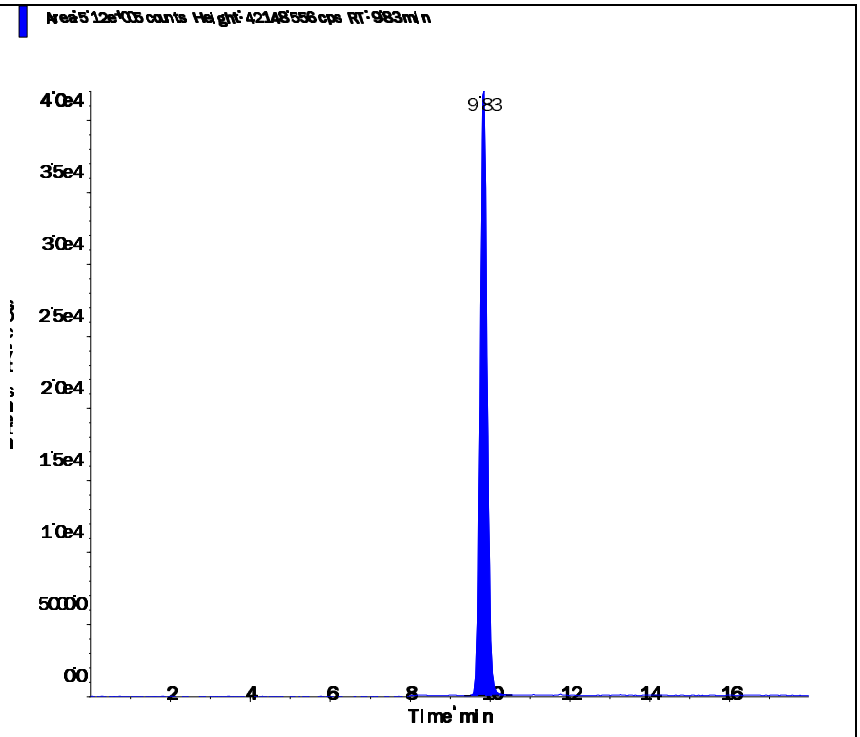
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.85 (9.84) min 9.99 ng/ml 3.36 (Standard)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.83 (9.84) min 10.00 ng/ml 1.122 (Standard)



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Data File	LM34694.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 5:37:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

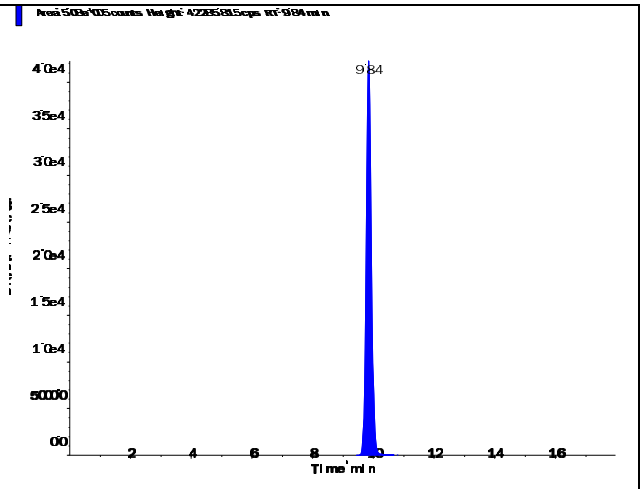
Sample Name	WG567320-09 SSCV (1.0 ug/L)	**Injection Vial**	9.00
Data File	LM34694.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 5:37:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	050316_JWR.rdb
Sample ID	WG567320-09	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.080e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.690e+05	9.85	1.00	0.985
Perchlorate conf	5.630e+04	9.84	1.00	0.973

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



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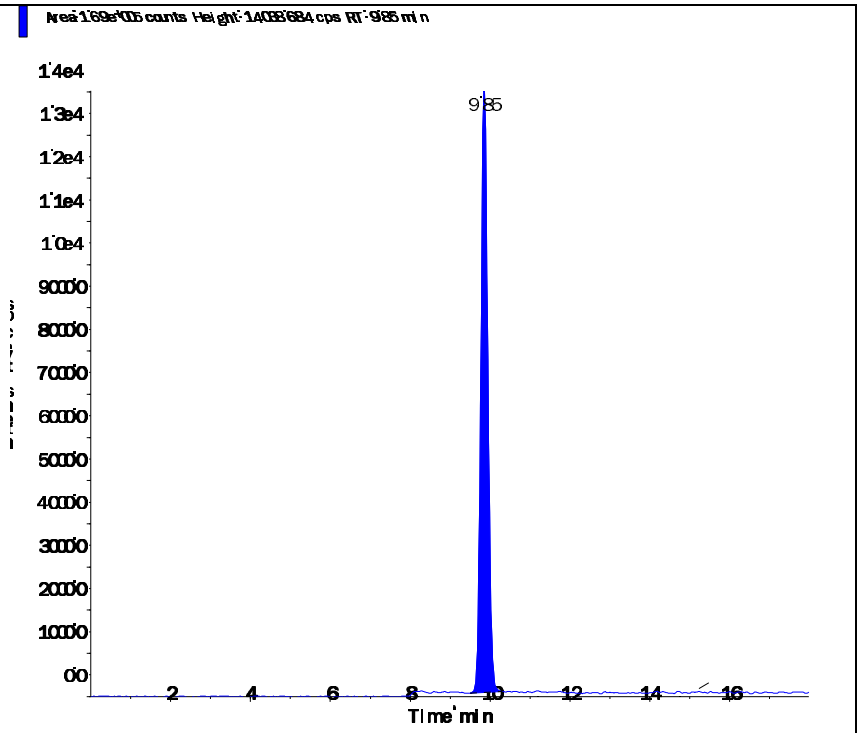
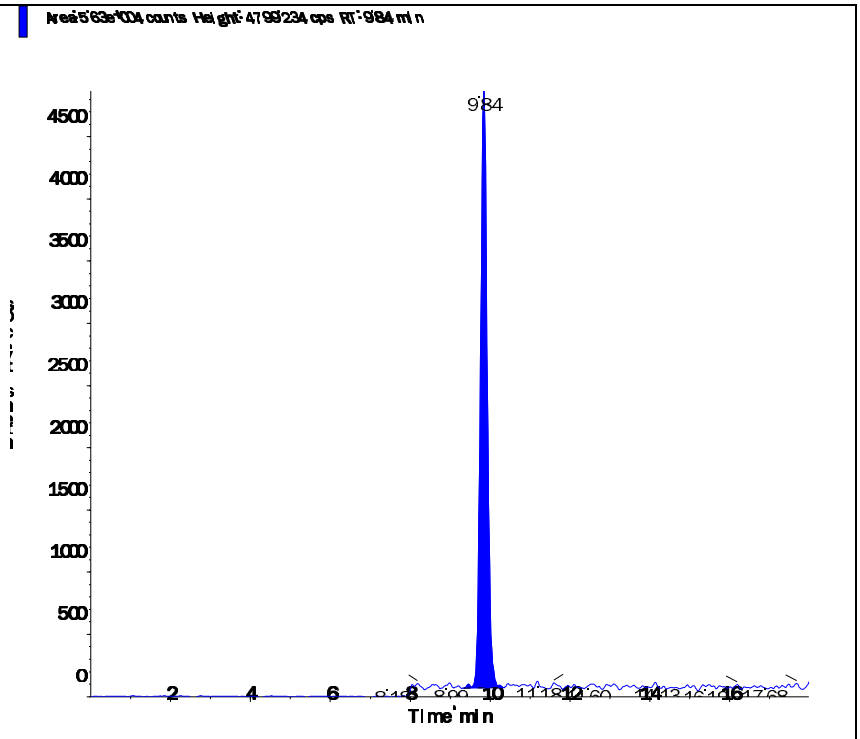
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.85 (9.84) min 0.985 ng/ml 0.332 (Quality Control)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.84 (9.84) min 0.973 ng/ml 0.111 (Quality Control)



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Data File	LM35121.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 1:47:51 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

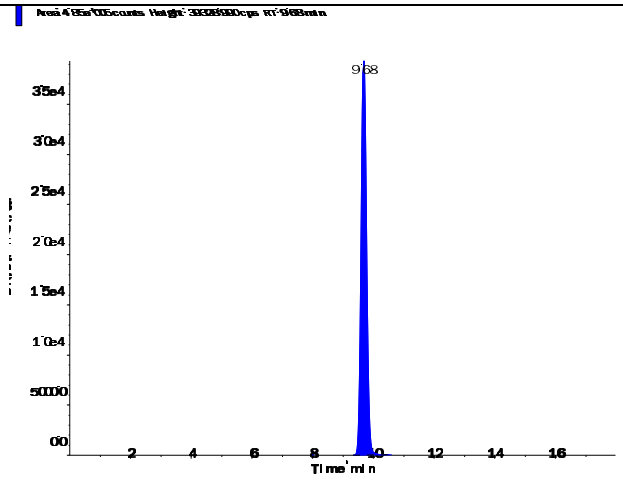
Sample Name	WG570935-02 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM35121.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 1:47:51 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570935-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

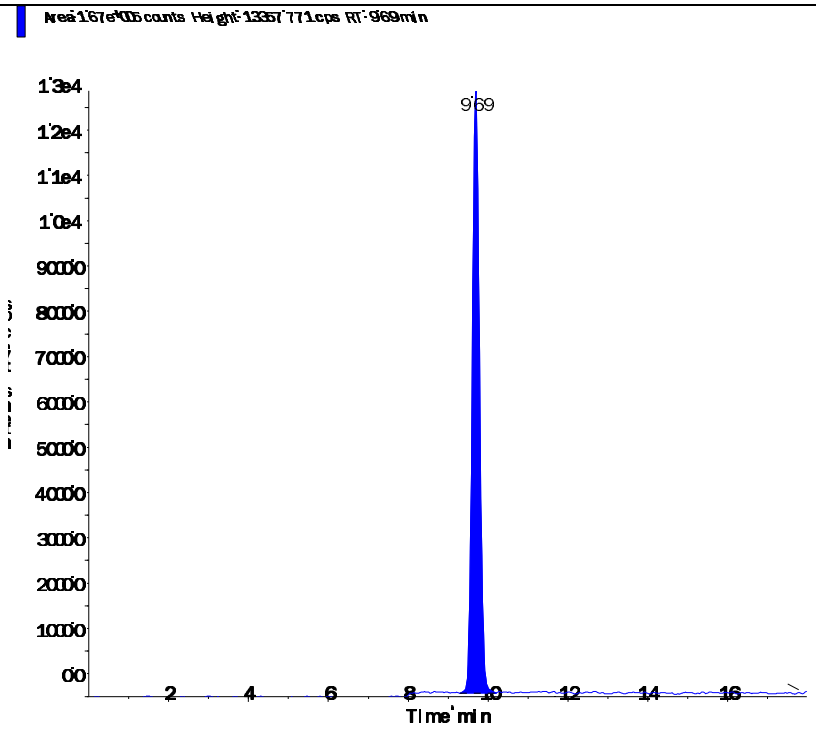
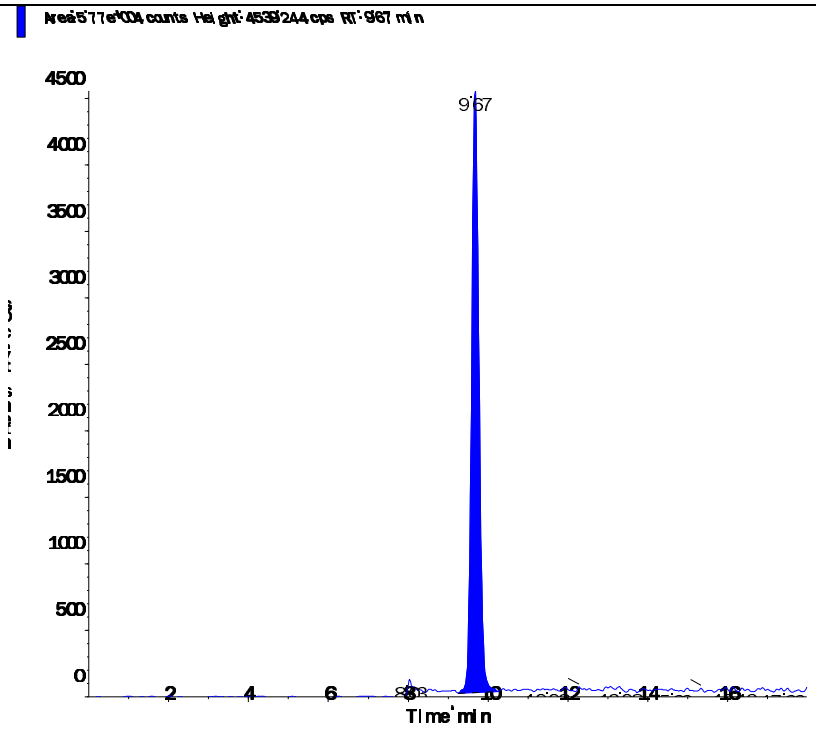
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.850e+05	9.68	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.670e+05	9.69	1.00	1.02
Perchlorate conf	5.770e+04	9.67	1.00	1.04

O18LP (Internal Standard)

RT (Exp. RT): 9.68(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.69 (9.84) min Calculated conc: 1.02 ng/ml Area Ratio: 0.343 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.67 (9.84) min Calculated conc: 1.04 ng/ml Area Ratio: 0.119 Sample Type: (Quality Control)	

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Data File	LM35133.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 5:35:06 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

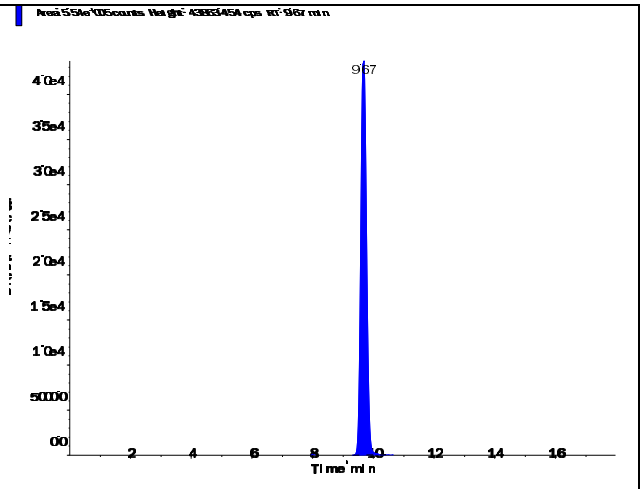
Sample Name	WG570935-03 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM35133.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 5:35:06 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570935-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.540e+05	9.67	5.00	-

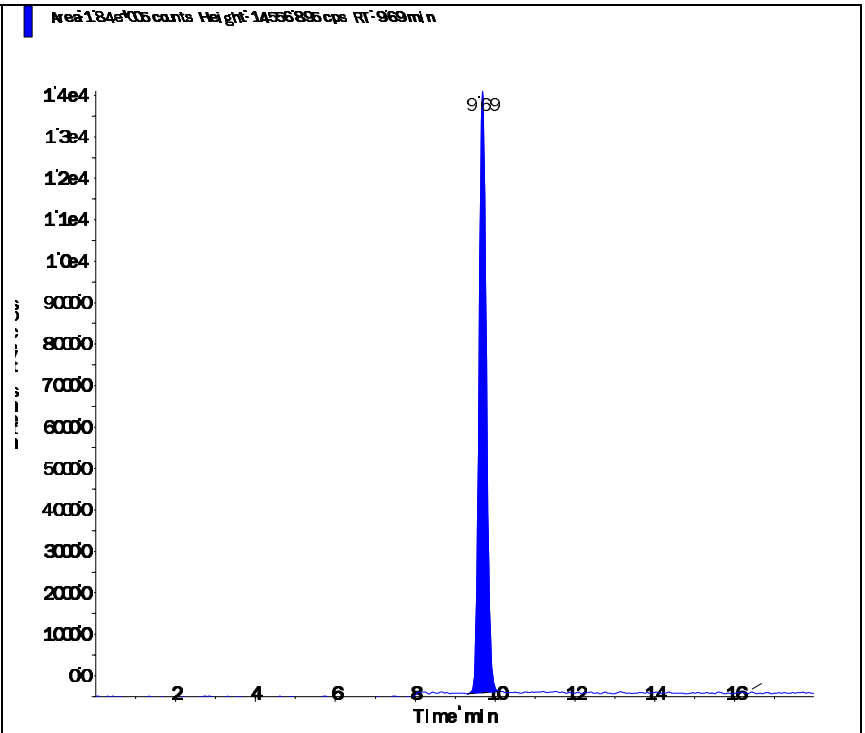
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.840e+05	9.69	1.00	0.983
Perchlorate conf	6.450e+04	9.67	1.00	1.02

O18LP (Internal Standard)

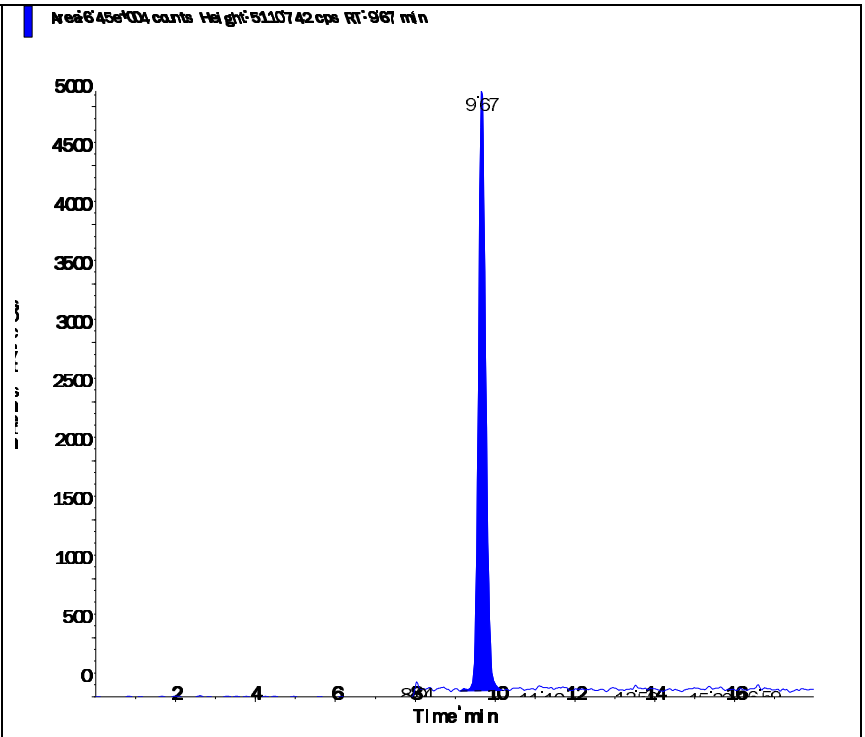
RT (Exp. RT): 9.67(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.69 (9.84) min 0.983 ng/ml 0.332 (Quality Control)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.67 (9.84) min 1.02 ng/ml 0.116 (Quality Control)



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Data File	LM35122.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 2:06:46 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

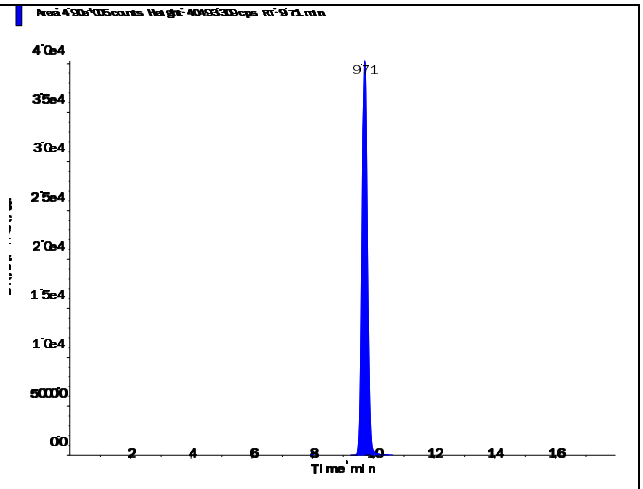
Sample Name	WG570932-05 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM35122.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 2:06:46 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570932-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.900e+05	9.71	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.380e+04	9.72	N/A	0.201
Perchlorate conf	1.230e+04	9.70	N/A	0.204

O18LP (Internal Standard)

RT (Exp. RT): 9.71(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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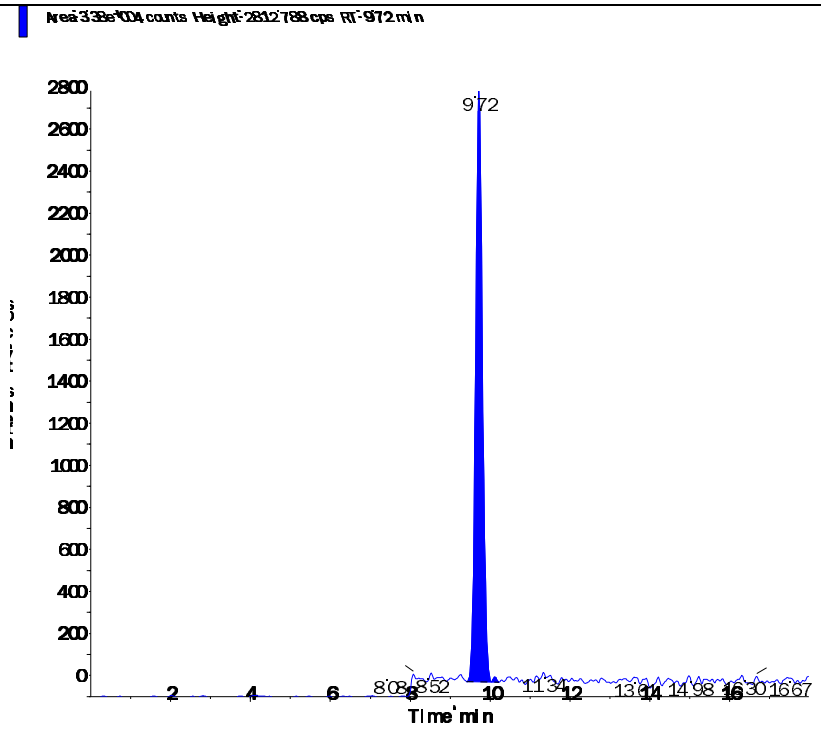
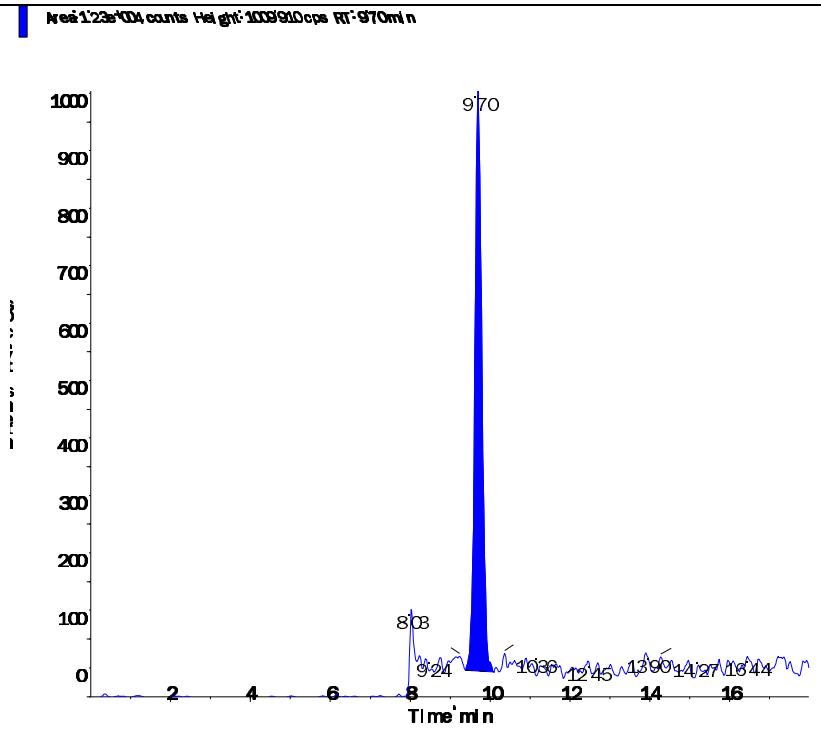
Perchlorate (98.8/83.3 amu)	
RT (Exp. RT):	9.72 (9.84) min
Calculated conc:	0.201 ng/ml
Area Ratio:	0.069
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT):	9.70 (9.84) min
Calculated conc:	0.204 ng/ml
Area Ratio:	0.025
Sample Type:	(Unknown)



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Created with Analyst Reporter
Printed: 6/2/2016 2:53 PM

Data File	LM35134.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 5:54:03 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

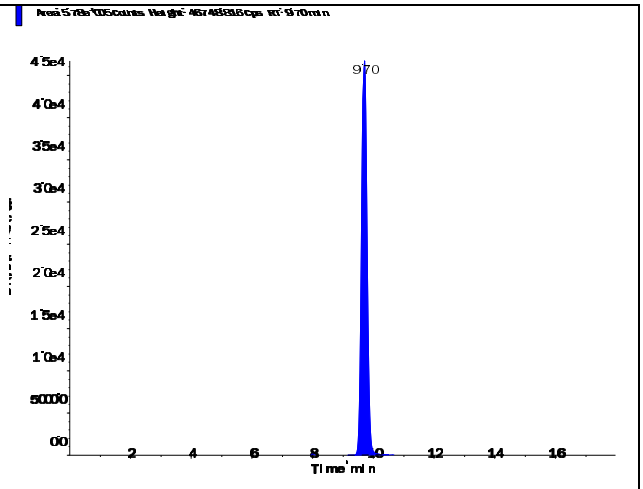
Sample Name	WG570932-06 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM35134.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 5:54:03 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570932-06	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.780e+05	9.70	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.960e+04	9.70	N/A	0.20
Perchlorate conf	1.380e+04	9.69	N/A	0.193

O18LP (Internal Standard)

RT (Exp. RT): 9.70(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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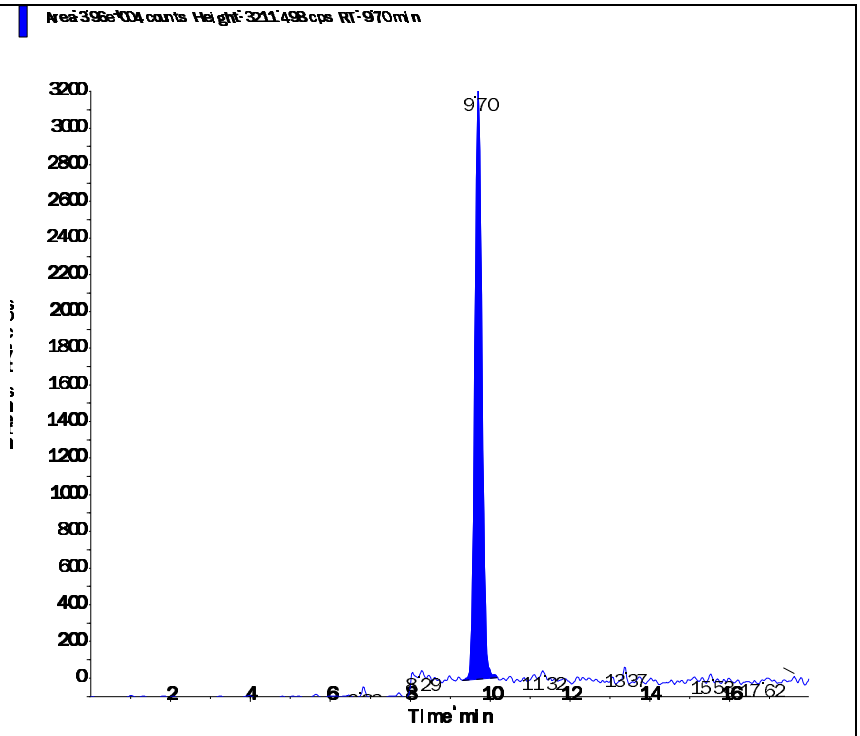
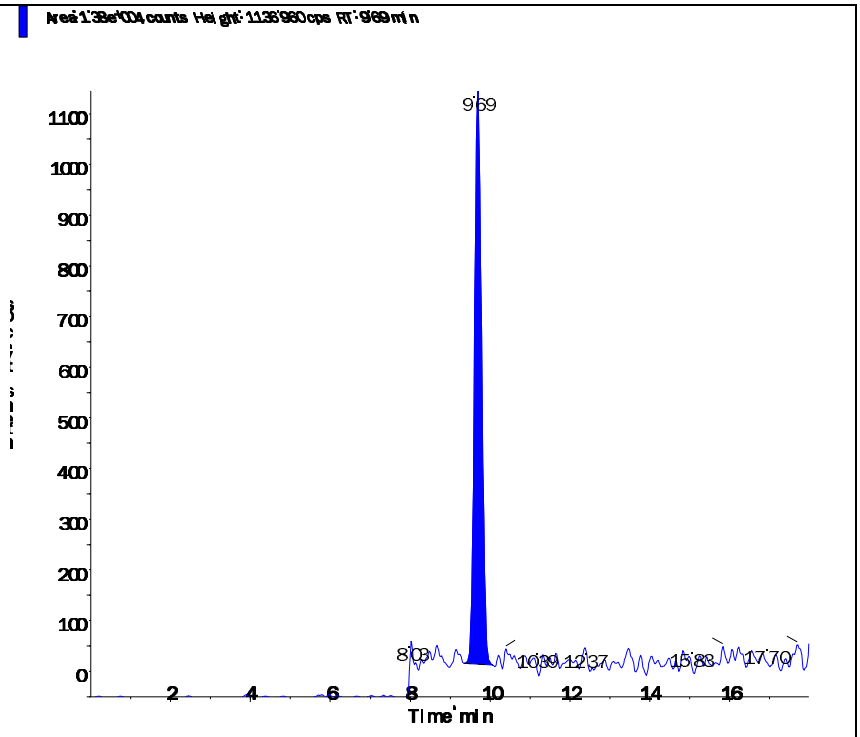
Created with Analyst Reporter
Printed: 6/2/2016 2:53 PM

Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.70 (9.84) min 0.20 ng/ml 0.069 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.69 (9.84) min 0.193 ng/ml 0.024 (Unknown)



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Created with Analyst Reporter
Printed: 6/2/2016 2:48 PM

Data File	LM35120.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 1:28:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

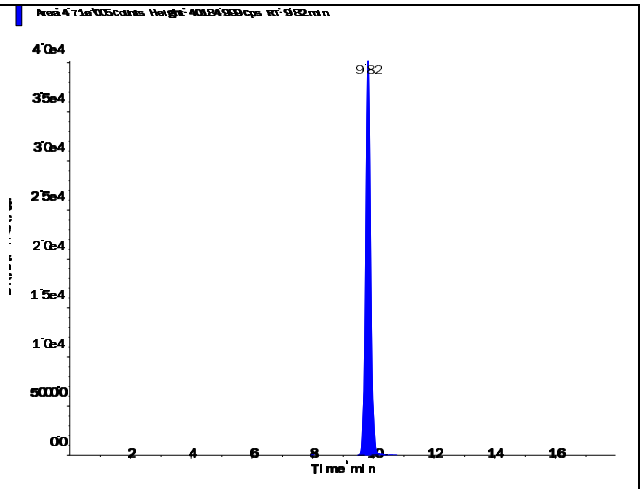
Sample Name	WG570935-01 CCB	**Injection Vial**	1.00
Data File	LM35120.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 1:28:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570935-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.710e+05	9.82	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.82(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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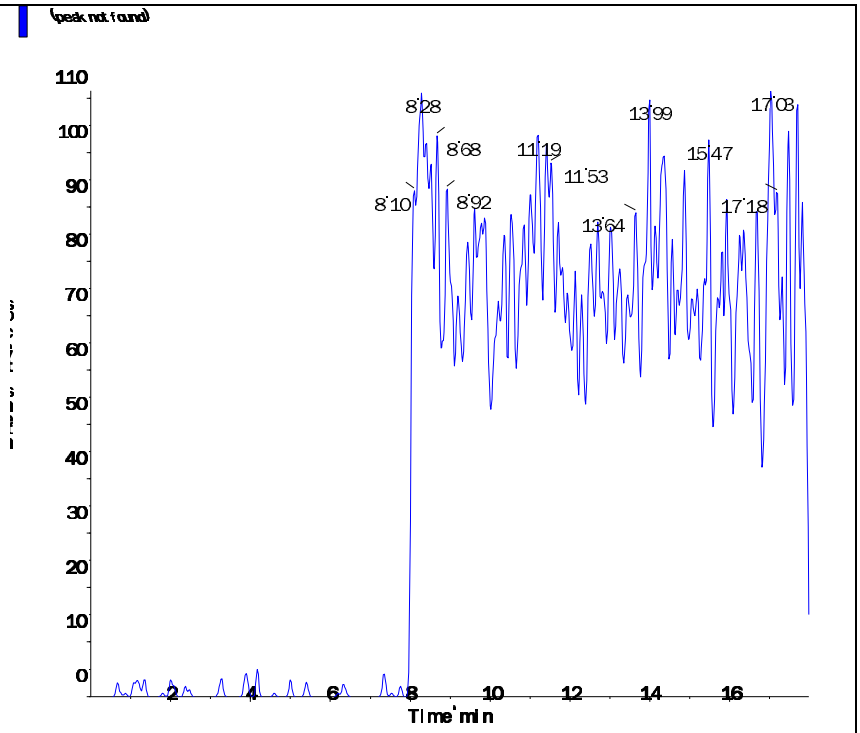
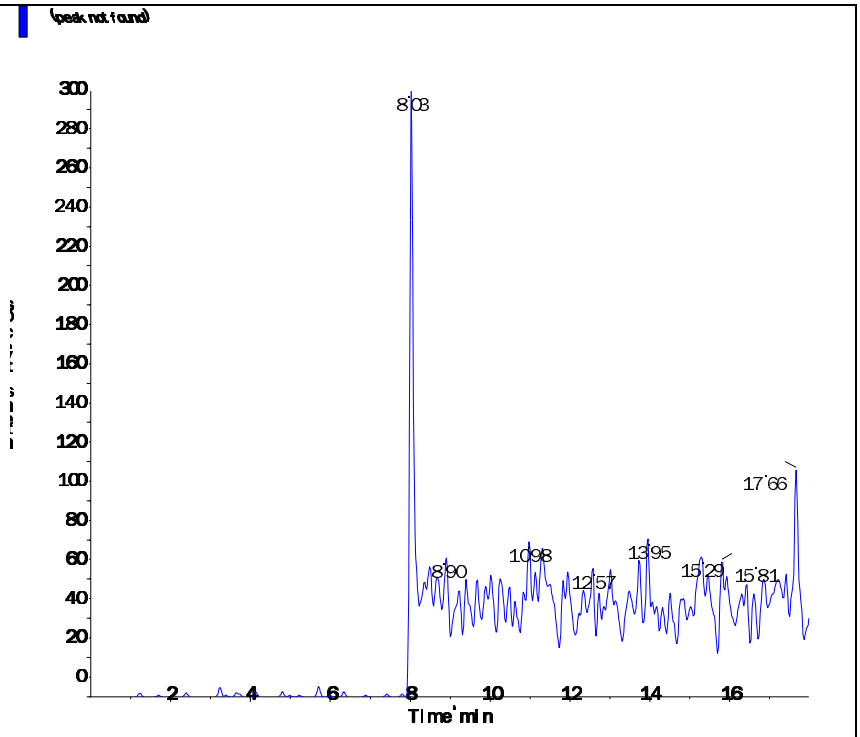
Created with Analyst Reporter
Printed: 6/2/2016 2:48 PM

Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



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Printed: 6/2/2016 2:53 PM

Data File	LM35135.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 6:13:00 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

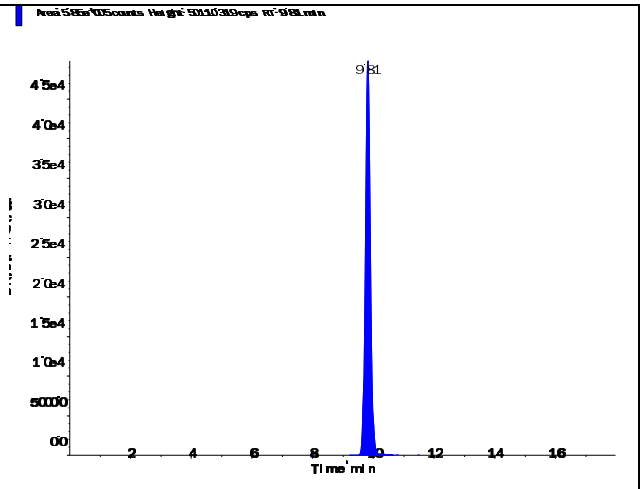
Sample Name	WG570935-04 CCB	**Injection Vial**	1.00
Data File	LM35135.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 6:13:00 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570935-04	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.850e+05	9.81	5.00	-

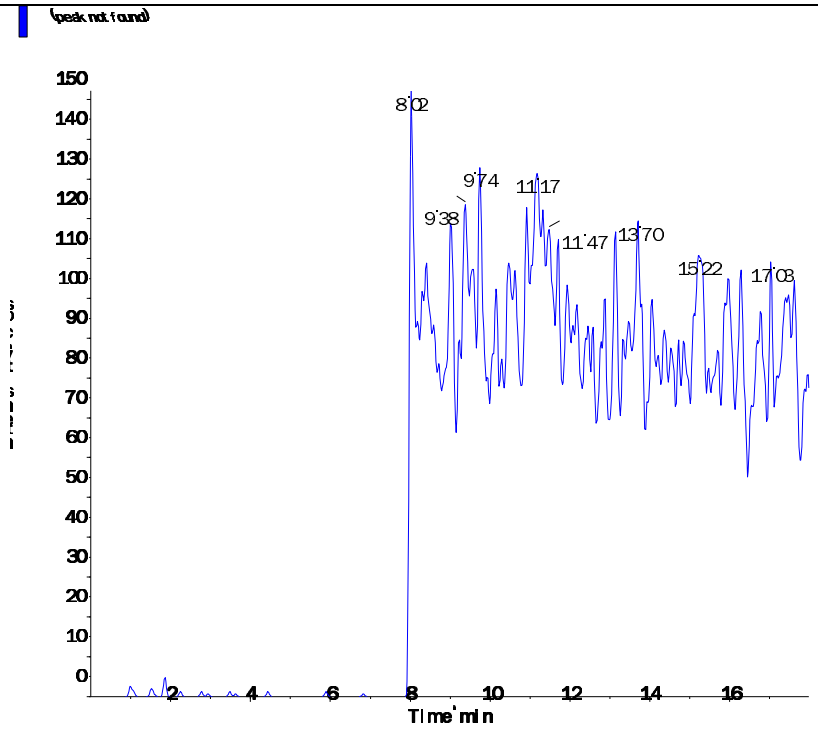
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

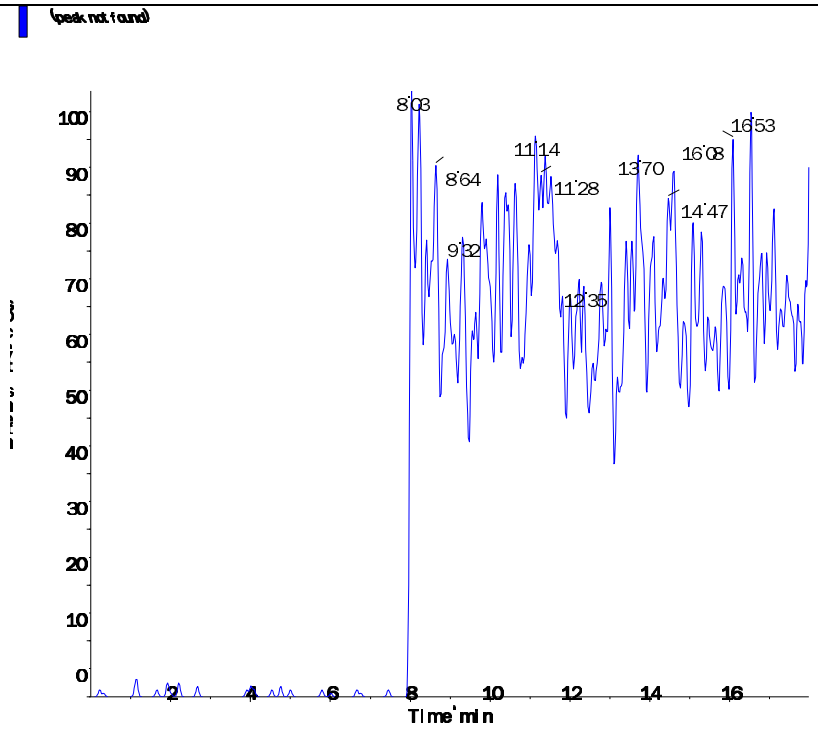
RT (Exp. RT): 9.81(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



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Data File	LM35123.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 2:25:43 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

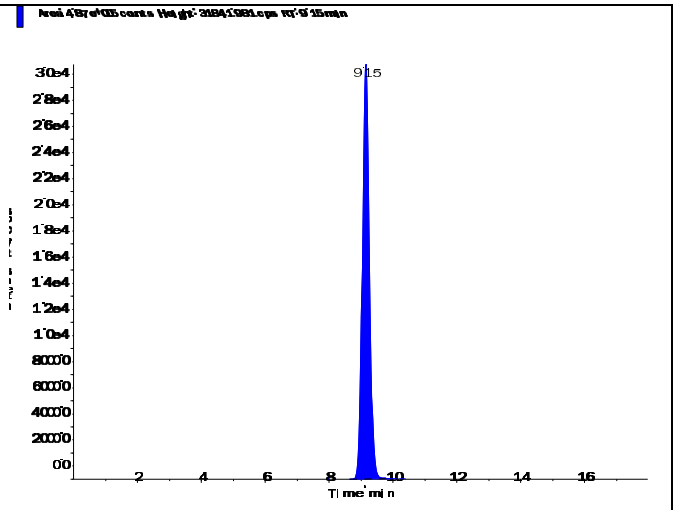
Sample Name	WG570932-01 MCT (0.2ug/L)	**Injection Vial**	4.00
Data File	LM35123.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 2:25:43 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570932-01	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.870e+05	9.15	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.230e+04	9.17	N/A	0.193
Perchlorate conf	1.170e+04	9.15	N/A	0.195

O18LP (Internal Standard)

RT (Exp. RT): 9.15(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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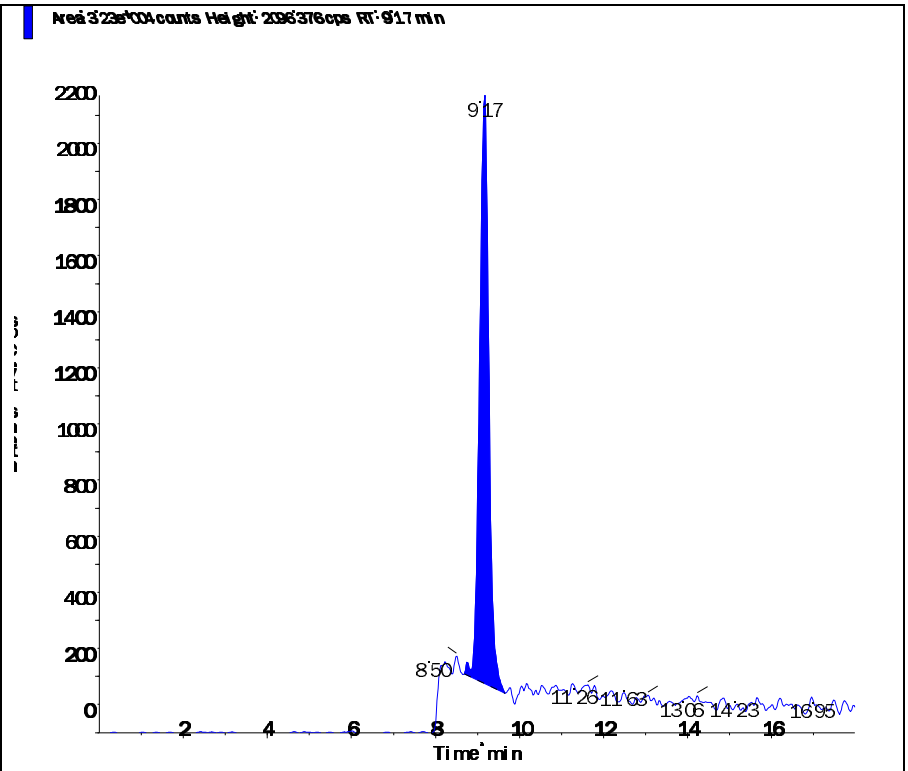
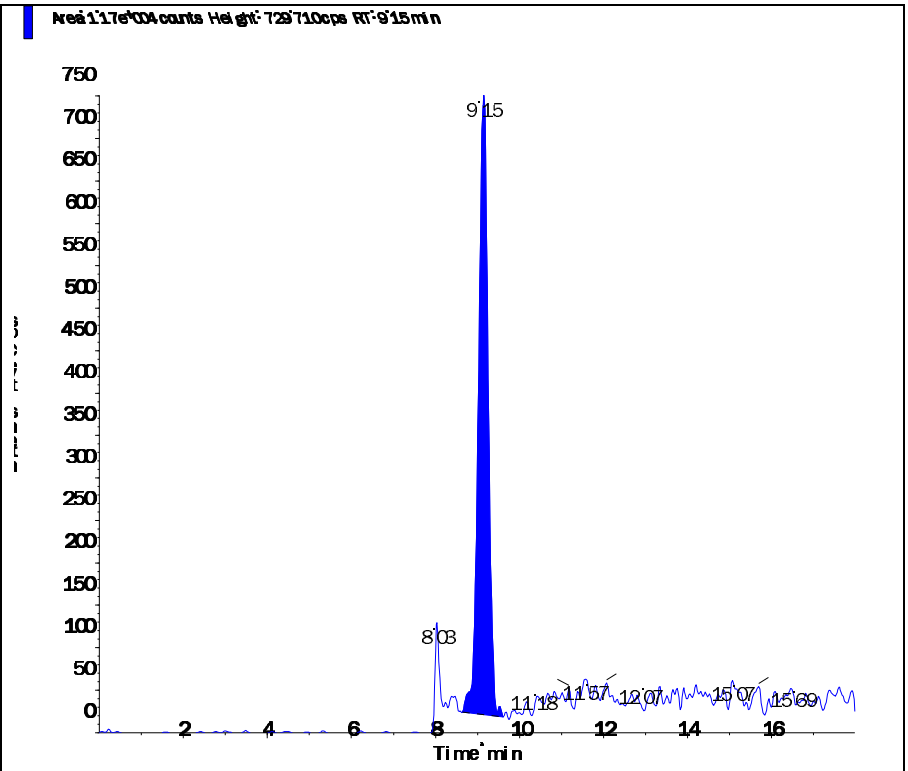
Printed: 6/2/2016 2:49 PM

Perchlorate (98.8/83.3 amu)	
RT (Exp. RT): 9.17 (9.84) min Calculated conc: 0.193 ng/ml Area Ratio: 0.066 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT): 9.15 (9.84) min Calculated conc: 0.195 ng/ml Area Ratio: 0.024 Sample Type: (Unknown)	

2.1.1.5 Raw QC Data

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Printed: 6/2/2016 2:49 PM

Data File	LM35124.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 2:44:38 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

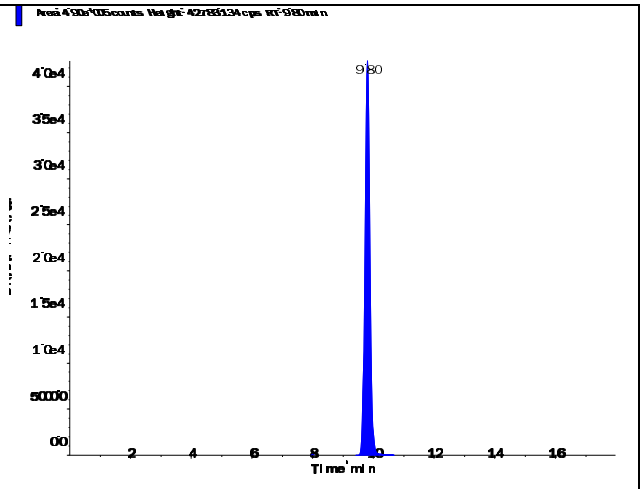
Sample Name	WG570932-02 BLANK	**Injection Vial**	5.00
Data File	LM35124.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 2:44:38 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570932-02	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.900e+05	9.80	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.80(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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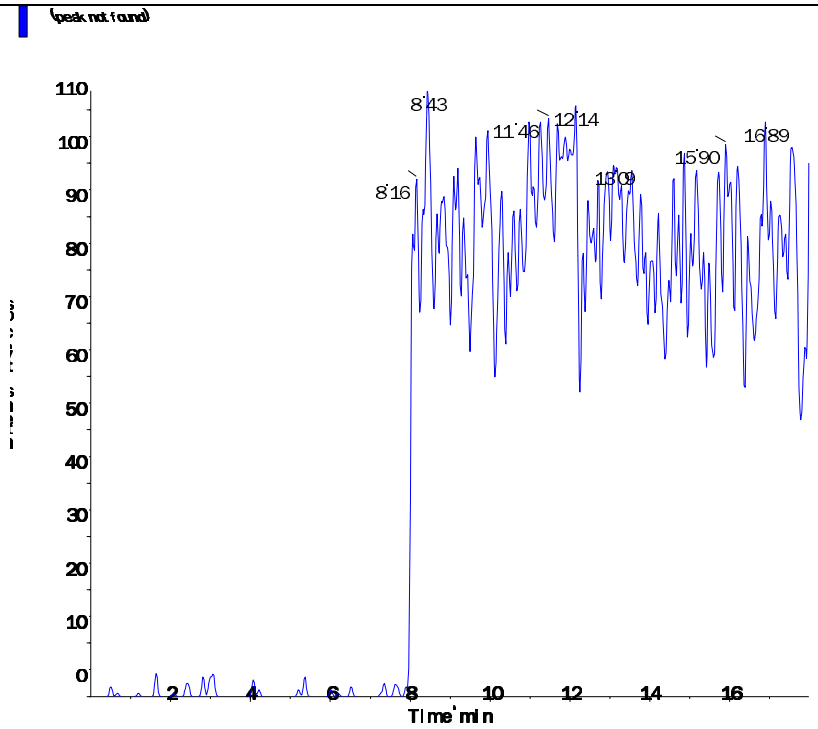
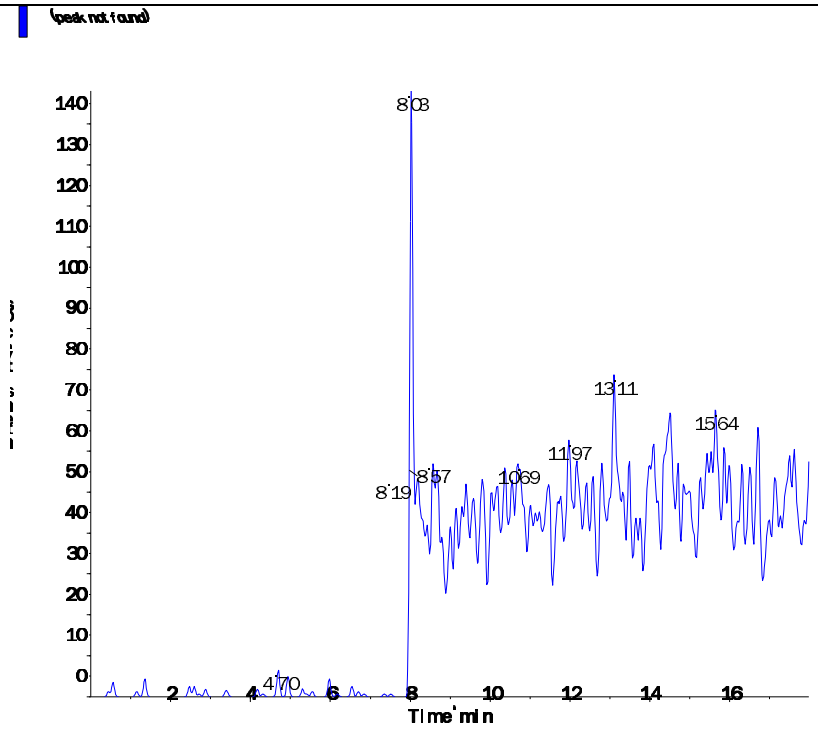
Created with Analyst Reporter
Printed: 6/2/2016 2:49 PM

Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



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Printed: 6/2/2016 2:50 PM

Data File	LM35125.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 3:03:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

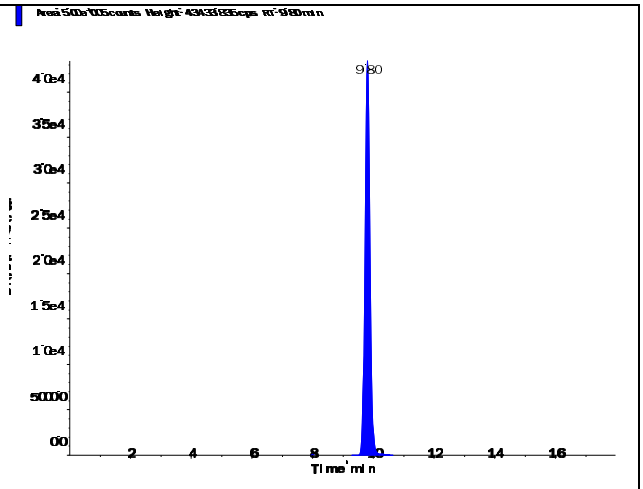
Sample Name	WG570932-03 LCS (0.2ug/L)	**Injection Vial**	6.00
Data File	LM35125.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 3:03:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570932-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.000e+05	9.80	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.430e+04	9.81	N/A	0.20
Perchlorate conf	1.230e+04	9.79	N/A	0.20

O18LP (Internal Standard)

RT (Exp. RT): 9.80(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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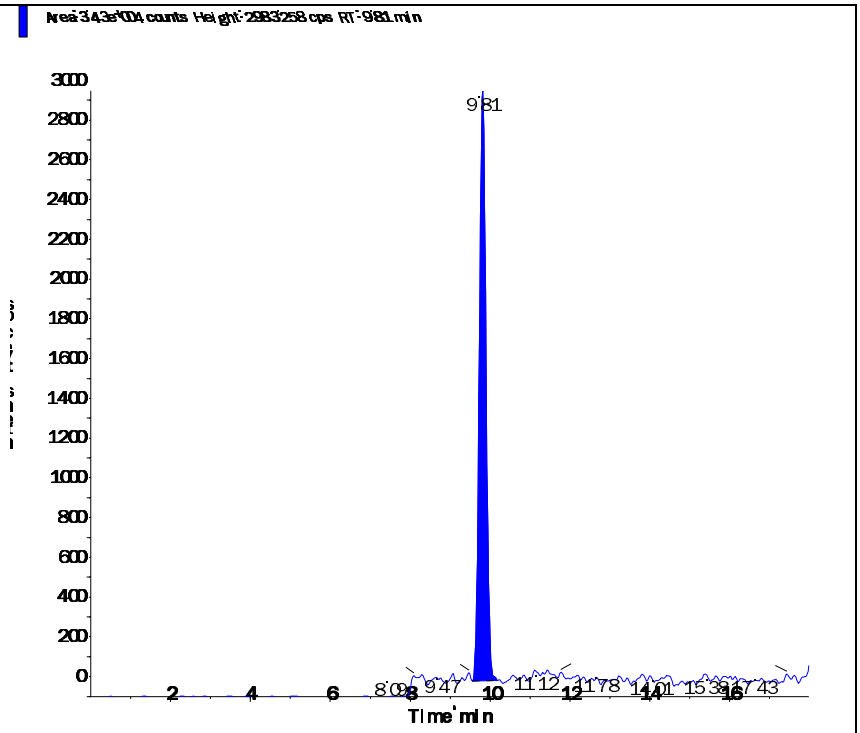
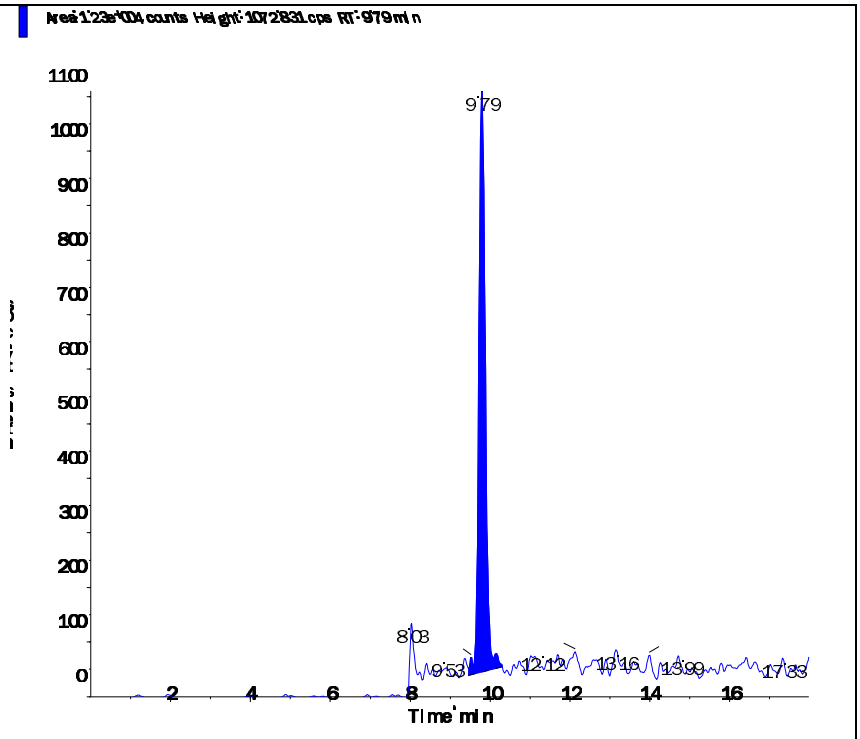
Printed: 6/2/2016 2:50 PM

Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.81 (9.84) min 0.20 ng/ml 0.069 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.79 (9.84) min 0.20 ng/ml 0.025 (Unknown)



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Data File	LM35126.wiff	**Result Table**	060116_JWR.rdb
Acquisition Date	6/1/2016 3:22:31 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

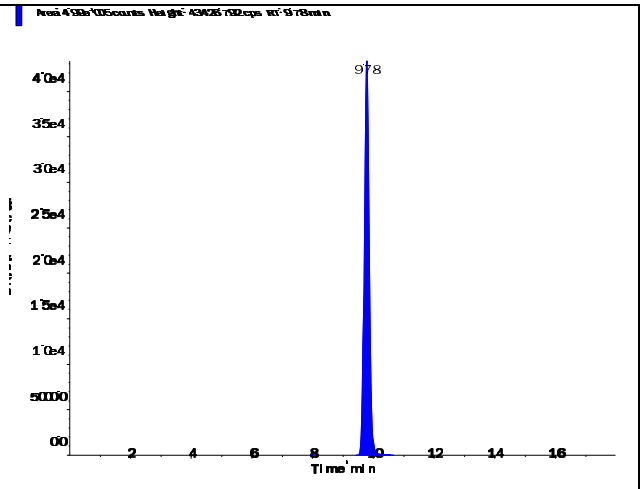
Sample Name	WG570932-04 LCS2 (0.2ug/L)	**Injection Vial**	7.00
Data File	LM35126.wiff	**Injection Volume**	10.00
Acquisition Date	6/1/2016 3:22:31 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	060116_JWR.rdb
Sample ID	WG570932-04	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.990e+05	9.78	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.430e+04	9.79	N/A	0.201
Perchlorate conf	1.260e+04	9.78	N/A	0.206

O18LP (Internal Standard)

RT (Exp. RT): 9.78(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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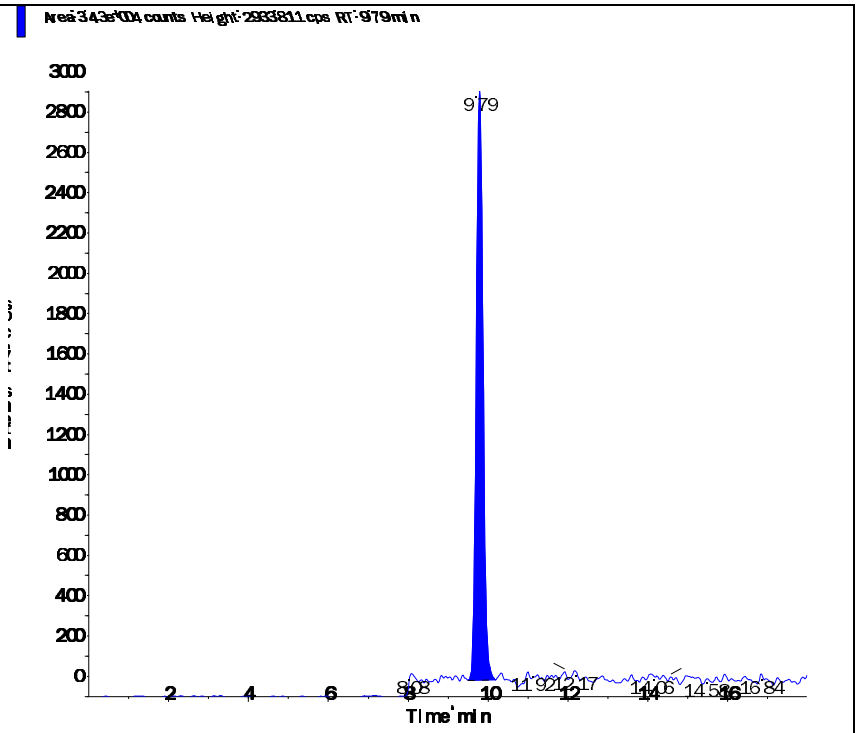
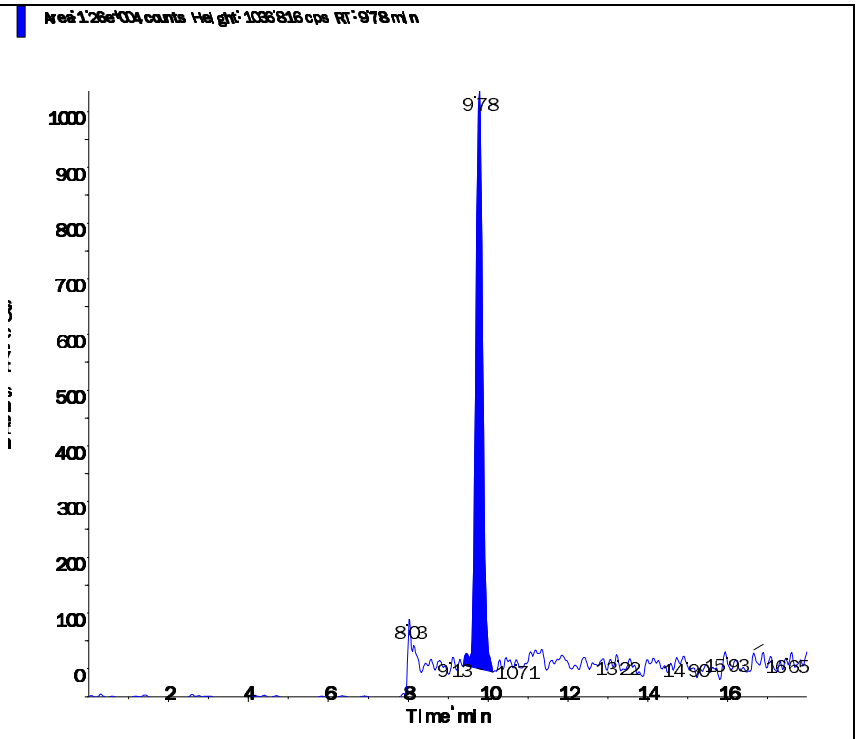
Created with Analyst Reporter
Printed: 6/2/2016 2:50 PM

Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.79 (9.84) min 0.201 ng/ml 0.069 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.78 (9.84) min 0.206 ng/ml 0.025 (Unknown)



3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
June 3, 2016

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001 – BIO-CHEM TESTING WVDEP 220	002 – REIC Consultants, Inc. WVDEP 060
003 – Sturm Environmental	004 – MICROBAC PITTSBURGH
005 – ES LABORATORIES	006 – ALCOSAN LABORATORIES
007 – ALS LABORATORIES	008 – BENCHMARK LABORATORIES
010 – MICROBAC CHICAGOLAND	AC – AMBER R. CARMICHAEL
ADC – ANTHONY D. CANTER	ADG – APRIL D. GREENE
AED – ALLEN E. DAVIS	ALS – ADRIANE L. STEED
AMA – ALEXANDRA M. ALFRED	AWE – ANDREW W. ESSIG
AZH – AFTER HOURS	BJO – BRIAN J. OGDEN
BKT – BRENDAN TORRENCE	BLG – BRENDA L. GREENWALT
BRG – BRENDA R. GREGORY	CAA – CASSIE A. AUGENSTEIN
CAF – CHERYL A. FLOWERS	CEB – CHAD E. BARNES
CJR – COURTNEY J. REXROAD	CLC – CHRYS L. CRAWFORD
CLS – CARA L. STRICKLER	CLW – CHARISSA L. WINTERS
CPD – CHAD P. DAVIS	CSH – CHRIS S. HILL
DAK – DEAN A. KETELSEN	DCM – DAVID C. MERCKLE
DEV – DAVID E. VANDENBERG	DIH – DEANNA I. HESSON
DLB – DAVID L. BUMGARNER	DLP – DOROTHY L. PAYNE
DLW – DIANA L. WRIGHT	DSM – DAVID S. MOSSOR
ECL – ERIC C. LAWSON	EMW – ERIC M. WILKEN
ENY – EMILY N. YOAK	ERP – ERIN R. PORTER
FJB – FRANCES J. BOLDEN	JBK – JEREMY B. KINNEY
JDH – JUSTIN D. HESSON	JDS – JARED D. SMITH
JJS – JOHN J. STE MARIE	JKP – JACQUELINE K. PARSONS
JLD – JESSICA L. DELONG	JLL – JOHN L. LENT
JMW – JEANA M. WHITE	JTP – JOSHUA T. PEMBERTON
JWR – JOHN W. RICHARDS	JWS – JACK W. SHEAVES
JYH – JI Y. HU	KAJ – KELLIE A. JOHNSON
KAT – KATHY A. TUCKER	KDW – KATHRYN D. WELCH
KEB – KATIE E. BARNES	KHR – KIM H. RHODES
KKB – KERRI K. BUCK	KRA – KATHY R. ALBERTSON
KRB – KAELY R. BECKER	KRP – KATHY R. PARSONS
LEC – LAURA E. CARPENTER	LKN – LINDA K. NEDEFF
LLS – LARRY L. STEPHENS	LSB – LESLIE S. BUCINA
MAP – MARLA A. PORTER	MBK – MORGAN B. KNOWLTON
MDA – MIKE D. ALBERTSON	MDC – MIKE D. COCHRAN
MES – MARY E. SCHILLING	MLB – MEGAN L. BACHE
MMB – MAREN M. BEERY	MRT – MICHELLE R. TAYLOR
MSW – MATT S. WILSON	PDM – PIERCE D. MORRIS
PIT – MICROBAC WARRENDALE	PRL – PAIGE R. LAMB
PSW – PEGGY S. WEBB	QX – QIN XU
RAH – ROY A. HALSTEAD	REK – BOB E. KYER
RLB – BOB BUCHANAN	RM – RAYMOND MALEKE
RNP – RICK N. PETTY	RST – ROBIN S. TURNER
SAV – SARAH A. VANDENBERG	SCB – SARAH C. BOGOLIN
SDC – SHALYN D. CONLEY	SLM – STEPHANIE L. MOSSBURG
SLP – SHERI L. PFALZGRAF	TB – TODD BOYLE
TGF – TIM G. FELTON	TMB – TIFFANY M. BAILEY
TMM – TAMMY M. MORRIS	VC – VICKI COLLIER
WJB – WILL J. BEASLEY	WRR – WESLEY R. RICHARDS
WTD – WADE T. DELONG	XXX – UNAVAILABLE OR SUBCONTRACT

Microbac Laboratories Inc.
List of Valid Qualifiers
June 03, 2016

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Greater than
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B,H1	Analyte present in method blank. Sample analysis performed past holding time.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	Cooler temperature at sample reciept exceeded regulatory limit.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
E,CT1	Estimated results. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
F,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
FL	Free Liquid
FP1	Did not ignite.
H1	Sample analysis performed past holding time.
H1,CT1	Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guidelines for reque
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated value ; the analyte concentration was less than the LOQ. Cooler temperature at sample reciept exceeded regu
J,H1	Estimated value ; the analyte concentration was less than the LOQ. Sample analysis performed past holding time.
J,H1	The reported result is an estimated value. Sample was analyzed past holding time.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	The reported result is an estimated value. The reported result is also associated with a contaminated method blank.
JQ	The reported result is an estimated value and one or more quality control criteria failed. See narrative.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentativlely identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
ND, B	Not detected at or above the reporting limit (RL). Analyte present in method blank.
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
ND,H1	Not detected; Sample analysis performed past holding time.
ND,H1,CT1	Not detected; Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guide
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
Q,H1	One or more quality control criteria failed. Sample analyzed past holding time. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
T5	Laboratory not licensed for this parameter
TIC	Library Search Compound
TNTC	Too numerous to count

Microbac Laboratories Inc.
List of Valid Qualifiers
June 03, 2016

Qualkey: DOD

TNTC, B	Too numerous to count. Analyte present in method blank.
TNTC,CT1	Too numerous to count. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
TNTC,H1	Too numerous to count. Sample analysis performed past holding time.
U	Analyte was not detected. The concentration is below the reported LOD.
U,CT1	Analyte was not detected. The concentration is below the reported LOD. Cooler temperature at sample reciept exceeded
U,H1	Not detected; Sample analysis performed past holding time.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

00889650

AECOM

Chain of Custody Record

COC Number:

Laboratory:	Microbac POC: Stephanie Mossburg	Project Manager:	Debra Richmann	Mail to:	Linda Raabe
Address:	158 Starlite Drive	Phone/Fax Number:	210-296-2000		112 East Pecan STE. 400
	Marietta, OH 45750	Sampler (print):	Scott Beesinger		San Antonio, TX 78205
Phone:	1-800-373-4071				210-296-2000
Client:	AECOM	Signature:	Scott Beesinger	Fed Ex Airbill No:	
Address:	112 East Pecan Ste. 400				
	San Antonio, TX 78205	pH:		Program:	
Turn Around Time:	STANDARD				
Project Name/Location:	Longhorn				
Project Number:	60256135.0009AA				

Site Name	Sample ID/Location ID	SBD	SED	Date	Time	Comp*	Grab	Matrix	Number of Containers	Perchlorate	ERPIMS REQUIRED FIELDS: SA CODE	Cooler ID	LOT CONTROL NUMBERS: ABLOT	EBLOT	TBLOT
Harrison Bayou & Goose Prarie Creek	GPW 1 - 052716			5/27/16	8:50		X	W	1	X					
	GPW 3 - 052716			5/27/16	9:05		X	W	1	X					
	HBW 1 - 022516			5/27/16	9:20		X	W	1	X					
	HBW 10 - 052716			5/27/16	9:33		X	W	1	X					
	HBW 7 - 052716			5/27/16	9:50		X	W	1	X					

Comments: STANDARD TAT

Relinquished by: (Signature) Scott Beesinger	Date 5/27/16	Time 1300	Received by: (Signature)	Received by: (Signature)	Date	Time	Relinquished by: (Signature)
Relinquished by: (Signature)	Date	Time	Received for Labo (Signature)				Remarks:

Microbac OVD
Received: 05/28/2016 11:36
By: BRENDA GREGORY 221000086523

Brenda Gregory

*Homogenize all composite samples prior to analysis

QA/QC Manager

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16051583
Account: 2551
Project: 2551.096
Samples: 5
Due Date: 10-JUN-2016

Samplenum	Container ID	Products
L16051583-01	752073	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAY-2016 09:25	CLS		
2	ANALYZ	W1	SEM	01-JUN-2016 09:32	JWR	CLS	
3	STORE	SEM	A1	01-JUN-2016 14:49	CLS	JWR	

Samplenum	Container ID	Products
L16051583-02	752074	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAY-2016 09:25	CLS		
2	ANALYZ	W1	SEM	01-JUN-2016 09:32	JWR	CLS	
3	STORE	SEM	A1	01-JUN-2016 14:49	CLS	JWR	

Samplenum	Container ID	Products
L16051583-03	752075	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAY-2016 09:25	CLS		
2	ANALYZ	W1	SEM	01-JUN-2016 09:32	JWR	CLS	
3	STORE	SEM	A1	01-JUN-2016 14:49	CLS	JWR	

Samplenum	Container ID	Products
L16051583-04	752076	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAY-2016 09:25	CLS		
2	ANALYZ	W1	SEM	01-JUN-2016 09:32	JWR	CLS	
3	STORE	SEM	A1	01-JUN-2016 14:49	CLS	JWR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16051583
Account: 2551
Project: 2551.096
Samples: 5
Due Date: 10-JUN-2016

Samplenum	Container ID	Products
L16051583-05	752077	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAY-2016 09:25	CLS		
2	ANALYZ	W1	SEM	01-JUN-2016 09:32	JWR	CLS	
3	STORE	SEM	A1	01-JUN-2016 14:49	CLS	JWR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

NELAP Addendum - January 4, 2016

Non-NELAP LIMS Product and Description

The following is a list of those tests that are not included in the Microbac – OVD NELAP Scope of Accreditation:

Heat of Combustion (BTU)
Total Halide by Bomb Combustion (TX)
Particle Sizing - 200 Mesh (PS200)
Specific Gravity/Density (SPGRAV)
Total Residual Chlorine (CL-TRL)
Total Volatile Solids (all forms) (TVS)
Total Coliform Bacteria (all methods)
Fecal Coliform Bacteria (all methods)
Sulfite (SO3)
Propionaldehyde (HPLC-UV)

SOLID AND HAZARDOUS CHEMICALS
Nitrogen, Ammonia by Method 350.1
Chromium, Hexavalent, Leachable by SM3500 Cr-B 2009
Phenolics, Total by Method 420.1
ASTM D3987-06

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD HPLC02/HPLC-UV

Nitroglycerin
Acetic acid
Butyric acid
Lactic acid
Propionic acid
Pyruvic acid

OVD MSS01/GC-MS

1,4-Phenylenediamine
1-Methylnaphthalene
1,4-Dioxane
Atrazine
Benzaldehyde
Biphenyl
Caprolactam
Hexamethylphosphoramide (HMPA)
Pentachlorobenzene
Pentachloroethane

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD MSV01/GC-MS

1, 1, 2-Trichloro-1,2,2-trifluoroethane
1,3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
T-amylmethylether (TAME)
Tetrahydrofuran (THF)

OVD HPLC07/HPLC-MS-MS

Hexamethylphosphoramide (XMPA-LCMS)

OVD HPLC12/HPLC/UV

Acetate
Formate

OVD RSK01/GC-FID

Acetylene
Propane

OVD K9305/ISE

Fluoroborate

SOLID AND HAZARDOUS CHEMICALS

OVD MSS0I/GC-MS

1-Methylnaphthalene
Benzaldehyde
Biphenyl
Caprolactam
Pentachloroethane

NELAP Accreditation by Laboratory SOP

SOLID AND HAZARDOUS CHEMICALS

OVD MSV0I/GC-MS

1.3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
n-Hexane
T-amylmethylether (TAME)

Microbac

Laboratory Report Number: L16081156

Kayla Teague
AECOM Technical Services, Inc.
1950 N Stemmons FWY
Dallas, TX 75207

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Michelle Taylor – Client Services Specialist
(740) 373-4071
Michelle.Taylor@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on September 06 2016

Leslie Bucina – Managing Director

State of Origin: TX
Accrediting Authority: Texas Commission on Environmental Quality ID:T104704252-07-TX
QAPP: DOD Ver 4.1

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy	Resolution

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00114106	I	4.0		J4616883362	X

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	All samples were checked for pH and met the standard. Exceptions are noted above under discrepancy. (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	NA
12	Were VOA samples free of headspace (less than 6mm)?	NA

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
HBW 7 - 082316	L16081156-01	08/23/2016 08:25	08/24/2016 10:10
HBW 10 - 082316	L16081156-02	08/23/2016 08:30	08/24/2016 10:10
HBW 1 - 082316	L16081156-03	08/23/2016 08:50	08/24/2016 10:10
GPW 1 - 082316	L16081156-04	08/23/2016 09:08	08/24/2016 10:10
GPW 3 - 082316	L16081156-05	08/23/2016 09:20	08/24/2016 10:10

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16081156
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG582453	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-09-06 00:00:00		

Laboratory Data Package Cover Page

X	R1	Field chain-of-custody documentation;
X	R2	Sample identification cross-reference;
X	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
X	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
X	R5	Test reports/summary forms for blank samples;
X	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
X	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
X	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
X	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
X	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Eric Lawson		Chemist III	2016-09-06 15:24:04

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16081156
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG582453	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-09-06 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?			X		
Were % moisture (or solids) reported for all soil and sediment samples?			X		
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples	X				
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16081156
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG582453	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-09-06 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16081156
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG582453	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-09-06 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?	X				
Were ion abundance data within the method-required QC limits?	X				
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?	X				
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?	X				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16081156
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG582453	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-09-06 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16081156
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG582453	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-09-06 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

There are no exceptions.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 7 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 20:47
Collect Date:	08/23/2016 08:25	**Dilution:**	1	**File ID:**	1LM.LM36004
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-02	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 10 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 21:05
Collect Date:	08/23/2016 08:30	**Dilution:**	1	**File ID:**	1LM.LM36005
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-03	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 1 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 21:24
Collect Date:	08/23/2016 08:50	**Dilution:**	1	**File ID:**	1LM.LM36006
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-04	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 1 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 22:40
Collect Date:	08/23/2016 09:08	**Dilution:**	1	**File ID:**	1LM.LM36010
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-05	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 3 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 22:59
Collect Date:	08/23/2016 09:20	**Dilution:**	1	**File ID:**	1LM.LM36011
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.141	J	0.400	0.200	0.100

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

2.1 General Chromatography Data

2.1.1 LC/MS Data (6850)

2.1.1.1 Summary Data

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 7 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 20:47
Collect Date:	08/23/2016 08:25	**Dilution:**	1	**File ID:**	1LM.LM36004
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-02	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 10 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 21:05
Collect Date:	08/23/2016 08:30	**Dilution:**	1	**File ID:**	1LM.LM36005
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-03	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HBW 1 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 21:24
Collect Date:	08/23/2016 08:50	**Dilution:**	1	**File ID:**	1LM.LM36006
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-04	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 1 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 22:40
Collect Date:	08/23/2016 09:08	**Dilution:**	1	**File ID:**	1LM.LM36010
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

Certificate of Analysis

Sample #:	L16081156-05	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	GPW 3 - 082316	**Prep Method:**	6850	**Prep Date:**	09/01/2016 17:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG582453	**Analyst:**	JWR	**Run Date:**	09/01/2016 22:59
Collect Date:	08/23/2016 09:20	**Dilution:**	1	**File ID:**	1LM.LM36011
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.141	J	0.400	0.200	0.100

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16081156
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Michelle Taylor

2.1.1.2 QC Summary Data

Example Calculation 6850 - Perchlorate

Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of internal standard (IS) = Rx/Ristd

x = amount ratio = concentration analyte/concentration internal standard (IS) = Cx / Cistd

m = slope from curve (1.45)

b = intercept from curve (-0.00242)

y = 1.45x + -0.00242

Step 2: Substitute the value for y

where y = 12600/226000 = 0.055752

Step 3: Solve for x

x = (y - b)/m = 0.0040119

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(x) = (5 ug/L)(0.040119) = 0.200594 ug/L

Example Calculation - Water:

Slope from curve, m:	1.45
Intercept from curve, b:	-0.00242
Response of analyte, Rx:	12600
Response of Internal Standard , Ristd:	226000
Concentration of IS, Cistd (ug/L):	5.00
Response Ratio:	0.05575
Amount Ratio:	0.04012
Analyte Concentration, Cx (ug/L) :	0.200594

Example Calculation - Soil:

Analyte Concentration, Cx (ug/L):	0.20059
Amount of soil extracted (g):	5.00
Final volume of extract (mL):	50.00
Percent solids (Pct wt.)	100
Concentration in soil (ug/kg):	2.005938

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG567013 (soils)

Internal STD: COA18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD75510 LCS STD: STD75512 MS/MSD STD: STD75512

Comments: ICAL WG567320 : Alternate Source STD75512
Analytical Column : RPPX 5um (250x4.6mm)
K'Prime S/N RPPX250-02115

Samples L16041363(-05 and -10) were analyzed at dilutions based on their pre-run screen results.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM34686	WG567320-01 CCB	1	1		05/03/16 15:06
2	1LM.LM34687	WG567320-02 STD (0.1 ug/L)	1	1	STD75510	05/03/16 15:25
3	1LM.LM34688	WG567320-03 STD (0.2 ug/L)	1	1	STD75510	05/03/16 15:43
4	1LM.LM34689	WG567320-04 STD (0.5 ug/L)	1	1	STD75510	05/03/16 16:02
5	1LM.LM34690	WG567320-05 STD (1.0 ug/L)	1	1	STD75510	05/03/16 16:21
6	1LM.LM34691	WG567320-06 STD (2.0 ug/L)	1	1	STD75510	05/03/16 16:40
7	1LM.LM34692	WG567320-07 STD (5.0 ug/L)	1	1	STD75510	05/03/16 16:59
8	1LM.LM34693	WG567320-08 STD (10 ug/L)	1	1	STD75510	05/03/16 17:18
9	1LM.LM34694	WG567320-09 SSCV (1.0 ug/L)	1	1	STD75512	05/03/16 17:37
10	1LM.LM34695	WG567321-01 CCB	1	1		05/03/16 17:56
11	1LM.LM34696	WG567321-02 CCV (1.0ug/L)	1	1	STD75510	05/03/16 18:15
12	1LM.LM34697	WG567013-07 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 18:34
13	1LM.LM34698	WG567013-01 MCT (2.0ug/kg)	7	1	STD75512	05/03/16 18:53
14	1LM.LM34699	WG567013-02 BLANK	7	1		05/03/16 19:12
15	1LM.LM34700	WG567013-03 LCS (2.0ug/kg)	7	1	STD75512	05/03/16 19:31
16	1LM.LM34701	L16041363-07 RS	7	1		05/03/16 19:50
17	1LM.LM34702	L16041363-08 MS	7	1	STD75512	05/03/16 20:09
18	1LM.LM34703	L16041363-09 MSD	7	1	STD75512	05/03/16 20:28
19	1LM.LM34704	L16041363-01	7	1		05/03/16 20:46
20	1LM.LM34705	L16041363-02	7	1		05/03/16 21:05
21	1LM.LM34706	L16041363-03	7	1		05/03/16 21:24
22	1LM.LM34707	L16041363-04	7	1		05/03/16 21:43
23	1LM.LM34708	WG567321-03 CCV (1.0ug/L)	1	1	STD75510	05/03/16 22:02
24	1LM.LM34709	WG567013-08 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 22:21
25	1LM.LM34710	WG567321-04 CCB	1	1		05/03/16 22:40
26	1LM.LM34711	L16041363-05 (5x)	7	5		05/03/16 22:59
27	1LM.LM34712	L16041363-06	7	1		05/03/16 23:18
28	1LM.LM34713	L16041363-10 (5x)	7	5		05/03/16 23:37
29	1LM.LM34714	WG567321-05 CCV (1.0ug/L)	1	1	STD75510	05/03/16 23:56
30	1LM.LM34715	WG567013-09 MRL (2.0ug/kg)	7	1	STD75510	05/04/16 00:15
31	1LM.LM34716	WG567321-06 CCB	1	1		05/04/16 00:34

Comments

Page: 1 Approved: 05-MAY-16

Microbac

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT

Analyst1: JWR Analyst2: NA

Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254

Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA

Analytical WG567013 (soils)

Internal STD: COA18071 Surrogate STD: NA STD75510 (05/03/2016)

CCV STD: STD75510 LCS STD: STD75512 STD75512

Comments

Seq.	Rerun	Dil.	Reason	Analytes
17				
	L16041363-08 MS : The MS %Rec is 129%. This is above the advisory limit of 120%. The parent sample to this MS had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MS %Rec would be 93.9%.			
18				
	L16041363-09 MSD : The MSD %Rec is 131%. This is above the advisory limit of 120%. The parent sample to this MSD had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MSD %Rec would be 95.4%.			

Page: 2 Approved: 05-MAY-16

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 090116_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG582453 (waters)

Internal STD: STD18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD75510 LCS STD: STD75512 MS/MSD STD: NA

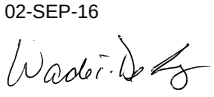
Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM35994	WG582454-01 CCB	1	1		09/01/16 17:37
2	1LM.LM35995	WG582454-02 CCV (1.0ug/L)	1	1	STD75510	09/01/16 17:56
3	1LM.LM35996	WG582453-05 MRL (0.2ug/L)	1	1	STD75510	09/01/16 18:15
4	1LM.LM35997	WG582453-01 MCT (0.2ug/L)	1	1	STD75512	09/01/16 18:34
5	1LM.LM35998	WG582453-02 BLANK	1	1		09/01/16 18:53
6	1LM.LM35999	WG582453-03 LCS (0.2ug/L)	1	1	STD75512	09/01/16 19:12
7	1LM.LM36000	WG582453-04 LCS2 (0.2ug/L)	1	1	STD75512	09/01/16 19:31
8	1LM.LM36001	L16081487-01	1	1		09/01/16 19:50
9	1LM.LM36002	L16081487-01 (RR 10x)(NR)	1	10		09/01/16 20:09
10	1LM.LM36003	L16081487-01 (RR 100x)(NR)	1	100		09/01/16 20:28
11	1LM.LM36004	L16081156-01	1	1		09/01/16 20:47
12	1LM.LM36005	L16081156-02	1	1		09/01/16 21:05
13	1LM.LM36006	L16081156-03	1	1		09/01/16 21:24
14	1LM.LM36007	WG582454-03 CCV (1.0ug/L)	1	1	STD75510	09/01/16 21:43
15	1LM.LM36008	WG582453-06 MRL (0.2ug/L)	1	1	STD75510	09/01/16 22:02
16	1LM.LM36009	WG582454-04 CCB	1	1		09/01/16 22:21
17	1LM.LM36010	L16081156-04	1	1		09/01/16 22:40
18	1LM.LM36011	L16081156-05	1	1		09/01/16 22:59
19	1LM.LM36012	L16081354-01	1	1		09/01/16 23:18
20	1LM.LM36013	WG582454-05 CCV (1.0ug/L)	1	1	STD75510	09/01/16 23:37
21	1LM.LM36014	WG582453-07 MRL (0.2ug/L)	1	1	STD75510	09/01/16 23:56
22	1LM.LM36015	WG582454-06 CCB	1	1		09/02/16 00:15

Comments

Seq.	Rerun	Dil.	Reason	Analytes
9				
	L16081487-01 (RR 10x)(NR) : This dilution was not needed.			
10				
	L16081487-01 (RR 100x)(NR) : This dilution was not needed.			

Page: 1 Approved: 02-SEP-16



Microbac Laboratories Inc.

Data Checklist

Date: 03-MAY-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: WG567320
Runlog ID: 74891
Analytical Workgroups: L16041363 (SOILS)

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	WTD

Primary Reviewer:
04-MAY-2016
John Richards

Secondary Reviewer:
05-MAY-2016
Wade D

CHECKLIST1 - Modified 03/05/2008
Generated: MAY-05-2016 16:23:46

Microbac

Microbac Laboratories Inc.

Data Checklist

Date: 01-SEP-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: NA
Runlog ID: 77288
Analytical Workgroups: L16081156, 1354, 1487

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA-LCS/LCS2
Recoveries	NA
%RPD	NA
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	MCT-ONLY
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	WTD

Primary Reviewer:
02-SEP-2016
John Richards

Secondary Reviewer:
02-SEP-2016
Wade D

CHECKLIST1 - Modified 03/05/2008
Generated: SEP-02-2016 16:56:48

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6850 **AAB#:** WG582453

Login Number: L16081156

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
HBW 7 - 082316	01	08/23/16					09/01/2016	9.4	28		09/01/16	.1	28	
HBW 10 - 082316	02	08/23/16					09/01/2016	9.4	28		09/01/16	.1	28	
HBW 1 - 082316	03	08/23/16					09/01/2016	9.4	28		09/01/16	.2	28	
GPW 1 - 082316	04	08/23/16					09/01/2016	9.3	28		09/01/16	.2	28	
GPW 3 - 082316	05	08/23/16					09/01/2016	9.3	28		09/01/16	.2	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 4924364
Report generated 09/06/2016 08:44

METHOD BLANK SUMMARY

Login Number: L16081156
Work Group: WG582453
Blank File ID: 1LM.LM35998
Blank Sample ID: WG582453-02
Prep Date: 09/01/16 17:30
Instrument ID: LCMS1
Analyzed Date: 09/01/16 18:53
Method: 6850
Analyst: JWR

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
QCMRL	WG582453-05	1LM.LM35996	09/01/16 18:15	01
MCT	WG582453-01	1LM.LM35997	09/01/16 18:34	01
LCS	WG582453-03	1LM.LM35999	09/01/16 19:12	01
LCS2	WG582453-04	1LM.LM36000	09/01/16 19:31	01
HBW 7 - 082316	L16081156-01	1LM.LM36004	09/01/16 20:47	01
HBW 10 - 082316	L16081156-02	1LM.LM36005	09/01/16 21:05	01
HBW 1 - 082316	L16081156-03	1LM.LM36006	09/01/16 21:24	01
QCMRL	WG582453-06	1LM.LM36008	09/01/16 22:02	01
GPW 1 - 082316	L16081156-04	1LM.LM36010	09/01/16 22:40	01
GPW 3 - 082316	L16081156-05	1LM.LM36011	09/01/16 22:59	01
QCMRL	WG582453-07	1LM.LM36014	09/01/16 23:56	01

Report Name: BLANK_SUMMARY
PDF File ID: 4924365
Report generated 09/06/2016 08:44

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L16081156 Prep Date: 09/01/16 17:30 Sample ID: WG582453-02
Instrument ID: LCMS1 Run Date: 09/01/16 18:53 Prep Method: 6850
File ID: 1LM.LM35998 Analyst: JWR Method: 6850
Workgroup (AAB#): WG582453 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Perchlorate	0.100	0.400	0.100	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 4924366
06-SEP-2016 08:44

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16081156 Analyst: JWR Prep Method: 6850
Instrument ID: LCMS1 Matrix: Water Method: 6850
Workgroup (AAB#): WG582453 Units: ug/L
QC Key: DOD4 Lot #: STD75512

Sample ID: WG582453-03 LCS File ID: 1LM.LM35999 Run Date: 09/01/2016 19:12
Sample ID: WG582453-04 LCS2 File ID: 1LM.LM36000 Run Date: 09/01/2016 19:31

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Perchlorate	0.200	0.187	93.5	0.200	0.215	108	13.9	80 - 120	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 4924367
Report generated: 09/06/2016 08:44

Login Number: L16081156
Analytical Method: 6850
ICAL Workgroup: WG567320
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Perchlorate		1.699	4.81	1.00000	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 4924411
Report generated 09/06/2016 08:44

Login Number: L16081156
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-02			WG567320-03			WG567320-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	0.100	17900.0000	1.792	0.200	34100.0000	1.718	0.500	82200.0000	1.637

INT_CAL - Modified 03/06/2008
PDF File ID: 4924411
Report generated 09/06/2016 08:44

Login Number: L16081156
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-05			WG567320-06			WG567320-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	1.00	168000.000	1.697	2.00	330000.000	1.672	5.00	810000.000	1.695

INT_CAL - Modified 03/06/2008
PDF File ID: 4924411
Report generated 09/06/2016 08:44

Login Number: L16081156
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-08		
	CONC	RESP	RF
Perchlorate	10.0	1530000.00	1.680

INT_CAL - Modified 03/06/2008
PDF File ID: 4924411
Report generated 09/06/2016 08:44

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L16081156 Run Date: 05/03/2016 Sample ID: WG567320-09
Instrument ID: LCMS1 Run Time: 17:37 Method: 6850
File ID: 1LM.LM34694 Analyst: JWR QC Key: DOD4
ICal Workgroup: WG567320 Cal ID: LCMS1 - 03-MAY-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Perchlorate		1.00	0.985	ug/L	1.66	1.50	15	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 4924412
Report generated 09/06/2016 08:44

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L16081156 | Run Date: 09/01/2016 | Sample ID: WG582454-01
Instrument ID: LCMS1 | Run Time: 17:37 | Method: 6850
File ID: 1LM.LM35994 | Analyst: JWR | Units: ug/L
Workgroup (AAB#): WG582453 | Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER | QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4924370
Report generated 09/06/2016 08:44

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L16081156 | Run Date: 09/01/2016 | Sample ID: WG582454-04
Instrument ID: LCMS1 | Run Time: 22:21 | Method: 6850
File ID: 1LM.LM36009 | Analyst: JWR | Units: ug/L
Workgroup (AAB#): WG582453 | Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER | QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4924370
Report generated 09/06/2016 08:44

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16081156	Run Date:	09/02/2016	Sample ID:	WG582454-06
Instrument ID:	LCMS1	Run Time:	00:15	Method:	6850
File ID:	1LM.LM36015	Analyst:	JWR	Units:	ug/L
Workgroup (AAB#):	WG582453	Cal ID:	LCMS1 - 03-MAY-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 4924370
Report generated 09/06/2016 08:44

Login Number: L16081156 Run Date: 09/01/2016 Sample ID: WG582454-02
Instrument ID: LCMS1 Run Time: 17:56 Method: 6850
File ID: 1LM.LM35995 Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG582453 Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.998	ug/L	1.69	0.200	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 4924369
Report generated 09/06/2016 08:44

Login Number: L16081156 Run Date: 09/01/2016 Sample ID: WG582454-03
Instrument ID: LCMS1 Run Time: 21:43 Method: 6850
File ID: 1LM.LM36007 Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG582453 Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	1.02	ug/L	1.72	2.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 4924369
Report generated 09/06/2016 08:44

Login Number: L16081156 Run Date: 09/01/2016 Sample ID: WG582454-05
Instrument ID: LCMS1 Run Time: 23:37 Method: 6850
File ID: 1LM.LM36013 Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG582453 Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	1.01	ug/L	1.70	1.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 4924369
Report generated 09/06/2016 08:44

Login Number: L16081156 Run Date: 09/01/2016 Sample ID: WG582453-05
Instrument ID: LCMS1 Run Time: 18:15 Prep Method: 6850
File ID: 1LM.LM35996 Analyst: JWR Method: 6850
Workgroup (AAB#): WG582453 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.199	99.5	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4924368
Report generated 09/06/2016 08:44

Login Number: L16081156 Run Date: 09/01/2016 Sample ID: WG582453-06
Instrument ID: LCMS1 Run Time: 22:02 Prep Method: 6850
File ID: 1LM.LM36008 Analyst: JWR Method: 6850
Workgroup (AAB#): WG582453 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.199	99.5	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4924368
Report generated 09/06/2016 08:44

Login Number: L16081156 Run Date: 09/01/2016 Sample ID: WG582453-07
Instrument ID: LCMS1 Run Time: 23:56 Prep Method: 6850
File ID: 1LM.LM36014 Analyst: JWR Method: 6850
Workgroup (AAB#): WG582453 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.201	101	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 4924368
Report generated 09/06/2016 08:44

Microbac Laboratories Inc.
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number:L16081156
Instrument ID:LCMS1
Workgroup (AAB#):WG582453

ICAL CCV Number:WG567320-05
CAL ID: LCMS1-03-MAY-16
Matrix:WATER

Sample Number	Dilution	Tag	IS-1
WG567320	NA	NA	489000
Upper Limit	NA	NA	733500
Lower Limit	NA	NA	244500
L16081156-01	1.00	01	388000
L16081156-02	1.00	01	357000
L16081156-03	1.00	01	364000
L16081156-04	1.00	01	404000
L16081156-05	1.00	01	402000
WG582453-02	1.00	01	344000
WG582453-03	1.00	01	351000
WG582453-04	1.00	01	351000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 4924371
Report generated 09/06/2016 08:44

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	L16081156-01
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36004
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 20:47	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	10700	3720	2.88	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	L16081156-02
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36005
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 21:05	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	5380	1990	2.70	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	L16081156-03
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36006
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 21:24	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	4920	1770	2.78	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	L16081156-04
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36010
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 22:40	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	13000	5040	2.58	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	L16081156-05
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36011
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 22:59	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	19500	7270	2.68	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34687
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 15:25	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	17900	6950	2.58	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34688
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 15:43	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34100	11900	2.87	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34689
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 16:02	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	82200	29400	2.80	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34690
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 16:21	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	168000	56600	2.97	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34691
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 16:40	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	330000	108000	3.06	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-07
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34692
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 16:59	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	810000	269000	3.01	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-08
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34693
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 17:18	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	1530000	512000	2.99	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG567320-09
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34694
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	05/03/2016 17:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	169000	56300	3.00	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	WG582453-01
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM35997
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 18:34	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	22400	8220	2.73	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	WG582453-02
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM35998
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 18:53	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	WG582453-03
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM35999
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 19:12	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	22500	8970	2.51	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	WG582453-04
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36000
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 19:31	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	25800	9910	2.60	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	WG582453-05
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM35996
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 18:15	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	23300	9380	2.48	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	WG582453-06
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36008
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 22:02	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	28500	10200	2.79	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**	6850	**Samplenum:**	WG582453-07
Instrument:	LCMS1	**Prep Date:**	09/01/2016 17:30	**File ID:**	1LM.LM36014
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 23:56	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	30200	11800	2.56	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG582454-01
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35994
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 17:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	676	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG582454-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM35995
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 17:56	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	123000	44200	2.78	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG582454-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM36007
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 21:43	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	143000	49200	2.91	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG582454-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM36009
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 22:21	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG582454-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM36013
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/01/2016 23:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	150000	52700	2.85	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16081156	**Prep Method:**		**Samplenum:**	WG582454-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM36015
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG582453	**Analysis Date:**	09/02/2016 00:15	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
September 6, 2016

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001 – BIO-CHEM TESTING WVDEP 220	002 – REIC Consultants, Inc. WVDEP 060
003 – Sturm Environmental	004 – MICROBAC PITTSBURGH
005 – ES LABORATORIES	006 – ALCOSAN LABORATORIES
007 – ALS LABORATORIES	008 – BENCHMARK LABORATORIES
010 – MICROBAC CHICAGOLAND	AC – AMBER R. CARMICHAEL
ADC – ANTHONY D. CANTER	ADG – APRIL D. GREENE
AED – ALLEN E. DAVIS	ALS – ADRIANE L. STEED
AMA – ALEXANDRA M. ALFRED	AWE – ANDREW W. ESSIG
AZH – AFTER HOURS	BJO – BRIAN J. OGDEN
BKT – BRENDAN TORRENCE	BLG – BRENDA L. GREENWALT
BNB – Brandi N. Bentley	BRG – BRENDA R. GREGORY
CAA – CASSIE A. AUGENSTEIN	CAF – CHERYL A. FLOWERS
CEB – CHAD E. BARNES	CJQ – Cameron J. Quick
CLC – CHRYS L. CRAWFORD	CLS – CARA L. STRICKLER
CLW – CHARISSA L. WINTERS	CPD – CHAD P. DAVIS
CSH – CHRIS S. HILL	CV – Carl Volkman
DAK – DEAN A. KETELSEN	DCM – DAVID C. MERCKLE
DEV – DAVID E. VANDENBERG	DIH – DEANNA I. HESSON
DLB – DAVID L. BUMGARNER	DLP – DOROTHY L. PAYNE
DSM – DAVID S. MOSSOR	ECL – ERIC C. LAWSON
EMW – ERIC M. WILKEN	ENY – EMILY N. YOAK
ERP – ERIN R. PORTER	FJB – FRANCES J. BOLDEN
HDC – HANAH D. COE	HDD – HANAH D. DAWKINS
JBK – JEREMY B. KINNEY	JDH – JUSTIN D. HESSON
JDS – JARED D. SMITH	JKP – JACQUELINE K. PARSONS
JLD – JESSICA L. DELONG	JLL – JOHN L. LENT
JMW – JEANA M. WHITE	JTP – JOSHUA T. PEMBERTON
JWR – JOHN W. RICHARDS	JWS – JACK W. SHEAVES
JYH – JI Y. HU	KAT – KATHY A. TUCKER
KDD – Katelyn D. Daley	KDW – KATHRYN D. WELCH
KEB – KATIE E. BARNES	KHR – KIM H. RHODES
KKB – KERRI K. BUCK	KRA – KATHY R. ALBERTSON
KRB – KAELY R. BECKER	KRP – KATHY R. PARSONS
LJH – Lacey J. Hendershot	LKN – LINDA K. NEDEFF
LLS – LARRY L. STEPHENS	LSB – LESLIE S. BUCINA
MAP – MARLA A. PORTER	MBK – MORGAN B. KNOWLTON
MDA – MIKE D. ALBERTSON	MDC – MIKE D. COCHRAN
MES – MARY E. SCHILLING	MMB – MAREN M. BEERY
MRT – MICHELLE R. TAYLOR	MSW – MATT S. WILSON
NPH – Natalie P. Hart	PDM – PIERCE D. MORRIS
PIT – MICROBAC WARRENDALE	QX – QIN XU
RAH – ROY A. HALSTEAD	REK – BOB E. KYER
RLB – BOB BUCHANAN	RNP – RICK N. PETTY
SAV – SARAH A. VANDENBERG	SCB – SARAH C. BOGOLIN
SDC – SHALYN D. CONLEY	SLM – STEPHANIE L. MOSSBURG
SLP – SHERI L. PFALZGRAF	TB – TODD BOYLE
TGF – TIM G. FELTON	TMB – TIFFANY M. BAILEY
TMM – TAMMY M. MORRIS	VC – VICKI COLLIER
WJB – WILL J. BEASLEY	WTD – WADE T. DELONG
XXX – UNAVAILABLE OR SUBCONTRACT	

Microbac Laboratories Inc.
List of Valid Qualifiers
September 06, 2016

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Greater than
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B,H1	Analyte present in method blank. Sample analysis performed past holding time.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	Cooler temperature at sample reciept exceeded regulatory limit.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
E,CT1	Estimated results. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
F,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
FL	Free Liquid
FP1	Did not ignite.
H1	Sample analysis performed past holding time.
H1,CT1	Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guidelines for reque
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated value ; the analyte concentration was less than the LOQ. Cooler temperature at sample reciept exceeded regu
J,H1	Estimated value ; the analyte concentration was less than the LOQ. Sample analysis performed past holding time.
J,H1	The reported result is an estimated value. Sample was analyzed past holding time.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	The reported result is an estimated value. The reported result is also associated with a contaminated method blank.
JQ	The reported result is an estimated value and one or more quality control criteria failed. See narrative.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentativlely identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
ND, B	Not detected at or above the reporting limit (RL). Analyte present in method blank.
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
ND,H1	Not detected; Sample analysis performed past holding time.
ND,H1,CT1	Not detected; Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guide
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
Q,H1	One or more quality control criteria failed. Sample analyzed past holding time. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
T5	Laboratory not licensed for this parameter
TIC	Library Search Compound
TNTC	Too numerous to count

Microbac Laboratories Inc.
List of Valid Qualifiers
September 06, 2016

Qualkey: DOD

TNTC, B	Too numerous to count. Analyte present in method blank.
TNTC,CT1	Too numerous to count. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
TNTC,H1	Too numerous to count. Sample analysis performed past holding time.
U	Analyte was not detected. The concentration is below the reported LOD.
U,CT1	Analyte was not detected. The concentration is below the reported LOD. Cooler temperature at sample reciept exceeded
U,H1	Not detected; Sample analysis performed past holding time.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

AECOM

Chain of Custody Record

COC Number:

Laboratory: Microbac POC: Stephanie Mossburg	Project Manager: Debra Richmann	Mail to: Linda Raabe
Address: 158 Starlite Drive	Phone/Fax Number: 210-296-2000	112 East Pecan STE. 400
Marietta, OH 45750	Sampler (print): Scott Beesinger	San Antonio, TX 78205
Phone: 1-800-373-4071		210-296-2000
Client: AECOM	Signature: Scott Beesinger	Fed Ex Airbill No:
Address: 112 East Pecan Ste. 400		
San Antonio, TX 78205	pH:	Program:
Turn Around Time: STANDARD		
Project Name/Location: Longhorn		
Project Number: 60256135.0009AA		

Site Name	Sample ID/Location ID	SBD	SED	Date	Time	Comp*	Grab	Matrix	Number of Containers	Perchlorate	SA CODE	Cooler ID	LOT CONTROL NUMBERS ABLOT	EBLOT	TBLOT
Harrison Bayou & Goose Prarie Creek	HBW 7 - 082316			8/23/16	8:25		X	W	1	X					
	HBW 10 - 082316			8/23/16	8:30		X	W	1	X					
	HBW 1 - 082316			8/23/16	8:50		X	W	1	X					
	GPW 1 - 082316			8/23/16	9:08		X	W	1	X					
	GPW 3 - 082316			8/23/16	9:20		X	W	1	X					
	Comments: STANDARD TAT														

ERPIMS REQUIRED FIELDS

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Scott Beesinger	8/23/16	12:00	
Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)

Microbac OVD
Received: 08/24/2016 10:10
By: BRENDA GREGORY 221000090039
Brenda Gregory

*Homogenize all composite samples prior to analysis

Distribu ager

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16081156
Account: 2551
Project: 2551.096
Samples: 5
Due Date: 02-SEP-2016

Samplenum	Container ID	Products
L16081156-01	791622	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2016 11:56	CLS		
2	ANALYZ	W1	SEM	01-SEP-2016 15:51	JWR	BRG	
3	STORE	SEM	A1	02-SEP-2016 16:46	BRG	JWR	

Samplenum	Container ID	Products
L16081156-02	791623	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2016 11:56	CLS		
2	ANALYZ	W1	SEM	01-SEP-2016 15:51	JWR	BRG	
3	STORE	SEM	A1	02-SEP-2016 16:46	BRG	JWR	

Samplenum	Container ID	Products
L16081156-03	791624	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2016 11:56	CLS		
2	ANALYZ	W1	SEM	01-SEP-2016 15:51	JWR	BRG	
3	STORE	SEM	A1	02-SEP-2016 16:46	BRG	JWR	

Samplenum	Container ID	Products
L16081156-04	791625	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2016 11:56	CLS		
2	ANALYZ	W1	SEM	01-SEP-2016 15:51	JWR	BRG	
3	STORE	SEM	A1	02-SEP-2016 16:46	BRG	JWR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16081156
Account: 2551
Project: 2551.096
Samples: 5
Due Date: 02-SEP-2016

Samplenum	Container ID	Products
L16081156-05	791626	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2016 11:56	CLS		
2	ANALYZ	W1	SEM	01-SEP-2016 15:51	JWR	BRG	
3	STORE	SEM	A1	02-SEP-2016 16:46	BRG	JWR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

NELAP Addendum - January 4, 2016

Non-NELAP LIMS Product and Description

The following is a list of those tests that are not included in the Microbac – OVD NELAP Scope of Accreditation:

Heat of Combustion (BTU)
Total Halide by Bomb Combustion (TX)
Particle Sizing - 200 Mesh (PS200)
Specific Gravity/Density (SPGRAV)
Total Residual Chlorine (CL-TRL)
Total Volatile Solids (all forms) (TVS)
Total Coliform Bacteria (all methods)
Fecal Coliform Bacteria (all methods)
Sulfite (SO3)
Propionaldehyde (HPLC-UV)

SOLID AND HAZARDOUS CHEMICALS
Nitrogen, Ammonia by Method 350.1
Chromium, Hexavalent, Leachable by SM3500 Cr-B 2009
Phenolics, Total by Method 420.1
ASTM D3987-06

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD HPLC02/HPLC-UV

Nitroglycerin
Acetic acid
Butyric acid
Lactic acid
Propionic acid
Pyruvic acid

OVD MSS01/GC-MS

1,4-Phenylenediamine
1-Methylnaphthalene
1,4-Dioxane
Atrazine
Benzaldehyde
Biphenyl
Caprolactam
Hexamethylphosphoramide (HMPA)
Pentachlorobenzene
Pentachloroethane

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD MSV01/GC-MS

1, 1, 2-Trichloro-1,2,2-trifluoroethane
1,3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
T-amylmethylether (TAME)
Tetrahydrofuran (THF)

OVD HPLC07/HPLC-MS-MS

Hexamethylphosphoramide (XMPA-LCMS)

OVD HPLC12/HPLC/UV

Acetate
Formate

OVD RSK01/GC-FID

Acetylene
Propane

OVD K9305/ISE

Fluoroborate

SOLID AND HAZARDOUS CHEMICALS

OVD MSS0I/GC-MS

1-Methylnaphthalene
Benzaldehyde
Biphenyl
Caprolactam
Pentachloroethane

NELAP Accreditation by Laboratory SOP

SOLID AND HAZARDOUS CHEMICALS

OVD MSV0I/GC-MS

1.3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
n-Hexane
T-amylmethylether (TAME)

Microbac

Laboratory Report Number: L16110074

Kayla Teague
AECOM Technical Services, Inc.
1950 N Stemmons FWY
Dallas, TX 75207

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Adriane Steed – Client Services Specialist
(740) 373-4071
Adriane.Steed@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on November 17 2016

Leslie Bucina – Managing Director

State of Origin: TX
Accrediting Authority: Texas Commission on Environmental Quality ID:T104704252-07-TX
QAPP: DOD Ver 4.1

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy	Resolution

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00110875	I	5.0		J4616883139	X

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	Yes

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
50WW13-110116	L16110074-01	11/01/2016 08:10	11/02/2016 10:10
50WW13FF-110116	L16110074-02	11/01/2016 08:10	11/02/2016 10:10
50WW14-110116	L16110074-03	11/01/2016 09:15	11/02/2016 10:10
50WW14FF-110116	L16110074-04	11/01/2016 09:15	11/02/2016 10:10
50WW11-110116	L16110074-05	11/01/2016 10:20	11/02/2016 10:10
50WW11FF-110116	L16110074-06	11/01/2016 10:20	11/02/2016 10:10
50WW06-110116	L16110074-07	11/01/2016 11:20	11/02/2016 10:10
50WW06FF-110116	L16110074-08	11/01/2016 11:20	11/02/2016 10:10
50WW12-110116	L16110074-09	11/01/2016 13:30	11/02/2016 10:10
50WW12FF-110116	L16110074-10	11/01/2016 13:30	11/02/2016 10:10
50WW23-110116	L16110074-11	11/01/2016 14:35	11/02/2016 10:10
50WW23FF-110116	L16110074-12	11/01/2016 14:35	11/02/2016 10:10
TRIP BLANK	L16110074-13	11/01/2016 00:01	11/02/2016 10:10

Microbac REPORT L16110074
PREPARED FOR AECOM Technical Services, Inc.
WORK ID:

1.0 Summary Data

1.1 Narratives

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	8260
Prep Batch Number(s):	590133, 590292, 591385	**Reviewer Name:**	Franci Bolden
LRC Date:	2016-11-16 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Franci Bolden		Analyst I	2016-11-16 19:15:24

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	8260
Prep Batch Number(s):	590133, 590292, 591385	**Reviewer Name:**	Franci Bolden
LRC Date:	2016-11-16 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?	X				
Were % moisture (or solids) reported for all soil and sediment samples?	X				
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?	X				
Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
Test reports/summary forms for blank samples	X				
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	8260
Prep Batch Number(s):	590133, 590292, 591385	**Reviewer Name:**	Franci Bolden
LRC Date:	2016-11-16 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		X			1
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	8260
Prep Batch Number(s):	590133, 590292, 591385	**Reviewer Name:**	Franci Bolden
LRC Date:	2016-11-16 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?		X			3
Was the ICAL curve verified for each analyte?		X			2
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?	X				
Were ion abundance data within the method-required QC limits?	X				
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?	X				
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?	X				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	8260
Prep Batch Number(s):	590133, 590292, 591385	**Reviewer Name:**	Franci Bolden
LRC Date:	2016-11-16 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	8260
Prep Batch Number(s):	590133, 590292, 591385	**Reviewer Name:**	Franci Bolden
LRC Date:	2016-11-16 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

1) 1,2,3-Trichloropropane, 1,2,4-Trimethylbenzene, 1,2-Dichlorobenzene, 2-Chlorotoluene, n-Propylbenzene, o-Xylene, and tert-Butylbenzene marginally exceeded the UCL in the LCS analyzed 11/03/2016 on HPMS11, but were within acceptance limits in the LCS DUP. p-Isopropyltoluene and sec-Butylbenzene marginally exceeded the UCL in the LCS and LCS DUP analyzed 11/03/2016 on HPMS11. Not detected in associated samples.

1,2,4-Trimethylbenzene, 1,2-Dichlorobenzene, 1,3,5-Trimethylbenzene, 2-Chlorotoluene, 4-Chlorotoluene, Bromodichloromethane, Chlorobenzene, Isopropylbenzene, n-Propylbenzene, o-Xylene, p-Isopropyltoluene, sec-Butylbenzene, tert-Butylbenzene, and Toluene marginally exceeded the UCL in the LCS DUP analyzed 11/02/2016 on HPMS11, but were within acceptance limits in the LCS. Sample 05 has a result above the MDL, but below the RL for chlorobenzene.

2) Naphthalene exceeded the UCL in the ICV analyzed 10/13/2016 on HPMS11. Not detected in associated samples.

3) 2-Chlorotoluene exceeded the UCL and 2-Hexanone and 4-Methyl-2-Pentanone were below the LCL in CCV analyzed 11/02/16 on HPMS11. Not detected in associated samples.

2-Chlorotoluene exceeded the UCL and 2-Hexanone was below the LCL in the CCV analyzed 11/03/2016 on HPMS11. Not detected in associated samples.

4-Chlorotoluene, 2-Hexanone and 1,2,3-Trichlorobenzene were marginally below the LCL in the CCV analyzed 11/11/2016 on HPMS11. Not detected in associated samples.

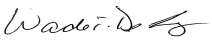
Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	RSK175
Prep Batch Number(s):	WG590198, WG590416	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-11-08 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Wade DeLong		Chemist I	2016-11-08 15:02:59

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	RSK175
Prep Batch Number(s):	WG590198, WG590416	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-11-08 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?			X		
Were % moisture (or solids) reported for all soil and sediment samples?			X		
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples	X				
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	X				

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	RSK175
Prep Batch Number(s):	WG590198, WG590416	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-11-08 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	RSK175
Prep Batch Number(s):	WG590198, WG590416	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-11-08 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?			X		
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?			X		
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?	X				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	RSK175
Prep Batch Number(s):	WG590198, WG590416	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-11-08 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	RSK175
Prep Batch Number(s):	WG590198, WG590416	**Reviewer Name:**	Wade DeLong
LRC Date:	2016-11-08 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

There were no exceptions.

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG590828	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-10 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Eric Lawson		Chemist III	2016-11-10 13:19:17

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG590828	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-10 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?			X		
Were % moisture (or solids) reported for all soil and sediment samples?			X		
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples	X				
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG590828	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-10 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG590828	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-10 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?	X				
Were ion abundance data within the method-required QC limits?	X				
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?	X				
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?	X				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG590828	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-10 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6850
Prep Batch Number(s):	WG590828	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-10 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

There are no exceptions.

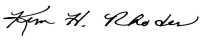
Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6010
Prep Batch Number(s):	WG590094	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Kim Rhodes		Analyst III	2016-11-16 13:05:14

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6010
Prep Batch Number(s):	WG590094	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports	X				
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?	X				
Were % moisture (or solids) reported for all soil and sediment samples?	X				
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):	X				
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6010
Prep Batch Number(s):	WG590094	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?			X		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6010
Prep Batch Number(s):	WG590094	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?					
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?			X		
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?			X		
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?			X		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?	X				
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
Method detection limit (MDL) studies					

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6010
Prep Batch Number(s):	WG590094	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6010
Prep Batch Number(s):	WG590094	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

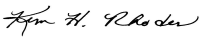
Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6020
Prep Batch Number(s):	WG590016	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Kim Rhodes		Analyst III	2016-11-16 13:29:33

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6020
Prep Batch Number(s):	WG590016	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports	X				
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?	X				
Were % moisture (or solids) reported for all soil and sediment samples?	X				
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6020
Prep Batch Number(s):	WG590016	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?			X		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				ER#1
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6020
Prep Batch Number(s):	WG590016	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?					
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?	X				
Were ion abundance data within the method-required QC limits?	X				
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?	X				
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?			X		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?	X				
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
Method detection limit (MDL) studies					

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6020
Prep Batch Number(s):	WG590016	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	6020
Prep Batch Number(s):	WG590016	**Reviewer Name:**	Kim Rhodes
LRC Date:	2016-11-16 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

ER#1 - Client sample 04 required dilution analysis in order to obtain a result for manganese within the calibration range.

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	9056
Prep Batch Number(s):	WG590064	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-07 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Eric Lawson		Chemist III	2016-11-07 19:43:06

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	9056
Prep Batch Number(s):	WG590064	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-07 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification	X				
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?			X		
Were % moisture (or solids) reported for all soil and sediment samples?			X		
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples	X				
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	X				

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	9056
Prep Batch Number(s):	WG590064	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-07 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?			X		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			X		
Were analytical duplicates analyzed at the appropriate frequency?			X		
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	9056
Prep Batch Number(s):	WG590064	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-07 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?			X		
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?			X		
Raw data (NELAC Section 5.5.10)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?	X				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	9056
Prep Batch Number(s):	WG590064	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-07 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	9056
Prep Batch Number(s):	WG590064	**Reviewer Name:**	Eric Lawson
LRC Date:	2016-11-07 00:00:00		

below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

There are no exceptions.

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	ALK-COLOR
Prep Batch Number(s):	WG590104	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Deanna Hesson	Deanna Hesson	Conventional Lab Supervisor	2016-11-11 16:00:25

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	ALK-COLOR
Prep Batch Number(s):	WG590104	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?	X				
Were % moisture (or solids) reported for all soil and sediment samples?	X				
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):	X				
Were all COCs included in the LCS?	X				

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	ALK-COLOR
Prep Batch Number(s):	WG590104	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	X				
Were MS/MSD analyzed at the appropriate frequency?	X				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
Were MS/MSD RPDs within laboratory QC limits?	X				
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	X				
Were analytical duplicates analyzed at the appropriate frequency?	X				
Were RPDs or relative standard deviations within the laboratory QC limits?	X				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?			X		
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	ALK-COLOR
Prep Batch Number(s):	WG590104	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?			X		
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?			X		
Raw data (NELAC Section 5.5.10)			X		
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?			X		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)			X		
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions			X		
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	ALK-COLOR
Prep Batch Number(s):	WG590104	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)	X				
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	ALK-COLOR
Prep Batch Number(s):	WG590104	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	PHOS
Prep Batch Number(s):	WG590729	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Deanna Hesson	Deanna Hesson	Conventional Lab Supervisor	2016-11-11 16:01:10

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	PHOS
Prep Batch Number(s):	WG590729	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?	X				
Were % moisture (or solids) reported for all soil and sediment samples?	X				
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):	X				
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	PHOS
Prep Batch Number(s):	WG590729	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	X				
Were MS/MSD analyzed at the appropriate frequency?	X				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
Were MS/MSD RPDs within laboratory QC limits?	X				
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	X				
Were analytical duplicates analyzed at the appropriate frequency?	X				
Were RPDs or relative standard deviations within the laboratory QC limits?	X				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?			X		
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	PHOS
Prep Batch Number(s):	WG590729	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?			X		
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?			X		
Raw data (NELAC Section 5.5.10)			X		
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?			X		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)			X		
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions			X		
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	PHOS
Prep Batch Number(s):	WG590729	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)	X				
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	PHOS
Prep Batch Number(s):	WG590729	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	S
Prep Batch Number(s):	WG590306	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Deanna Hesson	Deanna Hesson	Conventional Lab Supervisor	2016-11-11 16:02:17

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	S
Prep Batch Number(s):	WG590306	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?	X				
Were % moisture (or solids) reported for all soil and sediment samples?	X				
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):	X				
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	S
Prep Batch Number(s):	WG590306	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			X		
Were MS/MSD analyzed at the appropriate frequency?			X		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
Were MS/MSD RPDs within laboratory QC limits?			X		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	X				
Were analytical duplicates analyzed at the appropriate frequency?	X				
Were RPDs or relative standard deviations within the laboratory QC limits?			X		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?			X		
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	S
Prep Batch Number(s):	WG590306	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?			X		
Were percent differences for each analyte within the method-required QC limits?			X		
Was the ICAL curve verified for each analyte?			X		
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?			X		
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?			X		
Raw data (NELAC Section 5.5.10)			X		
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?			X		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)			X		
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions			X		
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	S
Prep Batch Number(s):	WG590306	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)	X				
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	S
Prep Batch Number(s):	WG590306	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	TOC
Prep Batch Number(s):	WG590226	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Laboratory Data Package Cover Page

	R1	Field chain-of-custody documentation;
	R2	Sample identification cross-reference;
	R3	Test reports (analytical data sheets) for each environmental sample that includes: (a) Items consistent with NELAC Chapter 5, (b) dilution factors, (c) preparation methods, (d) cleanup methods, and (e) a.if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including: (a) Calculated recovery (%R), and (b) the laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank samples;
	R6	Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts, (b) calculated %R for each analyte, and (c) the laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) samples associated with the MS/MSD clearly identified, (b) MS/MSD spiking compounds, (c) concentration of each MS/MSD analyte measured in the parent and spiked samples, (d) calculated %Rs and relative percent differences (RPDs), and (e) the laboratory's MS/MSD QC limits.
	R8	Laboratory analytical duplicate (if applicable) recovery and precision: (a) the amount of analyte measured in the duplicate, (b) the calculated RPD, and (c) the laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
	R10	Other problems or anomalies.

Name (Printed)	Signature	Official Title (Printed)	Date
Deanna Hesson	Deanna Hesson	Conventional Lab Supervisor	2016-11-11 16:01:39

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	TOC
Prep Batch Number(s):	WG590226	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Description	Yes	No	NA	NR	ER#
Chain-of-custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
Were all departures from standard conditions described in an exception report?	X				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
Test reports					
Were all samples prepared and analyzed within holding times?	X				
Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
Were calculations checked by a peer or supervisor?	X				
Were all analyte identifications checked by a peer or supervisor?	X				
Were sample detection limits reported for all analytes not detected?	X				
Were all results for soil and sediment samples reported on a dry weight basis?	X				
Were % moisture (or solids) reported for all soil and sediment samples?	X				
Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
If required for the project, are TICs reported?			X		
Surrogate recovery data					
Were surrogates added prior to extraction?			X		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	X				
Were blanks analyzed at the appropriate frequency?	X				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
Were blank concentrations < MQL?	X				
Laboratory control samples (LCS):	X				
Were all COCs included in the LCS?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	TOC
Prep Batch Number(s):	WG590226	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
Were LCSs analyzed at the required frequency?	X				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
Was the LCSD RPD within QC limits?	X				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?	X				
Were MS/MSD analyzed at the appropriate frequency?	X				
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
Were MS/MSD RPDs within laboratory QC limits?	X				
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	X				
Were analytical duplicates analyzed at the appropriate frequency?	X				
Were RPDs or relative standard deviations within the laboratory QC limits?	X				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	X				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?			X		
Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
Initial calibration (ICAL)					
Were response factors and/or relative response factors for each analyte within QC limits?	X				
Were percent RSDs or correlation coefficient criteria met?	X				

Microbac

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	TOC
Prep Batch Number(s):	WG590226	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was the number of standards recommended in the method used for all analytes?	X				
Were all points generated between the lowest and highest standard used to calculate the curve?	X				
Are ICAL data available for all instruments used?	X				
Has the initial calibration curve been verified using an appropriate second source standard?	X				
Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	X				
Were percent differences for each analyte within the method-required QC limits?	X				
Was the ICAL curve verified for each analyte?	X				
Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
Mass spectral tuning					
Was the appropriate compound for the method used for tuning?			X		
Were ion abundance data within the method-required QC limits?			X		
Internal standards (IS)					
Were IS area counts and retention times within the method-required QC limits?			X		
Raw data (NELAC Section 5.5.10)			X		
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
Were data associated with manual integrations flagged on the raw data?			X		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			X		
Tentatively identified compounds (TICs)			X		
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
Interference Check Sample (ICS) results					
Were percent recoveries within method QC limits?			X		
Serial dilutions, post digestion spikes, and method of standard additions			X		
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
Method detection limit (MDL) studies					

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	TOC
Prep Batch Number(s):	WG590226	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

Was a MDL study performed for each reported analyte?	X				
Is the MDL either adjusted or supported by the analysis of DCSs?	X				
Proficiency test reports					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	X				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5?	X				
Is documentation of the analyst's competency up-to-date and on file?	X				
Verification/validation documentation for methods (NELAC Chapter 5)	X				
Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
Laboratory standard operating procedures (SOPs)					
Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter “R” must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period;

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

The Exception Report for each “No” or “Not Reviewed (NR)” item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with

Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	**Laboratory Log Number:**	L16110074
Project Name:		**Method:**	TOC
Prep Batch Number(s):	WG590226	**Reviewer Name:**	Deanna Hesson
LRC Date:	2016-11-11 00:00:00		

the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC §25.6 and was last inspection by [ ] TCEQ or [ ] _____ on **(enter date of last inspection**). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Exceptions Report

1.2 Certificate of Analysis

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW13-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 19:35
Collect Date:	11/01/2016 08:10	**Dilution:**	50	**File ID:**	11M14924
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	250	U	500	250	125
Benzene	71-43-2	12.5	U	50.0	12.5	6.25
Bromobenzene	108-86-1	12.5	U	50.0	12.5	6.25
Bromochloromethane	74-97-5	20.0	U	50.0	20.0	10.0
Bromodichloromethane	75-27-4	25.0	U	50.0	25.0	12.5
Bromoform	75-25-2	50.0	U	100	50.0	25.0
Bromomethane	74-83-9	50.0	U	100	50.0	25.0
2-Butanone	78-93-3	250	U	500	250	125
n-Butylbenzene	104-51-8	25.0	U	50.0	25.0	12.5
sec-Butylbenzene	135-98-8	25.0	U	50.0	25.0	12.5
tert-Butylbenzene	98-06-6	25.0	U	50.0	25.0	12.5
Carbon disulfide	75-15-0	50.0	U	100	50.0	25.0
Carbon tetrachloride	56-23-5	25.0	U	50.0	25.0	12.5
Chlorobenzene	108-90-7	12.5	U	50.0	12.5	6.25
Chlorodibromomethane	124-48-1	25.0	U	50.0	25.0	12.5
Chloroethane	75-00-3	50.0	U	100	50.0	25.0
Chloroform	67-66-3	12.5	U	50.0	12.5	6.25
Chloromethane	74-87-3	50.0	U	100	50.0	25.0
2-Chlorotoluene	95-49-8	12.5	Q	50.0	12.5	6.25
4-Chlorotoluene	106-43-4	25.0	U	50.0	25.0	12.5
1,2-Dibromo-3-chloropropane	96-12-8	100	U	250	100	50.0
1,2-Dibromoethane	106-93-4	25.0	U	50.0	25.0	12.5
Dibromomethane	74-95-3	25.0	U	50.0	25.0	12.5
1,2-Dichlorobenzene	95-50-1	12.5	U	50.0	12.5	6.25
1,3-Dichlorobenzene	541-73-1	25.0	U	50.0	25.0	12.5
1,4-Dichlorobenzene	106-46-7	12.5	U	50.0	12.5	6.25
Dichlorodifluoromethane	75-71-8	25.0	U	50.0	25.0	12.5
1,1-Dichloroethane	75-34-3	7.75	J	50.0	12.5	6.25
1,2-Dichloroethane	107-06-2	36.7	J	50.0	25.0	12.5
1,1-Dichloroethene	75-35-4	50.0	U	100	50.0	25.0
cis-1,2-Dichloroethene	156-59-2	228		50.0	25.0	12.5
trans-1,2-Dichloroethene	156-60-5	25.0	U	50.0	25.0	12.5

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dichloropropane	78-87-5	20.0	U	50.0	20.0	10.0
1,3-Dichloropropane	142-28-9	20.0	U	50.0	20.0	10.0
2,2-Dichloropropane	594-20-7	25.0	U	50.0	25.0	12.5
cis-1,3-Dichloropropene	10061-01-5	25.0	U	50.0	25.0	12.5
trans-1,3-Dichloropropene	10061-02-6	50.0	U	100	50.0	25.0
1,1-Dichloropropene	563-58-6	25.0	U	50.0	25.0	12.5
Ethylbenzene	100-41-4	25.0	U	50.0	25.0	12.5
2-Hexanone	591-78-6	250	Q	500	250	125
Hexachlorobutadiene	87-68-3	25.0	U	50.0	25.0	12.5
Isopropylbenzene	98-82-8	25.0	U	50.0	25.0	12.5
p-Isopropyltoluene	99-87-6	25.0	U	50.0	25.0	12.5
4-Methyl-2-pentanone	108-10-1	250	U	500	250	125
Methylene chloride	75-09-2	25.0	U	50.0	25.0	12.5
Naphthalene	91-20-3	20.0	U	50.0	20.0	10.0
n-Propylbenzene	103-65-1	12.5	U	50.0	12.5	6.25
Styrene	100-42-5	12.5	U	50.0	12.5	6.25
1,1,1,2-Tetrachloroethane	630-20-6	25.0	U	50.0	25.0	12.5
1,1,2,2-Tetrachloroethane	79-34-5	20.0	U	50.0	20.0	10.0
Tetrachloroethene	127-18-4	25.0	U	50.0	25.0	12.5
Toluene	108-88-3	25.0	U	50.0	25.0	12.5
1,2,3-Trichlorobenzene	87-61-6	15.0	U	50.0	15.0	7.50
1,2,4-Trichlorobenzene	120-82-1	20.0	U	50.0	20.0	10.0
1,1,1-Trichloroethane	71-55-6	25.0	U	50.0	25.0	12.5
1,1,2-Trichloroethane	79-00-5	25.0	U	50.0	25.0	12.5
Trichloroethene	79-01-6	6050		50.0	25.0	12.5
Trichlorofluoromethane	75-69-4	25.0	U	50.0	25.0	12.5
1,2,3-Trichloropropane	96-18-4	50.0	U	100	50.0	25.0
1,2,4-Trimethylbenzene	95-63-6	25.0	U	50.0	25.0	12.5
1,3,5-Trimethylbenzene	108-67-8	25.0	U	50.0	25.0	12.5
Vinyl chloride	75-01-4	25.0	U	50.0	25.0	12.5
o-Xylene	95-47-6	25.0	U	50.0	25.0	12.5
m-,p-Xylene	179601-23-1	50.0	U	100	50.0	25.0

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	95.6	85	115	
1,2-Dichloroethane-d4	90.3	70	120	
Toluene-d8	98.9	85	120	
4-Bromofluorobenzene	98.2	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
Q	One or more quality control criteria failed. See narrative.

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW13-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 15:36
Collect Date:	11/01/2016 08:10	**Dilution:**	1	**File ID:**	16G50938
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	17.9		5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW13-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:06
Collect Date:	11/01/2016 08:10	**Dilution:**	10	**File ID:**	16G50960
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	464000		100000	50000	25000

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW13-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 17:50
Collect Date:	11/01/2016 08:10	**Dilution:**	5000	**File ID:**	1LM.LM37555
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	8650		2000	1000	500

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW13-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 14:04
Collect Date:	11/01/2016 08:10	**Dilution:**	2	**File ID:**	I2_110216-32
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Nitrate	14797-55-8	0.400	U	0.800	0.400	0.200
Nitrite	14797-65-0	0.400	U	0.800	0.400	0.200

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW13-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 14:24
Collect Date:	11/01/2016 08:10	**Dilution:**	5	**File ID:**	I2_110216-33
Sample Tag:	DL02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfate	14808-79-8	347		10.0	5.00	2.50

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW13-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 14:43
Collect Date:	11/01/2016 08:10	**Dilution:**	20	**File ID:**	I2_110216-34
Sample Tag:	DL03	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	306		8.00	4.00	2.00

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW13-110116	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	11/02/2016 12:33
Workgroup #:	WG590104	**Analyst:**	DCM	**Run Date:**	11/02/2016 12:37
Collect Date:	11/01/2016 08:10	**Dilution:**	2	**File ID:**	SC161102003.016
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	363		80.0	40.0	20.0

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW13-110116	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	11/08/2016 09:46
Workgroup #:	WG590729	**Analyst:**	DCM	**Run Date:**	11/08/2016 09:56
Collect Date:	11/01/2016 08:10	**Dilution:**	1	**File ID:**	SC161108002.023
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	50WW13-110116	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG590306	**Analyst:**	TB	**Run Date:**	11/03/2016 17:15
Collect Date:	11/01/2016 08:10	**Dilution:**	1	**File ID:**	ET.1611031715-04
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfide	18496-25-8	1.00	U	2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	50WW13-110116	**Prep Method:**	415.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	415.1	**Cal Date:**	
Workgroup #:	WG590226	**Analyst:**	DCM	**Run Date:**	11/04/2016 09:45
Collect Date:	11/01/2016 08:10	**Dilution:**	10	**File ID:**	TC11032016.038
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	37.9		20.0	10.0	5.00

Certificate of Analysis

Sample #:	L16110074-02	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW13FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 18:44
Collect Date:	11/01/2016 08:10	**Dilution:**	1	**File ID:**	T4.110716.184432
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.155		0.100	0.100	0.0500

Certificate of Analysis

Sample #:	L16110074-02	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	50WW13FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:41
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	11/11/2016 08:49
Workgroup #:	WG590880	**Analyst:**	JYH	**Run Date:**	11/11/2016 10:57
Collect Date:	11/01/2016 08:10	**Dilution:**	1	**File ID:**	NI.111116.105717
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0997		0.00400	0.00200	0.00100

Certificate of Analysis

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW14-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 22:30
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	11M14930
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	2.76		1.00	0.500	0.250
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	10.9		1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	100	85	115	
1,2-Dichloroethane-d4	92.4	70	120	
Toluene-d8	101	85	120	
4-Bromofluorobenzene	105	75	120	

Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW14-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 15:47
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	16G50939
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	9.64		5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW14-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:17
Collect Date:	11/01/2016 09:15	**Dilution:**	5	**File ID:**	16G50961
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	309000		50000	25000	12500

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW14-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 18:09
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	1LM.LM37556
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW14-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 13:07
Collect Date:	11/01/2016 09:15	**Dilution:**	2	**File ID:**	I2_110216-29
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Nitrate	14797-55-8	0.400	U	0.800	0.400	0.200
Nitrite	14797-65-0	0.400	U	0.800	0.400	0.200

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW14-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 13:26
Collect Date:	11/01/2016 09:15	**Dilution:**	5	**File ID:**	I2_110216-30
Sample Tag:	DL02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfate	14808-79-8	339		10.0	5.00	2.50

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW14-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 13:45
Collect Date:	11/01/2016 09:15	**Dilution:**	25	**File ID:**	I2_110216-31
Sample Tag:	DL03	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	370		10.0	5.00	2.50

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW14-110116	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	11/02/2016 12:33
Workgroup #:	WG590104	**Analyst:**	DCM	**Run Date:**	11/02/2016 12:38
Collect Date:	11/01/2016 09:15	**Dilution:**	2	**File ID:**	SC161102003.017
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	257		80.0	40.0	20.0

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW14-110116	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	11/08/2016 09:46
Workgroup #:	WG590729	**Analyst:**	DCM	**Run Date:**	11/08/2016 09:57
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	SC161108002.024
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	0.488		0.400	0.200	0.100

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	50WW14-110116	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG590306	**Analyst:**	TB	**Run Date:**	11/03/2016 17:15
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	ET.1611031715-05
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfide	18496-25-8	1.00	U	2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	50WW14-110116	**Prep Method:**	415.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	415.1	**Cal Date:**	
Workgroup #:	WG590226	**Analyst:**	DCM	**Run Date:**	11/04/2016 10:06
Collect Date:	11/01/2016 09:15	**Dilution:**	5	**File ID:**	TC11032016.039
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	19.5		10.0	5.00	2.50

Certificate of Analysis

Sample #:	L16110074-04	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW14FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 18:48
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	T4.110716.184816
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	6.93		0.100	0.100	0.0500

Certificate of Analysis

Sample #:	L16110074-04	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	50WW14FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:41
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	11/11/2016 08:49
Workgroup #:	WG590880	**Analyst:**	JYH	**Run Date:**	11/11/2016 11:06
Collect Date:	11/01/2016 09:15	**Dilution:**	5	**File ID:**	NI.111116.110634
Sample Tag:	02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.468		0.0200	0.0100	0.00500

Certificate of Analysis

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW11-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590133	**Analyst:**	ADC	**Run Date:**	11/02/2016 22:18
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	11M14903
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.414	J	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.837	J	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.752	J	1.00	0.250	0.125
Chloromethane	74-87-3	0.554	J	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	4.92		1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	26.1		1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	21.4		2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	67.4		1.00	0.500	0.250
trans-1,2-Dichloroethene	156-60-5	1.35		1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	Q	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	4.91		1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	1.90		1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	101	85	115	
1,2-Dichloroethane-d4	98.1	70	120	
Toluene-d8	101	85	120	
4-Bromofluorobenzene	107	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
J	Estimated value ; the analyte concentration was greater than the highest standard
Q	One or more quality control criteria failed. See narrative.

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW11-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 19:06
Collect Date:	11/01/2016 10:20	**Dilution:**	100	**File ID:**	11M14923
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Trichloroethene	79-01-6	2880		100	50.0	25.0

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	97.5	85	115	
1,2-Dichloroethane-d4	90.7	70	120	
Toluene-d8	103	85	120	
4-Bromofluorobenzene	107	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW11-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:00
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	16G50940
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	9.71		5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW11-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:29
Collect Date:	11/01/2016 10:20	**Dilution:**	10	**File ID:**	16G50962
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	651000		100000	50000	25000

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW11-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 18:28
Collect Date:	11/01/2016 10:20	**Dilution:**	10000	**File ID:**	1LM.LM37557
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	13400		4000	2000	1000

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW11-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 11:31
Collect Date:	11/01/2016 10:20	**Dilution:**	2	**File ID:**	I2_110216-24
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Nitrate	14797-55-8	0.400	U	0.800	0.400	0.200
Nitrite	14797-65-0	0.400	U	0.800	0.400	0.200

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW11-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 11:50
Collect Date:	11/01/2016 10:20	**Dilution:**	5	**File ID:**	I2_110216-25
Sample Tag:	DL02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfate	14808-79-8	379		10.0	5.00	2.50

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW11-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 12:09
Collect Date:	11/01/2016 10:20	**Dilution:**	20	**File ID:**	I2_110216-26
Sample Tag:	DL03	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	319		8.00	4.00	2.00

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW11-110116	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	11/02/2016 12:33
Workgroup #:	WG590104	**Analyst:**	DCM	**Run Date:**	11/02/2016 12:39
Collect Date:	11/01/2016 10:20	**Dilution:**	2	**File ID:**	SC161102003.018
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	333		80.0	40.0	20.0

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW11-110116	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	11/08/2016 09:46
Workgroup #:	WG590729	**Analyst:**	DCM	**Run Date:**	11/08/2016 09:57
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	SC161108002.025
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	0.136	J	0.400	0.200	0.100

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	50WW11-110116	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG590306	**Analyst:**	TB	**Run Date:**	11/03/2016 17:15
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	ET.1611031715-06
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfide	18496-25-8	1.00	U	2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	50WW11-110116	**Prep Method:**	415.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	415.1	**Cal Date:**	
Workgroup #:	WG590226	**Analyst:**	DCM	**Run Date:**	11/04/2016 10:29
Collect Date:	11/01/2016 10:20	**Dilution:**	5	**File ID:**	TC11032016.040
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	31.4		10.0	5.00	2.50

Certificate of Analysis

Sample #:	L16110074-06	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW11FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 18:52
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	T4.110716.185202
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.456		0.100	0.100	0.0500

Certificate of Analysis

Sample #:	L16110074-06	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	50WW11FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:41
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	11/11/2016 08:49
Workgroup #:	WG590880	**Analyst:**	JYH	**Run Date:**	11/11/2016 11:18
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	NI.111116.111858
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.104		0.00400	0.00200	0.00100

Certificate of Analysis

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW06-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 23:00
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	11M14931
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	2.37		1.00	0.500	0.250
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	54.2		1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	96.1	85	115	
1,2-Dichloroethane-d4	92.0	70	120	
Toluene-d8	98.5	85	120	
4-Bromofluorobenzene	100	75	120	

Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW06-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:11
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	16G50941
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	2.00	U	5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW06-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:40
Collect Date:	11/01/2016 11:20	**Dilution:**	5	**File ID:**	16G50963
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	353000		50000	25000	12500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW06-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 18:47
Collect Date:	11/01/2016 11:20	**Dilution:**	1000	**File ID:**	1LM.LM37558
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	5240		400	200	100

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW06-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 10:33
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	I2_110216-21
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Nitrate	14797-55-8	0.200	U	0.400	0.200	0.100
Nitrite	14797-65-0	0.200	U	0.400	0.200	0.100
Sulfate	14808-79-8	114		2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW06-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 11:12
Collect Date:	11/01/2016 11:20	**Dilution:**	20	**File ID:**	I2_110216-23
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	205		8.00	4.00	2.00

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW06-110116	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	11/02/2016 12:33
Workgroup #:	WG590104	**Analyst:**	DCM	**Run Date:**	11/02/2016 12:51
Collect Date:	11/01/2016 11:20	**Dilution:**	2	**File ID:**	SC161102003.028
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	345		80.0	40.0	20.0

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW06-110116	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	11/08/2016 09:46
Workgroup #:	WG590729	**Analyst:**	DCM	**Run Date:**	11/08/2016 09:58
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	SC161108002.026
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	0.590		0.400	0.200	0.100

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	50WW06-110116	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG590306	**Analyst:**	TB	**Run Date:**	11/03/2016 17:15
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	ET.1611031715-07
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfide	18496-25-8	1.00	U	2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	50WW06-110116	**Prep Method:**	415.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	415.1	**Cal Date:**	
Workgroup #:	WG590226	**Analyst:**	DCM	**Run Date:**	11/04/2016 10:52
Collect Date:	11/01/2016 11:20	**Dilution:**	5	**File ID:**	TC11032016.041
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	34.6		10.0	5.00	2.50

Certificate of Analysis

Sample #:	L16110074-08	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW06FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 18:55
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	T4.110716.185546
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.100	U	0.100	0.100	0.0500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-08	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	50WW06FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:41
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	11/11/2016 08:49
Workgroup #:	WG590880	**Analyst:**	JYH	**Run Date:**	11/11/2016 11:22
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	NI.111116.112203
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.244		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW12-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 23:29
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	11M14932
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.504	J	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.952	J	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.57	J	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	0.500	U	1.00	0.500	0.250
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	109		1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	94.2	85	115	
1,2-Dichloroethane-d4	92.1	70	120	
Toluene-d8	98.6	85	120	
4-Bromofluorobenzene	100	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW12-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:23
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	16G50942
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	2.26	J	5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was less than the LOQ.
J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW12-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:52
Collect Date:	11/01/2016 13:30	**Dilution:**	10	**File ID:**	16G50964
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	663000		100000	50000	25000

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW12-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 19:06
Collect Date:	11/01/2016 13:30	**Dilution:**	10000	**File ID:**	1LM.LM37559
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	25300		4000	2000	1000

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW12-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 09:55
Collect Date:	11/01/2016 13:30	**Dilution:**	5	**File ID:**	I2_110216-19
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Nitrate	14797-55-8	1.00	U	2.00	1.00	0.500
Nitrite	14797-65-0	1.00	U	2.00	1.00	0.500
Sulfate	14808-79-8	496		10.0	5.00	2.50

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW12-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/03/2016 10:14
Collect Date:	11/01/2016 13:30	**Dilution:**	50	**File ID:**	I2_110216-20
Sample Tag:	DL02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	986		20.0	10.0	5.00

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW12-110116	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	11/02/2016 12:33
Workgroup #:	WG590104	**Analyst:**	DCM	**Run Date:**	11/02/2016 12:53
Collect Date:	11/01/2016 13:30	**Dilution:**	2	**File ID:**	SC161102003.030
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	338		80.0	40.0	20.0

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW12-110116	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	11/08/2016 10:44
Workgroup #:	WG590779	**Analyst:**	DCM	**Run Date:**	11/08/2016 10:50
Collect Date:	11/01/2016 13:30	**Dilution:**	2	**File ID:**	SC161108003.017
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	2.07		0.800	0.400	0.200

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	50WW12-110116	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG590306	**Analyst:**	TB	**Run Date:**	11/03/2016 17:15
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	ET.1611031715-08
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfide	18496-25-8	1.00	U	2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	50WW12-110116	**Prep Method:**	415.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	415.1	**Cal Date:**	
Workgroup #:	WG590226	**Analyst:**	DCM	**Run Date:**	11/03/2016 19:25
Collect Date:	11/01/2016 13:30	**Dilution:**	5	**File ID:**	TC11032016.025
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	21.6		10.0	5.00	2.50

Certificate of Analysis

Sample #:	L16110074-10	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW12FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 18:59
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	T4.110716.185931
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.100	U	0.100	0.100	0.0500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-10	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	50WW12FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:41
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	11/11/2016 08:49
Workgroup #:	WG590880	**Analyst:**	JYH	**Run Date:**	11/11/2016 11:25
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	NI.111116.112508
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0536		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW23-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG591385	**Analyst:**	ADC	**Run Date:**	11/11/2016 20:56
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	11M15152
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	U	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	Q	1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	0.500	U	1.00	0.500	0.250
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	Q	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	0.500	U	1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	98.1	85	115	
1,2-Dichloroethane-d4	93.5	70	120	
Toluene-d8	100	85	120	
4-Bromofluorobenzene	97.7	75	120	

Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW23-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:34
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	16G50943
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	2.00	U	5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW23-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 17:04
Collect Date:	11/01/2016 14:35	**Dilution:**	5	**File ID:**	16G50965
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	274000		50000	25000	12500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW23-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 19:25
Collect Date:	11/01/2016 14:35	**Dilution:**	4	**File ID:**	1LM.LM37560
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	4.76		1.60	0.800	0.400

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW23-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/02/2016 14:40
Collect Date:	11/01/2016 14:35	**Dilution:**	10	**File ID:**	I2_110216-13
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Nitrate	14797-55-8	2.00	U	4.00	2.00	1.00
Nitrite	14797-65-0	2.00	U	4.00	2.00	1.00
Sulfate	14808-79-8	99.9		20.0	10.0	5.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	IC2
Client ID:	50WW23-110116	**Prep Method:**	9056	**Prep Date:**	11/02/2016 11:28
Matrix:	Water	**Analytical Method:**	9056	**Cal Date:**	10/12/2016 15:28
Workgroup #:	WG590064	**Analyst:**	CAS	**Run Date:**	11/02/2016 14:59
Collect Date:	11/01/2016 14:35	**Dilution:**	100	**File ID:**	I2_110216-14
Sample Tag:	DL02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	1740		40.0	20.0	10.0

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW23-110116	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	11/02/2016 12:33
Workgroup #:	WG590104	**Analyst:**	DCM	**Run Date:**	11/02/2016 12:41
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	SC161102003.023
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	253		40.0	20.0	10.0

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	50WW23-110116	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	11/08/2016 09:46
Workgroup #:	WG590729	**Analyst:**	DCM	**Run Date:**	11/08/2016 09:59
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	SC161108002.028
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	50WW23-110116	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG590306	**Analyst:**	TB	**Run Date:**	11/03/2016 17:15
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	ET.1611031715-09
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfide	18496-25-8	1.00	U	2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	50WW23-110116	**Prep Method:**	415.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	415.1	**Cal Date:**	
Workgroup #:	WG590226	**Analyst:**	DCM	**Run Date:**	11/04/2016 11:14
Collect Date:	11/01/2016 14:35	**Dilution:**	5	**File ID:**	TC11032016.042
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	15.6		10.0	5.00	2.50

Certificate of Analysis

Sample #:	L16110074-12	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW23FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 19:03
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	T4.110716.190324
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.100	U	0.100	0.100	0.0500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-12	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	50WW23FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:41
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	11/11/2016 08:49
Workgroup #:	WG590880	**Analyst:**	JYH	**Run Date:**	11/11/2016 11:28
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	NI.111116.112813
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0288		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #:	L16110074-13	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	TRIP BLANK	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 21:02
Collect Date:	11/01/2016 00:01	**Dilution:**	1	**File ID:**	11M14927
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	0.526	J	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	0.500	U	1.00	0.500	0.250
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	0.500	U	1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	95.8	85	115	
1,2-Dichloroethane-d4	90.5	70	120	
Toluene-d8	100	85	120	
4-Bromofluorobenzene	103	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

2.0 Full Sample Data Package

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW13-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 19:35
Collect Date:	11/01/2016 08:10	**Dilution:**	50	**File ID:**	11M14924
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	250	U	500	250	125
Benzene	71-43-2	12.5	U	50.0	12.5	6.25
Bromobenzene	108-86-1	12.5	U	50.0	12.5	6.25
Bromochloromethane	74-97-5	20.0	U	50.0	20.0	10.0
Bromodichloromethane	75-27-4	25.0	U	50.0	25.0	12.5
Bromoform	75-25-2	50.0	U	100	50.0	25.0
Bromomethane	74-83-9	50.0	U	100	50.0	25.0
2-Butanone	78-93-3	250	U	500	250	125
n-Butylbenzene	104-51-8	25.0	U	50.0	25.0	12.5
sec-Butylbenzene	135-98-8	25.0	U	50.0	25.0	12.5
tert-Butylbenzene	98-06-6	25.0	U	50.0	25.0	12.5
Carbon disulfide	75-15-0	50.0	U	100	50.0	25.0
Carbon tetrachloride	56-23-5	25.0	U	50.0	25.0	12.5
Chlorobenzene	108-90-7	12.5	U	50.0	12.5	6.25
Chlorodibromomethane	124-48-1	25.0	U	50.0	25.0	12.5
Chloroethane	75-00-3	50.0	U	100	50.0	25.0
Chloroform	67-66-3	12.5	U	50.0	12.5	6.25
Chloromethane	74-87-3	50.0	U	100	50.0	25.0
2-Chlorotoluene	95-49-8	12.5	Q	50.0	12.5	6.25
4-Chlorotoluene	106-43-4	25.0	U	50.0	25.0	12.5
1,2-Dibromo-3-chloropropane	96-12-8	100	U	250	100	50.0
1,2-Dibromoethane	106-93-4	25.0	U	50.0	25.0	12.5
Dibromomethane	74-95-3	25.0	U	50.0	25.0	12.5
1,2-Dichlorobenzene	95-50-1	12.5	U	50.0	12.5	6.25
1,3-Dichlorobenzene	541-73-1	25.0	U	50.0	25.0	12.5
1,4-Dichlorobenzene	106-46-7	12.5	U	50.0	12.5	6.25
Dichlorodifluoromethane	75-71-8	25.0	U	50.0	25.0	12.5
1,1-Dichloroethane	75-34-3	7.75	J	50.0	12.5	6.25
1,2-Dichloroethane	107-06-2	36.7	J	50.0	25.0	12.5
1,1-Dichloroethene	75-35-4	50.0	U	100	50.0	25.0
cis-1,2-Dichloroethene	156-59-2	228		50.0	25.0	12.5
trans-1,2-Dichloroethene	156-60-5	25.0	U	50.0	25.0	12.5

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dichloropropane	78-87-5	20.0	U	50.0	20.0	10.0
1,3-Dichloropropane	142-28-9	20.0	U	50.0	20.0	10.0
2,2-Dichloropropane	594-20-7	25.0	U	50.0	25.0	12.5
cis-1,3-Dichloropropene	10061-01-5	25.0	U	50.0	25.0	12.5
trans-1,3-Dichloropropene	10061-02-6	50.0	U	100	50.0	25.0
1,1-Dichloropropene	563-58-6	25.0	U	50.0	25.0	12.5
Ethylbenzene	100-41-4	25.0	U	50.0	25.0	12.5
2-Hexanone	591-78-6	250	Q	500	250	125
Hexachlorobutadiene	87-68-3	25.0	U	50.0	25.0	12.5
Isopropylbenzene	98-82-8	25.0	U	50.0	25.0	12.5
p-Isopropyltoluene	99-87-6	25.0	U	50.0	25.0	12.5
4-Methyl-2-pentanone	108-10-1	250	U	500	250	125
Methylene chloride	75-09-2	25.0	U	50.0	25.0	12.5
Naphthalene	91-20-3	20.0	U	50.0	20.0	10.0
n-Propylbenzene	103-65-1	12.5	U	50.0	12.5	6.25
Styrene	100-42-5	12.5	U	50.0	12.5	6.25
1,1,1,2-Tetrachloroethane	630-20-6	25.0	U	50.0	25.0	12.5
1,1,2,2-Tetrachloroethane	79-34-5	20.0	U	50.0	20.0	10.0
Tetrachloroethene	127-18-4	25.0	U	50.0	25.0	12.5
Toluene	108-88-3	25.0	U	50.0	25.0	12.5
1,2,3-Trichlorobenzene	87-61-6	15.0	U	50.0	15.0	7.50
1,2,4-Trichlorobenzene	120-82-1	20.0	U	50.0	20.0	10.0
1,1,1-Trichloroethane	71-55-6	25.0	U	50.0	25.0	12.5
1,1,2-Trichloroethane	79-00-5	25.0	U	50.0	25.0	12.5
Trichloroethene	79-01-6	6050		50.0	25.0	12.5
Trichlorofluoromethane	75-69-4	25.0	U	50.0	25.0	12.5
1,2,3-Trichloropropane	96-18-4	50.0	U	100	50.0	25.0
1,2,4-Trimethylbenzene	95-63-6	25.0	U	50.0	25.0	12.5
1,3,5-Trimethylbenzene	108-67-8	25.0	U	50.0	25.0	12.5
Vinyl chloride	75-01-4	25.0	U	50.0	25.0	12.5
o-Xylene	95-47-6	25.0	U	50.0	25.0	12.5
m-,p-Xylene	179601-23-1	50.0	U	100	50.0	25.0

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	95.6	85	115	
1,2-Dichloroethane-d4	90.3	70	120	
Toluene-d8	98.9	85	120	
4-Bromofluorobenzene	98.2	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
Q	One or more quality control criteria failed. See narrative.

U	Analyte was not detected. The concentration is below the reported LOD.

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW14-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 22:30
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	11M14930
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	2.76		1.00	0.500	0.250

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	10.9		1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	100	85	115	
1,2-Dichloroethane-d4	92.4	70	120	
Toluene-d8	101	85	120	
4-Bromofluorobenzene	105	75	120	

Q	One or more quality control criteria failed. See narrative.

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW11-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590133	**Analyst:**	ADC	**Run Date:**	11/02/2016 22:18
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	11M14903
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.414	J	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.837	J	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.752	J	1.00	0.250	0.125
Chloromethane	74-87-3	0.554	J	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	4.92		1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	26.1		1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	21.4		2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	67.4		1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
trans-1,2-Dichloroethene	156-60-5	1.35		1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	Q	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	4.91		1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	1.90		1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	101	85	115	
1,2-Dichloroethane-d4	98.1	70	120	
Toluene-d8	101	85	120	
4-Bromofluorobenzene	107	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
J	Estimated value ; the analyte concentration was greater than the highest standard

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW11-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 19:06
Collect Date:	11/01/2016 10:20	**Dilution:**	100	**File ID:**	11M14923
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Trichloroethene	79-01-6	2880		100	50.0	25.0

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	97.5	85	115	
1,2-Dichloroethane-d4	90.7	70	120	
Toluene-d8	103	85	120	
4-Bromofluorobenzene	107	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW06-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 23:00
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	11M14931
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	2.37		1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	54.2		1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	96.1	85	115	
1,2-Dichloroethane-d4	92.0	70	120	
Toluene-d8	98.5	85	120	
4-Bromofluorobenzene	100	75	120	

Q	One or more quality control criteria failed. See narrative.

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW12-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 23:29
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	11M14932
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.504	J	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.952	J	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.57	J	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	0.500	U	1.00	0.500	0.250

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	109		1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	94.2	85	115	
1,2-Dichloroethane-d4	92.1	70	120	
Toluene-d8	98.6	85	120	
4-Bromofluorobenzene	100	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	50WW23-110116	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG591385	**Analyst:**	ADC	**Run Date:**	11/11/2016 20:56
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	11M15152
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	1.00	U	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	U	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	Q	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	0.500	U	1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	Q	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	0.500	U	1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	98.1	85	115	
1,2-Dichloroethane-d4	93.5	70	120	
Toluene-d8	100	85	120	
4-Bromofluorobenzene	97.7	75	120	

Q	One or more quality control criteria failed. See narrative.

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-13	**PrePrep Method:**	N/A	**Instrument:**	HPMS11
Client ID:	TRIP BLANK	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/13/2016 18:03
Workgroup #:	WG590292	**Analyst:**	ADC	**Run Date:**	11/03/2016 21:02
Collect Date:	11/01/2016 00:01	**Dilution:**	1	**File ID:**	11M14927
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	5.00	U	10.0	5.00	2.50
Benzene	71-43-2	0.250	U	1.00	0.250	0.125
Bromobenzene	108-86-1	0.250	U	1.00	0.250	0.125
Bromochloromethane	74-97-5	0.400	U	1.00	0.400	0.200
Bromodichloromethane	75-27-4	0.500	U	1.00	0.500	0.250
Bromoform	75-25-2	1.00	U	2.00	1.00	0.500
Bromomethane	74-83-9	1.00	U	2.00	1.00	0.500
2-Butanone	78-93-3	5.00	U	10.0	5.00	2.50
n-Butylbenzene	104-51-8	0.500	U	1.00	0.500	0.250
sec-Butylbenzene	135-98-8	0.500	U	1.00	0.500	0.250
tert-Butylbenzene	98-06-6	0.500	U	1.00	0.500	0.250
Carbon disulfide	75-15-0	1.00	U	2.00	1.00	0.500
Carbon tetrachloride	56-23-5	0.500	U	1.00	0.500	0.250
Chlorobenzene	108-90-7	0.250	U	1.00	0.250	0.125
Chlorodibromomethane	124-48-1	0.500	U	1.00	0.500	0.250
Chloroethane	75-00-3	1.00	U	2.00	1.00	0.500
Chloroform	67-66-3	0.250	U	1.00	0.250	0.125
Chloromethane	74-87-3	0.526	J	2.00	1.00	0.500
2-Chlorotoluene	95-49-8	0.250	Q	1.00	0.250	0.125
4-Chlorotoluene	106-43-4	0.500	U	1.00	0.500	0.250
1,2-Dibromo-3-chloropropane	96-12-8	2.00	U	5.00	2.00	1.00
1,2-Dibromoethane	106-93-4	0.500	U	1.00	0.500	0.250
Dibromomethane	74-95-3	0.500	U	1.00	0.500	0.250
1,2-Dichlorobenzene	95-50-1	0.250	U	1.00	0.250	0.125
1,3-Dichlorobenzene	541-73-1	0.500	U	1.00	0.500	0.250
1,4-Dichlorobenzene	106-46-7	0.250	U	1.00	0.250	0.125
Dichlorodifluoromethane	75-71-8	0.500	U	1.00	0.500	0.250
1,1-Dichloroethane	75-34-3	0.250	U	1.00	0.250	0.125
1,2-Dichloroethane	107-06-2	0.500	U	1.00	0.500	0.250
1,1-Dichloroethene	75-35-4	1.00	U	2.00	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	0.500	U	1.00	0.500	0.250

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250
1,2-Dichloropropane	78-87-5	0.400	U	1.00	0.400	0.200
1,3-Dichloropropane	142-28-9	0.400	U	1.00	0.400	0.200
2,2-Dichloropropane	594-20-7	0.500	U	1.00	0.500	0.250
cis-1,3-Dichloropropene	10061-01-5	0.500	U	1.00	0.500	0.250
trans-1,3-Dichloropropene	10061-02-6	1.00	U	2.00	1.00	0.500
1,1-Dichloropropene	563-58-6	0.500	U	1.00	0.500	0.250
Ethylbenzene	100-41-4	0.500	U	1.00	0.500	0.250
2-Hexanone	591-78-6	5.00	Q	10.0	5.00	2.50
Hexachlorobutadiene	87-68-3	0.500	U	1.00	0.500	0.250
Isopropylbenzene	98-82-8	0.500	U	1.00	0.500	0.250
p-Isopropyltoluene	99-87-6	0.500	U	1.00	0.500	0.250
4-Methyl-2-pentanone	108-10-1	5.00	U	10.0	5.00	2.50
Methylene chloride	75-09-2	0.500	U	1.00	0.500	0.250
Naphthalene	91-20-3	0.400	U	1.00	0.400	0.200
n-Propylbenzene	103-65-1	0.250	U	1.00	0.250	0.125
Styrene	100-42-5	0.250	U	1.00	0.250	0.125
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	1.00	0.500	0.250
1,1,2,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.500	U	1.00	0.500	0.250
Toluene	108-88-3	0.500	U	1.00	0.500	0.250
1,2,3-Trichlorobenzene	87-61-6	0.300	U	1.00	0.300	0.150
1,2,4-Trichlorobenzene	120-82-1	0.400	U	1.00	0.400	0.200
1,1,1-Trichloroethane	71-55-6	0.500	U	1.00	0.500	0.250
1,1,2-Trichloroethane	79-00-5	0.500	U	1.00	0.500	0.250
Trichloroethene	79-01-6	0.500	U	1.00	0.500	0.250
Trichlorofluoromethane	75-69-4	0.500	U	1.00	0.500	0.250
1,2,3-Trichloropropane	96-18-4	1.00	U	2.00	1.00	0.500
1,2,4-Trimethylbenzene	95-63-6	0.500	U	1.00	0.500	0.250
1,3,5-Trimethylbenzene	108-67-8	0.500	U	1.00	0.500	0.250
Vinyl chloride	75-01-4	0.500	U	1.00	0.500	0.250
o-Xylene	95-47-6	0.500	U	1.00	0.500	0.250
m-,p-Xylene	179601-23-1	1.00	U	2.00	1.00	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	95.8	85	115	
1,2-Dichloroethane-d4	90.5	70	120	
Toluene-d8	100	85	120	
4-Bromofluorobenzene	103	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Q	One or more quality control criteria failed. See narrative.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

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Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

2.1.1.2 QC Summary Data

Example 8260 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

	Example
where:	
Ax = Area of the characteristic ion for the compound being measured:	3399156
Cis = Concentration of the specific internal standard (ug/mL)	25
Ais = Area of the characteristic ion of the specific internal standard	846471
Cx = Concentration of the compound in the standard being measured (ug/mL)	100
RF = Calculated Response Factor	**1.0039**

2.0 Calculating the concentration (C) of a compound in water using the average RF: *

Cx = [(Ax) (Cis) (Vn)(D)] / [(Ais) (RF) (Vs)]

	Example
where:	
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Vs = Purge volume of sample (mL)	**10**
Vn = Nominal purge volume of sample (mL) (10.0 mL)	**10**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

3.0 Calculating the concentration (C) of a compound in soil using the average RF: *

Cx = [(Ax) (Cis) (Wn)(D)] / [(Ais) (RF) (Ws)]

	Example
where:	
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Ws = Weight of sample purged (g)	**5**
Wn = Nominal purge weight (g) (5.0 g)	**5**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**
Dry weight correction:	
Percent solids (PCT_S)	**50**
Cd = (Cx) (100)/PCT_S	**254.4856**

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve = 0.213

b = intercept from curve = - 0.00642

Step 2: Calculate y from Quantitation Report

y = 86550/593147 = 0.1459

Step 3: Solve for x

x = (y - b)/m = [(0.1459 -(- 0.00642)]/ 0.213 = 0.7152

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.7152) = 17.88

Example Spreadsheet Calculation:

Slope from curve, m:	**0.213**
Intercept from curve, b:	**-0.00642**
Area of analyte, Ax:	**86550**
Area of Internal Standard , Ais:	**593147**
Concentration of IS, Cis	**25.00**
Response Ratio:	**0.145917**
Amount Ratio:	**0.715195**
Concentration:	**17.87988**
Units of Internal Standard:	**ug/L**

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a(c - y)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**-0.00629**	
Value of B from plot:	**0.511**	
Value of C from plot:	**-0.0276**	
Area of unknown from quantitation report:	**293821**	
Area of IS from quantiation report:	**784848**	
Response ratio, y:	**0.374367**	
C - y:	**-0.40197**	
Root 1 - Computed amount ratio , X1:	**80.44567**	
Root 2 - Computed amount ratio , X2:	**0.794396**	use this solution
Concentration of IS, Cis:	**25.00**	
Concentration of analyte, Cx:	**19.86**	ug/L

MICROBAC®

TCLP Volatile

Analyst(s): BNB
Date: 11-07-16
Filter Lot #: 96976007

Agitator Speed 30 ± 2 rpm ☑

Balance ID: BAL020
pH Probe ID: T3
Temp probe ID: ☑ 1025 ☐ 1023

Analyst / Date		Analyst / Date	
BNB 11-7-16		BNB 11-8-16	
Time On	Temp On °C	Time Off	Temp Off °C
15:40	21.0	8:03	22.7

ZHE	Sample #	Pressure √	PSI ON	PSI OFF	Method	Fluid #	Matrix*	%Solid	Size Reduction Yes	Size Reduction No	Int. Wt. (g)	Fluid Vol. (mL)
A												
B												
C												
D	11-0233-01	✓	10	10	1311	F1-195	S	100		✓	25.01	500
E	11-0233-02	✓	〃	〃	〃	〃	〃	〃		✓	25.01	500
F	11-0178-03	✓	〃	〃	〃	〃	〃	〃		✓	25.00	500
G	11-0329-01	✓	10	10	1311	F1-195	S	100		✓	25.01	500
H												
I												
J												
K												
L												
M												
N												
O												
P												
Q												
R												
S												
NA	11-0322-01	NA	NA	NA	1311	FIL	W	<0.5	NA	NA	40	40
NA	FBLK-1	〃	〃	〃	〃	1311	NA	NA	〃	〃	40	40

11-8-16 BNB

11-8-16 BNB

11-8-16 BNB

*Matrix Code = (S-solid) (SS-sand, soil or sludge) (P-paint) (O-organic) (W-water or waste)

Comments: NA

Peer Review By: [signature]

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS11 Dataset: 081516
Analyst1: JDS Analyst2: NA
Method: 8260B SOP: MSV01 Rev: 25
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID:

Internal Standard: STD77497 Surrogate Standard: STD77498
CCV: STD77502 LCS: STD77604 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG580279 WG580280

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
11M13626	XG580279-01 50ng BFB STD 8260	NA	1	1	STD77509	08/15/16 14:37
11M13628	WG580279-01 50ng BFB STD 8260	NA	1	1	STD77509	08/15/16 14:52
11M13629	WG580279-02 5ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 15:17
11M13630	WG580279-03 20ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 15:46
11M13631	WG580279-04 50ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 16:16
11M13632	WG580279-05 100ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 16:45
11M13633	WG580279-06 200ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 17:14
11M13634	WG580279-07 300ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 17:43
11M13635	WG580279-08 400ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 18:12
11M13636	WG580279-09 500ug/L ICAL STD 8260-A9	NA	1	1	STD77502	08/15/16 18:41
11M13637	RINSE	NA	1	1		08/15/16 19:10
11M13638	WG580279-10 100ug/L ALT SRC 8260-A9	NA	1	1	STD77604	08/15/16 19:39
11M13639	RINSE	NA	1	1		08/15/16 20:08
11M13640	WG580280-01 BLANK STD 8260-A9	NA	1	1		08/15/16 20:37
11M13641	L16080201-01 50ug/L JDS DOC 8260-A9	NA	1	1	STD77604	08/15/16 21:06
11M13642	L16080201-02 50ug/L JDS DOC 8260-A9	NA	1	1	STD77604	08/15/16 21:34
11M13643	L16080201-03 50ug/L JDS DOC 8260-A9	NA	1	1	STD77604	08/15/16 22:03
11M13644	L16080201-04 50ug/L JDS DOC 8260-A9	NA	1	1	STD77604	08/15/16 22:32
11M13645	RINSE	NA	1	1		08/15/16 23:01
11M13646	RINSE	NA	1	1		08/15/16 23:30
11M13647	L16080563-01 2.5ug/L MDL 8260-A9	NA	1	1	STD77604	08/15/16 23:58
11M13648	RINSE	NA	1	1		08/16/16 00:27
11M13649	RINSE	NA	1	1		08/16/16 00:56
11M13650	RINSE	NA	1	1		08/16/16 01:25

Approved: August 26, 2016

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS11 Dataset: 101316
Analyst1: FJB Analyst2: JDS
Method: 8260B SOP: MSV01 Rev: 23
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18
Method: 624 SOP: MSV10 Rev: 14
Maintenance Log ID: 53932

Internal Standard: STD78415 Surrogate Standard: STD78416
CCV: STD78143 LCS: STD78362 MS/MSD: STD78362

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG587480

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
11M14497	WG587480-01 BFB 50ng 8260	NA	1	1	STD78474	10/13/16 11:16
11M14498	WG587480-02 50ug/L CCV STD 8260	NA	1	1	STD78477	10/13/16 11:41
11M14499	WG587480-01 BFB 50ng 8260	NA	1	1	STD78474	10/13/16 12:50
11M14500	RINSE	NA	1	1		10/13/16 13:14
11M14501	WG587480-02 0.3ug/L STD 8260	NA	1	1	STD78477	10/13/16 13:42
11M14502	WG587480-03 0.4ug/L STD 8260	NA	1	1	STD78477	10/13/16 14:11
11M14503	WG587480-04 1ug/L STD 8260	NA	1	1	STD78477	10/13/16 14:40
11M14504	WG587480-05 2ug/L STD 8260	NA	1	1	STD78477	10/13/16 15:09
11M14505	WG587480-06 5ug/L STD 8260	NA	1	1	STD78477	10/13/16 15:38
11M14506	WG587480-07 20ug/L STD 8260	NA	1	1	STD78477	10/13/16 16:07
11M14507	WG587480-08 50ug/L STD 8260	NA	1	1	STD78477	10/13/16 16:36
11M14508	WG587480-09 100ug/L STD 8260	NA	1	1	STD78477	10/13/16 17:05
11M14509	WG587480-10 200ug/L STD 8260	NA	1	1	STD78477	10/13/16 17:33
11M14510	WG587480-11 300ug/L STD 8260	NA	1	1	STD78477	10/13/16 18:03
11M14511	RINSE	NA	1	1		10/13/16 18:32
11M14512	WG587480-12 50ug/L ICV 8260	NA	1	1	STD78491	10/13/16 19:00
11M14513	RINSE	NA	1	1		10/13/16 19:29
11M14514	WG587598-01 BLANK 8260	NA	1	1		10/13/16 19:58
11M14515	WG587598-02 20ug/L LCS 8260	NA	1	1	STD78491	10/13/16 20:27
11M14516	WG587598-03 20ug/L LCS2 8260	NA	1	1	STD78491	10/13/16 20:57
11M14517	L16100269-01 25X B 826-SPE	6	1	25		10/13/16 21:26
11M14518	L16100512-02 TB A 826-LOW	<2	1	1		10/13/16 21:55
11M14519	L16100194-01 10X B 826-LOW	6	1	10		10/13/16 22:24
11M14520	L16100194-03 10X B 826-LOW	6	1	10		10/13/16 22:54
11M14521	L16100194-06 5X B 826-LOW	<2	1	5		10/13/16 23:23
11M14522	L16100512-01 A 826-LOW	<2	1	1		10/13/16 23:52
11M14523	RINSE	NA	2	1		10/14/16 00:21
11M14524	WG587598-04 624 BLANK	NA	2	1		10/14/16 00:49
11M14525	L16100687-01 A 624-SPE	<2	2	1		10/14/16 01:18
11M14526	L16100565-01 10X B 624-SPE1	<2	2	10		10/14/16 01:47
11M14527	RINSE	NA	1	1		10/14/16 02:16
11M14528	RINSE	NA	1	1		10/14/16 02:45
11M14529	RINSE	NA	1	1		10/14/16 03:13

Approved: October 17, 2016

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS11 Dataset: 110216
Analyst1: ADC Analyst2: NA
Method: 82602B SOP: MSV01 Rev: 24
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID:

Internal Standard: STD78415 Surrogate Standard: STD78416
CCV: STD78477 LCS: STD78759 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG590133

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
11M14887	WG590132-01 BFB 50ng 8260	NA	1	1	STD78474	11/02/16 14:41
11M14888	WG590132-02 50ug/L CCV 8260	NA	1	1	STD78477	11/02/16 15:06
11M14889	WG589XXX-01 100ug/L CCV A9	NA	1	1	STDXXXXX	11/02/16 15:35
11M14890	WG590133-01 BLANK 8260	NA	1	1		11/02/16 16:04
11M14891	WG590133-02 20ug/L LCS 8260	NA	1	1	STD78759	11/02/16 16:33
11M14892	WG590133-03 20ug/L LCSDUP 8260	NA	1	1	STD78759	11/02/16 17:01
11M14893	L16110035-04 A 826-SPE3	<2	1	1		11/02/16 17:30
11M14894	L16110060-02 A 826-SPE2	<2	1	1		11/02/16 17:58
11M14895	L16101238-01 A 826-SPE	<2	1	1		11/02/16 18:27
11M14896	L16110060-01 A 826-SPE2	<2	1	1		11/02/16 18:56
11M14897	L16110060-03 A 826-SPE2	<2	1	1		11/02/16 19:25
11M14898	L16110035-02 A 826-SPE3	<2	1	1		11/02/16 19:54
11M14899	L16110035-01 A 826-SPE3	<2	1	1		11/02/16 20:23
11M14900	L16110035-03 A 826-SPE3	<2	1	1		11/02/16 20:52
11M14901	L16110074-01 A 50X 826-LOW	<2	1	50		11/02/16 21:20
11M14902	L16110074-03 A 826-LOW	<2	1	1		11/02/16 21:49
11M14903	L16110074-05 A 826-LOW	<2	1	1		11/02/16 22:18
11M14904	L16110074-07 A 826-LOW	<2	1	1		11/02/16 22:47
11M14905	L16110074-09 A 2X 826-LOW	<2	1	2		11/02/16 23:16
11M14906	L16101578-02 A 10X 826-TC	<2	17	10		11/02/16 23:46
11M14907	L16101578-03 A 10X 826-TC	<2	17	10		11/03/16 00:15
11M14908	L16101578-05 A 10X 826-TC	<2	17	10		11/03/16 00:43
11M14909	L16101578-07 A 10X 826-TC	<2	17	10		11/03/16 01:12
11M14910	L16101578-04 A 10X 826-TC	<2	17	10		11/03/16 01:41
11M14911	RINSE	NA	17	10		11/03/16 02:11
11M14912	RINSE	NA	17	10		11/03/16 02:40
11M14913	RINSE	NA	17	10		11/03/16 03:09
11M14914	RINSE	NA	17	10		11/03/16 03:38
11M14915	RINSE	NA	17	10		11/03/16 04:07

Comments

Seq.	Rerun	Dil.	Reason	Analytes
10	X	100	Over Calibration Range	chlorobenz.

Approved: November 08, 2016

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS11 Dataset: 110216
Analyst1: ADC Analyst2: NA
Method: 82602B SOP: MSV01 Rev: 24
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID:

Internal Standard: STD78415 Surrogate Standard: STD78416
CCV: STD78477 LCS: STD78759 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG590133

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 11M14896				
	L16110060-01			
11	X		Carry-over contamination	
File ID: 11M14897				
	L16110060-03			
15	X	50	Carry-over contamination	
File ID: 11M14901				
16	X		Carry-over contamination	
File ID: 11M14902				
	L16110074-03			
17	X	100	Over Calibration Range	tce
File ID: 11M14903				
	L16110074-05			
18	X	1	Carry-over contamination	
File ID: 11M14904				
	L16110074-07			
19	X		Carry-over contamination	
File ID: 11M14905				
	L16110074-09 ran too dilute			
20	X	1000	Over Calibration Range	
File ID: 11M14906				
	L16101578-02			
21	X	100	Carry-over contamination	
File ID: 11M14907				
	L16101578-03			
22	X	10	Carry-over contamination	
File ID: 11M14908				
	L16101578-05			
23	X	5000	Over Calibration Range	
File ID: 11M14909				
	L16101578-07			
24	X	1000	Over Calibration Range	
File ID: 11M14910				
	L16101578-04			

Approved: November 08, 2016

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS11 Dataset: 110316
Analyst1: ADC Analyst2: NA
Method: 8260B SOP: MSV01 Rev: 24
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID:

Internal Standard: STD78415 Surrogate Standard: STD78416
CCV: STD78477 LCS: STD78491 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG590292

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
11M14916	WG590291-01 BFB 50ng 8260	NA	1	1	STD78474	11/03/16 15:45
11M14917	WG590291-02 50ug/L CCV 8260	NA	1	1	STD78477	11/03/16 16:11
11M14918	WG589XXX-01 100ug/L CCV A9	NA	1	1	STDXXXXX	11/03/16 16:41
11M14919	WG590292-01 BLANK 8260	NA	1	1		11/03/16 17:10
11M14920	WG590292-02 20ug/L LCS 8260	NA	1	1	STD78491	11/03/16 17:38
11M14921	WG590292-03 20ug/L LCSDUP 8260	NA	1	1	STD78491	11/03/16 18:08
11M14922	L16110060-01 B 100X 826-SPE2 D1	<2	1	100		11/03/16 18:37
11M14923	L16110074-05 B 100X 826-LOW D1	<2	1	100		11/03/16 19:06
11M14924	L16110074-01 B 50X 826-LOW 00	<2	1	50		11/03/16 19:35
11M14925	L16110060-03 B 826-SPE TB	<2	1	1		11/03/16 20:04
11M14926	L16110075-01 826-SPE TB	<2	1	1		11/03/16 20:33
11M14927	L16110074-13 826-LOW TB	<2	1	1		11/03/16 21:02
11M14928	L16110027-03 826-LOW TB	<2	1	1		11/03/16 21:31
11M14929	L16110027-01 826-LOW	<2	1	1		11/03/16 22:01
11M14930	L16110074-03 B 826-L	<2	1	1		11/03/16 22:30
11M14931	L16110074-07 B 826-LOW	<2	1	1		11/03/16 23:00
11M14932	L16110074-09 B 826-LOW	<2	1	1		11/03/16 23:29
11M14933	L16110074-11 A 826-LOW	<2	1	1		11/03/16 23:57
11M14934	L16110075-02 A 826-SPE	<2	1	1		11/04/16 00:27
11M14935	L16101578-03 B 10X 826	NA	17			11/04/16 00:56
11M14936	L16101578-05 B 10X 826-TC	NA	17	10		11/04/16 01:25
11M14937	L16101578-02 B 1000X 826-	NA	17	10		11/04/16 01:55
11M14938	L16101578-04 B 1000X 826-TC	NA	17	1000		11/04/16 02:24
11M14939	L16101578-07 B 5000X 826-TC	NA	17	5000		11/04/16 02:53
11M14940	RINSE	NA	1	1		11/04/16 03:23
11M14941	RINSE	NA	1	1		11/04/16 03:51
11M14942	RINSE	NA	1	1		11/04/16 04:20

Comments

Seq.	Rerun	Dil.	Reason	Analytes
13	X		Carry-over contamination	
File ID: 11M14933				
L16110074-11				

Approved: November 09, 2016
Sarah Vandenberg

Page: 1

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS11 Dataset: 111116
Analyst1: ADC Analyst2: NA
Method: 8260B SOP: MSV01 Rev: 24
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID:

Internal Standard: STD78962 Surrogate Standard: STD78963
CCV: STD78327 LCS: STD78758 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG591385

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
11M15138	WG591384-01 50ng BFB	NA	1	1	STD78474	11/11/16 14:15
11M15139	WG591384-02 50ug/Kg CCV	NA	1	1	STD78327	11/11/16 14:39
11M15140	RINSE	NA	1	1		11/11/16 15:09
11M15141	WG591385-01 BLANK	NA	1	1		11/11/16 15:37
11M15142	WG591385-02 20ug/Kg LCS	NA	1	1	STD78758	11/11/16 16:06
11M15143	WG591385-03 20ug/Kg LCSDUP	NA	1	1	STD78758	11/11/16 16:35
11M15144	L16110329-01 A 10X 826-TC	NA	17	10		11/11/16 17:04
11M15145	L16110278-06 A 826-SPE	<2	1	1		11/11/16 17:33
11M15146	L16110278-01 A 826-SPE	<2	1	1		11/11/16 18:02
11M15147	L16110278-02 A 826-SPE	<2	1	1		11/11/16 18:31
11M15148	L16110278-05 A 826-SPE	<2	1	1		11/11/16 19:00
11M15149	L16110088-03 B 826-SPE	<2	1	1		11/11/16 19:29
11M15150	L16110088-01 B 826-SPE	<2	1	1		11/11/16 19:58
11M15151	L16110088-02 B 826-SPE	<2	1	1		11/11/16 20:27
11M15152	L16110074-11 B 826-SPE	<2	1	1		11/11/16 20:56
11M15153	L16110278-03 A 826-SPE	<2	1	1		11/11/16 21:25
11M15154	L16110440-01 A 826-SPE	<2	1	1		11/11/16 21:53
11M15155	L16110440-02 A 826-SPE	<2	1	1		11/11/16 22:22
11M15156	L16110440-03 A 826-SPE	<2	1	1		11/11/16 22:51
11M15157	L16110440-04 A 826-SPE	<2	1	1		11/11/16 23:20
11M15158	L16110440-05 A 826-SPE	<2	1	1		11/11/16 23:48
11M15159	L16110440-06 A 826-SPE	<2	1	1		11/12/16 00:17
11M15160	RINSE	NA	1	1		11/12/16 00:45
11M15161	L1611	NA	1	200		11/12/16 01:14
11M15162	WG590560-01 A FBLK	NA	17	10		11/12/16 01:43
11M15163	RINSE	NA	1	1		11/12/16 02:11
11M15164	RINSE	NA	1	1		11/12/16 02:40

Comments

Seq.	Rerun	Dil.	Reason	Analytes
28	X	1	Analyzed too dilute	
File ID: 11M15160				
L16110278-04				

Approved: November 15, 2016

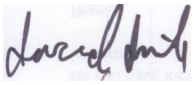
Microbac Laboratories Inc.

Data Checklist

Date: 15-AUG-2016
Analyst: JDS
Analyst: NA
Method: 8260B
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 76933
Analytical Workgroups: WG580279 WG580280

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	NA
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	NA
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	NA
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	JDS
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	NA
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	FJB
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
26-AUG-2016



Secondary Reviewer:
26-AUG-2016

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-26-2016 13:41:28

Microbac Laboratories Inc.

Data Checklist

Date: 13-OCT-2016
Analyst: FJB
Analyst: JDS
Method: 8260B/624
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 78081
Analytical Workgroups: WG587480

System Performance Check	X
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	FJB
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	FJB
Secondary Reviewer	WTD
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
14-OCT-2016

Secondary Reviewer:
17-OCT-2016

CHECKLIST1 - Modified 03/05/2008
Generated: OCT-17-2016 12:02:17

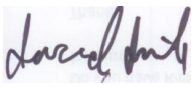
Microbac Laboratories Inc.

Data Checklist

Date: 03-NOV-2016
Analyst: ADC
Analyst: NA
Method: 8260
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 78587
Analytical Workgroups: WG590292

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	JDS
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	SAV
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
09-NOV-2016



Secondary Reviewer:
09-NOV-2016

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-09-2016 14:40:55

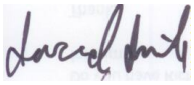
Microbac Laboratories Inc.

Data Checklist

Date: 11-NOV-2016
Analyst: ADC
Analyst: NA
Method: 8260
Instrument: HPMS11
Curve Workgroup: NA
Runlog ID: 78713
Analytical Workgroups: WG591385

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	JDS
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	FJB
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
15-NOV-2016



Secondary Reviewer:
15-NOV-2016

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-15-2016 16:42:09

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B AAB#: WG590133

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW11-110116	05	11/01/16					11/02/2016	1.5	14		11/02/16	1.5	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5014963
Report generated 11/17/2016 09:59

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B AAB#: WG590292

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW13-110116	01	11/01/16					11/03/2016	2.5	14		11/03/16	2.5	14	
50WW14-110116	03	11/01/16					11/03/2016	2.6	14		11/03/16	2.6	14	
50WW11-110116	05	11/01/16					11/03/2016	2.4	14		11/03/16	2.4	14	
50WW06-110116	07	11/01/16					11/03/2016	2.5	14		11/03/16	2.5	14	
50WW12-110116	09	11/01/16					11/03/2016	2.4	14		11/03/16	2.4	14	
TRIP BLANK	13	11/01/16					11/03/2016	2.9	14		11/03/16	2.9	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5014963
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B AAB#: WG591385

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW23-110116	11	11/01/16					11/11/2016	10.3	14		11/11/16	10.3	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5014963
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L16110074
Instrument Id: HPMS11
Workgroup (AAB#): WG590292

Method: 8260
CAL ID: HPMS11-13-OCT-16
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L16110074-01	50.0	DL01	90.3	95.6	98.2	98.9
L16110074-03	1.00	01	92.4	100	105	101
L16110074-05	100	DL01	90.7	97.5	107	103
L16110074-07	1.00	01	92.0	96.1	100	98.5
L16110074-09	1.00	01	92.1	94.2	100	98.6
L16110074-13	1.00	01	90.5	95.8	103	100
WG590292-01	1.00	01	88.6	95.2	106	102
WG590292-02	1.00	01	87.4	94.3	96.7	98.0
WG590292-03	1.00	01	90.2	97.0	104	103

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	70	-	120
2 - Dibromofluoromethane	85	-	115
3 - 4-Bromofluorobenzene	75	-	120
4 - Toluene-d8	85	-	120

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 5014972
Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L16110074
Instrument Id: HPMS11
Workgroup (AAB#): WG590133

Method: 8260
CAL ID: HPMS11-13-OCT-16
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L16110074-05	1.00	01	98.1	101	107	101
WG590133-01	1.00	01	97.5	100	98.7	101
WG590133-02	1.00	01	95.8	99.4	97.9	100
WG590133-03	1.00	01	97.3	101	95.6	101

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	70	-	120
2 - Dibromofluoromethane	85	-	115
3 - 4-Bromofluorobenzene	75	-	120
4 - Toluene-d8	85	-	120

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 5014972
Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L16110074
Instrument Id: HPMS11
Workgroup (AAB#): WG591385

Method: 8260
CAL ID: HPMS11-13-OCT-16
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L16110074-11	1.00	01	93.5	98.1	97.7	100
WG591385-01	1.00	01	88.8	93.0	98.2	102
WG591385-02	1.00	01	89.1	92.9	93.2	99.6
WG591385-03	1.00	01	90.4	94.7	94.8	101

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	70	-	120
2 - Dibromofluoromethane	85	-	115
3 - 4-Bromofluorobenzene	75	-	120
4 - Toluene-d8	85	-	120

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 5014972
Report generated: 11/17/2016 09:59

METHOD BLANK SUMMARY

Login Number:	L16110074	Work Group:	WG590133
Blank File ID:	11M14890	Blank Sample ID:	WG590133-01
Prep Date:	11/02/16 16:04	Instrument ID:	HPMS11
Analyzed Date:	11/02/16 16:04	Method:	8260B
Analyst:	ADC		

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590133-02	11M14891	11/02/16 16:33	01
LCS2	WG590133-03	11M14892	11/02/16 17:01	01
50WW11-110116	L16110074-05	11M14903	11/02/16 22:18	01

Report Name: BLANK_SUMMARY
PDF File ID: 5014964
Report generated 11/17/2016 09:59

METHOD BLANK SUMMARY

Login Number: L16110074
Blank File ID: 11M14919
Prep Date: 11/03/16 17:10
Analyzed Date: 11/03/16 17:10
Analyst: ADC

Work Group: WG590292
Blank Sample ID: WG590292-01
Instrument ID: HPMS11
Method: 8260B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590292-02	11M14920	11/03/16 17:38	01
LCS2	WG590292-03	11M14921	11/03/16 18:08	01
50WW11-110116	L16110074-05	11M14923	11/03/16 19:06	DL01
50WW13-110116	L16110074-01	11M14924	11/03/16 19:35	DL01
TRIP BLANK	L16110074-13	11M14927	11/03/16 21:02	01
50WW14-110116	L16110074-03	11M14930	11/03/16 22:30	01
50WW06-110116	L16110074-07	11M14931	11/03/16 23:00	01
50WW12-110116	L16110074-09	11M14932	11/03/16 23:29	01

Report Name: BLANK_SUMMARY
PDF File ID: 5014964
Report generated 11/17/2016 09:59

METHOD BLANK SUMMARY

Login Number:	L16110074	**Work Group:**	WG591385
Blank File ID:	11M15141	**Blank Sample ID:**	WG591385-01
Prep Date:	11/11/16 15:37	**Instrument ID:**	HPMS11
Analyzed Date:	11/11/16 15:37	**Method:**	8260B
Analyst:	ADC		

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG591385-02	11M15142	11/11/16 16:06	01
LCS2	WG591385-03	11M15143	11/11/16 16:35	01
50WW23-110116	L16110074-11	11M15152	11/11/16 20:56	01

Report Name: BLANK_SUMMARY
PDF File ID: 5014964
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L16110074 Prep Date:11/02/16 16:04 Sample ID:WG590133-01
Instrument ID:HPMS11 Run Date:11/02/16 16:04 Prep Method:5030B/5030C/503
File ID:11M14890 Analyst:ADC Method:8260B
Workgroup (AAB#):WG590133 Matrix:Water Units:ug/L
Contract #: Cal ID:HPMS11-13-OCT-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	1.00	0.125	1	U
Bromobenzene	0.125	1.00	0.125	1	U
Bromochloromethane	0.200	1.00	0.200	1	U
Bromodichloromethane	0.250	1.00	0.250	1	U
Bromoform	0.500	2.00	0.500	1	U
Bromomethane	0.500	2.00	0.500	1	U
2-Butanone	2.50	10.0	2.50	1	U
n-Butylbenzene	0.250	1.00	0.250	1	U
sec-Butylbenzene	0.250	1.00	0.250	1	U
tert-Butylbenzene	0.250	1.00	0.250	1	U
Carbon disulfide	0.500	2.00	0.500	1	U
Carbon tetrachloride	0.250	1.00	0.250	1	U
Chlorobenzene	0.125	1.00	0.125	1	U
Chlorodibromomethane	0.250	1.00	0.250	1	U
Chloroethane	0.500	2.00	0.500	1	U
Chloroform	0.125	1.00	0.125	1	U
Chloromethane	0.500	2.00	0.500	1	U
2-Chlorotoluene	0.125	1.00	0.125	1	U
4-Chlorotoluene	0.250	1.00	0.250	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	1.00	0.250	1	U
Dibromomethane	0.250	1.00	0.250	1	U
1,2-Dichlorobenzene	0.125	1.00	0.125	1	U
1,3-Dichlorobenzene	0.250	1.00	0.250	1	U
1,4-Dichlorobenzene	0.125	1.00	0.125	1	U
Dichlorodifluoromethane	0.250	1.00	0.250	1	U
1,1-Dichloroethane	0.125	1.00	0.125	1	U
1,2-Dichloroethane	0.250	1.00	0.250	1	U
1,1-Dichloroethene	0.500	2.00	0.500	1	U
cis-1,2-Dichloroethene	0.250	1.00	0.250	1	U
trans-1,2-Dichloroethene	0.250	1.00	0.250	1	U
1,2-Dichloropropane	0.200	1.00	0.200	1	U
1,3-Dichloropropane	0.200	1.00	0.200	1	U
2,2-Dichloropropane	0.250	1.00	0.250	1	U
cis-1,3-Dichloropropene	0.250	1.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	2.00	0.500	1	U
1,1-Dichloropropene	0.250	1.00	0.250	1	U
Ethylbenzene	0.250	1.00	0.250	1	U
2-Hexanone	2.50	10.0	2.50	1	U
Hexachlorobutadiene	0.250	1.00	0.250	1	U
Isopropylbenzene	0.250	1.00	0.250	1	U

Report Name:BLANK
PDF ID: 5014965
17-NOV-2016 09:59

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L16110074 Prep Date: 11/02/16 16:04 Sample ID: WG590133-01
Instrument ID: HPMS11 Run Date: 11/02/16 16:04 Prep Method: 5030B/5030C/503
File ID: 11M14890 Analyst: ADC Method: 8260B
Workgroup (AAB#): WG590133 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS11-13-OCT-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
p-Isopropyltoluene	0.250	1.00	0.250	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Methylene chloride	0.250	1.00	0.250	1	U
Naphthalene	0.200	1.00	0.200	1	U
n-Propylbenzene	0.125	1.00	0.125	1	U
Styrene	0.125	1.00	0.125	1	U
1,1,1,2-Tetrachloroethane	0.250	1.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.200	1.00	0.200	1	U
Tetrachloroethene	0.250	1.00	0.250	1	U
Toluene	0.250	1.00	0.250	1	U
1,2,3-Trichlorobenzene	0.150	1.00	0.150	1	U
1,2,4-Trichlorobenzene	0.200	1.00	0.200	1	U
1,1,1-Trichloroethane	0.250	1.00	0.250	1	U
1,1,2-Trichloroethane	0.250	1.00	0.250	1	U
Trichlorofluoromethane	0.250	1.00	0.250	1	U
1,2,3-Trichloropropane	0.500	2.00	0.500	1	U
1,2,4-Trimethylbenzene	0.250	1.00	0.250	1	U
1,3,5-Trimethylbenzene	0.250	1.00	0.250	1	U
Vinyl chloride	0.250	1.00	0.250	1	U
o-Xylene	0.250	1.00	0.250	1	U
m-,p-Xylene	0.500	2.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits			Qualifier
Dibromofluoromethane	100	85	-	115	PASS
1,2-Dichloroethane-d4	97.5	70	-	120	PASS
Toluene-d8	101	85	-	120	PASS
4-Bromofluorobenzene	98.7	75	-	120	PASS

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5014965
17-NOV-2016 09:59

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L16110074 Prep Date:11/03/16 17:10 Sample ID:WG590292-01
Instrument ID:HPMS11 Run Date:11/03/16 17:10 Prep Method:5030B/5030C/503
File ID:11M14919 Analyst:ADC Method:8260B
Workgroup (AAB#):WG590292 Matrix:Water Units:ug/L
Contract #: Cal ID:HPMS11-13-OCT-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	1.00	0.125	1	U
Bromobenzene	0.125	1.00	0.125	1	U
Bromochloromethane	0.200	1.00	0.200	1	U
Bromodichloromethane	0.250	1.00	0.250	1	U
Bromoform	0.500	2.00	0.500	1	U
Bromomethane	0.500	2.00	0.500	1	U
2-Butanone	2.50	10.0	2.50	1	U
n-Butylbenzene	0.250	1.00	0.250	1	U
sec-Butylbenzene	0.250	1.00	0.250	1	U
tert-Butylbenzene	0.250	1.00	0.250	1	U
Carbon disulfide	0.500	2.00	0.500	1	U
Carbon tetrachloride	0.250	1.00	0.250	1	U
Chlorobenzene	0.125	1.00	0.125	1	U
Chlorodibromomethane	0.250	1.00	0.250	1	U
Chloroethane	0.500	2.00	0.500	1	U
Chloroform	0.125	1.00	0.125	1	U
Chloromethane	0.500	2.00	0.500	1	U
2-Chlorotoluene	0.125	1.00	0.125	1	U
4-Chlorotoluene	0.250	1.00	0.250	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	1.00	0.250	1	U
Dibromomethane	0.250	1.00	0.250	1	U
1,2-Dichlorobenzene	0.125	1.00	0.125	1	U
1,3-Dichlorobenzene	0.250	1.00	0.250	1	U
1,4-Dichlorobenzene	0.125	1.00	0.125	1	U
Dichlorodifluoromethane	0.250	1.00	0.250	1	U
1,1-Dichloroethane	0.125	1.00	0.125	1	U
1,2-Dichloroethane	0.250	1.00	0.250	1	U
1,1-Dichloroethene	0.500	2.00	0.500	1	U
cis-1,2-Dichloroethene	0.250	1.00	0.250	1	U
trans-1,2-Dichloroethene	0.250	1.00	0.250	1	U
1,2-Dichloropropane	0.200	1.00	0.200	1	U
1,3-Dichloropropane	0.200	1.00	0.200	1	U
2,2-Dichloropropane	0.250	1.00	0.250	1	U
cis-1,3-Dichloropropene	0.250	1.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	2.00	0.500	1	U
1,1-Dichloropropene	0.250	1.00	0.250	1	U
Ethylbenzene	0.250	1.00	0.250	1	U
2-Hexanone	2.50	10.0	2.50	1	U
Hexachlorobutadiene	0.250	1.00	0.250	1	U
Isopropylbenzene	0.250	1.00	0.250	1	U

Report Name:BLANK
PDF ID: 5014965
17-NOV-2016 09:59

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L16110074 Prep Date: 11/03/16 17:10 Sample ID: WG590292-01
Instrument ID: HPMS11 Run Date: 11/03/16 17:10 Prep Method: 5030B/5030C/503
File ID: 11M14919 Analyst: ADC Method: 8260B
Workgroup (AAB#): WG590292 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS11-13-OCT-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
p-Isopropyltoluene	0.250	1.00	0.250	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Methylene chloride	0.250	1.00	0.250	1	U
Naphthalene	0.200	1.00	0.200	1	U
n-Propylbenzene	0.125	1.00	0.125	1	U
Styrene	0.125	1.00	0.125	1	U
1,1,1,2-Tetrachloroethane	0.250	1.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.200	1.00	0.200	1	U
Tetrachloroethene	0.250	1.00	0.250	1	U
Toluene	0.250	1.00	0.250	1	U
1,2,3-Trichlorobenzene	0.150	1.00	0.150	1	U
1,2,4-Trichlorobenzene	0.200	1.00	0.200	1	U
1,1,1-Trichloroethane	0.250	1.00	0.250	1	U
1,1,2-Trichloroethane	0.250	1.00	0.250	1	U
Trichloroethene	0.250	1.00	0.250	1	U
Trichlorofluoromethane	0.250	1.00	0.250	1	U
1,2,3-Trichloropropane	0.500	2.00	0.500	1	U
1,2,4-Trimethylbenzene	0.250	1.00	0.250	1	U
1,3,5-Trimethylbenzene	0.250	1.00	0.250	1	U
Vinyl chloride	0.250	1.00	0.250	1	U
o-Xylene	0.250	1.00	0.250	1	U
m-,p-Xylene	0.500	2.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	95.2	85 - 115	PASS
1,2-Dichloroethane-d4	88.6	70 - 120	PASS
Toluene-d8	102	85 - 120	PASS
4-Bromofluorobenzene	106	75 - 120	PASS

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5014965
17-NOV-2016 09:59

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L16110074 Prep Date:11/11/16 15:37 Sample ID:WG591385-01
Instrument ID:HPMS11 Run Date:11/11/16 15:37 Prep Method:5030B/5030C/503
File ID:11M15141 Analyst:ADC Method:8260B
Workgroup (AAB#):WG591385 Matrix:Water Units:ug/L
Contract #: Cal ID:HPMS11-13-OCT-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Acetone	2.50	10.0	2.50	1	U
Benzene	0.125	1.00	0.125	1	U
Bromobenzene	0.125	1.00	0.125	1	U
Bromochloromethane	0.200	1.00	0.200	1	U
Bromodichloromethane	0.250	1.00	0.250	1	U
Bromoform	0.500	2.00	0.500	1	U
Bromomethane	0.500	2.00	0.500	1	U
2-Butanone	2.50	10.0	2.50	1	U
n-Butylbenzene	0.250	1.00	0.250	1	U
sec-Butylbenzene	0.250	1.00	0.250	1	U
tert-Butylbenzene	0.250	1.00	0.250	1	U
Carbon disulfide	0.500	2.00	0.500	1	U
Carbon tetrachloride	0.250	1.00	0.250	1	U
Chlorobenzene	0.125	1.00	0.125	1	U
Chlorodibromomethane	0.250	1.00	0.250	1	U
Chloroethane	0.500	2.00	0.500	1	U
Chloroform	0.125	1.00	0.125	1	U
Chloromethane	0.500	2.00	0.500	1	U
2-Chlorotoluene	0.125	1.00	0.125	1	U
4-Chlorotoluene	0.250	1.00	0.250	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.250	1.00	0.250	1	U
Dibromomethane	0.250	1.00	0.250	1	U
1,2-Dichlorobenzene	0.125	1.00	0.125	1	U
1,3-Dichlorobenzene	0.250	1.00	0.250	1	U
1,4-Dichlorobenzene	0.125	1.00	0.125	1	U
Dichlorodifluoromethane	0.250	1.00	0.250	1	U
1,1-Dichloroethane	0.125	1.00	0.125	1	U
1,2-Dichloroethane	0.250	1.00	0.250	1	U
1,1-Dichloroethene	0.500	2.00	0.500	1	U
cis-1,2-Dichloroethene	0.250	1.00	0.250	1	U
trans-1,2-Dichloroethene	0.250	1.00	0.250	1	U
1,2-Dichloropropane	0.200	1.00	0.200	1	U
1,3-Dichloropropane	0.200	1.00	0.200	1	U
2,2-Dichloropropane	0.250	1.00	0.250	1	U
cis-1,3-Dichloropropene	0.250	1.00	0.250	1	U
trans-1,3-Dichloropropene	0.500	2.00	0.500	1	U
1,1-Dichloropropene	0.250	1.00	0.250	1	U
Ethylbenzene	0.250	1.00	0.250	1	U
2-Hexanone	2.50	10.0	2.50	1	U
Hexachlorobutadiene	0.250	1.00	0.250	1	U
Isopropylbenzene	0.250	1.00	0.250	1	U

Report Name:BLANK
PDF ID: 5014965
17-NOV-2016 09:59

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L16110074 Prep Date: 11/11/16 15:37 Sample ID: WG591385-01
Instrument ID: HPMS11 Run Date: 11/11/16 15:37 Prep Method: 5030B/5030C/503
File ID: 11M15141 Analyst: ADC Method: 8260B
Workgroup (AAB#): WG591385 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS11-13-OCT-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
p-Isopropyltoluene	0.250	1.00	0.250	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Methylene chloride	0.250	1.00	0.250	1	U
Naphthalene	0.200	1.00	0.200	1	U
n-Propylbenzene	0.125	1.00	0.125	1	U
Styrene	0.125	1.00	0.125	1	U
1,1,1,2-Tetrachloroethane	0.250	1.00	0.250	1	U
1,1,2,2-Tetrachloroethane	0.200	1.00	0.200	1	U
Tetrachloroethene	0.250	1.00	0.250	1	U
Toluene	0.250	1.00	0.250	1	U
1,2,3-Trichlorobenzene	0.150	1.00	0.150	1	U
1,2,4-Trichlorobenzene	0.200	1.00	0.200	1	U
1,1,1-Trichloroethane	0.250	1.00	0.250	1	U
1,1,2-Trichloroethane	0.250	1.00	0.250	1	U
Trichloroethene	0.250	1.00	0.250	1	U
Trichlorofluoromethane	0.250	1.00	0.250	1	U
1,2,3-Trichloropropane	0.500	2.00	0.500	1	U
1,2,4-Trimethylbenzene	0.250	1.00	0.250	1	U
1,3,5-Trimethylbenzene	0.250	1.00	0.250	1	U
Vinyl chloride	0.250	1.00	0.250	1	U
o-Xylene	0.250	1.00	0.250	1	U
m-,p-Xylene	0.500	2.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	93.0	85 - 115	PASS
1,2-Dichloroethane-d4	88.8	70 - 120	PASS
Toluene-d8	102	85 - 120	PASS
4-Bromofluorobenzene	98.2	75 - 120	PASS

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5014965
17-NOV-2016 09:59

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: ADC Prep Method: 5030B/5030C/503
Instrument ID: HPMS11 Matrix: Water Method: 8260B
Workgroup (AAB#): WG591385 Units: ug/L
QC Key: DOD4 Lot #: STD78491

Sample ID: WG591385-02 LCS File ID: 11M15142 Run Date: 11/11/2016 16:06
Sample ID: WG591385-03 LCS2 File ID: 11M15143 Run Date: 11/11/2016 16:35

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,1,1,2-Tetrachloroethane	20.0	19.4	96.9	20.0	21.7	108	11.0	80 - 130	30	
1,1,1-Trichloroethane	20.0	19.2	95.9	20.0	21.1	105	9.38	65 - 130	30	
1,1,2,2-Tetrachloroethane	20.0	19.9	99.4	20.0	23.1	115	15.0	65 - 130	30	
1,1,2-Trichloroethane	20.0	20.3	102	20.0	21.9	110	7.41	75 - 125	30	
1,1-Dichloroethane	20.0	17.9	89.6	20.0	19.7	98.5	9.47	70 - 135	30	
1,1-Dichloroethene	20.0	16.1	80.7	20.0	17.7	88.6	9.34	70 - 130	30	
1,1-Dichloropropene	20.0	18.3	91.6	20.0	19.9	99.7	8.38	75 - 130	30	
1,2,3-Trichlorobenzene	20.0	18.6	93.1	20.0	21.4	107	14.1	55 - 140	30	
1,2,3-Trichloropropane	20.0	21.2	106	20.0	23.3	117	9.25	75 - 125	30	
1,2,4-Trichlorobenzene	20.0	19.3	96.4	20.0	22.0	110	13.1	65 - 135	30	
1,2,4-Trimethylbenzene	20.0	20.5	103	20.0	23.2	116	12.1	75 - 130	30	
1,2-Dibromo-3-chloropropane	20.0	19.9	99.3	20.0	22.0	110	10.3	50 - 130	30	
1,2-Dibromoethane	20.0	19.5	97.4	20.0	21.6	108	10.2	80 - 120	30	
1,2-Dichlorobenzene	20.0	19.4	96.8	20.0	21.9	109	12.1	70 - 120	30	
1,2-Dichloroethane	20.0	17.8	88.9	20.0	19.3	96.6	8.28	70 - 130	30	
1,2-Dichloropropane	20.0	18.7	93.4	20.0	20.3	101	8.19	75 - 125	30	
1,3,5-Trimethylbenzene	20.0	20.7	103	20.0	23.0	115	10.7	75 - 130	30	
1,3-Dichlorobenzene	20.0	19.2	96.0	20.0	21.8	109	12.5	75 - 125	30	
1,3-Dichloropropane	20.0	20.5	103	20.0	21.8	109	5.92	75 - 125	30	
1,4-Dichlorobenzene	20.0	19.1	95.7	20.0	21.5	107	11.6	75 - 125	30	
2,2-Dichloropropane	20.0	18.8	93.8	20.0	21.5	108	13.7	70 - 135	30	
2-Butanone	20.0	18.9	94.7	20.0	21.1	106	10.9	30 - 150	30	
2-Chlorotoluene	20.0	19.5	97.7	20.0	22.5	112	13.9	75 - 125	30	
2-Hexanone	20.0	17.7	88.7	20.0	19.8	99.1	11.1	55 - 130	30	
4-Chlorotoluene	20.0	20.5	102	20.0	22.7	114	10.4	75 - 130	30	
4-Methyl-2-pentanone	20.0	18.5	92.6	20.0	21.1	106	13.1	60 - 135	30	
Acetone	20.0	18.9	94.4	20.0	21.5	108	13.1	40 - 140	30	
Benzene	20.0	19.0	94.8	20.0	20.7	103	8.67	80 - 120	30	
Bromobenzene	20.0	18.4	92.0	20.0	21.1	106	13.8	75 - 125	30	
Bromochloromethane	20.0	18.3	91.6	20.0	20.3	101	10.2	65 - 130	30	
Bromodichloromethane	20.0	18.3	91.3	20.0	19.9	99.6	8.65	75 - 120	30	
Bromoform	20.0	19.8	99.1	20.0	22.3	111	11.7	70 - 130	30	
Bromomethane	20.0	20.0	100	20.0	22.2	111	10.3	30 - 145	30	
Carbon disulfide	20.0	16.0	79.9	20.0	17.9	89.7	11.5	35 - 160	30	
Carbon tetrachloride	20.0	18.5	92.4	20.0	20.6	103	10.6	65 - 140	30	
Chlorobenzene	20.0	19.4	96.9	20.0	21.1	105	8.47	80 - 120	30	
Chloroethane	20.0	19.3	96.3	20.0	21.2	106	9.45	60 - 135	30	
Chloroform	20.0	18.5	92.3	20.0	20.5	102	10.3	65 - 135	30	
Chloromethane	20.0	15.5	77.4	20.0	16.3	81.4	5.05	40 - 125	30	
cis-1,2-Dichloroethene	20.0	18.9	94.7	20.0	20.6	103	8.66	70 - 125	30	

LCS_LCS2 - Modified 03/06/2008
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Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: ADC Prep Method: 5030B/5030C/503
Instrument ID: HPMS11 Matrix: Water Method: 8260B
Workgroup (AAB#): WG591385 Units: ug/L
QC Key: DOD4 Lot #: STD78491

Sample ID: WG591385-02 LCS File ID: 11M15142 Run Date: 11/11/2016 16:06
Sample ID: WG591385-03 LCS2 File ID: 11M15143 Run Date: 11/11/2016 16:35

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
cis-1,3-Dichloropropene	20.0	20.2	101	20.0	22.2	111	9.51	70 - 130	30	
Chlorodibromomethane	20.0	19.5	97.3	20.0	21.6	108	10.2	60 - 135	30	
Dibromomethane	20.0	18.7	93.4	20.0	20.7	104	10.4	75 - 125	30	
Dichlorodifluoromethane	20.0	13.4	66.9	20.0	15.1	75.3	11.9	30 - 155	30	
Ethylbenzene	20.0	19.9	99.5	20.0	21.7	108	8.63	75 - 125	30	
Hexachlorobutadiene	20.0	21.4	107	20.0	24.4	122	13.2	50 - 140	30	
Isopropylbenzene	20.0	20.2	101	20.0	22.3	112	10.1	75 - 125	30	
m-,p-Xylene	40.0	40.8	102	40.0	45.1	113	9.99	75 - 130	30	
Methylene chloride	20.0	17.7	88.4	20.0	19.1	95.4	7.61	55 - 140	30	
n-Butylbenzene	20.0	20.2	101	20.0	23.1	115	13.4	70 - 135	30	
n-Propylbenzene	20.0	20.6	103	20.0	23.4	117	12.6	70 - 130	30	
Naphthalene	20.0	21.5	107	20.0	24.3	121	12.2	55 - 140	30	
o-Xylene	20.0	20.3	102	20.0	22.4	112	9.64	80 - 120	30	
p-Isopropyltoluene	20.0	21.2	106	20.0	24.2	121	13.0	75 - 130	30	
sec-Butylbenzene	20.0	20.7	104	20.0	23.2	116	11.1	70 - 125	30	
Styrene	20.0	20.3	101	20.0	22.5	113	10.3	65 - 135	30	
tert-Butylbenzene	20.0	20.7	104	20.0	23.7	118	13.3	70 - 130	30	
Tetrachloroethene	20.0	19.4	96.9	20.0	21.6	108	10.9	45 - 150	30	
Toluene	20.0	19.8	98.8	20.0	21.6	108	9.10	75 - 120	30	
trans-1,2-Dichloroethene	20.0	17.7	88.6	20.0	19.4	96.8	8.94	60 - 140	30	
trans-1,3-Dichloropropene	20.0	18.7	93.4	20.0	20.6	103	9.62	55 - 140	30	
Trichloroethene	20.0	19.4	96.8	20.0	20.7	104	6.84	70 - 125	30	
Trichlorofluoromethane	20.0	17.7	88.4	20.0	19.7	98.6	11.0	60 - 145	30	
Vinyl chloride	20.0	17.4	87.1	20.0	18.2	91.2	4.63	50 - 145	30	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
1,2-Dichloroethane-d4	89.1	90.4	70 - 120	PASS
Dibromofluoromethane	92.9	94.7	85 - 115	PASS
4-Bromofluorobenzene	93.2	94.8	75 - 120	PASS
Toluene-d8	99.6	101	85 - 120	PASS

* EXCEEDS %REC LIMIT

\# EXCEEDS RPD LIMIT

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5014967
Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: ADC Prep Method: 5030B/5030C/503
Instrument ID: HPMS11 Matrix: Water Method: 8260B
Workgroup (AAB#): WG590133 Units: ug/L
QC Key: DOD4 Lot #: STD78759

Sample ID: WG590133-02 LCS File ID: 11M14891 Run Date: 11/02/2016 16:33
Sample ID: WG590133-03 LCS2 File ID: 11M14892 Run Date: 11/02/2016 17:01

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,1,1,2-Tetrachloroethane	20.0	23.2	116	20.0	25.3	126	8.68	80 - 130	30	
1,1,1-Trichloroethane	20.0	23.1	116	20.0	24.9	125	7.46	65 - 130	30	
1,1,2,2-Tetrachloroethane	20.0	22.7	113	20.0	24.2	121	6.59	65 - 130	30	
1,1,2-Trichloroethane	20.0	22.9	114	20.0	24.4	122	6.58	75 - 125	30	
1,1-Dichloroethane	20.0	21.5	108	20.0	23.3	116	7.76	70 - 135	30	
1,1-Dichloroethene	20.0	20.5	103	20.0	21.7	109	5.59	70 - 130	30	
1,1-Dichloropropene	20.0	21.4	107	20.0	23.3	117	8.43	75 - 130	30	
1,2,3-Trichlorobenzene	20.0	21.5	108	20.0	23.2	116	7.39	55 - 140	30	
1,2,3-Trichloropropane	20.0	23.3	116	20.0	24.2	121	3.85	75 - 125	30	
1,2,4-Trichlorobenzene	20.0	21.8	109	20.0	23.2	116	6.37	65 - 135	30	
1,2,4-Trimethylbenzene	20.0	25.6	128	20.0	26.9	134	5.11	75 - 130	30	*
1,2-Dibromo-3-chloropropane	20.0	21.3	106	20.0	22.4	112	5.12	50 - 130	30	
1,2-Dibromoethane	20.0	21.2	106	20.0	23.6	118	10.7	80 - 120	30	
1,2-Dichlorobenzene	20.0	23.5	117	20.0	25.1	125	6.42	70 - 120	30	*
1,2-Dichloroethane	20.0	22.0	110	20.0	24.0	120	8.46	70 - 130	30	
1,2-Dichloropropane	20.0	22.2	111	20.0	24.4	122	9.31	75 - 125	30	
1,3,5-Trimethylbenzene	20.0	25.5	128	20.0	27.0	135	5.55	75 - 130	30	*
1,3-Dichlorobenzene	20.0	23.2	116	20.0	25.0	125	7.65	75 - 125	30	
1,3-Dichloropropane	20.0	23.1	116	20.0	25.0	125	7.69	75 - 125	30	
1,4-Dichlorobenzene	20.0	22.7	114	20.0	24.4	122	6.96	75 - 125	30	
2,2-Dichloropropane	20.0	22.4	112	20.0	24.9	124	10.4	70 - 135	30	
2-Butanone	20.0	16.0	80.0	20.0	16.7	83.6	4.39	30 - 150	30	
2-Chlorotoluene	20.0	24.4	122	20.0	26.2	131	6.98	75 - 125	30	*
2-Hexanone	20.0	16.0	80.2	20.0	16.7	83.3	3.74	55 - 130	30	
4-Chlorotoluene	20.0	24.7	124	20.0	26.7	133	7.51	75 - 130	30	*
4-Methyl-2-pentanone	20.0	16.1	80.3	20.0	17.1	85.7	6.52	60 - 135	30	
Acetone	20.0	15.1	75.6	20.0	16.8	83.9	10.5	40 - 140	30	
Benzene	20.0	22.0	110	20.0	23.9	119	7.98	80 - 120	30	
Bromobenzene	20.0	23.4	117	20.0	24.8	124	5.79	75 - 125	30	
Bromochloromethane	20.0	21.7	108	20.0	23.3	117	7.18	65 - 130	30	
Bromodichloromethane	20.0	22.1	111	20.0	24.4	122	9.82	75 - 120	30	*
Bromoform	20.0	21.0	105	20.0	23.5	118	11.1	70 - 130	30	
Bromomethane	20.0	21.2	106	20.0	22.8	114	7.47	30 - 145	30	
Carbon disulfide	20.0	17.6	87.9	20.0	18.6	93.1	5.68	35 - 160	30	
Carbon tetrachloride	20.0	23.0	115	20.0	25.2	126	9.41	65 - 140	30	
Chlorobenzene	20.0	22.4	112	20.0	24.4	122	8.46	80 - 120	30	*
Chloroethane	20.0	20.2	101	20.0	21.3	107	5.43	60 - 135	30	
Chloroform	20.0	22.1	111	20.0	24.1	120	8.48	65 - 135	30	
Chloromethane	20.0	21.9	109	20.0	24.3	122	10.7	40 - 125	30	
cis-1,2-Dichloroethene	20.0	22.0	110	20.0	23.8	119	8.02	70 - 125	30	

LCS_LCS2 - Modified 03/06/2008
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Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: ADC Prep Method: 5030B/5030C/503
Instrument ID: HPMS11 Matrix: Water Method: 8260B
Workgroup (AAB#): WG590133 Units: ug/L
QC Key: DOD4 Lot #: STD78759

Sample ID: WG590133-02 LCS File ID: 11M14891 Run Date: 11/02/2016 16:33
Sample ID: WG590133-03 LCS2 File ID: 11M14892 Run Date: 11/02/2016 17:01

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
cis-1,3-Dichloropropene	20.0	23.1	115	20.0	25.6	128	10.1	70 - 130	30	
Chlorodibromomethane	20.0	22.7	113	20.0	24.2	121	6.57	60 - 135	30	
Dibromomethane	20.0	21.7	109	20.0	24.1	120	10.3	75 - 125	30	
Dichlorodifluoromethane	20.0	16.9	84.6	20.0	17.5	87.4	3.32	30 - 155	30	
Ethylbenzene	20.0	23.1	116	20.0	24.7	123	6.55	75 - 125	30	
Hexachlorobutadiene	20.0	25.0	125	20.0	26.8	134	7.01	50 - 140	30	
Isopropylbenzene	20.0	23.3	117	20.0	25.5	127	8.90	75 - 125	30	*
m-,p-Xylene	40.0	46.9	117	40.0	50.3	126	6.96	75 - 130	30	
Methylene chloride	20.0	20.8	104	20.0	23.3	116	11.1	55 - 140	30	
n-Butylbenzene	20.0	24.2	121	20.0	25.8	129	6.77	70 - 135	30	
n-Propylbenzene	20.0	25.6	128	20.0	27.3	137	6.42	70 - 130	30	*
Naphthalene	20.0	22.7	114	20.0	24.6	123	7.78	55 - 140	30	
o-Xylene	20.0	23.5	117	20.0	25.5	127	8.13	80 - 120	30	*
p-Isopropyltoluene	20.0	25.4	127	20.0	27.5	138	7.85	75 - 130	30	*
sec-Butylbenzene	20.0	25.7	128	20.0	27.1	136	5.47	70 - 125	30	*
Styrene	20.0	23.2	116	20.0	25.2	126	8.14	65 - 135	30	
tert-Butylbenzene	20.0	25.2	126	20.0	27.1	136	7.30	70 - 130	30	*
Tetrachloroethene	20.0	22.5	112	20.0	24.0	120	6.76	45 - 150	30	
Toluene	20.0	23.0	115	20.0	24.9	125	7.98	75 - 120	30	*
trans-1,2-Dichloroethene	20.0	20.8	104	20.0	22.5	112	7.47	60 - 140	30	
trans-1,3-Dichloropropene	20.0	21.9	110	20.0	23.4	117	6.70	55 - 140	30	
Trichlorofluoromethane	20.0	20.2	101	20.0	21.4	107	5.51	60 - 145	30	
Vinyl chloride	20.0	19.0	95.1	20.0	23.2	116	19.9	50 - 145	30	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
1,2-Dichloroethane-d4	95.8	97.3	70 - 120	PASS
Dibromofluoromethane	99.4	101	85 - 115	PASS
4-Bromofluorobenzene	97.9	95.6	75 - 120	PASS
Toluene-d8	100	101	85 - 120	PASS

* EXCEEDS %REC LIMIT

\# EXCEEDS RPD LIMIT

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5014967
Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: ADC Prep Method: 5030B/5030C/503
Instrument ID: HPMS11 Matrix: Water Method: 8260B
Workgroup (AAB#): WG590292 Units: ug/L
QC Key: DOD4 Lot #: STD78491

Sample ID: WG590292-02 LCS File ID: 11M14920 Run Date: 11/03/2016 17:38
Sample ID: WG590292-03 LCS2 File ID: 11M14921 Run Date: 11/03/2016 18:08

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,1,1,2-Tetrachloroethane	20.0	23.8	119	20.0	22.4	112	6.31	80 - 130	30	
1,1,1-Trichloroethane	20.0	21.8	109	20.0	21.5	108	1.44	65 - 130	30	
1,1,2,2-Tetrachloroethane	20.0	25.0	125	20.0	23.0	115	8.39	65 - 130	30	
1,1,2-Trichloroethane	20.0	24.1	120	20.0	22.6	113	6.31	75 - 125	30	
1,1-Dichloroethane	20.0	21.5	108	20.0	20.8	104	3.25	70 - 135	30	
1,1-Dichloroethene	20.0	19.7	98.6	20.0	19.2	96.0	2.64	70 - 130	30	
1,1-Dichloropropene	20.0	21.5	107	20.0	20.2	101	6.25	75 - 130	30	
1,2,3-Trichlorobenzene	20.0	23.5	117	20.0	22.3	112	4.95	55 - 140	30	
1,2,3-Trichloropropane	20.0	25.2	126	20.0	23.8	119	5.55	75 - 125	30	*
1,2,4-Trichlorobenzene	20.0	23.3	117	20.0	22.9	114	1.74	65 - 135	30	
1,2,4-Trimethylbenzene	20.0	26.3	131	20.0	25.8	129	1.84	75 - 130	30	*
1,2-Dibromo-3-chloropropane	20.0	23.5	117	20.0	21.7	109	7.68	50 - 130	30	
1,2-Dibromoethane	20.0	23.3	116	20.0	22.4	112	4.01	80 - 120	30	
1,2-Dichlorobenzene	20.0	24.8	124	20.0	23.9	120	3.71	70 - 120	30	*
1,2-Dichloroethane	20.0	21.4	107	20.0	20.2	101	5.39	70 - 130	30	
1,2-Dichloropropane	20.0	23.1	116	20.0	22.0	110	5.00	75 - 125	30	
1,3,5-Trimethylbenzene	20.0	26.3	131	20.0	25.9	129	1.67	75 - 130	30	*
1,3-Dichlorobenzene	20.0	24.2	121	20.0	23.4	117	3.20	75 - 125	30	
1,3-Dichloropropane	20.0	24.7	124	20.0	22.9	114	7.62	75 - 125	30	
1,4-Dichlorobenzene	20.0	23.6	118	20.0	23.2	116	1.69	75 - 125	30	
2,2-Dichloropropane	20.0	21.2	106	20.0	20.8	104	1.81	70 - 135	30	
2-Butanone	20.0	18.9	94.7	20.0	16.8	83.9	12.0	30 - 150	30	
2-Chlorotoluene	20.0	25.3	126	20.0	24.5	122	3.19	75 - 125	30	*
2-Hexanone	20.0	18.1	90.3	20.0	16.2	81.2	10.6	55 - 130	30	
4-Chlorotoluene	20.0	25.7	128	20.0	25.2	126	1.97	75 - 130	30	
4-Methyl-2-pentanone	20.0	18.7	93.4	20.0	17.6	88.2	5.72	60 - 135	30	
Acetone	20.0	19.3	96.6	20.0	17.2	85.8	11.8	40 - 140	30	
Benzene	20.0	22.3	111	20.0	21.5	108	3.35	80 - 120	30	
Bromobenzene	20.0	24.1	121	20.0	23.3	116	3.73	75 - 125	30	
Bromochloromethane	20.0	22.7	113	20.0	21.1	106	7.11	65 - 130	30	
Bromodichloromethane	20.0	21.9	110	20.0	20.7	104	5.59	75 - 120	30	
Bromoform	20.0	22.2	111	20.0	20.8	104	6.26	70 - 130	30	
Bromomethane	20.0	21.4	107	20.0	20.0	99.9	6.65	30 - 145	30	
Carbon disulfide	20.0	17.5	87.3	20.0	17.1	85.3	2.29	35 - 160	30	
Carbon tetrachloride	20.0	21.4	107	20.0	20.9	105	2.39	65 - 140	30	
Chlorobenzene	20.0	23.4	117	20.0	22.3	111	4.91	80 - 120	30	
Chloroethane	20.0	20.3	102	20.0	19.7	98.5	3.09	60 - 135	30	
Chloroform	20.0	21.8	109	20.0	20.9	105	4.29	65 - 135	30	
Chloromethane	20.0	19.0	94.8	20.0	18.1	90.6	4.53	40 - 125	30	
cis-1,2-Dichloroethene	20.0	22.2	111	20.0	21.4	107	3.68	70 - 125	30	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5014967
Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: ADC Prep Method: 5030B/5030C/503
Instrument ID: HPMS11 Matrix: Water Method: 8260B
Workgroup (AAB#): WG590292 Units: ug/L
QC Key: DOD4 Lot #: STD78491

Sample ID: WG590292-02 LCS File ID: 11M14920 Run Date: 11/03/2016 17:38
Sample ID: WG590292-03 LCS2 File ID: 11M14921 Run Date: 11/03/2016 18:08

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
cis-1,3-Dichloropropene	20.0	23.8	119	20.0	22.7	113	4.62	70 - 130	30	
Chlorodibromomethane	20.0	23.1	116	20.0	21.7	108	6.47	60 - 135	30	
Dibromomethane	20.0	22.6	113	20.0	21.0	105	7.46	75 - 125	30	
Dichlorodifluoromethane	20.0	15.8	78.8	20.0	15.3	76.6	2.74	30 - 155	30	
Ethylbenzene	20.0	24.0	120	20.0	22.7	114	5.48	75 - 125	30	
Hexachlorobutadiene	20.0	25.8	129	20.0	25.2	126	2.42	50 - 140	30	
Isopropylbenzene	20.0	23.9	119	20.0	23.1	116	3.08	75 - 125	30	
m-,p-Xylene	40.0	47.9	120	40.0	46.5	116	2.93	75 - 130	30	
Methylene chloride	20.0	21.1	106	20.0	20.5	102	3.13	55 - 140	30	
n-Butylbenzene	20.0	24.7	123	20.0	23.9	120	3.10	70 - 135	30	
n-Propylbenzene	20.0	26.1	131	20.0	25.6	128	2.02	70 - 130	30	*
Naphthalene	20.0	25.7	128	20.0	24.1	120	6.49	55 - 140	30	
o-Xylene	20.0	24.2	121	20.0	23.5	118	2.64	80 - 120	30	*
p-Isopropyltoluene	20.0	26.5	133	20.0	26.2	131	1.30	75 - 130	30	*
sec-Butylbenzene	20.0	26.2	131	20.0	25.6	128	2.27	70 - 125	30	*
Styrene	20.0	24.3	121	20.0	23.3	117	3.86	65 - 135	30	
tert-Butylbenzene	20.0	26.4	132	20.0	25.8	129	2.19	70 - 130	30	*
Tetrachloroethene	20.0	22.7	114	20.0	22.3	111	2.11	45 - 150	30	
Toluene	20.0	23.9	119	20.0	23.1	115	3.26	75 - 120	30	
trans-1,2-Dichloroethene	20.0	20.3	101	20.0	20.3	101	0.0170	60 - 140	30	
trans-1,3-Dichloropropene	20.0	22.8	114	20.0	21.7	108	5.14	55 - 140	30	
Trichloroethene	20.0	21.7	108	20.0	21.3	106	1.95	70 - 125	30	
Trichlorofluoromethane	20.0	19.0	95.1	20.0	18.5	92.5	2.81	60 - 145	30	
Vinyl chloride	20.0	20.1	100	20.0	19.5	97.6	2.76	50 - 145	30	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
1,2-Dichloroethane-d4	87.4	90.2	70 - 120	PASS
Dibromofluoromethane	94.3	97.0	85 - 115	PASS
4-Bromofluorobenzene	96.7	104	75 - 120	PASS
Toluene-d8	98.0	103	85 - 120	PASS

* EXCEEDS %REC LIMIT

EXCEEDS RPD LIMIT

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5014967
Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L16110074
Instrument: HPMS11
Analyst: JDS
Workgroup: WG580279

Tune ID: WG580279-01
Run Date: 08/15/2016
Run Time: 14:52
File ID: 11M13628
Cal ID: HPMS11-15-AUG-16

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	18.7	13531	PASS
75.0	95.0	30.0	60.0	47.0	33928	PASS
95.0	95.0	100	100	100	72218	PASS
96.0	95.0	5.00	9.00	6.65	4803	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	99.7	72018	PASS
175	174	5.00	9.00	7.96	5730	PASS
176	174	95.0	101	97.1	69941	PASS
177	176	5.00	9.00	6.46	4520	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG580279-02	STD	01	08/15/2016 15:17	
WG580279-03	STD	01	08/15/2016 15:46	
WG580279-04	STD	01	08/15/2016 16:16	
WG580279-05	STD-CCV	01	08/15/2016 16:45	
WG580279-06	STD	01	08/15/2016 17:14	
WG580279-07	STD	01	08/15/2016 17:43	
WG580279-08	STD	01	08/15/2016 18:12	
WG580279-09	STD	01	08/15/2016 18:41	
WG580279-10	SSCV	01	08/15/2016 19:39	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5014969
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L16110074
Instrument: HPMS11
Analyst: FJB
Workgroup: WG587480

Tune ID: WG587480-01
Run Date: 10/13/2016
Run Time: 12:50
File ID: 11M14499
Cal ID: HPMS11-13-OCT-16

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	25.3	15619	PASS
75.0	95.0	30.0	60.0	46.1	28389	PASS
95.0	95.0	100	100	100	61637	PASS
96.0	95.0	5.00	9.00	6.76	4166	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	90.3	55672	PASS
175	174	5.00	9.00	7.65	4260	PASS
176	174	95.0	101	97.7	54378	PASS
177	176	5.00	9.00	6.22	3381	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG587480-02	STD	01	10/13/2016 13:42	
WG587480-03	STD	01	10/13/2016 14:11	
WG587480-04	STD	01	10/13/2016 14:40	
WG587480-05	STD	01	10/13/2016 15:09	
WG587480-06	STD	01	10/13/2016 15:38	
WG587480-07	STD	01	10/13/2016 16:07	
WG587480-08	STD-CCV	01	10/13/2016 16:36	
WG587480-09	STD	01	10/13/2016 17:05	
WG587480-10	STD	01	10/13/2016 17:33	
WG587480-11	STD	01	10/13/2016 18:03	
WG587480-12	SSCV	01	10/13/2016 19:00	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5014969
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L16110074
Instrument: HPMS11
Analyst: ADC
Workgroup: WG590132

Tune ID: WG590132-01
Run Date: 11/02/2016
Run Time: 14:41
File ID: 11M14887
Cal ID: HPMS11-13-OCT-16

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	26.2	5530	PASS
75.0	95.0	30.0	60.0	47.2	9953	PASS
95.0	95.0	100	100	100	21068	PASS
96.0	95.0	5.00	9.00	7.78	1640	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	91.0	19166	PASS
175	174	5.00	9.00	7.77	1489	PASS
176	174	95.0	101	95.3	18266	PASS
177	176	5.00	9.00	8.21	1500	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG590132-02	CCV	01	11/02/2016 15:06	
WG590133-01	BLANK	01	11/02/2016 16:04	
WG590133-02	LCS	01	11/02/2016 16:33	
WG590133-03	LCS2	01	11/02/2016 17:01	
L16110074-05	50WW11-110116	01	11/02/2016 22:18	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5014969
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L16110074
Instrument: HPMS11
Analyst: ADC
Workgroup: WG590291

Tune ID: WG590291-01
Run Date: 11/03/2016
Run Time: 15:45
File ID: 11M14916
Cal ID: HPMS11-13-OCT-16

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	23.2	6399	PASS
75.0	95.0	30.0	60.0	45.6	12545	PASS
95.0	95.0	100	100	100	27538	PASS
96.0	95.0	5.00	9.00	6.66	1835	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	88.1	24261	PASS
175	174	5.00	9.00	7.96	1931	PASS
176	174	95.0	101	101	24496	PASS
177	176	5.00	9.00	5.94	1456	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG590291-02	CCV	01	11/03/2016 16:11	
WG590292-01	BLANK	01	11/03/2016 17:10	
WG590292-02	LCS	01	11/03/2016 17:38	
WG590292-03	LCS2	01	11/03/2016 18:08	
L16110074-05	50WW11-110116	DL01	11/03/2016 19:06	
L16110074-01	50WW13-110116	DL01	11/03/2016 19:35	
L16110074-13	TRIP BLANK	01	11/03/2016 21:02	
L16110074-03	50WW14-110116	01	11/03/2016 22:30	
L16110074-07	50WW06-110116	01	11/03/2016 23:00	
L16110074-09	50WW12-110116	01	11/03/2016 23:29	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5014969
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L16110074
Instrument: HPMS11
Analyst: ADC
Workgroup: WG591384

Tune ID: WG591384-01
Run Date: 11/11/2016
Run Time: 14:15
File ID: 11M15138
Cal ID: HPMS11-13-OCT-16

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	22.8	4430	PASS
75.0	95.0	30.0	60.0	48.2	9359	PASS
95.0	95.0	100	100	100	19418	PASS
96.0	95.0	5.00	9.00	7.45	1446	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	93.6	18182	PASS
175	174	5.00	9.00	5.25	954	PASS
176	174	95.0	101	97.8	17783	PASS
177	176	5.00	9.00	5.84	1039	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG591384-02	CCV	01	11/11/2016 14:39	
WG591385-01	BLANK	01	11/11/2016 15:37	
WG591385-02	LCS	01	11/11/2016 16:06	
WG591385-03	LCS2	01	11/11/2016 16:35	
L16110074-11	50WW23-110116	01	11/11/2016 20:56	
WG590560-01	FBLK1	DL01	11/12/2016 01:43	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5014969
Report generated 11/17/2016 09:59

Calibration Table Report
Method: A9FOOWT.M
Title: Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Calibration: Tue Aug 16 08:51:14 2016
Curve: WG580279
Calibration Files

	Compound	5 11M13629.D	20 11M13630.D	50 11M13631.D	100 11M13632.D	200 11M13633.D	300 11M13634.D	400 11M13635.D	500 11M13636.D	Avg	%RSD	Linear	Quadratic
I	Fluorobenzene	ISTD											
T	Acetonitrile	0.023	0.028	0.031	0.032	0.030	0.030	0.031	0.031	0.030	9.602		
T	3-Chloro-1-propene	0.458	0.455	0.479	0.505	0.501	0.481	0.479	0.471	0.479	3.715		
T	2-Chloro-1,3-butadiene	0.450	0.440	0.476	0.519	0.524	0.502	0.502	0.496	0.489	6.315		
T	Methacrylonitrile	0.156	0.164	0.181	0.186	0.186	0.180	0.181	0.184	0.177	6.206		
T	Isobutyl Alcohol		0.009	0.011	0.011	0.011	0.011	0.012	0.012	0.011	8.727		
T	1-Butanol			0.005	0.006	0.006	0.006	0.006	0.007	0.006	10.257		
T	Cyclohexanone		0.013	0.017	0.017	0.018	0.018	0.019	0.020	0.017	11.772		
T	2-Nitropropane			0.076	0.085	0.089	0.087	0.089	0.091	0.086	6.168		
T	Ethyl Acetate	0.201	0.224	0.244	0.257	0.258	0.249	0.251	0.255	0.242	8.192		
T	Methyl methacrylate	0.177	0.197	0.221	0.234	0.238	0.230	0.233	0.236	0.221	10.109		
I	Chlorobenzene-d5	ISTD											
I	1,4-Dichlorobenzene-d4	ISTD											

Tue Aug 16 09:27:52 2016

Calibration Table Report
Method: 8260WT.M
Title: 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Calibration: Fri Oct 14 09:20:10 2016
Curve: WG587480
Calibration Files

		0.3	0.4	1	2	5	20	50	100	200	300				
		11M14501.D	11M14502.D	11M14503.D	11M14504.D	11M14505.D	11M14506.D	11M14507.D	11M14508.D	11M14509.D	11M14510.D				
	Compound											Avg	%RSD	Linear	Quadratic
I	Fluorobenzene	ISTD													
T	Dichlorodifluoromethane			0.401	0.356	0.382	0.443	0.465	0.462	0.447	0.436	0.424	9.339		
P	Chloromethane			0.600	0.411	0.448	0.450	0.446	0.436			0.465	14.492		
C	Vinyl Chloride		0.444	0.414	0.383	0.405	0.414	0.432	0.425	0.414	0.402	0.415	4.276		
T	1,3-Butadiene					0.396	0.400	0.340	0.299	0.293	0.298	0.338	14.694		
T	Bromomethane			0.198	0.189	0.186	0.177	0.196	0.212	0.221	0.229	0.201	8.942		
T	Chloroethane			0.234	0.236	0.242	0.245	0.252	0.248	0.244	0.243	0.243	2.364		
T	Trichlorofluoromethane		0.405	0.496	0.460	0.506	0.486	0.507	0.502	0.490	0.494	0.483	6.725		
T	Diethyl ether			0.221	0.229	0.247	0.241	0.239	0.240		0.236	0.236	3.739		
T	Isoprene					0.431	0.443	0.444	0.445	0.436	0.445	0.441	1.343		
T	Acrolein			0.023	0.017	0.021	0.019	0.018	0.019		0.020	0.020	10.804		
T	1,1,2-Trichloro-1,2,2-Trifluor			0.246	0.240	0.259	0.262	0.274	0.269	0.262	0.266	0.260	4.446		
T	Acetone					0.110	0.094	0.091	0.094	0.100	0.094	0.097	7.304		
C	1,1-Dichloroethene		0.497	0.484	0.509	0.519	0.515	0.539	0.537	0.519	0.525	0.516	3.420		
T	Tert-Butyl Alcohol			0.023	0.023	0.027	0.026	0.024	0.026		0.027	0.025	7.707		
T	Dimethyl Sulfide					0.352	0.353	0.354	0.357	0.351	0.354	0.354	0.652		
T	Iodomethane			0.145	0.169	0.230	0.334	0.349	0.339	0.305	0.284	0.269	29.353		1.000
T	Methyl acetate				0.275	0.302	0.289	0.274	0.284	0.287	0.292	0.286	3.435		
T	Methylene Chloride		0.310	0.311	0.286	0.289	0.290	0.297	0.290	0.283	0.284	0.293	3.636		
T	Carbon Disulfide			0.886	0.836	0.845	0.870	0.871	0.867	0.837	0.830	0.855	2.402		
T	Acrylonitrile			0.117	0.116	0.131	0.132	0.134	0.137		0.146	0.130	8.262		
T	Methyl Tert Butyl Ether			0.682	0.669	0.721	0.738	0.737	0.739	0.740	0.743	0.721	4.063		
T	trans-1,2-Dichloroethene		0.301	0.287	0.293	0.294	0.284	0.296	0.296	0.288	0.291	0.292	1.802		
T	n-Hexane				0.471	0.478	0.520	0.516	0.512	0.493	0.509	0.500	3.901		
T	Diisopropyl ether			1.361	1.391	1.483	1.466	1.443	1.423		1.331	1.414	3.949		
T	Vinyl Acetate					0.769	0.767	0.764	0.751	0.757	0.728	0.756	2.003		
P	1,1-Dichloroethane		0.623	0.591	0.567	0.614	0.597	0.617	0.606	0.588	0.589	0.599	2.948		
T	Ethyl-Tert-Butyl ether			0.992	1.028	1.092	1.079	1.060	1.060		1.030	1.049	3.286		
T	2-Butanone					0.171	0.164	0.158	0.161	0.164	0.161	0.163	2.798		
T	Propionitrile			0.045	0.042	0.047	0.047	0.044	0.046		0.046	0.045	3.842		
T	2,2-Dichloropropane		0.467	0.393	0.387	0.412	0.396	0.413	0.408	0.399	0.401	0.408	5.773		
T	cis-1,2-Dichloroethene		0.342	0.281	0.326	0.324	0.319	0.335	0.329	0.320	0.321	0.322	5.277		
C	Chloroform	0.591	0.531	0.549	0.500	0.533	0.510	0.523	0.515	0.503	0.502	0.526	5.310		
T	1-Bromopropane				0.049	0.053	0.056	0.056	0.058	0.056	0.059	0.055	5.845		
T	Bromochloromethane		0.209	0.200	0.210	0.211	0.212	0.209	0.207	0.204	0.206	0.208	1.767		
T	Tetrahydrofuran			0.166	0.112	0.117	0.115	0.107	0.109		0.108	0.119	17.669	0.999	
S	Dibromofluoromethane				0.288	0.307	0.308	0.305	0.307	0.293	0.296	0.301	2.637		
T	1,1,1-Trichloroethane		0.459	0.460	0.440	0.454	0.454	0.480	0.479	0.472	0.474	0.464	2.918		
T	Cyclohexane		0.638	0.670	0.662	0.708	0.686	0.695	0.695	0.676	0.687	0.680	3.076		
T	1,1-Dichloropropene		0.402	0.392	0.357	0.390	0.371	0.394	0.389	0.379	0.380	0.384	3.525		
T	Carbon Tetrachloride		0.413	0.434	0.402	0.427	0.432	0.454	0.448	0.442	0.445	0.433	3.928		
T	Tert-Amyl-Methyl ether			0.672	0.675	0.739	0.737	0.715	0.723		0.710	0.710	3.826		
S	1,2-Dichloroethane-d4				0.332	0.343	0.349	0.341	0.341	0.327	0.331	0.338	2.297		
T	1,2-Dichloroethane		0.440	0.453	0.422	0.463	0.460	0.464	0.462	0.454	0.448	0.452	3.049		
T	Benzene		1.150	1.207	1.118	1.174	1.146	1.171	1.139	1.076	1.022	1.134	4.926		
T	Trichloroethene		0.343	0.319	0.311	0.334	0.325	0.333	0.332	0.324	0.329	0.328	2.809		
T	Methylcyclohexane		0.411	0.454	0.418	0.439	0.459	0.456	0.461	0.446	0.456	0.444	4.104		
C	1,2-Dichloropropane		0.329	0.323	0.316	0.350	0.339	0.343	0.341	0.333	0.334	0.334	3.170		
T	1,4-Dioxane				0.002	0.002	0.002	0.002	0.002		0.003	0.002	10.172		
T	Bromodichloromethane		0.400	0.386	0.363	0.405	0.395	0.412	0.409	0.402	0.403	0.397	3.746		
T	Dibromomethane		0.198	0.166	0.174	0.171	0.174	0.178	0.180	0.175	0.176	0.177	4.959		
T	2-Chloroethyl Vinyl Ether					0.182	0.194	0.194	0.201	0.203	0.201	0.196	3.929		
T	4-Methyl-2-Pentanone					0.114	0.116	0.115	0.121	0.127	0.128	0.120	5.086		
T	cis-1,3-Dichloropropene		0.423	0.405	0.392	0.437	0.456	0.466	0.463	0.456	0.454	0.439	6.087		
T	Dimethyl Disulfide					0.219	0.255	0.268	0.277	0.279	0.283	0.264	9.215		

I	Chlorobenzene-d5	ISTD											
S	Toluene-d8				1.329	1.388	1.379	1.343	1.346	1.248	1.240	1.325	4.444
C	Toluene		1.590	1.657	1.547	1.684	1.662	1.627	1.587	1.463	1.352	1.574	6.824
T	Ethyl Methacrylate			0.318	0.370	0.392	0.434	0.412	0.425	0.436	0.431	0.402	10.197
T	trans-1,3-Dichloropropene			0.481	0.479	0.515	0.536	0.533	0.535	0.529	0.516	0.515	4.559
T	1,1,2-Trichloroethane		0.276	0.310	0.286	0.321	0.325	0.316	0.310	0.309	0.304	0.306	5.213
T	2-Hexanone					0.328	0.323	0.306	0.325	0.349	0.350	0.330	5.055
T	1,3-Dichloropropane		0.564	0.503	0.475	0.544	0.532	0.514	0.511	0.502	0.488	0.515	5.413
T	Tetrachloroethene		0.357	0.390	0.314	0.339	0.346	0.337	0.335	0.328	0.330	0.342	6.393
T	Dibromochloromethane		0.397	0.375	0.376	0.416	0.429	0.420	0.428	0.429	0.425	0.411	5.410
T	1,2-Dibromoethane		0.323	0.295	0.293	0.319	0.334	0.317	0.320	0.320	0.317	0.315	4.182
T	1-Chlorohexane		0.473	0.516	0.461	0.512	0.529	0.523	0.525	0.518	0.515	0.508	4.714
P	Chlorobenzene		1.234	1.172	1.089	1.173	1.134	1.124	1.104	1.048	0.977	1.117	6.729
T	1,1,1,2-Tetrachloroethane		0.334	0.391	0.388	0.426	0.411	0.412	0.410	0.410	0.404	0.398	6.717
C	Ethylbenzene		0.553	0.607	0.537	0.582	0.585	0.588	0.573	0.567	0.549	0.571	3.886
T	m-,p-Xylene		0.695	0.678	0.665	0.716	0.707	0.694	0.684	0.635	0.583	0.673	6.156
T	o-Xylene		0.629	0.672	0.600	0.669	0.688	0.691	0.686	0.673	0.650	0.662	4.620
T	Styrene		1.061	1.059	1.044	1.159	1.191	1.196	1.187	1.147	1.070	1.124	5.688
P	Bromoform			0.223	0.229	0.254	0.273	0.273	0.278	0.298	0.303	0.266	10.978
T	Isopropylbenzene		1.737	1.686	1.635	1.777	1.780	1.780	1.760	1.644	1.465	1.696	6.131
I	1,4-Dichlorobenzene-d4	ISTD											
P	1,1,2,2-Tetrachloroethane		0.736	0.683	0.668	0.745	0.724	0.696	0.718	0.693	0.683	0.705	3.745
S	p-Bromofluorobenzene				1.024	1.101	1.033	0.999	1.034	0.918	0.893	1.000	7.208
T	1,2,3-Trichloropropane			0.191	0.206	0.228	0.226	0.214	0.220	0.214	0.210	0.214	5.547
T	trans-1,4-Dichloro-2-Butene			0.250	0.250	0.272	0.316	0.295	0.311	0.306	0.304	0.288	9.383
T	n-Propylbenzene		3.897	3.725	3.669	4.141	4.053	4.048	3.949	3.271	2.723	3.720	12.310
T	Bromobenzene	1.078	1.052	0.932	0.941	0.973	0.962	0.942	0.952	0.872	0.830	0.953	7.692
T	1,3,5-Trimethylbenzene		2.705	2.533	2.644	2.815	2.903	2.856	2.853	2.504	2.198	2.668	8.522
T	2-Chlorotoluene		2.556	2.381	2.372	2.557	2.499	2.459	2.413	2.101	1.846	2.354	9.971
T	4-Chlorotoluene		2.512	2.623	2.353	2.695	2.559	2.536	2.490	2.213	1.594	2.397	13.898
T	a-Methylstyrene			1.535	1.396	1.581	1.678	1.639	1.685	1.554	1.477	1.568	6.380
T	tert-Butylbenzene		0.512	0.572	0.570	0.646	0.609	0.617	0.612	0.568	0.546	0.584	7.055
T	1,2,4-Trimethylbenzene		2.790	2.701	2.623	2.973	2.949	2.943	2.917	2.562	2.242	2.745	8.807
T	sec-Butylbenzene			3.527	3.319	3.664	3.587	3.624	3.586	3.083	2.638	3.378	10.557
T	p-Isopropyltoluene			2.850	2.872	3.164	3.118	3.166	3.160	2.780	2.410	2.940	9.098
T	1,3-Dichlorobenzene		1.939	1.745	1.670	1.831	1.825	1.783	1.803	1.658	1.565	1.758	6.373
T	1,4-Dichlorobenzene	1.992	1.832	1.939	1.755	1.868	1.788	1.791	1.818	1.664	1.563	1.801	6.911
T	n-Butylbenzene		2.959	2.701	2.657	2.875	2.875	2.919	2.924	2.623	2.290	2.758	7.817
T	1,2-Dichlorobenzene	1.777	1.675	1.662	1.599	1.787	1.702	1.684	1.740	1.619	1.545	1.679	4.612
T	1,2-Dibromo-3-Chloropropane				0.121	0.127	0.134	0.132	0.141	0.147	0.146	0.136	7.229
T	1,2,4-Trichlorobenzene		1.356	1.210	1.068	1.225	1.224	1.248	1.311	1.319	1.246	1.245	6.695
T	Hexachlorobutadiene		0.541	0.460	0.439	0.496	0.465	0.472	0.508	0.511	0.495	0.487	6.436
T	Naphthalene		2.466	2.353	2.270	2.667	2.788	2.758	2.883	2.765	2.348	2.589	8.875
T	1,2,3-Trichlorobenzene	1.536	1.173	1.135	1.049	1.125	1.176	1.155	1.233	1.256	1.177	1.201	10.880

Fri Oct 14 09:30:30 2016

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number:L16110074 Run Date:10/13/2016 Sample ID:WG587480-12
Instrument ID:HPMS11 Run Time:19:00 Method:8260B
File ID:11M14512 Analyst:FJB QC Key:DOD4
ICal Workgroup:WG587480 Cal ID:HPMS11 - 13-OCT-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chloroform	CCC	50.0	51.0	ug/L	0.536	1.90	20	
1,1-Dichloroethene	CCC	50.0	50.2	ug/L	0.518	0.300	20	
1,2-Dichloropropane	CCC	50.0	51.4	ug/L	0.344	2.80	20	
Ethylbenzene	CCC	50.0	50.9	ug/L	0.582	1.90	20	
Toluene	CCC	50.0	51.6	ug/L	1.62	3.10	20	
Vinyl Chloride	CCC	50.0	55.5	ug/L	0.460	11.0	20	
Bromoform	SPCC	50.0	50.2	ug/L	0.268	0.500	20	
Chlorobenzene	SPCC	50.0	49.5	ug/L	1.11	1.00	20	
Chloromethane	SPCC	50.0	51.7	ug/L	0.481	3.30	20	
1,1-Dichloroethane	SPCC	50.0	51.1	ug/L	0.613	2.30	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	50.9	ug/L	0.718	1.90	20	
Acetone		50.0	51.9	ug/L	0.101	3.80	20	
Benzene		50.0	52.0	ug/L	1.18	4.00	20	
Bromobenzene		50.0	47.9	ug/L	0.914	4.10	20	
Bromochloromethane		50.0	51.9	ug/L	0.216	3.80	20	
Bromodichloromethane		50.0	50.1	ug/L	0.398	0.300	20	
Bromomethane		50.0	51.9	ug/L	0.209	3.90	20	
2-Butanone		50.0	52.5	ug/L	0.171	4.90	20	
n-Butylbenzene		50.0	52.4	ug/L	2.89	4.70	20	
sec-Butylbenzene		50.0	51.6	ug/L	3.49	3.30	20	
tert-Butylbenzene		50.0	51.7	ug/L	0.603	3.30	20	
Carbon Disulfide		50.0	47.8	ug/L	0.817	4.50	20	
Carbon Tetrachloride		50.0	52.9	ug/L	0.458	5.70	20	
Dibromochloromethane		50.0	50.3	ug/L	0.413	0.500	20	
Chloroethane		50.0	55.1	ug/L	0.268	10.2	20	
2-Chlorotoluene		50.0	50.9	ug/L	2.40	1.80	20	
4-Chlorotoluene		50.0	51.6	ug/L	2.48	3.20	20	
1,2-Dibromo-3-Chloropropane		50.0	55.5	ug/L	0.150	10.9	20	
1,2-Dibromoethane		50.0	50.1	ug/L	0.316	0.300	20	
Dibromomethane		50.0	51.2	ug/L	0.181	2.40	20	
1,2-Dichlorobenzene		50.0	52.8	ug/L	1.77	5.60	20	
1,3-Dichlorobenzene		50.0	50.3	ug/L	1.77	0.600	20	
1,4-Dichlorobenzene		50.0	50.3	ug/L	1.81	0.600	20	
Dichlorodifluoromethane		50.0	56.2	ug/L	0.477	12.4	20	
1,2-Dichloroethane		50.0	50.8	ug/L	0.459	1.60	20	
cis-1,2-Dichloroethene		50.0	51.8	ug/L	0.334	3.60	20	
trans-1,2-Dichloroethene		50.0	51.8	ug/L	0.303	3.60	20	
1,3-Dichloropropane		50.0	51.8	ug/L	0.533	3.50	20	
2,2-Dichloropropane		50.0	53.4	ug/L	0.436	6.80	20	
cis-1,3-Dichloropropene		50.0	56.8	ug/L	0.499	13.5	20	
trans-1,3-Dichloropropene		50.0	51.4	ug/L	0.530	2.80	20	
1,1-Dichloropropene		50.0	52.0	ug/L	0.399	4.10	20	

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5014968
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L16110074 Run Date: 10/13/2016 Sample ID: WG587480-12
Instrument ID: HPMS11 Run Time: 19:00 Method: 8260B
File ID: 11M14512 Analyst: FJB QC Key: DOD4
ICal Workgroup: WG587480 Cal ID: HPMS11 - 13-OCT-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
2-Hexanone		50.0	50.7	ug/L	0.335	1.40	20	
Hexachlorobutadiene		50.0	56.2	ug/L	0.548	12.4	20	
Isopropylbenzene		50.0	51.9	ug/L	1.76	3.80	20	
p-Isopropyltoluene		50.0	53.7	ug/L	3.16	7.40	20	
4-Methyl-2-Pentanone		50.0	52.1	ug/L	0.125	4.10	20	
Methylene Chloride		50.0	50.2	ug/L	0.295	0.500	20	
Naphthalene		50.0	62.7	ug/L	3.24	25.3	20	*
n-Propylbenzene		50.0	53.1	ug/L	3.95	6.20	20	
Styrene		50.0	53.5	ug/L	1.20	7.00	20	
1,1,1,2-Tetrachloroethane		50.0	50.5	ug/L	0.402	0.900	20	
Tetrachloroethene		50.0	51.2	ug/L	0.350	2.50	20	
1,2,3-Trichlorobenzene		50.0	57.2	ug/L	1.38	14.5	20	
1,2,4-Trichlorobenzene		50.0	58.2	ug/L	1.45	16.3	20	
1,1,1-Trichloroethane		50.0	54.1	ug/L	0.502	8.30	20	
1,1,2-Trichloroethane		50.0	50.8	ug/L	0.311	1.50	20	
Trichloroethene		50.0	51.3	ug/L	0.337	2.60	20	
Trichlorofluoromethane		50.0	51.8	ug/L	0.500	3.60	20	
1,2,3-Trichloropropane		50.0	51.9	ug/L	0.222	3.80	20	
1,2,4-Trimethylbenzene		50.0	52.4	ug/L	2.88	4.80	20	
1,3,5-Trimethylbenzene		50.0	52.4	ug/L	2.80	4.80	20	
o-Xylene		50.0	52.5	ug/L	0.695	5.00	20	
m-,p-Xylene		100	106	ug/L	0.710	5.50	20	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5014968
Report generated 11/17/2016 09:59

Login Number: L16110074 Run Date: 11/02/2016 Sample ID: WG590132-02
Instrument ID: HPMS11 Run Time: 15:06 Method: 8260B
File ID: 11M14888 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG590133 Cal ID: HPMS11 - 13-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloroform	CCC	50.0	49.4	ug/L	0.519	1.30	20	
1,1-Dichloroethene	CCC	50.0	52.6	ug/L	0.543	5.22	20	
1,2-Dichloropropane	CCC	50.0	50.1	ug/L	0.335	0.258	20	
Ethylbenzene	CCC	50.0	50.2	ug/L	0.574	0.457	20	
Toluene	CCC	50.0	51.0	ug/L	1.61	2.01	20	
Vinyl Chloride	CCC	50.0	50.9	ug/L	0.422	1.74	20	
Bromoform	SPCC	50.0	47.3	ug/L	0.252	5.42	20	
Chlorobenzene	SPCC	50.0	49.3	ug/L	1.10	1.39	20	
Chloromethane	SPCC	50.0	54.7	ug/L	0.509	9.40	20	
1,1-Dichloroethane	SPCC	50.0	50.3	ug/L	0.603	0.626	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	46.1	ug/L	0.650	7.86	20	
Xylenes		150	153	ug/L	0.684	2.32	20	
Acetone		50.0	42.1	ug/L	0.0816	15.8	20	
Benzene		50.0	50.6	ug/L	1.15	1.30	20	
Bromobenzene		50.0	48.8	ug/L	0.930	2.44	20	
Bromochloromethane		50.0	49.1	ug/L	0.204	1.90	20	
Bromodichloromethane		50.0	51.1	ug/L	0.406	2.19	20	
Bromomethane		50.0	57.4	ug/L	0.231	14.8	20	
2-Butanone		50.0	41.1	ug/L	0.134	17.8	20	
n-Butylbenzene		50.0	57.2	ug/L	3.15	14.3	20	
sec-Butylbenzene		50.0	57.6	ug/L	3.89	15.1	20	
tert-Butylbenzene		50.0	55.7	ug/L	0.650	11.4	20	
Carbon Disulfide		50.0	49.8	ug/L	0.852	0.419	20	
Carbon Tetrachloride		50.0	53.8	ug/L	0.466	7.61	20	
Dibromochloromethane		50.0	50.0	ug/L	0.410	0.0366	20	
Chloroethane		50.0	51.5	ug/L	0.250	3.05	20	
2-Chlorotoluene		50.0	62.6	ug/L	2.95	25.3	20	*
4-Chlorotoluene		50.0	45.1	ug/L	2.16	9.87	20	
1,2-Dibromo-3-Chloropropane		50.0	45.5	ug/L	0.123	8.93	20	
1,2-Dibromoethane		50.0	46.7	ug/L	0.294	6.66	20	
Dibromomethane		50.0	47.8	ug/L	0.169	4.39	20	
1,2-Dichlorobenzene		50.0	51.4	ug/L	1.73	2.77	20	
1,3-Dichlorobenzene		50.0	52.2	ug/L	1.84	4.48	20	
1,4-Dichlorobenzene		50.0	50.3	ug/L	1.81	0.643	20	
Dichlorodifluoromethane		50.0	56.8	ug/L	0.482	13.6	20	
1,2-Dichloroethane		50.0	49.8	ug/L	0.449	0.490	20	
cis-1,2-Dichloroethene		50.0	50.9	ug/L	0.328	1.88	20	
trans-1,2-Dichloroethene		50.0	49.3	ug/L	0.288	1.44	20	
1,3-Dichloropropane		50.0	47.7	ug/L	0.492	4.52	20	
2,2-Dichloropropane		50.0	54.6	ug/L	0.446	9.30	20	
cis-1,3-Dichloropropene		50.0	51.2	ug/L	0.450	2.41	20	
trans-1,3-Dichloropropene		50.0	49.3	ug/L	0.508	1.47	20	

CCV - Modified 03/05/2008
PDF File ID: 5014970
Report generated 11/17/2016 09:59

Login Number: L16110074 Run Date: 11/02/2016 Sample ID: WG590132-02
Instrument ID: HPMS11 Run Time: 15:06 Method: 8260B
File ID: 11M14888 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG590133 Cal ID: HPMS11 - 13-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloropropene		50.0	51.1	ug/L	0.392	2.15	20	
2-Hexanone		50.0	37.7	ug/L	0.249	24.5	20	*
Hexachlorobutadiene		50.0	57.9	ug/L	0.565	15.9	20	
Isopropylbenzene		50.0	52.8	ug/L	1.79	5.59	20	
p-Isopropyltoluene		50.0	57.6	ug/L	3.38	15.1	20	
4-Methyl-2-Pentanone		50.0	38.5	ug/L	0.0925	23.0	20	*
Methylene Chloride		50.0	49.9	ug/L	0.293	0.251	20	
Naphthalene		50.0	48.9	ug/L	2.53	2.17	20	
n-Propylbenzene		50.0	57.2	ug/L	4.26	14.4	20	
Styrene		50.0	51.4	ug/L	1.15	2.75	20	
1,1,1,2-Tetrachloroethane		50.0	51.3	ug/L	0.409	2.53	20	
Tetrachloroethene		50.0	49.7	ug/L	0.339	0.684	20	
1,2,3-Trichlorobenzene		50.0	48.4	ug/L	1.16	3.13	20	
1,2,4-Trichlorobenzene		50.0	50.2	ug/L	1.25	0.390	20	
1,1,1-Trichloroethane		50.0	52.3	ug/L	0.485	4.61	20	
1,1,2-Trichloroethane		50.0	48.1	ug/L	0.295	3.72	20	
Trichlorofluoromethane		50.0	54.5	ug/L	0.526	8.91	20	
1,2,3-Trichloropropane		50.0	48.3	ug/L	0.206	3.48	20	
1,2,4-Trimethylbenzene		50.0	56.1	ug/L	3.08	12.2	20	
1,3,5-Trimethylbenzene		50.0	56.0	ug/L	2.99	12.1	20	
o-Xylene		50.0	51.3	ug/L	0.680	2.64	20	
m-,p-Xylene		100	102	ug/L	0.688	2.17	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5014970
Report generated 11/17/2016 09:59

Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590291-02
Instrument ID: HPMS11 Run Time: 16:11 Method: 8260B
File ID: 11M14917 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG590292 Cal ID: HPMS11 - 13-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloroform	CCC	50.0	46.7	ug/L	0.492	6.51	20	
1,1-Dichloroethene	CCC	50.0	48.9	ug/L	0.504	2.24	20	
1,2-Dichloropropane	CCC	50.0	49.2	ug/L	0.329	1.66	20	
Ethylbenzene	CCC	50.0	51.4	ug/L	0.587	2.80	20	
Toluene	CCC	50.0	51.3	ug/L	1.61	2.54	20	
Vinyl Chloride	CCC	50.0	51.1	ug/L	0.424	2.14	20	
Bromoform	SPCC	50.0	46.7	ug/L	0.249	6.57	20	
Chlorobenzene	SPCC	50.0	49.6	ug/L	1.11	0.851	20	
Chloromethane	SPCC	50.0	52.3	ug/L	0.487	4.64	20	
1,1-Dichloroethane	SPCC	50.0	49.2	ug/L	0.590	1.63	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	48.1	ug/L	0.678	3.82	20	
Xylenes		150	155	ug/L	0.688	3.23	20	
Acetone		50.0	41.8	ug/L	0.0810	16.5	20	
Benzene		50.0	49.4	ug/L	1.12	1.16	20	
Bromobenzene		50.0	50.1	ug/L	0.956	0.244	20	
Bromochloromethane		50.0	48.1	ug/L	0.200	3.86	20	
Bromodichloromethane		50.0	47.7	ug/L	0.379	4.57	20	
Bromomethane		50.0	54.2	ug/L	0.218	8.43	20	
2-Butanone		50.0	40.6	ug/L	0.132	18.8	20	
n-Butylbenzene		50.0	55.7	ug/L	3.07	11.3	20	
sec-Butylbenzene		50.0	56.9	ug/L	3.85	13.9	20	
tert-Butylbenzene		50.0	55.9	ug/L	0.653	11.9	20	
Carbon Disulfide		50.0	47.2	ug/L	0.807	5.68	20	
Carbon Tetrachloride		50.0	48.4	ug/L	0.419	3.28	20	
Dibromochloromethane		50.0	49.1	ug/L	0.403	1.86	20	
Chloroethane		50.0	50.7	ug/L	0.246	1.35	20	
2-Chlorotoluene		50.0	61.7	ug/L	2.91	23.5	20	*
4-Chlorotoluene		50.0	45.8	ug/L	2.20	8.32	20	
1,2-Dibromo-3-Chloropropane		50.0	44.4	ug/L	0.120	11.1	20	
1,2-Dibromoethane		50.0	47.4	ug/L	0.299	5.13	20	
Dibromomethane		50.0	45.3	ug/L	0.161	9.36	20	
1,2-Dichlorobenzene		50.0	50.8	ug/L	1.71	1.59	20	
1,3-Dichlorobenzene		50.0	51.8	ug/L	1.82	3.69	20	
1,4-Dichlorobenzene		50.0	50.4	ug/L	1.82	0.800	20	
Dichlorodifluoromethane		50.0	52.3	ug/L	0.444	4.58	20	
1,2-Dichloroethane		50.0	45.7	ug/L	0.413	8.61	20	
cis-1,2-Dichloroethene		50.0	49.7	ug/L	0.320	0.667	20	
trans-1,2-Dichloroethene		50.0	48.4	ug/L	0.283	3.23	20	
1,3-Dichloropropane		50.0	48.0	ug/L	0.494	4.08	20	
2,2-Dichloropropane		50.0	50.6	ug/L	0.414	1.29	20	
cis-1,3-Dichloropropene		50.0	50.2	ug/L	0.441	0.313	20	
trans-1,3-Dichloropropene		50.0	49.7	ug/L	0.513	0.565	20	

CCV - Modified 03/05/2008
PDF File ID: 5014970
Report generated 11/17/2016 09:59

Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590291-02
Instrument ID: HPMS11 Run Time: 16:11 Method: 8260B
File ID: 11M14917 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG590292 Cal ID: HPMS11 - 13-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloropropene		50.0	48.5	ug/L	0.372	2.99	20	
2-Hexanone		50.0	38.5	ug/L	0.254	23.0	20	*
Hexachlorobutadiene		50.0	58.0	ug/L	0.565	16.0	20	
Isopropylbenzene		50.0	52.1	ug/L	1.77	4.17	20	
p-Isopropyltoluene		50.0	57.0	ug/L	3.35	14.0	20	
4-Methyl-2-Pentanone		50.0	42.1	ug/L	0.101	15.7	20	
Methylene Chloride		50.0	48.3	ug/L	0.284	3.36	20	
Naphthalene		50.0	48.4	ug/L	2.51	3.18	20	
n-Propylbenzene		50.0	56.2	ug/L	4.18	12.5	20	
Styrene		50.0	51.7	ug/L	1.16	3.45	20	
1,1,1,2-Tetrachloroethane		50.0	51.3	ug/L	0.409	2.68	20	
Tetrachloroethene		50.0	49.9	ug/L	0.341	0.147	20	
1,2,3-Trichlorobenzene		50.0	47.0	ug/L	1.13	6.02	20	
1,2,4-Trichlorobenzene		50.0	50.2	ug/L	1.25	0.356	20	
1,1,1-Trichloroethane		50.0	48.2	ug/L	0.447	3.52	20	
1,1,2-Trichloroethane		50.0	48.9	ug/L	0.300	2.16	20	
Trichloroethene		50.0	48.3	ug/L	0.317	3.31	20	
Trichlorofluoromethane		50.0	49.4	ug/L	0.477	1.13	20	
1,2,3-Trichloropropane		50.0	47.7	ug/L	0.204	4.66	20	
1,2,4-Trimethylbenzene		50.0	55.8	ug/L	3.07	11.7	20	
1,3,5-Trimethylbenzene		50.0	56.2	ug/L	3.00	12.4	20	
o-Xylene		50.0	51.4	ug/L	0.681	2.83	20	
m-,p-Xylene		100	103	ug/L	0.696	3.43	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5014970
Report generated 11/17/2016 09:59

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591384-02
Instrument ID: HPMS11 Run Time: 14:39 Method: 8260B
File ID: 11M15139 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG591385 Cal ID: HPMS11 - 13-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloroform	CCC	50.0	44.9	ug/L	0.472	10.2	20	
1,1-Dichloroethene	CCC	50.0	48.0	ug/L	0.495	4.03	20	
1,2-Dichloropropane	CCC	50.0	46.5	ug/L	0.310	7.10	20	
Ethylbenzene	CCC	50.0	49.2	ug/L	0.562	1.68	20	
Toluene	CCC	50.0	49.0	ug/L	1.54	1.92	20	
Vinyl Chloride	CCC	50.0	49.9	ug/L	0.414	0.282	20	
Bromoform	SPCC	50.0	47.6	ug/L	0.254	4.74	20	
Chlorobenzene	SPCC	50.0	47.3	ug/L	1.06	5.48	20	
Chloromethane	SPCC	50.0	41.8	ug/L	0.389	16.4	20	
1,1-Dichloroethane	SPCC	50.0	47.3	ug/L	0.567	5.45	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	44.6	ug/L	0.630	10.7	20	
Xylenes		150	148	ug/L	0.657	1.29	20	
Acetone		50.0	41.3	ug/L	0.0802	17.3	20	
Benzene		50.0	48.2	ug/L	1.09	3.59	20	
Bromobenzene		50.0	43.8	ug/L	0.835	12.4	20	
Bromochloromethane		50.0	46.6	ug/L	0.193	6.89	20	
Bromodichloromethane		50.0	45.6	ug/L	0.362	8.90	20	
Bromomethane		50.0	52.5	ug/L	0.211	4.99	20	
2-Butanone		50.0	41.1	ug/L	0.134	17.9	20	
n-Butylbenzene		50.0	48.7	ug/L	2.69	2.51	20	
sec-Butylbenzene		50.0	49.0	ug/L	3.31	1.95	20	
tert-Butylbenzene		50.0	48.5	ug/L	0.567	2.94	20	
Carbon Disulfide		50.0	49.8	ug/L	0.852	0.387	20	
Carbon Tetrachloride		50.0	48.2	ug/L	0.418	3.59	20	
Dibromochloromethane		50.0	47.7	ug/L	0.392	4.61	20	
Chloroethane		50.0	49.4	ug/L	0.240	1.13	20	
2-Chlorotoluene		50.0	54.0	ug/L	2.54	7.95	20	
4-Chlorotoluene		50.0	39.7	ug/L	1.90	20.7	20	*
1,2-Dibromo-3-Chloropropane		50.0	42.0	ug/L	0.114	15.9	20	
1,2-Dibromoethane		50.0	46.5	ug/L	0.293	6.97	20	
Dibromomethane		50.0	44.8	ug/L	0.159	10.4	20	
1,2-Dichlorobenzene		50.0	44.0	ug/L	1.48	12.0	20	
1,3-Dichlorobenzene		50.0	45.6	ug/L	1.60	8.78	20	
1,4-Dichlorobenzene		50.0	44.3	ug/L	1.60	11.4	20	
Dichlorodifluoromethane		50.0	50.0	ug/L	0.424	0.0406	20	
1,2-Dichloroethane		50.0	44.2	ug/L	0.400	11.5	20	
cis-1,2-Dichloroethene		50.0	48.4	ug/L	0.312	3.26	20	
trans-1,2-Dichloroethene		50.0	47.9	ug/L	0.280	4.12	20	
1,3-Dichloropropane		50.0	45.4	ug/L	0.468	9.16	20	
2,2-Dichloropropane		50.0	50.9	ug/L	0.416	1.80	20	
cis-1,3-Dichloropropene		50.0	47.7	ug/L	0.419	4.55	20	
trans-1,3-Dichloropropene		50.0	46.7	ug/L	0.481	6.66	20	

CCV - Modified 03/05/2008
PDF File ID: 5014970
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Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591384-02
Instrument ID: HPMS11 Run Time: 14:39 Method: 8260B
File ID: 11M15139 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG591385 Cal ID: HPMS11 - 13-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloropropene		50.0	48.4	ug/L	0.372	3.20	20	
2-Hexanone		50.0	38.3	ug/L	0.253	23.3	20	*
Hexachlorobutadiene		50.0	49.2	ug/L	0.480	1.58	20	
Isopropylbenzene		50.0	49.7	ug/L	1.69	0.542	20	
p-Isopropyltoluene		50.0	49.8	ug/L	2.93	0.403	20	
4-Methyl-2-Pentanone		50.0	42.4	ug/L	0.102	15.2	20	
Methylene Chloride		50.0	46.4	ug/L	0.272	7.30	20	
Naphthalene		50.0	44.3	ug/L	2.29	11.5	20	
n-Propylbenzene		50.0	49.1	ug/L	3.65	1.87	20	
Styrene		50.0	49.5	ug/L	1.11	1.06	20	
1,1,1,2-Tetrachloroethane		50.0	47.4	ug/L	0.378	5.26	20	
Tetrachloroethene		50.0	48.5	ug/L	0.332	2.95	20	
1,2,3-Trichlorobenzene		50.0	39.7	ug/L	0.955	20.5	20	*
1,2,4-Trichlorobenzene		50.0	42.8	ug/L	1.07	14.3	20	
1,1,1-Trichloroethane		50.0	47.8	ug/L	0.443	4.36	20	
1,1,2-Trichloroethane		50.0	47.7	ug/L	0.292	4.64	20	
Trichloroethene		50.0	48.8	ug/L	0.320	2.49	20	
Trichlorofluoromethane		50.0	49.0	ug/L	0.474	1.91	20	
1,2,3-Trichloropropane		50.0	45.1	ug/L	0.193	9.89	20	
1,2,4-Trimethylbenzene		50.0	48.3	ug/L	2.65	3.43	20	
1,3,5-Trimethylbenzene		50.0	48.9	ug/L	2.61	2.27	20	
o-Xylene		50.0	48.7	ug/L	0.644	2.67	20	
m-,p-Xylene		100	99.4	ug/L	0.669	0.603	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5014970
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number: L16110074
Instrument ID: HPMS11
Workgroup (AAB#): WG590133

ICAL CCV Number: WG587480-08
CAL ID: HPMS11-13-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG587480-08	NA	NA	300608	570241	727439
Upper Limit	NA	NA	601216	1140482	1454878
Lower Limit	NA	NA	150304	285121	363720
L16110074-05	1.00	01	178185	391742	522803
WG590133-01	1.00	01	193855	410268	547078
WG590133-02	1.00	01	210069	422281	557080
WG590133-03	1.00	01	200908	397289	519643

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_ICAL - Modified 03/06/2008
PDF File ID: 5014971
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number: L16110074
Instrument ID: HPMS11
Workgroup (AAB#): WG590292

ICAL CCV Number: WG587480-08
CAL ID: HPMS11-13-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG587480-08	NA	NA	300608	570241	727439
Upper Limit	NA	NA	601216	1140482	1454878
Lower Limit	NA	NA	150304	285121	363720
L16110074-01	50.0	DL01	234501	488071	646916
L16110074-03	1.00	01	190524	404991	537257
L16110074-05	100	DL01	217418	468637	630457
L16110074-07	1.00	01	220825	465918	614930
L16110074-09	1.00	01	210205	452991	597807
L16110074-13	1.00	01	212742	451391	605006
WG590292-01	1.00	01	238359	508653	692515
WG590292-02	1.00	01	233363	472773	633881
WG590292-03	1.00	01	245940	503968	678628

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_ICAL - Modified 03/06/2008
PDF File ID: 5014971
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number: L16110074
Instrument ID: HPMS11
Workgroup (AAB#): WG591385

ICAL CCV Number: WG587480-08
CAL ID: HPMS11-13-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG587480-08	NA	NA	300608	570241	727439
Upper Limit	NA	NA	601216	1140482	1454878
Lower Limit	NA	NA	150304	285121	363720
L16110074-11	1.00	01	230624	454051	596716
WG591385-01	1.00	01	245578	487170	654449
WG591385-02	1.00	01	264179	493617	641603
WG591385-03	1.00	01	239194	455171	594029

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_ICAL - Modified 03/06/2008
PDF File ID: 5014971
Report generated 11/17/2016 09:59

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number: L16110074
Instrument ID: HPMS11
Workgroup (AAB#): WG590133

ICAL CCV Number: WG587480-08
CAL ID: HPMS11-13-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG587480-08	NA	NA	17.01	14.2	10.57
Upper Limit	NA	NA	17.51	14.7	11.07
Lower Limit	NA	NA	16.51	13.7	10.07
L16110074-05	1.00	01	17.01	14.2	10.57
WG590133-01	1.00	01	17.01	14.2	10.57
WG590133-02	1.00	01	17.01	14.2	10.57
WG590133-03	1.00	01	17.01	14.2	10.57

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT_ICAL - Modified 03/06/2008
PDF File ID: 5014973
Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY

(COMPARED TO MIDPOINT OF ICAL)

Login Number: L16110074

Instrument ID: HPMS11

Workgroup (AAB#): WG590292

ICAL CCV Number: WG587480-08

CAL ID: HPMS11-13-OCT-16

Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG587480-08	NA	NA	17.01	14.2	10.57
Upper Limit	NA	NA	17.51	14.7	11.07
Lower Limit	NA	NA	16.51	13.7	10.07
L16110074-01	50.0	DL01	17.01	14.2	10.57
L16110074-03	1.00	01	17.01	14.2	10.57
L16110074-05	100	DL01	17.01	14.2	10.57
L16110074-07	1.00	01	17.01	14.2	10.57
L16110074-09	1.00	01	17.01	14.2	10.57
L16110074-13	1.00	01	17.01	14.2	10.57
WG590292-01	1.00	01	17.01	14.2	10.57
WG590292-02	1.00	01	17.01	14.2	10.57
WG590292-03	1.00	01	17.01	14.2	10.57

IS-1 - 1,4-Dichlorobenzene-d4

IS-2 - Chlorobenzene-d5

IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT_ICAL - Modified 03/06/2008

PDF File ID: 5014973

Report generated: 11/17/2016 09:59

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number: L16110074
Instrument ID: HPMS11
Workgroup (AAB#): WG591385

ICAL CCV Number: WG587480-08
CAL ID: HPMS11-13-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG587480-08	NA	NA	17.01	14.2	10.57
Upper Limit	NA	NA	17.51	14.7	11.07
Lower Limit	NA	NA	16.51	13.7	10.07
L16110074-11	1.00	01	17.01	14.2	10.57
WG591385-01	1.00	01	17.01	14.2	10.57
WG591385-02	1.00	01	17.01	14.2	10.57
WG591385-03	1.00	01	17.01	14.2	10.57

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT_ICAL - Modified 03/06/2008
PDF File ID: 5014973
Report generated: 11/17/2016 09:59

2.1.1.3 Sample Data

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14924.D Vial: 8
Acq On : 3 Nov 2016 19:35 Operator: ADC
Sample : L16110074-01 B 50X 826-LOW 00 Inst : hpms11
Misc : 1,50 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:11:50 2016 Quant Results File: 8260WT.RES

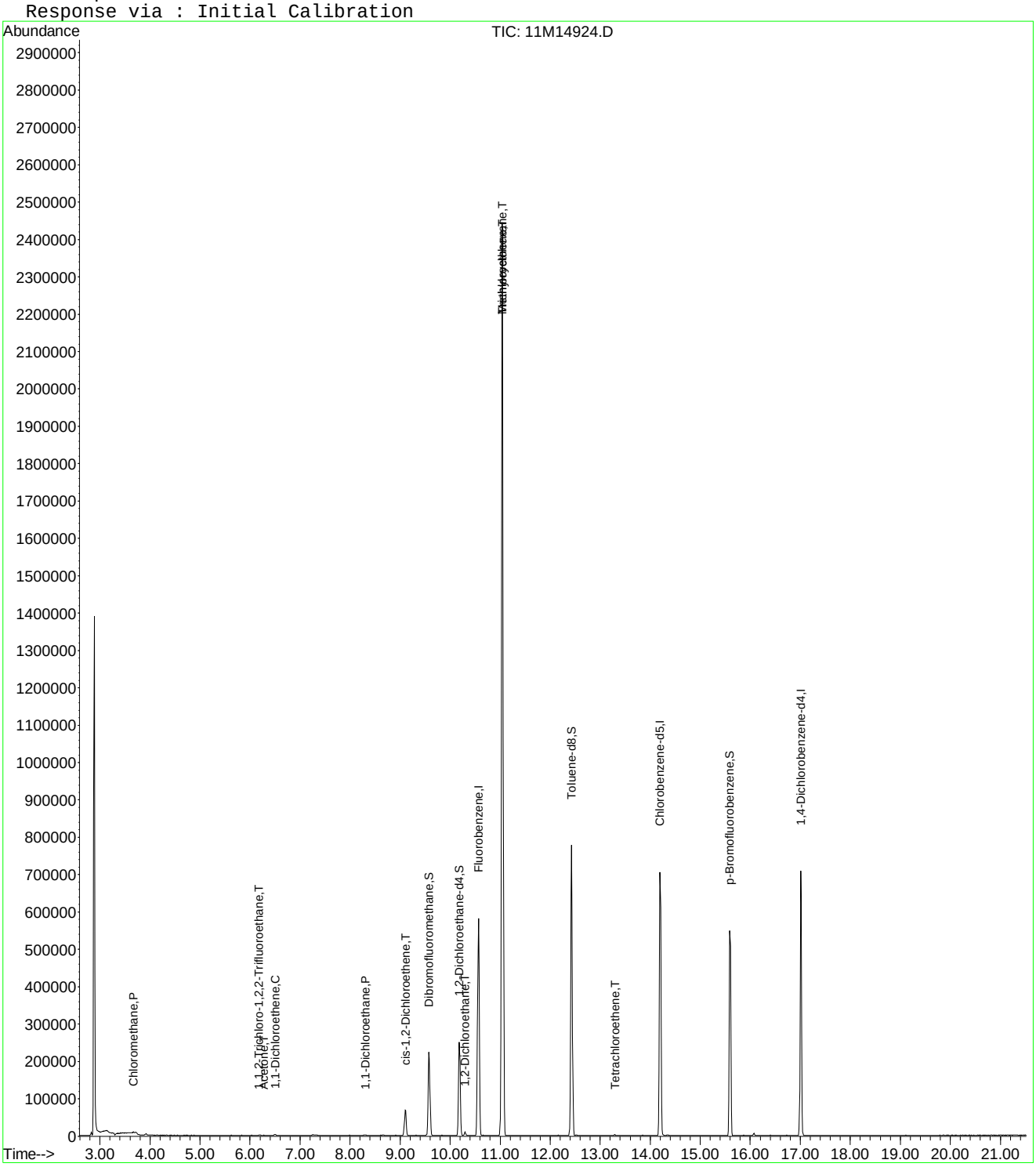
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

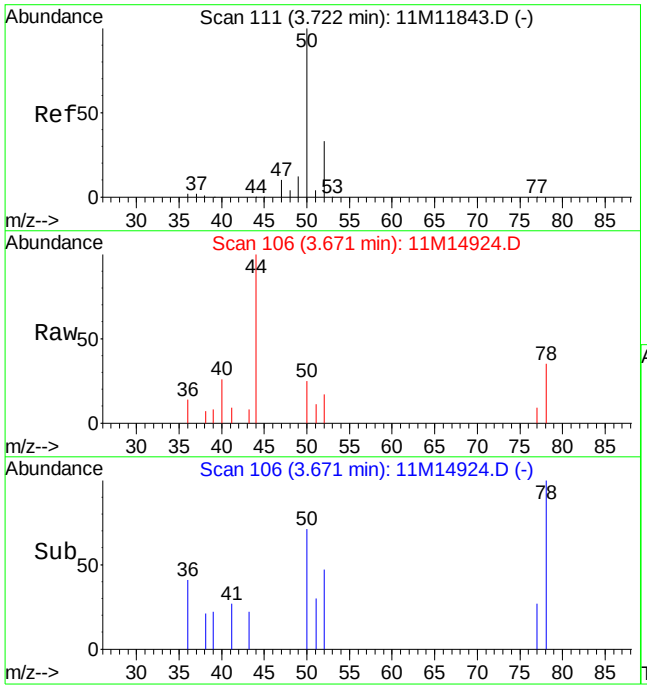
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	646916	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	488071	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	234501	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	185983	23.8998	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 95.60%			
43) 1,2-Dichloroethane-d4	10.18	65	197151	22.5661	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 90.28%			
57) Toluene-d8	12.43	98	639774	24.7356	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.96%			
78) p-Bromofluorobenzene	15.59	95	230323	24.5502	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 98.20%			
Target Compounds						Qvalue
3) Chloromethane	3.67	50	3052	0.2535	ug/L #	1
12) 1,1,2-Trichloro-1,2,2-Trif	6.17	101	1081	0.1609	ug/L	98
13) Acetone	6.28	43	871	0.3470	ug/L #	50
14) 1,1-Dichloroethene	6.50	61	3466	0.2596	ug/L	96
27) 1,1-Dichloroethane	8.30	63	2403	0.1550	ug/L #	62
32) cis-1,2-Dichloroethene	9.11	96	38046	4.5663	ug/L	79
44) 1,2-Dichloroethane	10.30	62	8577	0.7339	ug/L	90
46) Trichloroethene	11.04	130	1027408	121.0994	ug/L	98
47) Methylcyclohexane	11.04	83	11269	0.9798	ug/L #	1
64) Tetrachloroethene	13.30	164	869	0.1303	ug/L	75

(#) = qualifier out of range (m) = manual integration
11M14924.D 8260WT.M Wed Nov 09 11:11:51 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110316\11M14924.D Vial: 8
Acq On : 3 Nov 2016 19:35 Operator: ADC
Sample : L16110074-01 B 50X 826-LOW 00 Inst : hpms11
Misc : 1,50 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:11 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

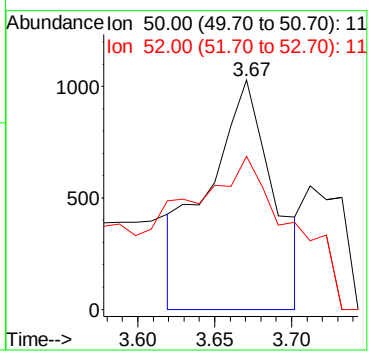


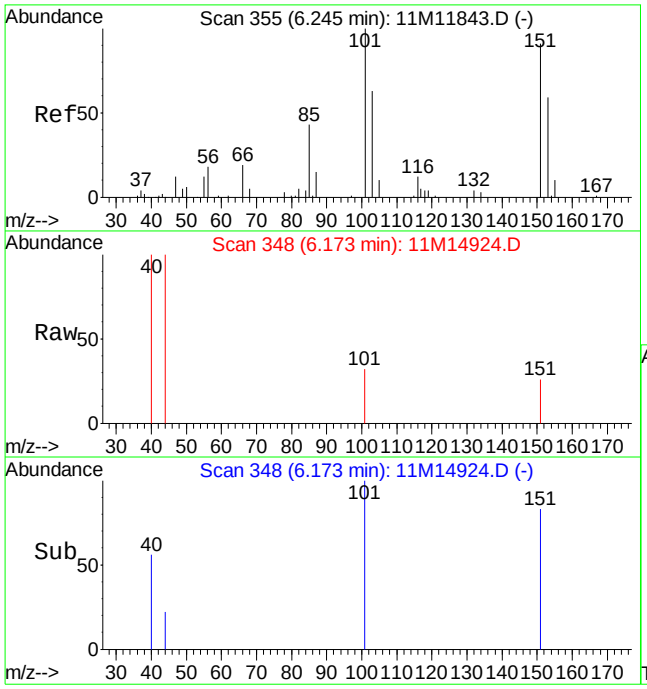


#3
Chloromethane
Concen: 0.25 ug/L
RT: 3.67 min Scan# 106
Delta R.T. 0.01 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion: 50 Resp: 3052

Ion	Ratio	Lower	Upper
50	100		
52	113.0	18.4	42.8#

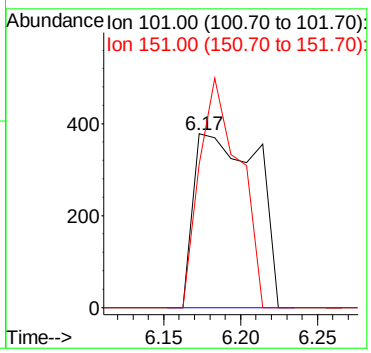


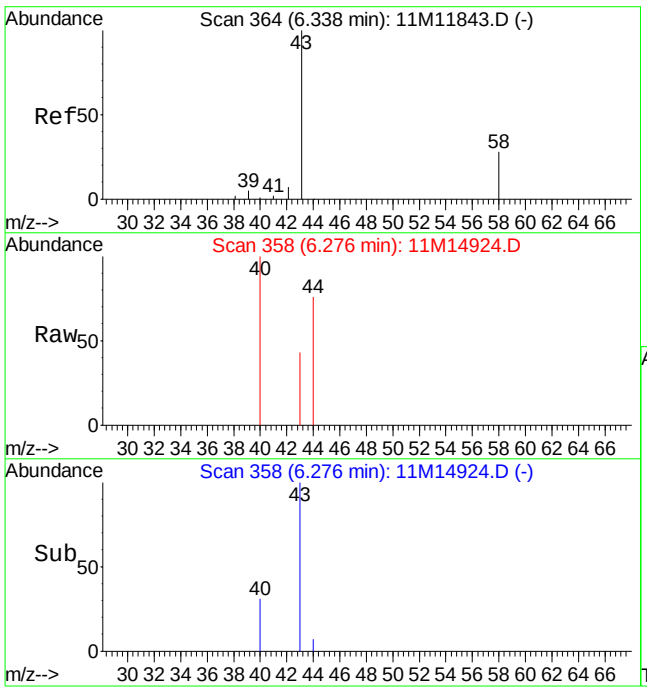


#12
1,1,2-Trichloro-1,2,2-Trifluoroethane
Concen: 0.16 ug/L
RT: 6.17 min Scan# 348
Delta R.T. -0.02 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion:101 Resp: 1081

Ion	Ratio	Lower	Upper
101	100		
151	83.3	41.2	121.2

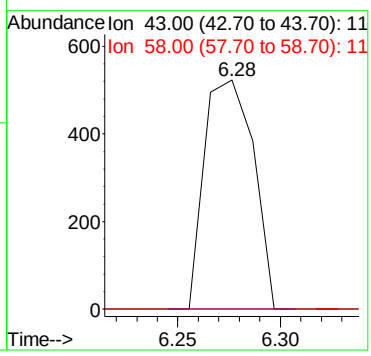


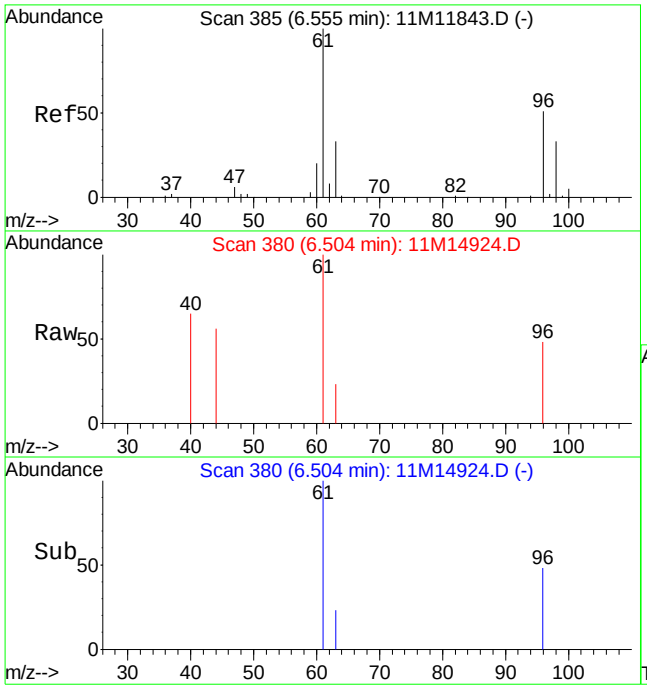


#13
Acetone
Concen: 0.35 ug/L
RT: 6.28 min Scan# 358
Delta R.T. -0.00 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion: 43 Resp: 871

Ion	Ratio	Lower	Upper
43	100		
58	0.0	15.1	35.1#

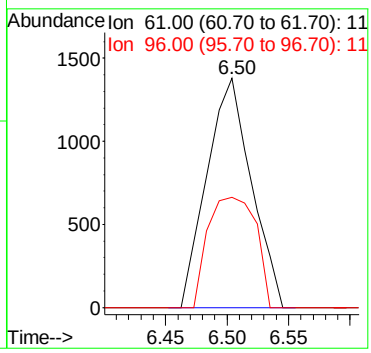


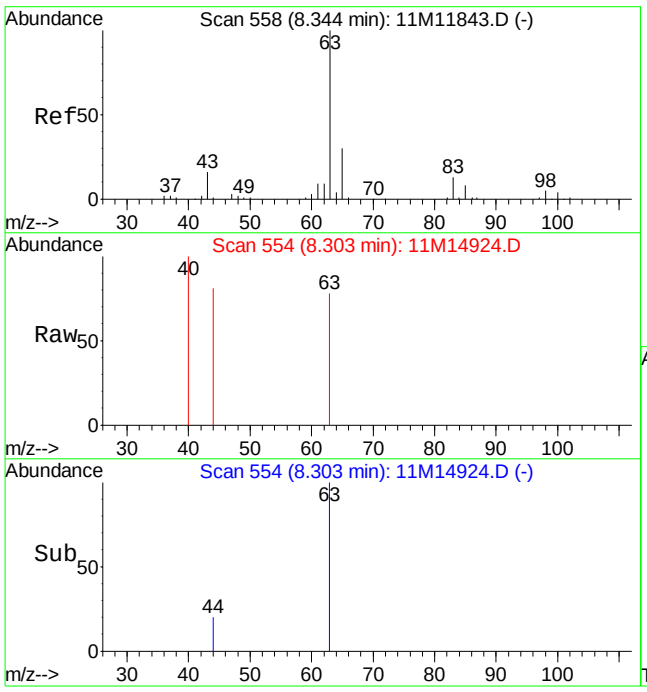


#14
1,1-Dichloroethene
Concen: 0.26 ug/L
RT: 6.50 min Scan# 380
Delta R.T. 0.01 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion: 61 Resp: 3466

Ion	Ratio	Lower	Upper
61	100		
96	51.9	29.3	68.5

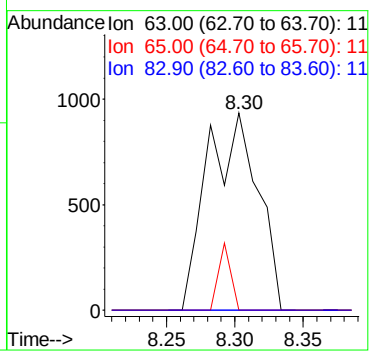


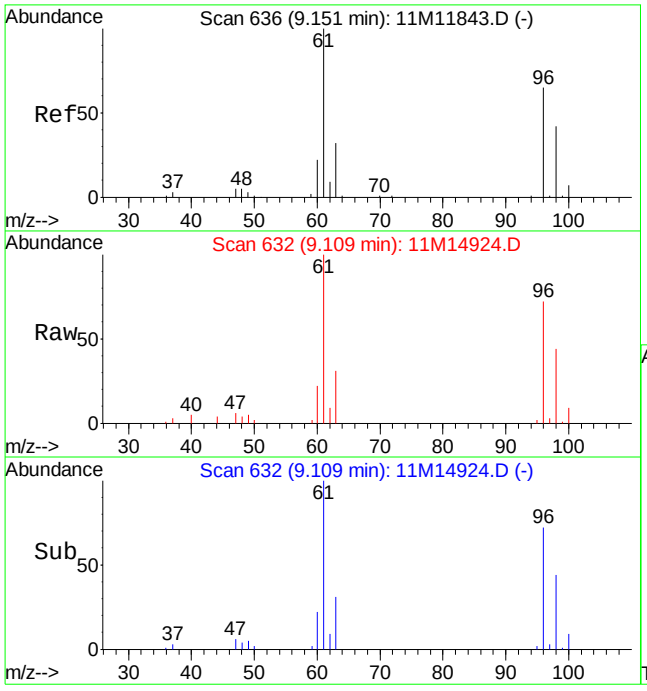


#27
1,1-Dichloroethane
Concen: 0.15 ug/L
RT: 8.30 min Scan# 554
Delta R.T. 0.01 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion: 63 Resp: 2403

Ion	Ratio	Lower	Upper
63	100		
65	8.2	18.4	43.0#
83	0.0	6.8	16.0#

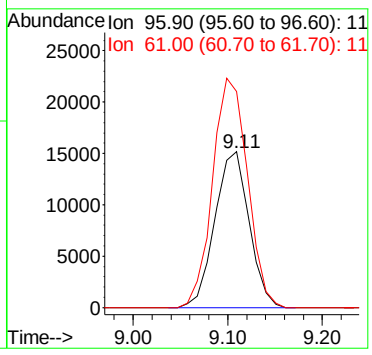


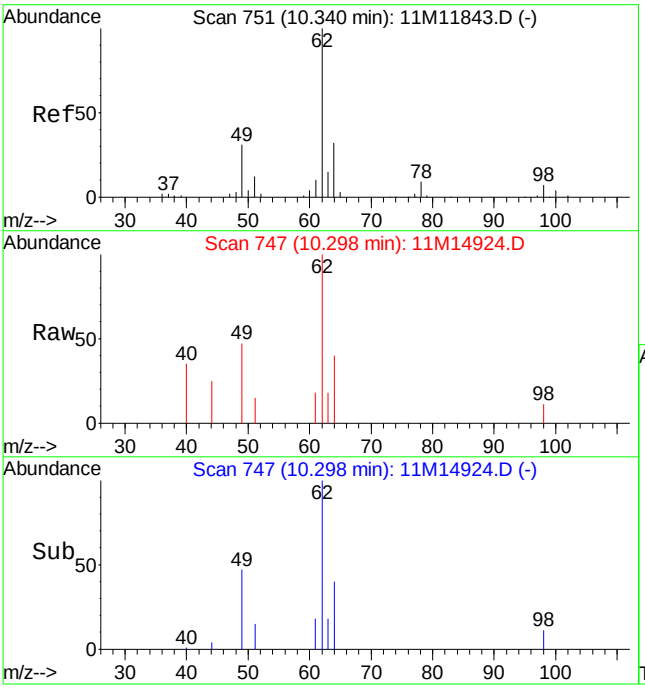


#32
cis-1,2-Dichloroethene
Concen: 4.57 ug/L
RT: 9.11 min Scan# 632
Delta R.T. 0.01 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion: 96 Resp: 38046

Ion	Ratio	Lower	Upper
96	100		
61	149.8	107.5	250.7

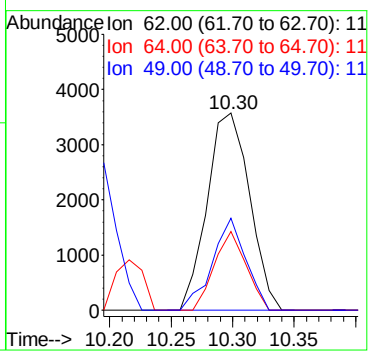


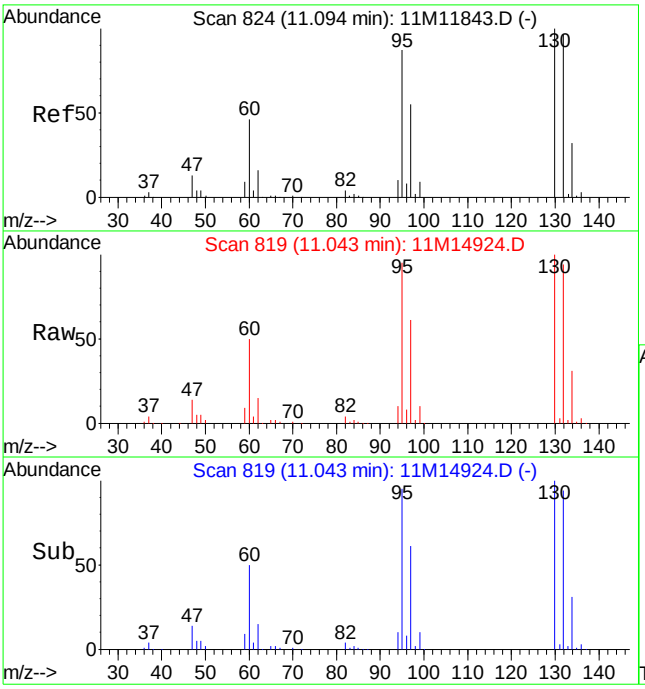


#44
1,2-Dichloroethane
Concen: 0.73 ug/L
RT: 10.30 min Scan# 747
Delta R.T. -0.00 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion: 62 Resp: 8577

Ion	Ratio	Lower	Upper
62	100		
64	30.0	18.6	43.4
49	37.1	28.1	65.7

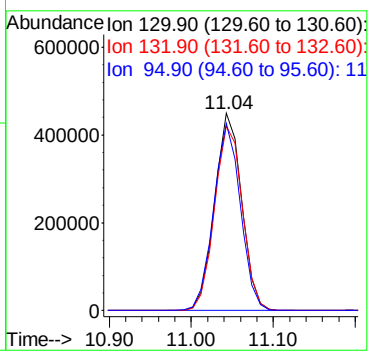


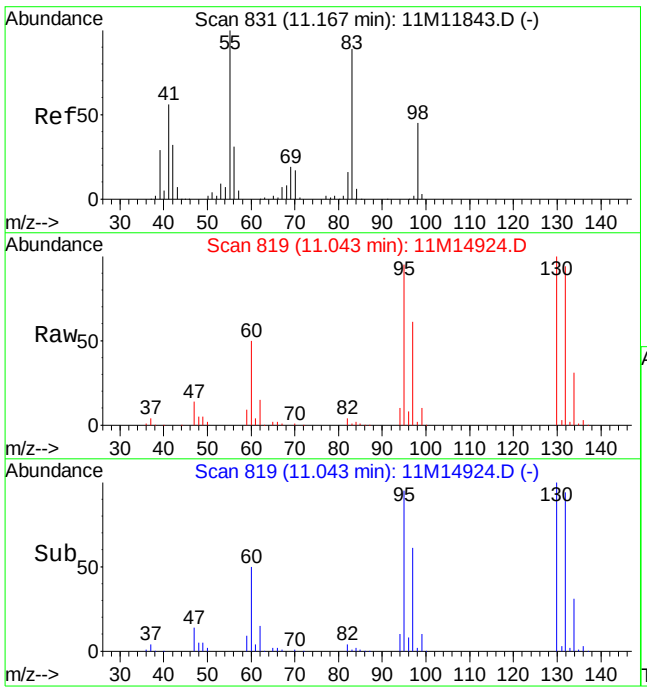


#46
Trichloroethene
Concen: 121.10 ug/L
RT: 11.04 min Scan# 819
Delta R.T. -0.00 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion:130 Resp: 1027408

Ion	Ratio	Lower	Upper
130	100		
132	96.1	58.4	136.4
95	94.0	58.0	135.4

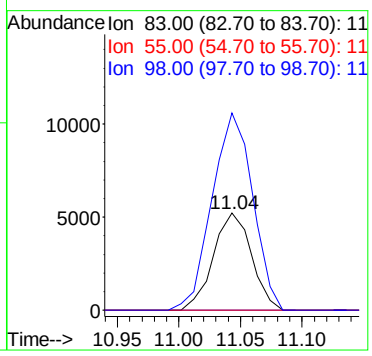


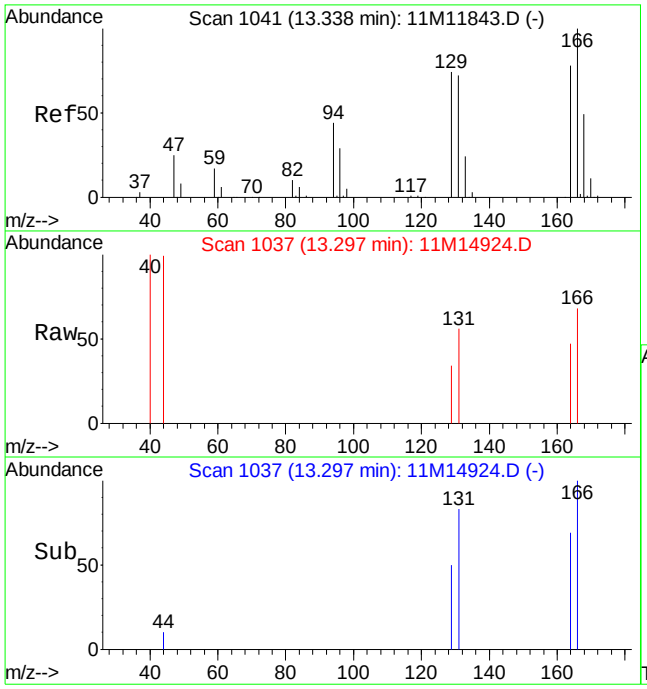


#47
Methylcyclohexane
Concen: 0.98 ug/L
RT: 11.04 min Scan# 819
Delta R.T. -0.08 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion: 83 Resp: 11269

Ion	Ratio	Lower	Upper
83	100		
55	0.0	70.3	164.1#
98	216.4	28.2	65.8#

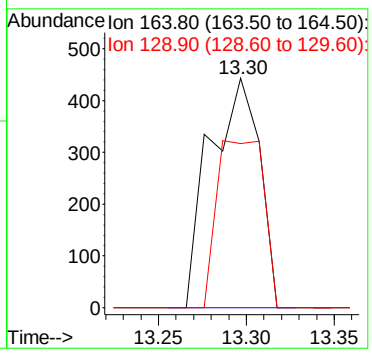




#64
Tetrachloroethene
Concen: 0.13 ug/L
RT: 13.30 min Scan# 1037
Delta R.T. 0.01 min
Lab File: 11M14924.D
Acq: 3 Nov 2016 19:35

Tgt Ion:164 Resp: 869

Ion	Ratio	Lower	Upper
164	100		
129	68.6	55.3	129.1



Data File : C:\MSDCHEM\1\DATA\110316\11M14930.D Vial: 14
Acq On : 3 Nov 2016 22:30 Operator: ADC
Sample : L16110074-03 B 826-L Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:12:21 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

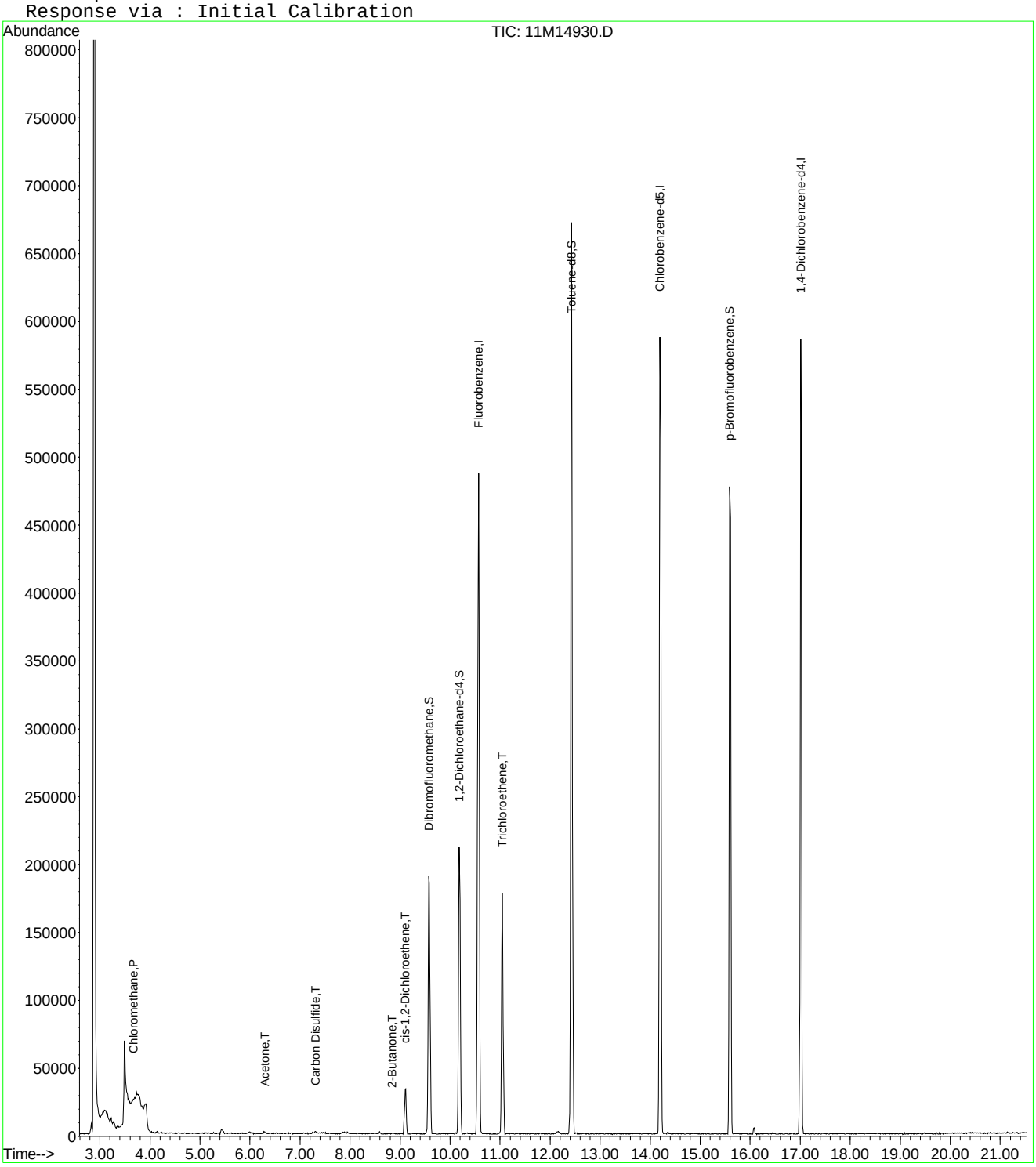
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.57	96	537257	25.00 ug/L	0.00
56) Chlorobenzene-d5	14.20	117	404991	25.00 ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	190524	25.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.57	111	161907	25.0526 ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 100.20%		
43) 1,2-Dichloroethane-d4	10.18	65	167526	23.0891 ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 92.36%		
57) Toluene-d8	12.43	98	541933	25.2511 ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 101.00%		
78) p-Bromofluorobenzene	15.59	95	199225	26.1370 ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 104.56%		
Target Compounds					Qvalue
3) Chloromethane	3.67	50	3748	0.3749 ug/L #	62
13) Acetone	6.30	43	2357	1.1308 ug/L	82
20) Carbon Disulfide	7.31	76	4571	0.2487 ug/L #	74
29) 2-Butanone	8.84	43	640	0.1827 ug/L #	65
32) cis-1,2-Dichloroethene	9.10	96	19082	2.7577 ug/L	79
46) Trichloroethene	11.04	130	76815	10.9021 ug/L	96

(#) = qualifier out of range (m) = manual integration
11M14930.D 8260WT.M Wed Nov 09 11:12:23 2016 Page 1

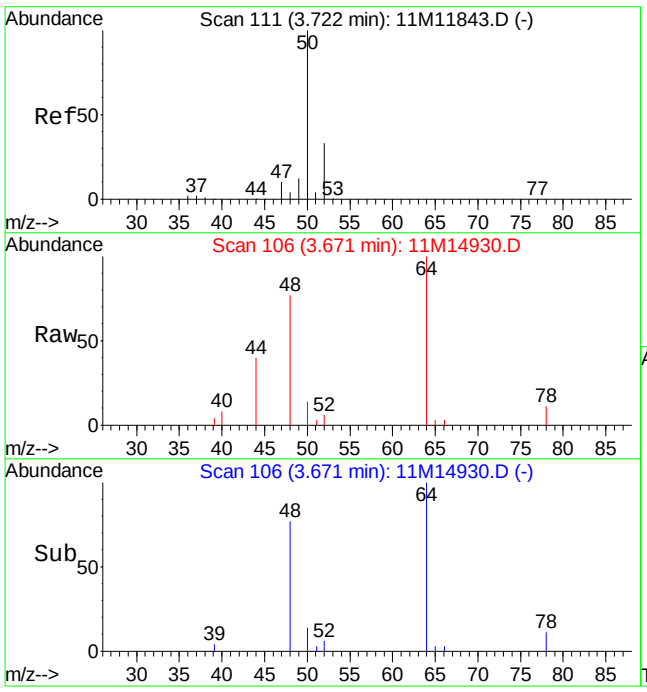
Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14930.D Vial: 14
Acq On : 3 Nov 2016 22:30 Operator: ADC
Sample : L16110074-03 B 826-L Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:12 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



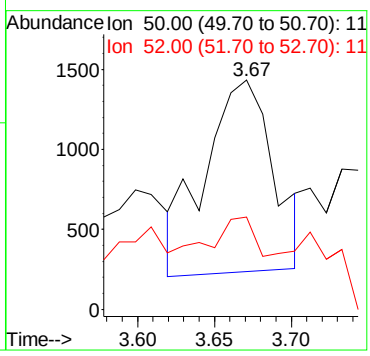
11M14930.D 8260WT.M Wed Nov 09 11:12:23 2016 Page 2

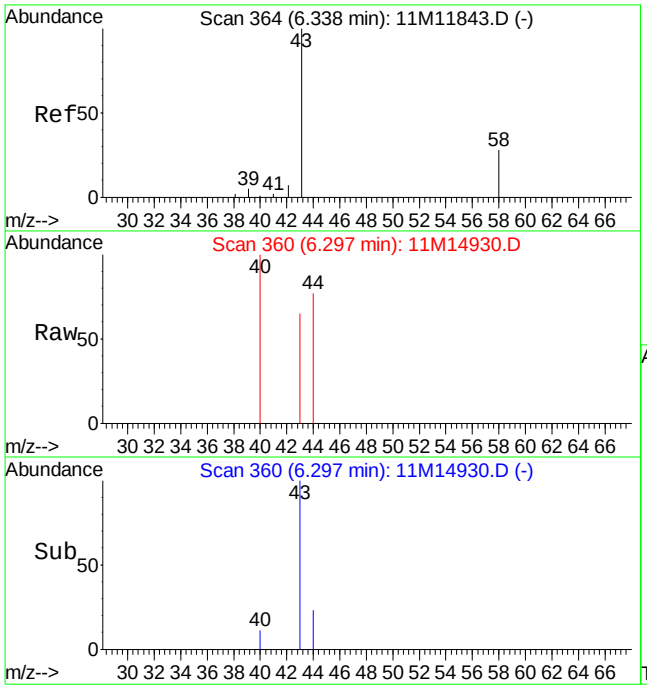


#3
Chloromethane
Concen: 0.37 ug/L
RT: 3.67 min Scan# 106
Delta R.T. 0.01 min
Lab File: 11M14930.D
Acq: 3 Nov 2016 22:30

Tgt Ion: 50 Resp: 3748

Ion	Ratio	Lower	Upper
50	100		
52	10.0	18.4	42.8#

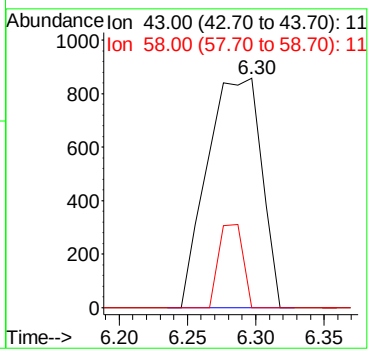


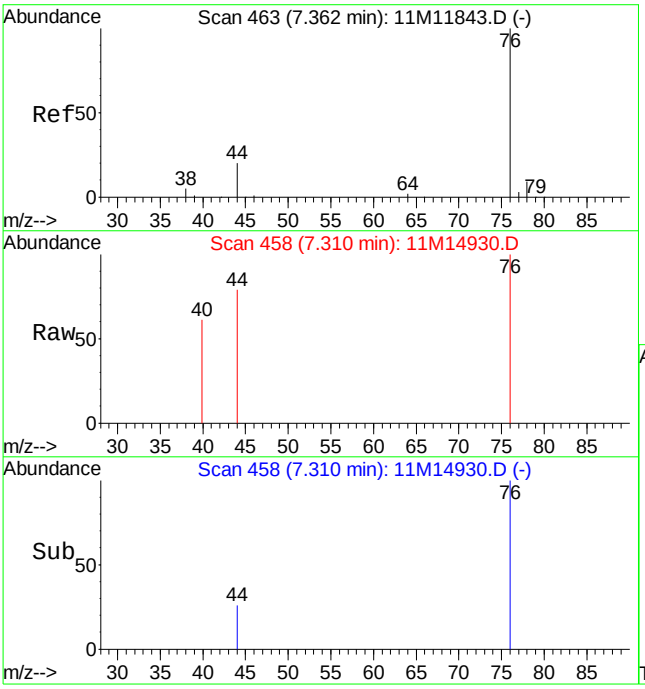


#13
Acetone
Concen: 1.13 ug/L
RT: 6.30 min Scan# 360
Delta R.T. 0.02 min
Lab File: 11M14930.D
Acq: 3 Nov 2016 22:30

Tgt Ion: 43 Resp: 2357

Ion	Ratio	Lower	Upper
43	100		
58	16.2	15.1	35.1

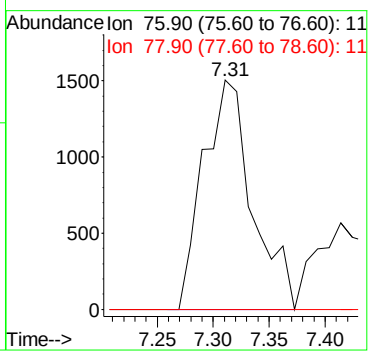


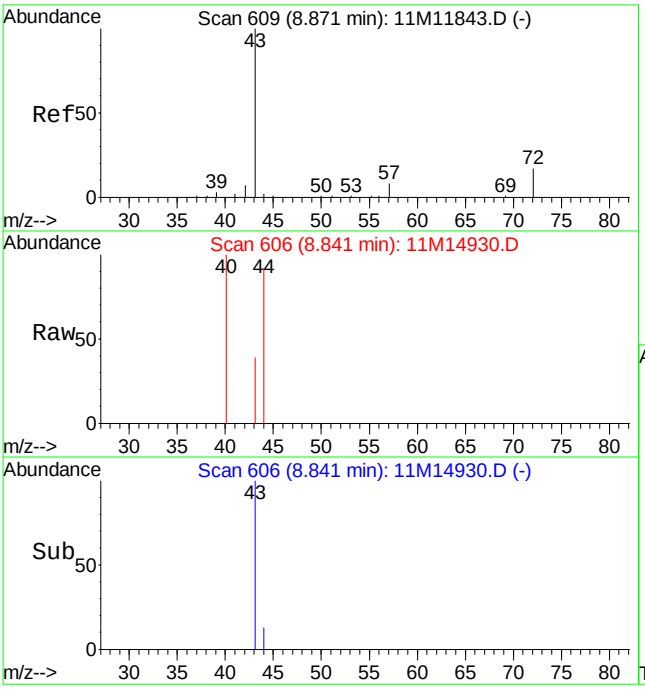


#20
Carbon Disulfide
Concen: 0.25 ug/L
RT: 7.31 min Scan# 458
Delta R.T. 0.00 min
Lab File: 11M14930.D
Acq: 3 Nov 2016 22:30

Tgt Ion: 76 Resp: 4571

Ion	Ratio	Lower	Upper
76	100		
78	0.0	5.6	13.0#

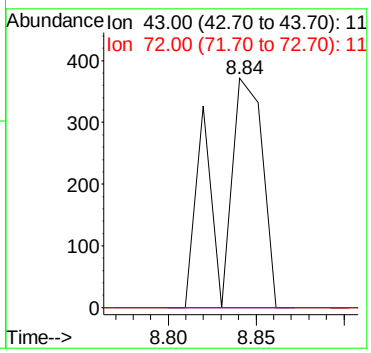


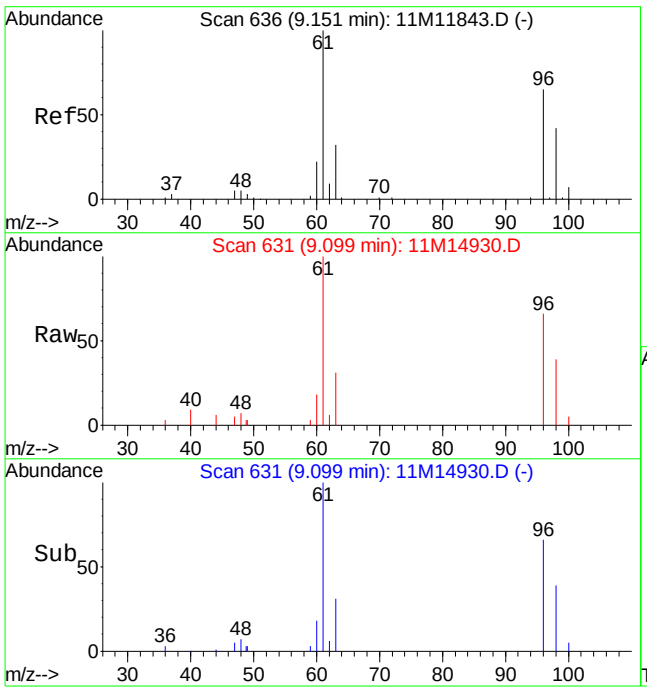


#29
2-Butanone
Concen: 0.18 ug/L
RT: 8.84 min Scan# 606
Delta R.T. 0.02 min
Lab File: 11M14930.D
Acq: 3 Nov 2016 22:30

Tgt Ion: 43 Resp: 640

Ion	Ratio	Lower	Upper
43	100		
72	0.0	8.6	20.2#

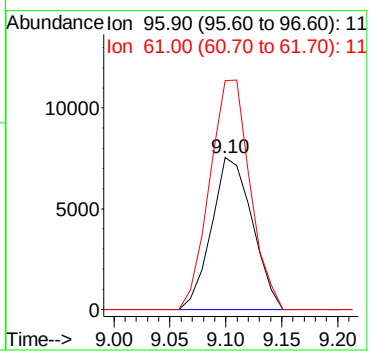


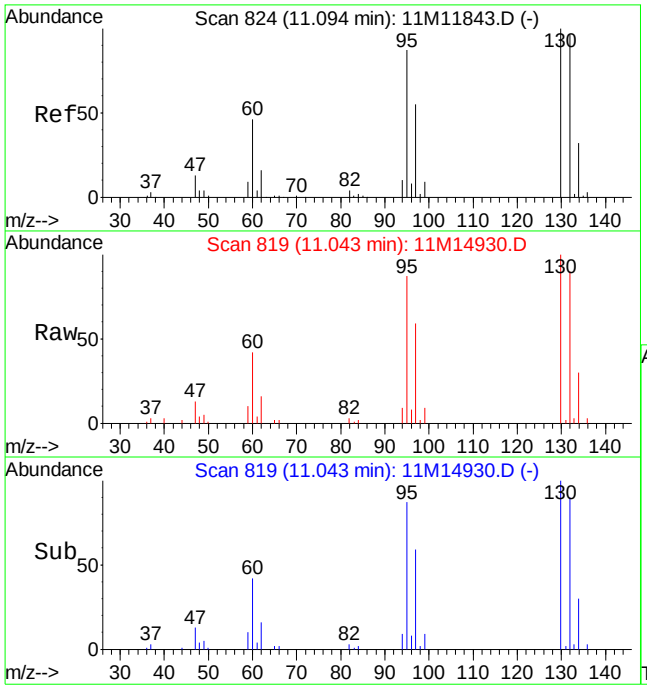


#32
cis-1,2-Dichloroethene
Concen: 2.76 ug/L
RT: 9.10 min Scan# 631
Delta R.T. 0.00 min
Lab File: 11M14930.D
Acq: 3 Nov 2016 22:30

Tgt Ion: 96 Resp: 19082

Ion	Ratio	Lower	Upper
96	100		
61	149.6	107.5	250.7

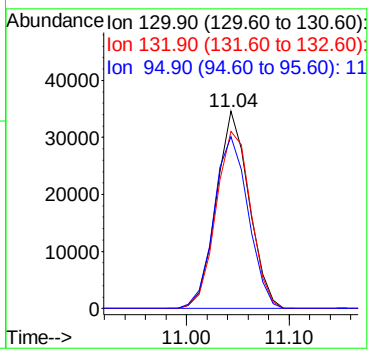




#46
Trichloroethene
Concen: 10.90 ug/L
RT: 11.04 min Scan# 819
Delta R.T. 0.00 min
Lab File: 11M14930.D
Acq: 3 Nov 2016 22:30

Tgt Ion:130 Resp: 76815

Ion	Ratio	Lower	Upper
130	100		
132	95.1	58.4	136.4
95	91.1	58.0	135.4



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110216\11M14903.D Vial: 16
Acq On : 2 Nov 2016 22:18 Operator: ADC
Sample : L16110074-05 A 826-LOW Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 02 22:40:40 2016 Quant Results File: 8260WT.RES

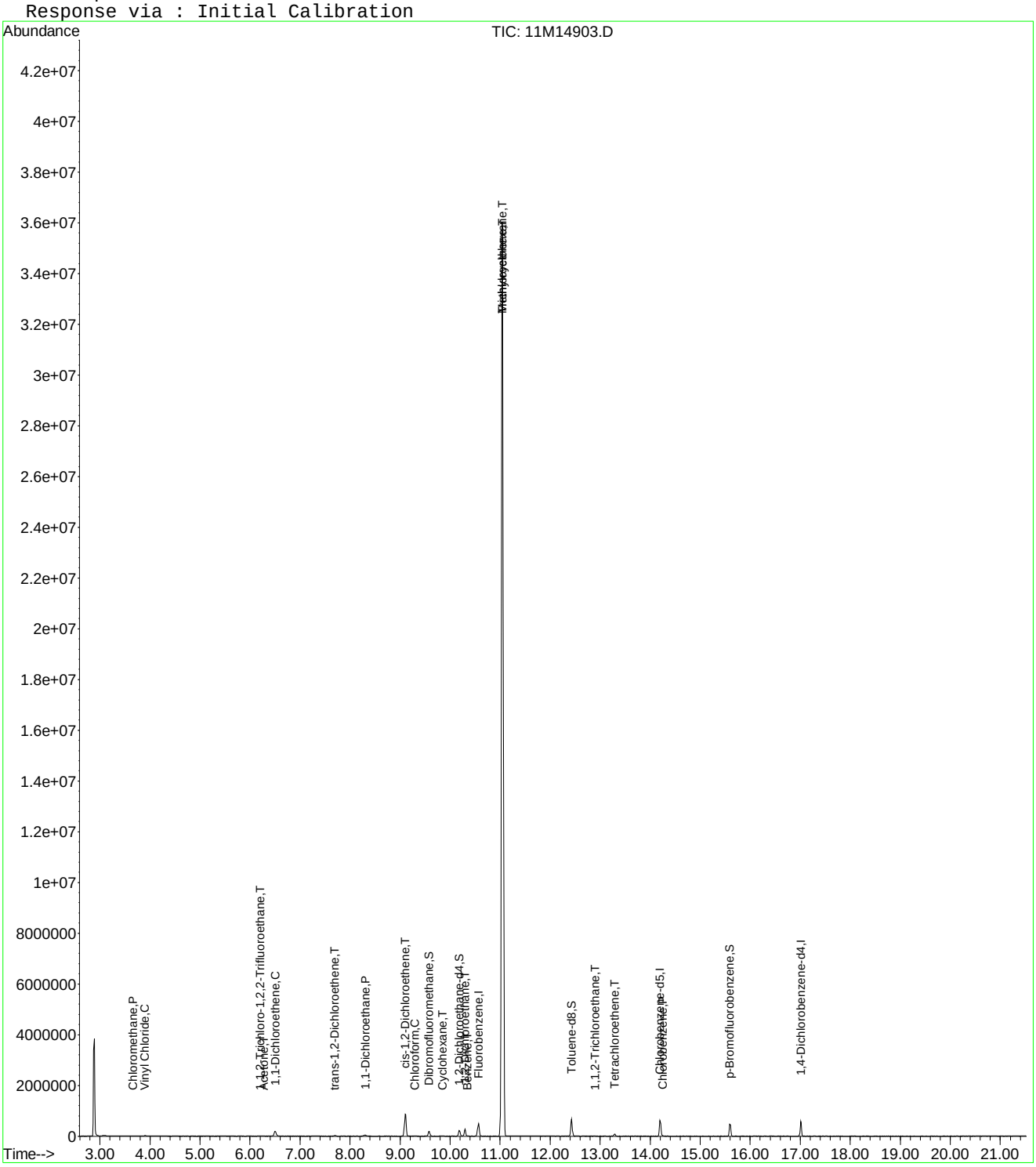
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

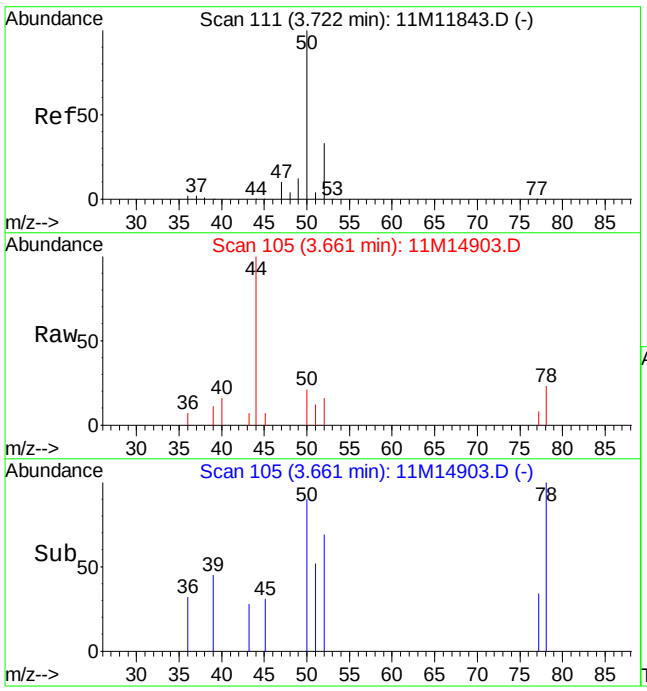
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	522803	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	391742	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	178185	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	158197	25.1553	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 100.64%			
43) 1,2-Dichloroethane-d4	10.18	65	173177	24.5278	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 98.12%			
57) Toluene-d8	12.43	98	526312	25.3526	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 101.40%			
78) p-Bromofluorobenzene	15.59	95	189805	26.6255	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 106.52%			
Target Compounds						Qvalue
3) Chloromethane	3.66	50	5385	0.5536	ug/L	93
4) Vinyl Chloride	3.90	62	16472	1.8989	ug/L #	43
12) 1,1,2-Trichloro-1,2,2-Trif	6.20	101	6301	1.1604	ug/L	100
13) Acetone	6.28	43	3716	1.8321	ug/L #	64
14) 1,1-Dichloroethene	6.50	61	230837	21.3951	ug/L	100
23) trans-1,2-Dichloroethene	7.69	96	8233	1.3466	ug/L	95
27) 1,1-Dichloroethane	8.30	63	61660	4.9206	ug/L	98
32) cis-1,2-Dichloroethene	9.10	96	453752	67.3880	ug/L	84
33) Chloroform	9.30	83	8269	0.7521	ug/L	92
39) Cyclohexane	9.84	56	11255	0.7920	ug/L	98
44) 1,2-Dichloroethane	10.30	62	246225	26.0687	ug/L	91
45) Benzene	10.34	78	9822	0.4143	ug/L	92
46) Trichloroethene	11.04	130	13742476	2004.3515	ug/L	97
47) Methylcyclohexane	11.04	83	256492	27.5959	ug/L #	1
61) 1,1,2-Trichloroethane	12.89	97	868	0.1809	ug/L #	49
64) Tetrachloroethene	13.29	164	26264	4.9052	ug/L	94
68) Chlorobenzene	14.25	112	14644	0.8366	ug/L	94

(#) = qualifier out of range (m) = manual integration
11M14903.D 8260WT.M Thu Nov 03 14:16:47 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110216\11M14903.D Vial: 16
Acq On : 2 Nov 2016 22:18 Operator: ADC
Sample : L16110074-05 A 826-LOW Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 2 22:40 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

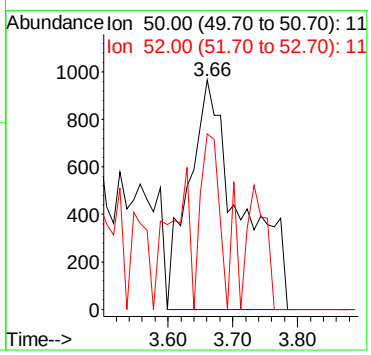


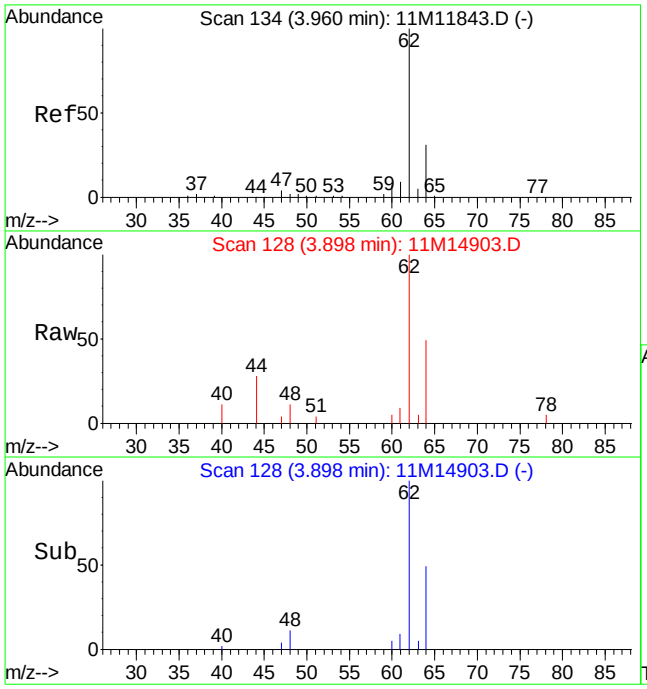


#3
Chloromethane
Concen: 0.55 ug/L
RT: 3.66 min Scan# 105
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 50 Resp: 5385

Ion	Ratio	Lower	Upper
50	100		
52	26.6	18.4	42.8

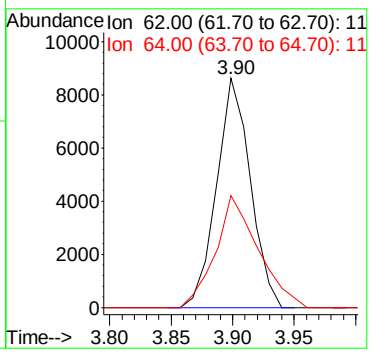


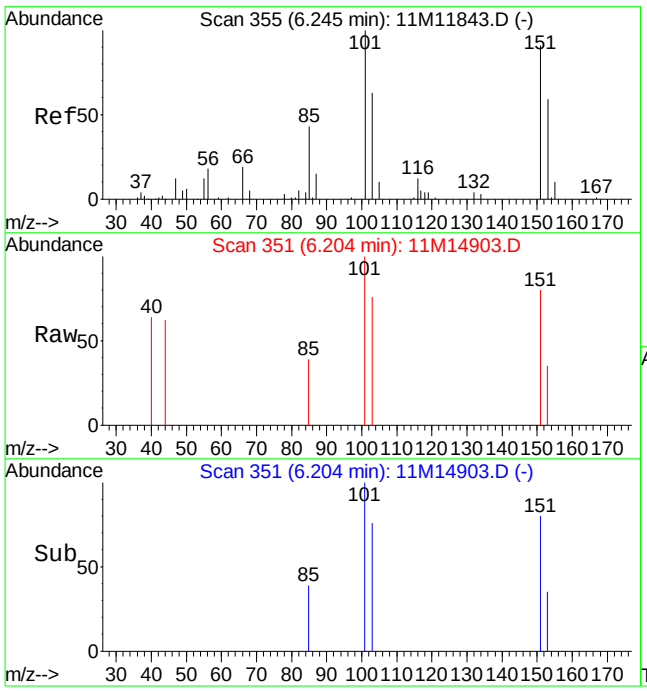


#4
Vinyl Chloride
Concen: 1.90 ug/L
RT: 3.90 min Scan# 128
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 62 Resp: 16472

Ion	Ratio	Lower	Upper
62	100		
64	61.6	18.2	42.6#

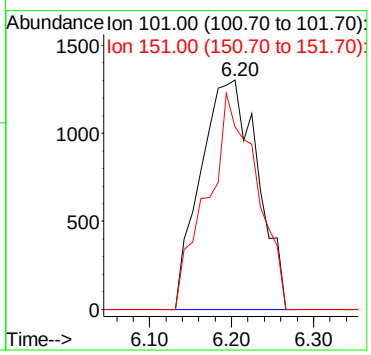


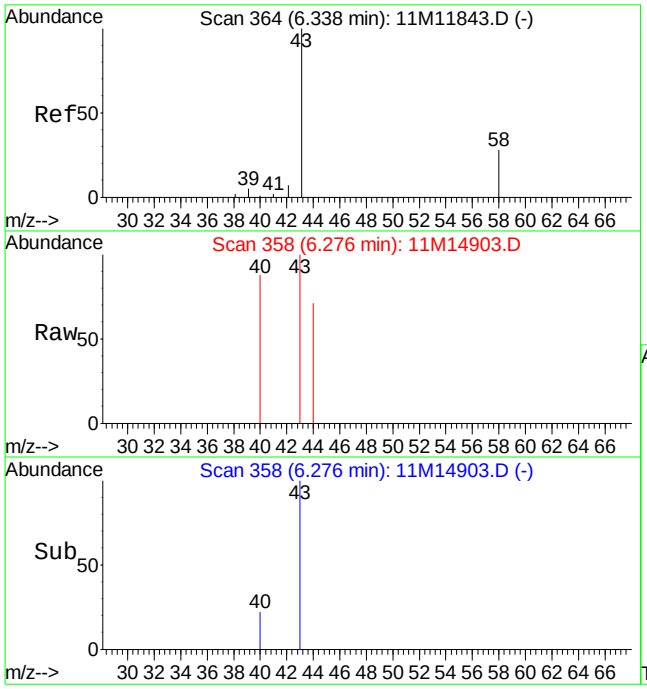


#12
1,1,2-Trichloro-1,2,2-Trifluoroethane
Concen: 1.16 ug/L
RT: 6.20 min Scan# 351
Delta R.T. 0.01 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion:101 Resp: 6301

Ion	Ratio	Lower	Upper
101	100		
151	81.4	41.2	121.2

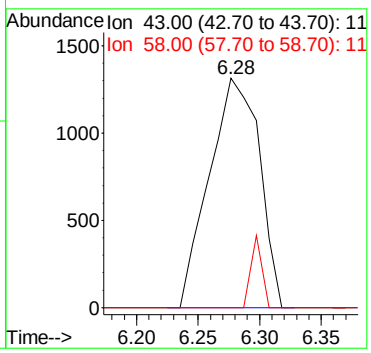


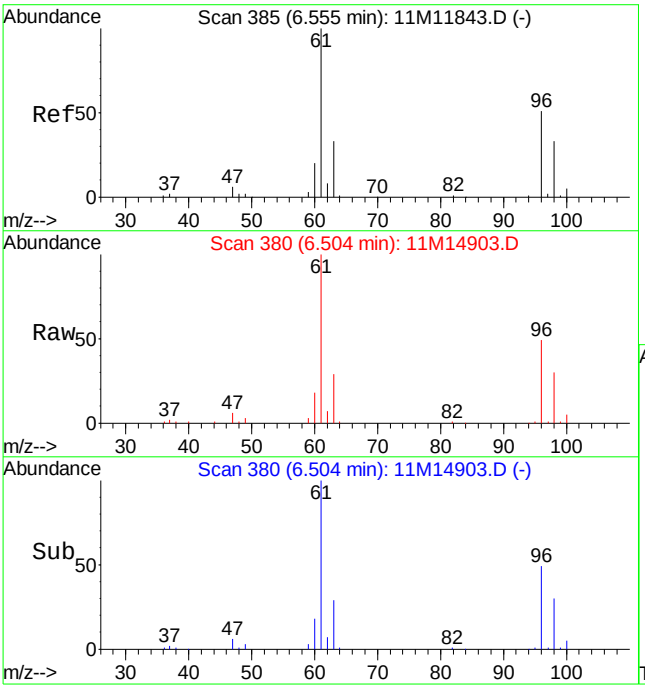


#13
Acetone
Concen: 1.83 ug/L
RT: 6.28 min Scan# 358
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 43 Resp: 3716

Ion	Ratio	Lower	Upper
43	100		
58	6.9	15.1	35.1#

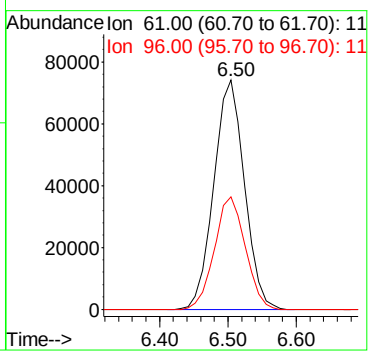


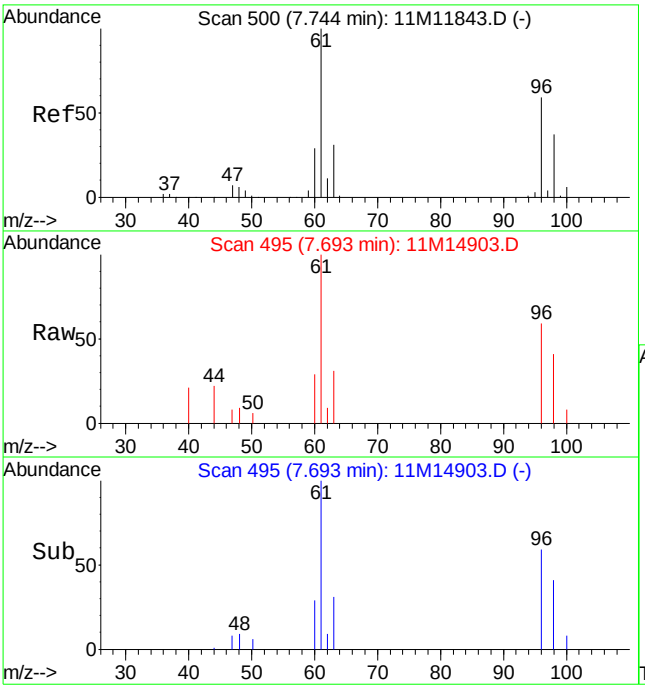


#14
1,1-Dichloroethene
Concen: 21.40 ug/L
RT: 6.50 min Scan# 380
Delta R.T. 0.01 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 61 Resp: 230837

Ion	Ratio	Lower	Upper
61	100		
96	49.2	29.3	68.5

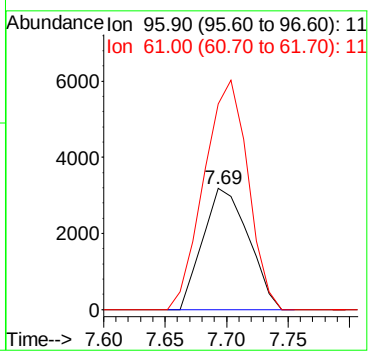


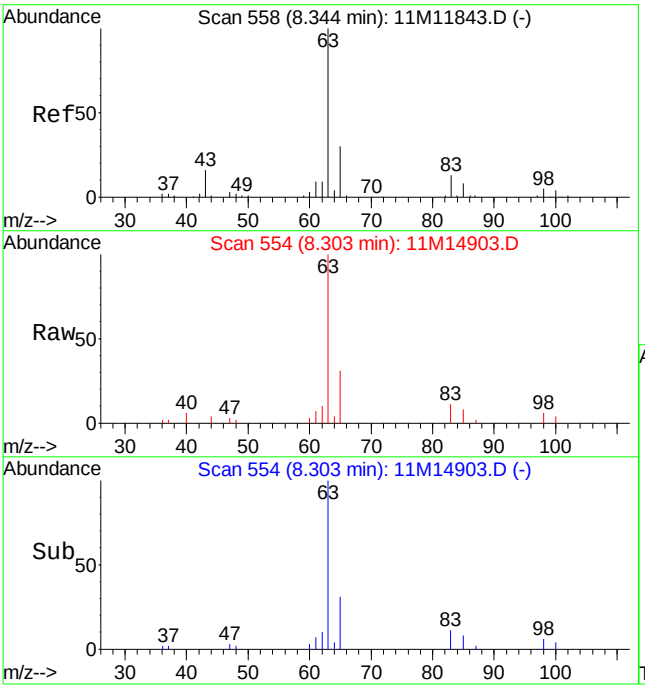


#23
trans-1,2-Dichloroethene
Concen: 1.35 ug/L
RT: 7.69 min Scan# 495
Delta R.T. -0.01 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 96 Resp: 8233

Ion	Ratio	Lower	Upper
96	100		
61	182.0	105.1	245.1

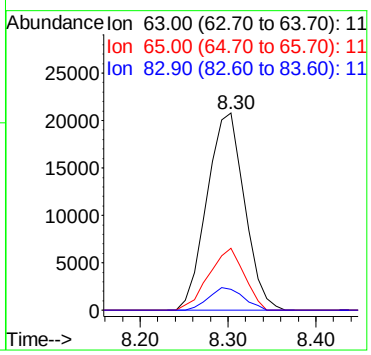


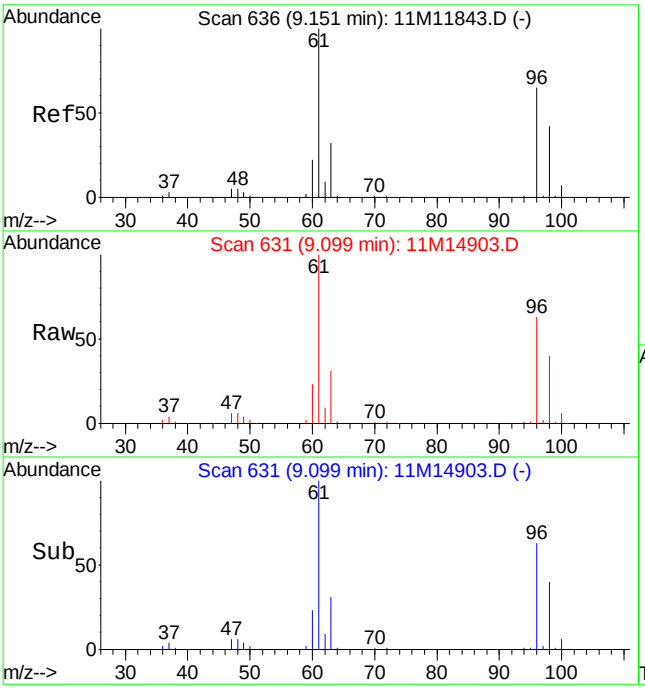


#27
1,1-Dichloroethane
Concen: 4.92 ug/L
RT: 8.30 min Scan# 554
Delta R.T. 0.01 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 63 Resp: 61660

Ion	Ratio	Lower	Upper
63	100		
65	29.8	18.4	43.0
83	10.6	6.8	16.0

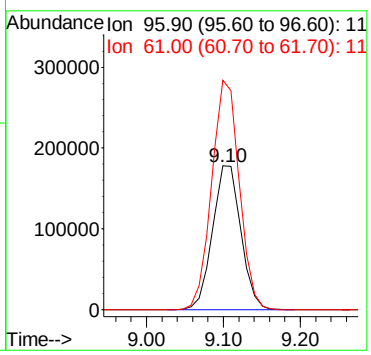


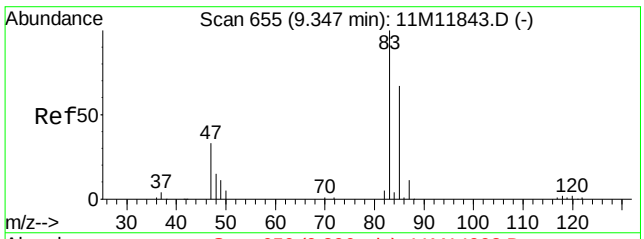


#32
cis-1,2-Dichloroethene
Concen: 67.39 ug/L
RT: 9.10 min Scan# 631
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 96 Resp: 453752

Ion	Ratio	Lower	Upper
96	100		
61	156.2	107.5	250.7

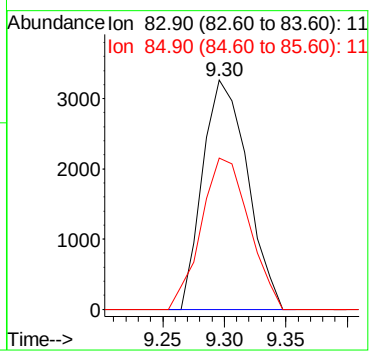


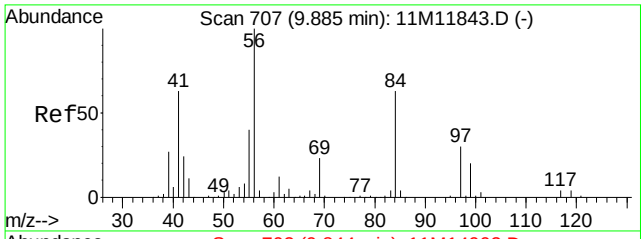


#33
Chloroform
Concen: 0.75 ug/L
RT: 9.30 min Scan# 650
Delta R.T. -0.01 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 83 Resp: 8269

Ion	Ratio	Lower	Upper
83	100		
85	70.6	38.6	90.2

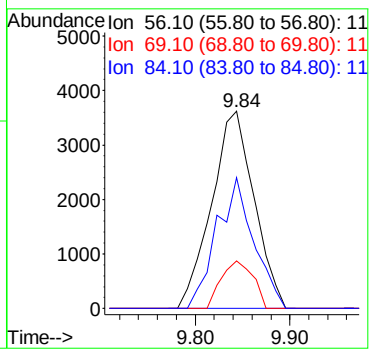


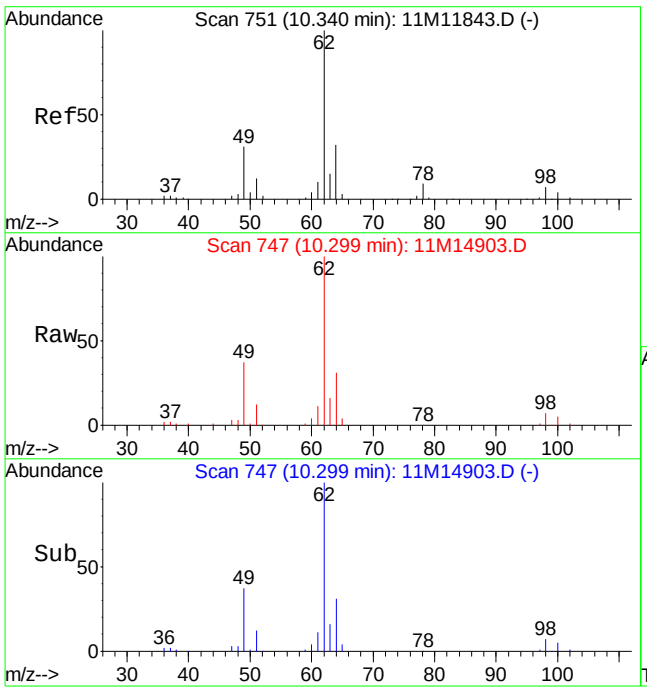


#39
Cyclohexane
Concen: 0.79 ug/L
RT: 9.84 min Scan# 703
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 56 Resp: 11255

Ion	Ratio	Lower	Upper
56	100		
69	18.0	12.4	29.0
84	57.7	34.7	81.1

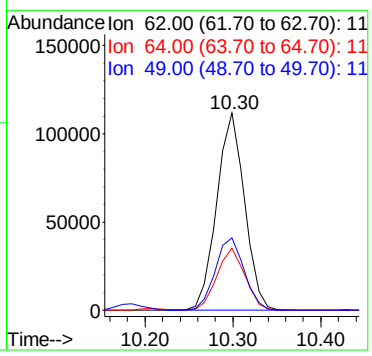


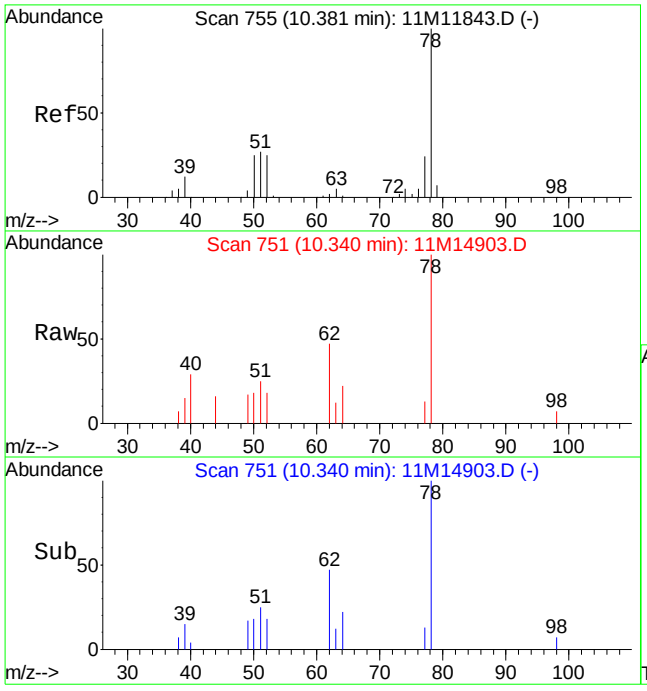


#44
1,2-Dichloroethane
Concen: 26.07 ug/L
RT: 10.30 min Scan# 747
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 62 Resp: 246225

Ion	Ratio	Lower	Upper
62	100		
64	31.8	18.6	43.4
49	38.1	28.1	65.7

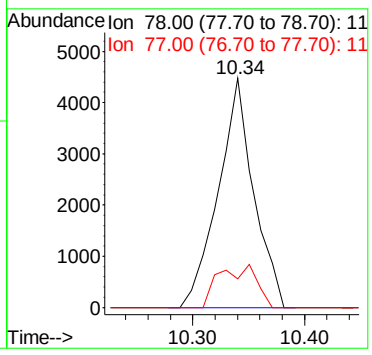


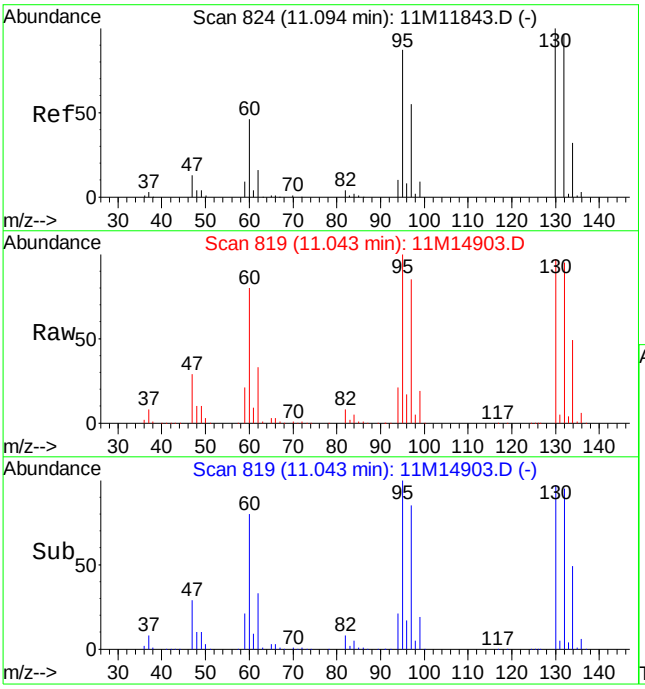


#45
Benzene
Concen: 0.41 ug/L
RT: 10.34 min Scan# 751
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 78 Resp: 9822

Ion	Ratio	Lower	Upper
78	100		
77	19.9	14.2	33.2

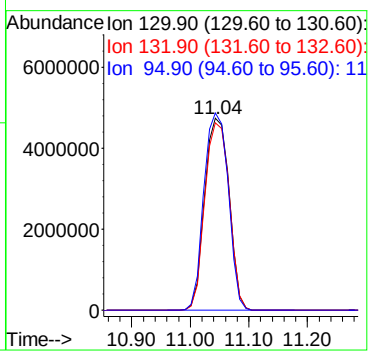


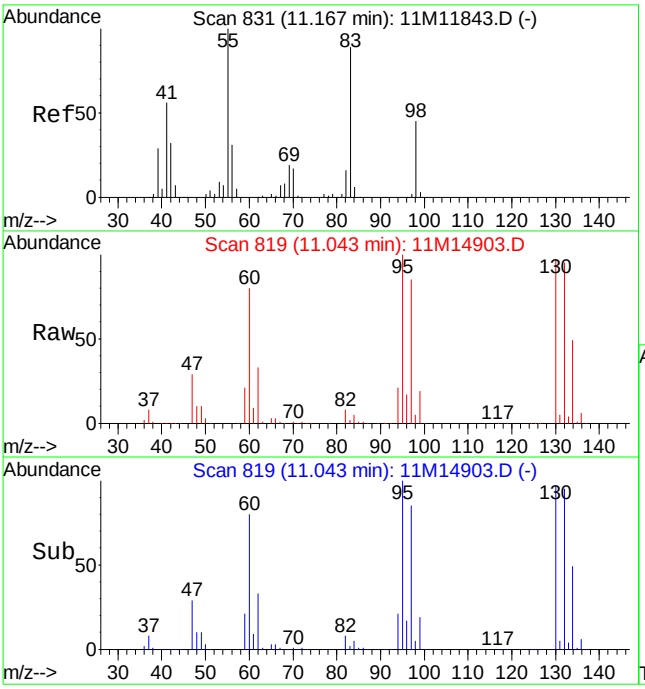


#46
Trichloroethene
Concen: 2004.35 ug/L
RT: 11.04 min Scan# 819
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion:130 Resp:13742476

Ion	Ratio	Lower	Upper
130	100		
132	97.5	58.4	136.4
95	102.4	58.0	135.4

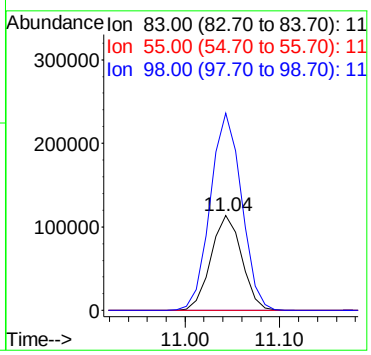


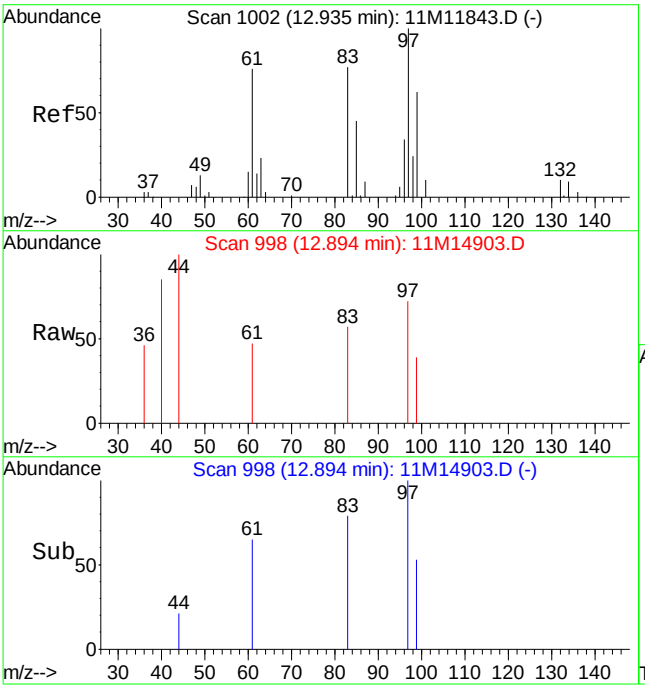


#47
Methylcyclohexane
Concen: 27.60 ug/L
RT: 11.04 min Scan# 819
Delta R.T. -0.08 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 83 Resp: 256492

Ion	Ratio	Lower	Upper
83	100		
55	0.0	70.3	164.1#
98	211.3	28.2	65.8#

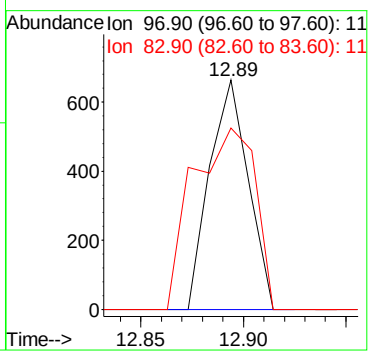


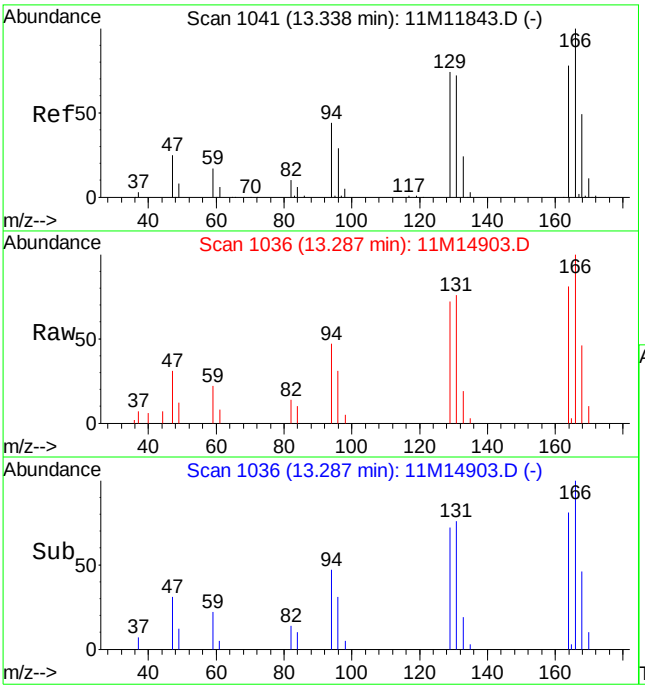


#61
1,1,2-Trichloroethane
Concen: 0.18 ug/L
RT: 12.89 min Scan# 998
Delta R.T. 0.01 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion: 97 Resp: 868

Ion	Ratio	Lower	Upper
97	100		
83	127.9	49.4	115.4#

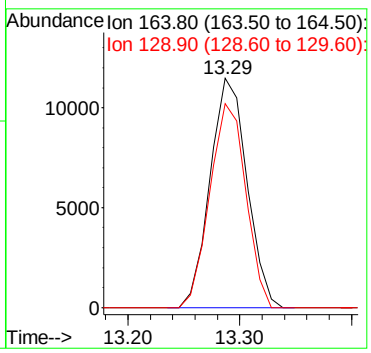


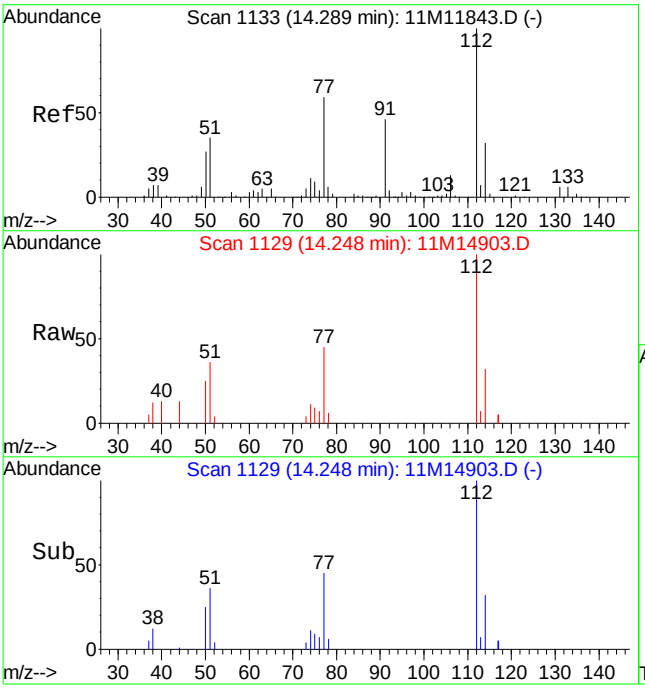


#64
Tetrachloroethene
Concen: 4.91 ug/L
RT: 13.29 min Scan# 1036
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion:164 Resp: 26264

Ion	Ratio	Lower	Upper
164	100		
129	86.6	55.3	129.1

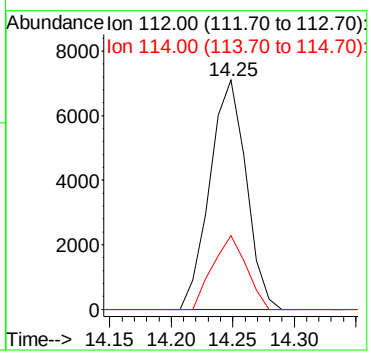




#68
Chlorobenzene
Concen: 0.84 ug/L
RT: 14.25 min Scan# 1129
Delta R.T. 0.00 min
Lab File: 11M14903.D
Acq: 2 Nov 2016 22:18

Tgt Ion:112 Resp: 14644

Ion	Ratio	Lower	Upper
112	100		
114	29.7	19.7	46.1



Data File : C:\MSDCHEM\1\DATA\110316\11M14923.D Vial: 7
Acq On : 3 Nov 2016 19:06 Operator: ADC
Sample : L16110074-05 B 100X 826-LOW D1 Inst : hpms11
Misc : 1,100 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:11:44 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

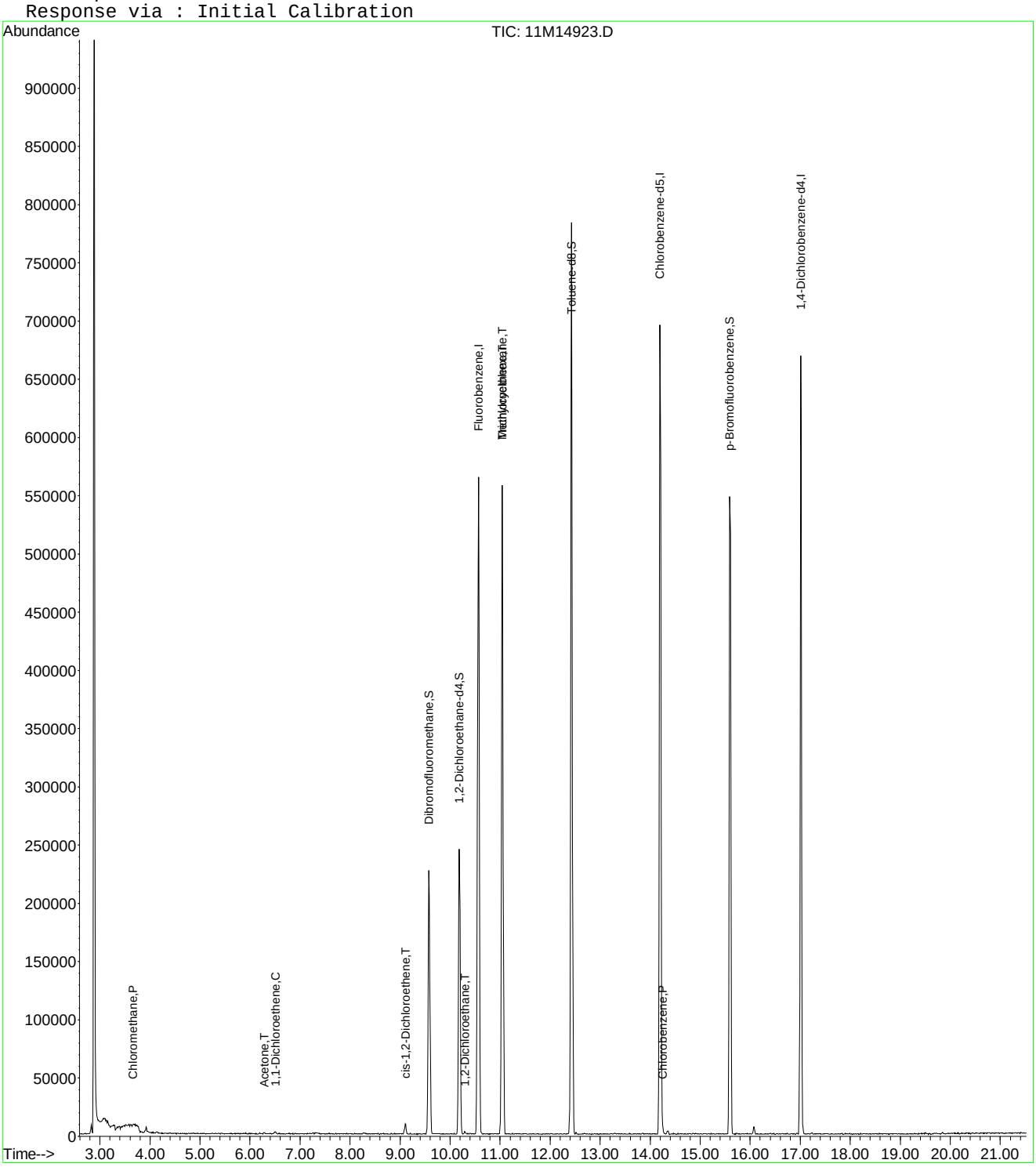
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	630457	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	468637	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	217418	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	184935	24.3856	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 97.56%			
43) 1,2-Dichloroethane-d4	10.18	65	193087	22.6780	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 90.72%			
57) Toluene-d8	12.43	98	640157	25.7768	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 103.12%			
78) p-Bromofluorobenzene	15.59	95	231654	26.6321	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 106.52%			
Target Compounds						Qvalue
3) Chloromethane	3.66	50	4620	0.3938	ug/L #	65
13) Acetone	6.29	43	1053	0.4305	ug/L	91
14) 1,1-Dichloroethene	6.51	61	2795	0.2148	ug/L	86
32) cis-1,2-Dichloroethene	9.11	96	4848	0.5970	ug/L	86
44) 1,2-Dichloroethane	10.30	62	2458	0.2158	ug/L	81
46) Trichloroethene	11.04	130	237861	28.7683	ug/L	98
47) Methylcyclohexane	11.04	83	2392	0.2134	ug/L #	1
68) Chlorobenzene	14.25	112	6008	0.2869	ug/L	85

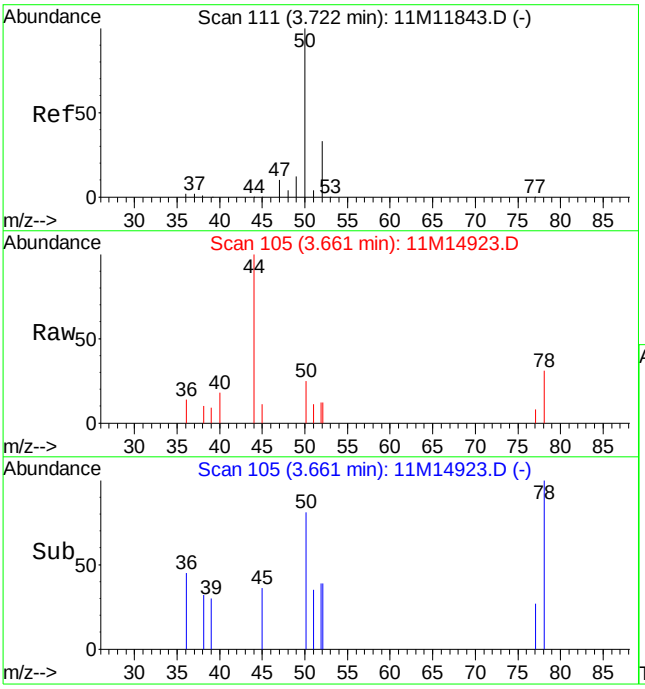
(#) = qualifier out of range (m) = manual integration
11M14923.D 8260WT.M Wed Nov 09 11:11:45 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14923.D Vial: 7
Acq On : 3 Nov 2016 19:06 Operator: ADC
Sample : L16110074-05 B 100X 826-LOW D1 Inst : hpms11
Misc : 1,100 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:11 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

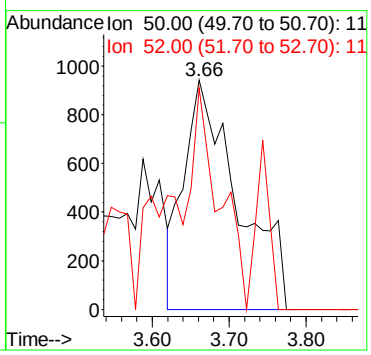


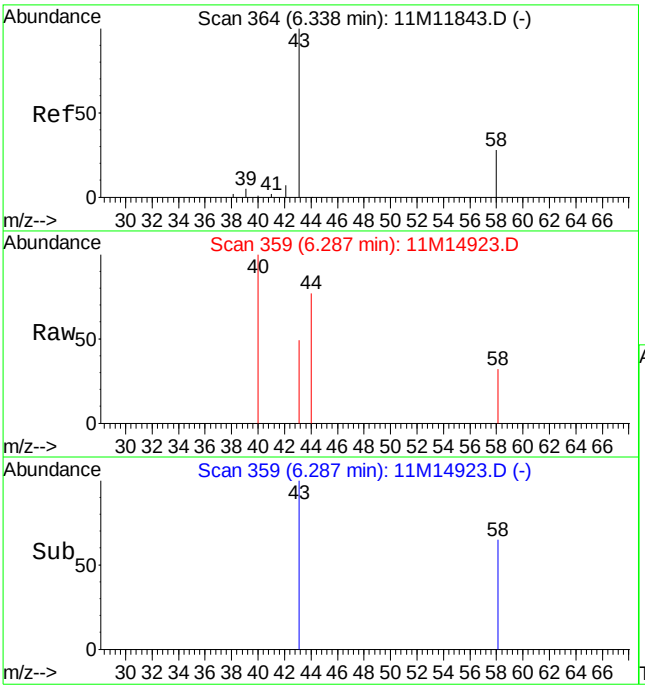


#3
Chloromethane
Concen: 0.39 ug/L
RT: 3.66 min Scan# 105
Delta R.T. 0.00 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion: 50 Resp: 4620

Ion	Ratio	Lower	Upper
50	100		
52	49.5	18.4	42.8#

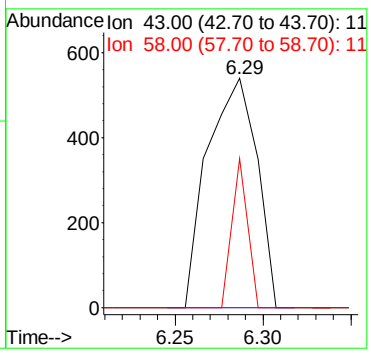


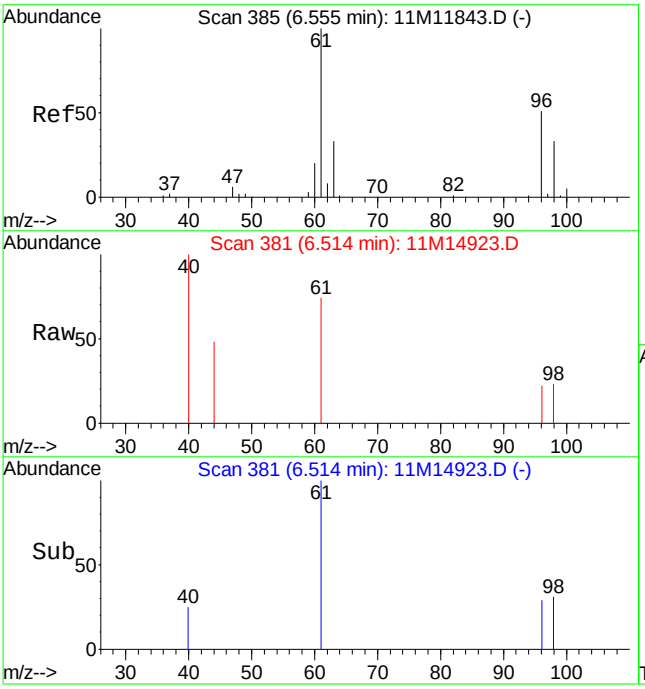


#13
Acetone
Concen: 0.43 ug/L
RT: 6.29 min Scan# 359
Delta R.T. 0.01 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion: 43 Resp: 1053

Ion	Ratio	Lower	Upper
43	100		
58	20.7	15.1	35.1

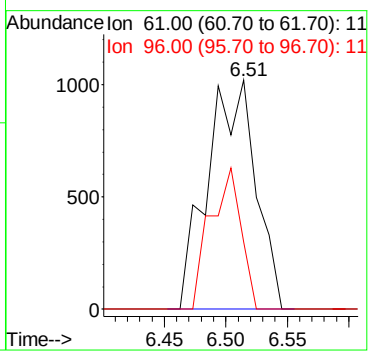


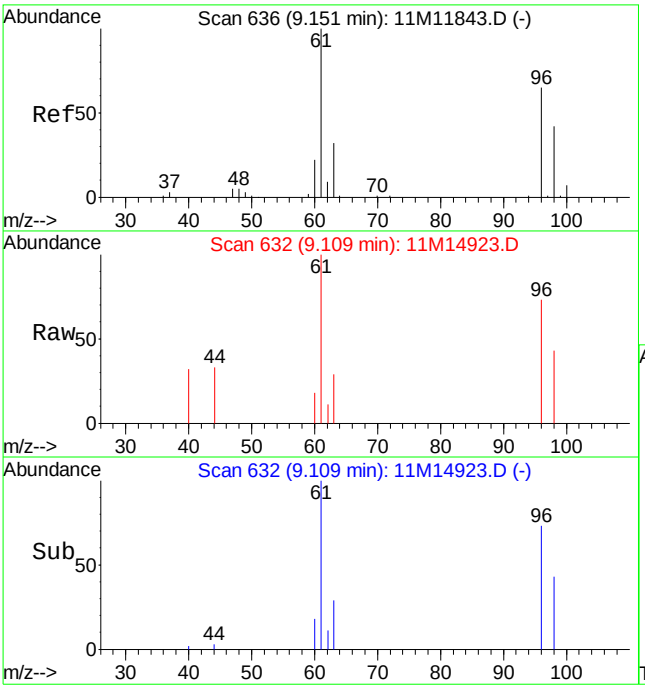


#14
1,1-Dichloroethene
Concen: 0.21 ug/L
RT: 6.51 min Scan# 381
Delta R.T. 0.02 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion: 61 Resp: 2795

Ion	Ratio	Lower	Upper
61	100		
96	39.1	29.3	68.5

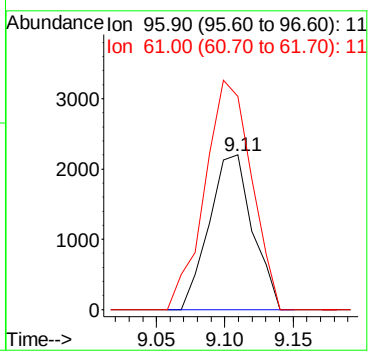


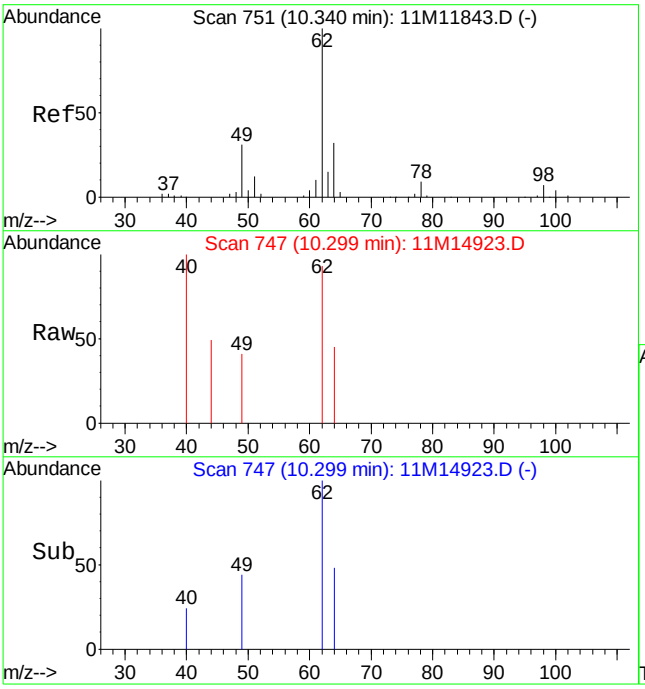


#32
cis-1,2-Dichloroethene
Concen: 0.60 ug/L
RT: 9.11 min Scan# 632
Delta R.T. 0.01 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion: 96 Resp: 4848

Ion	Ratio	Lower	Upper
96	100		
61	159.8	107.5	250.7

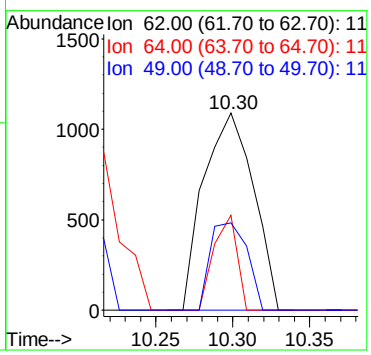


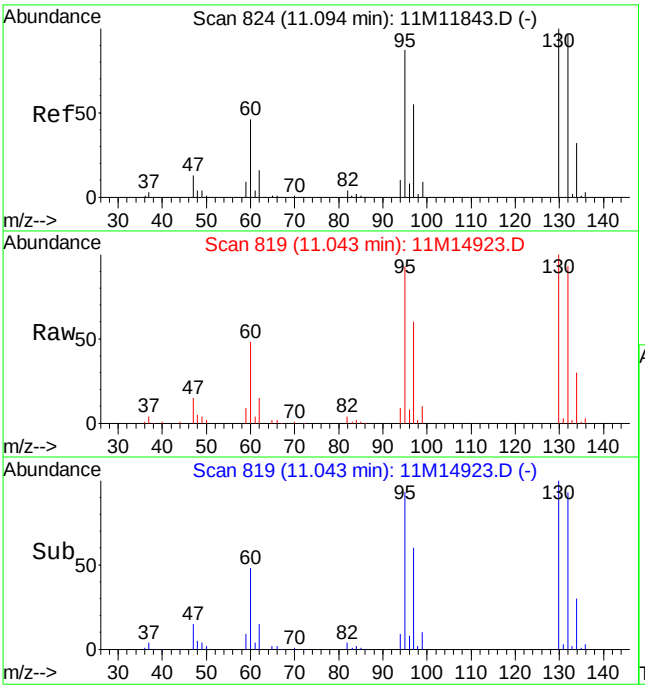


#44
1,2-Dichloroethane
Concen: 0.22 ug/L
RT: 10.30 min Scan# 747
Delta R.T. 0.00 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion: 62 Resp: 2458

Ion	Ratio	Lower	Upper
62	100		
64	22.6	18.6	43.4
49	32.9	28.1	65.7

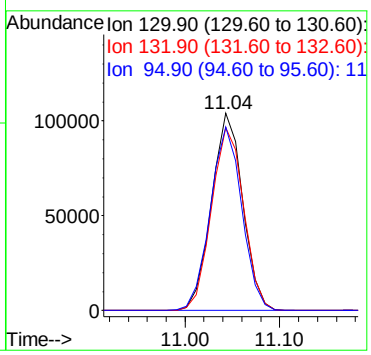


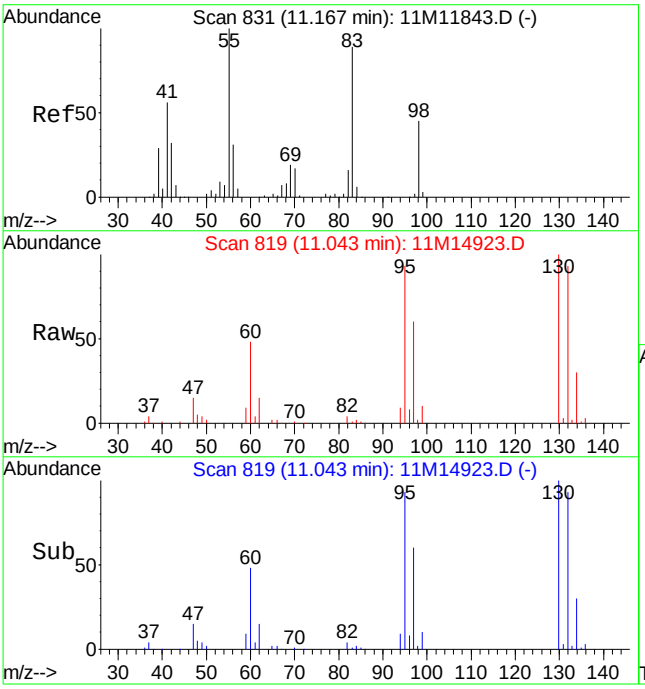


#46
Trichloroethene
Concen: 28.77 ug/L
RT: 11.04 min Scan# 819
Delta R.T. 0.00 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion:130 Resp: 237861

Ion	Ratio	Lower	Upper
130	100		
132	95.2	58.4	136.4
95	94.2	58.0	135.4

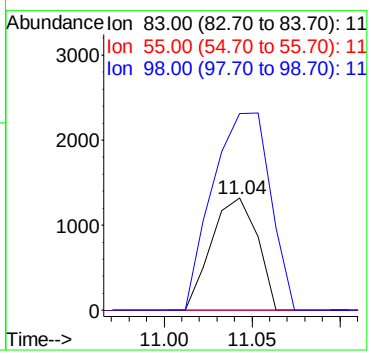


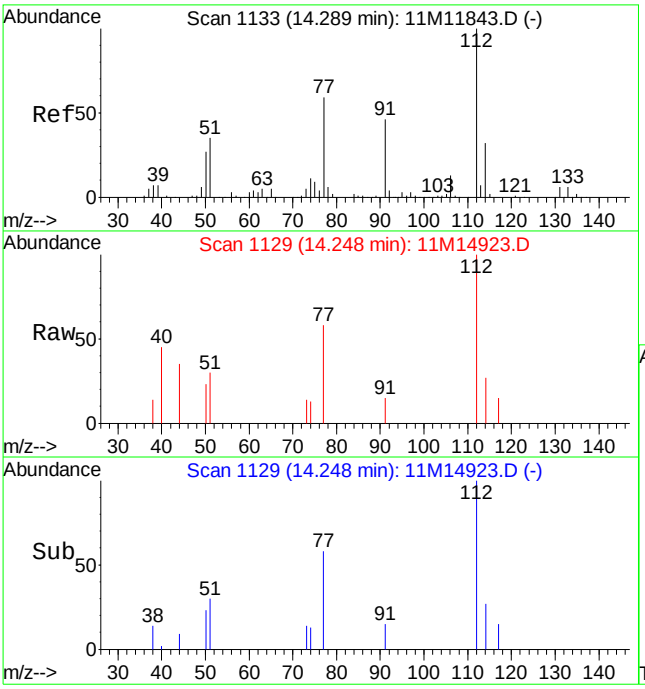


#47
Methylcyclohexane
Concen: 0.21 ug/L
RT: 11.04 min Scan# 819
Delta R.T. -0.08 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion: 83 Resp: 2392

Ion	Ratio	Lower	Upper
83	100		
55	0.0	70.3	164.1#
98	220.8	28.2	65.8#

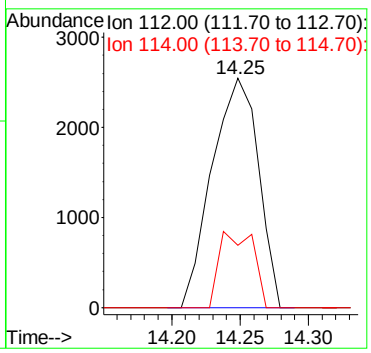




#68
Chlorobenzene
Concen: 0.29 ug/L
RT: 14.25 min Scan# 1129
Delta R.T. 0.00 min
Lab File: 11M14923.D
Acq: 3 Nov 2016 19:06

Tgt Ion:112 Resp: 6008

Ion	Ratio	Lower	Upper
112	100		
114	24.3	19.7	46.1



Data File : C:\MSDCHEM\1\DATA\110316\11M14931.D Vial: 15
Acq On : 3 Nov 2016 23:00 Operator: ADC
Sample : L16110074-07 B 826-LOW Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:12:27 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

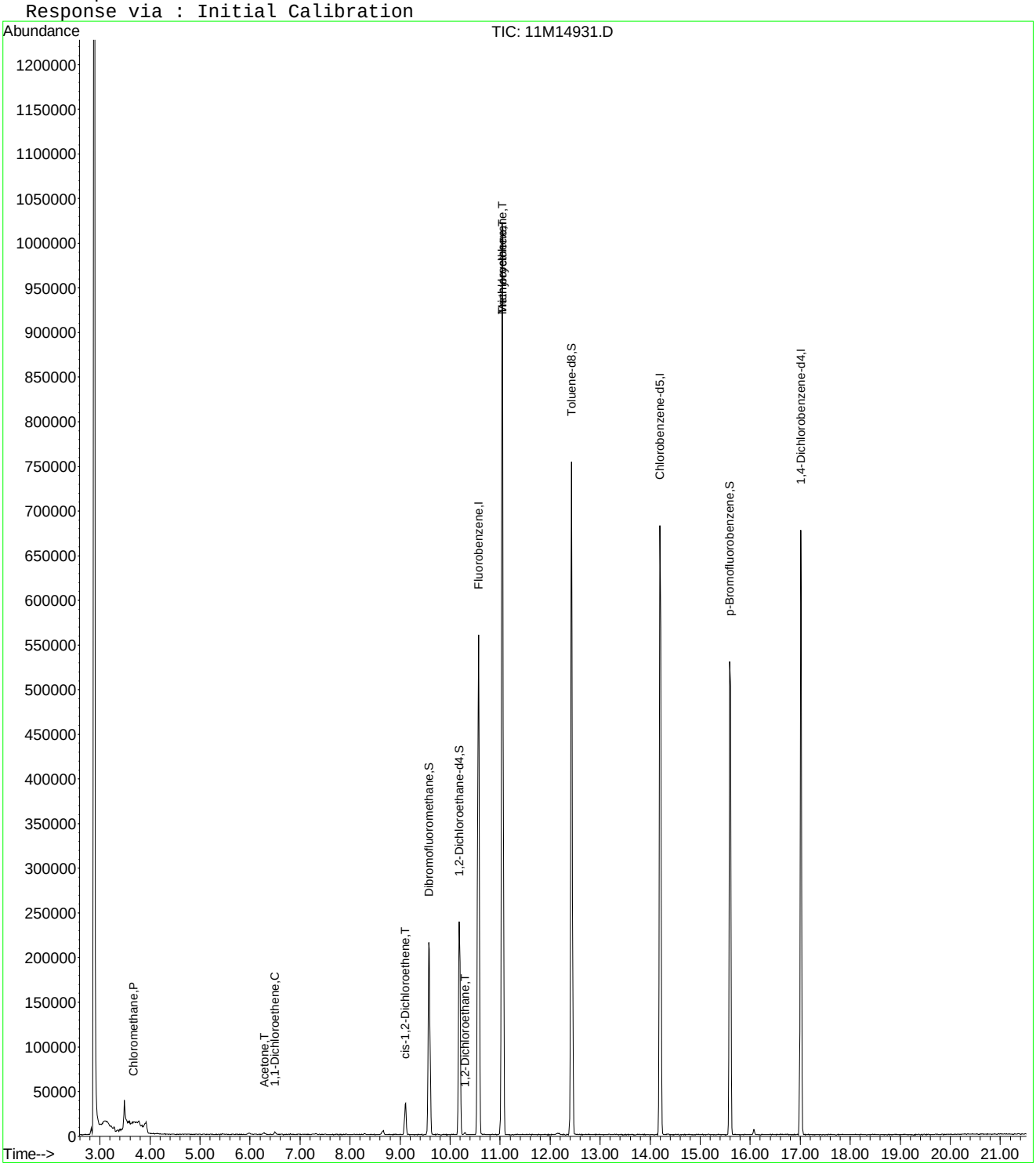
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	614930	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	465918	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	220825	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	177715	24.0252	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 96.12%			
43) 1,2-Dichloroethane-d4	10.18	65	191052	23.0055	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 92.04%			
57) Toluene-d8	12.43	98	608006	24.6251	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.52%			
78) p-Bromofluorobenzene	15.59	95	221419	25.0627	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 100.24%			
Target Compounds						Qvalue
3) Chloromethane	3.67	50	2418	0.2113	ug/L #	12
13) Acetone	6.29	43	3899	1.6343	ug/L	89
14) 1,1-Dichloroethene	6.49	61	3441	0.2711	ug/L	97
32) cis-1,2-Dichloroethene	9.10	96	18770	2.3700	ug/L	82
44) 1,2-Dichloroethane	10.30	62	2728	0.2456	ug/L	86
46) Trichloroethene	11.04	130	436893	54.1747	ug/L	97
47) Methylcyclohexane	11.04	83	4283	0.3918	ug/L #	1

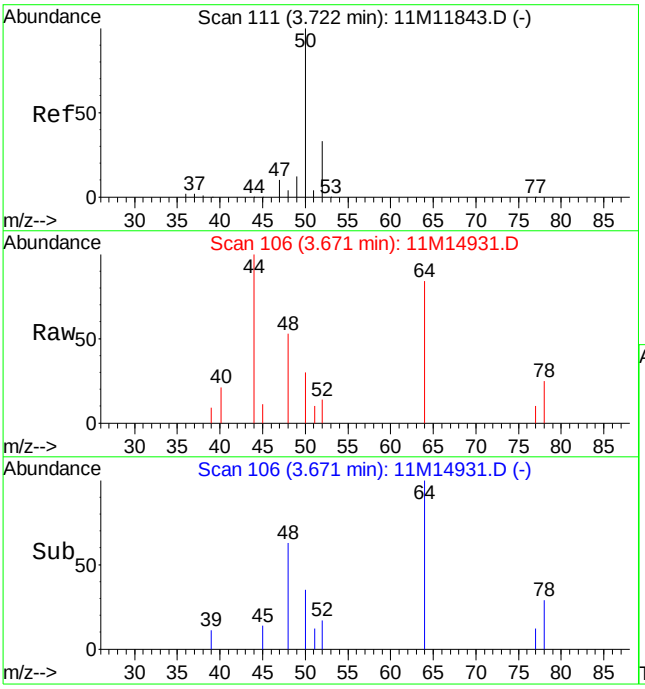
(#) = qualifier out of range (m) = manual integration
11M14931.D 8260WT.M Wed Nov 09 11:12:28 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14931.D Vial: 15
Acq On : 3 Nov 2016 23:00 Operator: ADC
Sample : L16110074-07 B 826-LOW Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:12 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

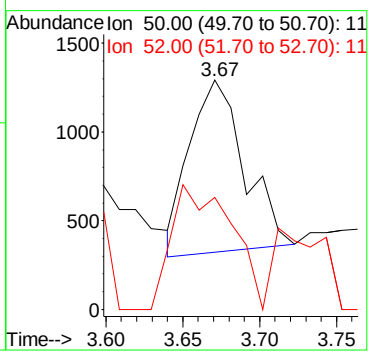


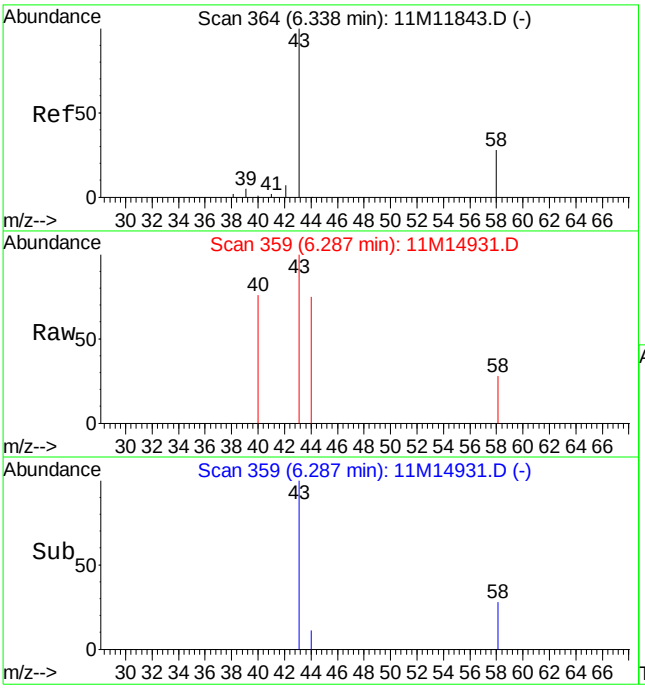


#3
Chloromethane
Concen: 0.21 ug/L
RT: 3.67 min Scan# 106
Delta R.T. 0.01 min
Lab File: 11M14931.D
Acq: 3 Nov 2016 23:00

Tgt Ion: 50 Resp: 2418

Ion	Ratio	Lower	Upper
50	100		
52	78.7	18.4	42.8#

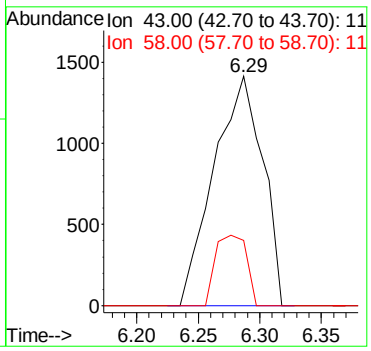


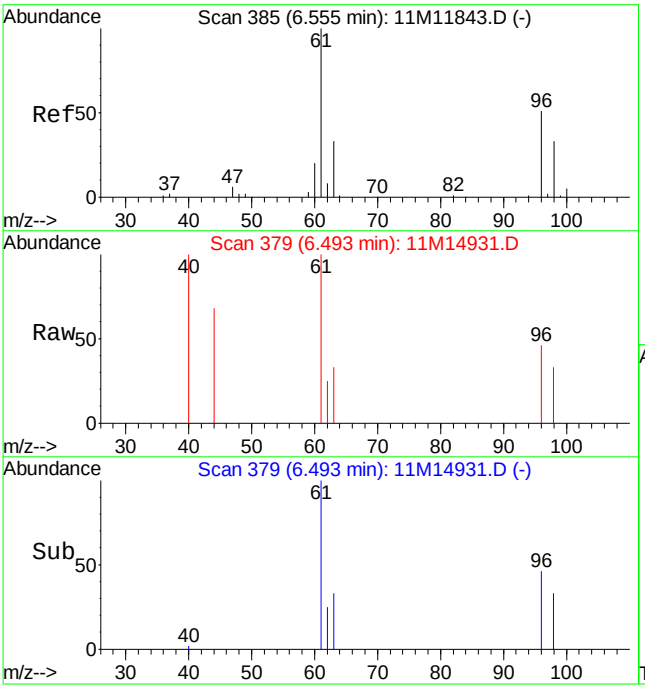


#13
Acetone
Concen: 1.63 ug/L
RT: 6.29 min Scan# 359
Delta R.T. 0.01 min
Lab File: 11M14931.D
Acq: 3 Nov 2016 23:00

Tgt Ion: 43 Resp: 3899

Ion	Ratio	Lower	Upper
43	100		
58	19.6	15.1	35.1

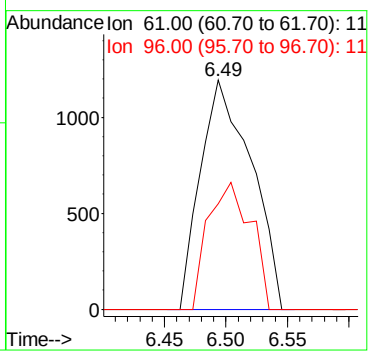


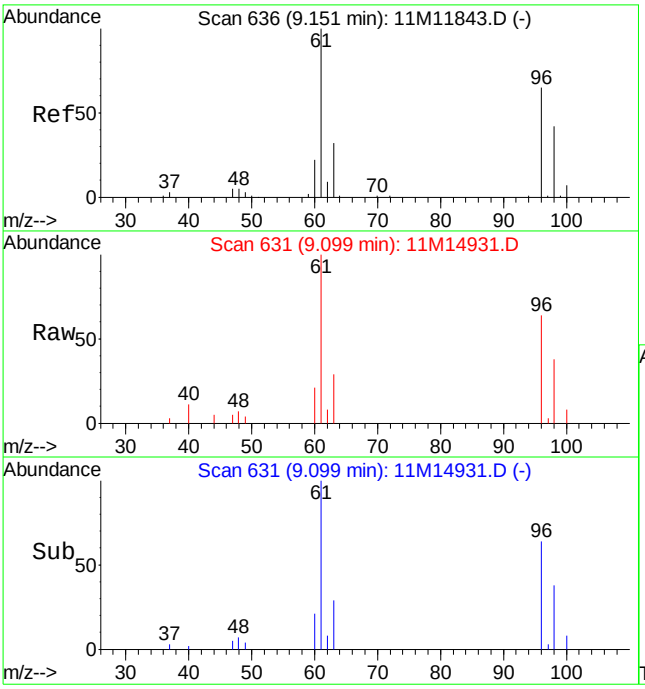


#14
1,1-Dichloroethene
Concen: 0.27 ug/L
RT: 6.49 min Scan# 379
Delta R.T. 0.00 min
Lab File: 11M14931.D
Acq: 3 Nov 2016 23:00

Tgt Ion: 61 Resp: 3441

Ion	Ratio	Lower	Upper
61	100		
96	46.6	29.3	68.5

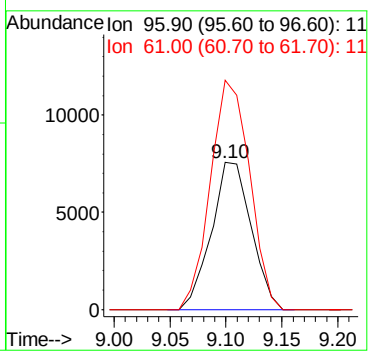


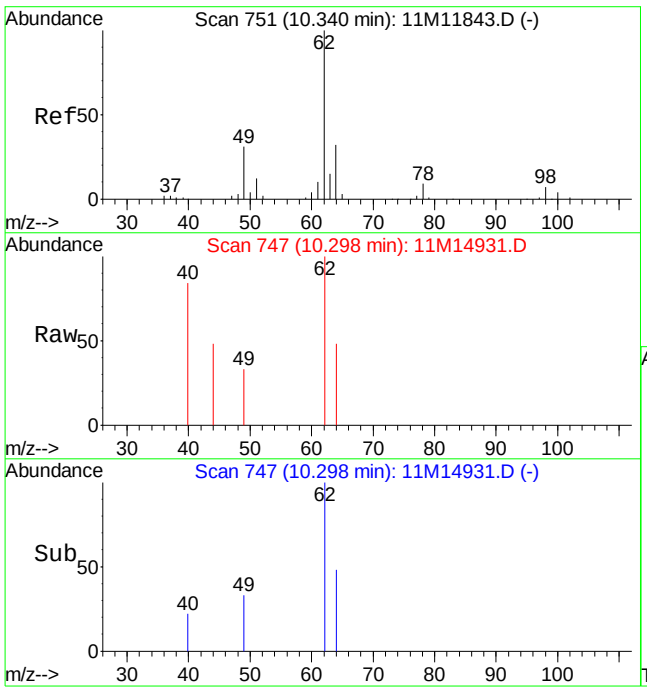


#32
cis-1,2-Dichloroethene
Concen: 2.37 ug/L
RT: 9.10 min Scan# 631
Delta R.T. 0.00 min
Lab File: 11M14931.D
Acq: 3 Nov 2016 23:00

Tgt Ion: 96 Resp: 18770

Ion	Ratio	Lower	Upper
96	100		
61	153.6	107.5	250.7

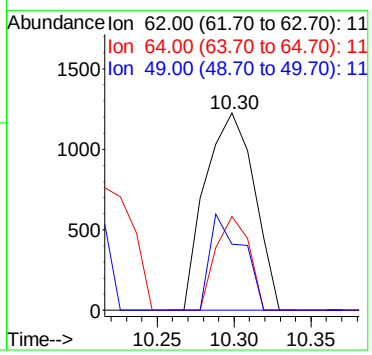


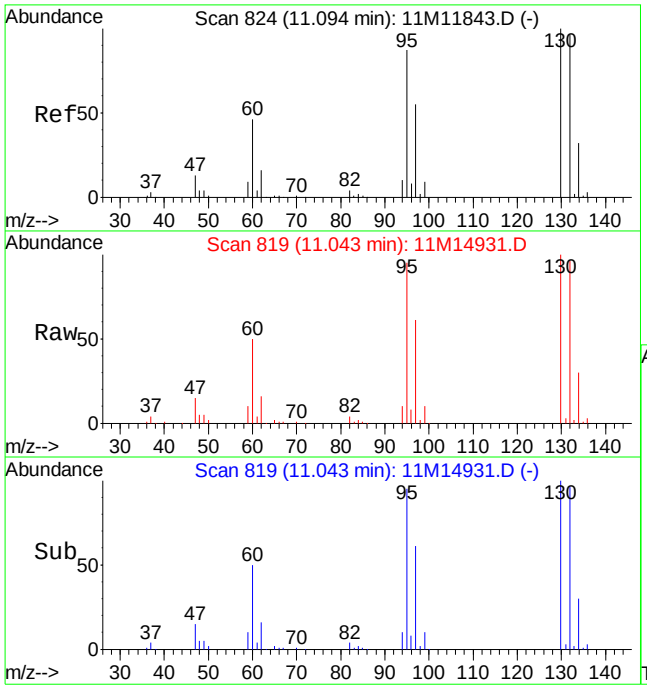


#44
1,2-Dichloroethane
Concen: 0.25 ug/L
RT: 10.30 min Scan# 747
Delta R.T. 0.00 min
Lab File: 11M14931.D
Acq: 3 Nov 2016 23:00

Tgt Ion: 62 Resp: 2728

Ion	Ratio	Lower	Upper
62	100		
64	32.2	18.6	43.4
49	32.0	28.1	65.7

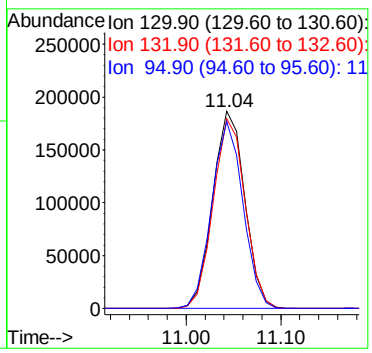


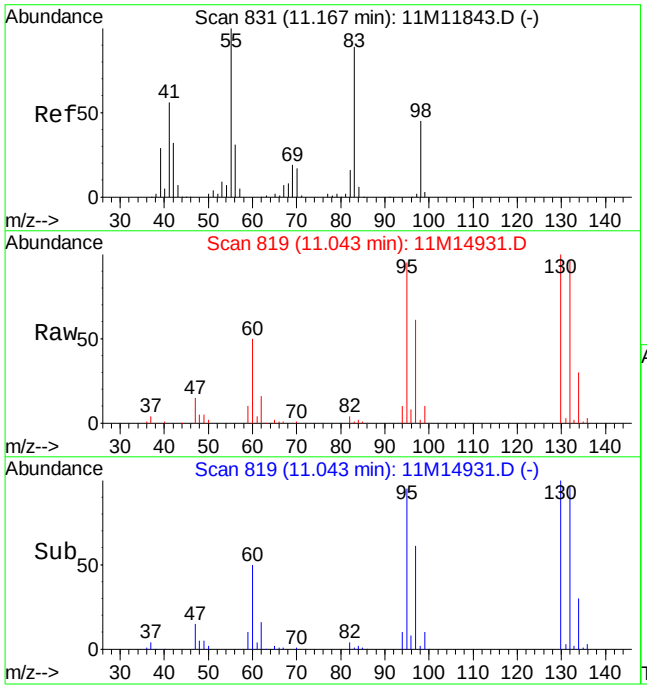


#46
Trichloroethene
Concen: 54.17 ug/L
RT: 11.04 min Scan# 819
Delta R.T. 0.00 min
Lab File: 11M14931.D
Acq: 3 Nov 2016 23:00

Tgt Ion:130 Resp: 436893

Ion	Ratio	Lower	Upper
130	100		
132	95.7	58.4	136.4
95	92.9	58.0	135.4

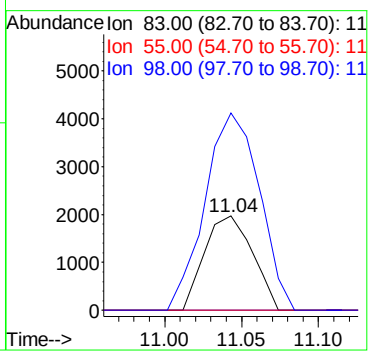




#47
Methylcyclohexane
Concen: 0.39 ug/L
RT: 11.04 min Scan# 819
Delta R.T. -0.08 min
Lab File: 11M14931.D
Acq: 3 Nov 2016 23:00

Tgt Ion: 83 Resp: 4283

Ion	Ratio	Lower	Upper
83	100		
55	0.0	70.3	164.1#
98	236.8	28.2	65.8#



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14932.D Vial: 16
Acq On : 3 Nov 2016 23:29 Operator: ADC
Sample : L16110074-09 B 826-LOW Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:12:32 2016 Quant Results File: 8260WT.RES

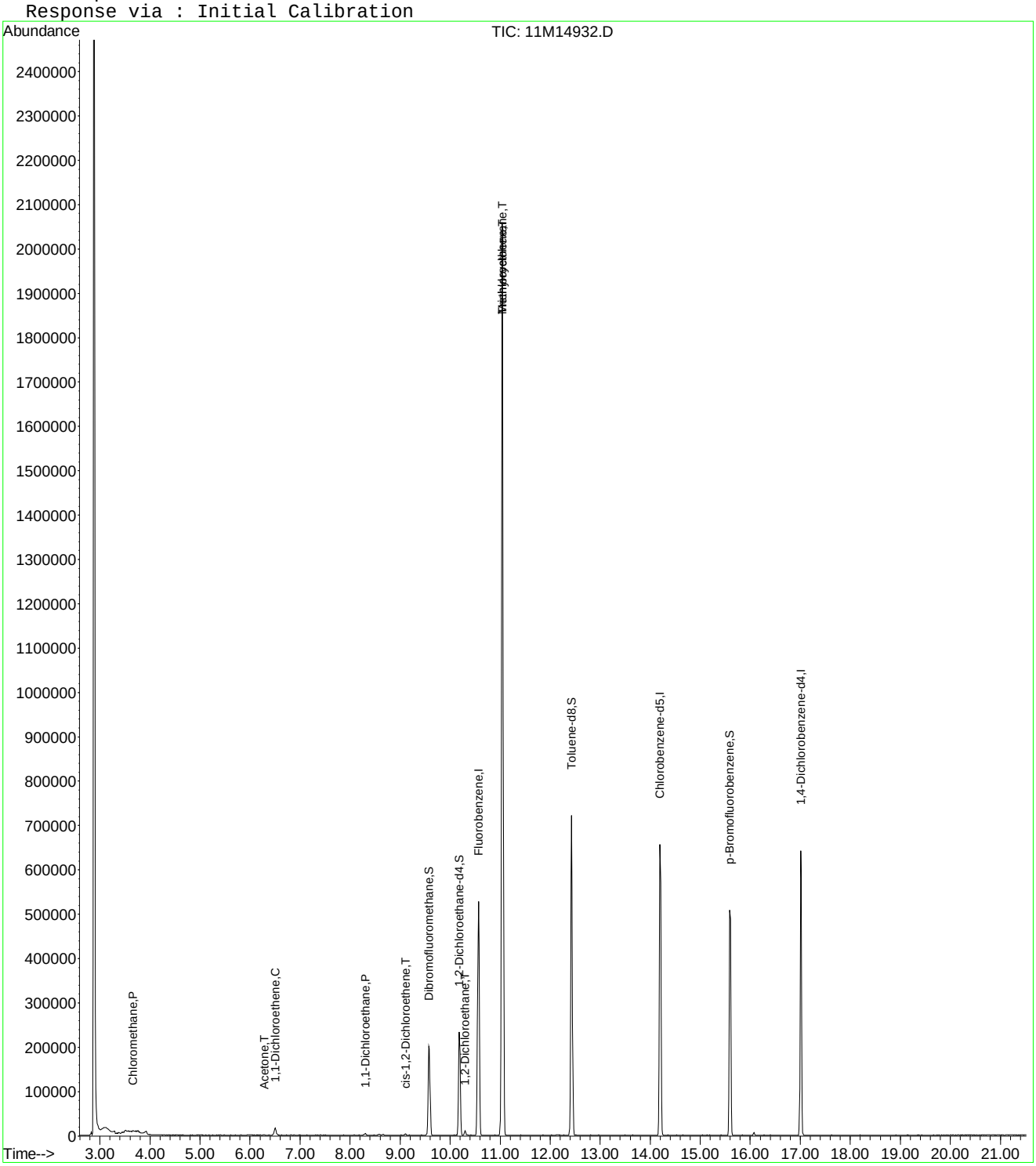
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

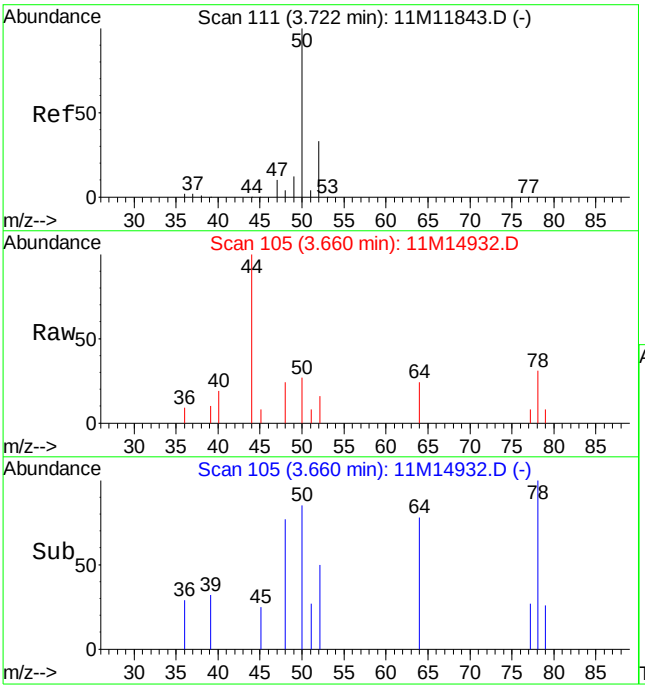
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	597807	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	452991	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	210205	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	169370	23.5529	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 94.20%			
43) 1,2-Dichloroethane-d4	10.18	65	185839	23.0188	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 92.08%			
57) Toluene-d8	12.43	98	591834	24.6541	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.60%			
78) p-Bromofluorobenzene	15.59	95	210839	25.0709	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 100.28%			
Target Compounds						Qvalue
3) Chloromethane	3.66	50	3905	0.3511	ug/L	80
13) Acetone	6.29	43	1799	0.7757	ug/L #	74
14) 1,1-Dichloroethene	6.50	61	19340	1.5676	ug/L	92
27) 1,1-Dichloroethane	8.30	63	7215	0.5035	ug/L #	86
32) cis-1,2-Dichloroethene	9.11	96	1295	0.1682	ug/L	80
44) 1,2-Dichloroethane	10.30	62	10284	0.9522	ug/L	88
46) Trichloroethene	11.04	130	855288	109.0934	ug/L	99
47) Methylcyclohexane	11.04	83	9194	0.8651	ug/L #	1

(#) = qualifier out of range (m) = manual integration
11M14932.D 8260WT.M Wed Nov 09 11:12:33 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110316\11M14932.D Vial: 16
Acq On : 3 Nov 2016 23:29 Operator: ADC
Sample : L16110074-09 B 826-LOW Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:12 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

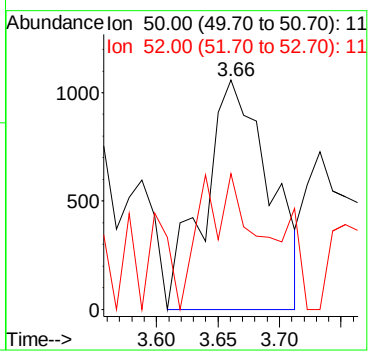


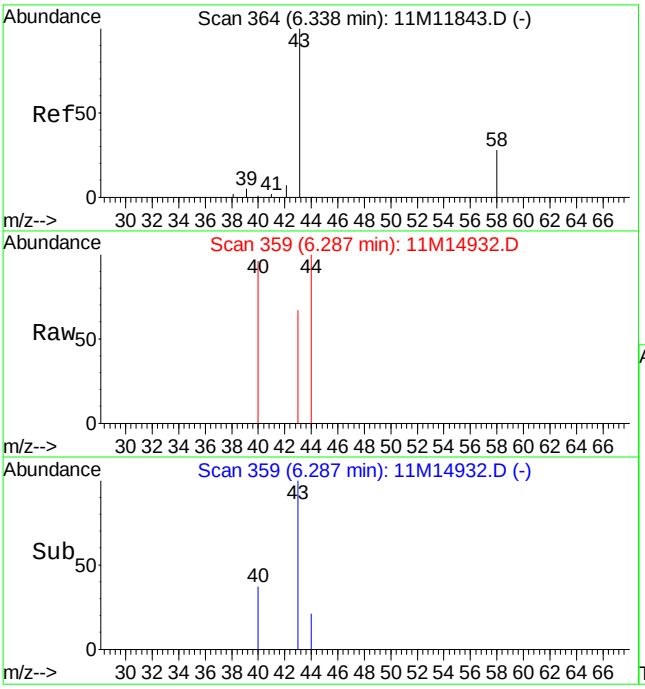


#3
Chloromethane
Concen: 0.35 ug/L
RT: 3.66 min Scan# 105
Delta R.T. 0.00 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion: 50 Resp: 3905

Ion	Ratio	Lower	Upper
50	100		
52	19.8	18.4	42.8

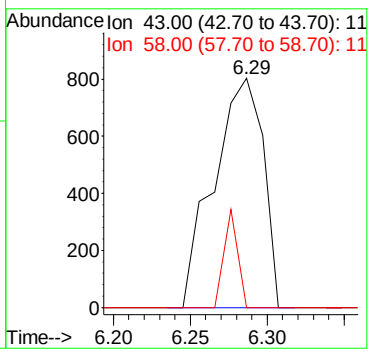


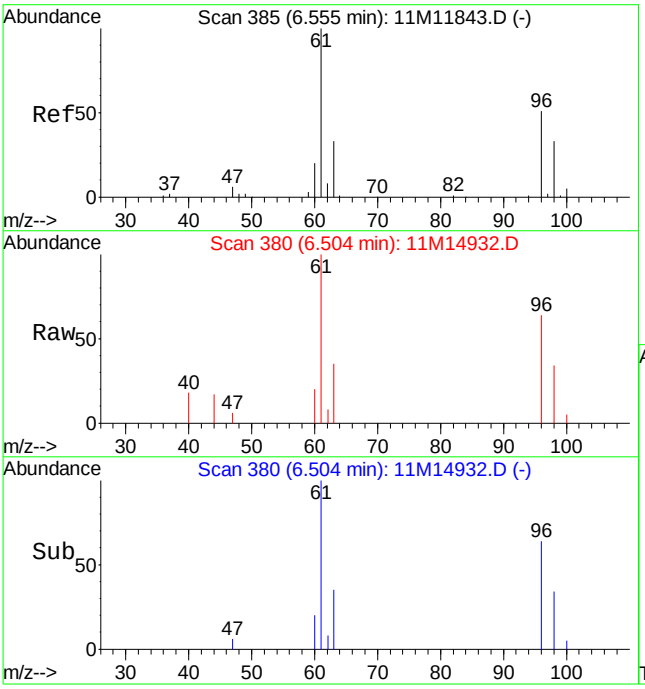


#13
Acetone
Concen: 0.78 ug/L
RT: 6.29 min Scan# 359
Delta R.T. 0.01 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion: 43 Resp: 1799

Ion	Ratio	Lower	Upper
43	100		
58	11.8	15.1	35.1#

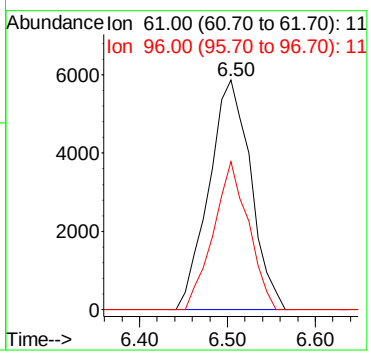


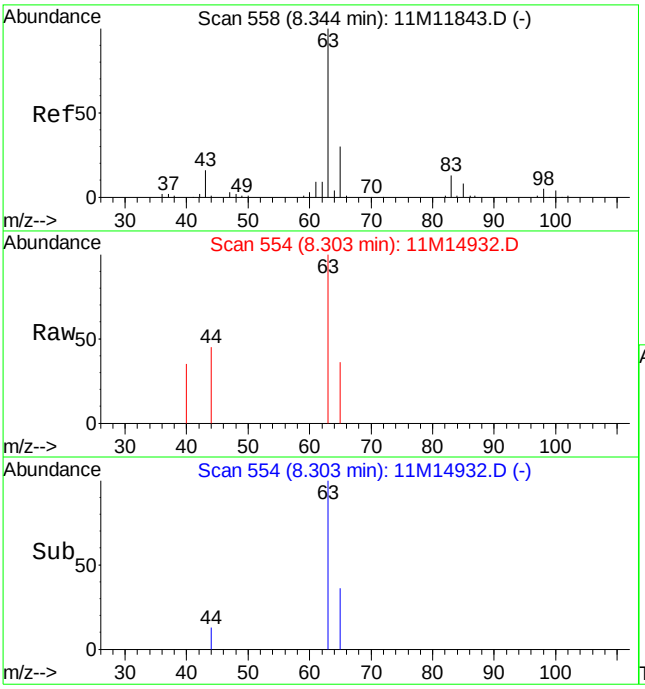


#14
1,1-Dichloroethene
Concen: 1.57 ug/L
RT: 6.50 min Scan# 380
Delta R.T. 0.01 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion: 61 Resp: 19340

Ion	Ratio	Lower	Upper
61	100		
96	54.2	29.3	68.5

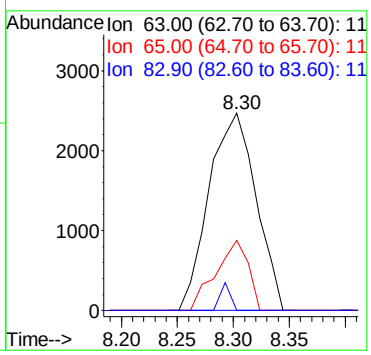


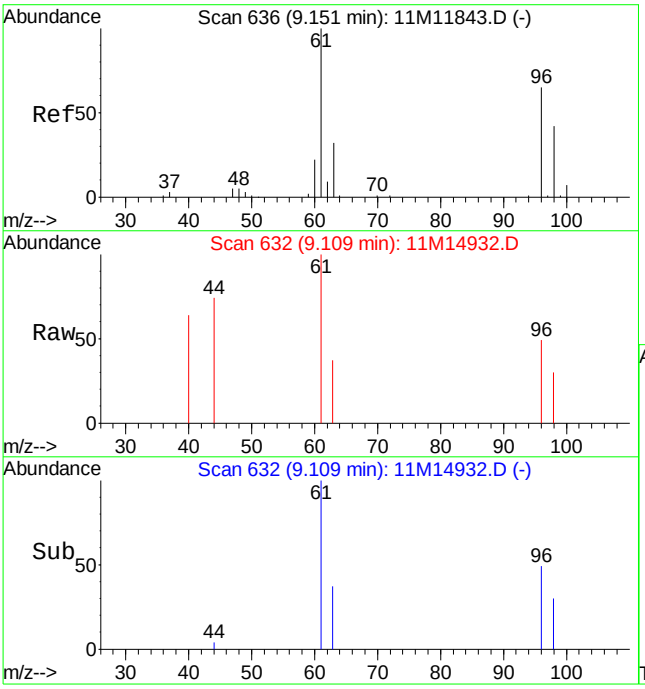


#27
1,1-Dichloroethane
Concen: 0.50 ug/L
RT: 8.30 min Scan# 554
Delta R.T. 0.01 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion: 63 Resp: 7215

Ion	Ratio	Lower	Upper
63	100		
65	24.4	18.4	43.0
83	3.0	6.8	16.0#

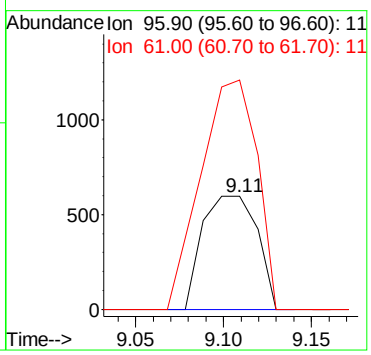


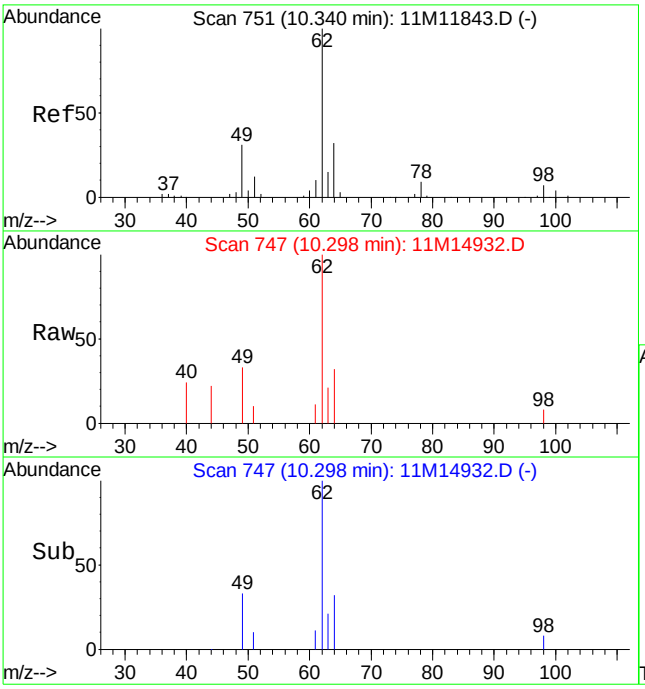


#32
cis-1,2-Dichloroethene
Concen: 0.17 ug/L
RT: 9.11 min Scan# 632
Delta R.T. 0.01 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion: 96 Resp: 1295

Ion	Ratio	Lower	Upper
96	100		
61	207.6	107.5	250.7

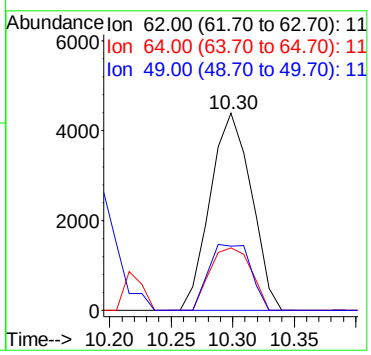


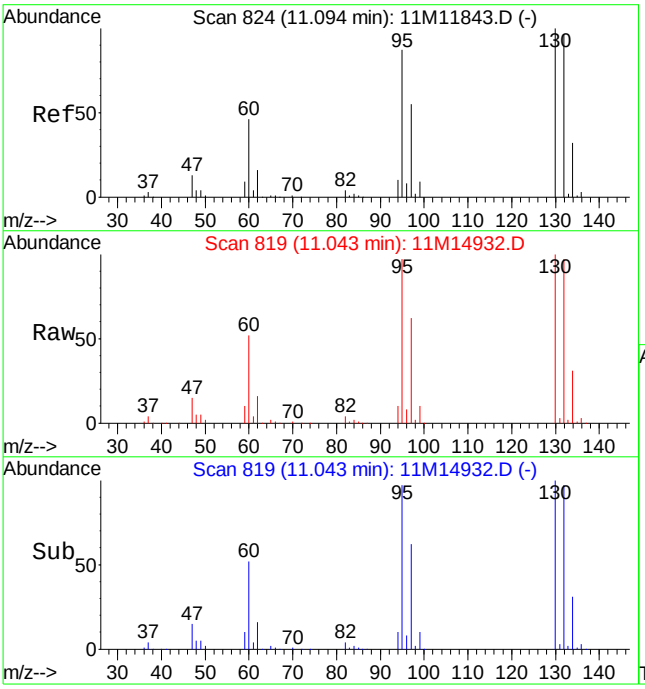


#44
1,2-Dichloroethane
Concen: 0.95 ug/L
RT: 10.30 min Scan# 747
Delta R.T. -0.00 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion: 62 Resp: 10284

Ion	Ratio	Lower	Upper
62	100		
64	31.9	18.6	43.4
49	33.9	28.1	65.7

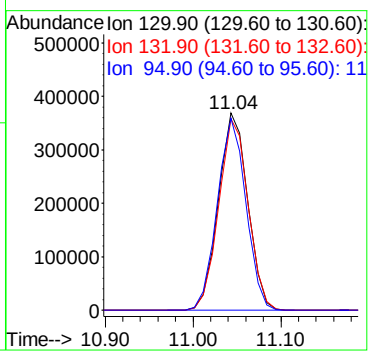


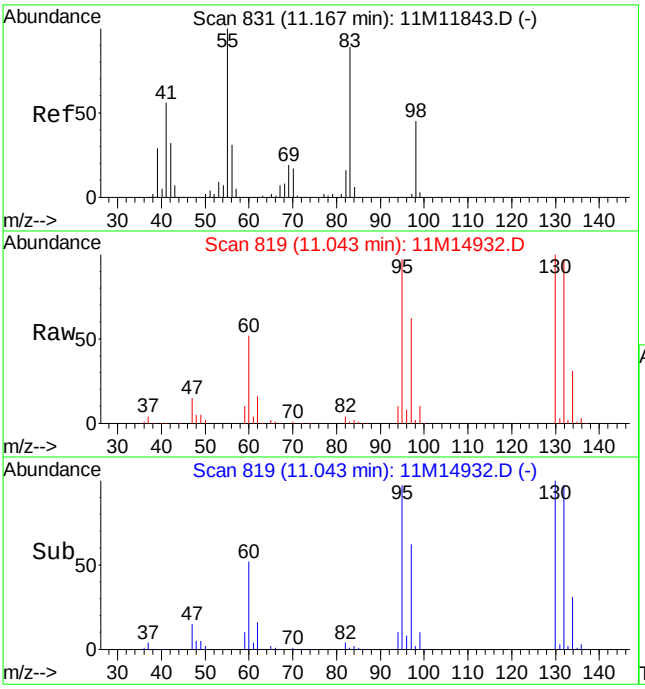


#46
Trichloroethene
Concen: 109.09 ug/L
RT: 11.04 min Scan# 819
Delta R.T. -0.00 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion:130 Resp: 855288

Ion	Ratio	Lower	Upper
130	100		
132	96.9	58.4	136.4
95	95.1	58.0	135.4

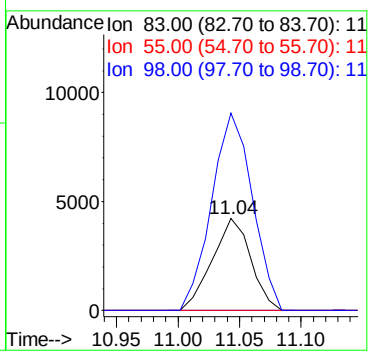




#47
Methylcyclohexane
Concen: 0.87 ug/L
RT: 11.04 min Scan# 819
Delta R.T. -0.08 min
Lab File: 11M14932.D
Acq: 3 Nov 2016 23:29

Tgt Ion: 83 Resp: 9194

Ion	Ratio	Lower	Upper
83	100		
55	0.0	70.3	164.1#
98	226.9	28.2	65.8#



Data File : C:\MSDCHEM\1\DATA\111116\11M15152.D Vial: 14
Acq On : 11 Nov 2016 20:56 Operator: ADC
Sample : L16110074-11 B 826-SPE Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 14 12:59:37 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

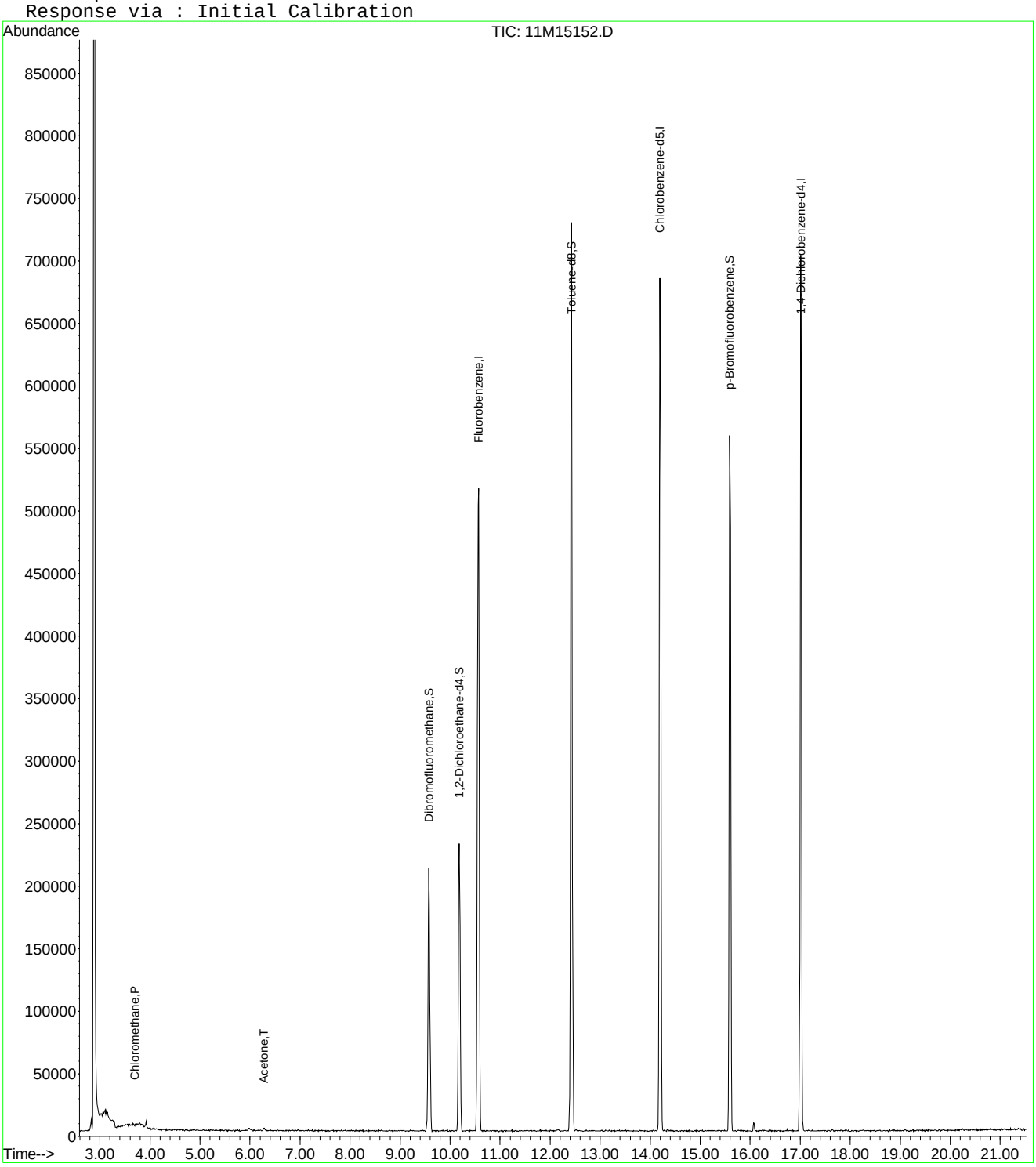
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	596716	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	454051	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	230624	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	175994	24.5188	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 98.08%			
43) 1,2-Dichloroethane-d4	10.18	65	188443	23.3840	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 93.52%			
57) Toluene-d8	12.43	98	602632	25.0453	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 100.20%			
78) p-Bromofluorobenzene	15.59	95	225309	24.4194	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 97.68%			
Target Compounds						Qvalue
3) Chloromethane	3.69	50	2519	0.2269	ug/L	94
13) Acetone	6.28	43	3136	1.3546	ug/L	85

(#) = qualifier out of range (m) = manual integration
11M15152.D 8260WT.M Mon Nov 14 12:59:38 2016 Page 1

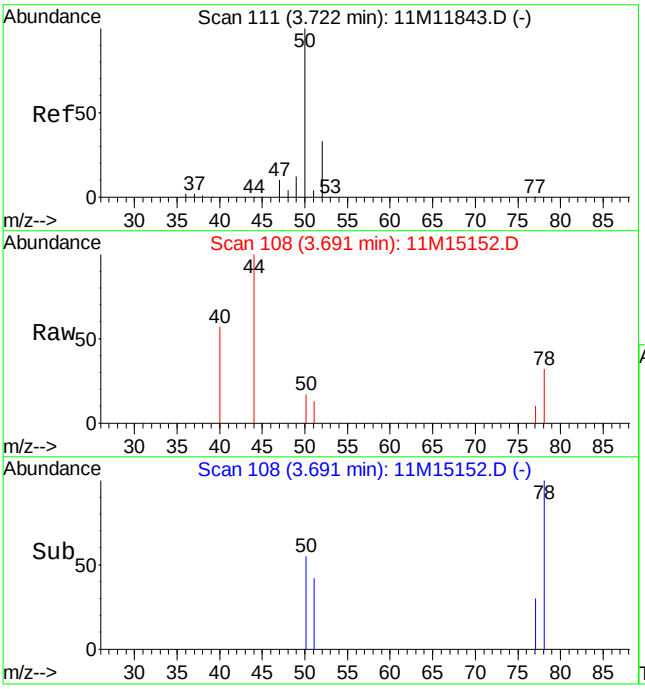
Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\111116\11M15152.D Vial: 14
Acq On : 11 Nov 2016 20:56 Operator: ADC
Sample : L16110074-11 B 826-SPE Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 14 12:59 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



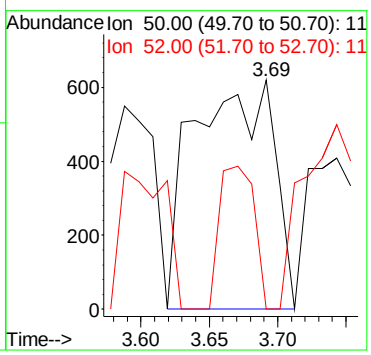
11M15152.D 8260WT.M Mon Nov 14 12:59:39 2016 Page 2

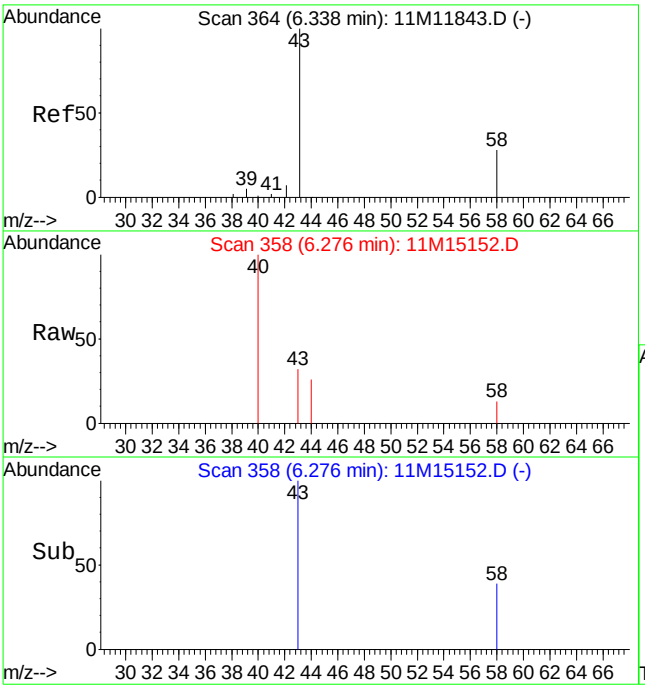


#3
Chloromethane
Concen: 0.23 ug/L
RT: 3.69 min Scan# 108
Delta R.T. 0.03 min
Lab File: 11M15152.D
Acq: 11 Nov 2016 20:56

Tgt Ion: 50 Resp: 2519

Ion	Ratio	Lower	Upper
50	100		
52	27.1	18.4	42.8

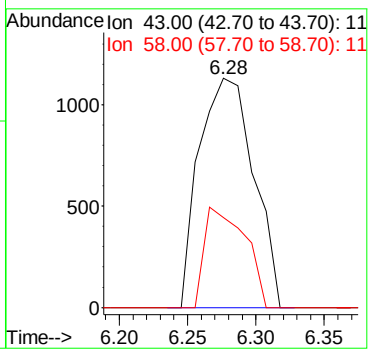




#13
Acetone
Concen: 1.35 ug/L
RT: 6.28 min Scan# 358
Delta R.T. 0.00 min
Lab File: 11M15152.D
Acq: 11 Nov 2016 20:56

Tgt Ion: 43 Resp: 3136

Ion	Ratio	Lower	Upper
43	100		
58	32.7	15.1	35.1



Data File : C:\MSDCHEM\1\DATA\110316\11M14927.D Vial: 11
Acq On : 3 Nov 2016 21:02 Operator: ADC
Sample : L16110074-13 826-LOW TB Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:12:06 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

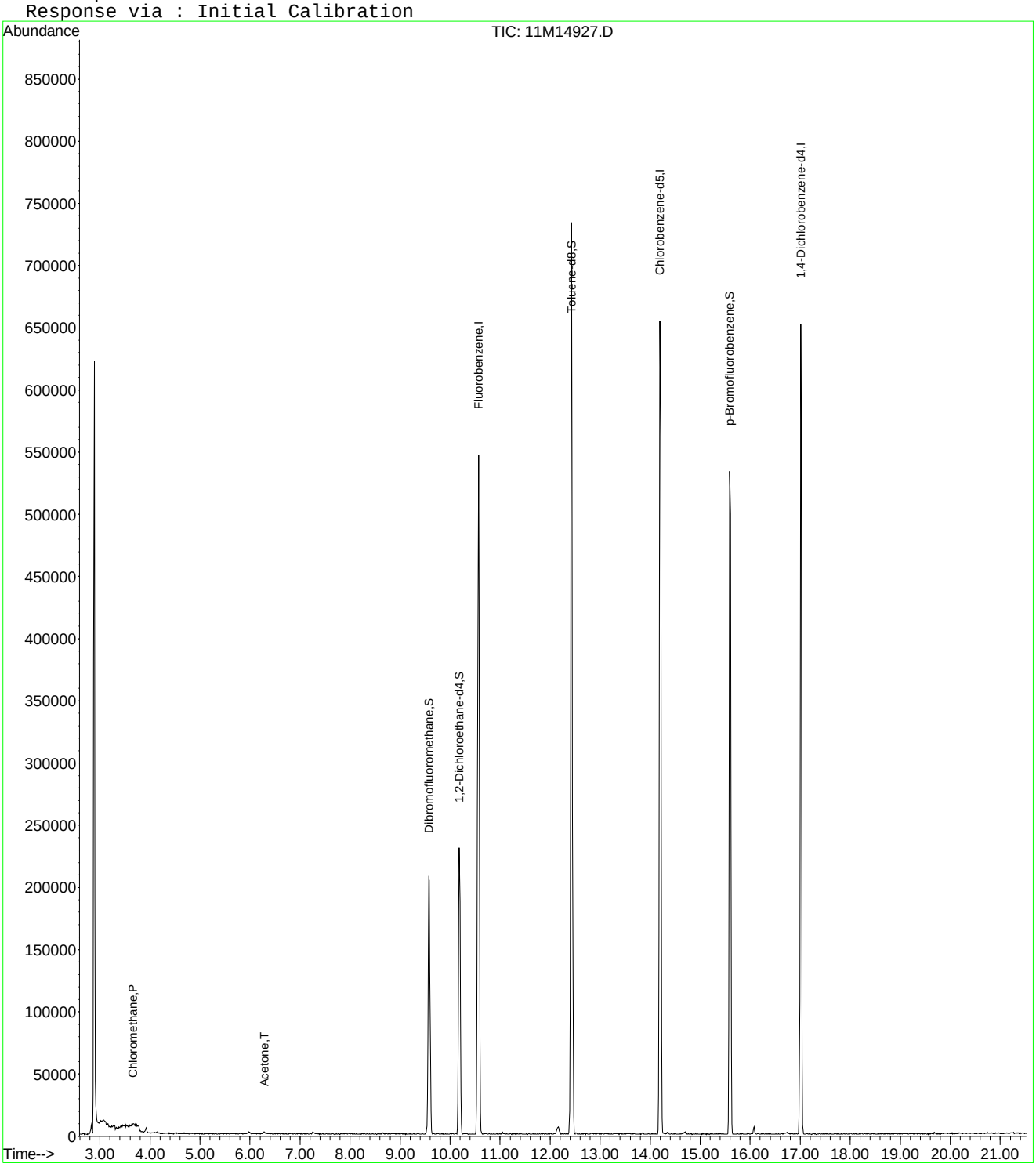
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	605006	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	451391	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	212742	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	174271	23.9461	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 95.80%			
43) 1,2-Dichloroethane-d4	10.18	65	184937	22.6345	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 90.52%			
57) Toluene-d8	12.43	98	600893	25.1202	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 100.48%			
78) p-Bromofluorobenzene	15.59	95	218482	25.6699	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 102.68%			
Target Compounds						Qvalue
3) Chloromethane	3.66	50	5925	0.5263	ug/L #	57
13) Acetone	6.29	43	3231	1.3765	ug/L	95
36) Tetrahydrofuran	9.54	42	3969	Below Cal		92

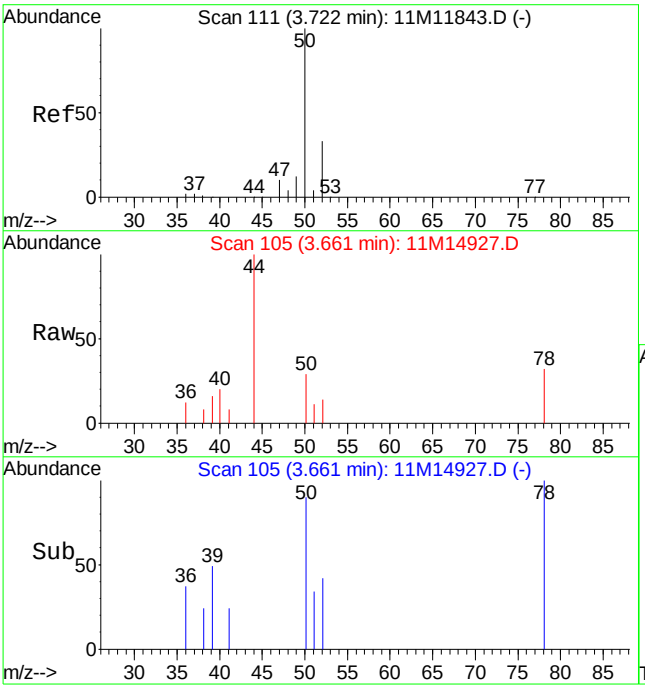
(#) = qualifier out of range (m) = manual integration
11M14927.D 8260WT.M Wed Nov 09 11:12:07 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14927.D Vial: 11
Acq On : 3 Nov 2016 21:02 Operator: ADC
Sample : L16110074-13 826-LOW TB Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:12 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

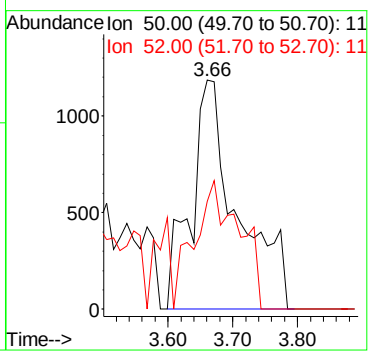


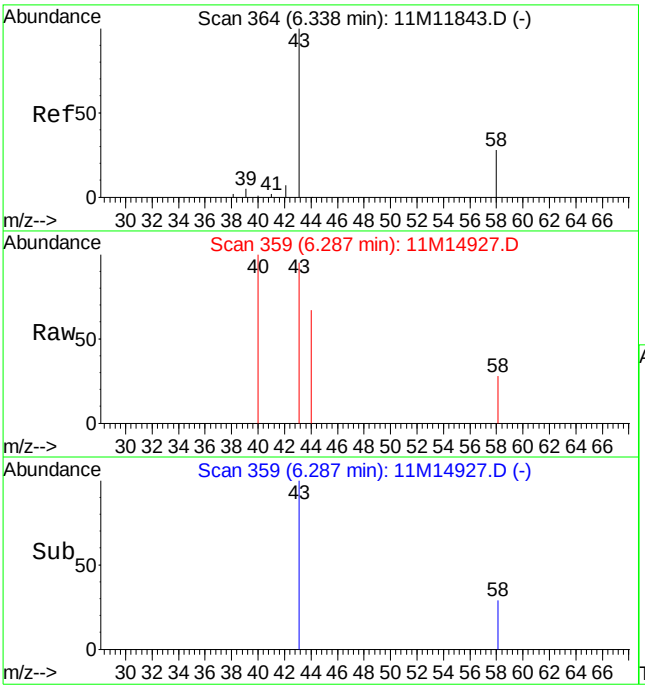


#3
Chloromethane
Concen: 0.53 ug/L
RT: 3.66 min Scan# 105
Delta R.T. 0.00 min
Lab File: 11M14927.D
Acq: 3 Nov 2016 21:02

Tgt Ion: 50 Resp: 5925

Ion	Ratio	Lower	Upper
50	100		
52	54.3	18.4	42.8#

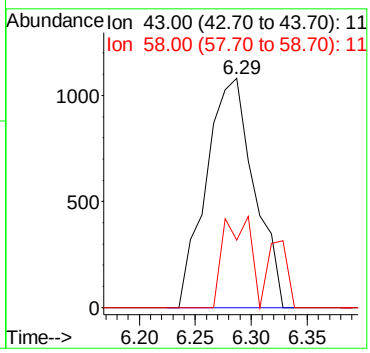


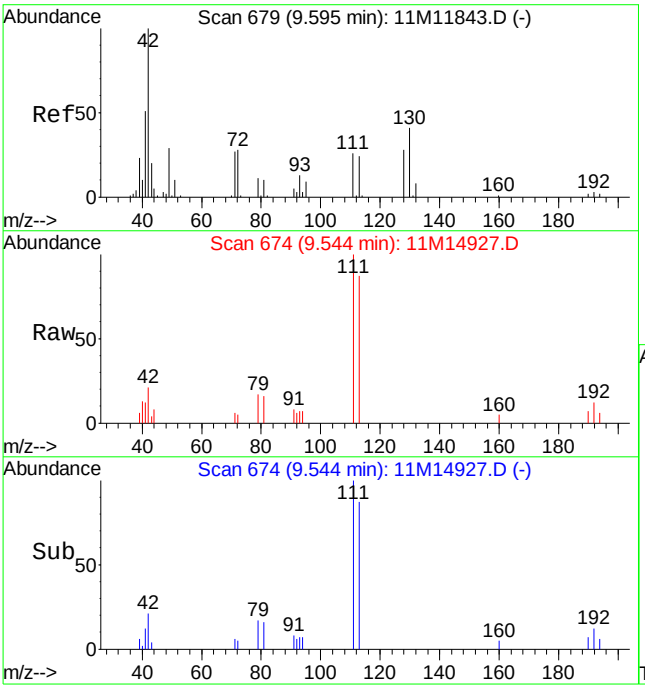


#13
Acetone
Concen: 1.38 ug/L
RT: 6.29 min Scan# 359
Delta R.T. 0.01 min
Lab File: 11M14927.D
Acq: 3 Nov 2016 21:02

Tgt Ion: 43 Resp: 3231

Ion	Ratio	Lower	Upper
43	100		
58	22.4	15.1	35.1

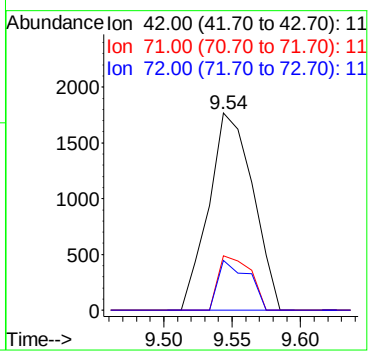




#36
Tetrahydrofuran
Concen: Below Cal
RT: 9.54 min Scan# 674
Delta R.T. 0.00 min
Lab File: 11M14927.D
Acq: 3 Nov 2016 21:02

Tgt Ion: 42 Resp: 3969

Ion	Ratio	Lower	Upper
42	100		
71	20.1	12.8	30.0
72	17.3	14.0	32.6



2.1.1.4 Standards Data

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13629.D Vial: 2
Acq On : 15 Aug 2016 15:17 Operator: JDS
Sample : WG580279-02 5ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:31 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Thu Jul 21 09:27:59 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

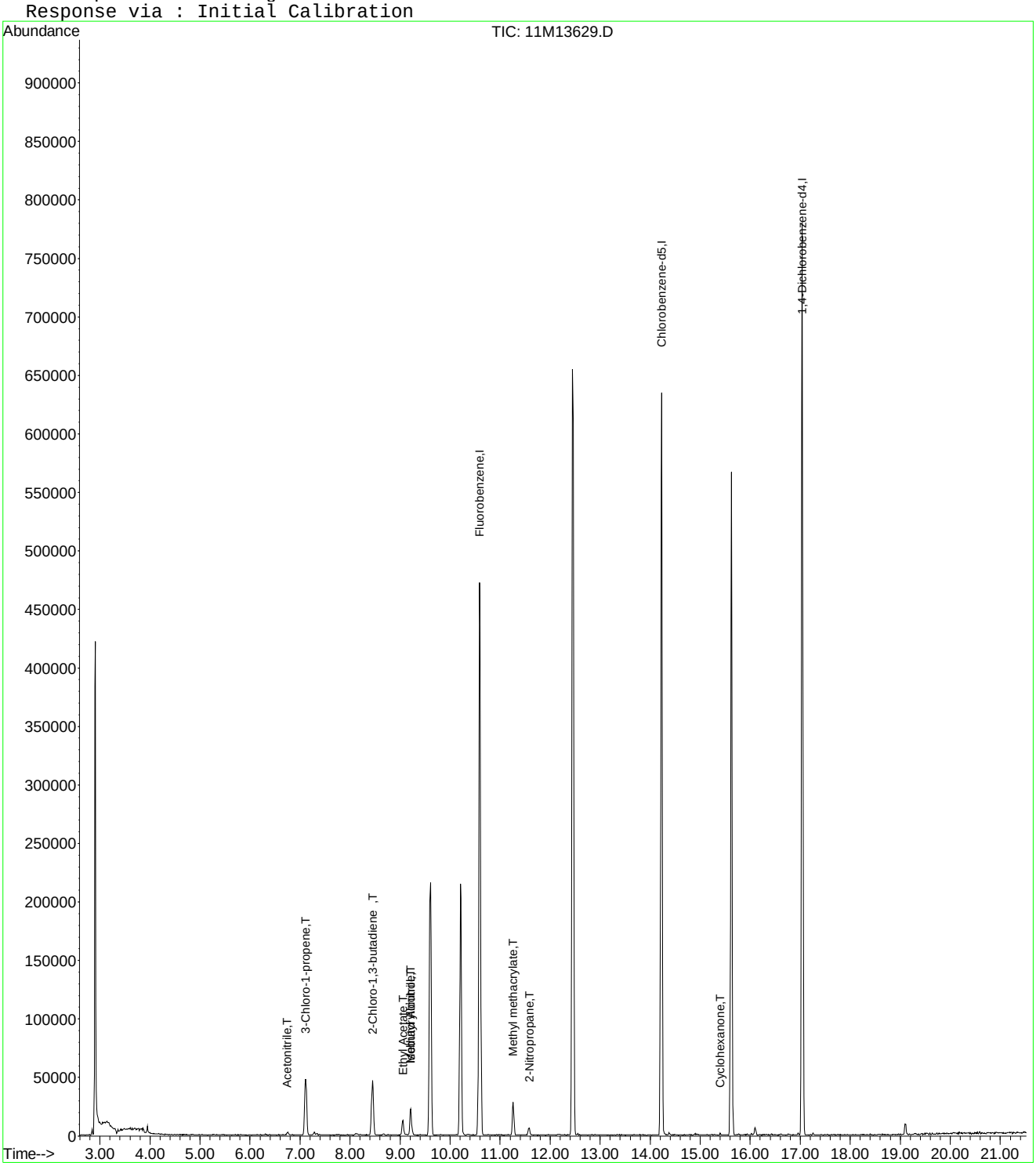
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.59	96	549582	25.00	ug/L		-0.02
12) Chlorobenzene-d5	14.23	117	468851	25.00	ug/L		-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	272643	25.00	ug/L		-0.02

Target Compounds							Qvalue
2) Acetonitrile	6.74	41	2526	5.1600	ug/L		83
3) 3-Chloro-1-propene	7.11	41	50299	4.8501	ug/L		93
4) 2-Chloro-1,3-butadiene	8.45	53	49466	4.6039	ug/L		99
5) Methacrylonitrile	9.21	41	17182	5.6819	ug/L		93
6) Isobutyl Alcohol	9.21	43	1768	11.0361	ug/L		73
8) Cyclohexanone	15.40	55	717	7.3303	ug/L	#	60
9) 2-Nitropropane	11.58	43	5543	4.2855	ug/L		86
10) Ethyl Acetate	9.06	43	22100	5.6341	ug/L	#	94
11) Methyl methacrylate	11.26	41	19419	5.3684	ug/L		89

(#) = qualifier out of range (m) = manual integration
11M13629.D A9FOOWT.M Tue Aug 16 08:48:31 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13629.D Vial: 2
Acq On : 15 Aug 2016 15:17 Operator: JDS
Sample : WG580279-02 5ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13629.D Vial: 2
Acq On : 15 Aug 2016 15:17 Operator: JDS
Sample : WG580279-02 5ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:12 2016 Quant Results File: A9FOOWT.RES

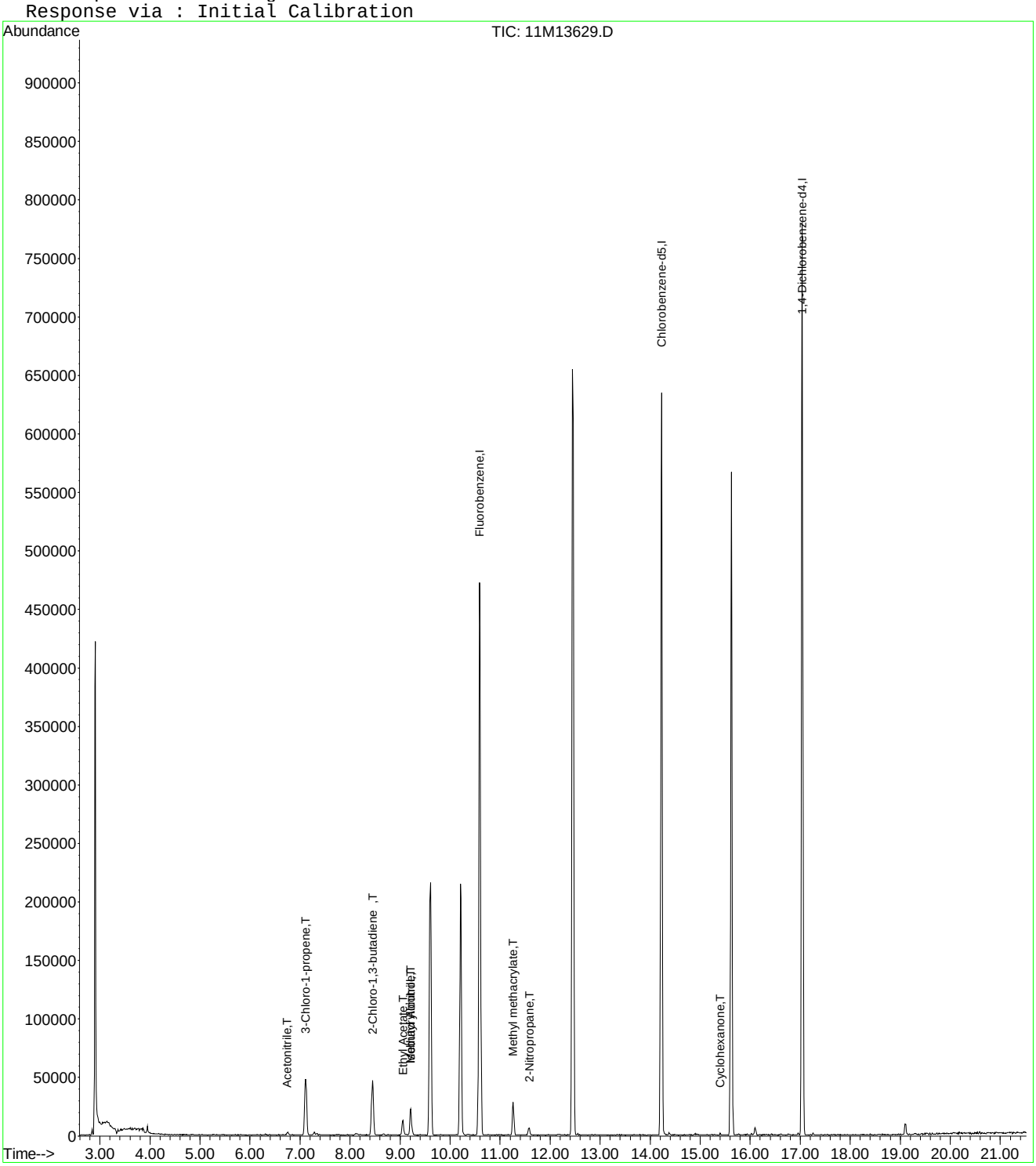
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	549582	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	468851	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	272643	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	2526	3.8896	ug/L	83
3) 3-Chloro-1-propene	7.11	41	50299	4.7813	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	49466	4.6042	ug/L	96
5) Methacrylonitrile	9.21	41	17182	4.4063	ug/L	100
6) Isobutyl Alcohol	9.21	43	1768	7.3489	ug/L	78
8) Cyclohexanone	15.40	55	717	1.8852	ug/L #	66
9) 2-Nitropropane	11.58	43	5543	2.9247	ug/L	85
10) Ethyl Acetate	9.06	43	22100	4.1473	ug/L	97
11) Methyl methacrylate	11.26	41	19419	4.0017	ug/L	97

(#) = qualifier out of range (m) = manual integration
11M13629.D A9FOOWT.M Tue Aug 16 08:59:13 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13629.D Vial: 2
Acq On : 15 Aug 2016 15:17 Operator: JDS
Sample : WG580279-02 5ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13629.D Vial: 2
Acq On : 15 Aug 2016 15:17 Operator: JDS
Sample : WG580279-02 5ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:19 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

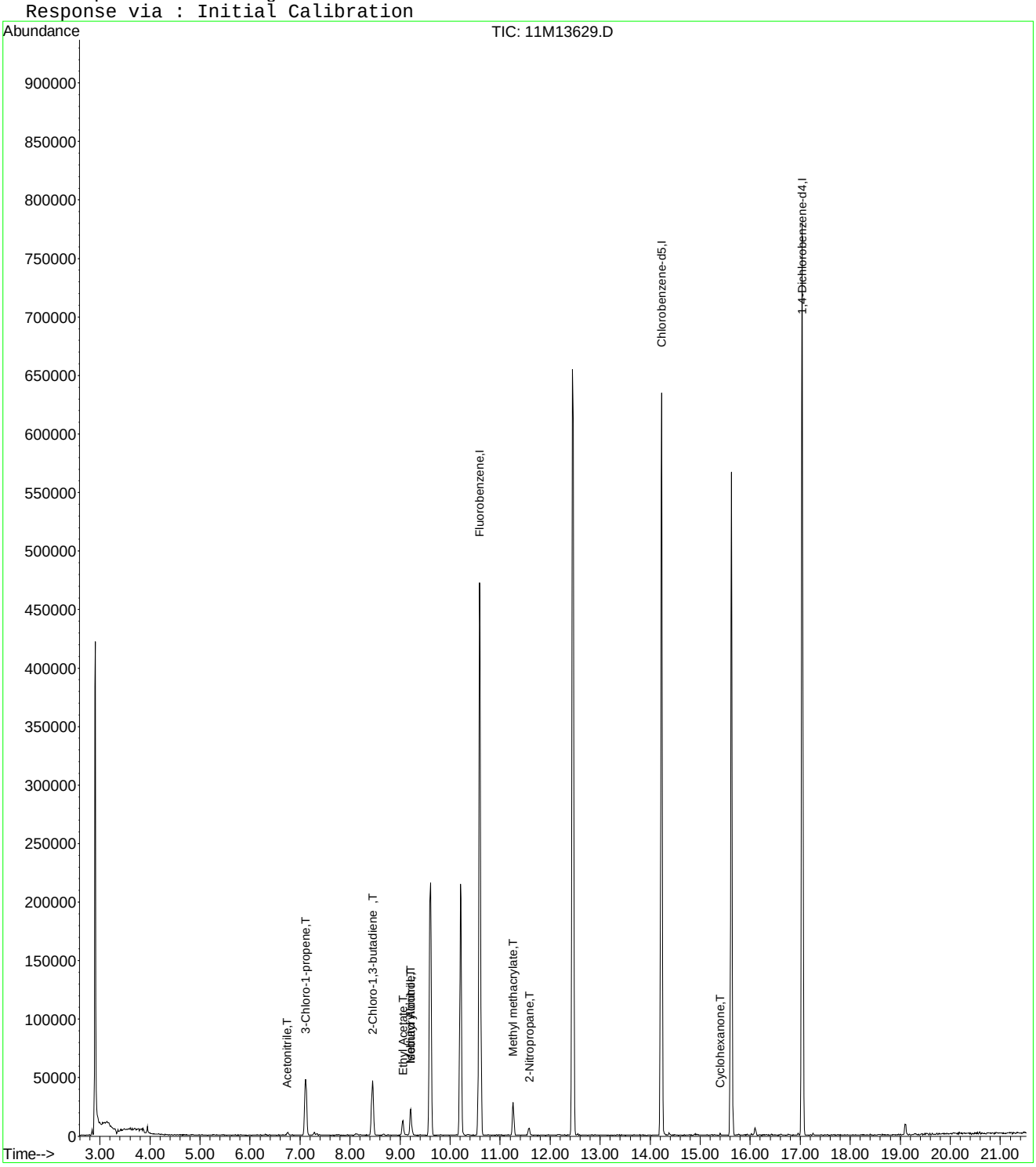
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	549582	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	468851	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	272643	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	2526	3.8896	ug/L	83
3) 3-Chloro-1-propene	7.11	41	50299	4.7813	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	49466	4.6042	ug/L	96
5) Methacrylonitrile	9.21	41	17182	4.4063	ug/L	100
6) Isobutyl Alcohol	9.21	43	1768	7.3489	ug/L	78
8) Cyclohexanone	15.40	55	717	1.8852	ug/L #	66
9) 2-Nitropropane	11.58	43	5543	2.9247	ug/L	85
10) Ethyl Acetate	9.06	43	22100	4.1473	ug/L	97
11) Methyl methacrylate	11.26	41	19419	4.0017	ug/L	97

(#) = qualifier out of range (m) = manual integration
11M13629.D A9FOOWT.M Tue Aug 16 09:05:20 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13629.D Vial: 2
Acq On : 15 Aug 2016 15:17 Operator: JDS
Sample : WG580279-02 5ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13630.D Vial: 3
Acq On : 15 Aug 2016 15:46 Operator: JDS
Sample : WG580279-03 20ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:33 2016 Quant Results File: A9FOOWT.RES

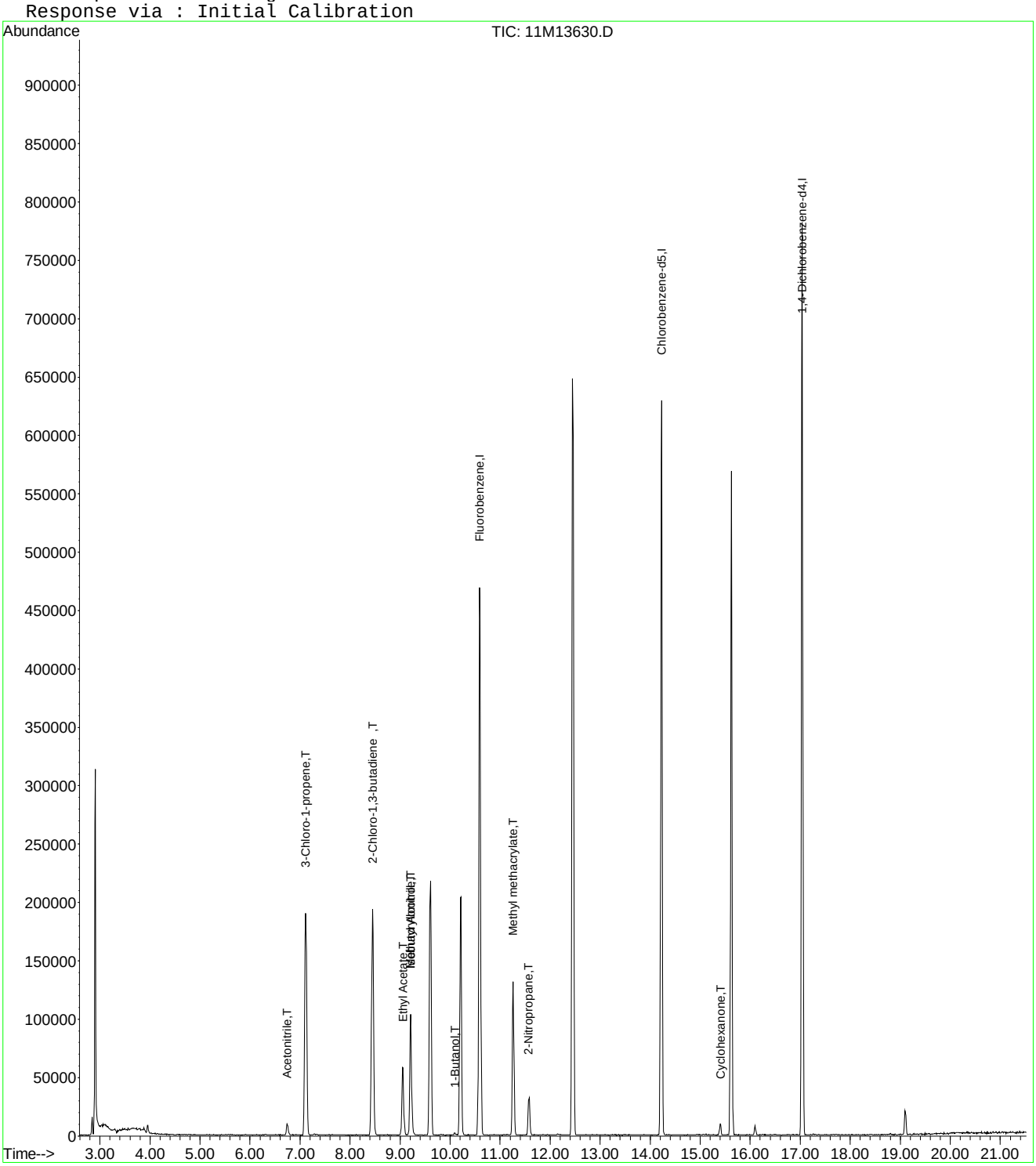
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.59	96	551890	25.00	ug/L		-0.02
12) Chlorobenzene-d5	14.23	117	465436	25.00	ug/L		-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	274738	25.00	ug/L		-0.02
Target Compounds							Qvalue
2) Acetonitrile	6.74	41	12517	25.4621	ug/L		92
3) 3-Chloro-1-propene	7.11	41	200905	19.2915	ug/L		93
4) 2-Chloro-1,3-butadiene	8.45	53	194207	17.9997	ug/L		94
5) Methacrylonitrile	9.21	41	72509	23.8778	ug/L		92
6) Isobutyl Alcohol	9.21	43	7908	49.1562	ug/L		96
7) 1-Butanol	10.10	56	1209	16.1143	ug/L	#	69
8) Cyclohexanone	15.41	55	5806	59.1102	ug/L	#	80
9) 2-Nitropropane	11.57	43	30103	23.1762	ug/L		99
10) Ethyl Acetate	9.06	43	99065	25.1496	ug/L		99
11) Methyl methacrylate	11.26	41	86765	23.8858	ug/L		90

(#) = qualifier out of range (m) = manual integration
11M13630.D A9FOOWT.M Tue Aug 16 08:48:34 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13630.D Vial: 3
Acq On : 15 Aug 2016 15:46 Operator: JDS
Sample : WG580279-03 20ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13630.D Vial: 3
Acq On : 15 Aug 2016 15:46 Operator: JDS
Sample : WG580279-03 20ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:15 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

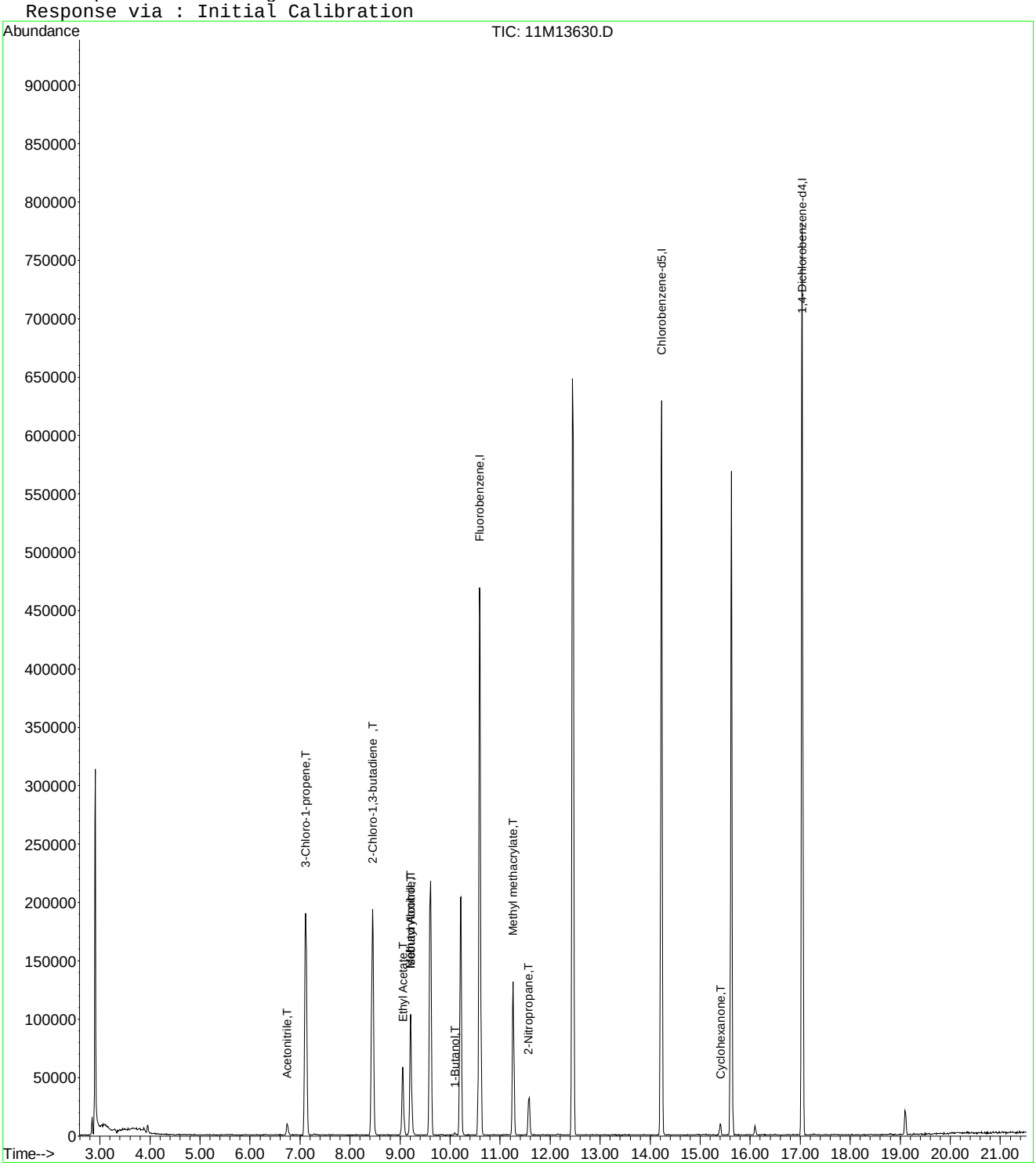
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551890	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	465436	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	274738	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	12517	19.1932	ug/L	92
3) 3-Chloro-1-propene	7.11	41	200905	19.0176	ug/L	98
4) 2-Chloro-1,3-butadiene	8.45	53	194207	18.0008	ug/L	98
5) Methacrylonitrile	9.21	41	72509	18.5172	ug/L	99
6) Isobutyl Alcohol	9.21	43	7908	32.7331	ug/L	90
7) 1-Butanol	10.10	56	1209	9.1419	ug/L #	53
8) Cyclohexanone	15.41	55	5806	15.2018	ug/L	92
9) 2-Nitropropane	11.57	43	30103	15.8172	ug/L	98
10) Ethyl Acetate	9.06	43	99065	18.5130	ug/L	99
11) Methyl methacrylate	11.26	41	86765	17.8050	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M13630.D A9FOOWT.M Tue Aug 16 08:59:16 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13630.D Vial: 3
Acq On : 15 Aug 2016 15:46 Operator: JDS
Sample : WG580279-03 20ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13630.D Vial: 3
Acq On : 15 Aug 2016 15:46 Operator: JDS
Sample : WG580279-03 20ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:22 2016 Quant Results File: A9FOOWT.RES

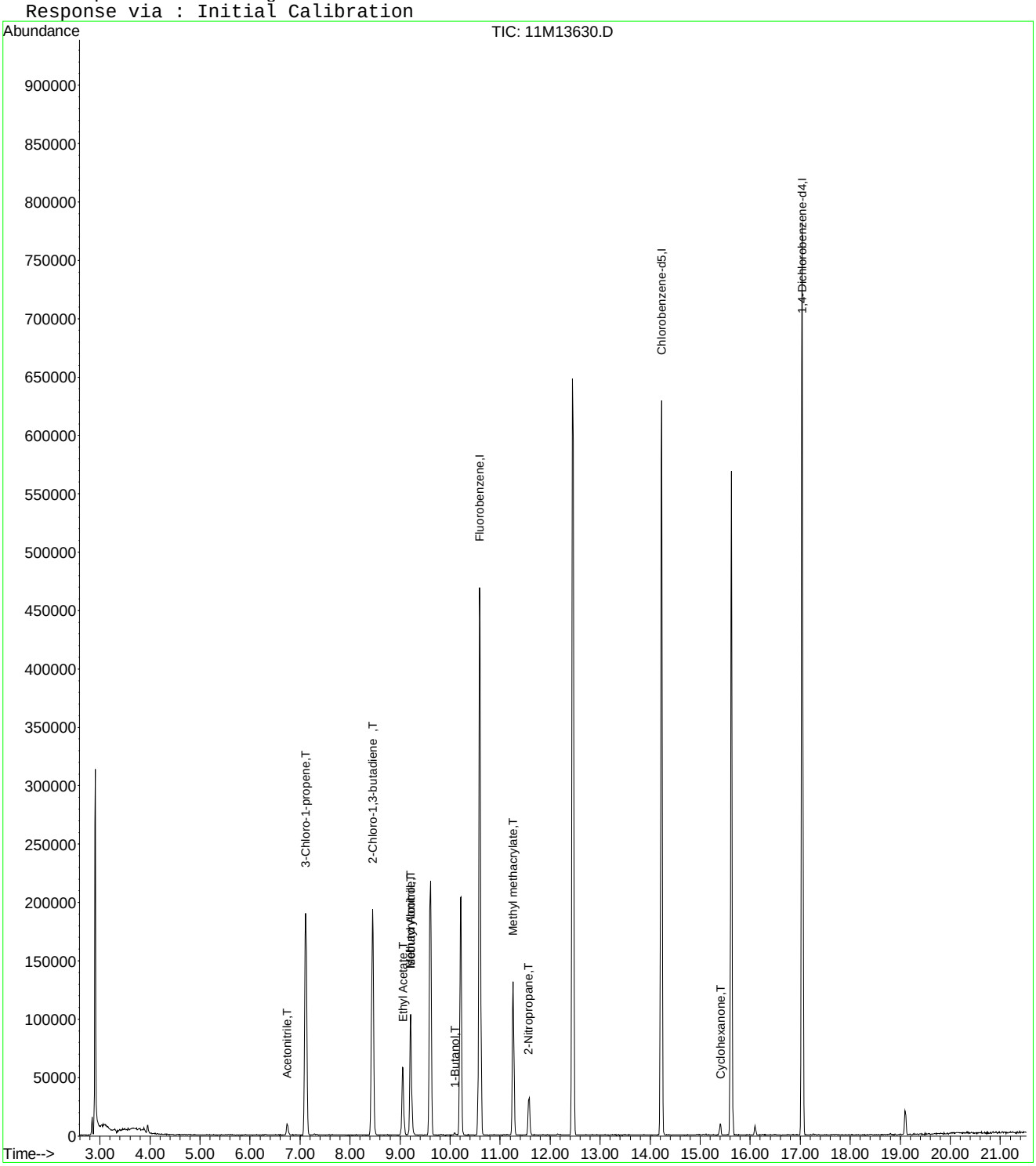
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.59	96	551890	25.00	ug/L		0.00
12) Chlorobenzene-d5	14.23	117	465436	25.00	ug/L		0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	274738	25.00	ug/L		0.00
Target Compounds							Qvalue
2) Acetonitrile	6.74	41	12517	19.1932	ug/L		92
3) 3-Chloro-1-propene	7.11	41	200905	19.0176	ug/L		98
4) 2-Chloro-1,3-butadiene	8.45	53	194207	18.0008	ug/L		98
5) Methacrylonitrile	9.21	41	72509	18.5172	ug/L		99
6) Isobutyl Alcohol	9.21	43	7908	32.7331	ug/L		90
7) 1-Butanol	10.10	56	1209	9.1419	ug/L	#	53
8) Cyclohexanone	15.41	55	5806	15.2018	ug/L		92
9) 2-Nitropropane	11.57	43	30103	15.8172	ug/L		98
10) Ethyl Acetate	9.06	43	99065	18.5130	ug/L		99
11) Methyl methacrylate	11.26	41	86765	17.8050	ug/L		99

(#) = qualifier out of range (m) = manual integration
11M13630.D A9FOOWT.M Tue Aug 16 09:05:23 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13630.D Vial: 3
Acq On : 15 Aug 2016 15:46 Operator: JDS
Sample : WG580279-03 20ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13631.D Vial: 4
Acq On : 15 Aug 2016 16:16 Operator: JDS
Sample : WG580279-04 50ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:36 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

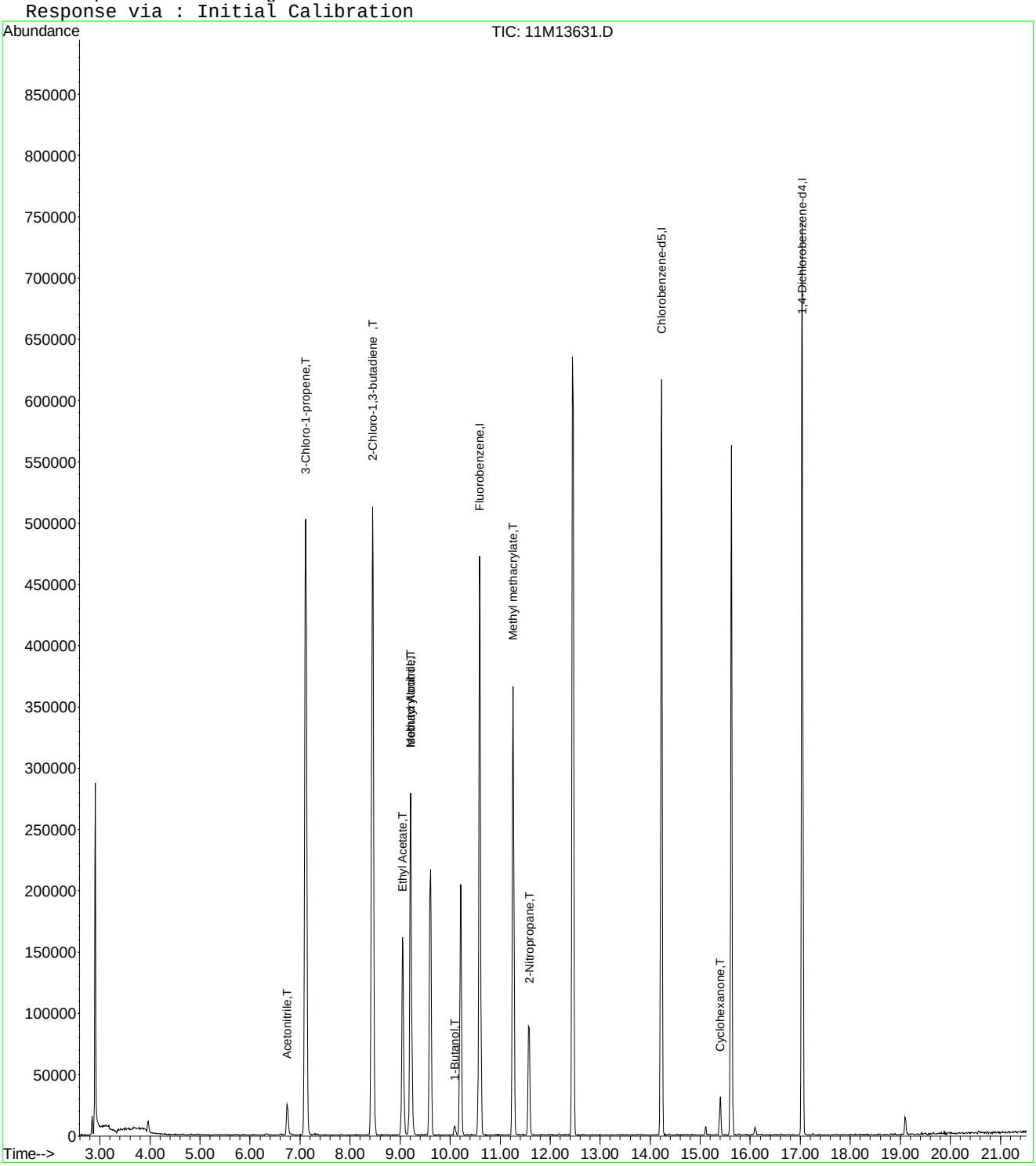
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551775	25.00	ug/L	-0.02
12) Chlorobenzene-d5	14.23	117	455520	25.00	ug/L	-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	260750	25.00	ug/L	-0.02
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	33841	68.8537	ug/L	99
3) 3-Chloro-1-propene	7.11	41	528428	50.7518	ug/L	96
4) 2-Chloro-1,3-butadiene	8.45	53	525312	48.6978	ug/L	96
5) Methacrylonitrile	9.21	41	199367	65.6668	ug/L	93
6) Isobutyl Alcohol	9.21	43	24706	153.6047	ug/L	90
7) 1-Butanol	10.09	56	5861	78.1353	ug/L	91
8) Cyclohexanone	15.40	55	18904	192.4994	ug/L	92
9) 2-Nitropropane	11.58	43	84236	64.8665	ug/L	99
10) Ethyl Acetate	9.05	43	269000	68.3052	ug/L	97
11) Methyl methacrylate	11.26	41	244240	67.2515	ug/L	91

(#) = qualifier out of range (m) = manual integration
11M13631.D A9FOOWT.M Tue Aug 16 08:48:36 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13631.D Vial: 4
Acq On : 15 Aug 2016 16:16 Operator: JDS
Sample : WG580279-04 50ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13631.D Vial: 4
Acq On : 15 Aug 2016 16:16 Operator: JDS
Sample : WG580279-04 50ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:18 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

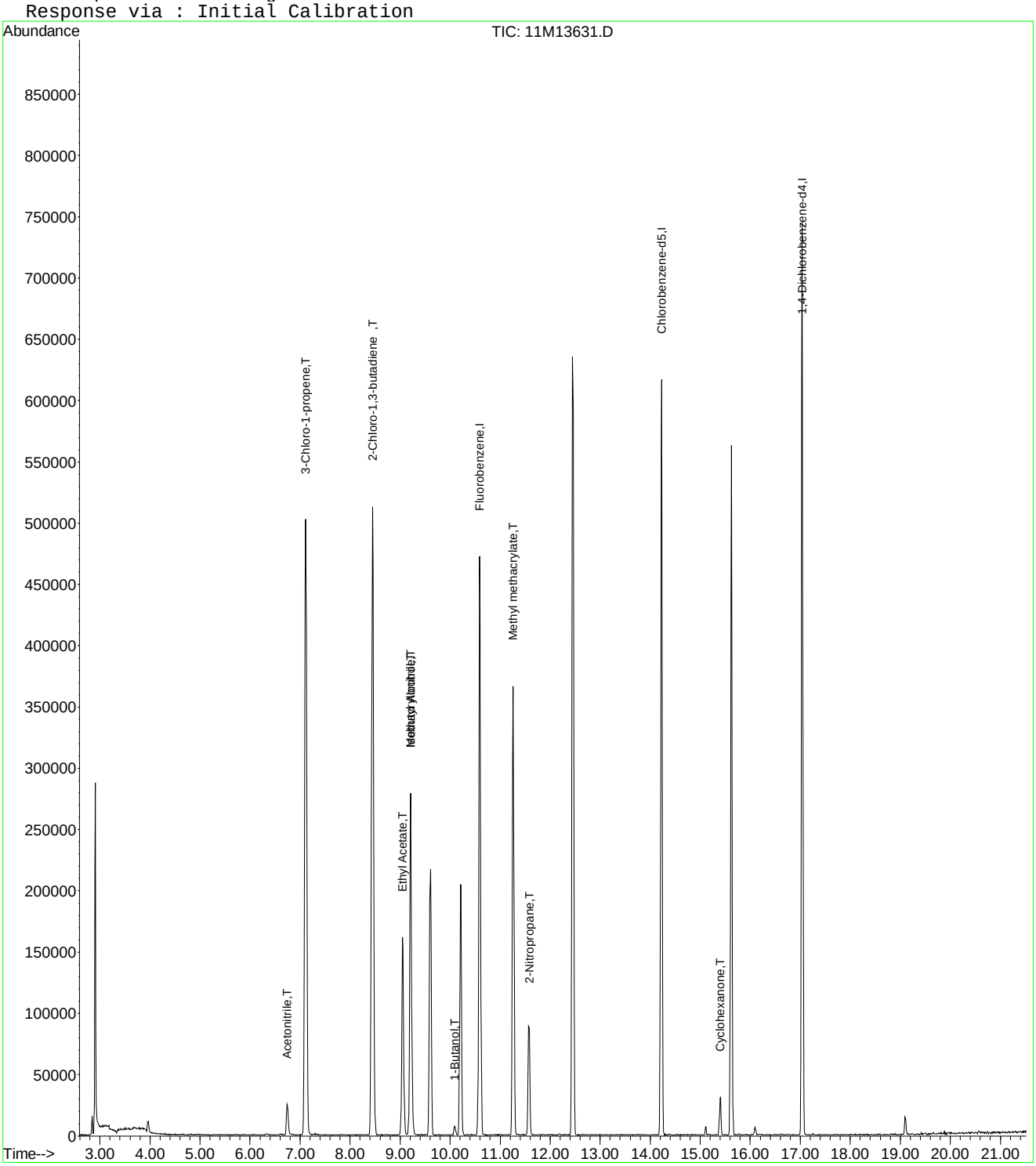
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551775	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	455520	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	260750	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	33841	51.9017	ug/L	98
3) 3-Chloro-1-propene	7.11	41	528428	50.0313	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	525312	48.7008	ug/L	100
5) Methacrylonitrile	9.21	41	199367	50.9245	ug/L	99
6) Isobutyl Alcohol	9.21	43	24706	102.2853	ug/L	95
7) 1-Butanol	10.09	56	5861	44.3274	ug/L	96
8) Cyclohexanone	15.40	55	18904	49.5064	ug/L	97
9) 2-Nitropropane	11.58	43	84236	44.2698	ug/L	99
10) Ethyl Acetate	9.05	43	269000	50.2803	ug/L	100
11) Methyl methacrylate	11.26	41	244240	50.1308	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M13631.D A9FOOWT.M Tue Aug 16 08:59:19 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13631.D Vial: 4
Acq On : 15 Aug 2016 16:16 Operator: JDS
Sample : WG580279-04 50ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13631.D Vial: 4
Acq On : 15 Aug 2016 16:16 Operator: JDS
Sample : WG580279-04 50ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:25 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

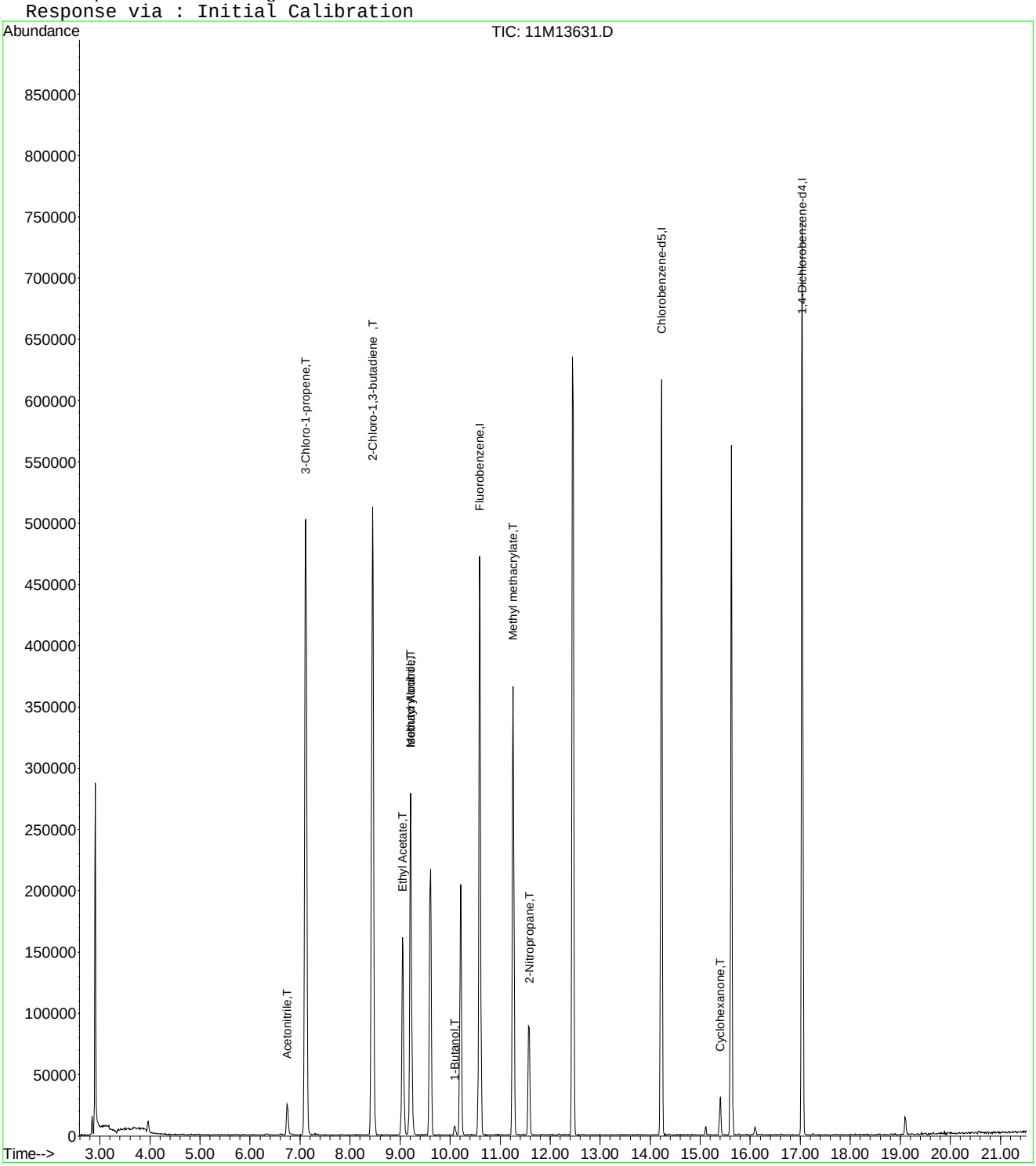
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551775	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	455520	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	260750	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	33841	51.9017	ug/L	98
3) 3-Chloro-1-propene	7.11	41	528428	50.0313	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	525312	48.7008	ug/L	100
5) Methacrylonitrile	9.21	41	199367	50.9245	ug/L	99
6) Isobutyl Alcohol	9.21	43	24706	102.2853	ug/L	95
7) 1-Butanol	10.09	56	5861	44.3274	ug/L	96
8) Cyclohexanone	15.40	55	18904	49.5064	ug/L	97
9) 2-Nitropropane	11.58	43	84236	44.2698	ug/L	99
10) Ethyl Acetate	9.05	43	269000	50.2803	ug/L	100
11) Methyl methacrylate	11.26	41	244240	50.1308	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M13631.D A9FOOWT.M Tue Aug 16 09:05:26 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13631.D Vial: 4
Acq On : 15 Aug 2016 16:16 Operator: JDS
Sample : WG580279-04 50ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13632.D Vial: 5
Acq On : 15 Aug 2016 16:45 Operator: JDS
Sample : WG580279-05 100ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:37 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

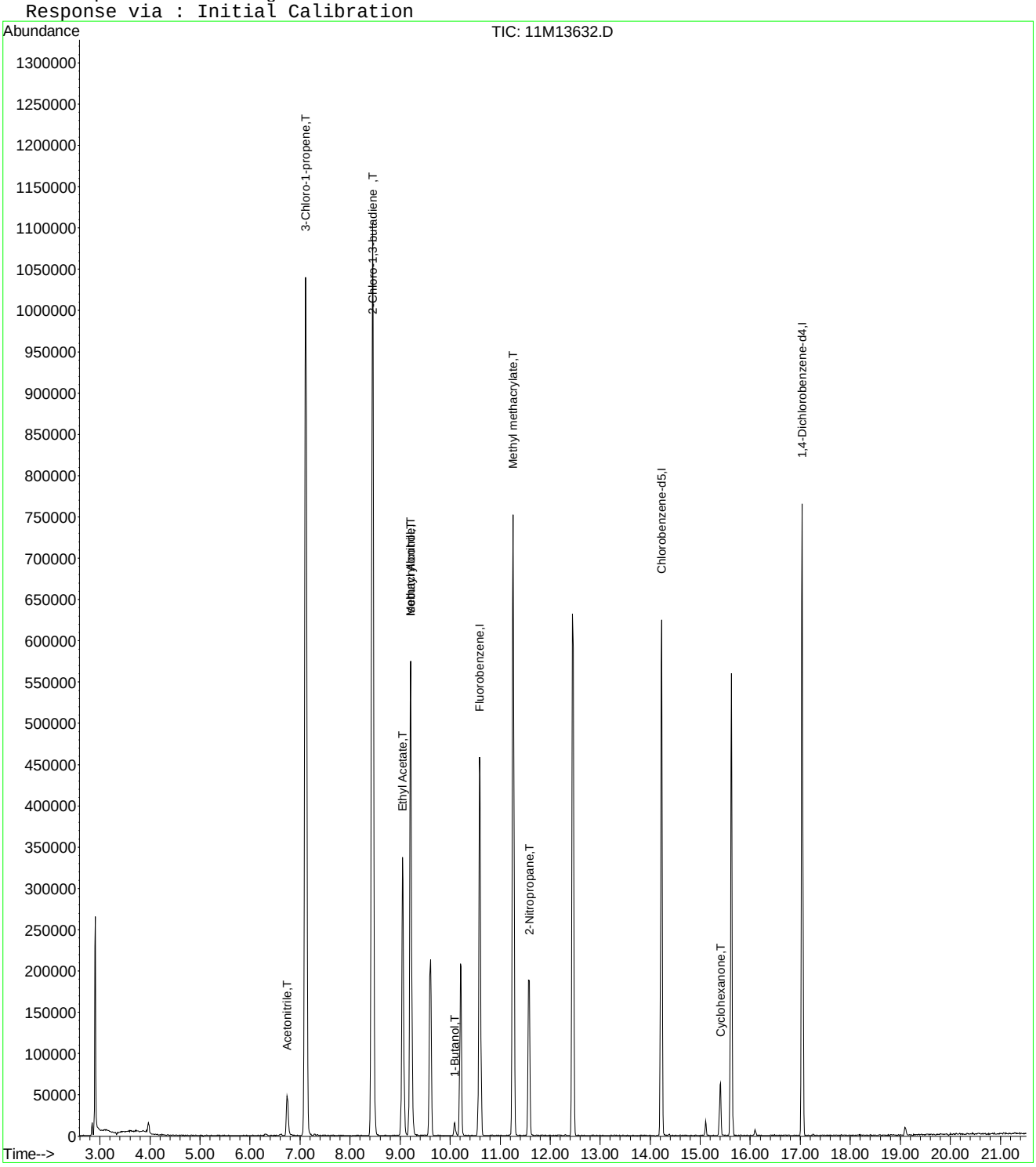
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	543164	25.00	ug/L	-0.02
12) Chlorobenzene-d5	14.23	117	464590	25.00	ug/L	-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	266669	25.00	ug/L	-0.02
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	68995	142.6044	ug/L	100
3) 3-Chloro-1-propene	7.11	41	1096390	106.9699	ug/L	95
4) 2-Chloro-1,3-butadiene	8.45	53	1128196	106.2448	ug/L	95
5) Methacrylonitrile	9.21	41	403560	135.0305	ug/L	93
6) Isobutyl Alcohol	9.21	43	46970	296.6563	ug/L	95
7) 1-Butanol	10.09	56	11977	162.2014	ug/L	88
8) Cyclohexanone	15.41	55	37136	384.1508	ug/L	89
9) 2-Nitropropane	11.58	43	183774	143.7600	ug/L	99
10) Ethyl Acetate	9.05	43	558689	144.1128	ug/L	97
11) Methyl methacrylate	11.26	41	508903	142.3479	ug/L	92

(#) = qualifier out of range (m) = manual integration
11M13632.D A9FOOWT.M Tue Aug 16 08:48:38 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13632.D Vial: 5
Acq On : 15 Aug 2016 16:45 Operator: JDS
Sample : WG580279-05 100ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13632.D Vial: 5
Acq On : 15 Aug 2016 16:45 Operator: JDS
Sample : WG580279-05 100ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:22 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

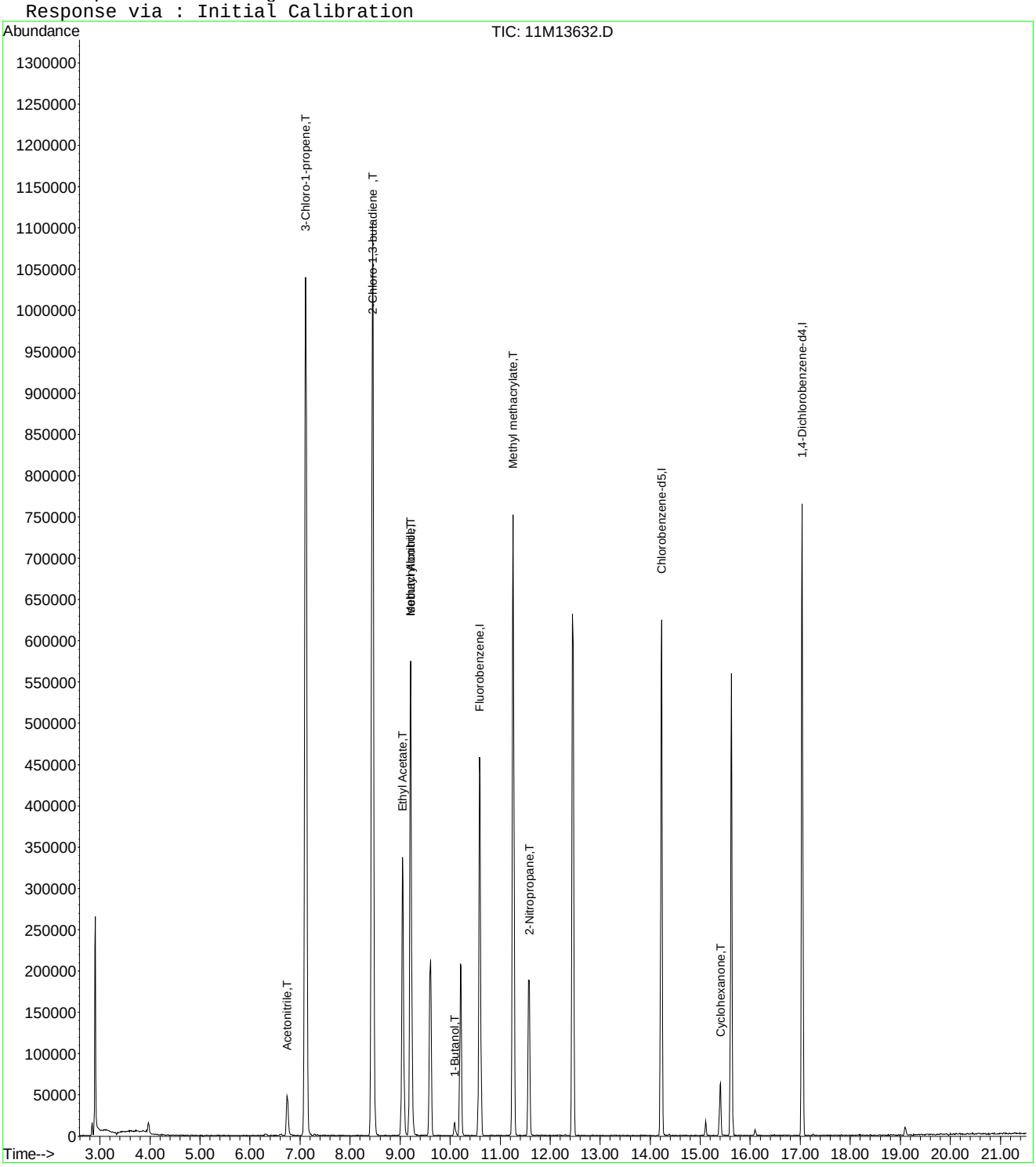
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	543164	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	464590	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	266669	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	68995	107.4947	ug/L	100
3) 3-Chloro-1-propene	7.11	41	1096390	105.4513	ug/L	100
4) 2-Chloro-1,3-butadiene	8.45	53	1128196	106.2513	ug/L	100
5) Methacrylonitrile	9.21	41	403560	104.7160	ug/L	100
6) Isobutyl Alcohol	9.21	43	46970	197.5434	ug/L	100
7) 1-Butanol	10.09	56	11977	92.0194	ug/L	100
8) Cyclohexanone	15.41	55	37136	98.7947	ug/L	100
9) 2-Nitropropane	11.58	43	183774	98.1127	ug/L	100
10) Ethyl Acetate	9.05	43	558689	106.0833	ug/L	100
11) Methyl methacrylate	11.26	41	508903	106.1093	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13632.D A9FOOWT.M Tue Aug 16 08:59:23 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13632.D Vial: 5
Acq On : 15 Aug 2016 16:45 Operator: JDS
Sample : WG580279-05 100ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13632.D Vial: 5
Acq On : 15 Aug 2016 16:45 Operator: JDS
Sample : WG580279-05 100ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:28 2016 Quant Results File: A9FOOWT.RES

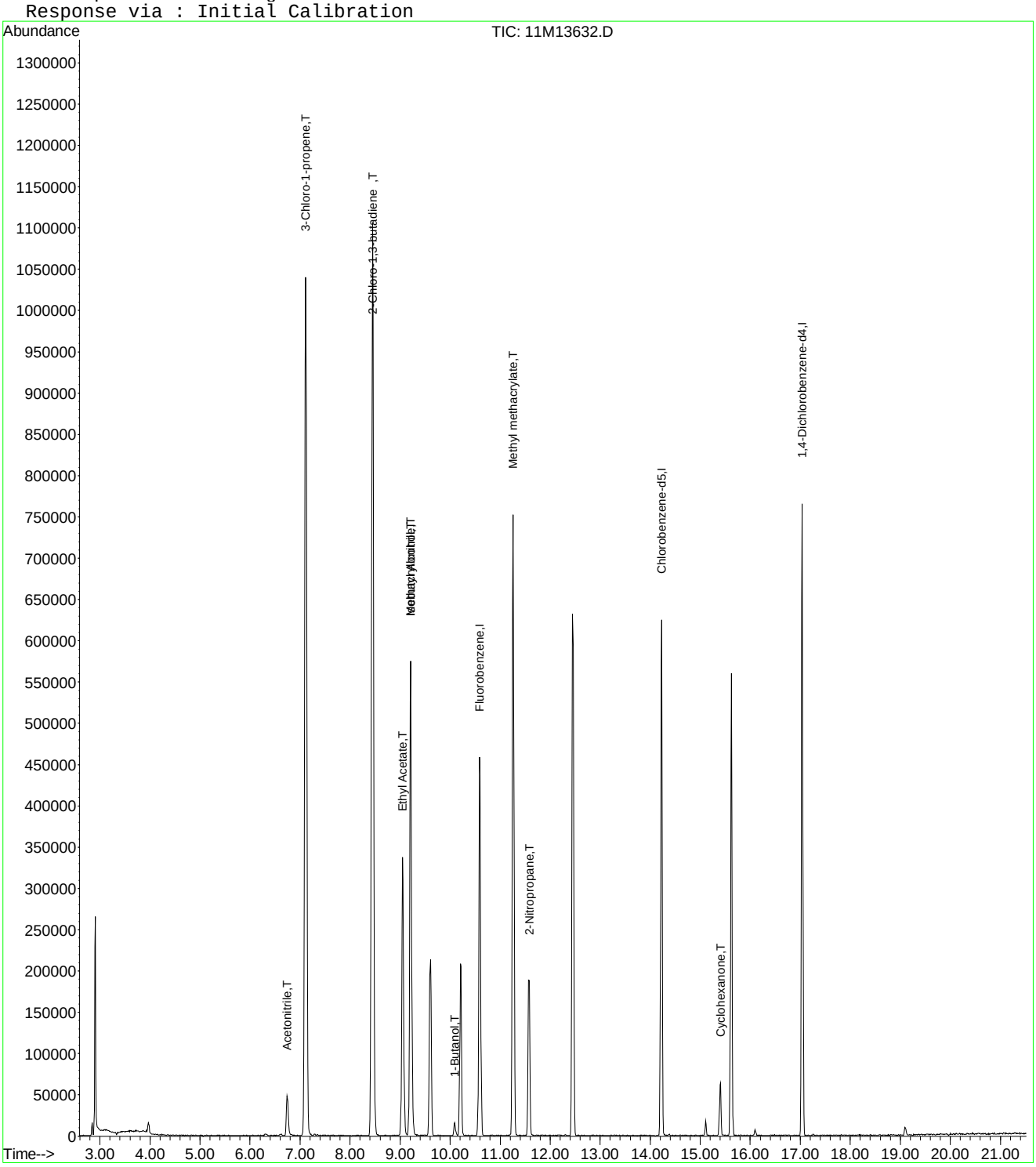
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	543164	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	464590	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	266669	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	68995	107.4947	ug/L	100
3) 3-Chloro-1-propene	7.11	41	1096390	105.4513	ug/L	100
4) 2-Chloro-1,3-butadiene	8.45	53	1128196	106.2513	ug/L	100
5) Methacrylonitrile	9.21	41	403560	104.7160	ug/L	100
6) Isobutyl Alcohol	9.21	43	46970	197.5434	ug/L	100
7) 1-Butanol	10.09	56	11977	92.0194	ug/L	100
8) Cyclohexanone	15.41	55	37136	98.7947	ug/L	100
9) 2-Nitropropane	11.58	43	183774	98.1127	ug/L	100
10) Ethyl Acetate	9.05	43	558689	106.0833	ug/L	100
11) Methyl methacrylate	11.26	41	508903	106.1093	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13632.D A9FOOWT.M Tue Aug 16 09:05:29 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13632.D Vial: 5
Acq On : 15 Aug 2016 16:45 Operator: JDS
Sample : WG580279-05 100ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13633.D Vial: 6
Acq On : 15 Aug 2016 17:14 Operator: JDS
Sample : WG580279-06 200ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:40 2016 Quant Results File: A9FOOWT.RES

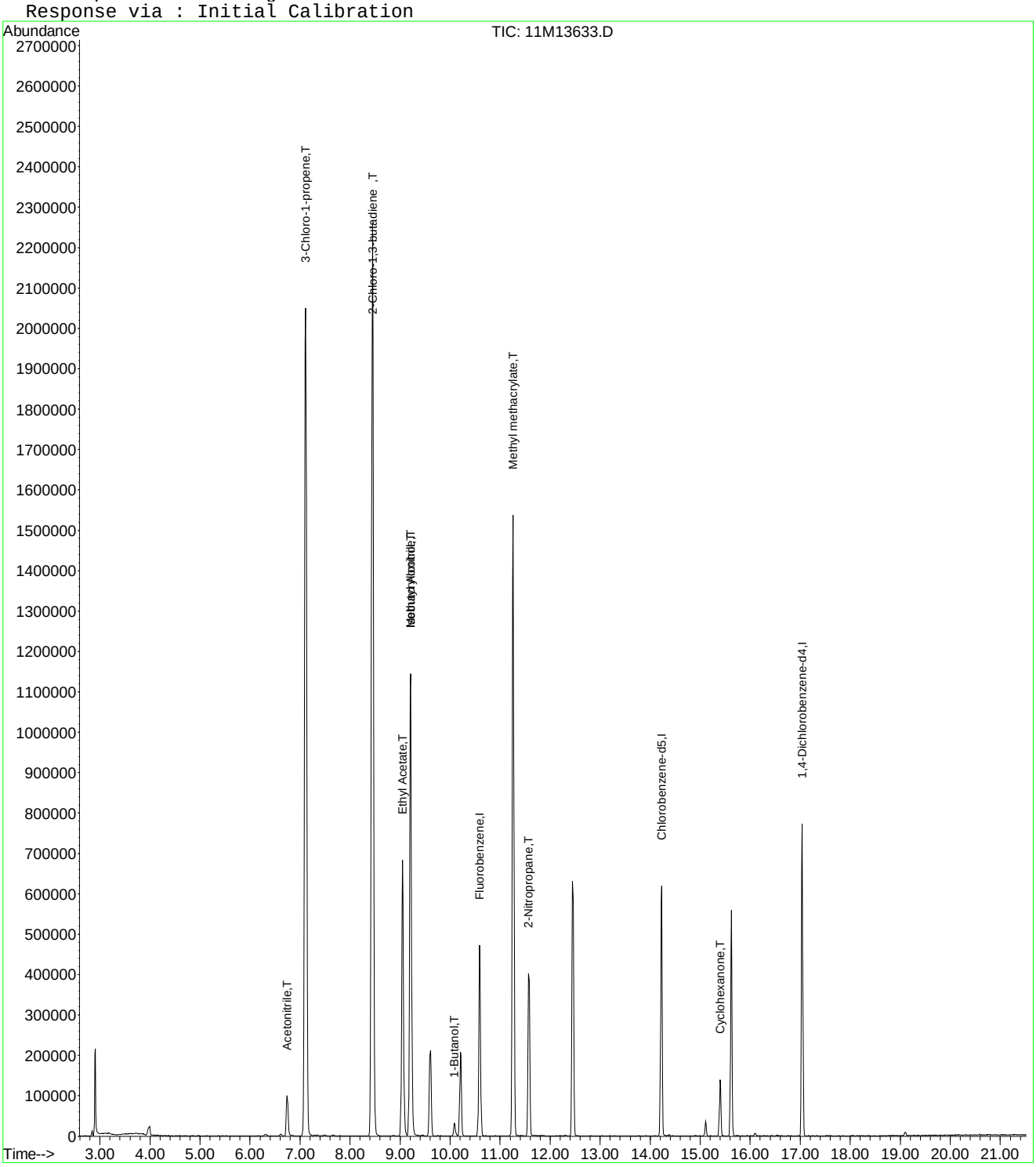
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.59	96	547458	25.00	ug/L		-0.02
12) Chlorobenzene-d5	14.23	117	461668	25.00	ug/L		-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	271762	25.00	ug/L		-0.02
Target Compounds							Qvalue
2) Acetonitrile	6.74	41	133520	273.8053	ug/L		98
3) 3-Chloro-1-propene	7.11	41	2192356	212.2208	ug/L		94
4) 2-Chloro-1,3-butadiene	8.45	53	2297004	214.6174	ug/L		95
5) Methacrylonitrile	9.21	41	816752	271.1403	ug/L		93
6) Isobutyl Alcohol	9.21	43	95965	601.3483	ug/L		97
7) 1-Butanol	10.08	56	25798	346.6353	ug/L		87
8) Cyclohexanone	15.40	55	77461	795.0050	ug/L	#	87
9) 2-Nitropropane	11.57	43	389052	301.9548	ug/L		97
10) Ethyl Acetate	9.05	43	1127878	288.6522	ug/L		98
11) Methyl methacrylate	11.26	41	1043795	289.6752	ug/L		93

(#) = qualifier out of range (m) = manual integration
11M13633.D A9FOOWT.M Tue Aug 16 08:48:41 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13633.D Vial: 6
Acq On : 15 Aug 2016 17:14 Operator: JDS
Sample : WG580279-06 200ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13633.D Vial: 6
Acq On : 15 Aug 2016 17:14 Operator: JDS
Sample : WG580279-06 200ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:25 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

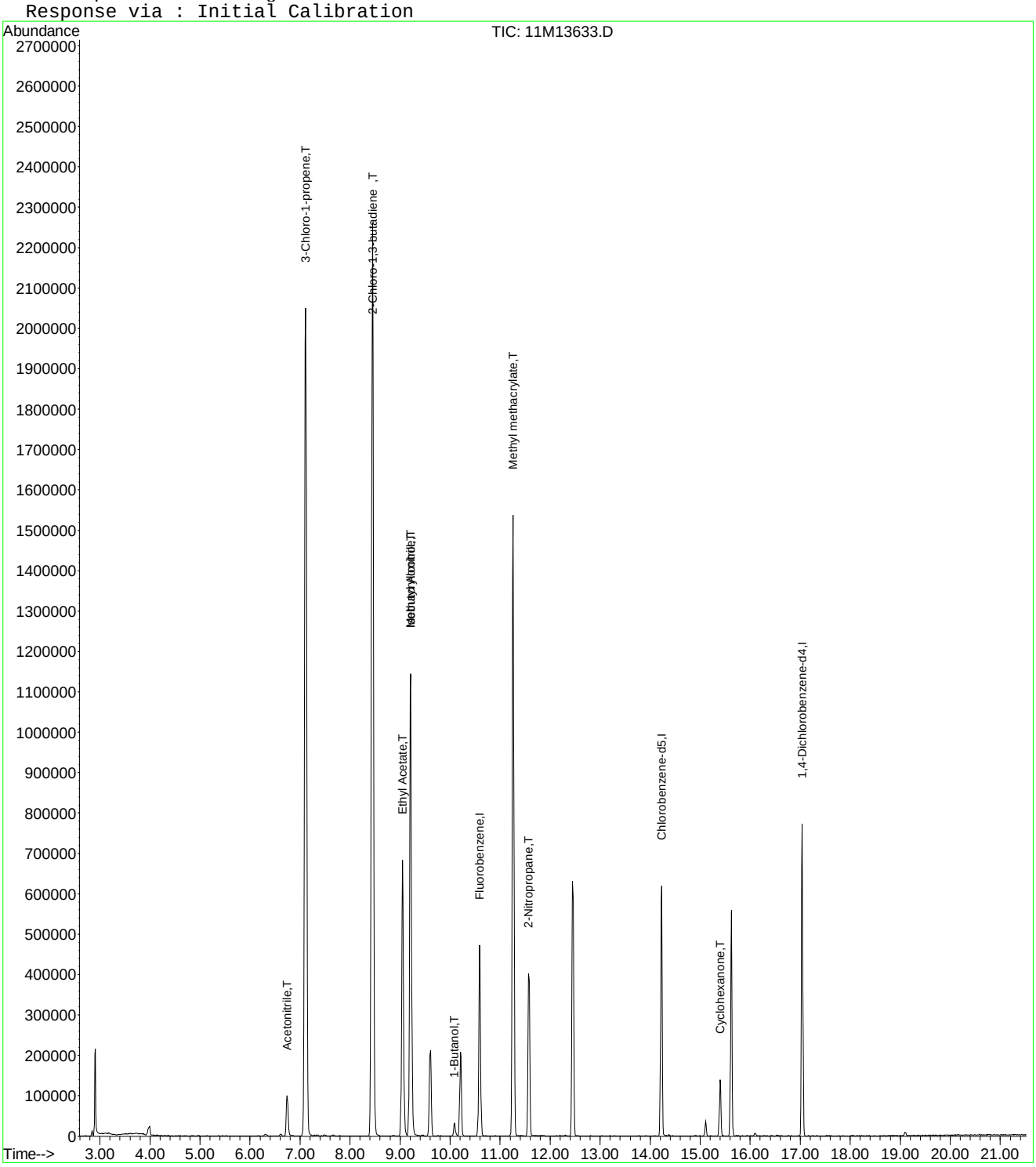
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	547458	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	461668	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	271762	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	133520	206.3935	ug/L	98
3) 3-Chloro-1-propene	7.11	41	2192356	209.2079	ug/L	100
4) 2-Chloro-1,3-butadiene	8.45	53	2297004	214.6305	ug/L	99
5) Methacrylonitrile	9.21	41	816752	210.2690	ug/L	100
6) Isobutyl Alcohol	9.21	43	95965	400.4377	ug/L	97
7) 1-Butanol	10.08	56	25798	196.6517	ug/L	94
8) Cyclohexanone	15.40	55	77461	204.4569	ug/L	98
9) 2-Nitropropane	11.57	43	389052	206.0768	ug/L	98
10) Ethyl Acetate	9.05	43	1127878	212.4806	ug/L	100
11) Methyl methacrylate	11.26	41	1043795	215.9305	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M13633.D A9FOOWT.M Tue Aug 16 08:59:26 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13633.D Vial: 6
Acq On : 15 Aug 2016 17:14 Operator: JDS
Sample : WG580279-06 200ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\081516\11M13633.D Vial: 6
Acq On : 15 Aug 2016 17:14 Operator: JDS
Sample : WG580279-06 200ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:31 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

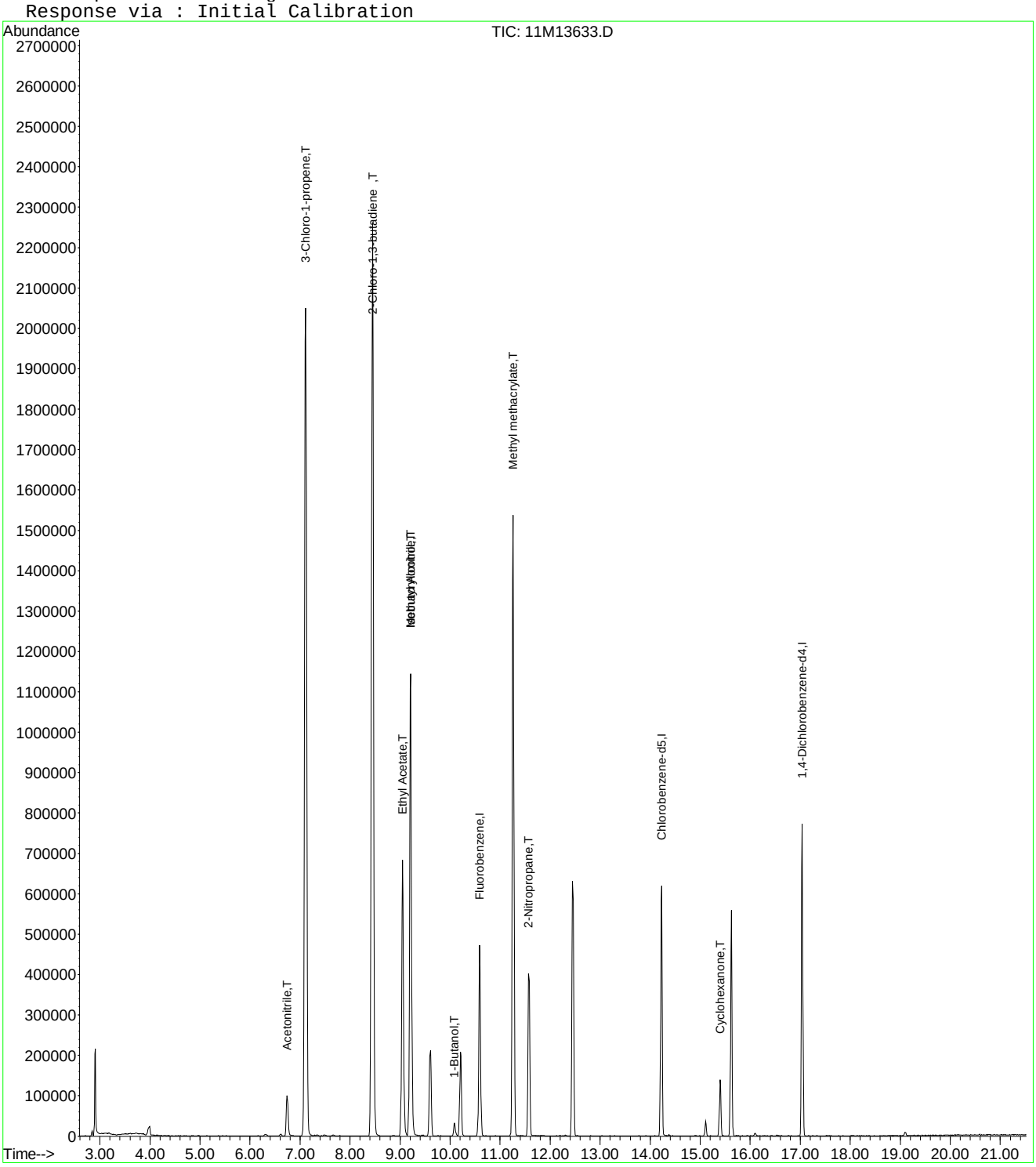
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	547458	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	461668	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	271762	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	133520	206.3935	ug/L	98
3) 3-Chloro-1-propene	7.11	41	2192356	209.2079	ug/L	100
4) 2-Chloro-1,3-butadiene	8.45	53	2297004	214.6305	ug/L	99
5) Methacrylonitrile	9.21	41	816752	210.2690	ug/L	100
6) Isobutyl Alcohol	9.21	43	95965	400.4377	ug/L	97
7) 1-Butanol	10.08	56	25798	196.6517	ug/L	94
8) Cyclohexanone	15.40	55	77461	204.4569	ug/L	98
9) 2-Nitropropane	11.57	43	389052	206.0768	ug/L	98
10) Ethyl Acetate	9.05	43	1127878	212.4806	ug/L	100
11) Methyl methacrylate	11.26	41	1043795	215.9305	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M13633.D A9FOOWT.M Tue Aug 16 09:05:32 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13633.D Vial: 6
Acq On : 15 Aug 2016 17:14 Operator: JDS
Sample : WG580279-06 200ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\081516\11M13634.D Vial: 7
Acq On : 15 Aug 2016 17:43 Operator: JDS
Sample : WG580279-07 300ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:42 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.59	96	570456	25.00	ug/L		-0.02
12) Chlorobenzene-d5	14.23	117	475151	25.00	ug/L		-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	277872	25.00	ug/L		-0.02

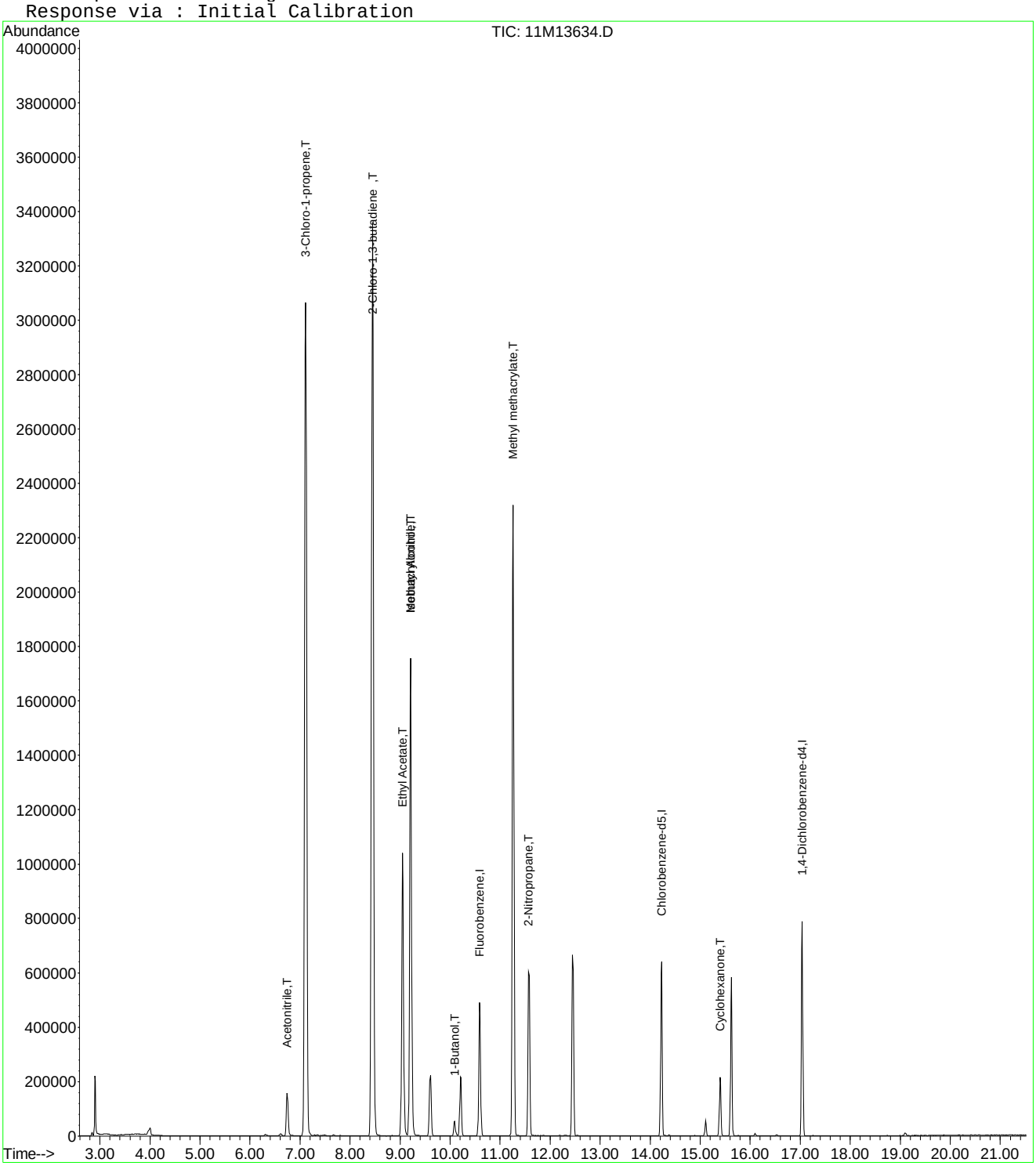
Target Compounds							Qvalue
2) Acetonitrile	6.74	41	206621	406.6293	ug/L		99
3) 3-Chloro-1-propene	7.11	41	3291074	305.7336	ug/L		94
4) 2-Chloro-1,3-butadiene	8.45	53	3437501	308.2299	ug/L		95
5) Methacrylonitrile	9.21	41	1233098	392.8531	ug/L		93
6) Isobutyl Alcohol	9.21	43	152453	916.8068	ug/L		94
7) 1-Butanol	10.09	56	41314	532.7367	ug/L		92
8) Cyclohexanone	15.40	55	121765	1199.3278	ug/L	#	89
9) 2-Nitropropane	11.57	43	596726	444.4653	ug/L		97
10) Ethyl Acetate	9.05	43	1705829	418.9642	ug/L		97
11) Methyl methacrylate	11.26	41	1576015	419.7446	ug/L		92

(#) = qualifier out of range (m) = manual integration
11M13634.D A9FOOWT.M Tue Aug 16 08:48:43 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13634.D Vial: 7
Acq On : 15 Aug 2016 17:43 Operator: JDS
Sample : WG580279-07 300ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13634.D Vial: 7
Acq On : 15 Aug 2016 17:43 Operator: JDS
Sample : WG580279-07 300ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:28 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

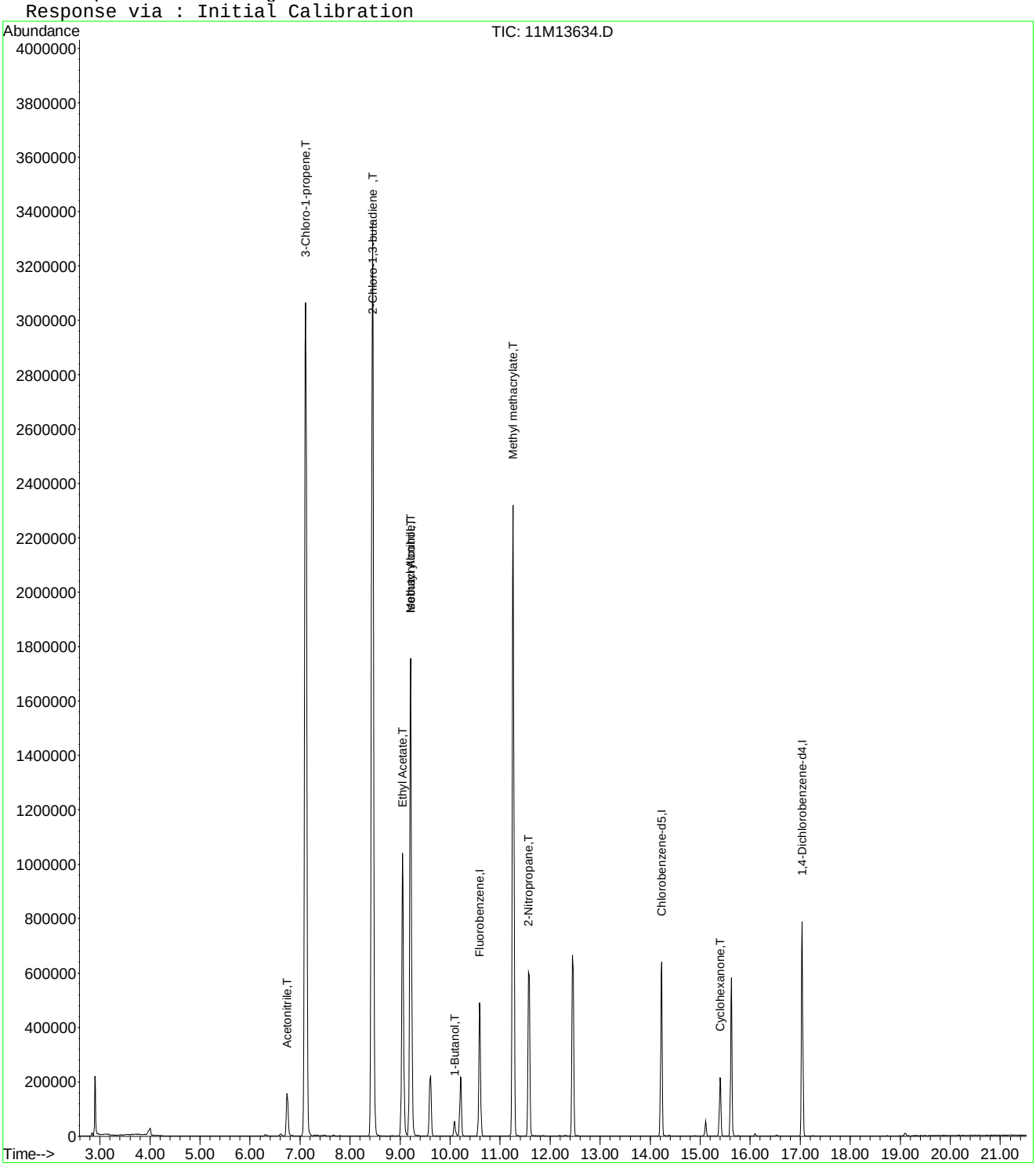
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	570456	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	475151	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	277872	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	206621	306.5157	ug/L	98
3) 3-Chloro-1-propene	7.11	41	3291074	301.3931	ug/L	100
4) 2-Chloro-1,3-butadiene	8.45	53	3437501	308.2487	ug/L	99
5) Methacrylonitrile	9.21	41	1233098	304.6571	ug/L	99
6) Isobutyl Alcohol	9.21	43	152453	610.5015	ug/L	99
7) 1-Butanol	10.09	56	41314	302.2300	ug/L	95
8) Cyclohexanone	15.40	55	121765	308.4394	ug/L	99
9) 2-Nitropropane	11.57	43	596726	303.3368	ug/L	98
10) Ethyl Acetate	9.05	43	1705829	308.4049	ug/L	100
11) Methyl methacrylate	11.26	41	1576015	312.8871	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13634.D A9FOOWT.M Tue Aug 16 08:59:29 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13634.D Vial: 7
Acq On : 15 Aug 2016 17:43 Operator: JDS
Sample : WG580279-07 300ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13634.D Vial: 7
Acq On : 15 Aug 2016 17:43 Operator: JDS
Sample : WG580279-07 300ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:34 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

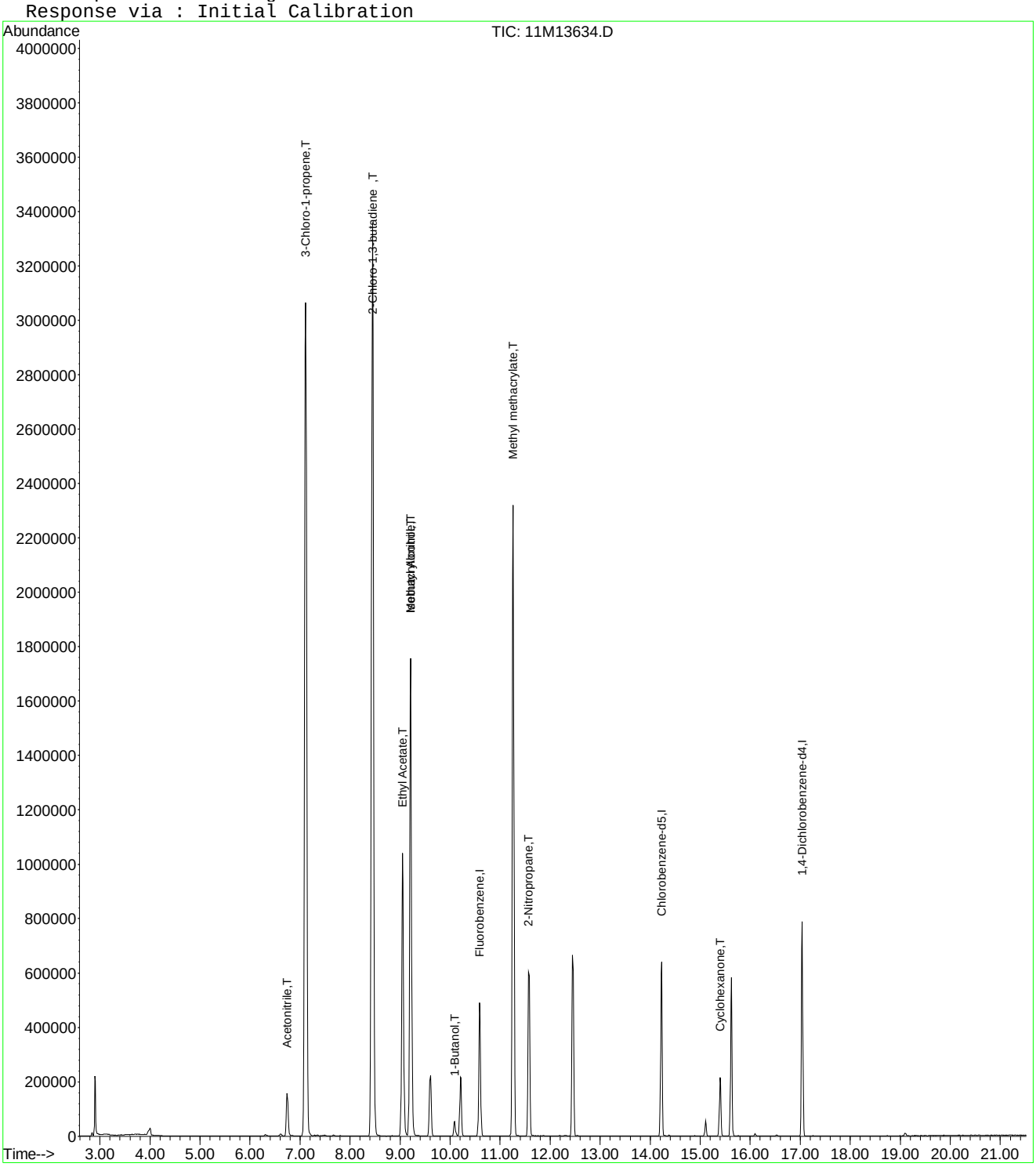
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	570456	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	475151	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	277872	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	206621	306.5157	ug/L	98
3) 3-Chloro-1-propene	7.11	41	3291074	301.3931	ug/L	100
4) 2-Chloro-1,3-butadiene	8.45	53	3437501	308.2487	ug/L	99
5) Methacrylonitrile	9.21	41	1233098	304.6571	ug/L	99
6) Isobutyl Alcohol	9.21	43	152453	610.5015	ug/L	99
7) 1-Butanol	10.09	56	41314	302.2300	ug/L	95
8) Cyclohexanone	15.40	55	121765	308.4394	ug/L	99
9) 2-Nitropropane	11.57	43	596726	303.3368	ug/L	98
10) Ethyl Acetate	9.05	43	1705829	308.4049	ug/L	100
11) Methyl methacrylate	11.26	41	1576015	312.8871	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13634.D A9FOOWT.M Tue Aug 16 09:05:35 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13634.D Vial: 7
Acq On : 15 Aug 2016 17:43 Operator: JDS
Sample : WG580279-07 300ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13635.D Vial: 8
Acq On : 15 Aug 2016 18:12 Operator: JDS
Sample : WG580279-08 400ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:45 2016 Quant Results File: A9FOOWT.RES

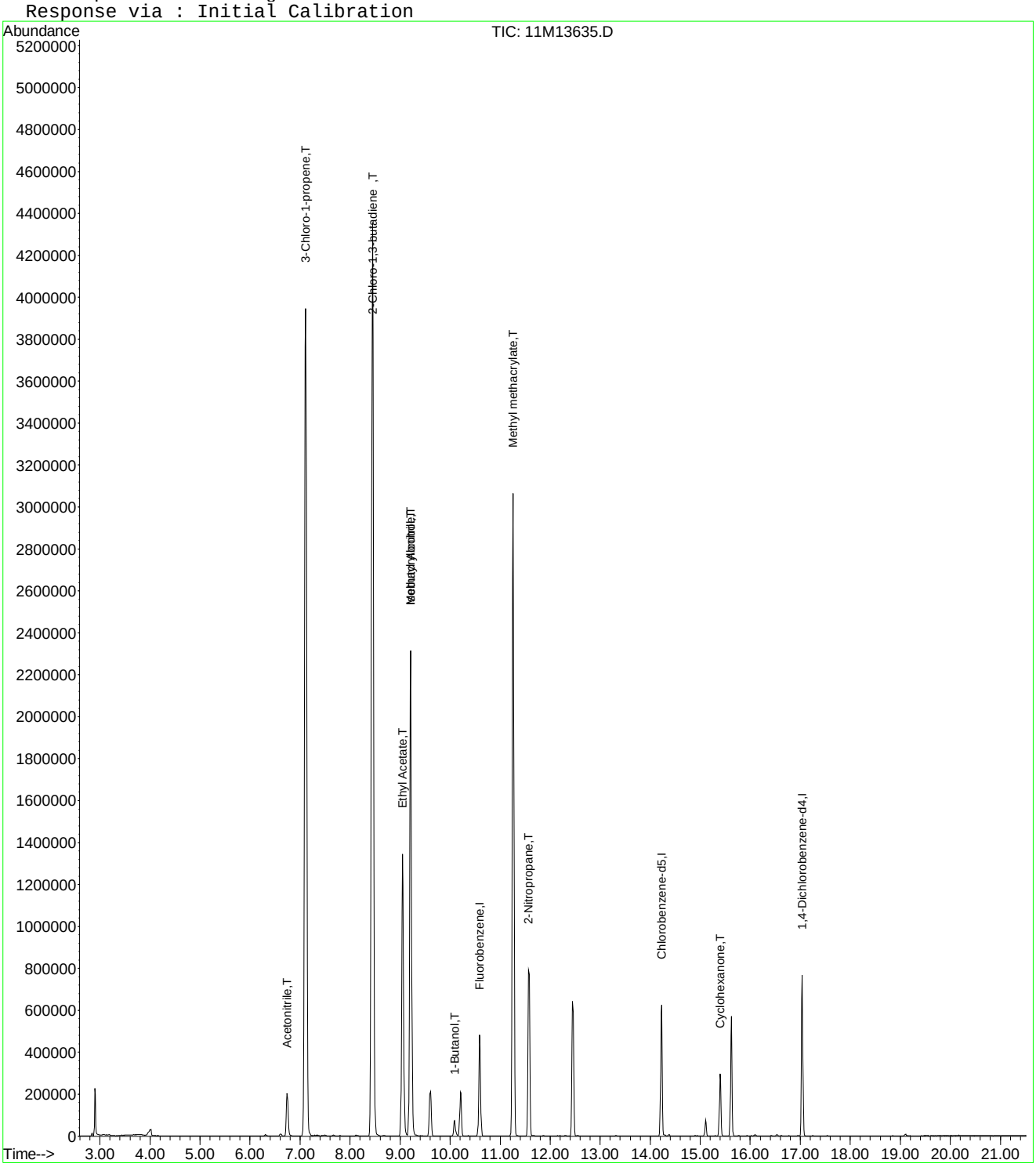
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.59	96	552210	25.00	ug/L		-0.02
12) Chlorobenzene-d5	14.23	117	466578	25.00	ug/L		-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	272411	25.00	ug/L		-0.02
Target Compounds							Qvalue
2) Acetonitrile	6.74	41	269620	548.1434	ug/L		97
3) 3-Chloro-1-propene	7.11	41	4235652	406.4842	ug/L		94
4) 2-Chloro-1,3-butadiene	8.45	53	4437193	411.0154	ug/L		95
5) Methacrylonitrile	9.21	41	1603488	527.7353	ug/L		93
6) Isobutyl Alcohol	9.21	43	209353	1300.5856	ug/L		93
7) 1-Butanol	10.09	56	54105	720.7268	ug/L		97
8) Cyclohexanone	15.40	55	164553	1674.3225	ug/L	#	86
9) 2-Nitropropane	11.57	43	788121	606.4203	ug/L		96
10) Ethyl Acetate	9.05	43	2221977	563.7659	ug/L		97
11) Methyl methacrylate	11.26	41	2055104	565.4269	ug/L		91

(#) = qualifier out of range (m) = manual integration
11M13635.D A9FOOWT.M Tue Aug 16 08:48:46 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13635.D Vial: 8
Acq On : 15 Aug 2016 18:12 Operator: JDS
Sample : WG580279-08 400ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13635.D Vial: 8
Acq On : 15 Aug 2016 18:12 Operator: JDS
Sample : WG580279-08 400ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:31 2016 Quant Results File: A9FOOWT.RES

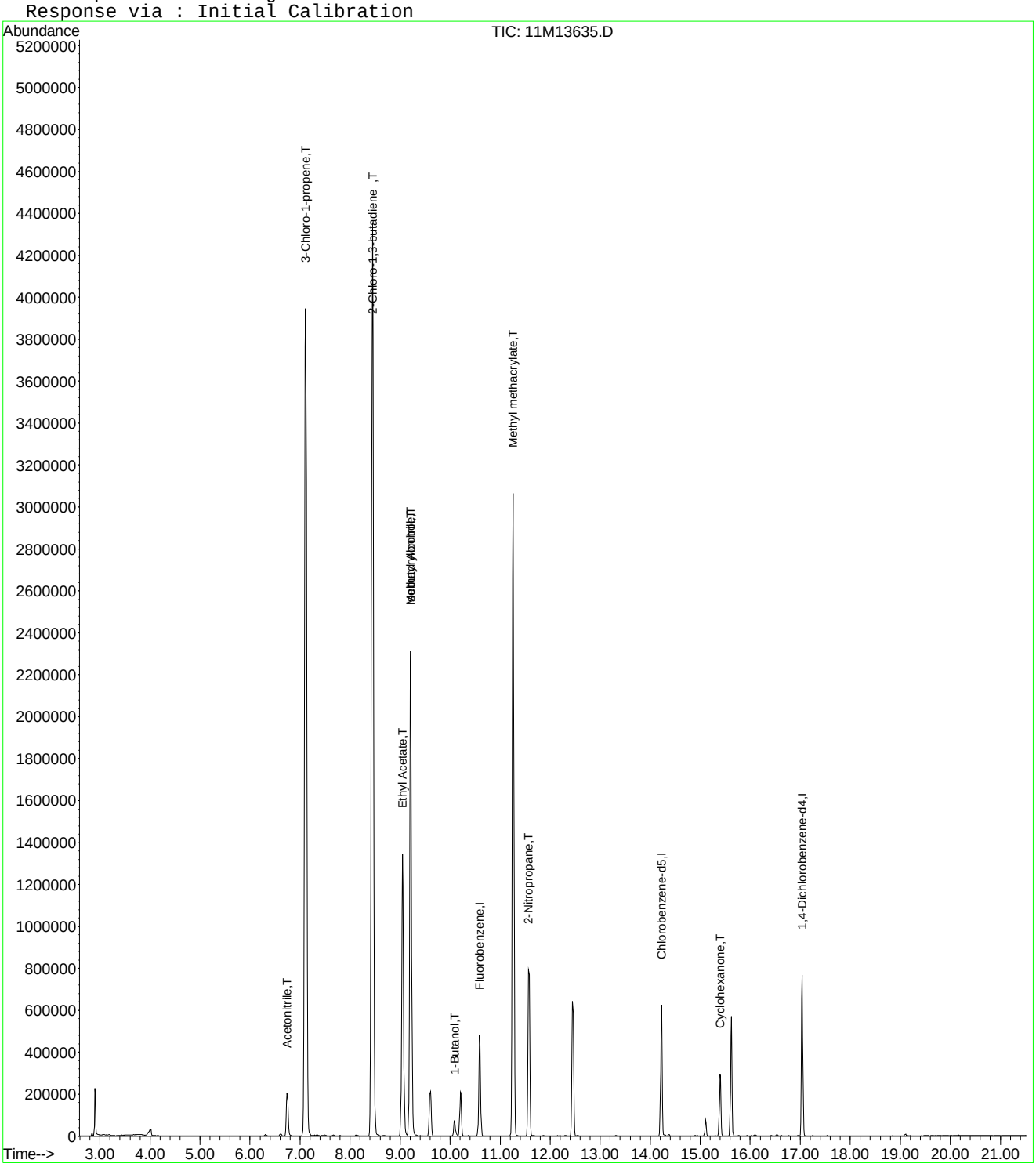
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	552210	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	466578	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	272411	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	269620	413.1886	ug/L	97
3) 3-Chloro-1-propene	7.11	41	4235652	400.7134	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	4437193	411.0405	ug/L	99
5) Methacrylonitrile	9.21	41	1603488	409.2581	ug/L	100
6) Isobutyl Alcohol	9.21	43	209353	866.0597	ug/L	98
7) 1-Butanol	10.09	56	54105	408.8798	ug/L	90
8) Cyclohexanone	15.40	55	164553	430.5971	ug/L	98
9) 2-Nitropropane	11.57	43	788121	413.8671	ug/L	97
10) Ethyl Acetate	9.05	43	2221977	414.9954	ug/L	99
11) Methyl methacrylate	11.26	41	2055104	421.4820	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13635.D A9FOOWT.M Tue Aug 16 08:59:32 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13635.D Vial: 8
Acq On : 15 Aug 2016 18:12 Operator: JDS
Sample : WG580279-08 400ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\081516\11M13635.D Vial: 8
Acq On : 15 Aug 2016 18:12 Operator: JDS
Sample : WG580279-08 400ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:37 2016 Quant Results File: A9FOOWT.RES

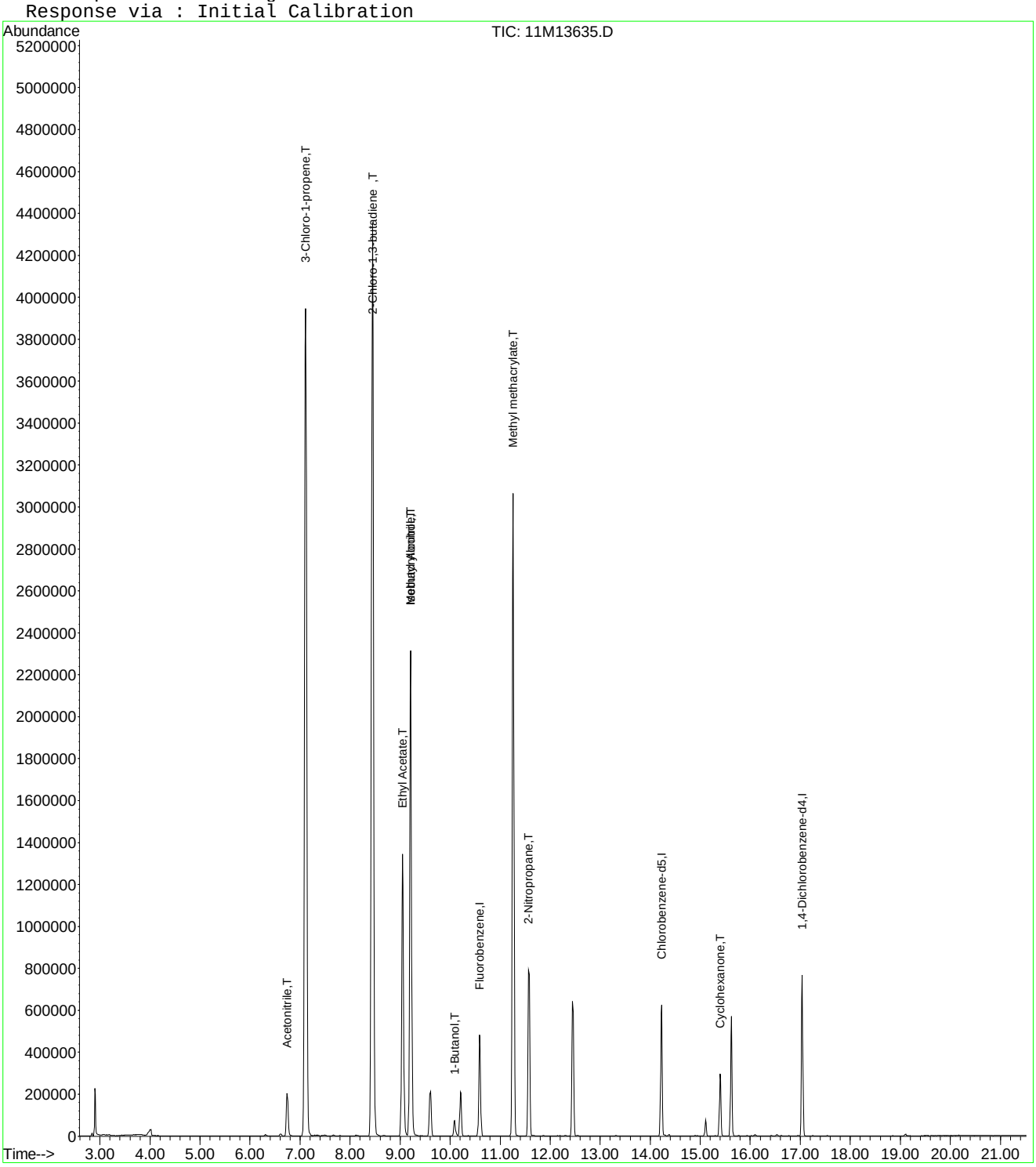
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	552210	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	466578	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	272411	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	269620	413.1886	ug/L	97
3) 3-Chloro-1-propene	7.11	41	4235652	400.7134	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	4437193	411.0405	ug/L	99
5) Methacrylonitrile	9.21	41	1603488	409.2581	ug/L	100
6) Isobutyl Alcohol	9.21	43	209353	866.0597	ug/L	98
7) 1-Butanol	10.09	56	54105	408.8798	ug/L	90
8) Cyclohexanone	15.40	55	164553	430.5971	ug/L	98
9) 2-Nitropropane	11.57	43	788121	413.8671	ug/L	97
10) Ethyl Acetate	9.05	43	2221977	414.9954	ug/L	99
11) Methyl methacrylate	11.26	41	2055104	421.4820	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13635.D A9FOOWT.M Tue Aug 16 09:05:38 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13635.D Vial: 8
Acq On : 15 Aug 2016 18:12 Operator: JDS
Sample : WG580279-08 400ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13636.D Vial: 9
Acq On : 15 Aug 2016 18:41 Operator: JDS
Sample : WG580279-09 500ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:47 2016 Quant Results File: A9FOOWT.RES

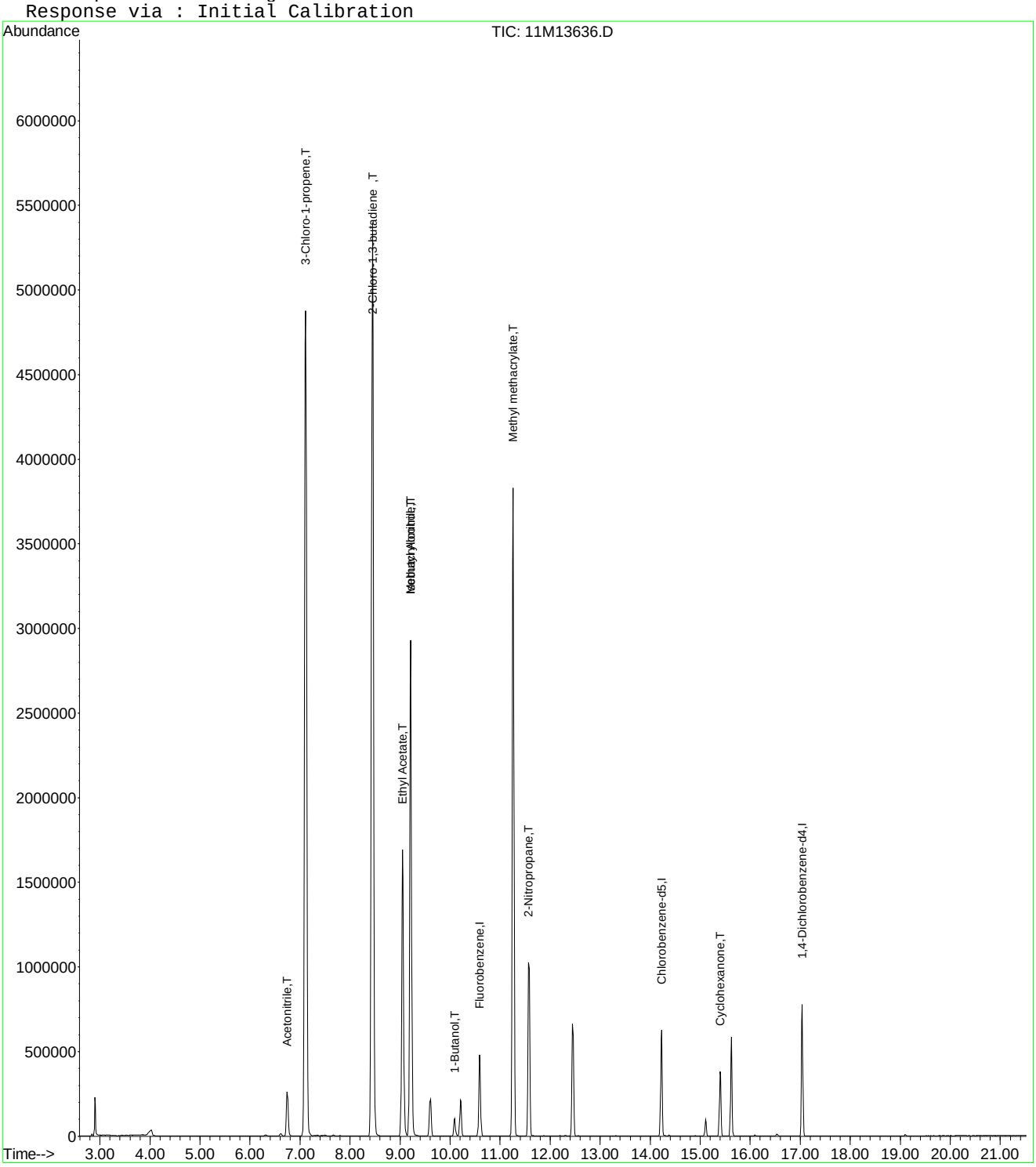
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.59	96	551574	25.00	ug/L		-0.02
12) Chlorobenzene-d5	14.23	117	467201	25.00	ug/L		-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	275573	25.00	ug/L		-0.02
Target Compounds							Qvalue
2) Acetonitrile	6.74	41	346353	704.9551	ug/L		98
3) 3-Chloro-1-propene	7.11	41	5201220	499.7227	ug/L		93
4) 2-Chloro-1,3-butadiene	8.45	53	5468598	507.1382	ug/L		94
5) Methacrylonitrile	9.21	41	2029572	668.7370	ug/L		93
6) Isobutyl Alcohol	9.21	43	258337	1606.7446	ug/L		96
7) 1-Butanol	10.09	56	78006	1040.3075	ug/L		89
8) Cyclohexanone	15.40	55	216607	2206.5119	ug/L	#	87
9) 2-Nitropropane	11.57	43	1005542	774.6072	ug/L		98
10) Ethyl Acetate	9.05	43	2809173	713.5727	ug/L		96
11) Methyl methacrylate	11.26	41	2604115	717.3041	ug/L		91

(#) = qualifier out of range (m) = manual integration
11M13636.D A9FOOWT.M Tue Aug 16 08:48:48 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13636.D Vial: 9
Acq On : 15 Aug 2016 18:41 Operator: JDS
Sample : WG580279-09 500ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13636.D Vial: 9
Acq On : 15 Aug 2016 18:41 Operator: JDS
Sample : WG580279-09 500ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:34 2016 Quant Results File: A9FOOWT.RES

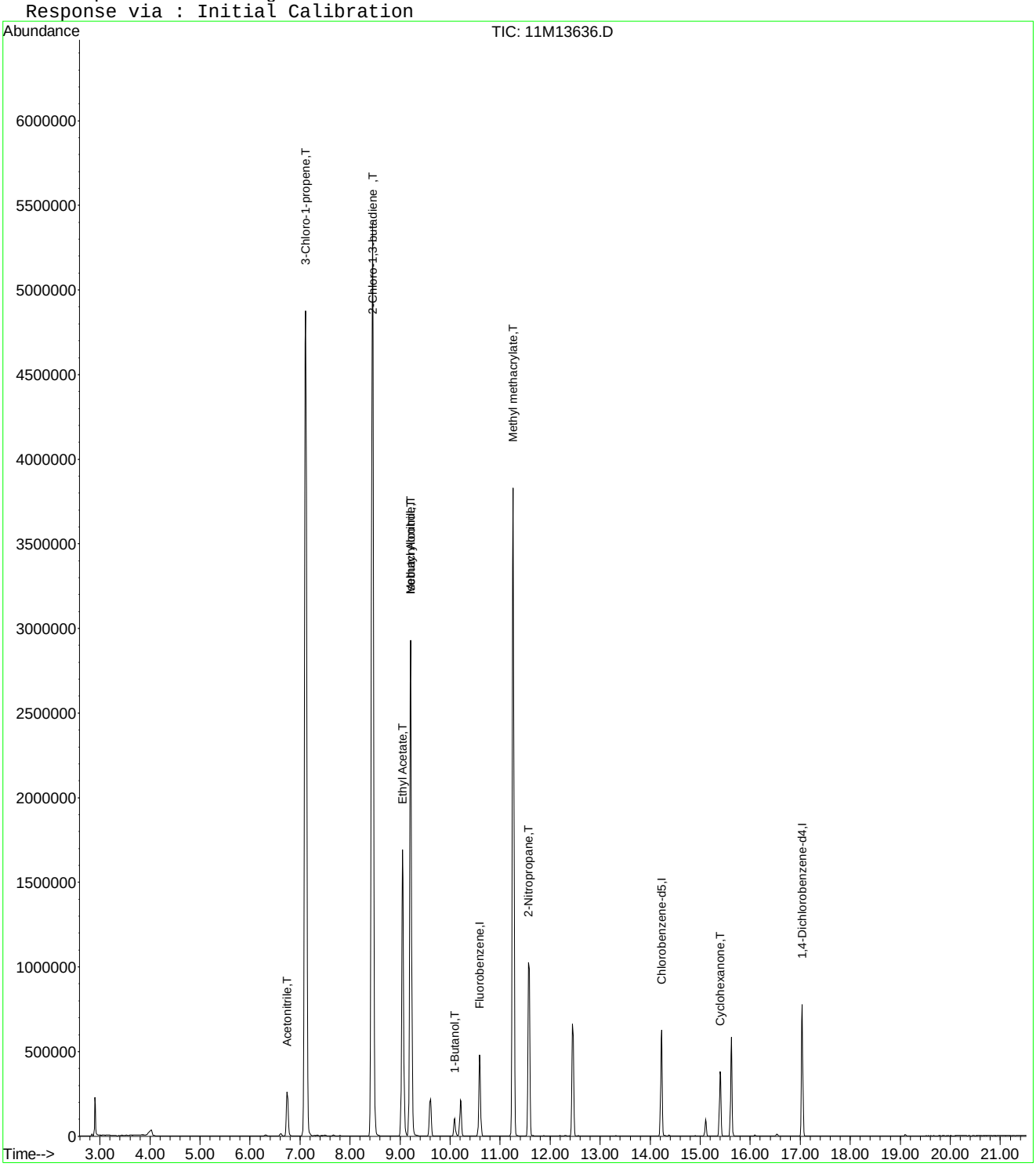
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551574	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	467201	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	275573	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	346353	531.3928	ug/L	97
3) 3-Chloro-1-propene	7.11	41	5201220	492.6282	ug/L	98
4) 2-Chloro-1,3-butadiene	8.45	53	5468598	507.1691	ug/L	99
5) Methacrylonitrile	9.21	41	2029572	518.6048	ug/L	100
6) Isobutyl Alcohol	9.21	43	258337	1069.9309	ug/L	98
7) 1-Butanol	10.09	56	78006	590.1831	ug/L	95
8) Cyclohexanone	15.40	55	216607	567.4639	ug/L	98
9) 2-Nitropropane	11.57	43	1005542	528.6506	ug/L	98
10) Ethyl Acetate	9.05	43	2809173	525.2701	ug/L	99
11) Methyl methacrylate	11.26	41	2604115	534.6947	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M13636.D A9FOOWT.M Tue Aug 16 08:59:35 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13636.D Vial: 9
Acq On : 15 Aug 2016 18:41 Operator: JDS
Sample : WG580279-09 500ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13636.D Vial: 9
Acq On : 15 Aug 2016 18:41 Operator: JDS
Sample : WG580279-09 500ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:40 2016 Quant Results File: A9FOOWT.RES

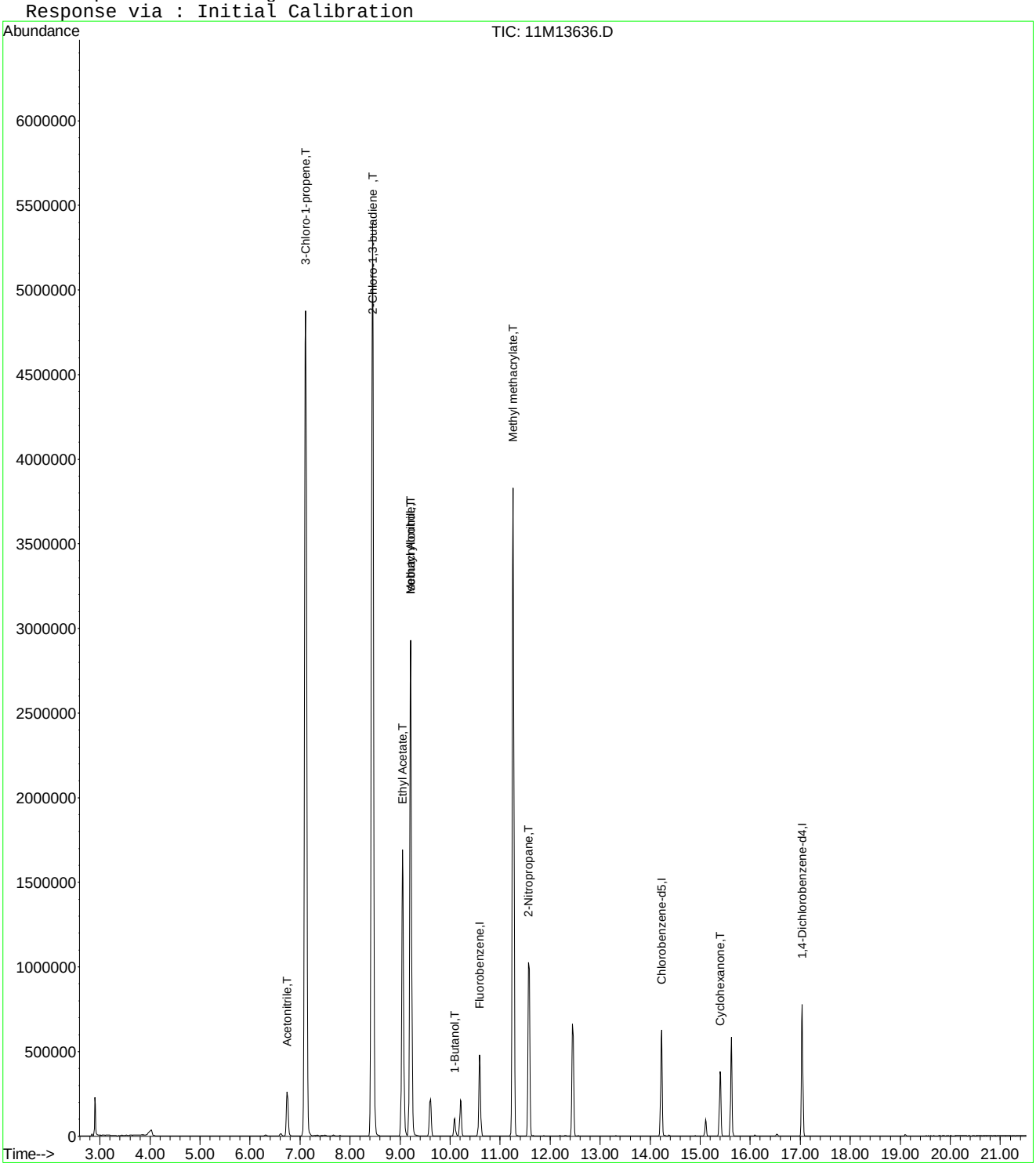
Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551574	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	467201	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	275573	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	346353	531.3928	ug/L	97
3) 3-Chloro-1-propene	7.11	41	5201220	492.6282	ug/L	98
4) 2-Chloro-1,3-butadiene	8.45	53	5468598	507.1691	ug/L	99
5) Methacrylonitrile	9.21	41	2029572	518.6048	ug/L	100
6) Isobutyl Alcohol	9.21	43	258337	1069.9309	ug/L	98
7) 1-Butanol	10.09	56	78006	590.1831	ug/L	95
8) Cyclohexanone	15.40	55	216607	567.4639	ug/L	98
9) 2-Nitropropane	11.57	43	1005542	528.6506	ug/L	98
10) Ethyl Acetate	9.05	43	2809173	525.2701	ug/L	99
11) Methyl methacrylate	11.26	41	2604115	534.6947	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M13636.D A9FOOWT.M Tue Aug 16 09:05:41 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13636.D Vial: 9
Acq On : 15 Aug 2016 18:41 Operator: JDS
Sample : WG580279-09 500ug/L ICAL STD 8260-A9 Inst : hpms11
Misc : 1,1 STD77502 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:48:53 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551890	25.00	ug/L	-0.02
12) Chlorobenzene-d5	14.23	117	463476	25.00	ug/L	-0.01
13) 1,4-Dichlorobenzene-d4	17.04	152	267856	25.00	ug/L	-0.02

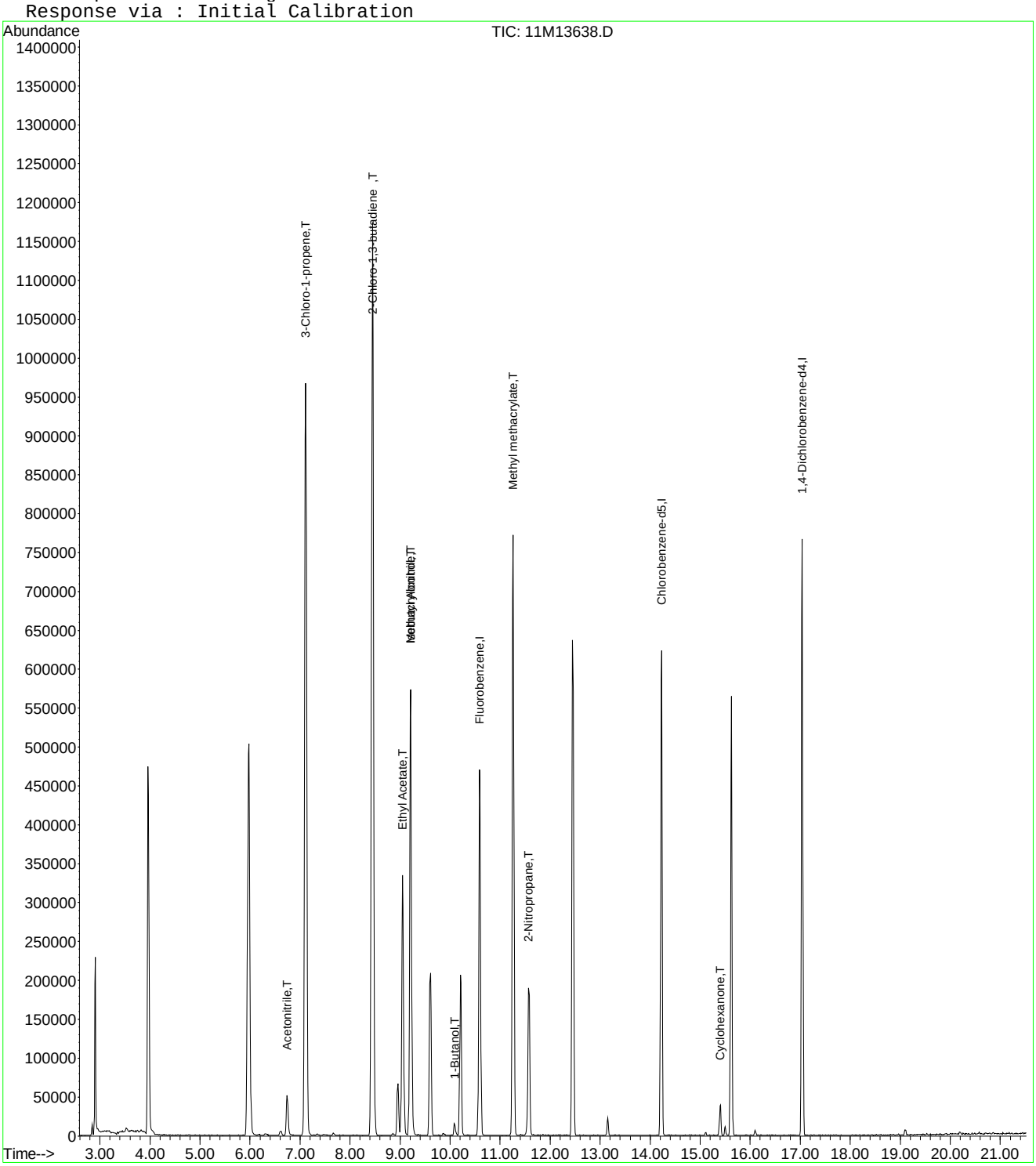
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	66452	135.1767	ug/L	97
3) 3-Chloro-1-propene	7.11	41	1025840	98.5042	ug/L	95
4) 2-Chloro-1,3-butadiene	8.45	53	1183806	109.7191	ug/L	95
5) Methacrylonitrile	9.21	41	403782	132.9686	ug/L	94
6) Isobutyl Alcohol	9.21	43	45725	284.2269	ug/L	97
7) 1-Butanol	10.09	56	11512	153.4390	ug/L	91
8) Cyclohexanone	15.40	55	23726	241.5514	ug/L	88
9) 2-Nitropropane	11.57	43	184828	142.2985	ug/L	96
10) Ethyl Acetate	9.05	43	552938	140.3742	ug/L	98
11) Methyl methacrylate	11.26	41	523675	144.1638	ug/L	91

(#) = qualifier out of range (m) = manual integration
11M13638.D A9FOOWT.M Tue Aug 16 08:48:54 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:48 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:47:42 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 08:59:40 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

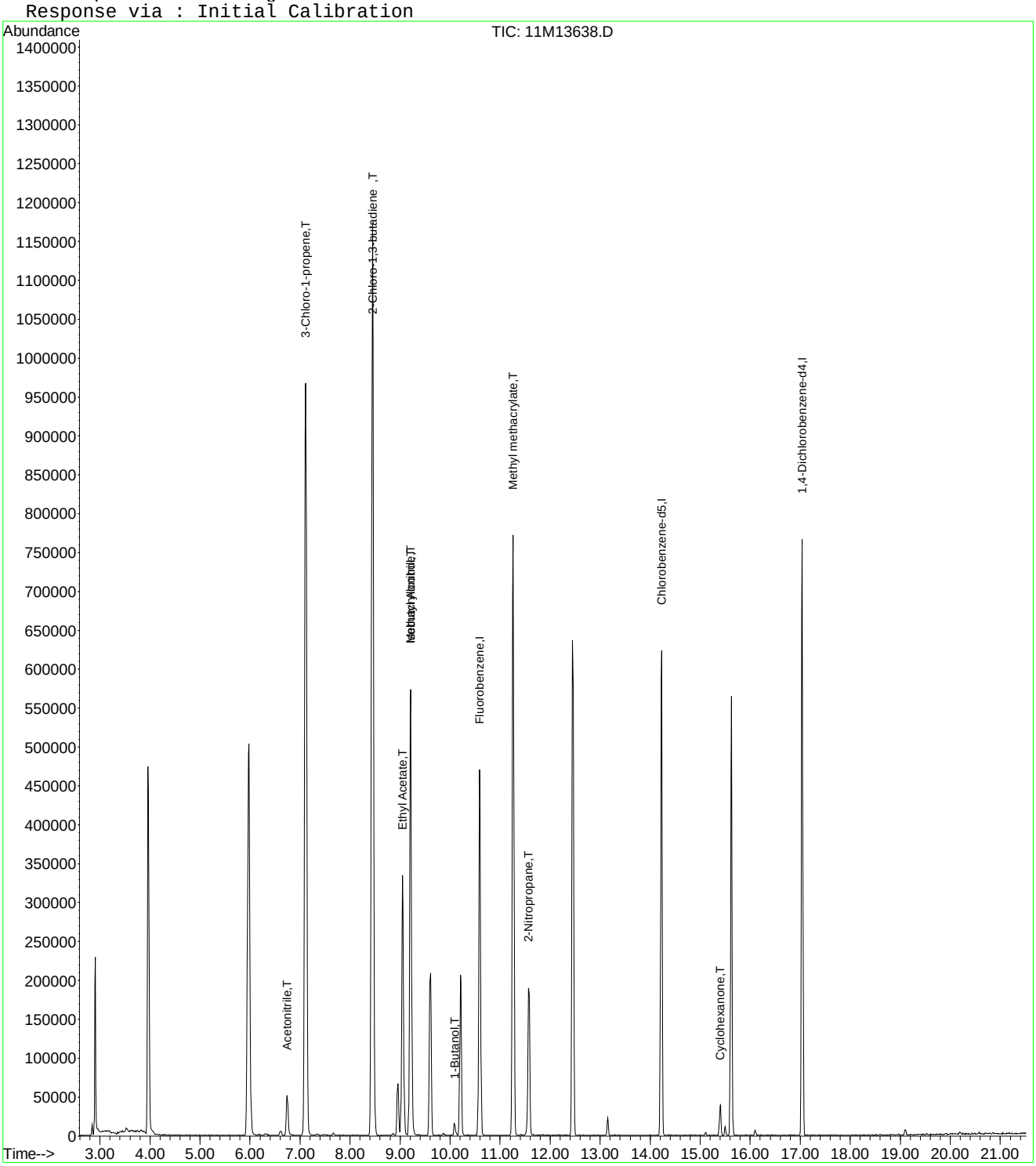
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551890	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	463476	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	267856	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	66452	101.8957	ug/L	97
3) 3-Chloro-1-propene	7.11	41	1025840	97.1058	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	1183806	109.7258	ug/L	100
5) Methacrylonitrile	9.21	41	403782	103.1170	ug/L	99
6) Isobutyl Alcohol	9.21	43	45725	189.2667	ug/L	97
7) 1-Butanol	10.09	56	11512	87.0484	ug/L	96
8) Cyclohexanone	15.40	55	23726	62.1214	ug/L	99
9) 2-Nitropropane	11.57	43	184828	97.1153	ug/L	97
10) Ethyl Acetate	9.05	43	552938	103.3313	ug/L	100
11) Methyl methacrylate	11.26	41	523675	107.4630	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13638.D A9FOOWT.M Tue Aug 16 08:59:41 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 8:59 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:46 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

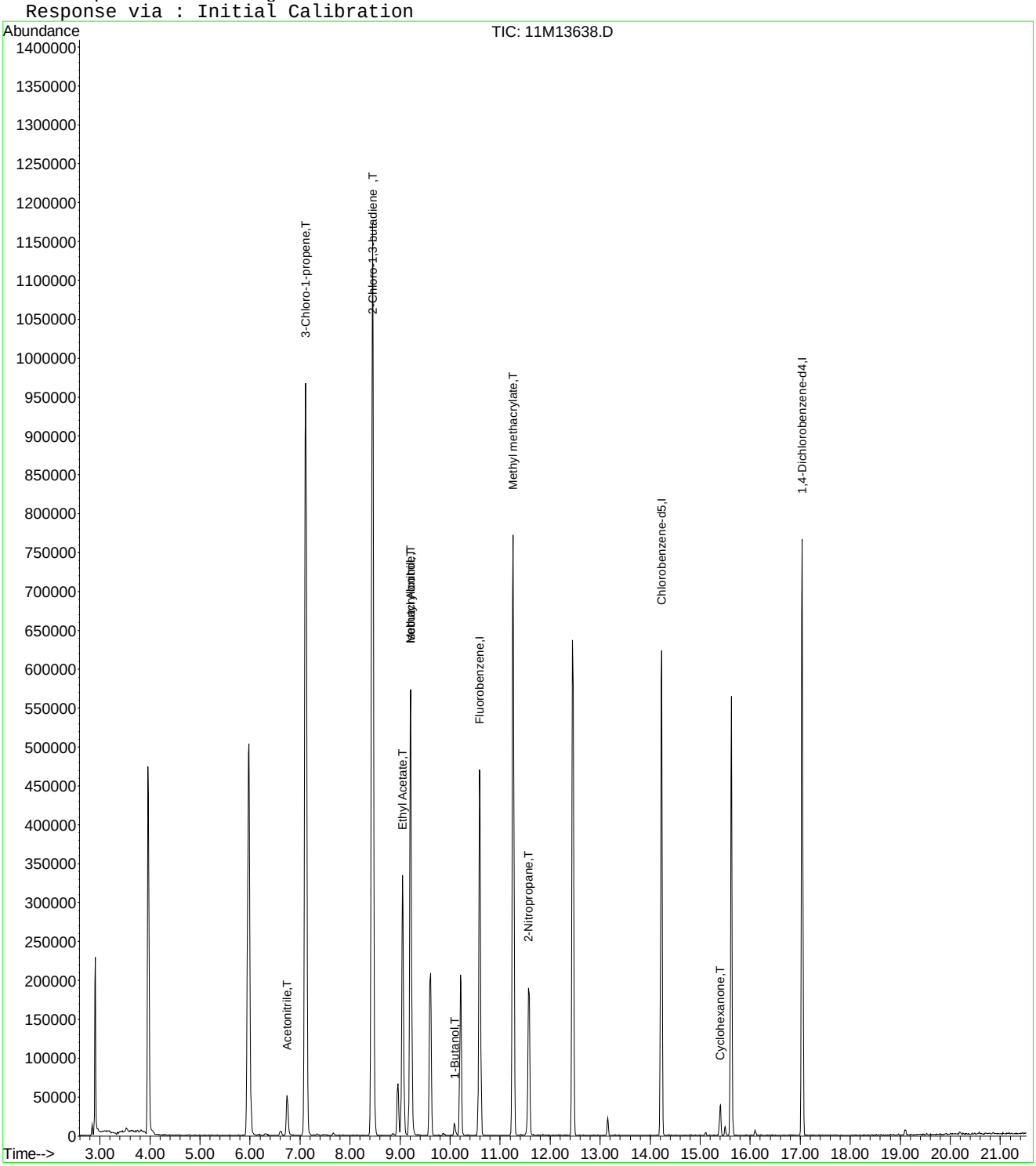
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.59	96	551890	25.00	ug/L	0.00
12) Chlorobenzene-d5	14.23	117	463476	25.00	ug/L	0.00
13) 1,4-Dichlorobenzene-d4	17.04	152	267856	25.00	ug/L	0.00
Target Compounds						Qvalue
2) Acetonitrile	6.74	41	66452	101.8957	ug/L	97
3) 3-Chloro-1-propene	7.11	41	1025840	97.1058	ug/L	99
4) 2-Chloro-1,3-butadiene	8.45	53	1183806	109.7258	ug/L	100
5) Methacrylonitrile	9.21	41	403782	103.1170	ug/L	99
6) Isobutyl Alcohol	9.21	43	45725	189.2667	ug/L	97
7) 1-Butanol	10.09	56	11512	87.0484	ug/L	96
8) Cyclohexanone	15.40	55	23726	62.1214	ug/L	99
9) 2-Nitropropane	11.57	43	184828	97.1153	ug/L	97
10) Ethyl Acetate	9.05	43	552938	103.3313	ug/L	100
11) Methyl methacrylate	11.26	41	523675	107.4630	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M13638.D A9FOOWT.M Tue Aug 16 09:05:48 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 75% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.0000	1.0000	0.0	102	0.00
2	T	Acetonitrile	0.0295	0.0301	-1.9	96	0.00
3	T	3-Chloro-1-propene	0.4785	0.4647	2.9	94	0.00
4	T	2-Chloro-1,3-butadiene	0.4887	0.5363	-9.7	105	0.00
5	T	Methacrylonitrile	0.1774	0.1829	-3.1	100	0.00
6	T	Isobutyl Alcohol	0.0109	0.0104	5.3	97	0.00
7	T	1-Butanol	0.0060	0.0052	13.0	96	0.00
8	T	Cyclohexanone	0.0173	0.0107	37.9	64	-0.01
9	T	2-Nitropropane	0.0862	0.0837	2.9	101	-0.01
10	T	Ethyl Acetate	0.2424	0.2505	-3.3	99	0.00
11	T	Methyl methacrylate	0.2207	0.2372	-7.5	103	0.00
12	I	Chlorobenzene-d5	1.0000	1.0000	0.0	100	0.00
13	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M13638.D A9FOOWT.M Tue Aug 16 09:23:34 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\081516\11M13638.D Vial: 11
Acq On : 15 Aug 2016 19:39 Operator: JDS
Sample : WG580279-10 100ug/L ALT SRC 8260-A9 Inst : hpms11
Misc : 1,1 STD77604 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 75% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	102	0.00
2	T	Acetonitrile	100.0000	101.8957	-1.9	96	0.00
3	T	3-Chloro-1-propene	100.0000	97.1058	2.9	94	0.00
4	T	2-Chloro-1,3-butadiene	100.0000	109.7258	-9.7	105	0.00
5	T	Methacrylonitrile	100.0000	103.1170	-3.1	100	0.00
6	T	Isobutyl Alcohol	200.0000	189.2667	5.4	97	0.00
7	T	1-Butanol	100.0000	87.0484	13.0	96	0.00
8	T	Cyclohexanone	100.0000	62.1215	37.9	64	-0.01
9	T	2-Nitropropane	100.0000	97.1153	2.9	101	-0.01
10	T	Ethyl Acetate	100.0000	103.3313	-3.3	99	0.00
11	T	Methyl methacrylate	100.0000	107.4630	-7.5	103	0.00
12	I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
13	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M13638.D A9FOOWT.M Tue Aug 16 09:23:36 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14501.D Vial: 3
Acq On : 13 Oct 2016 13:42 Operator: FJB
Sample : WG587480-02 0.3ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:15:55 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	715274	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	547074	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	283852	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	0.00	111	0	0.0000	ug/L	
Spiked Amount 25.000	Range 86 - 118		Recovery =	0.00%#		
43) 1,2-Dichloroethane-d4	10.18	65	226	0.0234	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery =	0.08%#		
57) Toluene-d8	12.42	98	3192	0.1101	ug/L	-0.01
Spiked Amount 25.000	Range 88 - 110		Recovery =	0.44%#		
78) p-Bromofluorobenzene	15.59	95	2722	0.2397	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery =	0.96%#		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	2906	0.2395	ug/L #	60
3) Chloromethane	3.67	50	6371	0.4871	ug/L #	23
4) Vinyl Chloride	3.90	62	4121	0.3472	ug/L #	1
5) 1,3-Butadiene	3.95	54	4339	0.4491	ug/L	93
6) Bromomethane	4.80	94	2487	0.4325	ug/L	75
7) Chloroethane	4.94	64	2236	0.3216	ug/L	96
8) Trichlorofluoromethane	5.43	101	4597	0.3328	ug/L	99
10) Isoprene	5.98	67	3749	0.2974	ug/L	91
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	2439	0.3283	ug/L	77
13) Acetone	6.29	43	1485	0.5351	ug/L #	50
14) 1,1-Dichloroethene	6.49	61	4467	0.3026	ug/L	100
16) Dimethyl Sulfide	6.75	62	3139	0.3103	ug/L	91
17) Iodomethane	7.01	142	835	0.9525	ug/L #	32
18) Methyl acetate	7.00	43	2163	0.2643	ug/L #	73
19) Methylene Chloride	7.26	84	3246	0.3868	ug/L	83
20) Carbon Disulfide	7.30	76	10076	0.4118	ug/L	98
22) Methyl Tert Butyl Ether	7.45	73	6143	0.2977	ug/L #	72
23) trans-1,2-Dichloroethene	7.70	96	2316	0.2769	ug/L	86
24) n-Hexane	7.77	57	4878	0.3410	ug/L #	75
26) Vinyl Acetate	8.27	43	6911	0.3196	ug/L #	88
27) 1,1-Dichloroethane	8.30	63	5784	0.3374	ug/L #	72
29) 2-Butanone	8.82	43	1317	0.2825	ug/L #	65
31) 2,2-Dichloropropane	9.05	77	3883	0.3324	ug/L #	66
32) cis-1,2-Dichloroethene	9.10	96	3034	0.3293	ug/L	90
33) Chloroform	9.30	83	5074	0.3373	ug/L	97
35) Bromochloromethane	9.52	130	1714	0.2886	ug/L	96
36) Tetrahydrofuran	9.55	42	9221	0.3270	ug/L	97
38) 1,1,1-Trichloroethane	9.80	97	4103	0.3094	ug/L #	86
39) Cyclohexane	9.84	56	6291	0.3236	ug/L #	85
40) 1,1-Dichloropropene	9.99	75	3620	0.3297	ug/L	86
41) Carbon Tetrachloride	10.14	117	3783	0.3053	ug/L	92
44) 1,2-Dichloroethane	10.30	62	4002	0.3097	ug/L	85
45) Benzene	10.34	78	10454	0.3223	ug/L	98
46) Trichloroethene	11.04	130	3082	0.3286	ug/L	99
47) Methylcyclohexane	11.13	83	3707	0.2915	ug/L	88
48) 1,2-Dichloropropane	11.25	63	3096	0.3239	ug/L	84
50) Bromodichloromethane	11.53	83	3184	0.2801	ug/L #	83
51) Dibromomethane	11.61	93	1315	0.2594	ug/L	82
52) 2-Chloroethyl Vinyl Ether	11.80	63	1152	0.2057	ug/L	97
53) 4-Methyl-2-Pentanone	11.84	58	619	0.1801	ug/L #	46

(#) = qualifier out of range (m) = manual integration
11M14501.D 8260WT.M Fri Oct 14 09:15:56 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14501.D Vial: 3
Acq On : 13 Oct 2016 13:42 Operator: FJB
Sample : WG587480-02 0.3ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:15:55 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

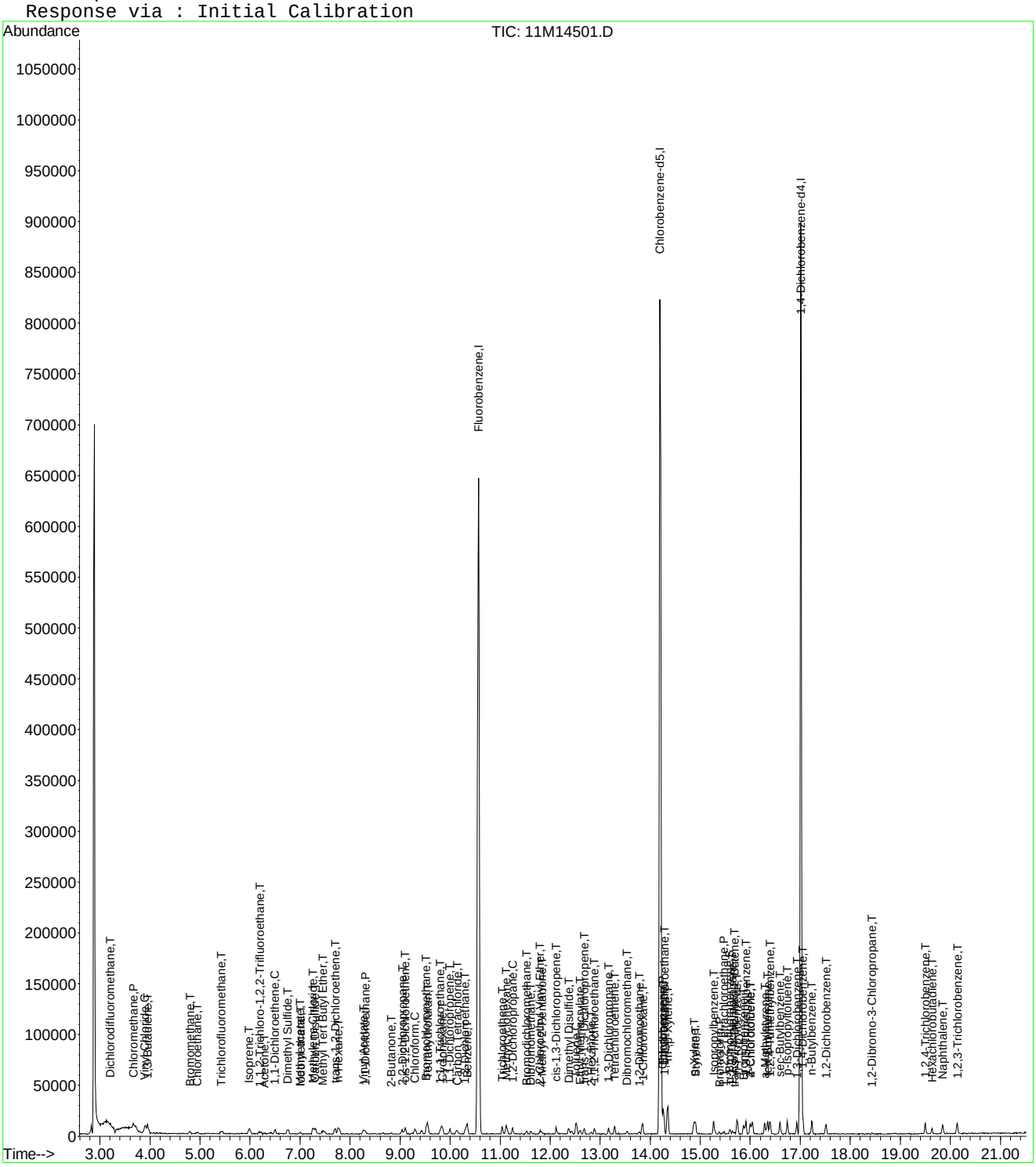
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
54)	cis-1,3-Dichloropropene	12.12	75	4254	0.3386 ug/L		95
55)	Dimethyl Disulfide	12.38	79	1869	0.2479 ug/L		94
58)	Toluene	12.52	91	10919	0.3170 ug/L		100
59)	Ethyl Methacrylate	12.60	69	2349	0.2668 ug/L		85
60)	trans-1,3-Dichloropropene	12.68	75	3263	0.2893 ug/L	#	79
61)	1,1,2-Trichloroethane	12.88	97	1947	0.2905 ug/L		93
62)	2-Hexanone	12.82	43	1621	0.2244 ug/L	#	46
63)	1,3-Dichloropropane	13.17	76	2831	0.2513 ug/L		83
64)	Tetrachloroethene	13.29	164	2895	0.3872 ug/L		88
65)	Dibromochloromethane	13.53	129	2882	0.3208 ug/L		98
66)	1,2-Dibromoethane	13.78	107	2079	0.3013 ug/L		83
67)	1-Chlorohexane	13.86	91	3462	0.3114 ug/L		94
68)	Chlorobenzene	14.25	112	7987	0.3267 ug/L		97
69)	1,1,1,2-Tetrachloroethane	14.28	131	2258	0.2590 ug/L		83
70)	Ethylbenzene	14.27	106	4007	0.3206 ug/L		95
71)	m-,p-Xylene	14.35	106	9868	0.6701 ug/L		95
72)	o-Xylene	14.88	106	4696	0.3242 ug/L		90
73)	Styrene	14.91	104	6826	0.2776 ug/L		82
74)	Bromoform	15.39	173	1603	0.2752 ug/L	#	59
75)	Isopropylbenzene	15.27	105	12037	0.3243 ug/L		95
77)	1,1,2,2-Tetrachloroethane	15.47	83	1971	0.2462 ug/L		93
79)	1,2,3-Trichloropropane	15.64	110	474	0.1953 ug/L		79
80)	trans-1,4-Dichloro-2-Buten	15.69	53	711	0.2175 ug/L		63
81)	n-Propylbenzene	15.74	91	14873	0.3522 ug/L		98
82)	Bromobenzene	15.87	156	3673	0.3393 ug/L		87
83)	1,3,5-Trimethylbenzene	15.91	105	9294	0.3068 ug/L		97
84)	2-Chlorotoluene	16.01	91	11171	0.4180 ug/L		90
85)	4-Chlorotoluene	16.01	91	11172	0.4105 ug/L		87
86)	a-Methylstyrene	16.30	118	4569	0.2566 ug/L		78
87)	tert-Butylbenzene	16.35	134	2246	0.3389 ug/L		90
88)	1,2,4-Trimethylbenzene	16.40	105	10081	0.3235 ug/L		93
89)	sec-Butylbenzene	16.60	105	12863	0.3353 ug/L		94
90)	p-Isopropyltoluene	16.74	119	11684	0.3500 ug/L		98
91)	1,3-Dichlorobenzene	16.94	146	6561	0.3288 ug/L		99
92)	1,4-Dichlorobenzene	17.05	146	6786	0.3318 ug/L		80
93)	n-Butylbenzene	17.23	91	10734	0.3428 ug/L		91
94)	1,2-Dichlorobenzene	17.52	146	6054	0.3176 ug/L		100
95)	1,2-Dibromo-3-Chloropropan	18.44	75	222	0.1443 ug/L	#	1
96)	1,2,4-Trichlorobenzene	19.50	180	5493	0.3885 ug/L		95
97)	Hexachlorobutadiene	19.63	225	2254	0.4074 ug/L	#	75
98)	Naphthalene	19.84	128	8938	0.3041 ug/L	#	96
99)	1,2,3-Trichlorobenzene	20.14	180	5233	0.3836 ug/L		92

(#) = qualifier out of range (m) = manual integration
11M14501.D 8260WT.M Fri Oct 14 09:15:56 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14501.D Vial: 3
Acq On : 13 Oct 2016 13:42 Operator: FJB
Sample : WG587480-02 0.3ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:15 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\101316\11M14501.D Vial: 3
Acq On : 13 Oct 2016 13:42 Operator: FJB
Sample : WG587480-02 0.3ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	100	0.00
2	T	Dichlorodifluoromethane	-1.0000	0.2395	0.0	0	0.00
3	P	Chloromethane	-1.0000	0.4871	0.0	0	0.01
4	C	Vinyl Chloride	-1.0000	0.3472	0.0	0	0.00
5	T	1,3-Butadiene	-1.0000	0.4491	0.0	0	0.01
6	T	Bromomethane	-1.0000	0.4325	0.0	0	0.00
7	T	Chloroethane	-1.0000	0.3216	0.0	0	-0.01
8	T	Trichlorofluoromethane	-1.0000	0.3328	0.0	0	0.00
9	T	Diethyl ether	-1.0000	0.0000	0.0	0	-5.95#
10	T	Isoprene	-1.0000	0.2974	0.0	0	-0.01
11	T	Acrolein	-1.0000	0.0000	0.0	0	-6.17#
12	T	1,1,2-Trichloro-1,2,2-Trifl	-1.0000	0.3283	0.0	0	0.00
13	T	Acetone	-1.0000	0.5351	0.0	0	0.01
14	C	1,1-Dichloroethene	-1.0000	0.3026	0.0	0	0.00
15	T	Tert-Butyl Alcohol	-1.0000	0.0000	0.0	0	-6.60#
16	T	Dimethyl Sulfide	-1.0000	0.3103	0.0	0	0.00
17	T	Iodomethane	-1.0000	0.9525	0.0	0	0.01
18	T	Methyl acetate	-1.0000	0.2643	0.0	0	-0.01
19	T	Methylene Chloride	-1.0000	0.3868	0.0	0	0.00
20	T	Carbon Disulfide	-1.0000	0.4118	0.0	0	-0.01
21	T	Acrylonitrile	-1.0000	0.0000	0.0	0	-7.43#
22	T	Methyl Tert Butyl Ether	-1.0000	0.2977	0.0	0	-0.01
23	T	trans-1,2-Dichloroethene	-1.0000	0.2769	0.0	0	0.00
24	T	n-Hexane	-1.0000	0.3410	0.0	0	0.00
25	T	Diisopropyl ether	-1.0000	0.0000	0.0	0	-8.10#
26	T	Vinyl Acetate	-1.0000	0.3196	0.0	0	0.01
27	P	1,1-Dichloroethane	-1.0000	0.3374	0.0	0	0.01
28	T	Ethyl-Tert-Butyl ether	-1.0000	0.0000	0.0	0	-8.64#
29	T	2-Butanone	-1.0000	0.2825	0.0	0	0.00
30	T	Propionitrile	-1.0000	0.0000	0.0	0	-8.92#
31	T	2,2-Dichloropropane	-1.0000	0.3324	0.0	0	0.01
32	T	cis-1,2-Dichloroethene	-1.0000	0.3293	0.0	0	0.00
33	C	Chloroform	0.3000	0.3373	-12.4	100	-0.01
34	T	1-Bromopropane	-1.0000	0.0000	0.0	0	-9.43#
35	T	Bromochloromethane	-1.0000	0.2886	0.0	0	0.00
36	T	Tetrahydrofuran	-1.0000	0.3270	0.0	0	0.01
37	S	Dibromofluoromethane	-1.0000	0.0000	0.0	0	-9.57#
38	T	1,1,1-Trichloroethane	-1.0000	0.3094	0.0	0	-0.01
39	T	Cyclohexane	-1.0000	0.3236	0.0	0	0.00
40	T	1,1-Dichloropropene	-1.0000	0.3297	0.0	0	-0.01
41	T	Carbon Tetrachloride	-1.0000	0.3053	0.0	0	0.01
42	T	Tert-Amyl-Methyl ether	-1.0000	0.0000	0.0	0	-10.09#
43	S	1,2-Dichloroethane-d4	-1.0000	0.0234	0.0	0	0.00
44	T	1,2-Dichloroethane	-1.0000	0.3097	0.0	0	0.00
45	T	Benzene	-1.0000	0.3223	0.0	0	0.00
46	T	Trichloroethene	-1.0000	0.3286	0.0	0	0.00
47	T	Methylcyclohexane	-1.0000	0.2915	0.0	0	0.00
48	C	1,2-Dichloropropane	-1.0000	0.3239	0.0	0	0.00
49	T	1,4-Dioxane	-1.0000	0.0000	0.0	0	-11.51#
50	T	Bromodichloromethane	-1.0000	0.2801	0.0	0	0.00
51	T	Dibromomethane	-1.0000	0.2594	0.0	0	0.00
52	T	2-Chloroethyl Vinyl Ether	-1.0000	0.2057	0.0	0	0.00
53	T	4-Methyl-2-Pentanone	-1.0000	0.1801	0.0	0	0.01
54	T	cis-1,3-Dichloropropene	-1.0000	0.3386	0.0	0	0.00

(#) = Out of Range
11M14501.D 8260WT.M Fri Oct 14 09:17:33 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14501.D Vial: 3
Acq On : 13 Oct 2016 13:42 Operator: FJB
Sample : WG587480-02 0.3ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	-1.0000	0.2479	0.0	0	0.00
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
57	S	Toluene-d8	-1.0000	0.1101	0.0	0	-0.01
58	C	Toluene	-1.0000	0.3170	0.0	0	0.00
59	T	Ethyl Methacrylate	-1.0000	0.2668	0.0	0	0.01
60	T	trans-1,3-Dichloropropene	-1.0000	0.2893	0.0	0	0.00
61	T	1,1,2-Trichloroethane	-1.0000	0.2905	0.0	0	0.00
62	T	2-Hexanone	-1.0000	0.2244	0.0	0	0.00
63	T	1,3-Dichloropropane	-1.0000	0.2513	0.0	0	0.00
64	T	Tetrachloroethene	-1.0000	0.3872	0.0	0	0.00
65	T	Dibromochloromethane	-1.0000	0.3208	0.0	0	0.00
66	T	1,2-Dibromoethane	-1.0000	0.3013	0.0	0	0.00
67	T	1-Chlorohexane	-1.0000	0.3114	0.0	0	0.01
68	P	Chlorobenzene	-1.0000	0.3267	0.0	0	0.00
69	T	1,1,1,2-Tetrachloroethane	-1.0000	0.2590	0.0	0	0.01
70	C	Ethylbenzene	-1.0000	0.3206	0.0	0	0.00
71	T	m-,p-Xylene	-1.0000	0.6701	0.0	0	0.00
72	T	o-Xylene	-1.0000	0.3242	0.0	0	0.00
73	T	Styrene	-1.0000	0.2776	0.0	0	0.00
74	P	Bromoform	-1.0000	0.2752	0.0	0	0.01
75	T	Isopropylbenzene	-1.0000	0.3243	0.0	0	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
77	P	1,1,2,2-Tetrachloroethane	-1.0000	0.2462	0.0	0	0.00
78	S	p-Bromofluorobenzene	-1.0000	0.2397	0.0	0	0.00
79	T	1,2,3-Trichloropropane	-1.0000	0.1953	0.0	0	-0.01
80	T	trans-1,4-Dichloro-2-Butene	-1.0000	0.2175	0.0	0	0.00
81	T	n-Propylbenzene	-1.0000	0.3522	0.0	0	0.00
82	T	Bromobenzene	0.3000	0.3393	-13.1	100	0.00
83	T	1,3,5-Trimethylbenzene	-1.0000	0.3068	0.0	0	0.00
84	T	2-Chlorotoluene	-1.0000	0.4180	0.0	0	0.01
85	T	4-Chlorotoluene	-1.0000	0.4105	0.0	0	-0.03
86	T	a-Methylstyrene	-1.0000	0.2566	0.0	0	0.01
87	T	tert-Butylbenzene	-1.0000	0.3389	0.0	0	0.00
88	T	1,2,4-Trimethylbenzene	-1.0000	0.3235	0.0	0	0.00
89	T	sec-Butylbenzene	-1.0000	0.3353	0.0	0	0.00
90	T	p-Isopropyltoluene	-1.0000	0.3500	0.0	0	0.00
91	T	1,3-Dichlorobenzene	-1.0000	0.3288	0.0	0	0.00
92	T	1,4-Dichlorobenzene	0.3000	0.3318	-10.6	100	0.00
93	T	n-Butylbenzene	-1.0000	0.3428	0.0	0	0.00
94	T	1,2-Dichlorobenzene	0.3000	0.3176	-5.9	100	0.00
95	T	1,2-Dibromo-3-Chloropropane	-1.0000	0.1443	0.0	0	0.00
96	T	1,2,4-Trichlorobenzene	-1.0000	0.3885	0.0	0	0.00
97	T	Hexachlorobutadiene	-1.0000	0.4074	0.0	0	0.00
98	T	Naphthalene	-1.0000	0.3041	0.0	0	-0.01
99	T	1,2,3-Trichlorobenzene	0.3000	0.3836	-27.9#	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14501.D 8260WT.M Fri Oct 14 09:17:34 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14502.D Vial: 4
Acq On : 13 Oct 2016 14:11 Operator: FJB
Sample : WG587480-03 0.4ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:15:58 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	694969	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	534036	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	272732	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	216	0.0258	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery =	0.12%#		
43) 1,2-Dichloroethane-d4	0.00	65	0	0.0000	ug/L	
Spiked Amount 25.000	Range 80 - 120		Recovery =	0.00%#		
57) Toluene-d8	12.43	98	2484	0.0878	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery =	0.36%#		
78) p-Bromofluorobenzene	15.59	95	2180	0.1998	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery =	0.80%#		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	4237	0.3594	ug/L #	60
3) Chloromethane	3.67	50	8420	0.6626	ug/L #	69
4) Vinyl Chloride	3.90	62	4933	0.4278	ug/L #	1
5) 1,3-Butadiene	3.95	54	4982	0.5307	ug/L	94
6) Bromomethane	4.80	94	2169	0.3882	ug/L	95
7) Chloroethane	4.94	64	2684	0.3973	ug/L #	77
8) Trichlorofluoromethane	5.42	101	4501	0.3354	ug/L	88
10) Isoprene	5.99	67	4113	0.3358	ug/L	94
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	3180	0.4405	ug/L	55
13) Acetone	6.28	43	1375	0.5100	ug/L #	50
14) 1,1-Dichloroethene	6.49	61	5528	0.3854	ug/L	99
16) Dimethyl Sulfide	6.76	62	3518	0.3579	ug/L	89
17) Iodomethane	7.00	142	1587	1.0298	ug/L #	57
18) Methyl acetate	7.02	43	2904	0.3652	ug/L #	73
19) Methylene Chloride	7.27	84	3451	0.4232	ug/L	90
20) Carbon Disulfide	7.30	76	11573	0.4868	ug/L	99
22) Methyl Tert Butyl Ether	7.46	73	7451	0.3717	ug/L	89
23) trans-1,2-Dichloroethene	7.69	96	3349	0.4121	ug/L	93
24) n-Hexane	7.78	57	5852	0.4210	ug/L #	75
26) Vinyl Acetate	8.26	43	7715	0.3672	ug/L #	90
27) 1,1-Dichloroethane	8.29	63	6929	0.4160	ug/L #	83
29) 2-Butanone	8.83	43	1422	0.3139	ug/L #	65
31) 2,2-Dichloropropane	9.03	77	5191	0.4573	ug/L #	75
32) cis-1,2-Dichloroethene	9.11	96	3800	0.4245	ug/L	72
33) Chloroform	9.30	83	5901	0.4038	ug/L	95
35) Bromochloromethane	9.52	130	2319	0.4019	ug/L	88
36) Tetrahydrofuran	9.55	42	10036	0.6879	ug/L	92
38) 1,1,1-Trichloroethane	9.81	97	5101	0.3958	ug/L #	86
39) Cyclohexane	9.83	56	7093	0.3755	ug/L	90
40) 1,1-Dichloropropene	10.00	75	4467	0.4187	ug/L	78
41) Carbon Tetrachloride	10.13	117	4587	0.3810	ug/L	97
44) 1,2-Dichloroethane	10.30	62	4892	0.3896	ug/L	99
45) Benzene	10.34	78	12783	0.4057	ug/L	97
46) Trichloroethene	11.04	130	3815	0.4186	ug/L	97
47) Methylcyclohexane	11.12	83	4572	0.3700	ug/L	83
48) 1,2-Dichloropropane	11.24	63	3661	0.3941	ug/L #	72
50) Bromodichloromethane	11.53	83	4451	0.4030	ug/L #	93
51) Dibromomethane	11.61	93	2202	0.4471	ug/L	82
52) 2-Chloroethyl Vinyl Ether	11.80	63	1491	0.2740	ug/L #	52
53) 4-Methyl-2-Pentanone	11.83	58	788	0.2359	ug/L #	69

(#) = qualifier out of range (m) = manual integration
11M14502.D 8260WT.M Fri Oct 14 09:15:59 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14502.D Vial: 4
Acq On : 13 Oct 2016 14:11 Operator: FJB
Sample : WG587480-03 0.4ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:15:58 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

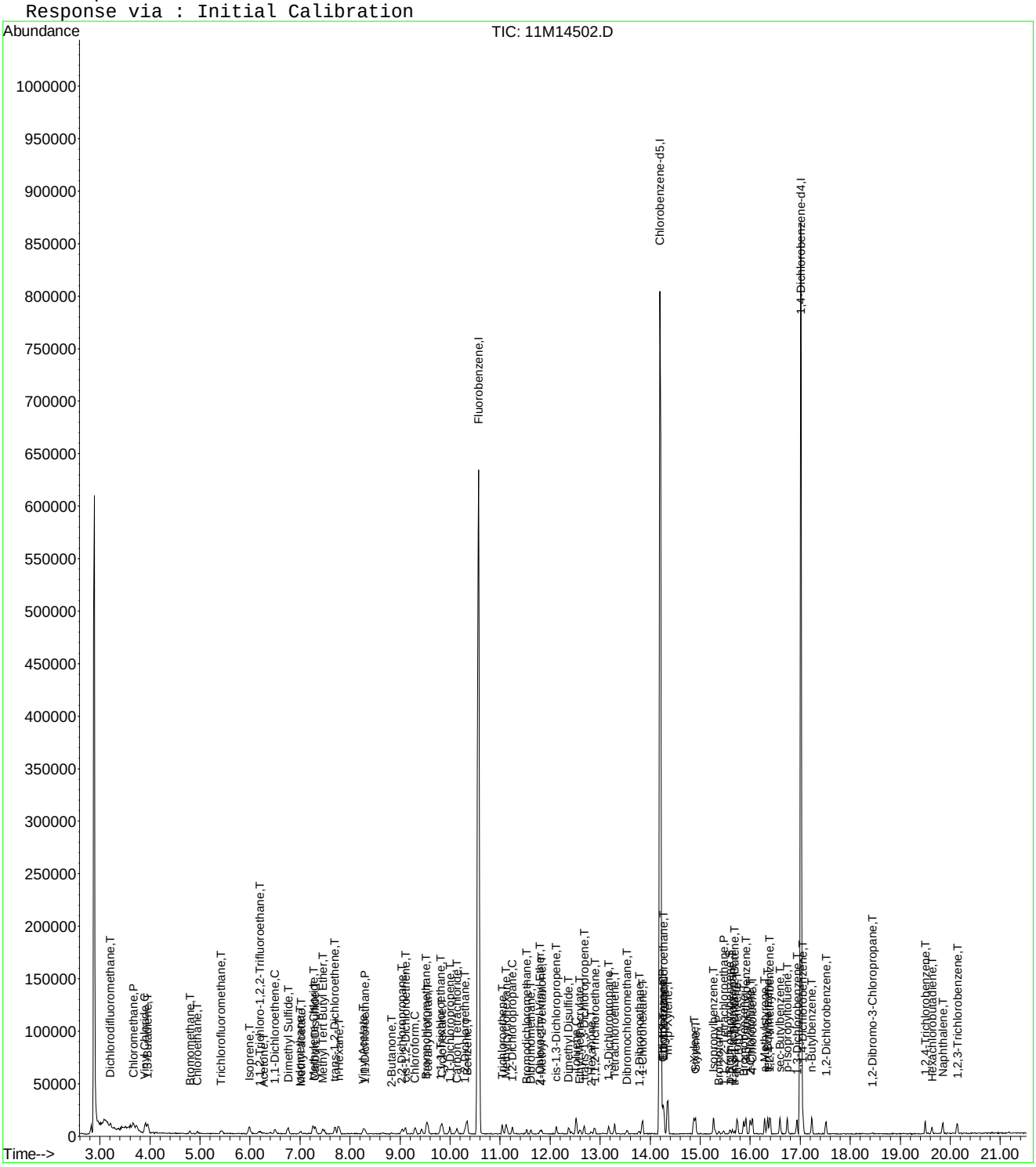
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
54)	cis-1,3-Dichloropropene	12.12	75	4707	0.3856 ug/L		97
55)	Dimethyl Disulfide	12.37	79	2098	0.2864 ug/L		92
58)	Toluene	12.52	91	13586	0.4040 ug/L		98
59)	Ethyl Methacrylate	12.59	69	2851	0.3317 ug/L		90
60)	trans-1,3-Dichloropropene	12.68	75	4313	0.3917 ug/L		87
61)	1,1,2-Trichloroethane	12.89	97	2359	0.3606 ug/L		99
62)	2-Hexanone	12.82	43	2459	0.3487 ug/L	#	60
63)	1,3-Dichloropropane	13.17	76	4820	0.4382 ug/L		86
64)	Tetrachloroethene	13.29	164	3050	0.4179 ug/L		100
65)	Dibromochloromethane	13.53	129	3393	0.3869 ug/L		95
66)	1,2-Dibromoethane	13.78	107	2756	0.4092 ug/L		87
67)	1-Chlorohexane	13.84	91	4045	0.3727 ug/L		96
68)	Chlorobenzene	14.25	112	10540	0.4417 ug/L		94
69)	1,1,1,2-Tetrachloroethane	14.27	131	2852	0.3351 ug/L		85
70)	Ethylbenzene	14.27	106	4722	0.3870 ug/L		96
71)	m-,p-Xylene	14.35	106	11881	0.8265 ug/L		95
72)	o-Xylene	14.88	106	5373	0.3800 ug/L		88
73)	Styrene	14.91	104	9069	0.3778 ug/L		98
74)	Bromoform	15.38	173	1617	0.2843 ug/L		78
75)	Isopropylbenzene	15.26	105	14843	0.4097 ug/L		97
77)	1,1,2,2-Tetrachloroethane	15.47	83	3210	0.4174 ug/L		83
79)	1,2,3-Trichloropropane	15.64	110	913	0.3914 ug/L	#	11
80)	trans-1,4-Dichloro-2-Buten	15.69	53	942	0.2999 ug/L	#	57
81)	n-Propylbenzene	15.74	91	17004	0.4191 ug/L		97
82)	Bromobenzene	15.87	156	4589	0.4412 ug/L		84
83)	1,3,5-Trimethylbenzene	15.91	105	11802	0.4055 ug/L		93
84)	2-Chlorotoluene	16.01	91	11152	0.4343 ug/L		99
85)	4-Chlorotoluene	16.04	91	10961	0.4191 ug/L		97
86)	a-Methylstyrene	16.29	118	5845	0.3417 ug/L		88
87)	tert-Butylbenzene	16.35	134	2236	0.3512 ug/L		68
88)	1,2,4-Trimethylbenzene	16.39	105	12175	0.4066 ug/L		97
89)	sec-Butylbenzene	16.60	105	15410	0.4181 ug/L		97
90)	p-Isopropyltoluene	16.74	119	12927	0.4031 ug/L		98
91)	1,3-Dichlorobenzene	16.94	146	8461	0.4413 ug/L		99
92)	1,4-Dichlorobenzene	17.05	146	7995	0.4069 ug/L		84
93)	n-Butylbenzene	17.23	91	12913	0.4291 ug/L		96
94)	1,2-Dichlorobenzene	17.52	146	7310	0.3991 ug/L		96
95)	1,2-Dibromo-3-Chloropropan	18.45	75	240	0.1623 ug/L	#	29
96)	1,2,4-Trichlorobenzene	19.50	180	5918	0.4357 ug/L		95
97)	Hexachlorobutadiene	19.64	225	2361	0.4441 ug/L		89
98)	Naphthalene	19.85	128	10762	0.3811 ug/L	#	92
99)	1,2,3-Trichlorobenzene	20.14	180	5119	0.3906 ug/L		98

(#) = qualifier out of range (m) = manual integration
11M14502.D 8260WT.M Fri Oct 14 09:15:59 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14502.D Vial: 4
Acq On : 13 Oct 2016 14:11 Operator: FJB
Sample : WG587480-03 0.4ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:15 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



11M14502.D 8260WT.M Fri Oct 14 09:15:59 2016 Page 3

Data File : C:\MSDCHEM\1\DATA\101316\11M14502.D Vial: 4
Acq On : 13 Oct 2016 14:11 Operator: FJB
Sample : WG587480-03 0.4ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	100	0.00
2	T	Dichlorodifluoromethane	-1.0000	0.3594	0.0	0	0.00
3	P	Chloromethane	-1.0000	0.6626	0.0	100	0.01
4	C	Vinyl Chloride	0.4000	0.4278	-6.9	100	0.00
5	T	1,3-Butadiene	-1.0000	0.5307	0.0	100	0.01
6	T	Bromomethane	-1.0000	0.3882	0.0	100	0.00
7	T	Chloroethane	-1.0000	0.3973	0.0	100	-0.01
8	T	Trichlorofluoromethane	0.4000	0.3354	16.2	100	-0.01
9	T	Diethyl ether	-1.0000	0.0000	0.0	0	-5.95#
10	T	Isoprene	-1.0000	0.3358	0.0	100	0.00
11	T	Acrolein	-1.0000	0.0000	0.0	0	-6.17#
12	T	1,1,2-Trichloro-1,2,2-Trifl	-1.0000	0.4405	0.0	100	0.00
13	T	Acetone	-1.0000	0.5100	0.0	0	0.00
14	C	1,1-Dichloroethene	0.4000	0.3854	3.6	100	0.00
15	T	Tert-Butyl Alcohol	-1.0000	0.0000	0.0	0	-6.60#
16	T	Dimethyl Sulfide	-1.0000	0.3579	0.0	100	0.01
17	T	Iodomethane	-1.0000	1.0298	0.0	0	0.00
18	T	Methyl acetate	-1.0000	0.3652	0.0	0	0.01
19	T	Methylene Chloride	0.4000	0.4232	-5.8	100	0.01
20	T	Carbon Disulfide	-1.0000	0.4868	0.0	100	-0.01
21	T	Acrylonitrile	-1.0000	0.0000	0.0	0	-7.43#
22	T	Methyl Tert Butyl Ether	-1.0000	0.3717	0.0	100	-0.01
23	T	trans-1,2-Dichloroethene	0.4000	0.4121	-3.0	100	-0.01
24	T	n-Hexane	-1.0000	0.4210	0.0	0	0.01
25	T	Diisopropyl ether	-1.0000	0.0000	0.0	0	-8.10#
26	T	Vinyl Acetate	-1.0000	0.3672	0.0	100	0.00
27	P	1,1-Dichloroethane	0.4000	0.4160	-4.0	100	0.00
28	T	Ethyl-Tert-Butyl ether	-1.0000	0.0000	0.0	0	-8.64#
29	T	2-Butanone	-1.0000	0.3139	0.0	0	0.01
30	T	Propionitrile	-1.0000	0.0000	0.0	0	-8.92#
31	T	2,2-Dichloropropane	0.4000	0.4573	-14.3	100	-0.01
32	T	cis-1,2-Dichloroethene	0.4000	0.4245	-6.1	100	0.01
33	C	Chloroform	0.4000	0.4038	-0.9	100	-0.01
34	T	1-Bromopropane	-1.0000	0.0000	0.0	0	-9.43#
35	T	Bromochloromethane	0.4000	0.4019	-0.5	100	0.00
36	T	Tetrahydrofuran	-1.0000	0.6879	0.0	100	0.01
37	S	Dibromofluoromethane	-1.0000	0.0258	0.0	100	0.00
38	T	1,1,1-Trichloroethane	0.4000	0.3958	1.0	100	0.00
39	T	Cyclohexane	0.4000	0.3755	6.1	100	-0.01
40	T	1,1-Dichloropropene	0.4000	0.4187	-4.7	100	0.00
41	T	Carbon Tetrachloride	0.4000	0.3810	4.8	100	0.00
42	T	Tert-Amyl-Methyl ether	-1.0000	0.0000	0.0	0	-10.09#
43	S	1,2-Dichloroethane-d4	-1.0000	0.0000	0.0	0	-10.18#
44	T	1,2-Dichloroethane	0.4000	0.3896	2.6	100	0.00
45	T	Benzene	0.4000	0.4057	-1.4	100	0.00
46	T	Trichloroethene	0.4000	0.4186	-4.6	100	0.00
47	T	Methylcyclohexane	0.4000	0.3700	7.5	100	-0.01
48	C	1,2-Dichloropropane	0.4000	0.3941	1.5	100	-0.01
49	T	1,4-Dioxane	-1.0000	0.0000	0.0	0	-11.51#
50	T	Bromodichloromethane	0.4000	0.4031	-0.8	100	0.00
51	T	Dibromomethane	0.4000	0.4471	-11.8	100	0.00
52	T	2-Chloroethyl Vinyl Ether	-1.0000	0.2740	0.0	0	0.00
53	T	4-Methyl-2-Pentanone	-1.0000	0.2359	0.0	100	0.00
54	T	cis-1,3-Dichloropropene	0.4000	0.3856	3.6	100	0.00

(#) = Out of Range
11M14502.D 8260WT.M Fri Oct 14 09:17:12 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14502.D Vial: 4
Acq On : 13 Oct 2016 14:11 Operator: FJB
Sample : WG587480-03 0.4ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	-1.0000	0.2864	0.0	100	-0.01
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
57	S	Toluene-d8	-1.0000	0.0878	0.0	0	0.00
58	C	Toluene	0.4000	0.4040	-1.0	100	0.00
59	T	Ethyl Methacrylate	-1.0000	0.3317	0.0	100	0.00
60	T	trans-1,3-Dichloropropene	-1.0000	0.3917	0.0	100	0.00
61	T	1,1,2-Trichloroethane	0.4000	0.3606	9.9	100	0.01
62	T	2-Hexanone	-1.0000	0.3487	0.0	100	0.00
63	T	1,3-Dichloropropane	0.4000	0.4382	-9.6	100	0.00
64	T	Tetrachloroethene	0.4000	0.4179	-4.5	100	0.00
65	T	Dibromochloromethane	0.4000	0.3869	3.3	100	0.00
66	T	1,2-Dibromoethane	0.4000	0.4092	-2.3	100	0.00
67	T	1-Chlorohexane	0.4000	0.3727	6.8	100	0.00
68	P	Chlorobenzene	0.4000	0.4417	-10.4	100	0.00
69	T	1,1,1,2-Tetrachloroethane	0.4000	0.3351	16.2	100	0.00
70	C	Ethylbenzene	0.4000	0.3870	3.3	100	0.00
71	T	m-,p-Xylene	0.8000	0.8265	-3.3	100	0.00
72	T	o-Xylene	0.4000	0.3800	5.0	100	0.00
73	T	Styrene	0.4000	0.3778	5.5	100	0.00
74	P	Bromoform	-1.0000	0.2843	0.0	100	0.00
75	T	Isopropylbenzene	0.4000	0.4097	-2.4	100	-0.01
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
77	P	1,1,2,2-Tetrachloroethane	0.4000	0.4174	-4.3	100	0.00
78	S	p-Bromofluorobenzene	-1.0000	0.1998	0.0	0	0.00
79	T	1,2,3-Trichloropropane	-1.0000	0.3914	0.0	100	-0.01
80	T	trans-1,4-Dichloro-2-Butene	-1.0000	0.2999	0.0	0	0.00
81	T	n-Propylbenzene	0.4000	0.4190	-4.8	100	0.00
82	T	Bromobenzene	0.4000	0.4412	-10.3	100	0.00
83	T	1,3,5-Trimethylbenzene	0.4000	0.4055	-1.4	100	0.00
84	T	2-Chlorotoluene	0.4000	0.4343	-8.6	100	0.01
85	T	4-Chlorotoluene	0.4000	0.4191	-4.8	100	0.00
86	T	a-Methylstyrene	-1.0000	0.3417	0.0	100	0.00
87	T	tert-Butylbenzene	0.4000	0.3512	12.2	100	0.00
88	T	1,2,4-Trimethylbenzene	0.4000	0.4066	-1.7	100	-0.01
89	T	sec-Butylbenzene	-1.0000	0.4181	0.0	100	0.00
90	T	p-Isopropyltoluene	-1.0000	0.4031	0.0	100	0.00
91	T	1,3-Dichlorobenzene	0.4000	0.4413	-10.3	100	0.00
92	T	1,4-Dichlorobenzene	0.4000	0.4069	-1.7	100	0.00
93	T	n-Butylbenzene	0.4000	0.4291	-7.3	100	0.00
94	T	1,2-Dichlorobenzene	0.4000	0.3991	0.2	100	0.00
95	T	1,2-Dibromo-3-Chloropropane	-1.0000	0.1623	0.0	100	0.01
96	T	1,2,4-Trichlorobenzene	0.4000	0.4357	-8.9	100	0.00
97	T	Hexachlorobutadiene	0.4000	0.4441	-11.0	100	0.00
98	T	Naphthalene	0.4000	0.3811	4.7	100	0.00
99	T	1,2,3-Trichlorobenzene	0.4000	0.3906	2.4	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14502.D 8260WT.M Fri Oct 14 09:17:13 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\101316\11M14503.D Vial: 5
Acq On : 13 Oct 2016 14:40 Operator: FJB
Sample : WG587480-04 1ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:00 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	10.57	96	696558	25.00	ug/L		0.00
56) Chlorobenzene-d5	14.20	117	522816	25.00	ug/L		0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	272336	25.00	ug/L		0.00
System Monitoring Compounds							
37) Dibromofluoromethane	9.57	111	3816	0.4554	ug/L		0.00
Spiked Amount 25.000	Range 86 - 118		Recovery =	1.84%#			
43) 1,2-Dichloroethane-d4	10.18	65	4584	0.4873	ug/L		0.00
Spiked Amount 25.000	Range 80 - 120		Recovery =	1.96%#			
57) Toluene-d8	12.43	98	15638	0.5644	ug/L		0.00
Spiked Amount 25.000	Range 88 - 110		Recovery =	2.24%#			
78) p-Bromofluorobenzene	15.59	95	7490	0.6874	ug/L		0.00
Spiked Amount 25.000	Range 86 - 115		Recovery =	2.76%#			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	3.21	85	11183	0.9463	ug/L		95
3) Chloromethane	3.66	50	16709	1.3118	ug/L		78
4) Vinyl Chloride	3.90	62	11527	0.9973	ug/L	#	50
5) 1,3-Butadiene	3.95	54	11636	1.2368	ug/L		88
6) Bromomethane	4.79	94	5513	0.9844	ug/L		99
7) Chloroethane	4.95	64	6524	0.9635	ug/L		88
8) Trichlorofluoromethane	5.43	101	13825	1.0277	ug/L		98
9) Diethyl ether	5.95	59	30723	4.6723	ug/L		97
10) Isoprene	6.00	67	11002	0.8962	ug/L		99
11) Acrolein	6.18	56	1635	2.9843	ug/L		87
12) 1,1,2-Trichloro-1,2,2-Trif	6.21	101	6856	0.9476	ug/L		94
13) Acetone	6.29	43	3023	1.1186	ug/L	#	65
14) 1,1-Dichloroethene	6.49	61	13484	0.9380	ug/L		96
15) Tert-Butyl Alcohol	6.60	59	6380	9.1468	ug/L	#	79
16) Dimethyl Sulfide	6.76	62	8686	0.8816	ug/L		99
17) Iodomethane	7.01	142	4037	1.2729	ug/L		83
18) Methyl acetate	7.02	43	6904	0.8663	ug/L	#	78
19) Methylene Chloride	7.26	84	8658	1.0594	ug/L		97
20) Carbon Disulfide	7.31	76	24681	1.0358	ug/L		99
21) Acrylonitrile	7.43	53	8115	2.2351	ug/L		94
22) Methyl Tert Butyl Ether	7.45	73	18990	0.9451	ug/L		98
23) trans-1,2-Dichloroethene	7.70	96	8010	0.9833	ug/L		99
24) n-Hexane	7.78	57	13300	0.9547	ug/L	#	96
25) Diisopropyl ether	8.11	45	189536	4.8108	ug/L		99
26) Vinyl Acetate	8.26	43	20300	0.9640	ug/L		98
27) 1,1-Dichloroethane	8.29	63	16467	0.9863	ug/L		99
28) Ethyl-Tert-Butyl ether	8.64	59	138133	4.7277	ug/L		99
29) 2-Butanone	8.83	43	4074	0.8972	ug/L	#	65
30) Propionitrile	8.93	54	6206	4.9329	ug/L	#	73
31) 2,2-Dichloropropane	9.04	77	10950	0.9624	ug/L		96
32) cis-1,2-Dichloroethene	9.09	96	7837	0.8736	ug/L		84
33) Chloroform	9.31	83	15308	1.0450	ug/L		97
34) 1-Bromopropane	9.43	122	1027	0.6973	ug/L		43
35) Bromochloromethane	9.53	130	5584	0.9656	ug/L		94
36) Tetrahydrofuran	9.54	42	23159	5.0695	ug/L		97
38) 1,1,1-Trichloroethane	9.82	97	12823	0.9928	ug/L	#	91
39) Cyclohexane	9.84	56	18655	0.9853	ug/L		98
40) 1,1-Dichloropropene	10.00	75	10918	1.0211	ug/L		98
41) Carbon Tetrachloride	10.14	117	12105	1.0031	ug/L		98
42) Tert-Amyl-Methyl ether	10.09	73	93599	4.7307	ug/L		97

(#) = qualifier out of range (m) = manual integration
11M14503.D 8260WT.M Fri Oct 14 09:16:01 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14503.D Vial: 5
Acq On : 13 Oct 2016 14:40 Operator: FJB
Sample : WG587480-04 1ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:00 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

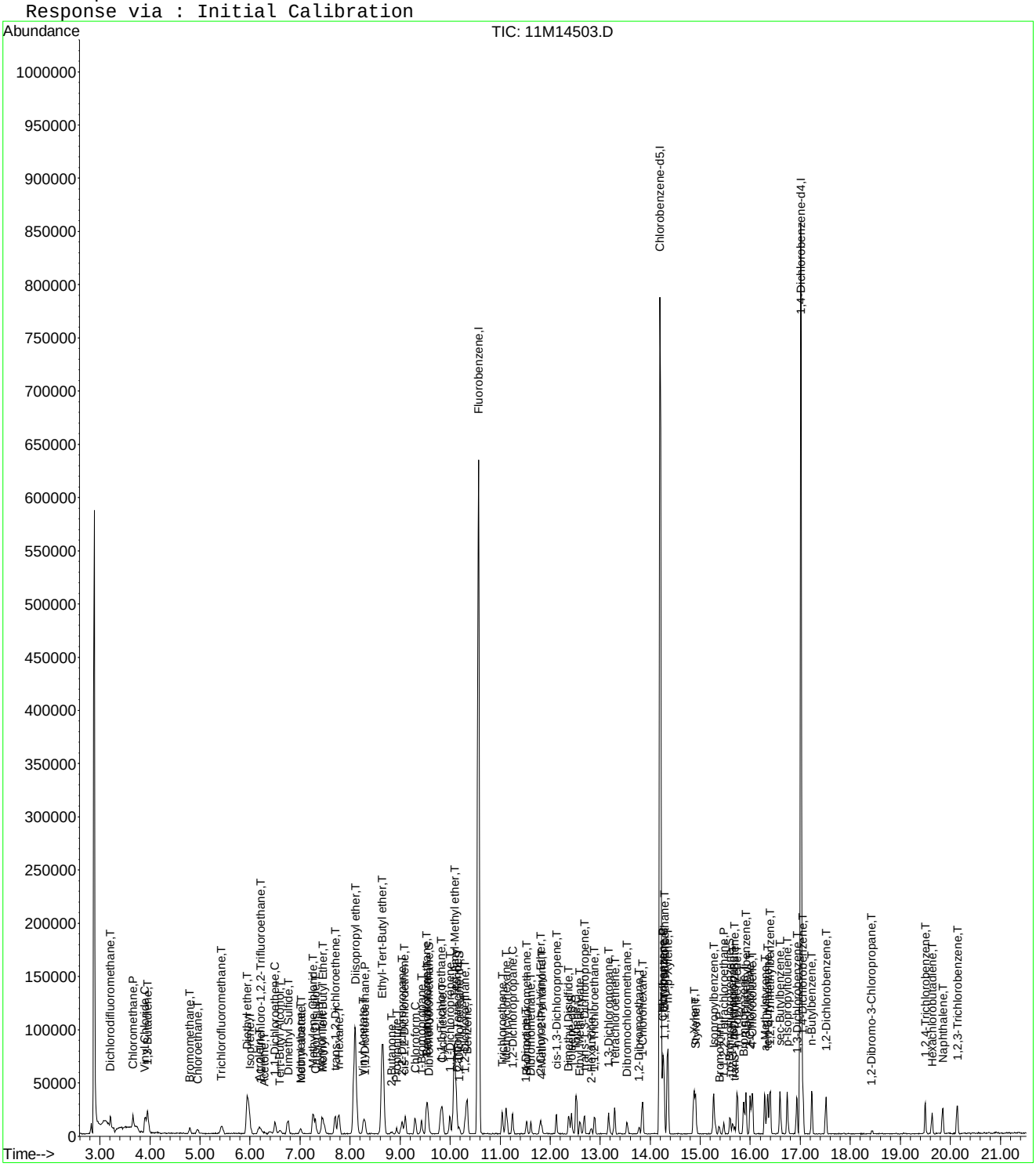
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
44)	1,2-Dichloroethane	10.30	62	12628	1.0035 ug/L		98
45)	Benzene	10.34	78	33635	1.0649 ug/L		94
46)	Trichloroethene	11.04	130	8895	0.9737 ug/L		95
47)	Methylcyclohexane	11.13	83	12653	1.0218 ug/L		97
48)	1,2-Dichloropropane	11.25	63	8989	0.9655 ug/L		96
49)	1,4-Dioxane	11.51	88	656	10.1084 ug/L	#	6
50)	Bromodichloromethane	11.53	83	10755	0.9717 ug/L		97
51)	Dibromomethane	11.61	93	4637	0.9394 ug/L		92
52)	2-Chloroethyl Vinyl Ether	11.81	63	4358	0.7992 ug/L		85
53)	4-Methyl-2-Pentanone	11.83	58	2459	0.7345 ug/L	#	62
54)	cis-1,3-Dichloropropene	12.13	75	11276	0.9217 ug/L		96
55)	Dimethyl Disulfide	12.37	79	5396	0.7349 ug/L		90
58)	Toluene	12.52	91	34651	1.0525 ug/L		95
59)	Ethyl Methacrylate	12.59	69	6655	0.7909 ug/L		99
60)	trans-1,3-Dichloropropene	12.69	75	10049	0.9323 ug/L		93
61)	1,1,2-Trichloroethane	12.88	97	6481	1.0118 ug/L		98
62)	2-Hexanone	12.82	43	5594	0.8102 ug/L	#	78
63)	1,3-Dichloropropane	13.17	76	10528	0.9778 ug/L		97
64)	Tetrachloroethene	13.30	164	8166	1.1428 ug/L		85
65)	Dibromochloromethane	13.53	129	7851	0.9145 ug/L		99
66)	1,2-Dibromoethane	13.77	107	6167	0.9353 ug/L		95
67)	1-Chlorohexane	13.84	91	10797	1.0163 ug/L		96
68)	Chlorobenzene	14.25	112	24500	1.0487 ug/L		93
69)	1,1,1,2-Tetrachloroethane	14.28	131	8184	0.9822 ug/L		98
70)	Ethylbenzene	14.27	106	12696	1.0628 ug/L		93
71)	m-,p-Xylene	14.35	106	28338	2.0136 ug/L		98
72)	o-Xylene	14.88	106	14053	1.0151 ug/L		98
73)	Styrene	14.91	104	22153	0.9427 ug/L		98
74)	Bromoform	15.39	173	4656	0.8363 ug/L		100
75)	Isopropylbenzene	15.27	105	35250	0.9938 ug/L		99
77)	1,1,2,2-Tetrachloroethane	15.47	83	7438	0.9685 ug/L		97
79)	1,2,3-Trichloropropane	15.65	110	2083	0.8943 ug/L		67
80)	trans-1,4-Dichloro-2-Buten	15.69	53	2724	0.8684 ug/L		86
81)	n-Propylbenzene	15.74	91	40574	1.0014 ug/L		98
82)	Bromobenzene	15.87	156	10150	0.9774 ug/L		92
83)	1,3,5-Trimethylbenzene	15.91	105	27593	0.9494 ug/L		99
84)	2-Chlorotoluene	16.00	91	25940	1.0117 ug/L		86
85)	4-Chlorotoluene	16.04	91	28574	1.0942 ug/L		86
86)	a-Methylstyrene	16.30	118	16716	0.9786 ug/L		92
87)	tert-Butylbenzene	16.35	134	6226	0.9792 ug/L		92
88)	1,2,4-Trimethylbenzene	16.40	105	29425	0.9842 ug/L		97
89)	sec-Butylbenzene	16.60	105	38423	1.0440 ug/L		99
90)	p-Isopropyltoluene	16.74	119	31045	0.9694 ug/L		100
91)	1,3-Dichlorobenzene	16.94	146	19007	0.9927 ug/L		95
92)	1,4-Dichlorobenzene	17.05	146	21127	1.0768 ug/L		79
93)	n-Butylbenzene	17.23	91	29424	0.9793 ug/L		96
94)	1,2-Dichlorobenzene	17.52	146	18105	0.9899 ug/L		99
95)	1,2-Dibromo-3-Chloropropan	18.43	75	914	0.6191 ug/L		79
96)	1,2,4-Trichlorobenzene	19.50	180	13180	0.9717 ug/L		93
97)	Hexachlorobutadiene	19.63	225	5010	0.9437 ug/L		94
98)	Naphthalene	19.85	128	25628	0.9088 ug/L		99
99)	1,2,3-Trichlorobenzene	20.14	180	12366	0.9448 ug/L		93

(#) = qualifier out of range (m) = manual integration
11M14503.D 8260WT.M Fri Oct 14 09:16:02 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14503.D Vial: 5
Acq On : 13 Oct 2016 14:40 Operator: FJB
Sample : WG587480-04 1ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\101316\11M14503.D Vial: 5
Acq On : 13 Oct 2016 14:40 Operator: FJB
Sample : WG587480-04 1ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	100	0.00
2	T	Dichlorodifluoromethane	1.0000	0.9463	5.4	100	0.00
3	P	Chloromethane	1.0000	1.2892	-28.9#	100	0.00
4	C	Vinyl Chloride	1.0000	0.9973	0.3	100	0.00
5	T	1,3-Butadiene	-1.0000	1.2368	0.0	100	0.01
6	T	Bromomethane	1.0000	0.9844	1.6	100	-0.01
7	T	Chloroethane	1.0000	0.9635	3.6	100	0.00
8	T	Trichlorofluoromethane	1.0000	1.0277	-2.8	100	0.00
9	T	Diethyl ether	5.0000	4.6723	6.6	100	0.00
10	T	Isoprene	-1.0000	0.8962	0.0	100	0.01
11	T	Acrolein	2.5000	2.9843	-19.4	100	0.01
12	T	1,1,2-Trichloro-1,2,2-Trifl	1.0000	0.9476	5.2	100	0.02
13	T	Acetone	-1.0000	1.1186	0.0	100	0.01
14	C	1,1-Dichloroethene	1.0000	0.9380	6.2	100	0.00
15	T	Tert-Butyl Alcohol	10.0000	9.1468	8.5	100	0.00
16	T	Dimethyl Sulfide	-1.0000	0.8816	0.0	100	0.01
17	T	Iodomethane	1.0000	1.2729	-27.3#	100	0.01
18	T	Methyl acetate	-1.0000	0.8663	0.0	100	0.01
19	T	Methylene Chloride	1.0000	1.0594	-5.9	100	0.00
20	T	Carbon Disulfide	1.0000	1.0358	-3.6	100	0.00
21	T	Acrylonitrile	2.5000	2.2351	10.6	100	0.00
22	T	Methyl Tert Butyl Ether	1.0000	0.9451	5.5	100	-0.01
23	T	trans-1,2-Dichloroethene	1.0000	0.9833	1.7	100	0.00
24	T	n-Hexane	-1.0000	0.9547	0.0	100	0.01
25	T	Diisopropyl ether	5.0000	4.8108	3.8	100	0.01
26	T	Vinyl Acetate	-1.0000	0.9640	0.0	100	0.00
27	P	1,1-Dichloroethane	1.0000	0.9863	1.4	100	0.00
28	T	Ethyl-Tert-Butyl ether	5.0000	4.7277	5.4	100	0.00
29	T	2-Butanone	-1.0000	0.8972	0.0	0	0.01
30	T	Propionitrile	5.0000	4.9329	1.3	100	0.01
31	T	2,2-Dichloropropane	1.0000	0.9624	3.8	100	0.00
32	T	cis-1,2-Dichloroethene	1.0000	0.8736	12.6	100	-0.01
33	C	Chloroform	1.0000	1.0450	-4.5	100	0.00
34	T	1-Bromopropane	-1.0000	0.6684	0.0	0	0.00
35	T	Bromochloromethane	1.0000	0.9656	3.4	100	0.01
36	T	Tetrahydrofuran	5.0000	5.0695	-1.4	100	0.00
37	S	Dibromofluoromethane	-1.0000	0.4554	0.0	100	0.00
38	T	1,1,1-Trichloroethane	1.0000	0.9928	0.7	100	0.01
39	T	Cyclohexane	1.0000	0.9853	1.5	100	0.00
40	T	1,1-Dichloropropene	1.0000	1.0211	-2.1	100	0.00
41	T	Carbon Tetrachloride	1.0000	1.0031	-0.3	100	0.01
42	T	Tert-Amyl-Methyl ether	5.0000	4.7307	5.4	100	0.00
43	S	1,2-Dichloroethane-d4	-1.0000	0.4873	0.0	100	0.00
44	T	1,2-Dichloroethane	1.0000	1.0035	-0.3	100	0.00
45	T	Benzene	1.0000	1.0649	-6.5	100	0.00
46	T	Trichloroethene	1.0000	0.9737	2.6	100	0.00
47	T	Methylcyclohexane	1.0000	1.0217	-2.2	100	0.00
48	C	1,2-Dichloropropane	1.0000	0.9655	3.4	100	0.00
49	T	1,4-Dioxane	-1.0000	10.1084	0.0	0	0.00
50	T	Bromodichloromethane	1.0000	0.9717	2.8	100	0.00
51	T	Dibromomethane	1.0000	0.9394	6.1	100	0.00
52	T	2-Chloroethyl Vinyl Ether	-1.0000	0.7992	0.0	100	0.01
53	T	4-Methyl-2-Pentanone	-1.0000	0.7345	0.0	100	0.00
54	T	cis-1,3-Dichloropropene	1.0000	0.9217	7.8	100	0.01

(#) = Out of Range
11M14503.D 8260WT.M Fri Oct 14 09:20:36 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14503.D Vial: 5
Acq On : 13 Oct 2016 14:40 Operator: FJB
Sample : WG587480-04 1ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	-1.0000	0.7349	0.0	100	-0.01
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
57	S	Toluene-d8	-1.0000	0.5644	0.0	0	0.00
58	C	Toluene	1.0000	1.0525	-5.3	100	0.00
59	T	Ethyl Methacrylate	1.0000	0.7909	20.9	100	0.00
60	T	trans-1,3-Dichloropropene	1.0000	0.9323	6.8	100	0.01
61	T	1,1,2-Trichloroethane	1.0000	1.0118	-1.2	100	0.00
62	T	2-Hexanone	-1.0000	0.8102	0.0	100	0.00
63	T	1,3-Dichloropropane	1.0000	0.9778	2.2	100	0.00
64	T	Tetrachloroethene	1.0000	1.1428	-14.3	100	0.01
65	T	Dibromochloromethane	1.0000	0.9145	8.6	100	0.00
66	T	1,2-Dibromoethane	1.0000	0.9353	6.5	100	-0.01
67	T	1-Chlorohexane	1.0000	1.0163	-1.6	100	0.00
68	P	Chlorobenzene	1.0000	1.0487	-4.9	100	0.00
69	T	1,1,1,2-Tetrachloroethane	1.0000	0.9822	1.8	100	0.01
70	C	Ethylbenzene	1.0000	1.0628	-6.3	100	0.00
71	T	m-,p-Xylene	2.0000	2.0136	-0.7	100	0.00
72	T	o-Xylene	1.0000	1.0151	-1.5	100	0.00
73	T	Styrene	1.0000	0.9427	5.7	100	0.00
74	P	Bromoform	1.0000	0.8363	16.4	100	0.01
75	T	Isopropylbenzene	1.0000	0.9938	0.6	100	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
77	P	1,1,2,2-Tetrachloroethane	1.0000	0.9685	3.2	100	0.00
78	S	p-Bromofluorobenzene	-1.0000	0.6874	0.0	0	0.00
79	T	1,2,3-Trichloropropane	1.0000	0.8943	10.6	100	0.00
80	T	trans-1,4-Dichloro-2-Butene	1.0000	0.8684	13.2	100	0.00
81	T	n-Propylbenzene	1.0000	1.0014	-0.1	100	0.00
82	T	Bromobenzene	1.0000	0.9774	2.3	100	0.00
83	T	1,3,5-Trimethylbenzene	1.0000	0.9494	5.1	100	0.00
84	T	2-Chlorotoluene	1.0000	1.0117	-1.2	100	0.00
85	T	4-Chlorotoluene	1.0000	1.0942	-9.4	100	0.00
86	T	a-Methylstyrene	1.0000	0.9786	2.1	100	0.01
87	T	tert-Butylbenzene	1.0000	0.9792	2.1	100	0.00
88	T	1,2,4-Trimethylbenzene	1.0000	0.9842	1.6	100	0.00
89	T	sec-Butylbenzene	1.0000	1.0440	-4.4	100	0.00
90	T	p-Isopropyltoluene	1.0000	0.9694	3.1	100	0.00
91	T	1,3-Dichlorobenzene	1.0000	0.9927	0.7	100	0.00
92	T	1,4-Dichlorobenzene	1.0000	1.0768	-7.7	100	0.00
93	T	n-Butylbenzene	1.0000	0.9793	2.1	100	0.00
94	T	1,2-Dichlorobenzene	1.0000	0.9899	1.0	100	0.00
95	T	1,2-Dibromo-3-Chloropropane	-1.0000	0.6191	0.0	100	-0.01
96	T	1,2,4-Trichlorobenzene	1.0000	0.9717	2.8	100	0.00
97	T	Hexachlorobutadiene	1.0000	0.9437	5.6	100	0.00
98	T	Naphthalene	1.0000	0.9088	9.1	100	0.00
99	T	1,2,3-Trichlorobenzene	1.0000	0.9448	5.5	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14503.D 8260WT.M Fri Oct 14 09:20:37 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\101316\11M14504.D Vial: 6
Acq On : 13 Oct 2016 15:09 Operator: FJB
Sample : WG587480-05 2ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:03 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	750406	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	573278	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	298694	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	8659	0.9593	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery =	3.84%#		
43) 1,2-Dichloroethane-d4	10.18	65	9974	0.9842	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery =	3.92%#		
57) Toluene-d8	12.43	98	30472	1.0030	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery =	4.00%#		
78) p-Bromofluorobenzene	15.59	95	12236	1.0239	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery =	4.08%#		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	21400	1.6809	ug/L	99
3) Chloromethane	3.66	50	24696	1.7997	ug/L	88
4) Vinyl Chloride	3.90	62	22964	1.8443	ug/L #	76
5) 1,3-Butadiene	3.95	54	25079	2.4743	ug/L	97
6) Bromomethane	4.79	94	11362	1.8833	ug/L	96
7) Chloroethane	4.95	64	14194	1.9459	ug/L	96
8) Trichlorofluoromethane	5.43	101	27626	1.9063	ug/L	95
9) Diethyl ether	5.95	59	171529	24.2141	ug/L	96
10) Isoprene	6.00	67	24848	1.8788	ug/L	92
11) Acrolein	6.18	56	6247	10.5841	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	14380	1.8450	ug/L	90
13) Acetone	6.28	43	6153	2.1135	ug/L	97
14) 1,1-Dichloroethene	6.50	61	30568	1.9739	ug/L	99
15) Tert-Butyl Alcohol	6.60	59	34028	45.2841	ug/L	99
16) Dimethyl Sulfide	6.76	62	19548	1.8417	ug/L	95
17) Iodomethane	7.00	142	10172	1.8102	ug/L	96
18) Methyl acetate	7.01	43	16505	1.9224	ug/L	95
19) Methylene Chloride	7.26	84	17147	1.9476	ug/L	94
20) Carbon Disulfide	7.30	76	50187	1.9551	ug/L	100
21) Acrylonitrile	7.43	53	43581	11.1421	ug/L	97
22) Methyl Tert Butyl Ether	7.47	73	40158	1.8552	ug/L	100
23) trans-1,2-Dichloroethene	7.69	96	17615	2.0072	ug/L	87
24) n-Hexane	7.78	57	28291	1.8851	ug/L #	97
25) Diisopropyl ether	8.10	45	1043584	24.5873	ug/L	98
26) Vinyl Acetate	8.26	43	44204	1.9484	ug/L	100
27) 1,1-Dichloroethane	8.29	63	34050	1.8931	ug/L	98
28) Ethyl-Tert-Butyl ether	8.64	59	771317	24.5046	ug/L	99
29) 2-Butanone	8.83	43	9673	1.9774	ug/L	99
30) Propionitrile	8.92	54	31510	23.2488	ug/L	94
31) 2,2-Dichloropropane	9.05	77	23224	1.8947	ug/L	99
32) cis-1,2-Dichloroethene	9.10	96	19546	2.0224	ug/L	89
33) Chloroform	9.30	83	30026	1.9026	ug/L	99
34) 1-Bromopropane	9.43	122	2954	1.8617	ug/L	83
35) Bromochloromethane	9.52	130	12618	2.0253	ug/L	92
36) Tetrahydrofuran	9.54	42	83984	23.3977	ug/L	98
38) 1,1,1-Trichloroethane	9.80	97	26435	1.8998	ug/L	95
39) Cyclohexane	9.83	56	39749	1.9487	ug/L	98
40) 1,1-Dichloropropene	9.99	75	21432	1.8606	ug/L	97
41) Carbon Tetrachloride	10.13	117	24149	1.8575	ug/L	99
42) Tert-Amyl-Methyl ether	10.08	73	506556	23.7652	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14504.D 8260WT.M Fri Oct 14 09:16:04 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14504.D Vial: 6
Acq On : 13 Oct 2016 15:09 Operator: FJB
Sample : WG587480-05 2ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:03 2016 Quant Results File: 8260WT.RES

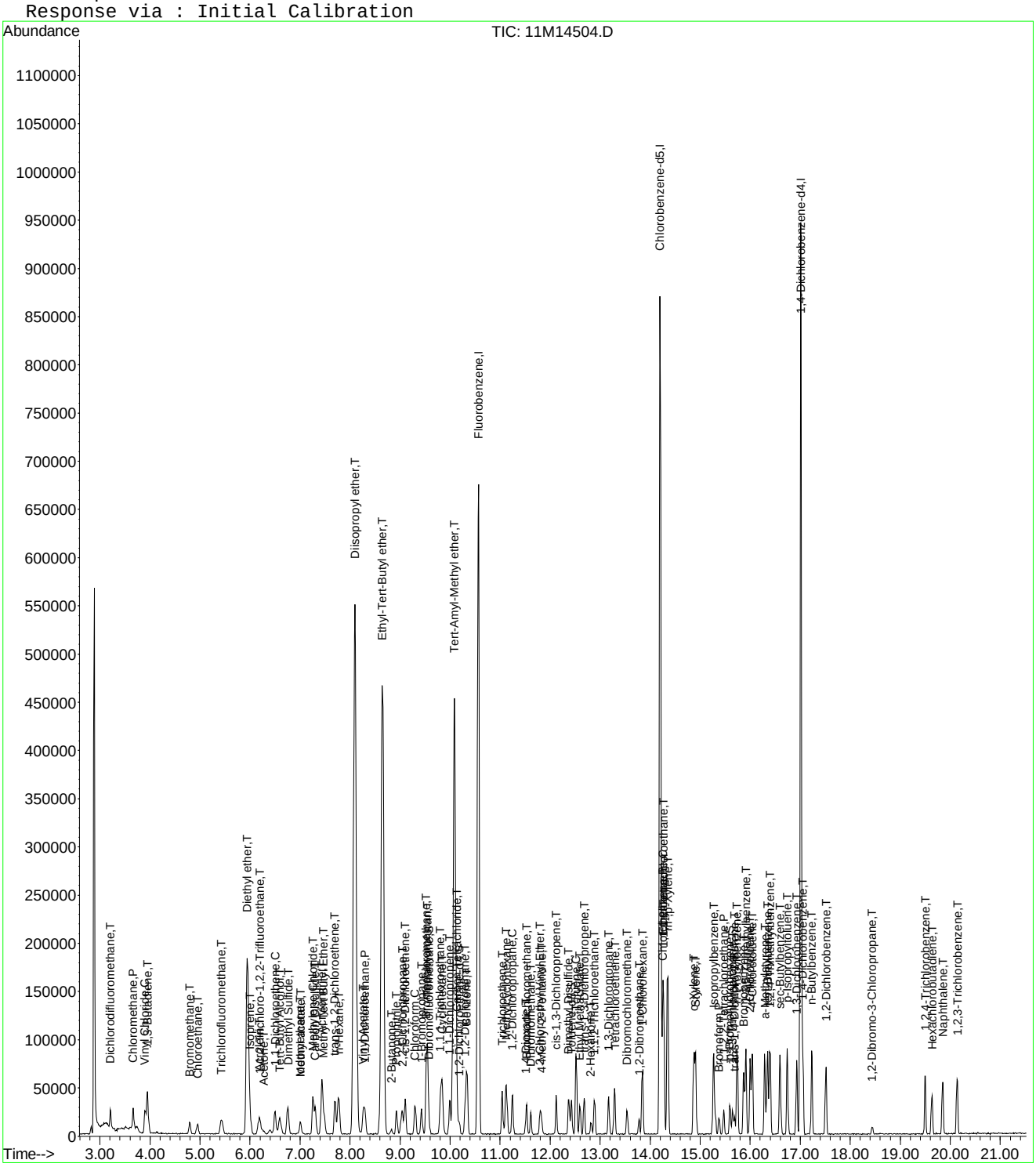
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	25307	1.8667	ug/L	99
45)	Benzene	10.33	78	67103	1.9721	ug/L	98
46)	Trichloroethene	11.04	130	18698	1.9000	ug/L	99
47)	Methylcyclohexane	11.13	83	25108	1.8820	ug/L	95
48)	1,2-Dichloropropane	11.24	63	18946	1.8890	ug/L	91
49)	1,4-Dioxane	11.51	88	2926	41.8519	ug/L	84
50)	Bromodichloromethane	11.53	83	21793	1.8276	ug/L	100
51)	Dibromomethane	11.61	93	10463	1.9676	ug/L	89
52)	2-Chloroethyl Vinyl Ether	11.80	63	10521	1.7909	ug/L	89
53)	4-Methyl-2-Pentanone	11.83	58	5675	1.5734	ug/L	94
54)	cis-1,3-Dichloropropene	12.12	75	23550	1.7868	ug/L	94
55)	Dimethyl Disulfide	12.37	79	12006	1.5178	ug/L	98
58)	Toluene	12.52	91	70955	1.9655	ug/L	95
59)	Ethyl Methacrylate	12.59	69	16986	1.8409	ug/L	85
60)	trans-1,3-Dichloropropene	12.68	75	21953	1.8574	ug/L	96
61)	1,1,2-Trichloroethane	12.88	97	13096	1.8646	ug/L	91
62)	2-Hexanone	12.81	43	11957	1.5794	ug/L	97
63)	1,3-Dichloropropane	13.17	76	21779	1.8447	ug/L	99
64)	Tetrachloroethene	13.30	164	14386	1.8360	ug/L	98
65)	Dibromochloromethane	13.53	129	17225	1.8298	ug/L	100
66)	1,2-Dibromoethane	13.78	107	13428	1.8572	ug/L	95
67)	1-Chlorohexane	13.84	91	21142	1.8148	ug/L	94
68)	Chlorobenzene	14.25	112	49928	1.9491	ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	17787	1.9468	ug/L	93
70)	Ethylbenzene	14.26	106	24619	1.8796	ug/L	93
71)	m-,p-Xylene	14.35	106	61008	3.9534	ug/L	98
72)	o-Xylene	14.87	106	27515	1.8126	ug/L	93
73)	Styrene	14.91	104	47890	1.8585	ug/L	98
74)	Bromoform	15.38	173	10508	1.7213	ug/L	95
75)	Isopropylbenzene	15.27	105	74972	1.9277	ug/L	97
77)	1,1,2,2-Tetrachloroethane	15.47	83	15973	1.8962	ug/L	97
79)	1,2,3-Trichloropropane	15.64	110	4929	1.9295	ug/L	98
80)	trans-1,4-Dichloro-2-Buten	15.69	53	5967	1.7344	ug/L	95
81)	n-Propylbenzene	15.74	91	87684	1.9731	ug/L	99
82)	Bromobenzene	15.87	156	22494	1.9749	ug/L	93
83)	1,3,5-Trimethylbenzene	15.91	105	63171	1.9818	ug/L	95
84)	2-Chlorotoluene	16.00	91	56689	2.0159	ug/L	86
85)	4-Chlorotoluene	16.04	91	56230	1.9632	ug/L	90
86)	a-Methylstyrene	16.30	118	33367	1.7809	ug/L	98
87)	tert-Butylbenzene	16.35	134	13619	1.9530	ug/L	91
88)	1,2,4-Trimethylbenzene	16.40	105	62679	1.9115	ug/L	99
89)	sec-Butylbenzene	16.60	105	79306	1.9647	ug/L	100
90)	p-Isopropyltoluene	16.74	119	68621	1.9537	ug/L	98
91)	1,3-Dichlorobenzene	16.93	146	39896	1.8999	ug/L	98
92)	1,4-Dichlorobenzene	17.05	146	41926	1.9483	ug/L	90
93)	n-Butylbenzene	17.23	91	63490	1.9266	ug/L	98
94)	1,2-Dichlorobenzene	17.52	146	38202	1.9044	ug/L	97
95)	1,2-Dibromo-3-Chloropropan	18.44	75	2901	1.7917	ug/L	86
96)	1,2,4-Trichlorobenzene	19.50	180	25518	1.7153	ug/L	98
97)	Hexachlorobutadiene	19.64	225	10480	1.7999	ug/L	91
98)	Naphthalene	19.85	128	54253	1.7541	ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	25071	1.7465	ug/L	97

(#) = qualifier out of range (m) = manual integration
11M14504.D 8260WT.M Fri Oct 14 09:16:04 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\101316\11M14504.D Vial: 6
Acq On : 13 Oct 2016 15:09 Operator: FJB
Sample : WG587480-05 2ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\101316\11M14504.D Vial: 6
Acq On : 13 Oct 2016 15:09 Operator: FJB
Sample : WG587480-05 2ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	100	0.00
2	T	Dichlorodifluoromethane	2.0000	1.6809	16.0	100	0.00
3	P	Chloromethane	2.0000	1.7687	11.6	100	0.00
4	C	Vinyl Chloride	2.0000	1.8443	7.8	100	0.00
5	T	1,3-Butadiene	-1.0000	2.4743	0.0	100	0.01
6	T	Bromomethane	2.0000	1.8833	5.8	100	-0.01
7	T	Chloroethane	2.0000	1.9459	2.7	100	0.00
8	T	Trichlorofluoromethane	2.0000	1.9063	4.7	100	0.00
9	T	Diethyl ether	25.0000	24.2141	3.1	100	0.00
10	T	Isoprene	-1.0000	1.8788	0.0	100	0.01
11	T	Acrolein	12.5000	10.5841	15.3	100	0.01
12	T	1,1,2-Trichloro-1,2,2-Trifl	2.0000	1.8450	7.8	100	0.00
13	T	Acetone	-1.0000	2.1135	0.0	100	0.00
14	C	1,1-Dichloroethene	2.0000	1.9739	1.3	100	0.01
15	T	Tert-Butyl Alcohol	50.0000	45.2841	9.4	100	0.00
16	T	Dimethyl Sulfide	-1.0000	1.8417	0.0	100	0.01
17	T	Iodomethane	2.0000	1.8102	9.5	100	0.00
18	T	Methyl acetate	2.0000	1.9224	3.9	100	0.00
19	T	Methylene Chloride	2.0000	1.9476	2.6	100	0.00
20	T	Carbon Disulfide	2.0000	1.9551	2.2	100	-0.01
21	T	Acrylonitrile	12.5000	11.1421	10.9	100	0.00
22	T	Methyl Tert Butyl Ether	2.0000	1.8552	7.2	100	0.00
23	T	trans-1,2-Dichloroethene	2.0000	2.0072	-0.4	100	-0.01
24	T	n-Hexane	2.0000	1.8851	5.7	100	0.01
25	T	Diisopropyl ether	25.0000	24.5874	1.7	100	0.00
26	T	Vinyl Acetate	-1.0000	1.9484	0.0	100	0.00
27	P	1,1-Dichloroethane	2.0000	1.8931	5.3	100	0.00
28	T	Ethyl-Tert-Butyl ether	25.0000	24.5046	2.0	100	0.00
29	T	2-Butanone	-1.0000	1.9774	0.0	100	0.01
30	T	Propionitrile	25.0000	23.2488	7.0	100	0.00
31	T	2,2-Dichloropropane	2.0000	1.8947	5.3	100	0.01
32	T	cis-1,2-Dichloroethene	2.0000	2.0224	-1.1	100	0.00
33	C	Chloroform	2.0000	1.9026	4.9	100	-0.01
34	T	1-Bromopropane	2.0000	1.7845	10.8	100	0.00
35	T	Bromochloromethane	2.0000	2.0253	-1.3	100	0.00
36	T	Tetrahydrofuran	25.0000	23.3977	6.4	100	0.00
37	S	Dibromofluoromethane	1.0000	0.9593	4.1	100	0.00
38	T	1,1,1-Trichloroethane	2.0000	1.8998	5.0	100	-0.01
39	T	Cyclohexane	2.0000	1.9487	2.6	100	-0.01
40	T	1,1-Dichloropropene	2.0000	1.8606	7.0	100	-0.01
41	T	Carbon Tetrachloride	2.0000	1.8575	7.1	100	0.00
42	T	Tert-Amyl-Methyl ether	25.0000	23.7652	4.9	100	-0.01
43	S	1,2-Dichloroethane-d4	1.0000	0.9842	1.6	100	0.00
44	T	1,2-Dichloroethane	2.0000	1.8667	6.7	100	0.00
45	T	Benzene	2.0000	1.9721	1.4	100	-0.01
46	T	Trichloroethene	2.0000	1.9000	5.0	100	0.00
47	T	Methylcyclohexane	2.0000	1.8820	5.9	100	0.00
48	C	1,2-Dichloropropane	2.0000	1.8890	5.5	100	-0.01
49	T	1,4-Dioxane	50.0000	41.8519	16.3	100	0.00
50	T	Bromodichloromethane	2.0000	1.8276	8.6	100	0.00
51	T	Dibromomethane	2.0000	1.9676	1.6	100	0.00
52	T	2-Chloroethyl Vinyl Ether	-1.0000	1.7909	0.0	100	0.00
53	T	4-Methyl-2-Pentanone	-1.0000	1.5734	0.0	100	0.00
54	T	cis-1,3-Dichloropropene	2.0000	1.7868	10.7	100	0.00

(#) = Out of Range
11M14504.D 8260WT.M Fri Oct 14 09:21:13 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14504.D Vial: 6
Acq On : 13 Oct 2016 15:09 Operator: FJB
Sample : WG587480-05 2ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	-1.0000	1.5178	0.0	100	-0.01
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
57	S	Toluene-d8	1.0000	1.0030	-0.3	100	0.00
58	C	Toluene	2.0000	1.9655	1.7	100	0.00
59	T	Ethyl Methacrylate	2.0000	1.8409	8.0	100	0.00
60	T	trans-1,3-Dichloropropene	2.0000	1.8574	7.1	100	0.00
61	T	1,1,2-Trichloroethane	2.0000	1.8646	6.8	100	0.00
62	T	2-Hexanone	-1.0000	1.5794	0.0	100	-0.01
63	T	1,3-Dichloropropane	2.0000	1.8447	7.8	100	0.00
64	T	Tetrachloroethene	2.0000	1.8360	8.2	100	0.01
65	T	Dibromochloromethane	2.0000	1.8298	8.5	100	0.00
66	T	1,2-Dibromoethane	2.0000	1.8572	7.1	100	0.00
67	T	1-Chlorohexane	2.0000	1.8148	9.3	100	0.00
68	P	Chlorobenzene	2.0000	1.9491	2.5	100	0.00
69	T	1,1,1,2-Tetrachloroethane	2.0000	1.9468	2.7	100	0.00
70	C	Ethylbenzene	2.0000	1.8796	6.0	100	-0.01
71	T	m-,p-Xylene	4.0000	3.9534	1.2	100	0.00
72	T	o-Xylene	2.0000	1.8126	9.4	100	-0.01
73	T	Styrene	2.0000	1.8585	7.1	100	0.00
74	P	Bromoform	2.0000	1.7213	13.9	100	0.00
75	T	Isopropylbenzene	2.0000	1.9277	3.6	100	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
77	P	1,1,2,2-Tetrachloroethane	2.0000	1.8962	5.2	100	0.00
78	S	p-Bromofluorobenzene	1.0000	1.0239	-2.4	100	0.00
79	T	1,2,3-Trichloropropane	2.0000	1.9295	3.5	100	-0.01
80	T	trans-1,4-Dichloro-2-Butene	2.0000	1.7344	13.3	100	0.00
81	T	n-Propylbenzene	2.0000	1.9731	1.3	100	0.00
82	T	Bromobenzene	2.0000	1.9749	1.3	100	0.00
83	T	1,3,5-Trimethylbenzene	2.0000	1.9818	0.9	100	0.00
84	T	2-Chlorotoluene	2.0000	2.0159	-0.8	100	0.00
85	T	4-Chlorotoluene	2.0000	1.9632	1.8	100	0.00
86	T	a-Methylstyrene	2.0000	1.7810	11.0	100	0.01
87	T	tert-Butylbenzene	2.0000	1.9530	2.3	100	0.00
88	T	1,2,4-Trimethylbenzene	2.0000	1.9115	4.4	100	0.00
89	T	sec-Butylbenzene	2.0000	1.9648	1.8	100	0.00
90	T	p-Isopropyltoluene	2.0000	1.9537	2.3	100	0.00
91	T	1,3-Dichlorobenzene	2.0000	1.8999	5.0	100	-0.01
92	T	1,4-Dichlorobenzene	2.0000	1.9483	2.6	100	0.00
93	T	n-Butylbenzene	2.0000	1.9266	3.7	100	0.00
94	T	1,2-Dichlorobenzene	2.0000	1.9044	4.8	100	0.00
95	T	1,2-Dibromo-3-Chloropropane	2.0000	1.7917	10.4	100	0.00
96	T	1,2,4-Trichlorobenzene	2.0000	1.7153	14.2	100	0.00
97	T	Hexachlorobutadiene	2.0000	1.7999	10.0	100	0.00
98	T	Naphthalene	2.0000	1.7541	12.3	100	0.00
99	T	1,2,3-Trichlorobenzene	2.0000	1.7465	12.7	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14504.D 8260WT.M Fri Oct 14 09:21:13 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14505.D Vial: 7
Acq On : 13 Oct 2016 15:38 Operator: FJB
Sample : WG587480-06 5ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:06 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	704915	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	535384	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	274083	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	21661	2.5545	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 10.20%#			
43) 1,2-Dichloroethane-d4	10.18	65	24158	2.5376	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 10.16%#			
57) Toluene-d8	12.43	98	74299	2.6188	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 10.48%#			
78) p-Bromofluorobenzene	15.59	95	30177	2.7520	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 11.00%#			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	53872	4.5046	ug/L	97
3) Chloromethane	3.66	50	63093	4.8946	ug/L	92
4) Vinyl Chloride	3.90	62	57167	4.8876	ug/L	94
5) 1,3-Butadiene	3.95	54	55779	5.8584	ug/L	99
6) Bromomethane	4.79	94	26223	4.6270	ug/L	95
7) Chloroethane	4.95	64	34076	4.9730	ug/L	99
8) Trichlorofluoromethane	5.43	101	71376	5.2430	ug/L	98
9) Diethyl ether	5.95	59	348253	52.3340	ug/L	96
10) Isoprene	5.99	67	60695	4.8854	ug/L	100
11) Acrolein	6.18	56	14503	26.1576	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.18	101	36540	4.9907	ug/L	92
13) Acetone	6.28	43	15534	5.6801	ug/L	98
14) 1,1-Dichloroethene	6.50	61	73163	5.0292	ug/L	99
15) Tert-Butyl Alcohol	6.59	59	76587	108.4985	ug/L	99
16) Dimethyl Sulfide	6.75	62	49571	4.9717	ug/L	91
17) Iodomethane	7.01	142	32491	4.0680	ug/L	98
18) Methyl acetate	7.01	43	42579	5.2794	ug/L	100
19) Methylene Chloride	7.26	84	40764	4.9289	ug/L	100
20) Carbon Disulfide	7.30	76	119131	4.9405	ug/L	98
21) Acrylonitrile	7.43	53	92086	25.0624	ug/L	98
22) Methyl Tert Butyl Ether	7.47	73	101639	4.9984	ug/L	100
23) trans-1,2-Dichloroethene	7.70	96	41497	5.0337	ug/L	97
24) n-Hexane	7.78	57	67335	4.7763	ug/L	99
25) Diisopropyl ether	8.10	45	2091384	52.4539	ug/L	98
26) Vinyl Acetate	8.26	43	108380	5.0855	ug/L	98
27) 1,1-Dichloroethane	8.29	63	86575	5.1240	ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	1539500	52.0660	ug/L	99
29) 2-Butanone	8.83	43	24112	5.2473	ug/L	99
30) Propionitrile	8.92	54	65994	51.8343	ug/L	99
31) 2,2-Dichloropropane	9.03	77	58036	5.0404	ug/L	94
32) cis-1,2-Dichloroethene	9.10	96	45701	5.0337	ug/L	95
33) Chloroform	9.30	83	75154	5.0695	ug/L	99
34) 1-Bromopropane	9.44	122	7411	4.9720	ug/L	89
35) Bromochloromethane	9.52	130	29766	5.0860	ug/L	95
36) Tetrahydrofuran	9.54	42	165066	51.8781	ug/L	96
38) 1,1,1-Trichloroethane	9.80	97	64003	4.8966	ug/L	99
39) Cyclohexane	9.83	56	99752	5.2060	ug/L	97
40) 1,1-Dichloropropene	10.00	75	54937	5.0771	ug/L	99
41) Carbon Tetrachloride	10.13	117	60196	4.9290	ug/L	96
42) Tert-Amyl-Methyl ether	10.09	73	1041879	52.0345	ug/L	99

(#) = qualifier out of range (m) = manual integration
11M14505.D 8260WT.M Fri Oct 14 09:16:07 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14505.D Vial: 7
Acq On : 13 Oct 2016 15:38 Operator: FJB
Sample : WG587480-06 5ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:06 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

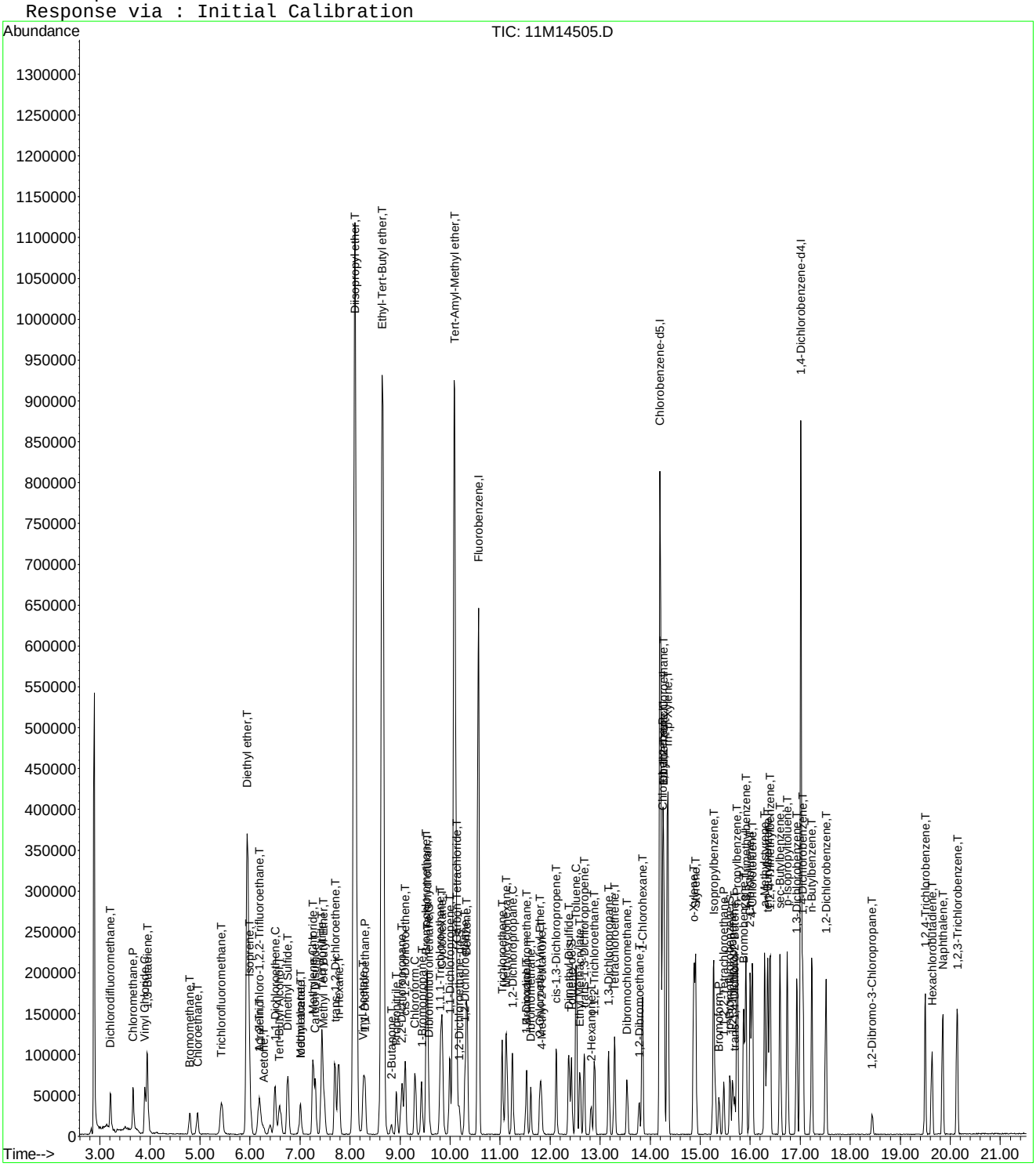
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	65317	5.1288	ug/L	98
45)	Benzene	10.33	78	165534	5.1789	ug/L	99
46)	Trichloroethene	11.04	130	47040	5.0884	ug/L	98
47)	Methylcyclohexane	11.13	83	61868	4.9367	ug/L	97
48)	1,2-Dichloropropane	11.25	63	49329	5.2358	ug/L	96
49)	1,4-Dioxane	11.52	88	6881	104.7737	ug/L	99
50)	Bromodichloromethane	11.53	83	57043	5.0925	ug/L	97
51)	Dibromomethane	11.61	93	24125	4.8295	ug/L	95
52)	2-Chloroethyl Vinyl Ether	11.80	63	25698	4.6567	ug/L	99
53)	4-Methyl-2-Pentanone	11.83	58	16116	4.7567	ug/L	95
54)	cis-1,3-Dichloropropene	12.12	75	61556	4.9719	ug/L	99
55)	Dimethyl Disulfide	12.38	79	30805	4.1457	ug/L	97
58)	Toluene	12.52	91	180331	5.3489	ug/L	97
59)	Ethyl Methacrylate	12.59	69	42002	4.8742	ug/L	94
60)	trans-1,3-Dichloropropene	12.68	75	55147	4.9961	ug/L	99
61)	1,1,2-Trichloroethane	12.88	97	34394	5.2436	ug/L	97
62)	2-Hexanone	12.82	43	35160	4.9730	ug/L	99
63)	1,3-Dichloropropane	13.17	76	58260	5.2838	ug/L	89
64)	Tetrachloroethene	13.29	164	36268	4.9563	ug/L	98
65)	Dibromochloromethane	13.53	129	44523	5.0644	ug/L	100
66)	1,2-Dibromoethane	13.78	107	34181	5.0622	ug/L	100
67)	1-Chlorohexane	13.84	91	54770	5.0342	ug/L	96
68)	Chlorobenzene	14.25	112	125617	5.2509	ug/L	98
69)	1,1,1,2-Tetrachloroethane	14.27	131	45570	5.3407	ug/L	94
70)	Ethylbenzene	14.27	106	62371	5.0988	ug/L	94
71)	m-,p-Xylene	14.35	106	153310	10.6378	ug/L	99
72)	o-Xylene	14.87	106	71617	5.0517	ug/L	96
73)	Styrene	14.91	104	124078	5.1560	ug/L	98
74)	Bromoform	15.38	173	27217	4.7739	ug/L	99
75)	Isopropylbenzene	15.27	105	190325	5.2399	ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	40832	5.2826	ug/L	96
79)	1,2,3-Trichloropropane	15.64	110	12510	5.3369	ug/L	95
80)	trans-1,4-Dichloro-2-Buten	15.69	53	14900	4.7197	ug/L	98
81)	n-Propylbenzene	15.74	91	226980	5.5662	ug/L	99
82)	Bromobenzene	15.87	156	53330	5.1025	ug/L	95
83)	1,3,5-Trimethylbenzene	15.91	105	154334	5.2766	ug/L	99
84)	2-Chlorotoluene	16.00	91	140153	5.4314	ug/L	99
85)	4-Chlorotoluene	16.04	91	147742	5.6215	ug/L	99
86)	a-Methylstyrene	16.29	118	86678	5.0418	ug/L	100
87)	tert-Butylbenzene	16.35	134	35434	5.5376	ug/L	97
88)	1,2,4-Trimethylbenzene	16.40	105	162970	5.4163	ug/L	99
89)	sec-Butylbenzene	16.60	105	200864	5.4231	ug/L	100
90)	p-Isopropyltoluene	16.74	119	173418	5.3806	ug/L	99
91)	1,3-Dichlorobenzene	16.93	146	100344	5.2076	ug/L	100
92)	1,4-Dichlorobenzene	17.05	146	102402	5.1860	ug/L	100
93)	n-Butylbenzene	17.23	91	157612	5.2122	ug/L	100
94)	1,2-Dichlorobenzene	17.52	146	97937	5.3207	ug/L	97
95)	1,2-Dibromo-3-Chloropropan	18.44	75	6951	4.6786	ug/L	80
96)	1,2,4-Trichlorobenzene	19.50	180	67167	4.9204	ug/L	98
97)	Hexachlorobutadiene	19.64	225	27214	5.0937	ug/L	98
98)	Naphthalene	19.85	128	146177	5.1505	ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	61650	4.6804	ug/L	96

(#) = qualifier out of range (m) = manual integration
11M14505.D 8260WT.M Fri Oct 14 09:16:07 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14505.D Vial: 7
Acq On : 13 Oct 2016 15:38 Operator: FJB
Sample : WG587480-06 5ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



11M14505.D 8260WT.M Fri Oct 14 09:16:08 2016 Page 3

Data File : C:\MSDCHEM\1\DATA\101316\11M14505.D Vial: 7
Acq On : 13 Oct 2016 15:38 Operator: FJB
Sample : WG587480-06 5ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	100	0.00
2	T	Dichlorodifluoromethane	5.0000	4.5046	9.9	100	0.00
3	P	Chloromethane	5.0000	4.8102	3.8	100	0.00
4	C	Vinyl Chloride	5.0000	4.8876	2.2	100	0.00
5	T	1,3-Butadiene	5.0000	5.8584	-17.2	100	0.01
6	T	Bromomethane	5.0000	4.6270	7.5	100	-0.01
7	T	Chloroethane	5.0000	4.9730	0.5	100	0.00
8	T	Trichlorofluoromethane	5.0000	5.2430	-4.9	100	0.00
9	T	Diethyl ether	50.0000	52.3340	-4.7	100	0.00
10	T	Isoprene	5.0000	4.8854	2.3	100	0.00
11	T	Acrolein	25.0000	26.1576	-4.6	100	0.01
12	T	1,1,2-Trichloro-1,2,2-Trifl	5.0000	4.9907	0.2	100	-0.01
13	T	Acetone	5.0000	5.6800	-13.6	100	0.00
14	C	1,1-Dichloroethene	5.0000	5.0292	-0.6	100	0.01
15	T	Tert-Butyl Alcohol	100.0000	108.4985	-8.5	100	-0.01
16	T	Dimethyl Sulfide	5.0000	4.9717	0.6	100	0.00
17	T	Iodomethane	5.0000	4.0680	18.6	100	0.01
18	T	Methyl acetate	5.0000	5.2794	-5.6	100	0.00
19	T	Methylene Chloride	5.0000	4.9289	1.4	100	0.00
20	T	Carbon Disulfide	5.0000	4.9405	1.2	100	-0.01
21	T	Acrylonitrile	25.0000	25.0624	-0.2	100	0.00
22	T	Methyl Tert Butyl Ether	5.0000	4.9984	0.0	100	0.00
23	T	trans-1,2-Dichloroethene	5.0000	5.0337	-0.7	100	0.00
24	T	n-Hexane	5.0000	4.7763	4.5	100	0.01
25	T	Diisopropyl ether	50.0000	52.4539	-4.9	100	0.00
26	T	Vinyl Acetate	5.0000	5.0855	-1.7	100	0.00
27	P	1,1-Dichloroethane	5.0000	5.1240	-2.5	100	0.00
28	T	Ethyl-Tert-Butyl ether	50.0000	52.0660	-4.1	100	0.00
29	T	2-Butanone	5.0000	5.2473	-4.9	100	0.01
30	T	Propionitrile	50.0000	51.8343	-3.7	100	0.00
31	T	2,2-Dichloropropane	5.0000	5.0404	-0.8	100	-0.01
32	T	cis-1,2-Dichloroethene	5.0000	5.0338	-0.7	100	0.00
33	C	Chloroform	5.0000	5.0695	-1.4	100	-0.01
34	T	1-Bromopropane	5.0000	4.7659	4.7	100	0.01
35	T	Bromochloromethane	5.0000	5.0860	-1.7	100	0.00
36	T	Tetrahydrofuran	50.0000	51.8781	-3.8	100	0.00
37	S	Dibromofluoromethane	2.5000	2.5545	-2.2	100	0.00
38	T	1,1,1-Trichloroethane	5.0000	4.8966	2.1	100	-0.01
39	T	Cyclohexane	5.0000	5.2060	-4.1	100	-0.01
40	T	1,1-Dichloropropene	5.0000	5.0771	-1.5	100	0.00
41	T	Carbon Tetrachloride	5.0000	4.9290	1.4	100	0.00
42	T	Tert-Amyl-Methyl ether	50.0000	52.0345	-4.1	100	0.00
43	S	1,2-Dichloroethane-d4	2.5000	2.5376	-1.5	100	0.00
44	T	1,2-Dichloroethane	5.0000	5.1288	-2.6	100	0.00
45	T	Benzene	5.0000	5.1789	-3.6	100	-0.01
46	T	Trichloroethene	5.0000	5.0884	-1.8	100	0.00
47	T	Methylcyclohexane	5.0000	4.9367	1.3	100	0.00
48	C	1,2-Dichloropropane	5.0000	5.2358	-4.7	100	0.00
49	T	1,4-Dioxane	100.0000	104.7737	-4.8	100	0.01
50	T	Bromodichloromethane	5.0000	5.0925	-1.9	100	0.00
51	T	Dibromomethane	5.0000	4.8295	3.4	100	0.00
52	T	2-Chloroethyl Vinyl Ether	5.0000	4.6567	6.9	100	0.00
53	T	4-Methyl-2-Pentanone	5.0000	4.7567	4.9	100	0.00
54	T	cis-1,3-Dichloropropene	5.0000	4.9719	0.6	100	0.00

(#) = Out of Range
11M14505.D 8260WT.M Fri Oct 14 09:21:33 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14505.D Vial: 7
Acq On : 13 Oct 2016 15:38 Operator: FJB
Sample : WG587480-06 5ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	5.0000	4.1457	17.1	100	0.00
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
57	S	Toluene-d8	2.5000	2.6188	-4.8	100	0.00
58	C	Toluene	5.0000	5.3489	-7.0	100	0.00
59	T	Ethyl Methacrylate	5.0000	4.8742	2.5	100	0.00
60	T	trans-1,3-Dichloropropene	5.0000	4.9961	0.1	100	0.00
61	T	1,1,2-Trichloroethane	5.0000	5.2436	-4.9	100	0.00
62	T	2-Hexanone	5.0000	4.9730	0.5	100	0.00
63	T	1,3-Dichloropropane	5.0000	5.2838	-5.7	100	0.00
64	T	Tetrachloroethene	5.0000	4.9563	0.9	100	0.00
65	T	Dibromochloromethane	5.0000	5.0644	-1.3	100	0.00
66	T	1,2-Dibromoethane	5.0000	5.0622	-1.2	100	0.00
67	T	1-Chlorohexane	5.0000	5.0342	-0.7	100	0.00
68	P	Chlorobenzene	5.0000	5.2509	-5.0	100	0.00
69	T	1,1,1,2-Tetrachloroethane	5.0000	5.3407	-6.8	100	0.00
70	C	Ethylbenzene	5.0000	5.0988	-2.0	100	0.00
71	T	m-,p-Xylene	10.0000	10.6378	-6.4	100	0.00
72	T	o-Xylene	5.0000	5.0517	-1.0	100	-0.01
73	T	Styrene	5.0000	5.1560	-3.1	100	0.00
74	P	Bromoform	5.0000	4.7739	4.5	100	0.00
75	T	Isopropylbenzene	5.0000	5.2399	-4.8	100	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
77	P	1,1,2,2-Tetrachloroethane	5.0000	5.2826	-5.7	100	0.00
78	S	p-Bromofluorobenzene	2.5000	2.7521	-10.1	100	0.00
79	T	1,2,3-Trichloropropane	5.0000	5.3369	-6.7	100	-0.01
80	T	trans-1,4-Dichloro-2-Butene	5.0000	4.7197	5.6	100	0.00
81	T	n-Propylbenzene	5.0000	5.5662	-11.3	100	0.00
82	T	Bromobenzene	5.0000	5.1025	-2.1	100	0.00
83	T	1,3,5-Trimethylbenzene	5.0000	5.2766	-5.5	100	0.00
84	T	2-Chlorotoluene	5.0000	5.4314	-8.6	100	0.00
85	T	4-Chlorotoluene	5.0000	5.6215	-12.4	100	0.00
86	T	a-Methylstyrene	5.0000	5.0418	-0.8	100	0.00
87	T	tert-Butylbenzene	5.0000	5.5376	-10.8	100	0.00
88	T	1,2,4-Trimethylbenzene	5.0000	5.4163	-8.3	100	0.00
89	T	sec-Butylbenzene	5.0000	5.4231	-8.5	100	0.00
90	T	p-Isopropyltoluene	5.0000	5.3806	-7.6	100	0.00
91	T	1,3-Dichlorobenzene	5.0000	5.2076	-4.2	100	-0.01
92	T	1,4-Dichlorobenzene	5.0000	5.1860	-3.7	100	0.00
93	T	n-Butylbenzene	5.0000	5.2122	-4.2	100	0.00
94	T	1,2-Dichlorobenzene	5.0000	5.3208	-6.4	100	0.00
95	T	1,2-Dibromo-3-Chloropropane	5.0000	4.6786	6.4	100	0.00
96	T	1,2,4-Trichlorobenzene	5.0000	4.9204	1.6	100	0.00
97	T	Hexachlorobutadiene	5.0000	5.0937	-1.9	100	0.00
98	T	Naphthalene	5.0000	5.1505	-3.0	100	0.00
99	T	1,2,3-Trichlorobenzene	5.0000	4.6804	6.4	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14505.D 8260WT.M Fri Oct 14 09:21:33 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14506.D Vial: 8
Acq On : 13 Oct 2016 16:07 Operator: FJB
Sample : WG587480-07 20ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:09 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.57	96	706675	25.00 ug/L	0.00
56) Chlorobenzene-d5	14.20	117	531572	25.00 ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	278289	25.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.57	111	86923	10.2255 ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 40.92%#		
43) 1,2-Dichloroethane-d4	10.18	65	98685	10.3404 ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 41.36%#		
57) Toluene-d8	12.43	98	293317	10.4125 ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 41.64%#		
78) p-Bromofluorobenzene	15.59	95	114945	10.3242 ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 41.28%#		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.21	85	250387	20.8845 ug/L	97
3) Chloromethane	3.66	50	254200	19.6712 ug/L	98
4) Vinyl Chloride	3.90	62	234082	19.9635 ug/L	99
5) 1,3-Butadiene	3.95	54	226181	23.6964 ug/L	100
6) Bromomethane	4.80	94	100146	17.6265 ug/L	98
7) Chloroethane	4.94	64	138332	20.1375 ug/L	98
8) Trichlorofluoromethane	5.43	101	274529	20.1155 ug/L	100
9) Diethyl ether	5.95	59	545664	81.7959 ug/L	97
10) Isoprene	5.99	67	250400	20.1049 ug/L	97
11) Acrolein	6.17	56	22047	39.6650 ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	147897	20.1498 ug/L	95
13) Acetone	6.27	43	52079	18.9954 ug/L	95
14) 1,1-Dichloroethene	6.50	61	290895	19.9463 ug/L	97
15) Tert-Butyl Alcohol	6.60	59	118432	167.3613 ug/L	97
16) Dimethyl Sulfide	6.76	62	199782	19.9870 ug/L	97
17) Iodomethane	7.00	142	188769	19.6047 ug/L	98
18) Methyl acetate	7.01	43	163574	20.2311 ug/L	98
19) Methylene Chloride	7.26	84	163825	19.7593 ug/L	95
20) Carbon Disulfide	7.31	76	491726	20.3417 ug/L	100
21) Acrylonitrile	7.43	53	149410	40.5626 ug/L	96
22) Methyl Tert Butyl Ether	7.46	73	417416	20.4764 ug/L	100
23) trans-1,2-Dichloroethene	7.70	96	160666	19.4406 ug/L	100
24) n-Hexane	7.77	57	294217	20.8180 ug/L	100
25) Diisopropyl ether	8.10	45	3316172	82.9656 ug/L	98
26) Vinyl Acetate	8.26	43	433464	20.2888 ug/L	99
27) 1,1-Dichloroethane	8.29	63	337344	19.9163 ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	2440876	82.3450 ug/L	100
29) 2-Butanone	8.82	43	92805	20.1461 ug/L	99
30) Propionitrile	8.92	54	106227	83.2270 ug/L	98
31) 2,2-Dichloropropane	9.04	77	223801	19.3886 ug/L	99
32) cis-1,2-Dichloroethene	9.10	96	180556	19.8378 ug/L	100
33) Chloroform	9.30	83	288279	19.3975 ug/L	99
34) 1-Bromopropane	9.43	122	31438	21.0390 ug/L	95
35) Bromochloromethane	9.52	130	119820	20.4224 ug/L	93
36) Tetrahydrofuran	9.54	42	261166	83.4243 ug/L	96
38) 1,1,1-Trichloroethane	9.81	97	256407	19.5676 ug/L	97
39) Cyclohexane	9.83	56	387768	20.1871 ug/L	99
40) 1,1-Dichloropropene	9.99	75	209875	19.3477 ug/L	98
41) Carbon Tetrachloride	10.13	117	244387	19.9610 ug/L	99
42) Tert-Amyl-Methyl ether	10.09	73	1666450	83.0201 ug/L	98

(#) = qualifier out of range (m) = manual integration

Data File : C:\MSDCHEM\1\DATA\101316\11M14506.D Vial: 8
Acq On : 13 Oct 2016 16:07 Operator: FJB
Sample : WG587480-07 20ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:09 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

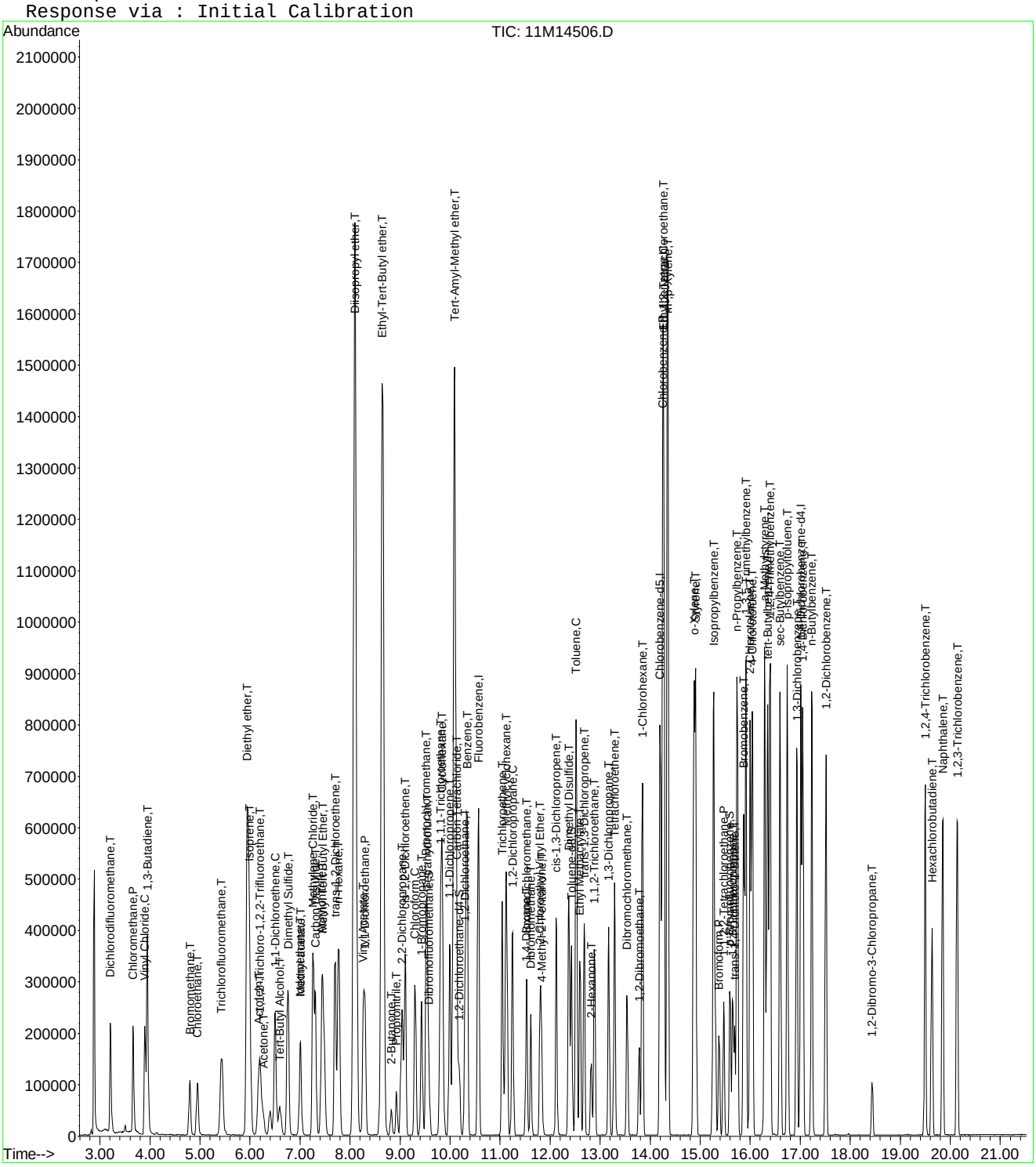
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	259927	20.3590	ug/L	99
45)	Benzene	10.34	78	647697	20.2134	ug/L	98
46)	Trichloroethene	11.04	130	184008	19.8547	ug/L	99
47)	Methylcyclohexane	11.13	83	259302	20.6393	ug/L	99
48)	1,2-Dichloropropane	11.25	63	191579	20.2836	ug/L	98
49)	1,4-Dioxane	11.52	88	10082	153.1314	ug/L	87
50)	Bromodichloromethane	11.53	83	223563	19.9088	ug/L	100
51)	Dibromomethane	11.61	93	98625	19.6944	ug/L	98
52)	2-Chloroethyl Vinyl Ether	11.80	63	109528	19.7979	ug/L	97
53)	4-Methyl-2-Pentanone	11.83	58	65824	19.3797	ug/L	98
54)	cis-1,3-Dichloropropene	12.12	75	257876	20.7769	ug/L	99
55)	Dimethyl Disulfide	12.38	79	144066	19.3401	ug/L	97
58)	Toluene	12.52	91	706714	21.1126	ug/L	99
59)	Ethyl Methacrylate	12.59	69	184701	21.5878	ug/L	93
60)	trans-1,3-Dichloropropene	12.68	75	227985	20.8025	ug/L	100
61)	1,1,2-Trichloroethane	12.88	97	138069	21.2007	ug/L	99
62)	2-Hexanone	12.82	43	137498	19.5871	ug/L	98
63)	1,3-Dichloropropane	13.17	76	226348	20.6756	ug/L	92
64)	Tetrachloroethene	13.29	164	147071	20.2424	ug/L	97
65)	Dibromochloromethane	13.53	129	182384	20.8945	ug/L	98
66)	1,2-Dibromoethane	13.78	107	141983	21.1785	ug/L	98
67)	1-Chlorohexane	13.84	91	224795	20.8104	ug/L	98
68)	Chlorobenzene	14.25	112	482066	20.2953	ug/L	100
69)	1,1,1,2-Tetrachloroethane	14.27	131	174774	20.6302	ug/L	100
70)	Ethylbenzene	14.27	106	248807	20.4857	ug/L	98
71)	m-,p-Xylene	14.35	106	601304	42.0223	ug/L	98
72)	o-Xylene	14.88	106	292426	20.7749	ug/L	97
73)	Styrene	14.91	104	506484	21.1977	ug/L	99
74)	Bromoform	15.38	173	115971	20.4875	ug/L	98
75)	Isopropylbenzene	15.27	105	756754	20.9840	ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	161088	20.5258	ug/L	100
79)	1,2,3-Trichloropropane	15.65	110	50366	21.1621	ug/L	99
80)	trans-1,4-Dichloro-2-Buten	15.69	53	70365	21.9517	ug/L	94
81)	n-Propylbenzene	15.74	91	902346	21.7937	ug/L	99
82)	Bromobenzene	15.87	156	214163	20.1811	ug/L	97
83)	1,3,5-Trimethylbenzene	15.91	105	646193	21.7591	ug/L	97
84)	2-Chlorotoluene	16.00	91	556334	21.2339	ug/L	99
85)	4-Chlorotoluene	16.04	91	569627	21.3465	ug/L	99
86)	a-Methylstyrene	16.29	118	373493	21.3967	ug/L	100
87)	tert-Butylbenzene	16.35	134	135686	20.8845	ug/L	97
88)	1,2,4-Trimethylbenzene	16.40	105	656547	21.4905	ug/L	99
89)	sec-Butylbenzene	16.60	105	798547	21.2340	ug/L	100
90)	p-Isopropyltoluene	16.74	119	694187	21.2129	ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	406382	20.7715	ug/L	97
92)	1,4-Dichlorobenzene	17.05	146	398149	19.8590	ug/L	99
93)	n-Butylbenzene	17.23	91	640006	20.8452	ug/L	100
94)	1,2-Dichlorobenzene	17.52	146	379003	20.2794	ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	29757	19.7262	ug/L	93
96)	1,2,4-Trichlorobenzene	19.50	180	272433	19.6557	ug/L	99
97)	Hexachlorobutadiene	19.64	225	103511	19.0815	ug/L	99
98)	Naphthalene	19.85	128	620587	21.5357	ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	261750	19.5714	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14506.D 8260WT.M Fri Oct 14 09:16:10 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14506.D Vial: 8
Acq On : 13 Oct 2016 16:07 Operator: FJB
Sample : WG587480-07 20ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14507.D Vial: 9
Acq On : 13 Oct 2016 16:36 Operator: FJB
Sample : WG587480-08 50ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:12 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.57	96	727439	25.00 ug/L	0.00
56) Chlorobenzene-d5	14.20	117	570241	25.00 ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	300608	25.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.57	111	222037	25.3745 ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 101.48%		
43) 1,2-Dichloroethane-d4	10.18	65	247871	25.2311 ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 100.92%		
57) Toluene-d8	12.43	98	765817	25.3423 ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 101.36%		
78) p-Bromofluorobenzene	15.59	95	300187	24.9605 ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 99.84%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.21	85	676602	54.8236 ug/L	97
3) Chloromethane	3.66	50	649476	48.8248 ug/L	97
4) Vinyl Chloride	3.90	62	628611	52.0804 ug/L	100
5) 1,3-Butadiene	3.94	54	494799	50.3591 ug/L	93
6) Bromomethane	4.80	94	285226	48.7690 ug/L	97
7) Chloroethane	4.95	64	366231	51.7918 ug/L	99
8) Trichlorofluoromethane	5.43	101	737093	52.4671 ug/L	99
9) Diethyl ether	5.95	59	694146	101.0835 ug/L	95
10) Isoprene	5.99	67	646078	50.3938 ug/L	98
11) Acrolein	6.17	56	26657	46.5899 ug/L	100
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	398710	52.7707 ug/L	100
13) Acetone	6.28	43	130895	46.3802 ug/L	93
14) 1,1-Dichloroethene	6.49	61	783939	52.2195 ug/L	97
15) Tert-Butyl Alcohol	6.60	59	137608	188.9090 ug/L	97
16) Dimethyl Sulfide	6.75	62	515295	50.0807 ug/L	96
17) Iodomethane	7.00	142	507613	50.9496 ug/L	100
18) Methyl acetate	7.01	43	398073	47.8290 ug/L	98
19) Methylene Chloride	7.26	84	432616	50.6894 ug/L	95
20) Carbon Disulfide	7.31	76	1266699	50.9051 ug/L	99
21) Acrylonitrile	7.43	53	194641	51.3339 ug/L	99
22) Methyl Tert Butyl Ether	7.47	73	1072525	51.1110 ug/L	99
23) trans-1,2-Dichloroethene	7.70	96	430733	50.6311 ug/L	99
24) n-Hexane	7.77	57	751246	51.6389 ug/L	100
25) Diisopropyl ether	8.10	45	4198955	102.0529 ug/L	98
26) Vinyl Acetate	8.26	43	1111467	50.5386 ug/L	99
27) 1,1-Dichloroethane	8.29	63	898229	51.5164 ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	3083718	101.0623 ug/L	99
29) 2-Butanone	8.82	43	229616	48.4223 ug/L	99
30) Propionitrile	8.92	54	128708	97.9621 ug/L	99
31) 2,2-Dichloropropane	9.04	77	600617	50.5481 ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	488016	52.0883 ug/L	97
33) Chloroform	9.31	83	760777	49.7295 ug/L	100
34) 1-Bromopropane	9.43	122	81811	53.1868 ug/L	95
35) Bromochloromethane	9.52	130	303683	50.2829 ug/L	95
36) Tetrahydrofuran	9.54	42	311923	97.2225 ug/L	95
38) 1,1,1-Trichloroethane	9.81	97	698456	51.7809 ug/L	97
39) Cyclohexane	9.84	56	1011014	51.1307 ug/L	100
40) 1,1-Dichloropropene	10.00	75	573505	51.3604 ug/L	100
41) Carbon Tetrachloride	10.13	117	661064	52.4531 ug/L	99
42) Tert-Amyl-Methyl ether	10.09	73	2080632	100.6953 ug/L	97

(#) = qualifier out of range (m) = manual integration

Data File : C:\MSDCHEM\1\DATA\101316\11M14507.D Vial: 9
Acq On : 13 Oct 2016 16:36 Operator: FJB
Sample : WG587480-08 50ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:12 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

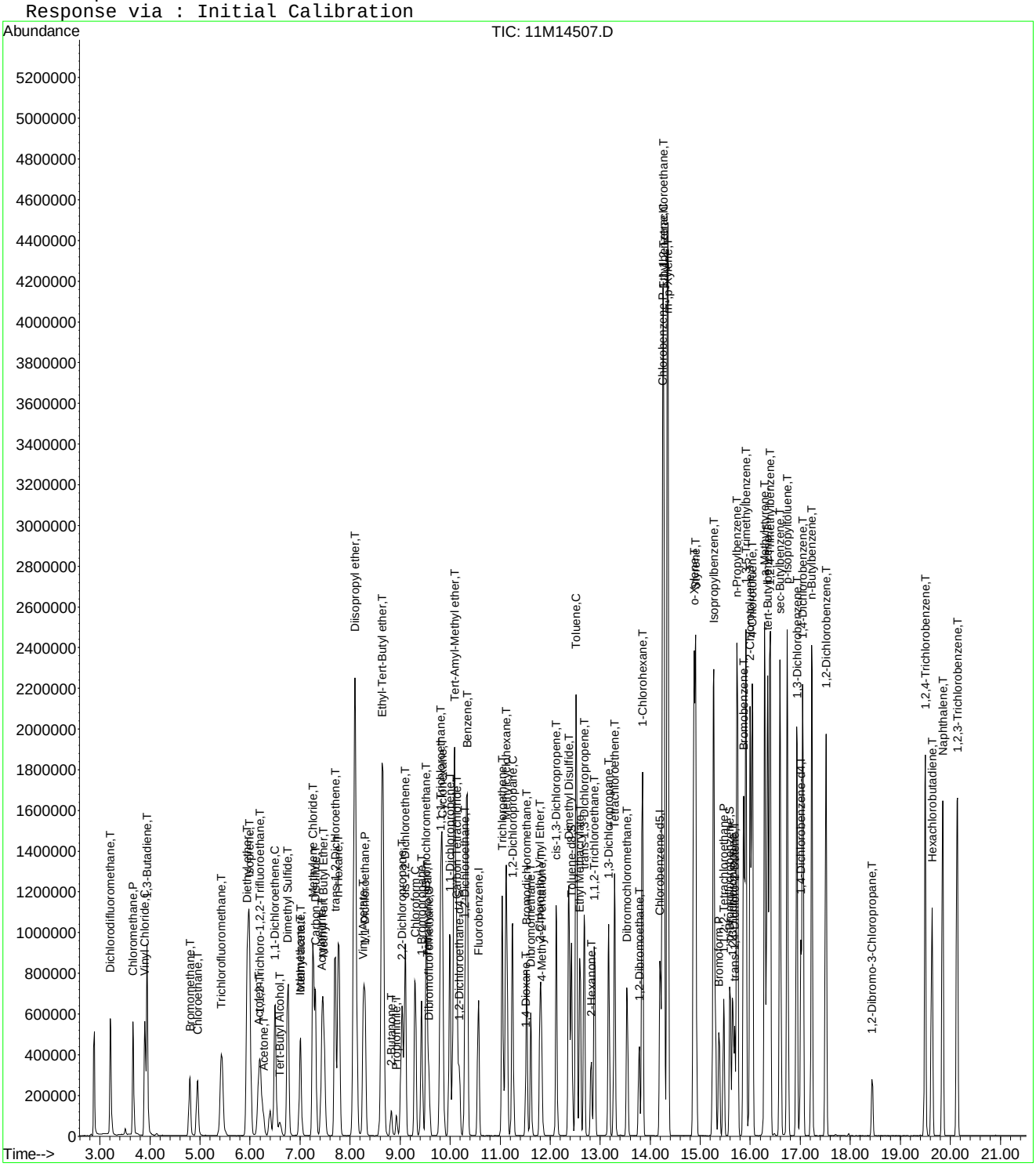
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	674976	51.3591 ug/L	98
45)	Benzene	10.34	78	1703994	51.6606 ug/L	100
46)	Trichloroethene	11.04	130	484994	50.8378 ug/L	99
47)	Methylcyclohexane	11.13	83	663522	51.3059 ug/L	99
48)	1,2-Dichloropropane	11.25	63	498427	51.2651 ug/L	99
49)	1,4-Dioxane	11.51	88	13093	193.1879 ug/L	95
50)	Bromodichloromethane	11.53	83	599138	51.8318 ug/L	99
51)	Dibromomethane	11.61	93	259362	50.3136 ug/L	99
52)	2-Chloroethyl Vinyl Ether	11.80	63	281585	49.4456 ug/L	98
53)	4-Methyl-2-Pentanone	11.83	58	166700	47.6785 ug/L	99
54)	cis-1,3-Dichloropropene	12.12	75	677409	53.0204 ug/L	99
55)	Dimethyl Disulfide	12.38	79	390201	50.8871 ug/L	98
58)	Toluene	12.52	91	1855485	51.6726 ug/L	99
59)	Ethyl Methacrylate	12.59	69	469733	51.1793 ug/L	94
60)	trans-1,3-Dichloropropene	12.68	75	608085	51.7223 ug/L	99
61)	1,1,2-Trichloroethane	12.88	97	360796	51.6439 ug/L	98
62)	2-Hexanone	12.82	43	348809	46.3197 ug/L	98
63)	1,3-Dichloropropane	13.17	76	585849	49.8851 ug/L	91
64)	Tetrachloroethene	13.29	164	383896	49.2553 ug/L	99
65)	Dibromochloromethane	13.53	129	478518	51.1031 ug/L	100
66)	1,2-Dibromoethane	13.78	107	361741	50.2992 ug/L	100
67)	1-Chlorohexane	13.84	91	596263	51.4560 ug/L	96
68)	Chlorobenzene	14.25	112	1281852	50.3071 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	470373	51.7573 ug/L	98
70)	Ethylbenzene	14.27	106	670564	51.4674 ug/L	99
71)	m-,p-Xylene	14.35	106	1582315	103.0819 ug/L	97
72)	o-Xylene	14.88	106	788388	52.2117 ug/L	99
73)	Styrene	14.91	104	1363501	53.1964 ug/L	99
74)	Bromoform	15.38	173	310957	51.2088 ug/L	100
75)	Isopropylbenzene	15.27	105	2030553	52.4870 ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	418265	49.3382 ug/L	99
79)	1,2,3-Trichloropropane	15.65	110	128881	50.1310 ug/L	99
80)	trans-1,4-Dichloro-2-Buten	15.69	53	177319	51.2109 ug/L	96
81)	n-Propylbenzene	15.74	91	2433864	54.4189 ug/L	100
82)	Bromobenzene	15.87	156	566113	49.3855 ug/L	97
83)	1,3,5-Trimethylbenzene	15.91	105	1716984	53.5231 ug/L	100
84)	2-Chlorotoluene	16.00	91	1478103	52.2270 ug/L	99
85)	4-Chlorotoluene	16.04	91	1524788	52.8983 ug/L	100
86)	a-Methylstyrene	16.29	118	985675	52.2750 ug/L	99
87)	tert-Butylbenzene	16.35	134	370904	52.8502 ug/L	98
88)	1,2,4-Trimethylbenzene	16.40	105	1769360	53.6158 ug/L	99
89)	sec-Butylbenzene	16.60	105	2178958	53.6384 ug/L	99
90)	p-Isopropyltoluene	16.74	119	1903201	53.8399 ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	1071699	50.7108 ug/L	100
92)	1,4-Dichlorobenzene	17.05	146	1076674	49.7154 ug/L	99
93)	n-Butylbenzene	17.23	91	1754992	52.9166 ug/L	100
94)	1,2-Dichlorobenzene	17.52	146	1012205	50.1390 ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	79381	48.7154 ug/L	93
96)	1,2,4-Trichlorobenzene	19.50	180	750365	50.1183 ug/L	100
97)	Hexachlorobutadiene	19.64	225	283557	48.3907 ug/L	99
98)	Naphthalene	19.85	128	1658216	53.2714 ug/L	100
99)	1,2,3-Trichlorobenzene	20.14	180	694284	48.0581 ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14507.D 8260WT.M Fri Oct 14 09:16:13 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14507.D Vial: 9
Acq On : 13 Oct 2016 16:36 Operator: FJB
Sample : WG587480-08 50ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\101316\11M14508.D Vial: 10
Acq On : 13 Oct 2016 17:05 Operator: FJB
Sample : WG587480-09 100ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:15 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	719369	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	565075	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	300209	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	441895	51.0665	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 204.28%#			
43) 1,2-Dichloroethane-d4	10.18	65	489944	50.4314	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 201.72%#			
57) Toluene-d8	12.43	98	1521598	50.8128	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 203.24%#			
78) p-Bromofluorobenzene	15.59	95	620828	51.6903	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 206.76%#			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	1328668	108.8669	ug/L	97
3) Chloromethane	3.66	50	1255832	95.4672	ug/L	98
4) Vinyl Chloride	3.90	62	1223091	102.4697	ug/L	99
5) 1,3-Butadiene	3.94	54	861394	88.6535	ug/L	88
6) Bromomethane	4.79	94	609425	105.3708	ug/L	98
7) Chloroethane	4.94	64	714443	102.1689	ug/L	99
8) Trichlorofluoromethane	5.43	101	1443077	103.8722	ug/L	100
9) Diethyl ether	5.95	59	1381938	203.4994	ug/L	96
10) Isoprene	5.99	67	1279309	100.9049	ug/L	99
11) Acrolein	6.17	56	54459	96.2488	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	774148	103.6106	ug/L	98
13) Acetone	6.28	43	266287	95.4122	ug/L	96
14) 1,1-Dichloroethene	6.49	61	1545327	104.0915	ug/L	97
15) Tert-Butyl Alcohol	6.60	59	296169	411.1435	ug/L	98
16) Dimethyl Sulfide	6.75	62	1027978	101.0284	ug/L	95
17) Iodomethane	7.00	142	974766	101.9515	ug/L	99
18) Methyl acetate	7.01	43	816880	99.2502	ug/L	98
19) Methylene Chloride	7.26	84	834842	98.9153	ug/L	96
20) Carbon Disulfide	7.30	76	2494404	101.3676	ug/L	100
21) Acrylonitrile	7.43	53	394296	105.1567	ug/L	99
22) Methyl Tert Butyl Ether	7.46	73	2127437	102.5200	ug/L	100
23) trans-1,2-Dichloroethene	7.69	96	851375	101.1987	ug/L	97
24) n-Hexane	7.77	57	1472024	102.3186	ug/L	100
25) Diisopropyl ether	8.10	45	8187016	201.2123	ug/L	99
26) Vinyl Acetate	8.26	43	2159769	99.3068	ug/L	99
27) 1,1-Dichloroethane	8.29	63	1744395	101.1691	ug/L	100
28) Ethyl-Tert-Butyl ether	8.64	59	6101032	202.1914	ug/L	99
29) 2-Butanone	8.82	43	462008	98.5229	ug/L	98
30) Propionitrile	8.92	54	264182	203.3296	ug/L	100
31) 2,2-Dichloropropane	9.04	77	1174384	99.9452	ug/L	99
32) cis-1,2-Dichloroethene	9.10	96	947323	102.2466	ug/L	99
33) Chloroform	9.30	83	1482246	97.9764	ug/L	99
34) 1-Bromopropane	9.43	122	165977	109.1152	ug/L	98
35) Bromochloromethane	9.52	130	596027	99.7954	ug/L	95
36) Tetrahydrofuran	9.54	42	627510	200.5495	ug/L	95
38) 1,1,1-Trichloroethane	9.80	97	1379112	103.3892	ug/L	96
39) Cyclohexane	9.83	56	1999015	102.2317	ug/L	99
40) 1,1-Dichloropropene	9.99	75	1118752	101.3140	ug/L	98
41) Carbon Tetrachloride	10.13	117	1288939	103.4201	ug/L	99
42) Tert-Amyl-Methyl ether	10.08	73	4158893	203.5338	ug/L	96

(#) = qualifier out of range (m) = manual integration
11M14508.D 8260WT.M Fri Oct 14 09:16:16 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14508.D Vial: 10
Acq On : 13 Oct 2016 17:05 Operator: FJB
Sample : WG587480-09 100ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:15 2016 Quant Results File: 8260WT.RES

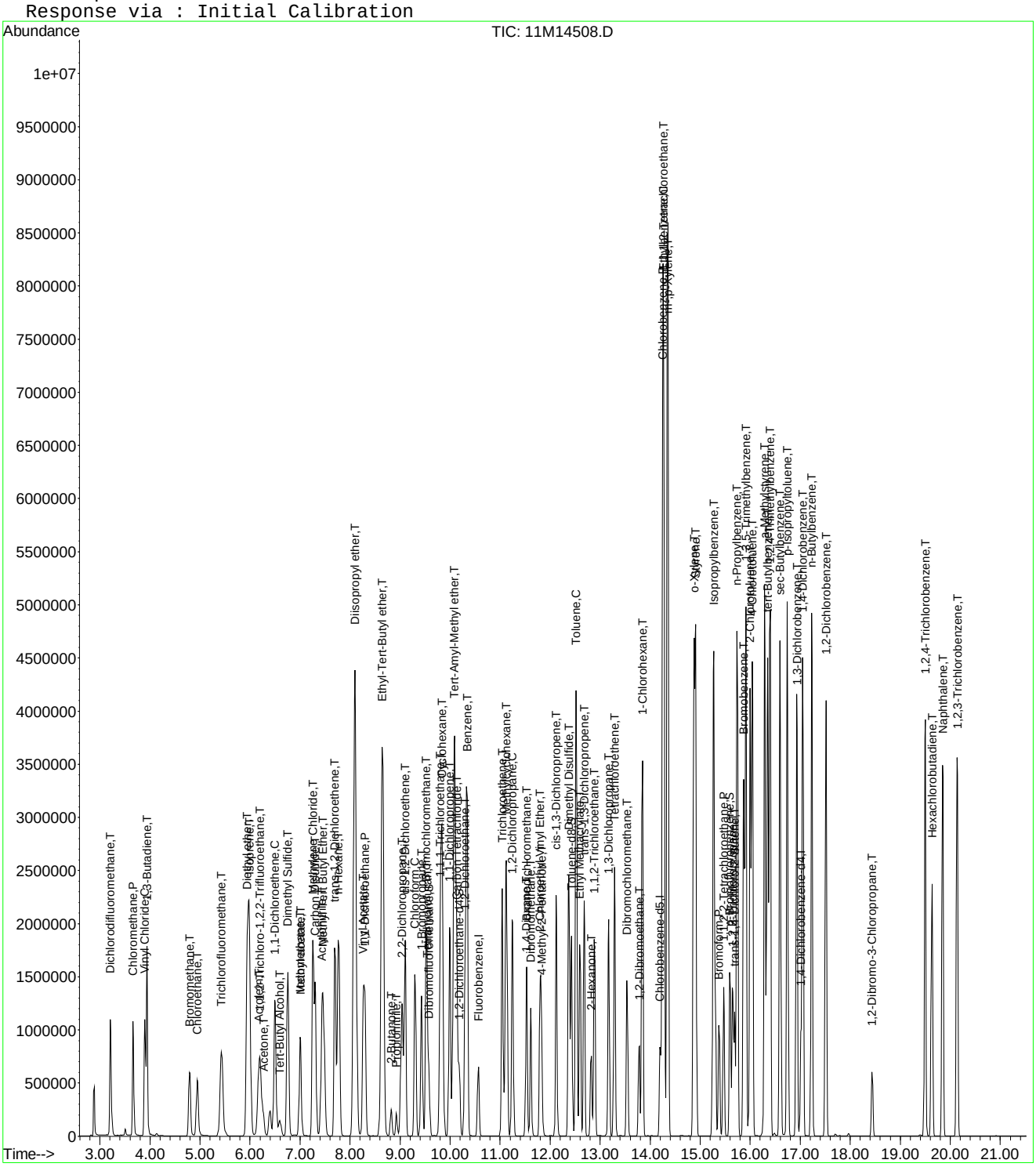
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	1327980	102.1799 ug/L	99
45)	Benzene	10.34	78	3277171	100.4697 ug/L	100
46)	Trichloroethene	11.04	130	955222	101.2511 ug/L	99
47)	Methylcyclohexane	11.13	83	1325506	103.6427 ug/L	98
48)	1,2-Dichloropropane	11.24	63	982601	102.1980 ug/L	99
49)	1,4-Dioxane	11.52	88	28669	427.7580 ug/L	97
50)	Bromodichloromethane	11.53	83	1176810	102.9486 ug/L	99
51)	Dibromomethane	11.61	93	518455	101.7032 ug/L	99
52)	2-Chloroethyl Vinyl Ether	11.80	63	577594	102.5618 ug/L	98
53)	4-Methyl-2-Pentanone	11.83	58	347272	100.4388 ug/L	99
54)	cis-1,3-Dichloropropene	12.12	75	1333465	105.5404 ug/L	100
55)	Dimethyl Disulfide	12.38	79	796670	105.0613 ug/L	98
58)	Toluene	12.52	91	3586175	100.7828 ug/L	100
59)	Ethyl Methacrylate	12.59	69	959871	105.5380 ug/L	94
60)	trans-1,3-Dichloropropene	12.68	75	1208292	103.7141 ug/L	99
61)	1,1,2-Trichloroethane	12.88	97	700425	101.1745 ug/L	100
62)	2-Hexanone	12.82	43	734494	98.4281 ug/L	98
63)	1,3-Dichloropropane	13.17	76	1156106	99.3425 ug/L	92
64)	Tetrachloroethene	13.29	164	756975	98.0106 ug/L	100
65)	Dibromochloromethane	13.53	129	966936	104.2076 ug/L	100
66)	1,2-Dibromoethane	13.78	107	723445	101.5128 ug/L	99
67)	1-Chlorohexane	13.84	91	1187567	103.4210 ug/L	96
68)	Chlorobenzene	14.25	112	2494653	98.7994 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	927340	102.9723 ug/L	99
70)	Ethylbenzene	14.27	106	1295400	100.3341 ug/L	99
71)	m-,p-Xylene	14.35	106	3094063	203.4093 ug/L	97
72)	o-Xylene	14.88	106	1551268	103.6733 ug/L	100
73)	Styrene	14.91	104	2682221	105.6024 ug/L	100
74)	Bromoform	15.38	173	627841	104.3389 ug/L	97
75)	Isopropylbenzene	15.27	105	3979092	103.7944 ug/L	99
77)	1,1,2,2-Tetrachloroethane	15.47	83	862243	101.8447 ug/L	100
79)	1,2,3-Trichloropropane	15.65	110	264487	103.0145 ug/L	98
80)	trans-1,4-Dichloro-2-Buten	15.69	53	373049	107.8823 ug/L	95
81)	n-Propylbenzene	15.74	91	4741929	106.1659 ug/L	99
82)	Bromobenzene	15.87	156	1143256	99.8658 ug/L	96
83)	1,3,5-Trimethylbenzene	15.91	105	3425761	106.9323 ug/L	100
84)	2-Chlorotoluene	16.00	91	2897679	102.5221 ug/L	98
85)	4-Chlorotoluene	16.04	91	2990308	103.8784 ug/L	99
86)	a-Methylstyrene	16.29	118	2023197	107.4422 ug/L	99
87)	tert-Butylbenzene	16.35	134	734639	104.8180 ug/L	98
88)	1,2,4-Trimethylbenzene	16.40	105	3502953	106.2889 ug/L	98
89)	sec-Butylbenzene	16.60	105	4305699	106.1322 ug/L	99
90)	p-Isopropyltoluene	16.74	119	3794766	107.4933 ug/L	99
91)	1,3-Dichlorobenzene	16.94	146	2165192	102.5891 ug/L	99
92)	1,4-Dichlorobenzene	17.05	146	2183662	100.9646 ug/L	99
93)	n-Butylbenzene	17.23	91	3511309	106.0139 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	2089351	103.6324 ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	169574	104.2043 ug/L	92
96)	1,2,4-Trichlorobenzene	19.50	180	1573966	105.2679 ug/L	100
97)	Hexachlorobutadiene	19.64	225	609479	104.1495 ug/L	99
98)	Naphthalene	19.85	128	3462577	111.3856 ug/L	100
99)	1,2,3-Trichlorobenzene	20.14	180	1480240	102.5980 ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14508.D 8260WT.M Fri Oct 14 09:16:16 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\101316\11M14508.D Vial: 10
Acq On : 13 Oct 2016 17:05 Operator: FJB
Sample : WG587480-09 100ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14509.D Vial: 11
Acq On : 13 Oct 2016 17:33 Operator: FJB
Sample : WG587480-10 200ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:17 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	720492	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	567633	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	328942	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	844965	97.4941	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 389.96%#			
43) 1,2-Dichloroethane-d4	10.18	65	942778	96.8917	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 387.56%#			
57) Toluene-d8	12.43	98	2834134	94.2176	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 376.88%#			
78) p-Bromofluorobenzene	15.59	95	1207445	91.7508	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 367.00%#			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	2577883	210.8944	ug/L	97
3) Chloromethane	3.66	50	2490193	189.0071	ug/L	98
4) Vinyl Chloride	3.90	62	2387846	199.7403	ug/L	99
5) 1,3-Butadiene	3.94	54	1689191	173.5783	ug/L	88
6) Bromomethane	4.79	94	1272944	219.7515	ug/L	99
7) Chloroethane	4.94	64	1406170	200.7759	ug/L	99
8) Trichlorofluoromethane	5.43	101	2824536	202.9922	ug/L	99
9) Diethyl ether	5.92	59	1512	0.2223	ug/L #	67
10) Isoprene	5.98	67	2514845	198.0480	ug/L	99
11) Acrolein	6.18	56	1117	1.9711	ug/L #	16
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	1509392	201.6995	ug/L	97
13) Acetone	6.27	43	573969	205.3360	ug/L	97
14) 1,1-Dichloroethene	6.49	61	2990496	201.1225	ug/L	96
15) Tert-Butyl Alcohol	6.61	59	625	0.8663	ug/L #	52
16) Dimethyl Sulfide	6.75	62	2021751	198.3855	ug/L	94
17) Iodomethane	7.00	142	1756723	197.2261	ug/L	99
18) Methyl acetate	7.01	43	1653783	200.6201	ug/L	98
19) Methylene Chloride	7.26	84	1629114	192.7228	ug/L	95
20) Carbon Disulfide	7.30	76	4825739	195.8027	ug/L	100
21) Acrylonitrile	7.45	53	60621	16.1421	ug/L #	31
22) Methyl Tert Butyl Ether	7.47	73	4267667	205.3360	ug/L	100
23) trans-1,2-Dichloroethene	7.69	96	1658972	196.8863	ug/L	97
24) n-Hexane	7.77	57	2842349	197.2603	ug/L	100
25) Diisopropyl ether	8.10	45	8200	0.2012	ug/L #	95
26) Vinyl Acetate	8.26	43	4361805	200.2443	ug/L	99
27) 1,1-Dichloroethane	8.29	63	3390961	196.3579	ug/L	100
28) Ethyl-Tert-Butyl ether	8.65	59	5261	0.1741	ug/L #	78
29) 2-Butanone	8.82	43	942426	200.6585	ug/L	98
31) 2,2-Dichloropropane	9.04	77	2300027	195.4373	ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	1844885	198.8119	ug/L	99
33) Chloroform	9.30	83	2897360	191.2169	ug/L	99
34) 1-Bromopropane	9.43	122	324044	212.6982	ug/L	97
35) Bromochloromethane	9.52	130	1176068	196.6073	ug/L	94
36) Tetrahydrofuran	9.55	42	9420	0.3696	ug/L	97
38) 1,1,1-Trichloroethane	9.80	97	2720789	203.6541	ug/L	96
39) Cyclohexane	9.83	56	3897858	199.0299	ug/L	99
40) 1,1-Dichloropropene	9.99	75	2185673	197.6257	ug/L	98
41) Carbon Tetrachloride	10.13	117	2548533	204.1669	ug/L	99
44) 1,2-Dichloroethane	10.30	62	2617438	201.0818	ug/L	99
45) Benzene	10.34	78	6199523	189.7653	ug/L	98

(#) = qualifier out of range (m) = manual integration
11M14509.D 8260WT.M Fri Oct 14 09:16:19 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14509.D Vial: 11
Acq On : 13 Oct 2016 17:33 Operator: FJB
Sample : WG587480-10 200ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:17 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

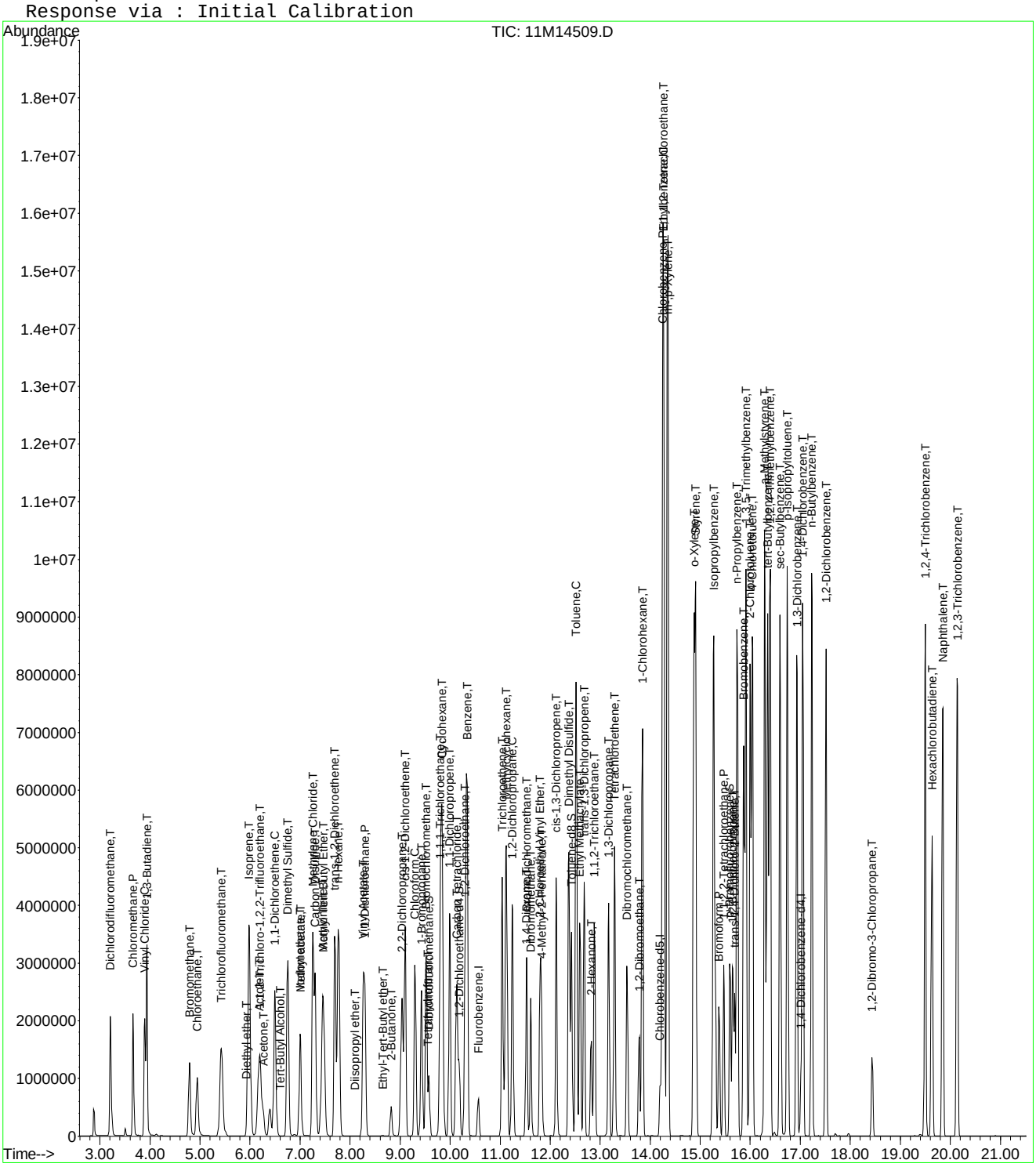
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
46)	Trichloroethene	11.04	130	1866413	197.5266 ug/L		100
47)	Methylcyclohexane	11.13	83	2571287	200.7382 ug/L		99
48)	1,2-Dichloropropane	11.24	63	1919460	199.3272 ug/L		99
49)	1,4-Dioxane	11.52	88	2700	40.2228 ug/L	#	6
50)	Bromodichloromethane	11.53	83	2319976	202.6376 ug/L		99
51)	Dibromomethane	11.61	93	1010011	197.8210 ug/L		97
52)	2-Chloroethyl Vinyl Ether	11.80	63	1170442	207.5083 ug/L		99
53)	4-Methyl-2-Pentanone	11.83	58	732474	211.5175 ug/L		99
54)	cis-1,3-Dichloropropene	12.12	75	2629347	207.7819 ug/L		99
55)	Dimethyl Disulfide	12.38	79	1609905	211.9763 ug/L		100
58)	Toluene	12.52	91	6643149	185.8521 ug/L		97
59)	Ethyl Methacrylate	12.59	69	1980164	216.7382 ug/L		94
60)	trans-1,3-Dichloropropene	12.68	75	2402551	205.2944 ug/L		98
61)	1,1,2-Trichloroethane	12.88	97	1401162	201.4820 ug/L		100
62)	2-Hexanone	12.82	43	1584035	211.3168 ug/L		97
63)	1,3-Dichloropropane	13.17	76	2279148	194.9613 ug/L		91
64)	Tetrachloroethene	13.29	164	1490161	192.0716 ug/L		100
65)	Dibromochloromethane	13.53	129	1949174	209.1177 ug/L		100
66)	1,2-Dibromoethane	13.78	107	1455227	203.2753 ug/L		99
67)	1-Chlorohexane	13.84	91	2352852	203.9782 ug/L		95
68)	Chlorobenzene	14.25	112	4760452	187.6855 ug/L		99
69)	1,1,1,2-Tetrachloroethane	14.27	131	1859811	205.5838 ug/L		98
70)	Ethylbenzene	14.27	106	2573927	198.4629 ug/L		88
71)	m-,p-Xylene	14.35	106	5768393	377.5157 ug/L		85
72)	o-Xylene	14.88	106	3057967	203.4470 ug/L		95
73)	Styrene	14.91	104	5207784	204.1130 ug/L		98
74)	Bromoform	15.38	173	1351988	223.6700 ug/L		98
75)	Isopropylbenzene	15.27	105	7467432	193.9097 ug/L		96
77)	1,1,2,2-Tetrachloroethane	15.47	83	1823753	196.5981 ug/L		100
79)	1,2,3-Trichloropropane	15.65	110	562549	199.9671 ug/L		98
80)	trans-1,4-Dichloro-2-Buten	15.69	53	805312	212.5460 ug/L		94
81)	n-Propylbenzene	15.74	91	8606877	175.8652 ug/L		94
82)	Bromobenzene	15.87	156	2295277	182.9838 ug/L		96
83)	1,3,5-Trimethylbenzene	15.91	105	6590614	187.7509 ug/L		96
84)	2-Chlorotoluene	16.00	91	5528793	178.5261 ug/L		84
85)	4-Chlorotoluene	16.04	91	5822520	184.5970 ug/L		91
86)	a-Methylstyrene	16.28	118	4090365	198.2455 ug/L		97
87)	tert-Butylbenzene	16.35	134	1495851	194.7847 ug/L		97
88)	1,2,4-Trimethylbenzene	16.40	105	6740991	186.6730 ug/L		95
89)	sec-Butylbenzene	16.60	105	8112055	182.4899 ug/L		95
90)	p-Isopropyltoluene	16.74	119	7315620	189.1262 ug/L		96
91)	1,3-Dichlorobenzene	16.94	146	4363436	188.6852 ug/L		99
92)	1,4-Dichlorobenzene	17.05	146	4377989	184.7407 ug/L		99
93)	n-Butylbenzene	17.23	91	6902646	190.2015 ug/L		96
94)	1,2-Dichlorobenzene	17.52	146	4260405	192.8588 ug/L		99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	387420	217.2766 ug/L		89
96)	1,2,4-Trichlorobenzene	19.50	180	3470674	211.8452 ug/L		98
97)	Hexachlorobutadiene	19.64	225	1344657	209.7077 ug/L		99
98)	Naphthalene	19.85	128	7277101	213.6448 ug/L	#	97
99)	1,2,3-Trichlorobenzene	20.14	180	3305152	209.0751 ug/L		99

(#) = qualifier out of range (m) = manual integration
11M14509.D 8260WT.M Fri Oct 14 09:16:19 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14509.D Vial: 11
Acq On : 13 Oct 2016 17:33 Operator: FJB
Sample : WG587480-10 200ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\101316\11M14510.D Vial: 12
Acq On : 13 Oct 2016 18:03 Operator: FJB
Sample : WG587480-11 300ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:20 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	729552	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	578151	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	347891	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	1296783	147.7679	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 591.08%#			
43) 1,2-Dichloroethane-d4	10.18	65	1448218	146.9887	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 587.96%#			
57) Toluene-d8	12.43	98	4301991	140.4131	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 561.64%#			
78) p-Bromofluorobenzene	15.59	95	1864520	133.9632	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 535.84%#			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	3818905	308.5415	ug/L	97
3) Chloromethane	3.66	50	3800742	284.8961	ug/L	96
4) Vinyl Chloride	3.89	62	3523647	291.0883	ug/L	98
5) 1,3-Butadiene	3.93	54	2607025	264.5665	ug/L	89
6) Bromomethane	4.79	94	2004907	341.8139	ug/L	99
7) Chloroethane	4.94	64	2128974	300.2043	ug/L	99
8) Trichlorofluoromethane	5.42	101	4325678	307.0148	ug/L	99
9) Diethyl ether	5.95	59	2065090	299.8534	ug/L	95
10) Isoprene	5.98	67	3897848	303.1496	ug/L	100
11) Acrolein	6.17	56	88428	154.1029	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	2328264	307.2614	ug/L	96
13) Acetone	6.28	43	820708	289.9601	ug/L	96
14) 1,1-Dichloroethene	6.49	61	4595365	305.2182	ug/L	96
15) Tert-Butyl Alcohol	6.61	59	473645	648.3392	ug/L	96
16) Dimethyl Sulfide	6.75	62	3103459	300.7468	ug/L	94
17) Iodomethane	7.00	142	2484247	301.1614	ug/L	99
18) Methyl acetate	7.01	43	2552142	305.7550	ug/L	97
19) Methylene Chloride	7.26	84	2486581	290.5074	ug/L	92
20) Carbon Disulfide	7.30	76	7266754	291.1845	ug/L	99
21) Acrylonitrile	7.43	53	638728	167.9677	ug/L	94
22) Methyl Tert Butyl Ether	7.47	73	6501362	308.9241	ug/L	99
23) trans-1,2-Dichloroethene	7.69	96	2547219	298.5491	ug/L	96
24) n-Hexane	7.77	57	4460235	305.6983	ug/L	100
25) Diisopropyl ether	8.10	45	11656547	282.4842	ug/L	99
26) Vinyl Acetate	8.26	43	6374678	289.0182	ug/L	99
27) 1,1-Dichloroethane	8.29	63	5155673	294.8383	ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	9015818	294.6185	ug/L	98
29) 2-Butanone	8.82	43	1407124	295.8800	ug/L	98
30) Propionitrile	8.93	54	399322	303.0513	ug/L	98
31) 2,2-Dichloropropane	9.04	77	3510287	294.5711	ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	2810292	299.0870	ug/L	98
33) Chloroform	9.30	83	4399026	286.7168	ug/L	99
34) 1-Bromopropane	9.43	122	512392	332.1507	ug/L	97
35) Bromochloromethane	9.52	130	1802606	297.6055	ug/L	93
36) Tetrahydrofuran	9.54	42	942990	298.4584	ug/L	95
38) 1,1,1-Trichloroethane	9.81	97	4148568	306.6687	ug/L	96
39) Cyclohexane	9.83	56	6014710	303.3052	ug/L	100
40) 1,1-Dichloropropene	9.99	75	3327610	297.1417	ug/L	98
41) Carbon Tetrachloride	10.13	117	3897370	308.3470	ug/L	99
42) Tert-Amyl-Methyl ether	10.09	73	6217989	300.0573	ug/L	94

(#) = qualifier out of range (m) = manual integration
11M14510.D 8260WT.M Fri Oct 14 09:16:21 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14510.D Vial: 12
Acq On : 13 Oct 2016 18:03 Operator: FJB
Sample : WG587480-11 300ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:16:20 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

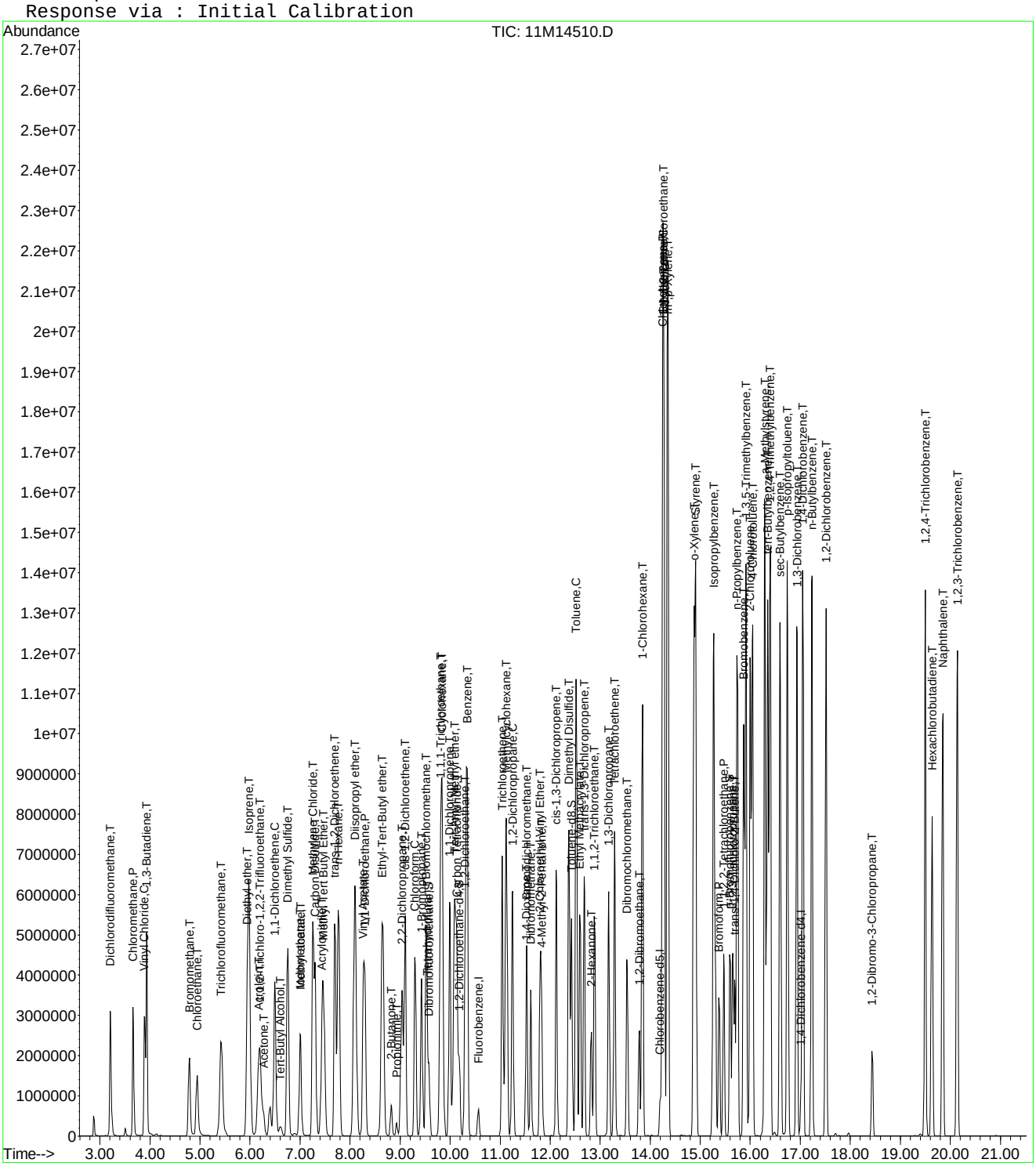
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
44)	1,2-Dichloroethane	10.30	62	3918674	297.3093 ug/L		99
45)	Benzene	10.34	78	8948396	270.5059 ug/L		96
46)	Trichloroethene	11.04	130	2877618	300.7626 ug/L		99
47)	Methylcyclohexane	11.13	83	3994548	307.9782 ug/L		98
48)	1,2-Dichloropropane	11.25	63	2923302	299.8017 ug/L		100
49)	1,4-Dioxane	11.52	88	45791	673.6917 ug/L		94
50)	Bromodichloromethane	11.53	83	3525316	304.0937 ug/L		99
51)	Dibromomethane	11.61	93	1544679	298.7841 ug/L		98
52)	2-Chloroethyl Vinyl Ether	11.80	63	1759152	308.0079 ug/L		98
53)	4-Methyl-2-Pentanone	11.83	58	1119413	319.2400 ug/L		98
54)	cis-1,3-Dichloropropene	12.12	75	3970419	309.8625 ug/L		99
55)	Dimethyl Disulfide	12.38	79	2481521	322.6843 ug/L		98
58)	Toluene	12.52	91	9379407	257.6293 ug/L		92
59)	Ethyl Methacrylate	12.59	69	2992079	321.5390 ug/L		94
60)	trans-1,3-Dichloropropene	12.68	75	3581773	300.4892 ug/L		97
61)	1,1,2-Trichloroethane	12.88	97	2111507	298.1032 ug/L		99
62)	2-Hexanone	12.82	43	2425107	317.6336 ug/L		96
63)	1,3-Dichloropropane	13.17	76	3385571	284.3376 ug/L		92
64)	Tetrachloroethene	13.29	164	2289189	289.6930 ug/L		100
65)	Dibromochloromethane	13.53	129	2950552	310.7920 ug/L		100
66)	1,2-Dibromoethane	13.78	107	2196747	301.2731 ug/L		99
67)	1-Chlorohexane	13.84	91	3573443	304.1602 ug/L		95
68)	Chlorobenzene	14.25	112	6781300	262.4955 ug/L		96
69)	1,1,1,2-Tetrachloroethane	14.27	131	2803495	304.2609 ug/L		98
70)	Ethylbenzene	14.27	106	3807691	288.2513 ug/L		75
71)	m-,p-Xylene	14.35	106	8084438	519.4651 ug/L		74
72)	o-Xylene	14.88	106	4507621	294.4368 ug/L		88
73)	Styrene	14.91	104	7421253	285.5758 ug/L		93
74)	Bromoform	15.38	173	2101779	341.3880 ug/L		98
75)	Isopropylbenzene	15.27	105	10163503	259.1183 ug/L		91
77)	1,1,2,2-Tetrachloroethane	15.47	83	2852095	290.7056 ug/L		100
79)	1,2,3-Trichloropropane	15.65	110	877232	294.8417 ug/L		93
80)	trans-1,4-Dichloro-2-Buten	15.69	53	1270846	317.1449 ug/L		93
81)	n-Propylbenzene	15.74	91	11368867	219.6482 ug/L		87
82)	Bromobenzene	15.87	156	3462989	261.0387 ug/L		95
83)	1,3,5-Trimethylbenzene	15.91	105	9178004	247.2183 ug/L		92
84)	2-Chlorotoluene	16.00	91	7705433	235.2582 ug/L		79
85)	4-Chlorotoluene	16.05	91	6654872	199.4939 ug/L		89
86)	a-Methylstyrene	16.30	118	6164223	282.4852 ug/L		95
87)	tert-Butylbenzene	16.35	134	2279313	280.6380 ug/L		91
88)	1,2,4-Trimethylbenzene	16.40	105	9361710	245.1259 ug/L		89
89)	sec-Butylbenzene	16.60	105	11011361	234.2206 ug/L		89
90)	p-Isopropyltoluene	16.74	119	10059158	245.8886 ug/L		90
91)	1,3-Dichlorobenzene	16.94	146	6533709	267.1438 ug/L		96
92)	1,4-Dichlorobenzene	17.05	146	6525107	260.3465 ug/L		96
93)	n-Butylbenzene	17.24	91	9560886	249.0993 ug/L		91
94)	1,2-Dichlorobenzene	17.52	146	6448020	275.9885 ug/L		96
95)	1,2-Dibromo-3-Chloropropan	18.44	75	610641	323.8121 ug/L		90
96)	1,2,4-Trichlorobenzene	19.50	180	5199714	300.0961 ug/L		97
97)	Hexachlorobutadiene	19.63	225	2065705	304.6121 ug/L		98
98)	Naphthalene	19.85	128	9803018	272.1259 ug/L	#	92
99)	1,2,3-Trichlorobenzene	20.14	180	4913727	293.8990 ug/L		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14510.D Vial: 12
Acq On : 13 Oct 2016 18:03 Operator: FJB
Sample : WG587480-11 300ug/L STD 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:16 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:13:53 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14512.D Vial: 14
Acq On : 13 Oct 2016 19:00 Operator: FJB
Sample : WG587480-12 50ug/L ICV 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:21:41 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	702162	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	553276	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	298660	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	0.00	111	0	0.0000	ug/L	
Spiked Amount 25.000	Range 86 - 118		Recovery =	0.00%#		
43) 1,2-Dichloroethane-d4	10.18	65	731	0.0771	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery =	0.32%#		
57) Toluene-d8	12.43	98	3821	0.1303	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery =	0.52%#		
78) p-Bromofluorobenzene	15.59	95	3099	0.2594	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery =	1.04%#		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	669777	56.2243	ug/L	96
3) Chloromethane	3.66	50	675074	51.6692	ug/L	98
4) Vinyl Chloride	3.90	62	646512	55.4917	ug/L	99
5) 1,3-Butadiene	3.94	54	413339	43.5828	ug/L	88
6) Bromomethane	4.79	94	293212	51.9393	ug/L	96
7) Chloroethane	4.94	64	375956	55.0811	ug/L	99
8) Trichlorofluoromethane	5.42	101	702738	51.8224	ug/L	100
9) Diethyl ether	5.95	59	854500	128.9143	ug/L	95
10) Isoprene	5.98	67	607453	49.0867	ug/L	98
11) Acrolein	6.17	56	86152	155.9931	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.18	101	391702	53.7094	ug/L	95
13) Acetone	6.28	43	141394	51.9038	ug/L	93
14) 1,1-Dichloroethene	6.49	61	726818	50.1574	ug/L	96
15) Tert-Butyl Alcohol	6.61	59	167411	238.0961	ug/L	97
16) Dimethyl Sulfide	6.75	62	546231	54.9984	ug/L	94
17) Iodomethane	7.00	142	269190	27.9208	ug/L	99
18) Methyl acetate	7.01	43	421307	52.4429	ug/L	97
19) Methylene Chloride	7.26	84	413893	50.2414	ug/L	93
20) Carbon Disulfide	7.30	76	1147115	47.7588	ug/L	100
21) Acrylonitrile	7.43	53	199446	54.4947	ug/L	100
22) Methyl Tert Butyl Ether	7.46	73	1106741	54.6402	ug/L	100
23) trans-1,2-Dichloroethene	7.69	96	425163	51.7754	ug/L	96
24) n-Hexane	7.77	57	709006	50.4898	ug/L	100
25) Diisopropyl ether	8.10	45	4544551	114.4285	ug/L	97
26) Vinyl Acetate	8.26	43	1118820	52.7043	ug/L	98
27) 1,1-Dichloroethane	8.29	63	860507	51.1295	ug/L	100
28) Ethyl-Tert-Butyl ether	8.64	59	3220436	109.3424	ug/L	99
29) 2-Butanone	8.82	43	240088	52.4533	ug/L	99
30) Propionitrile	8.92	54	137285	108.2518	ug/L	99
31) 2,2-Dichloropropane	9.04	77	612355	53.3912	ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	468568	51.8129	ug/L	99
33) Chloroform	9.30	83	752417	50.9535	ug/L	99
34) 1-Bromopropane	9.43	122	107937	69.6843	ug/L	99
35) Bromochloromethane	9.52	130	302690	51.9227	ug/L	91
36) Tetrahydrofuran	9.54	42	319823	103.4400	ug/L	95
38) 1,1,1-Trichloroethane	9.80	97	704926	54.1419	ug/L	95
39) Cyclohexane	9.83	56	995372	52.1518	ug/L	100
40) 1,1-Dichloropropene	9.99	75	560744	52.0253	ug/L	98
41) Carbon Tetrachloride	10.13	117	643102	52.8648	ug/L	99
42) Tert-Amyl-Methyl ether	10.09	73	2260773	113.3523	ug/L	94

(#) = qualifier out of range (m) = manual integration
11M14512.D 8260WT.M Fri Oct 14 09:21:42 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14512.D Vial: 14
Acq On : 13 Oct 2016 19:00 Operator: FJB
Sample : WG587480-12 50ug/L ICV 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 09:21:41 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

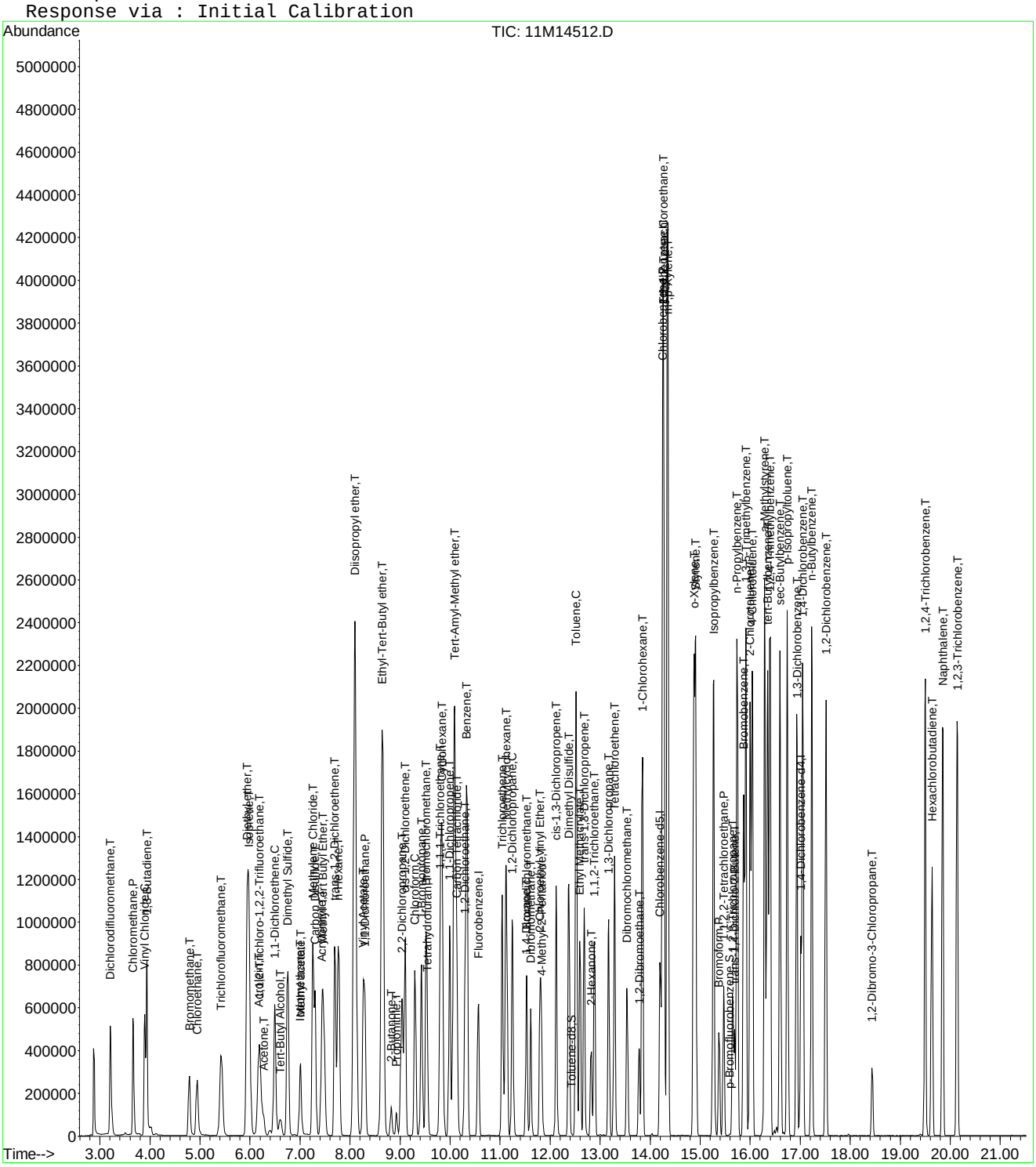
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	644280	50.7882 ug/L	98
45)	Benzene	10.33	78	1655223	51.9885 ug/L	99
46)	Trichloroethene	11.04	130	472567	51.3184 ug/L	99
47)	Methylcyclohexane	11.13	83	662909	53.1038 ug/L	97
48)	1,2-Dichloropropane	11.24	63	482598	51.4239 ug/L	100
49)	1,4-Dioxane	11.52	88	16551	253.0022 ug/L	99
50)	Bromodichloromethane	11.53	83	559338	50.1306 ug/L	99
51)	Dibromomethane	11.61	93	254799	51.2078 ug/L	98
52)	2-Chloroethyl Vinyl Ether	11.80	63	288838	52.5450 ug/L	95
53)	4-Methyl-2-Pentanone	11.83	58	175736	52.0723 ug/L	97
54)	cis-1,3-Dichloropropene	12.12	75	700026	56.7631 ug/L	99
55)	Dimethyl Disulfide	12.38	79	386136	52.1698 ug/L	100
58)	Toluene	12.52	91	1796389	51.5608 ug/L	99
59)	Ethyl Methacrylate	12.59	69	504111	56.6091 ug/L	89
60)	trans-1,3-Dichloropropene	12.68	75	586038	51.3755 ug/L	98
61)	1,1,2-Trichloroethane	12.88	97	344021	50.7526 ug/L	99
62)	2-Hexanone	12.82	43	370333	50.6859 ug/L	95
63)	1,3-Dichloropropane	13.17	76	589952	51.7748 ug/L	89
64)	Tetrachloroethene	13.29	164	387425	51.2323 ug/L	100
65)	Dibromochloromethane	13.53	129	456598	50.2574 ug/L	100
66)	1,2-Dibromoethane	13.78	107	349809	50.1315 ug/L	100
67)	1-Chlorohexane	13.85	91	609636	54.2233 ug/L	93
68)	Chlorobenzene	14.25	112	1224273	49.5207 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	445065	50.4742 ug/L	99
70)	Ethylbenzene	14.27	106	643959	50.9410 ug/L	99
71)	m-,p-Xylene	14.35	106	1571819	105.5379 ug/L	99
72)	o-Xylene	14.88	106	769151	52.4996 ug/L	99
73)	Styrene	14.91	104	1330836	53.5141 ug/L	99
74)	Bromoform	15.38	173	295984	50.2376 ug/L	98
75)	Isopropylbenzene	15.27	105	1947725	51.8898 ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	428994	50.9339 ug/L	100
79)	1,2,3-Trichloropropane	15.65	110	132554	51.8959 ug/L	94
80)	trans-1,4-Dichloro-2-Buten	15.69	53	161475	46.9393 ug/L	91
81)	n-Propylbenzene	15.74	91	2358906	53.0869 ug/L	100
82)	Bromobenzene	15.87	156	546049	47.9459 ug/L	95
83)	1,3,5-Trimethylbenzene	15.91	105	1670795	52.4230 ug/L	100
84)	2-Chlorotoluene	16.00	91	1431449	50.9084 ug/L	99
85)	4-Chlorotoluene	16.04	91	1478353	51.6219 ug/L	100
86)	a-Methylstyrene	16.29	118	1019160	54.4034 ug/L	100
87)	tert-Butylbenzene	16.35	134	360231	51.6642 ug/L	97
88)	1,2,4-Trimethylbenzene	16.40	105	1718302	52.4082 ug/L	99
89)	sec-Butylbenzene	16.60	105	2083719	51.6285 ug/L	99
90)	p-Isopropyltoluene	16.74	119	1886767	53.7231 ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	1055911	50.2897 ug/L	99
92)	1,4-Dichlorobenzene	17.05	146	1082284	50.3004 ug/L	99
93)	n-Butylbenzene	17.23	91	1725319	52.3612 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	1059402	52.8192 ug/L	98
95)	1,2-Dibromo-3-Chloropropan	18.44	75	89801	55.4695 ug/L	90
96)	1,2,4-Trichlorobenzene	19.50	180	865195	58.1649 ug/L	100
97)	Hexachlorobutadiene	19.64	225	327170	56.1977 ug/L	98
98)	Naphthalene	19.85	128	1937943	62.6639 ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	821651	57.2454 ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14512.D 8260WT.M Fri Oct 14 09:21:42 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\101316\11M14512.D Vial: 14
Acq On : 13 Oct 2016 19:00 Operator: FJB
Sample : WG587480-12 50ug/L ICV 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 14 9:21 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\101316\11M14512.D Vial: 14
Acq On : 13 Oct 2016 19:00 Operator: FJB
Sample : WG587480-12 50ug/L ICV 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	97	0.00
2	T	Dichlorodifluoromethane	50.0000	56.2243	-12.4	99	0.00
3	P	Chloromethane	50.0000	51.6692	-3.3	104	0.00
4	C	Vinyl Chloride	50.0000	55.4917	-11.0	103	0.00
5	T	1,3-Butadiene	50.0000	43.5828	12.8	84	0.00
6	T	Bromomethane	50.0000	51.9393	-3.9	103	-0.01
7	T	Chloroethane	50.0000	55.0811	-10.2	103	-0.01
8	T	Trichlorofluoromethane	50.0000	51.8224	-3.6	95	-0.01
9	T	Diethyl ether	100.0000	128.9143	-28.9#	123	0.00
10	T	Isoprene	50.0000	49.0867	1.8	94	-0.01
11	T	Acrolein	50.0000	155.9931	-212.0#	323	0.00
12	T	1,1,2-Trichloro-1,2,2-Trifl	50.0000	53.7094	-7.4	98	-0.01
13	T	Acetone	50.0000	51.9038	-3.8	107	0.00
14	C	1,1-Dichloroethene	50.0000	50.1574	-0.3	93	0.00
15	T	Tert-Butyl Alcohol	200.0000	238.0961	-19.0	122	0.01
16	T	Dimethyl Sulfide	50.0000	54.9984	-10.0	106	0.00
17	T	Iodomethane	50.0000	27.9208	44.2#	53	0.00
18	T	Methyl acetate	50.0000	52.4429	-4.9	106	0.00
19	T	Methylene Chloride	50.0000	50.2414	-0.5	96	0.00
20	T	Carbon Disulfide	50.0000	47.7588	4.5	91	-0.01
21	T	Acrylonitrile	50.0000	54.4947	-9.0	102	0.00
22	T	Methyl Tert Butyl Ether	50.0000	54.6402	-9.3	103	-0.01
23	T	trans-1,2-Dichloroethene	50.0000	51.7754	-3.6	99	-0.01
24	T	n-Hexane	50.0000	50.4898	-1.0	94	0.00
25	T	Diisopropyl ether	100.0000	114.4285	-14.4	108	0.00
26	T	Vinyl Acetate	50.0000	52.7043	-5.4	101	0.00
27	P	1,1-Dichloroethane	50.0000	51.1295	-2.3	96	0.00
28	T	Ethyl-Tert-Butyl ether	100.0000	109.3424	-9.3	104	0.00
29	T	2-Butanone	50.0000	52.4533	-4.9	105	0.00
30	T	Propionitrile	100.0000	108.2518	-8.3	107	0.00
31	T	2,2-Dichloropropane	50.0000	53.3912	-6.8	102	0.00
32	T	cis-1,2-Dichloroethene	50.0000	51.8129	-3.6	96	0.00
33	C	Chloroform	50.0000	50.9535	-1.9	99	-0.01
34	T	1-Bromopropane	50.0000	69.6843	-39.4#	132	0.00
35	T	Bromochloromethane	50.0000	51.9227	-3.8	100	0.00
36	T	Tetrahydrofuran	100.0000	103.4400	-3.4	103	0.00
37	S	Dibromofluoromethane	25.0000	0.0000	100.0#	0	-9.57#
38	T	1,1,1-Trichloroethane	50.0000	54.1419	-8.3	101	-0.01
39	T	Cyclohexane	50.0000	52.1518	-4.3	98	-0.01
40	T	1,1-Dichloropropene	50.0000	52.0253	-4.1	98	-0.01
41	T	Carbon Tetrachloride	50.0000	52.8648	-5.7	97	0.00
42	T	Tert-Amyl-Methyl ether	100.0000	113.3523	-13.4	109	0.00
43	S	1,2-Dichloroethane-d4	25.0000	0.0771	99.7#	0	0.00
44	T	1,2-Dichloroethane	50.0000	50.7882	-1.6	95	0.00
45	T	Benzene	50.0000	51.9885	-4.0	97	-0.01
46	T	Trichloroethene	50.0000	51.3184	-2.6	97	0.00
47	T	Methylcyclohexane	50.0000	53.1037	-6.2	100	0.00
48	C	1,2-Dichloropropane	50.0000	51.4239	-2.8	97	-0.01
49	T	1,4-Dioxane	200.0000	253.0022	-26.5#	126	0.01
50	T	Bromodichloromethane	50.0000	50.1306	-0.3	93	0.00
51	T	Dibromomethane	50.0000	51.2078	-2.4	98	0.00
52	T	2-Chloroethyl Vinyl Ether	50.0000	52.5450	-5.1	103	0.00
53	T	4-Methyl-2-Pentanone	50.0000	52.0723	-4.1	105	0.00
54	T	cis-1,3-Dichloropropene	50.0000	56.7631	-13.5	103	0.00

(#) = Out of Range
11M14512.D 8260WT.M Fri Oct 14 09:22:07 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\101316\11M14512.D Vial: 14
Acq On : 13 Oct 2016 19:00 Operator: FJB
Sample : WG587480-12 50ug/L ICV 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	50.0000	52.1698	-4.3	99	0.00
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	97	0.00
57	S	Toluene-d8	25.0000	0.1303	99.5#	0	0.00
58	C	Toluene	50.0000	51.5608	-3.1	97	0.00
59	T	Ethyl Methacrylate	50.0000	56.6091	-13.2	107	0.00
60	T	trans-1,3-Dichloropropene	50.0000	51.3755	-2.8	96	0.00
61	T	1,1,2-Trichloroethane	50.0000	50.7526	-1.5	95	0.00
62	T	2-Hexanone	50.0000	50.6859	-1.4	106	0.00
63	T	1,3-Dichloropropane	50.0000	51.7748	-3.5	101	0.00
64	T	Tetrachloroethene	50.0000	51.2323	-2.5	101	0.00
65	T	Dibromochloromethane	50.0000	50.2574	-0.5	95	0.00
66	T	1,2-Dibromoethane	50.0000	50.1315	-0.3	97	0.00
67	T	1-Chlorohexane	50.0000	54.2233	-8.4	102	0.00
68	P	Chlorobenzene	50.0000	49.5207	1.0	96	0.00
69	T	1,1,1,2-Tetrachloroethane	50.0000	50.4742	-0.9	95	0.00
70	C	Ethylbenzene	50.0000	50.9410	-1.9	96	0.00
71	T	m-,p-Xylene	100.0000	105.5379	-5.5	99	0.00
72	T	o-Xylene	50.0000	52.4996	-5.0	98	0.00
73	T	Styrene	50.0000	53.5141	-7.0	98	0.00
74	P	Bromoform	50.0000	50.2376	-0.5	95	0.00
75	T	Isopropylbenzene	50.0000	51.8898	-3.8	96	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	99	0.00
77	P	1,1,2,2-Tetrachloroethane	50.0000	50.9339	-1.9	103	0.00
78	S	p-Bromofluorobenzene	25.0000	0.2594	99.0#	1	0.00
79	T	1,2,3-Trichloropropane	50.0000	51.8959	-3.8	103	0.00
80	T	trans-1,4-Dichloro-2-Butene	50.0000	46.9393	6.1	91	0.00
81	T	n-Propylbenzene	50.0000	53.0869	-6.2	97	0.00
82	T	Bromobenzene	50.0000	47.9459	4.1	96	0.00
83	T	1,3,5-Trimethylbenzene	50.0000	52.4230	-4.8	97	0.00
84	T	2-Chlorotoluene	50.0000	50.9084	-1.8	97	0.00
85	T	4-Chlorotoluene	50.0000	51.6219	-3.2	97	0.00
86	T	a-Methylstyrene	50.0000	54.4034	-8.8	103	0.00
87	T	tert-Butylbenzene	50.0000	51.6642	-3.3	97	0.00
88	T	1,2,4-Trimethylbenzene	50.0000	52.4082	-4.8	97	0.00
89	T	sec-Butylbenzene	50.0000	51.6285	-3.3	96	0.00
90	T	p-Isopropyltoluene	50.0000	53.7231	-7.4	99	0.00
91	T	1,3-Dichlorobenzene	50.0000	50.2897	-0.6	99	0.00
92	T	1,4-Dichlorobenzene	50.0000	50.3004	-0.6	101	0.00
93	T	n-Butylbenzene	50.0000	52.3612	-4.7	98	0.00
94	T	1,2-Dichlorobenzene	50.0000	52.8192	-5.6	105	0.00
95	T	1,2-Dibromo-3-Chloropropane	50.0000	55.4695	-10.9	113	0.00
96	T	1,2,4-Trichlorobenzene	50.0000	58.1649	-16.3	115	0.00
97	T	Hexachlorobutadiene	50.0000	56.1977	-12.4	115	0.00
98	T	Naphthalene	50.0000	62.6639	-25.3#	117	0.00
99	T	1,2,3-Trichlorobenzene	50.0000	57.2454	-14.5	118	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14512.D 8260WT.M Fri Oct 14 09:22:07 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110216\11M14888.D Vial: 1
Acq On : 2 Nov 2016 15:06 Operator: ADC
Sample : WG590132-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 07 16:53:41 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	576386	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	449446	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.02	152	227879	25.00	ug/L	0.01
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	174363	25.1484	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 100.60%			
43) 1,2-Dichloroethane-d4	10.18	65	185682	23.8541	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 95.40%			
57) Toluene-d8	12.43	98	577330	24.2396	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 96.96%			
78) p-Bromofluorobenzene	15.59	95	216512	23.7487	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 95.00%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	555361	56.7928	ug/L	98
3) Chloromethane	3.66	50	586632	54.6978	ug/L	99
4) Vinyl Chloride	3.90	62	486514	50.8710	ug/L	99
5) 1,3-Butadiene	3.94	54	388605	49.9161	ug/L	94
6) Bromomethane	4.80	94	265923	57.3844	ug/L	98
7) Chloroethane	4.94	64	288693	51.5259	ug/L	99
8) Trichlorofluoromethane	5.43	101	606158	54.4545	ug/L	99
9) Diethyl ether	5.95	59	590495	108.5248	ug/L	97
10) Isoprene	5.99	67	486614	47.9027	ug/L	98
11) Acrolein	6.18	56	46443	102.4434	ug/L	97
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	328847	54.9304	ug/L	100
13) Acetone	6.27	43	94094	42.0779	ug/L	98
14) 1,1-Dichloroethene	6.49	61	625810	52.6109	ug/L	99
15) Tert-Butyl Alcohol	6.60	59	81842	141.7974	ug/L	98
16) Dimethyl Sulfide	6.75	62	382311	46.8937	ug/L	97
17) Iodomethane	7.00	142	379247	47.9871	ug/L	97
18) Methyl acetate	7.01	43	300950	45.6358	ug/L	97
19) Methylene Chloride	7.26	84	337274	49.8747	ug/L	95
20) Carbon Disulfide	7.30	76	981693	49.7905	ug/L	99
21) Acrylonitrile	7.43	53	137661	45.8209	ug/L	98
22) Methyl Tert Butyl Ether	7.47	73	768816	46.2395	ug/L	99
23) trans-1,2-Dichloroethene	7.69	96	332185	49.2802	ug/L	98
24) n-Hexane	7.77	57	631723	54.8031	ug/L	100
25) Diisopropyl ether	8.10	45	3281368	100.6519	ug/L	98
26) Vinyl Acetate	8.26	43	750989	43.0966	ug/L	99
27) 1,1-Dichloroethane	8.29	63	695085	50.3129	ug/L	100
28) Ethyl-Tert-Butyl ether	8.64	59	2295068	94.9278	ug/L	99
29) 2-Butanone	8.82	43	154447	41.1060	ug/L	100
30) Propionitrile	8.92	54	89274	85.7553	ug/L	99
31) 2,2-Dichloropropane	9.04	77	514505	54.6487	ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	378142	50.9382	ug/L	100
33) Chloroform	9.30	83	598215	49.3511	ug/L	100
34) 1-Bromopropane	9.43	122	64001	50.3356	ug/L	97
35) Bromochloromethane	9.52	130	234725	49.0504	ug/L	95
36) Tetrahydrofuran	9.54	42	214361	83.9684	ug/L	96
38) 1,1,1-Trichloroethane	9.81	97	559012	52.3040	ug/L	97
39) Cyclohexane	9.84	56	788708	50.3413	ug/L	98
40) 1,1-Dichloropropene	9.99	75	451876	51.0732	ug/L	99
41) Carbon Tetrachloride	10.13	117	537297	53.8053	ug/L	99
42) Tert-Amyl-Methyl ether	10.09	73	1520662	92.8816	ug/L	98

(#) = qualifier out of range (m) = manual integration
11M14888.D 8260WT.M Mon Nov 07 16:53:42 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110216\11M14888.D Vial: 1
Acq On : 2 Nov 2016 15:06 Operator: ADC
Sample : WG590132-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 07 16:53:41 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

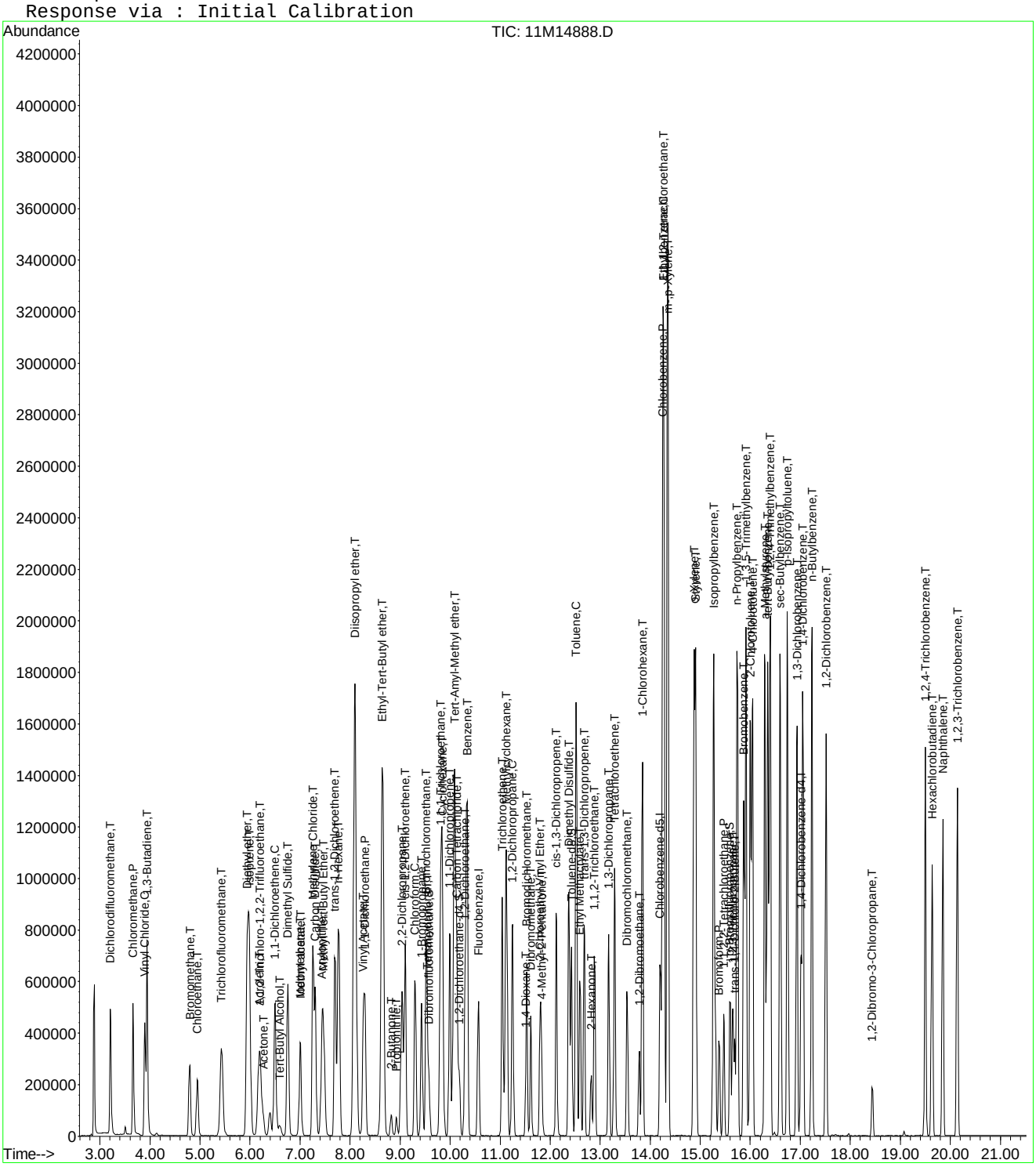
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	518111	49.7548	ug/L	98
45)	Benzene	10.34	78	1323690	50.6478	ug/L	100
46)	Trichloroethene	11.04	130	377845	49.9859	ug/L	98
47)	Methylcyclohexane	11.13	83	565111	55.1479	ug/L	96
48)	1,2-Dichloropropane	11.24	63	386175	50.1288	ug/L	100
49)	1,4-Dioxane	11.51	88	8094	150.7256	ug/L	100
50)	Bromodichloromethane	11.53	83	467971	51.0941	ug/L	99
51)	Dibromomethane	11.61	93	195251	47.8030	ug/L	100
52)	2-Chloroethyl Vinyl Ether	11.80	63	197524	43.7745	ug/L	99
53)	4-Methyl-2-Pentanone	11.83	58	106687	38.5107	ug/L	97
54)	cis-1,3-Dichloropropene	12.12	75	518370	51.2054	ug/L	100
55)	Dimethyl Disulfide	12.38	79	294399	48.4551	ug/L	96
58)	Toluene	12.52	91	1443479	51.0028	ug/L	99
59)	Ethyl Methacrylate	12.59	69	325338	44.9738	ug/L	92
60)	trans-1,3-Dichloropropene	12.68	75	456510	49.2657	ug/L	100
61)	1,1,2-Trichloroethane	12.88	97	265063	48.1379	ug/L	99
62)	2-Hexanone	12.82	43	223924	37.7277	ug/L	97
63)	1,3-Dichloropropane	13.17	76	441906	47.7415	ug/L	90
64)	Tetrachloroethene	13.29	164	305048	49.6579	ug/L	98
65)	Dibromochloromethane	13.53	129	368876	49.9817	ug/L	99
66)	1,2-Dibromoethane	13.78	107	264528	46.6676	ug/L	98
67)	1-Chlorohexane	13.84	91	470791	51.5475	ug/L	97
68)	Chlorobenzene	14.25	112	990197	49.3054	ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	367195	51.2633	ug/L	98
70)	Ethylbenzene	14.27	106	515797	50.2287	ug/L	99
71)	m-,p-Xylene	14.35	106	1236050	102.1660	ug/L	97
72)	o-Xylene	14.88	106	610776	51.3205	ug/L	100
73)	Styrene	14.91	104	1037921	51.3774	ug/L	100
74)	Bromoform	15.38	173	226342	47.2923	ug/L	99
75)	Isopropylbenzene	15.27	105	1609839	52.7960	ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	296079	46.0719	ug/L	100
79)	1,2,3-Trichloropropane	15.65	110	94053	48.2599	ug/L	100
80)	trans-1,4-Dichloro-2-Buten	15.69	53	122813	46.7895	ug/L	96
81)	n-Propylbenzene	15.74	91	1939336	57.2008	ug/L	99
82)	Bromobenzene	15.87	156	423908	48.7825	ug/L	100
83)	1,3,5-Trimethylbenzene	15.91	105	1362941	56.0465	ug/L	99
84)	2-Chlorotoluene	16.01	91	1343765	62.6340	ug/L	99
85)	4-Chlorotoluene	16.05	91	984743	45.0663	ug/L	99
86)	a-Methylstyrene	16.30	118	754729	52.8016	ug/L	98
87)	tert-Butylbenzene	16.35	134	296352	55.7044	ug/L	99
88)	1,2,4-Trimethylbenzene	16.40	105	1403921	56.1197	ug/L	100
89)	sec-Butylbenzene	16.60	105	1772866	57.5704	ug/L	100
90)	p-Isopropyltoluene	16.74	119	1542321	57.5560	ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	836918	52.2405	ug/L	100
92)	1,4-Dichlorobenzene	17.05	146	826132	50.3214	ug/L	99
93)	n-Butylbenzene	17.24	91	1437091	57.1607	ug/L	100
94)	1,2-Dichlorobenzene	17.52	146	786404	51.3865	ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	56246	45.5342	ug/L	98
96)	1,2,4-Trichlorobenzene	19.50	180	569695	50.1952	ug/L	99
97)	Hexachlorobutadiene	19.63	225	257361	57.9376	ug/L	98
98)	Naphthalene	19.85	128	1154239	48.9153	ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	530419	48.4334	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14888.D 8260WT.M Mon Nov 07 16:53:42 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110216\11M14888.D Vial: 1
Acq On : 2 Nov 2016 15:06 Operator: ADC
Sample : WG590132-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 7 16:53 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



11M14888.D 8260WT.M Mon Nov 07 16:53:43 2016 Page 3

Data File : C:\MSDCHEM\1\DATA\110216\11M14888.D Vial: 1
Acq On : 2 Nov 2016 15:06 Operator: ADC
Sample : WG590132-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.0000	1.0000	0.0	79	0.00
2	T	Dichlorodifluoromethane	0.4241	0.4818	-13.6	82	0.00
3	P	Chloromethane	0.4652	0.5089	-9.4	90	0.00
4	C	Vinyl Chloride	0.4148	0.4220	-1.7	77	0.00
5	T	1,3-Butadiene	0.3377	0.3371	0.2	79	0.00
6	T	Bromomethane	0.2010	0.2307	-14.8	93	0.00
7	T	Chloroethane	0.2430	0.2504	-3.0	79	-0.01
8	T	Trichlorofluoromethane	0.4828	0.5258	-8.9	82	0.00
9	T	Diethyl ether	0.2360	0.2561	-8.5	85	0.00
10	T	Isoprene	0.4406	0.4221	4.2	75	0.00
11	T	Acrolein	0.0197	0.0403	-104.9#	174#	0.01
12	T	1,1,2-Trichloro-1,2,2-Trifl	0.2597	0.2853	-9.9	82	0.00
13	T	Acetone	0.0970	0.0816	15.8	71	-0.01
14	C	1,1-Dichloroethene	0.5159	0.5429	-5.2	80	0.00
15	T	Tert-Butyl Alcohol	0.0250	0.0177	29.1#	59	0.00
16	T	Dimethyl Sulfide	0.3536	0.3316	6.2	74	0.00
17	T	Iodomethane	0.2694	0.3290	-22.1	75	0.00
18	T	Methyl acetate	0.2860	0.2611	8.7	76	0.00
19	T	Methylene Chloride	0.2933	0.2926	0.2	78	0.00
20	T	Carbon Disulfide	0.8552	0.8516	0.4	78	-0.01
21	T	Acrylonitrile	0.1303	0.1194	8.4	71	0.00
22	T	Methyl Tert Butyl Ether	0.7212	0.6669	7.5	72	0.00
23	T	trans-1,2-Dichloroethene	0.2924	0.2882	1.4	77	-0.01
24	T	n-Hexane	0.5000	0.5480	-9.6	84	0.00
25	T	Diisopropyl ether	1.4140	1.4232	-0.7	78	0.00
26	T	Vinyl Acetate	0.7558	0.6515	13.8	68	0.00
27	P	1,1-Dichloroethane	0.5992	0.6030	-0.6	77	0.00
28	T	Ethyl-Tert-Butyl ether	1.0487	0.9955	5.1	74	0.00
29	T	2-Butanone	0.1630	0.1340	17.8	67	0.00
30	T	Propionitrile	0.0452	0.0387	14.2	69	0.00
31	T	2,2-Dichloropropane	0.4083	0.4463	-9.3	86	0.00
32	T	cis-1,2-Dichloroethene	0.3220	0.3280	-1.9	77	0.00
33	C	Chloroform	0.5258	0.5189	1.3	79	-0.01
34	T	1-Bromopropane	0.0551	0.0555	-0.7	78	0.00
35	T	Bromochloromethane	0.2076	0.2036	1.9	77	0.00
36	T	Tetrahydrofuran	0.1192	0.0930	22.0	69	0.00
37	S	Dibromofluoromethane	0.3007	0.3025	-0.6	79	0.00
38	T	1,1,1-Trichloroethane	0.4636	0.4849	-4.6	80	0.00
39	T	Cyclohexane	0.6795	0.6842	-0.7	78	0.00
40	T	1,1-Dichloropropene	0.3837	0.3920	-2.1	79	-0.01
41	T	Carbon Tetrachloride	0.4331	0.4661	-7.6	81	0.00
42	T	Tert-Amyl-Methyl ether	0.7101	0.6596	7.1	73	0.00
43	S	1,2-Dichloroethane-d4	0.3376	0.3221	4.6	75	0.00
44	T	1,2-Dichloroethane	0.4517	0.4495	0.5	77	0.00
45	T	Benzene	1.1336	1.1483	-1.3	78	0.00
46	T	Trichloroethene	0.3279	0.3278	0.0	78	0.00
47	T	Methylcyclohexane	0.4445	0.4902	-10.3	85	0.00
48	C	1,2-Dichloropropane	0.3341	0.3350	-0.3	77	-0.01
49	T	1,4-Dioxane	0.0023	0.0018	24.5	62	0.00
50	T	Bromodichloromethane	0.3973	0.4059	-2.2	78	0.00
51	T	Dibromomethane	0.1772	0.1694	4.4	75	0.00
52	T	2-Chloroethyl Vinyl Ether	0.1957	0.1714	12.5	70	0.00
53	T	4-Methyl-2-Pentanone	0.1202	0.0925	23.0	64	0.00
54	T	cis-1,3-Dichloropropene	0.4391	0.4497	-2.4	77	0.00

(#) = Out of Range
11M14888.D 8260WT.M Mon Nov 07 16:53:51 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110216\11M14888.D Vial: 1
Acq On : 2 Nov 2016 15:06 Operator: ADC
Sample : WG590132-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	0.2635	0.2554	3.1	75	0.00
56	I	Chlorobenzene-d5	1.0000	1.0000	0.0	79	0.00
57	S	Toluene-d8	1.3248	1.2845	3.0	75	0.00
58	C	Toluene	1.5743	1.6058	-2.0	78	0.00
59	T	Ethyl Methacrylate	0.4024	0.3619	10.1	69	0.00
60	T	trans-1,3-Dichloropropene	0.5154	0.5079	1.5	75	0.00
61	T	1,1,2-Trichloroethane	0.3063	0.2949	3.7	73	0.00
62	T	2-Hexanone	0.3301	0.2491	24.5	64	0.00
63	T	1,3-Dichloropropane	0.5149	0.4916	4.5	75	0.00
64	T	Tetrachloroethene	0.3417	0.3394	0.7	79	0.00
65	T	Dibromochloromethane	0.4105	0.4104	0.0	77	0.00
66	T	1,2-Dibromoethane	0.3153	0.2943	6.7	73	0.00
67	T	1-Chlorohexane	0.5080	0.5238	-3.1	79	0.00
68	P	Chlorobenzene	1.1171	1.1016	1.4	77	0.00
69	T	1,1,1,2-Tetrachloroethane	0.3984	0.4085	-2.5	78	0.00
70	C	Ethylbenzene	0.5712	0.5738	-0.5	77	0.00
71	T	m-,p-Xylene	0.6730	0.6875	-2.2	78	0.00
72	T	o-Xylene	0.6620	0.6795	-2.6	77	0.00
73	T	Styrene	1.1237	1.1547	-2.8	76	0.00
74	P	Bromoform	0.2662	0.2518	5.4	73	0.00
75	T	Isopropylbenzene	1.6961	1.7909	-5.6	79	0.00
76	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	76	0.01
77	P	1,1,2,2-Tetrachloroethane	0.7050	0.6496	7.9	71	0.00
78	S	p-Bromofluorobenzene	1.0002	0.9501	5.0	72	0.00
79	T	1,2,3-Trichloropropane	0.2138	0.2064	3.5	73	0.00
80	T	trans-1,4-Dichloro-2-Butene	0.2880	0.2695	6.4	69	0.00
81	T	n-Propylbenzene	3.7195	4.2552	-14.4	80	0.00
82	T	Bromobenzene	0.9533	0.9301	2.4	75	0.00
83	T	1,3,5-Trimethylbenzene	2.6679	2.9905	-12.1	79	0.00
84	T	2-Chlorotoluene	2.3537	2.9484	-25.3#	91	0.01
85	T	4-Chlorotoluene	2.3972	2.1607	9.9	65	0.01
86	T	a-Methylstyrene	1.5681	1.6560	-5.6	77	0.01
87	T	tert-Butylbenzene	0.5837	0.6502	-11.4	80	0.00
88	T	1,2,4-Trimethylbenzene	2.7445	3.0804	-12.2	79	0.00
89	T	sec-Butylbenzene	3.3784	3.8899	-15.1	81	0.00
90	T	p-Isopropyltoluene	2.9398	3.3841	-15.1	81	0.00
91	T	1,3-Dichlorobenzene	1.7576	1.8363	-4.5	78	0.00
92	T	1,4-Dichlorobenzene	1.8011	1.8127	-0.6	77	0.00
93	T	n-Butylbenzene	2.7582	3.1532	-14.3	82	0.01
94	T	1,2-Dichlorobenzene	1.6789	1.7255	-2.8	78	0.00
95	T	1,2-Dibromo-3-Chloropropane	0.1355	0.1234	8.9	71	0.00
96	T	1,2,4-Trichlorobenzene	1.2451	1.2500	-0.4	76	0.00
97	T	Hexachlorobutadiene	0.4873	0.5647	-15.9	91	0.00
98	T	Naphthalene	2.5887	2.5326	2.2	70	0.00
99	T	1,2,3-Trichlorobenzene	1.2015	1.1638	3.1	76	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14888.D 8260WT.M Mon Nov 07 16:53:51 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\110216\11M14888.D Vial: 1
Acq On : 2 Nov 2016 15:06 Operator: ADC
Sample : WG590132-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	79	0.00
2	T	Dichlorodifluoromethane	50.0000	56.7928	-13.6	82	0.00
3	P	Chloromethane	50.0000	54.6978	-9.4	90	0.00
4	C	Vinyl Chloride	50.0000	50.8710	-1.7	77	0.00
5	T	1,3-Butadiene	50.0000	49.9161	0.2	79	0.00
6	T	Bromomethane	50.0000	57.3845	-14.8	93	0.00
7	T	Chloroethane	50.0000	51.5259	-3.1	79	-0.01
8	T	Trichlorofluoromethane	50.0000	54.4545	-8.9	82	0.00
9	T	Diethyl ether	100.0000	108.5248	-8.5	85	0.00
10	T	Isoprene	50.0000	47.9027	4.2	75	0.00
11	T	Acrolein	50.0000	102.4434	-104.9#	174	0.01
12	T	1,1,2-Trichloro-1,2,2-Trifl	50.0000	54.9304	-9.9	82	0.00
13	T	Acetone	50.0000	42.0779	15.8	71	-0.01
14	C	1,1-Dichloroethene	50.0000	52.6109	-5.2	80	0.00
15	T	Tert-Butyl Alcohol	200.0000	141.7975	29.1#	59	0.00
16	T	Dimethyl Sulfide	50.0000	46.8937	6.2	74	0.00
17	T	Iodomethane	50.0000	47.9871	4.0	75	0.00
18	T	Methyl acetate	50.0000	45.6358	8.7	76	0.00
19	T	Methylene Chloride	50.0000	49.8747	0.3	78	0.00
20	T	Carbon Disulfide	50.0000	49.7905	0.4	78	-0.01
21	T	Acrylonitrile	50.0000	45.8209	8.4	71	0.00
22	T	Methyl Tert Butyl Ether	50.0000	46.2394	7.5	72	0.00
23	T	trans-1,2-Dichloroethene	50.0000	49.2802	1.4	77	-0.01
24	T	n-Hexane	50.0000	54.8030	-9.6	84	0.00
25	T	Diisopropyl ether	100.0000	100.6519	-0.7	78	0.00
26	T	Vinyl Acetate	50.0000	43.0966	13.8	68	0.00
27	P	1,1-Dichloroethane	50.0000	50.3129	-0.6	77	0.00
28	T	Ethyl-Tert-Butyl ether	100.0000	94.9278	5.1	74	0.00
29	T	2-Butanone	50.0000	41.1060	17.8	67	0.00
30	T	Propionitrile	100.0000	85.7553	14.2	69	0.00
31	T	2,2-Dichloropropane	50.0000	54.6487	-9.3	86	0.00
32	T	cis-1,2-Dichloroethene	50.0000	50.9382	-1.9	77	0.00
33	C	Chloroform	50.0000	49.3511	1.3	79	-0.01
34	T	1-Bromopropane	50.0000	50.3356	-0.7	78	0.00
35	T	Bromochloromethane	50.0000	49.0504	1.9	77	0.00
36	T	Tetrahydrofuran	100.0000	83.9684	16.0	69	0.00
37	S	Dibromofluoromethane	25.0000	25.1484	-0.6	79	0.00
38	T	1,1,1-Trichloroethane	50.0000	52.3040	-4.6	80	0.00
39	T	Cyclohexane	50.0000	50.3413	-0.7	78	0.00
40	T	1,1-Dichloropropene	50.0000	51.0732	-2.1	79	-0.01
41	T	Carbon Tetrachloride	50.0000	53.8053	-7.6	81	0.00
42	T	Tert-Amyl-Methyl ether	100.0000	92.8816	7.1	73	0.00
43	S	1,2-Dichloroethane-d4	25.0000	23.8541	4.6	75	0.00
44	T	1,2-Dichloroethane	50.0000	49.7548	0.5	77	0.00
45	T	Benzene	50.0000	50.6478	-1.3	78	0.00
46	T	Trichloroethene	50.0000	49.9859	0.0	78	0.00
47	T	Methylcyclohexane	50.0000	55.1479	-10.3	85	0.00
48	C	1,2-Dichloropropane	50.0000	50.1288	-0.3	77	-0.01
49	T	1,4-Dioxane	200.0000	150.7256	24.6	62	0.00
50	T	Bromodichloromethane	50.0000	51.0941	-2.2	78	0.00
51	T	Dibromomethane	50.0000	47.8030	4.4	75	0.00
52	T	2-Chloroethyl Vinyl Ether	50.0000	43.7745	12.5	70	0.00
53	T	4-Methyl-2-Pentanone	50.0000	38.5107	23.0	64	0.00
54	T	cis-1,3-Dichloropropene	50.0000	51.2054	-2.4	77	0.00

(#) = Out of Range
11M14888.D 8260WT.M Mon Nov 07 16:53:53 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110216\11M14888.D Vial: 1
Acq On : 2 Nov 2016 15:06 Operator: ADC
Sample : WG590132-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	50.0000	48.4551	3.1	75	0.00
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	79	0.00
57	S	Toluene-d8	25.0000	24.2396	3.0	75	0.00
58	C	Toluene	50.0000	51.0028	-2.0	78	0.00
59	T	Ethyl Methacrylate	50.0000	44.9738	10.1	69	0.00
60	T	trans-1,3-Dichloropropene	50.0000	49.2657	1.5	75	0.00
61	T	1,1,2-Trichloroethane	50.0000	48.1379	3.7	73	0.00
62	T	2-Hexanone	50.0000	37.7277	24.5	64	0.00
63	T	1,3-Dichloropropane	50.0000	47.7415	4.5	75	0.00
64	T	Tetrachloroethene	50.0000	49.6579	0.7	79	0.00
65	T	Dibromochloromethane	50.0000	49.9817	0.0	77	0.00
66	T	1,2-Dibromoethane	50.0000	46.6676	6.7	73	0.00
67	T	1-Chlorohexane	50.0000	51.5475	-3.1	79	0.00
68	P	Chlorobenzene	50.0000	49.3054	1.4	77	0.00
69	T	1,1,1,2-Tetrachloroethane	50.0000	51.2633	-2.5	78	0.00
70	C	Ethylbenzene	50.0000	50.2287	-0.5	77	0.00
71	T	m-,p-Xylene	100.0000	102.1660	-2.2	78	0.00
72	T	o-Xylene	50.0000	51.3205	-2.6	77	0.00
73	T	Styrene	50.0000	51.3774	-2.8	76	0.00
74	P	Bromoform	50.0000	47.2923	5.4	73	0.00
75	T	Isopropylbenzene	50.0000	52.7960	-5.6	79	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	76	0.01
77	P	1,1,2,2-Tetrachloroethane	50.0000	46.0719	7.9	71	0.00
78	S	p-Bromofluorobenzene	25.0000	23.7487	5.0	72	0.00
79	T	1,2,3-Trichloropropane	50.0000	48.2599	3.5	73	0.00
80	T	trans-1,4-Dichloro-2-Butene	50.0000	46.7895	6.4	69	0.00
81	T	n-Propylbenzene	50.0000	57.2008	-14.4	80	0.00
82	T	Bromobenzene	50.0000	48.7825	2.4	75	0.00
83	T	1,3,5-Trimethylbenzene	50.0000	56.0465	-12.1	79	0.00
84	T	2-Chlorotoluene	50.0000	62.6340	-25.3#	91	0.01
85	T	4-Chlorotoluene	50.0000	45.0663	9.9	65	0.01
86	T	a-Methylstyrene	50.0000	52.8016	-5.6	77	0.01
87	T	tert-Butylbenzene	50.0000	55.7044	-11.4	80	0.00
88	T	1,2,4-Trimethylbenzene	50.0000	56.1197	-12.2	79	0.00
89	T	sec-Butylbenzene	50.0000	57.5704	-15.1	81	0.00
90	T	p-Isopropyltoluene	50.0000	57.5560	-15.1	81	0.00
91	T	1,3-Dichlorobenzene	50.0000	52.2405	-4.5	78	0.00
92	T	1,4-Dichlorobenzene	50.0000	50.3214	-0.6	77	0.00
93	T	n-Butylbenzene	50.0000	57.1607	-14.3	82	0.01
94	T	1,2-Dichlorobenzene	50.0000	51.3865	-2.8	78	0.00
95	T	1,2-Dibromo-3-Chloropropane	50.0000	45.5342	8.9	71	0.00
96	T	1,2,4-Trichlorobenzene	50.0000	50.1952	-0.4	76	0.00
97	T	Hexachlorobutadiene	50.0000	57.9376	-15.9	91	0.00
98	T	Naphthalene	50.0000	48.9153	2.2	70	0.00
99	T	1,2,3-Trichlorobenzene	50.0000	48.4334	3.1	76	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M14888.D 8260WT.M Mon Nov 07 16:53:53 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14917.D Vial: 1
Acq On : 3 Nov 2016 16:11 Operator: ADC
Sample : WG590291-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:27:34 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	765258	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	578755	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.02	152	291380	25.00	ug/L	0.01
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	219612	23.8571	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 95.44%			
43) 1,2-Dichloroethane-d4	10.18	65	221928	21.4739	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 85.88%			
57) Toluene-d8	12.43	98	763912	24.9074	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 99.64%			
78) p-Bromofluorobenzene	15.59	95	283542	24.3231	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 97.28%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	678851	52.2875	ug/L	96
3) Chloromethane	3.66	50	745016	52.3209	ug/L	97
4) Vinyl Chloride	3.90	62	648461	51.0698	ug/L	100
5) 1,3-Butadiene	3.94	54	434463	42.0330	ug/L	88
6) Bromomethane	4.80	94	333561	54.2150	ug/L	98
7) Chloroethane	4.95	64	376977	50.6769	ug/L	99
8) Trichlorofluoromethane	5.43	101	730605	49.4352	ug/L	99
9) Diethyl ether	5.95	59	780383	108.0255	ug/L	93
10) Isoprene	5.99	67	628269	46.5829	ug/L	93
11) Acrolein	6.17	56	71191	118.2754	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	418609	52.6663	ug/L	97
13) Acetone	6.28	43	124016	41.7711	ug/L	90
14) 1,1-Dichloroethene	6.50	61	771988	48.8820	ug/L	95
15) Tert-Butyl Alcohol	6.60	59	131436	171.5189	ug/L	94
16) Dimethyl Sulfide	6.75	62	493690	45.6098	ug/L	89
17) Iodomethane	7.00	142	487349	46.4210	ug/L	97
18) Methyl acetate	7.01	43	387562	44.2648	ug/L	95
19) Methylene Chloride	7.26	84	433835	48.3201	ug/L	85
20) Carbon Disulfide	7.31	76	1234568	47.1619	ug/L	100
21) Acrylonitrile	7.43	53	183650	46.0415	ug/L	98
22) Methyl Tert Butyl Ether	7.47	73	1038744	47.0548	ug/L	99
23) trans-1,2-Dichloroethene	7.70	96	433045	48.3872	ug/L	94
24) n-Hexane	7.78	57	816601	53.3573	ug/L	99
25) Diisopropyl ether	8.10	45	4032271	93.1585	ug/L	97
26) Vinyl Acetate	8.26	43	919205	39.7308	ug/L	98
27) 1,1-Dichloroethane	8.29	63	902183	49.1860	ug/L	100
28) Ethyl-Tert-Butyl ether	8.64	59	3048921	94.9838	ug/L	99
29) 2-Butanone	8.82	43	202535	40.6005	ug/L	96
30) Propionitrile	8.92	54	122009	88.2741	ug/L	99
31) 2,2-Dichloropropane	9.04	77	633069	50.6462	ug/L	100
32) cis-1,2-Dichloroethene	9.11	96	489520	49.6667	ug/L	96
33) Chloroform	9.31	83	752321	46.7464	ug/L	99
34) 1-Bromopropane	9.43	122	82653	48.9613	ug/L	98
35) Bromochloromethane	9.52	130	305398	48.0678	ug/L	88
36) Tetrahydrofuran	9.54	42	275734	81.2681	ug/L	90
38) 1,1,1-Trichloroethane	9.81	97	684554	48.2422	ug/L	95
39) Cyclohexane	9.84	56	1005713	48.3490	ug/L	98
40) 1,1-Dichloropropene	10.00	75	569778	48.5049	ug/L	97
41) Carbon Tetrachloride	10.13	117	641176	48.3608	ug/L	98
42) Tert-Amyl-Methyl ether	10.09	73	2061231	94.8264	ug/L	93

(#) = qualifier out of range (m) = manual integration
11M14917.D 8260WT.M Wed Nov 09 11:27:35 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110316\11M14917.D Vial: 1
Acq On : 3 Nov 2016 16:11 Operator: ADC
Sample : WG590291-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:27:34 2016 Quant Results File: 8260WT.RES

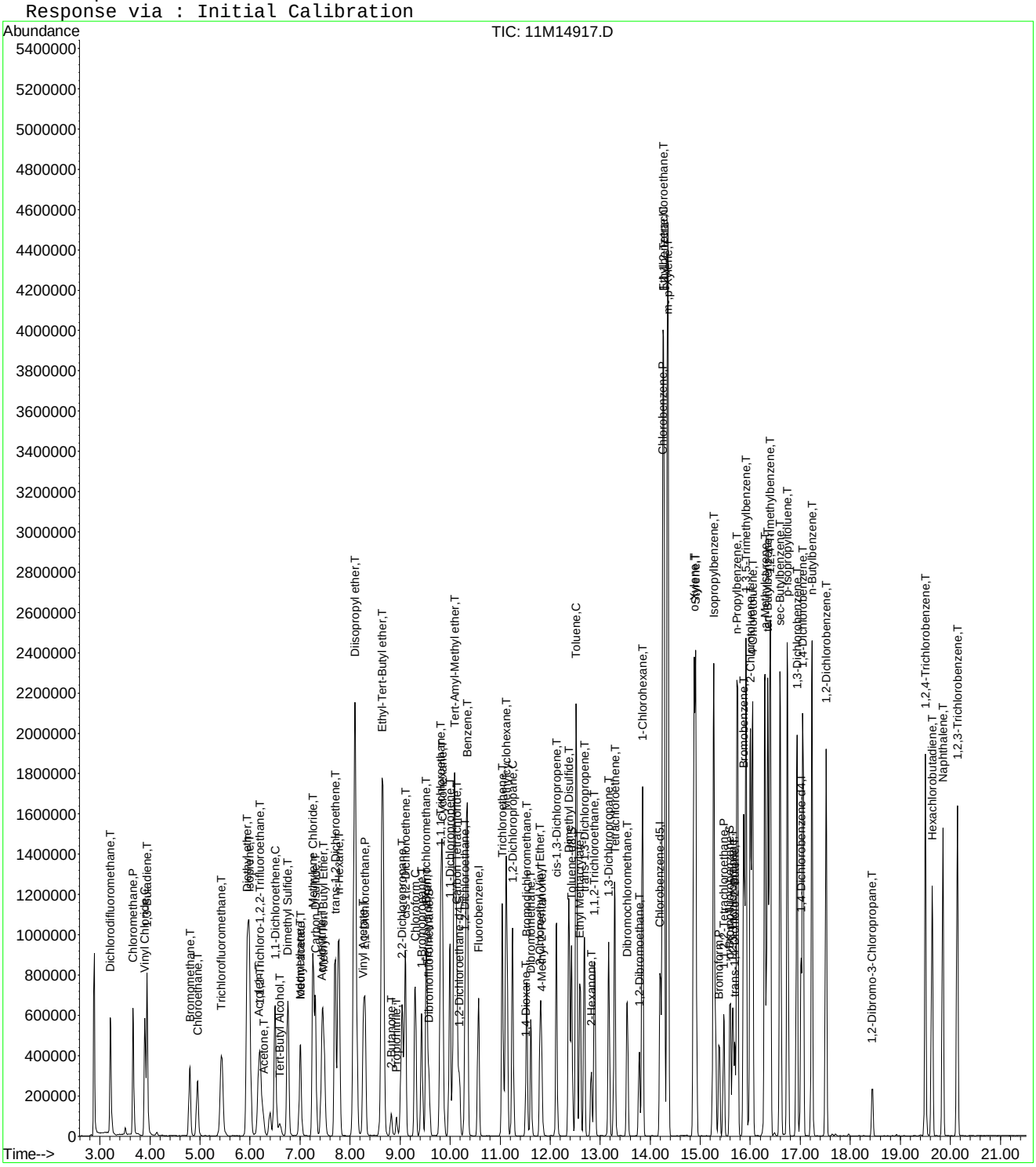
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	631772	45.6960 ug/L	98
45)	Benzene	10.34	78	1714911	49.4221 ug/L	99
46)	Trichloroethene	11.04	130	485192	48.3451 ug/L	99
47)	Methylcyclohexane	11.13	83	722603	53.1130 ug/L	95
48)	1,2-Dichloropropane	11.25	63	502888	49.1677 ug/L	98
49)	1,4-Dioxane	11.51	88	14749	206.8674 ug/L	93
50)	Bromodichloromethane	11.53	83	580252	47.7171 ug/L	100
51)	Dibromomethane	11.61	93	245755	45.3179 ug/L	97
52)	2-Chloroethyl Vinyl Ether	11.80	63	264979	44.2301 ug/L	99
53)	4-Methyl-2-Pentanone	11.83	58	154967	42.1322 ug/L	98
54)	cis-1,3-Dichloropropene	12.13	75	674134	50.1565 ug/L	99
55)	Dimethyl Disulfide	12.38	79	377385	46.7835 ug/L	94
58)	Toluene	12.52	91	1868520	51.2701 ug/L	100
59)	Ethyl Methacrylate	12.59	69	436176	46.8240 ug/L	87
60)	trans-1,3-Dichloropropene	12.69	75	593240	49.7173 ug/L	98
61)	1,1,2-Trichloroethane	12.88	97	346866	48.9195 ug/L	100
62)	2-Hexanone	12.82	43	294278	38.5035 ug/L	92
63)	1,3-Dichloropropane	13.17	76	571670	47.9617 ug/L	82
64)	Tetrachloroethene	13.30	164	394936	49.9263 ug/L	100
65)	Dibromochloromethane	13.54	129	466328	49.0687 ug/L	99
66)	1,2-Dibromoethane	13.78	107	346238	47.4353 ug/L	98
67)	1-Chlorohexane	13.84	91	605186	51.4578 ug/L	91
68)	Chlorobenzene	14.25	112	1282044	49.5745 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	473541	51.3394 ug/L	98
70)	Ethylbenzene	14.27	106	679706	51.4017 ug/L	96
71)	m-,p-Xylene	14.35	106	1611296	103.4257 ug/L	99
72)	o-Xylene	14.88	106	787935	51.4140 ug/L	99
73)	Styrene	14.91	104	1345529	51.7230 ug/L	97
74)	Bromoform	15.38	173	287893	46.7131 ug/L	98
75)	Isopropylbenzene	15.27	105	2045034	52.0837 ug/L	99
77)	1,1,2,2-Tetrachloroethane	15.47	83	395148	48.0876 ug/L	99
79)	1,2,3-Trichloropropane	15.65	110	118793	47.6704 ug/L	93
80)	trans-1,4-Dichloro-2-Buten	15.69	53	152546	45.4516 ug/L	95
81)	n-Propylbenzene	15.74	91	2437834	56.2339 ug/L	99
82)	Bromobenzene	15.87	156	556918	50.1220 ug/L	94
83)	1,3,5-Trimethylbenzene	15.91	105	1748191	56.2218 ug/L	99
84)	2-Chlorotoluene	16.01	91	1693740	61.7416 ug/L	99
85)	4-Chlorotoluene	16.05	91	1280832	45.8422 ug/L	99
86)	a-Methylstyrene	16.30	118	958835	52.4620 ug/L	99
87)	tert-Butylbenzene	16.35	134	380521	55.9377 ug/L	97
88)	1,2,4-Trimethylbenzene	16.40	105	1786225	55.8410 ug/L	99
89)	sec-Butylbenzene	16.60	105	2242393	56.9481 ug/L	99
90)	p-Isopropyltoluene	16.74	119	1953631	57.0168 ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	1062076	51.8471 ug/L	99
92)	1,4-Dichlorobenzene	17.05	146	1057989	50.3998 ug/L	98
93)	n-Butylbenzene	17.24	91	1789030	55.6513 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	993952	50.7941 ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	70169	44.4259 ug/L	87
96)	1,2,4-Trichlorobenzene	19.50	180	728197	50.1780 ug/L	100
97)	Hexachlorobutadiene	19.63	225	329335	57.9829 ug/L	98
98)	Naphthalene	19.85	128	1460617	48.4094 ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	658020	46.9905 ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14917.D 8260WT.M Wed Nov 09 11:27:35 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\110316\11M14917.D Vial: 1
Acq On : 3 Nov 2016 16:11 Operator: ADC
Sample : WG590291-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:27 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\110316\11M14917.D Vial: 1
Acq On : 3 Nov 2016 16:11 Operator: ADC
Sample : WG590291-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.0000	1.0000	0.0	105	0.00
2	T	Dichlorodifluoromethane	0.4241	0.4435	-4.6	100	0.00
3	P	Chloromethane	0.4652	0.4868	-4.6	115	0.00
4	C	Vinyl Chloride	0.4148	0.4237	-2.1	103	0.00
5	T	1,3-Butadiene	0.3377	0.2839	15.9	88	0.00
6	T	Bromomethane	0.2010	0.2179	-8.4	117	0.00
7	T	Chloroethane	0.2430	0.2463	-1.4	103	0.00
8	T	Trichlorofluoromethane	0.4828	0.4774	1.1	99	0.00
9	T	Diethyl ether	0.2360	0.2549	-8.0	112	0.00
10	T	Isoprene	0.4406	0.4105	6.8	97	0.00
11	T	Acrolein	0.0197	0.0465	-136.6#	267#	0.00
12	T	1,1,2-Trichloro-1,2,2-Trifl	0.2597	0.2735	-5.3	105	0.00
13	T	Acetone	0.0970	0.0810	16.5	94	0.00
14	C	1,1-Dichloroethene	0.5159	0.5044	2.2	98	0.01
15	T	Tert-Butyl Alcohol	0.0250	0.0215	14.2	96	0.00
16	T	Dimethyl Sulfide	0.3536	0.3226	8.8	96	0.00
17	T	Iodomethane	0.2694	0.3184	-18.2	96	0.00
18	T	Methyl acetate	0.2860	0.2532	11.5	97	0.00
19	T	Methylene Chloride	0.2933	0.2835	3.4	100	0.00
20	T	Carbon Disulfide	0.8552	0.8066	5.7	97	0.00
21	T	Acrylonitrile	0.1303	0.1200	7.9	94	0.00
22	T	Methyl Tert Butyl Ether	0.7212	0.6787	5.9	97	0.00
23	T	trans-1,2-Dichloroethene	0.2924	0.2829	3.2	101	0.00
24	T	n-Hexane	0.5000	0.5335	-6.7	109	0.01
25	T	Diisopropyl ether	1.4140	1.3173	6.8	96	0.00
26	T	Vinyl Acetate	0.7558	0.6006	20.5	83	0.00
27	P	1,1-Dichloroethane	0.5992	0.5895	1.6	100	0.00
28	T	Ethyl-Tert-Butyl ether	1.0487	0.9960	5.0	99	0.00
29	T	2-Butanone	0.1630	0.1323	18.8	88	0.00
30	T	Propionitrile	0.0452	0.0399	11.7	95	0.00
31	T	2,2-Dichloropropane	0.4083	0.4136	-1.3	105	0.00
32	T	cis-1,2-Dichloroethene	0.3220	0.3198	0.7	100	0.01
33	C	Chloroform	0.5258	0.4915	6.5	99	0.00
34	T	1-Bromopropane	0.0551	0.0540	2.1	101	0.00
35	T	Bromochloromethane	0.2076	0.1995	3.9	101	0.00
36	T	Tetrahydrofuran	0.1192	0.0901	24.5	88	0.00
37	S	Dibromofluoromethane	0.3007	0.2870	4.6	99	0.00
38	T	1,1,1-Trichloroethane	0.4636	0.4473	3.5	98	0.00
39	T	Cyclohexane	0.6795	0.6571	3.3	99	0.00
40	T	1,1-Dichloropropene	0.3837	0.3723	3.0	99	0.00
41	T	Carbon Tetrachloride	0.4331	0.4189	3.3	97	0.00
42	T	Tert-Amyl-Methyl ether	0.7101	0.6734	5.2	99	0.00
43	S	1,2-Dichloroethane-d4	0.3376	0.2900	14.1	90	0.00
44	T	1,2-Dichloroethane	0.4517	0.4128	8.6	94	0.00
45	T	Benzene	1.1336	1.1205	1.2	101	0.00
46	T	Trichloroethene	0.3279	0.3170	3.3	100	0.00
47	T	Methylcyclohexane	0.4445	0.4721	-6.2	109	0.00
48	C	1,2-Dichloropropane	0.3341	0.3286	1.7	101	0.00
49	T	1,4-Dioxane	0.0023	0.0024	-3.4	113	0.00
50	T	Bromodichloromethane	0.3973	0.3791	4.6	97	0.00
51	T	Dibromomethane	0.1772	0.1606	9.4	95	0.00
52	T	2-Chloroethyl Vinyl Ether	0.1957	0.1731	11.5	94	0.00
53	T	4-Methyl-2-Pentanone	0.1202	0.1013	15.7	93	0.00
54	T	cis-1,3-Dichloropropene	0.4391	0.4405	-0.3	100	0.01

(#) = Out of Range
11M14917.D 8260WT.M Wed Nov 09 11:27:42 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110316\11M14917.D Vial: 1
Acq On : 3 Nov 2016 16:11 Operator: ADC
Sample : WG590291-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	0.2635	0.2466	6.4	97	0.00
56	I	Chlorobenzene-d5	1.0000	1.0000	0.0	101	0.00
57	S	Toluene-d8	1.3248	1.3199	0.4	100	0.00
58	C	Toluene	1.5743	1.6143	-2.5	101	0.00
59	T	Ethyl Methacrylate	0.4024	0.3768	6.4	93	0.00
60	T	trans-1,3-Dichloropropene	0.5154	0.5125	0.6	98	0.01
61	T	1,1,2-Trichloroethane	0.3063	0.2997	2.2	96	0.00
62	T	2-Hexanone	0.3301	0.2542	23.0	84	0.00
63	T	1,3-Dichloropropane	0.5149	0.4939	4.1	98	0.00
64	T	Tetrachloroethene	0.3417	0.3412	0.1	103	0.01
65	T	Dibromochloromethane	0.4105	0.4029	1.9	97	0.01
66	T	1,2-Dibromoethane	0.3153	0.2991	5.1	96	0.00
67	T	1-Chlorohexane	0.5080	0.5228	-2.9	101	0.00
68	P	Chlorobenzene	1.1171	1.1076	0.9	100	0.00
69	T	1,1,1,2-Tetrachloroethane	0.3984	0.4091	-2.7	101	0.00
70	C	Ethylbenzene	0.5712	0.5872	-2.8	101	0.00
71	T	m-,p-Xylene	0.6730	0.6960	-3.4	102	0.00
72	T	o-Xylene	0.6620	0.6807	-2.8	100	0.00
73	T	Styrene	1.1237	1.1624	-3.4	99	0.00
74	P	Bromoform	0.2662	0.2487	6.6	93	0.00
75	T	Isopropylbenzene	1.6961	1.7668	-4.2	101	0.00
76	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	97	0.01
77	P	1,1,2,2-Tetrachloroethane	0.7050	0.6781	3.8	94	0.00
78	S	p-Bromofluorobenzene	1.0002	0.9731	2.7	94	0.00
79	T	1,2,3-Trichloropropane	0.2138	0.2039	4.7	92	0.00
80	T	trans-1,4-Dichloro-2-Butene	0.2880	0.2618	9.1	86	0.00
81	T	n-Propylbenzene	3.7195	4.1833	-12.5	100	0.00
82	T	Bromobenzene	0.9533	0.9557	-0.2	98	0.00
83	T	1,3,5-Trimethylbenzene	2.6679	2.9998	-12.4	102	0.00
84	T	2-Chlorotoluene	2.3537	2.9064	-23.5	115	0.01
85	T	4-Chlorotoluene	2.3972	2.1979	8.3	84	0.01
86	T	a-Methylstyrene	1.5681	1.6453	-4.9	97	0.01
87	T	tert-Butylbenzene	0.5837	0.6530	-11.9	103	0.00
88	T	1,2,4-Trimethylbenzene	2.7445	3.0651	-11.7	101	0.00
89	T	sec-Butylbenzene	3.3784	3.8479	-13.9	103	0.00
90	T	p-Isopropyltoluene	2.9398	3.3524	-14.0	103	0.00
91	T	1,3-Dichlorobenzene	1.7576	1.8225	-3.7	99	0.00
92	T	1,4-Dichlorobenzene	1.8011	1.8155	-0.8	98	0.00
93	T	n-Butylbenzene	2.7582	3.0699	-11.3	102	0.01
94	T	1,2-Dichlorobenzene	1.6789	1.7056	-1.6	98	0.00
95	T	1,2-Dibromo-3-Chloropropane	0.1355	0.1204	11.1	88	0.00
96	T	1,2,4-Trichlorobenzene	1.2451	1.2496	-0.4	97	0.00
97	T	Hexachlorobutadiene	0.4873	0.5651	-16.0	116	0.00
98	T	Naphthalene	2.5887	2.5064	3.2	88	0.00
99	T	1,2,3-Trichlorobenzene	1.2015	1.1291	6.0	95	0.00

Data File : C:\MSDCHEM\1\DATA\110316\11M14917.D Vial: 1
Acq On : 3 Nov 2016 16:11 Operator: ADC
Sample : WG590291-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	105	0.00
2	T	Dichlorodifluoromethane	50.0000	52.2875	-4.6	100	0.00
3	P	Chloromethane	50.0000	52.3210	-4.6	115	0.00
4	C	Vinyl Chloride	50.0000	51.0698	-2.1	103	0.00
5	T	1,3-Butadiene	50.0000	42.0330	15.9	88	0.00
6	T	Bromomethane	50.0000	54.2150	-8.4	117	0.00
7	T	Chloroethane	50.0000	50.6769	-1.4	103	0.00
8	T	Trichlorofluoromethane	50.0000	49.4352	1.1	99	0.00
9	T	Diethyl ether	100.0000	108.0255	-8.0	112	0.00
10	T	Isoprene	50.0000	46.5829	6.8	97	0.00
11	T	Acrolein	50.0000	118.2754	-136.6#	267	0.00
12	T	1,1,2-Trichloro-1,2,2-Trifl	50.0000	52.6663	-5.3	105	0.00
13	T	Acetone	50.0000	41.7711	16.5	94	0.00
14	C	1,1-Dichloroethene	50.0000	48.8820	2.2	98	0.01
15	T	Tert-Butyl Alcohol	200.0000	171.5189	14.2	96	0.00
16	T	Dimethyl Sulfide	50.0000	45.6098	8.8	96	0.00
17	T	Iodomethane	50.0000	46.4210	7.2	96	0.00
18	T	Methyl acetate	50.0000	44.2648	11.5	97	0.00
19	T	Methylene Chloride	50.0000	48.3201	3.4	100	0.00
20	T	Carbon Disulfide	50.0000	47.1619	5.7	97	0.00
21	T	Acrylonitrile	50.0000	46.0415	7.9	94	0.00
22	T	Methyl Tert Butyl Ether	50.0000	47.0549	5.9	97	0.00
23	T	trans-1,2-Dichloroethene	50.0000	48.3872	3.2	101	0.00
24	T	n-Hexane	50.0000	53.3573	-6.7	109	0.01
25	T	Diisopropyl ether	100.0000	93.1585	6.8	96	0.00
26	T	Vinyl Acetate	50.0000	39.7308	20.5	83	0.00
27	P	1,1-Dichloroethane	50.0000	49.1860	1.6	100	0.00
28	T	Ethyl-Tert-Butyl ether	100.0000	94.9838	5.0	99	0.00
29	T	2-Butanone	50.0000	40.6005	18.8	88	0.00
30	T	Propionitrile	100.0000	88.2741	11.7	95	0.00
31	T	2,2-Dichloropropane	50.0000	50.6462	-1.3	105	0.00
32	T	cis-1,2-Dichloroethene	50.0000	49.6666	0.7	100	0.01
33	C	Chloroform	50.0000	46.7464	6.5	99	0.00
34	T	1-Bromopropane	50.0000	48.9613	2.1	101	0.00
35	T	Bromochloromethane	50.0000	48.0679	3.9	101	0.00
36	T	Tetrahydrofuran	100.0000	81.2681	18.7	88	0.00
37	S	Dibromofluoromethane	25.0000	23.8571	4.6	99	0.00
38	T	1,1,1-Trichloroethane	50.0000	48.2422	3.5	98	0.00
39	T	Cyclohexane	50.0000	48.3490	3.3	99	0.00
40	T	1,1-Dichloropropene	50.0000	48.5049	3.0	99	0.00
41	T	Carbon Tetrachloride	50.0000	48.3608	3.3	97	0.00
42	T	Tert-Amyl-Methyl ether	100.0000	94.8264	5.2	99	0.00
43	S	1,2-Dichloroethane-d4	25.0000	21.4739	14.1	90	0.00
44	T	1,2-Dichloroethane	50.0000	45.6960	8.6	94	0.00
45	T	Benzene	50.0000	49.4221	1.2	101	0.00
46	T	Trichloroethene	50.0000	48.3451	3.3	100	0.00
47	T	Methylcyclohexane	50.0000	53.1130	-6.2	109	0.00
48	C	1,2-Dichloropropane	50.0000	49.1677	1.7	101	0.00
49	T	1,4-Dioxane	200.0000	206.8674	-3.4	113	0.00
50	T	Bromodichloromethane	50.0000	47.7171	4.6	97	0.00
51	T	Dibromomethane	50.0000	45.3179	9.4	95	0.00
52	T	2-Chloroethyl Vinyl Ether	50.0000	44.2301	11.5	94	0.00
53	T	4-Methyl-2-Pentanone	50.0000	42.1322	15.7	93	0.00
54	T	cis-1,3-Dichloropropene	50.0000	50.1565	-0.3	100	0.01

(#) = Out of Range
11M14917.D 8260WT.M Wed Nov 09 11:27:44 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110316\11M14917.D Vial: 1
Acq On : 3 Nov 2016 16:11 Operator: ADC
Sample : WG590291-02 50ug/L CCV 8260 Inst : hpms11
Misc : 1,1 STD78477 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	50.0000	46.7835	6.4	97	0.00
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	101	0.00
57	S	Toluene-d8	25.0000	24.9074	0.4	100	0.00
58	C	Toluene	50.0000	51.2701	-2.5	101	0.00
59	T	Ethyl Methacrylate	50.0000	46.8240	6.4	93	0.00
60	T	trans-1,3-Dichloropropene	50.0000	49.7173	0.6	98	0.01
61	T	1,1,2-Trichloroethane	50.0000	48.9196	2.2	96	0.00
62	T	2-Hexanone	50.0000	38.5035	23.0	84	0.00
63	T	1,3-Dichloropropane	50.0000	47.9617	4.1	98	0.00
64	T	Tetrachloroethene	50.0000	49.9263	0.1	103	0.01
65	T	Dibromochloromethane	50.0000	49.0687	1.9	97	0.01
66	T	1,2-Dibromoethane	50.0000	47.4353	5.1	96	0.00
67	T	1-Chlorohexane	50.0000	51.4578	-2.9	101	0.00
68	P	Chlorobenzene	50.0000	49.5745	0.9	100	0.00
69	T	1,1,1,2-Tetrachloroethane	50.0000	51.3394	-2.7	101	0.00
70	C	Ethylbenzene	50.0000	51.4017	-2.8	101	0.00
71	T	m-,p-Xylene	100.0000	103.4257	-3.4	102	0.00
72	T	o-Xylene	50.0000	51.4140	-2.8	100	0.00
73	T	Styrene	50.0000	51.7230	-3.4	99	0.00
74	P	Bromoform	50.0000	46.7131	6.6	93	0.00
75	T	Isopropylbenzene	50.0000	52.0837	-4.2	101	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	97	0.01
77	P	1,1,2,2-Tetrachloroethane	50.0000	48.0876	3.8	94	0.00
78	S	p-Bromofluorobenzene	25.0000	24.3231	2.7	94	0.00
79	T	1,2,3-Trichloropropane	50.0000	47.6704	4.7	92	0.00
80	T	trans-1,4-Dichloro-2-Butene	50.0000	45.4516	9.1	86	0.00
81	T	n-Propylbenzene	50.0000	56.2339	-12.5	100	0.00
82	T	Bromobenzene	50.0000	50.1220	-0.2	98	0.00
83	T	1,3,5-Trimethylbenzene	50.0000	56.2218	-12.4	102	0.00
84	T	2-Chlorotoluene	50.0000	61.7416	-23.5	115	0.01
85	T	4-Chlorotoluene	50.0000	45.8422	8.3	84	0.01
86	T	a-Methylstyrene	50.0000	52.4620	-4.9	97	0.01
87	T	tert-Butylbenzene	50.0000	55.9377	-11.9	103	0.00
88	T	1,2,4-Trimethylbenzene	50.0000	55.8411	-11.7	101	0.00
89	T	sec-Butylbenzene	50.0000	56.9481	-13.9	103	0.00
90	T	p-Isopropyltoluene	50.0000	57.0168	-14.0	103	0.00
91	T	1,3-Dichlorobenzene	50.0000	51.8471	-3.7	99	0.00
92	T	1,4-Dichlorobenzene	50.0000	50.3998	-0.8	98	0.00
93	T	n-Butylbenzene	50.0000	55.6513	-11.3	102	0.01
94	T	1,2-Dichlorobenzene	50.0000	50.7941	-1.6	98	0.00
95	T	1,2-Dibromo-3-Chloropropane	50.0000	44.4259	11.1	88	0.00
96	T	1,2,4-Trichlorobenzene	50.0000	50.1780	-0.4	97	0.00
97	T	Hexachlorobutadiene	50.0000	57.9829	-16.0	116	0.00
98	T	Naphthalene	50.0000	48.4094	3.2	88	0.00
99	T	1,2,3-Trichlorobenzene	50.0000	46.9905	6.0	95	0.00

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\111116\11M15139.D Vial: 1
Acq On : 11 Nov 2016 14:39 Operator: ADC
Sample : WG591384-02 50ug/Kg CCV Inst : hpms11
Misc : 1,1 STD78327 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 15:26:47 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	739389	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	572908	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.02	152	314281	25.00	ug/L	0.01
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	209778	23.5861	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 94.36%			
43) 1,2-Dichloroethane-d4	10.18	65	219209	21.9529	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 87.80%			
57) Toluene-d8	12.43	98	750453	24.7183	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.88%			
78) p-Bromofluorobenzene	15.59	95	284236	22.6059	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 90.44%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	627463	50.0203	ug/L	94
3) Chloromethane	3.66	50	574751	41.7758	ug/L	98
4) Vinyl Chloride	3.90	62	611685	49.8590	ug/L	99
5) 1,3-Butadiene	3.94	54	461629	46.2238	ug/L	87
6) Bromomethane	4.79	94	312062	52.4952	ug/L	99
7) Chloroethane	4.94	64	355320	49.4367	ug/L	99
8) Trichlorofluoromethane	5.43	101	700323	49.0441	ug/L	99
9) Diethyl ether	5.95	59	721531	103.3733	ug/L	92
10) Isoprene	5.99	67	642046	49.2699	ug/L	93
11) Acrolein	6.17	56	61915	106.4634	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	388358	50.5698	ug/L	96
13) Acetone	6.28	43	118555	41.3288	ug/L	94
14) 1,1-Dichloroethene	6.49	61	732211	47.9855	ug/L	94
15) Tert-Butyl Alcohol	6.60	59	145166	196.0638	ug/L	91
16) Dimethyl Sulfide	6.75	62	465082	44.4701	ug/L	89
17) Iodomethane	7.00	142	460219	45.3550	ug/L	96
18) Methyl acetate	7.01	43	417705	49.3767	ug/L	95
19) Methylene Chloride	7.26	84	402089	46.3511	ug/L	85
20) Carbon Disulfide	7.30	76	1259725	49.8066	ug/L	99
21) Acrylonitrile	7.43	53	182346	47.3140	ug/L	98
22) Methyl Tert Butyl Ether	7.47	73	989297	46.3828	ug/L	99
23) trans-1,2-Dichloroethene	7.69	96	414521	47.9379	ug/L	96
24) n-Hexane	7.77	57	771203	52.1540	ug/L	99
25) Diisopropyl ether	8.10	45	3604572	86.1909	ug/L	96
26) Vinyl Acetate	8.26	43	821747	36.7611	ug/L	98
27) 1,1-Dichloroethane	8.29	63	837799	47.2739	ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	2751892	88.7298	ug/L	99
29) 2-Butanone	8.82	43	197860	41.0511	ug/L	94
30) Propionitrile	8.92	54	123417	92.4169	ug/L	98
31) 2,2-Dichloropropane	9.04	77	614738	50.9004	ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	460601	48.3676	ug/L	95
33) Chloroform	9.30	83	698481	44.9195	ug/L	100
34) 1-Bromopropane	9.43	122	100893	61.8572	ug/L	99
35) Bromochloromethane	9.52	130	285789	46.5553	ug/L	85
36) Tetrahydrofuran	9.54	42	279057	85.2521	ug/L	90
38) 1,1,1-Trichloroethane	9.80	97	655600	47.8182	ug/L	94
39) Cyclohexane	9.83	56	960631	47.7975	ug/L	96
40) 1,1-Dichloropropene	9.99	75	549326	48.3999	ug/L	97
41) Carbon Tetrachloride	10.13	117	617529	48.2068	ug/L	98
42) Tert-Amyl-Methyl ether	10.09	73	1912313	91.0535	ug/L	93

(#) = qualifier out of range (m) = manual integration
11M15139.D 8260WT.M Fri Nov 11 15:26:48 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\111116\11M15139.D Vial: 1
Acq On : 11 Nov 2016 14:39 Operator: ADC
Sample : WG591384-02 50ug/Kg CCV Inst : hpms11
Misc : 1,1 STD78327 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 15:26:47 2016 Quant Results File: 8260WT.RES

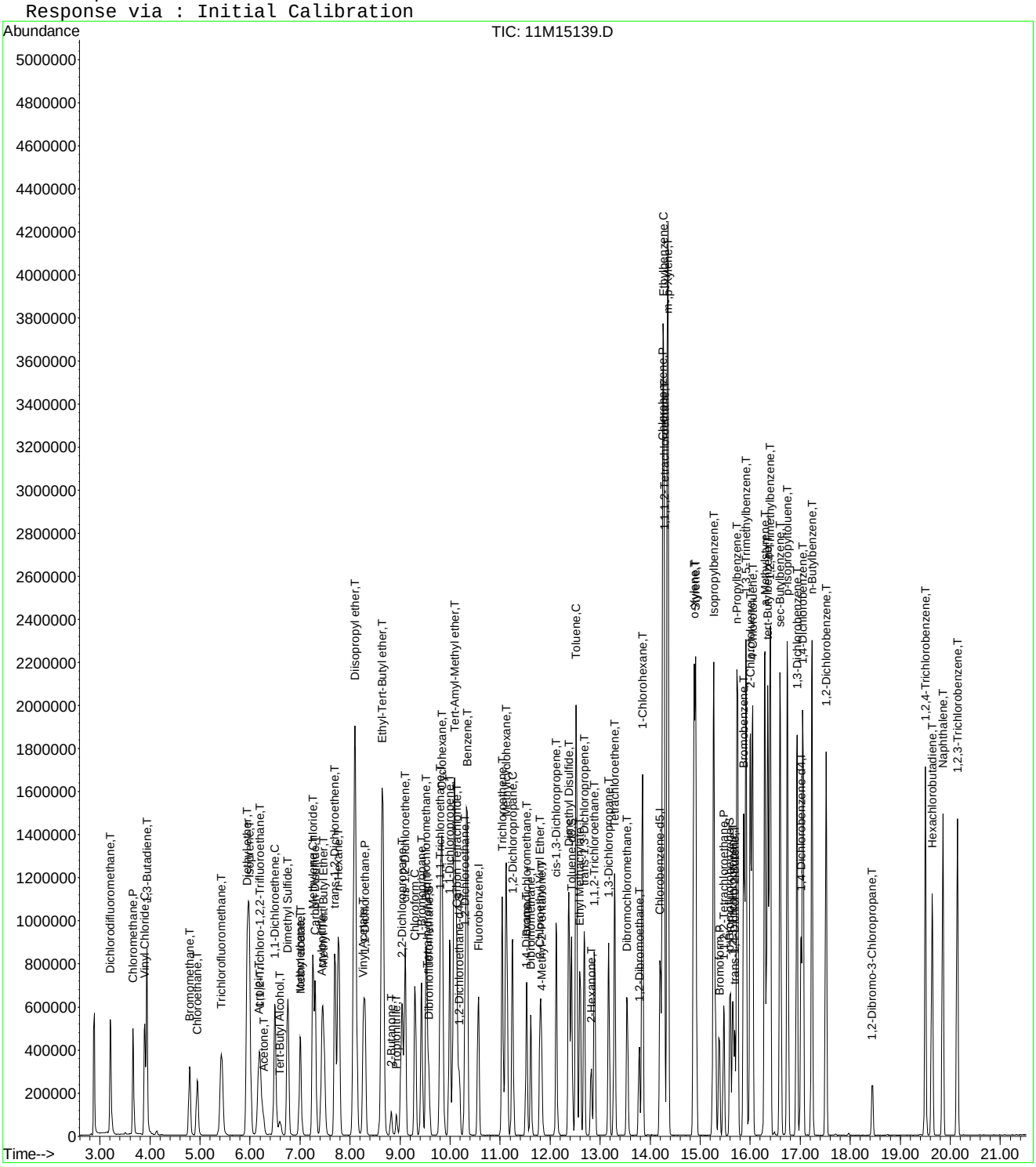
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260S

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	590846	44.2310 ug/L	97
45)	Benzene	10.34	78	1616201	48.2070 ug/L	99
46)	Trichloroethene	11.04	130	472784	48.7570 ug/L	98
47)	Methylcyclohexane	11.13	83	682286	51.9042 ug/L	94
48)	1,2-Dichloropropane	11.25	63	459052	46.4521 ug/L	98
49)	1,4-Dioxane	11.52	88	13717	199.1239 ug/L	99
50)	Bromodichloromethane	11.53	83	535188	45.5511 ug/L	100
51)	Dibromomethane	11.61	93	234833	44.8189 ug/L	96
52)	2-Chloroethyl Vinyl Ether	11.80	63	254387	43.9478 ug/L	98
53)	4-Methyl-2-Pentanone	11.83	58	150708	42.4079 ug/L	97
54)	cis-1,3-Dichloropropene	12.12	75	619742	47.7229 ug/L	100
55)	Dimethyl Disulfide	12.38	79	373039	47.8627 ug/L	94
58)	Toluene	12.52	91	1769120	49.0381 ug/L	100
59)	Ethyl Methacrylate	12.59	69	437999	47.4996 ug/L	85
60)	trans-1,3-Dichloropropene	12.68	75	551253	46.6700 ug/L	97
61)	1,1,2-Trichloroethane	12.88	97	334678	47.6824 ug/L	98
62)	2-Hexanone	12.82	43	289970	38.3270 ug/L	91
63)	1,3-Dichloropropane	13.17	76	535933	45.4223 ug/L	82
64)	Tetrachloroethene	13.29	164	379961	48.5235 ug/L	99
65)	Dibromochloromethane	13.53	129	448704	47.6961 ug/L	98
66)	1,2-Dibromoethane	13.78	107	336104	46.5169 ug/L	99
67)	1-Chlorohexane	13.84	91	593904	51.0139 ug/L	90
68)	Chlorobenzene	14.25	112	1209783	47.2577 ug/L	98
69)	1,1,1,2-Tetrachloroethane	14.28	131	432501	47.3685 ug/L	100
70)	Ethylbenzene	14.27	106	643489	49.1595 ug/L	96
71)	m-,p-Xylene	14.35	106	1532887	99.3970 ug/L	100
72)	o-Xylene	14.88	106	738265	48.6646 ug/L	100
73)	Styrene	14.91	104	1273892	49.4690 ug/L	97
74)	Bromoform	15.39	173	290581	47.6305 ug/L	98
75)	Isopropylbenzene	15.27	105	1932859	49.7292 ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	395658	44.6411 ug/L	99
79)	1,2,3-Trichloropropane	15.65	110	121097	45.0540 ug/L	93
80)	trans-1,4-Dichloro-2-Buten	15.69	53	158233	43.7106 ug/L	97
81)	n-Propylbenzene	15.74	91	2294198	49.0644 ug/L	99
82)	Bromobenzene	15.87	156	524874	43.7959 ug/L	93
83)	1,3,5-Trimethylbenzene	15.91	105	1638926	48.8671 ug/L	99
84)	2-Chlorotoluene	16.01	91	1597095	53.9763 ug/L	99
85)	4-Chlorotoluene	16.05	91	1195247	39.6618 ug/L	99
86)	a-Methylstyrene	16.30	118	950723	48.2277 ug/L	99
87)	tert-Butylbenzene	16.35	134	356093	48.5323 ug/L	97
88)	1,2,4-Trimethylbenzene	16.40	105	1665851	48.2831 ug/L	99
89)	sec-Butylbenzene	16.60	105	2082210	49.0268 ug/L	99
90)	p-Isopropyltoluene	16.74	119	1840409	49.7985 ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	1007783	45.6118 ug/L	99
92)	1,4-Dichlorobenzene	17.05	146	1002933	44.2956 ug/L	98
93)	n-Butylbenzene	17.24	91	1690170	48.7450 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	929120	44.0212 ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	71630	42.0462 ug/L	89
96)	1,2,4-Trichlorobenzene	19.50	180	670473	42.8339 ug/L	100
97)	Hexachlorobutadiene	19.64	225	301482	49.2114 ug/L	97
98)	Naphthalene	19.85	128	1440590	44.2665 ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	600190	39.7375 ug/L	99

(#) = qualifier out of range (m) = manual integration
11M15139.D 8260WT.M Fri Nov 11 15:26:48 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\111116\11M15139.D Vial: 1
Acq On : 11 Nov 2016 14:39 Operator: ADC
Sample : WG591384-02 50ug/Kg CCV Inst : hpms11
Misc : 1,1 STD78327 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 15:26 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\111116\11M15139.D Vial: 1
Acq On : 11 Nov 2016 14:39 Operator: ADC
Sample : WG591384-02 50ug/Kg CCV Inst : hpms11
Misc : 1,1 STD78327 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.0000	1.0000	0.0	102	0.00
2	T	Dichlorodifluoromethane	0.4241	0.4243	-0.0	93	0.00
3	P	Chloromethane	0.4652	0.3887	16.4	88	0.00
4	C	Vinyl Chloride	0.4148	0.4136	0.3	97	0.00
5	T	1,3-Butadiene	0.3377	0.3122	7.6	93	0.00
6	T	Bromomethane	0.2010	0.2110	-5.0	109	-0.01
7	T	Chloroethane	0.2430	0.2403	1.1	97	-0.01
8	T	Trichlorofluoromethane	0.4828	0.4736	1.9	95	0.00
9	T	Diethyl ether	0.2360	0.2440	-3.4	104	0.00
10	T	Isoprene	0.4406	0.4342	1.5	99	0.00
11	T	Acrolein	0.0197	0.0419	-113.0#	232#	0.00
12	T	1,1,2-Trichloro-1,2,2-Trifl	0.2597	0.2626	-1.1	97	0.00
13	T	Acetone	0.0970	0.0802	17.3	90	0.00
14	C	1,1-Dichloroethene	0.5159	0.4951	4.0	93	0.00
15	T	Tert-Butyl Alcohol	0.0250	0.0245	2.0	105	0.00
16	T	Dimethyl Sulfide	0.3536	0.3145	11.1	90	0.00
17	T	Iodomethane	0.2694	0.3112	-15.5	91	0.00
18	T	Methyl acetate	0.2860	0.2825	1.2	105	0.00
19	T	Methylene Chloride	0.2933	0.2719	7.3	93	0.00
20	T	Carbon Disulfide	0.8552	0.8519	0.4	99	-0.01
21	T	Acrylonitrile	0.1303	0.1233	5.4	94	0.00
22	T	Methyl Tert Butyl Ether	0.7212	0.6690	7.2	92	0.00
23	T	trans-1,2-Dichloroethene	0.2924	0.2803	4.1	96	-0.01
24	T	n-Hexane	0.5000	0.5215	-4.3	103	0.00
25	T	Diisopropyl ether	1.4140	1.2188	13.8	86	0.00
26	T	Vinyl Acetate	0.7558	0.5557	26.5#	74	0.00
27	P	1,1-Dichloroethane	0.5992	0.5666	5.5	93	0.00
28	T	Ethyl-Tert-Butyl ether	1.0487	0.9305	11.3	89	0.00
29	T	2-Butanone	0.1630	0.1338	17.9	86	0.00
30	T	Propionitrile	0.0452	0.0417	7.6	96	0.00
31	T	2,2-Dichloropropane	0.4083	0.4157	-1.8	102	0.00
32	T	cis-1,2-Dichloroethene	0.3220	0.3115	3.3	94	0.00
33	C	Chloroform	0.5258	0.4723	10.2	92	-0.01
34	T	1-Bromopropane	0.0551	0.0682	-23.7	123	0.00
35	T	Bromochloromethane	0.2076	0.1933	6.9	94	0.00
36	T	Tetrahydrofuran	0.1192	0.0944	20.9	89	0.00
37	S	Dibromofluoromethane	0.3007	0.2837	5.7	94	0.00
38	T	1,1,1-Trichloroethane	0.4636	0.4433	4.4	94	-0.01
39	T	Cyclohexane	0.6795	0.6496	4.4	95	-0.01
40	T	1,1-Dichloropropene	0.3837	0.3715	3.2	96	-0.01
41	T	Carbon Tetrachloride	0.4331	0.4176	3.6	93	0.00
42	T	Tert-Amyl-Methyl ether	0.7101	0.6466	8.9	92	0.00
43	S	1,2-Dichloroethane-d4	0.3376	0.2965	12.2	88	0.00
44	T	1,2-Dichloroethane	0.4517	0.3996	11.5	88	0.00
45	T	Benzene	1.1336	1.0929	3.6	95	0.00
46	T	Trichloroethene	0.3279	0.3197	2.5	97	0.00
47	T	Methylcyclohexane	0.4445	0.4614	-3.8	103	0.00
48	C	1,2-Dichloropropane	0.3341	0.3104	7.1	92	0.00
49	T	1,4-Dioxane	0.0023	0.0023	0.4	105	0.01
50	T	Bromodichloromethane	0.3973	0.3619	8.9	89	0.00
51	T	Dibromomethane	0.1772	0.1588	10.4	91	0.00
52	T	2-Chloroethyl Vinyl Ether	0.1957	0.1720	12.1	90	0.00
53	T	4-Methyl-2-Pentanone	0.1202	0.1019	15.2	90	0.00
54	T	cis-1,3-Dichloropropene	0.4391	0.4191	4.6	91	0.00

(#) = Out of Range
11M15139.D 8260WT.M Mon Nov 14 16:32:05 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\111116\11M15139.D Vial: 1
Acq On : 11 Nov 2016 14:39 Operator: ADC
Sample : WG591384-02 50ug/Kg CCV Inst : hpms11
Misc : 1,1 STD78327 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	0.2635	0.2523	4.3	96	0.00
56	I	Chlorobenzene-d5	1.0000	1.0000	0.0	100	0.00
57	S	Toluene-d8	1.3248	1.3099	1.1	98	0.00
58	C	Toluene	1.5743	1.5440	1.9	95	0.00
59	T	Ethyl Methacrylate	0.4024	0.3823	5.0	93	0.00
60	T	trans-1,3-Dichloropropene	0.5154	0.4811	6.7	91	0.00
61	T	1,1,2-Trichloroethane	0.3063	0.2921	4.6	93	0.00
62	T	2-Hexanone	0.3301	0.2531	23.3	83	0.00
63	T	1,3-Dichloropropane	0.5149	0.4677	9.2	91	0.00
64	T	Tetrachloroethene	0.3417	0.3316	3.0	99	0.00
65	T	Dibromochloromethane	0.4105	0.3916	4.6	94	0.00
66	T	1,2-Dibromoethane	0.3153	0.2933	7.0	93	0.00
67	T	1-Chlorohexane	0.5080	0.5183	-2.0	100	0.00
68	P	Chlorobenzene	1.1171	1.0558	5.5	94	0.00
69	T	1,1,1,2-Tetrachloroethane	0.3984	0.3775	5.3	92	0.01
70	C	Ethylbenzene	0.5712	0.5616	1.7	96	0.00
71	T	m-,p-Xylene	0.6730	0.6689	0.6	97	0.00
72	T	o-Xylene	0.6620	0.6443	2.7	94	0.00
73	T	Styrene	1.1237	1.1118	1.1	93	0.00
74	P	Bromoform	0.2662	0.2536	4.7	93	0.01
75	T	Isopropylbenzene	1.6961	1.6869	0.5	95	0.00
76	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	105	0.01
77	P	1,1,2,2-Tetrachloroethane	0.7050	0.6295	10.7	95	0.00
78	S	p-Bromofluorobenzene	1.0002	0.9044	9.6	95	0.00
79	T	1,2,3-Trichloropropane	0.2138	0.1927	9.9	94	0.00
80	T	trans-1,4-Dichloro-2-Butene	0.2880	0.2517	12.6	89	0.00
81	T	n-Propylbenzene	3.7195	3.6499	1.9	94	0.00
82	T	Bromobenzene	0.9533	0.8350	12.4	93	0.00
83	T	1,3,5-Trimethylbenzene	2.6679	2.6074	2.3	95	0.00
84	T	2-Chlorotoluene	2.3537	2.5409	-8.0	108	0.01
85	T	4-Chlorotoluene	2.3972	1.9016	20.7	78	0.01
86	T	a-Methylstyrene	1.5681	1.5125	3.5	96	0.01
87	T	tert-Butylbenzene	0.5837	0.5665	2.9	96	0.00
88	T	1,2,4-Trimethylbenzene	2.7445	2.6503	3.4	94	0.00
89	T	sec-Butylbenzene	3.3784	3.3127	1.9	96	0.00
90	T	p-Isopropyltoluene	2.9398	2.9280	0.4	97	0.00
91	T	1,3-Dichlorobenzene	1.7576	1.6033	8.8	94	0.00
92	T	1,4-Dichlorobenzene	1.8011	1.5956	11.4	93	0.00
93	T	n-Butylbenzene	2.7582	2.6890	2.5	96	0.01
94	T	1,2-Dichlorobenzene	1.6789	1.4782	12.0	92	0.00
95	T	1,2-Dibromo-3-Chloropropane	0.1355	0.1140	15.9	90	0.00
96	T	1,2,4-Trichlorobenzene	1.2451	1.0667	14.3	89	0.00
97	T	Hexachlorobutadiene	0.4873	0.4796	1.6	106	0.00
98	T	Naphthalene	2.5887	2.2919	11.5	87	0.00
99	T	1,2,3-Trichlorobenzene	1.2015	0.9549	20.5	86	0.00

Data File : C:\MSDCHEM\1\DATA\111116\11M15139.D Vial: 1
Acq On : 11 Nov 2016 14:39 Operator: ADC
Sample : WG591384-02 50ug/Kg CCV Inst : hpms11
Misc : 1,1 STD78327 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	25.0000	25.0000	0.0	102	0.00
2	T	Dichlorodifluoromethane	50.0000	50.0203	-0.0	93	0.00
3	P	Chloromethane	50.0000	41.7758	16.4	88	0.00
4	C	Vinyl Chloride	50.0000	49.8590	0.3	97	0.00
5	T	1,3-Butadiene	50.0000	46.2238	7.6	93	0.00
6	T	Bromomethane	50.0000	52.4952	-5.0	109	-0.01
7	T	Chloroethane	50.0000	49.4367	1.1	97	-0.01
8	T	Trichlorofluoromethane	50.0000	49.0441	1.9	95	0.00
9	T	Diethyl ether	100.0000	103.3733	-3.4	104	0.00
10	T	Isoprene	50.0000	49.2699	1.5	99	0.00
11	T	Acrolein	50.0000	106.4634	-112.9#	232	0.00
12	T	1,1,2-Trichloro-1,2,2-Trifl	50.0000	50.5698	-1.1	97	0.00
13	T	Acetone	50.0000	41.3288	17.3	90	0.00
14	C	1,1-Dichloroethene	50.0000	47.9855	4.0	93	0.00
15	T	Tert-Butyl Alcohol	200.0000	196.0639	2.0	105	0.00
16	T	Dimethyl Sulfide	50.0000	44.4701	11.1	90	0.00
17	T	Iodomethane	50.0000	45.3550	9.3	91	0.00
18	T	Methyl acetate	50.0000	49.3767	1.2	105	0.00
19	T	Methylene Chloride	50.0000	46.3511	7.3	93	0.00
20	T	Carbon Disulfide	50.0000	49.8066	0.4	99	-0.01
21	T	Acrylonitrile	50.0000	47.3140	5.4	94	0.00
22	T	Methyl Tert Butyl Ether	50.0000	46.3828	7.2	92	0.00
23	T	trans-1,2-Dichloroethene	50.0000	47.9379	4.1	96	-0.01
24	T	n-Hexane	50.0000	52.1540	-4.3	103	0.00
25	T	Diisopropyl ether	100.0000	86.1909	13.8	86	0.00
26	T	Vinyl Acetate	50.0000	36.7611	26.5#	74	0.00
27	P	1,1-Dichloroethane	50.0000	47.2739	5.5	93	0.00
28	T	Ethyl-Tert-Butyl ether	100.0000	88.7298	11.3	89	0.00
29	T	2-Butanone	50.0000	41.0511	17.9	86	0.00
30	T	Propionitrile	100.0000	92.4168	7.6	96	0.00
31	T	2,2-Dichloropropane	50.0000	50.9004	-1.8	102	0.00
32	T	cis-1,2-Dichloroethene	50.0000	48.3676	3.3	94	0.00
33	C	Chloroform	50.0000	44.9195	10.2	92	-0.01
34	T	1-Bromopropane	50.0000	61.8572	-23.7	123	0.00
35	T	Bromochloromethane	50.0000	46.5553	6.9	94	0.00
36	T	Tetrahydrofuran	100.0000	85.2521	14.7	89	0.00
37	S	Dibromofluoromethane	25.0000	23.5861	5.7	94	0.00
38	T	1,1,1-Trichloroethane	50.0000	47.8182	4.4	94	-0.01
39	T	Cyclohexane	50.0000	47.7975	4.4	95	-0.01
40	T	1,1-Dichloropropene	50.0000	48.3999	3.2	96	-0.01
41	T	Carbon Tetrachloride	50.0000	48.2068	3.6	93	0.00
42	T	Tert-Amyl-Methyl ether	100.0000	91.0535	8.9	92	0.00
43	S	1,2-Dichloroethane-d4	25.0000	21.9529	12.2	88	0.00
44	T	1,2-Dichloroethane	50.0000	44.2310	11.5	88	0.00
45	T	Benzene	50.0000	48.2070	3.6	95	0.00
46	T	Trichloroethene	50.0000	48.7570	2.5	97	0.00
47	T	Methylcyclohexane	50.0000	51.9042	-3.8	103	0.00
48	C	1,2-Dichloropropane	50.0000	46.4521	7.1	92	0.00
49	T	1,4-Dioxane	200.0000	199.1239	0.4	105	0.01
50	T	Bromodichloromethane	50.0000	45.5511	8.9	89	0.00
51	T	Dibromomethane	50.0000	44.8189	10.4	91	0.00
52	T	2-Chloroethyl Vinyl Ether	50.0000	43.9477	12.1	90	0.00
53	T	4-Methyl-2-Pentanone	50.0000	42.4079	15.2	90	0.00
54	T	cis-1,3-Dichloropropene	50.0000	47.7229	4.6	91	0.00

(#) = Out of Range
11M15139.D 8260WT.M Mon Nov 14 16:32:07 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\111116\11M15139.D Vial: 1
Acq On : 11 Nov 2016 14:39 Operator: ADC
Sample : WG591384-02 50ug/Kg CCV Inst : hpms11
Misc : 1,1 STD78327 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

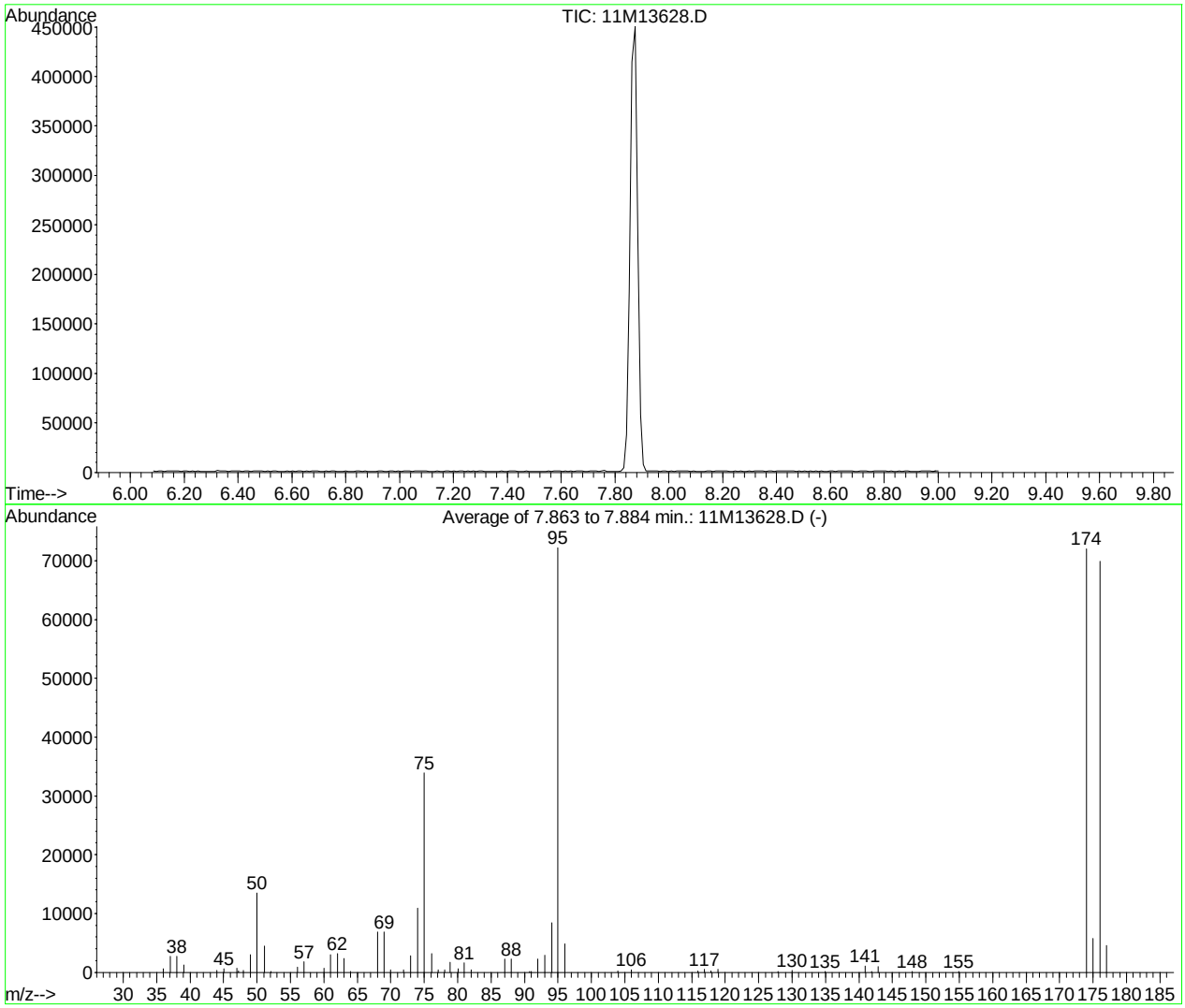
		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	T	Dimethyl Disulfide	50.0000	47.8627	4.3	96	0.00
56	I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
57	S	Toluene-d8	25.0000	24.7183	1.1	98	0.00
58	C	Toluene	50.0000	49.0381	1.9	95	0.00
59	T	Ethyl Methacrylate	50.0000	47.4996	5.0	93	0.00
60	T	trans-1,3-Dichloropropene	50.0000	46.6700	6.7	91	0.00
61	T	1,1,2-Trichloroethane	50.0000	47.6824	4.6	93	0.00
62	T	2-Hexanone	50.0000	38.3270	23.3	83	0.00
63	T	1,3-Dichloropropane	50.0000	45.4223	9.2	91	0.00
64	T	Tetrachloroethene	50.0000	48.5235	3.0	99	0.00
65	T	Dibromochloromethane	50.0000	47.6961	4.6	94	0.00
66	T	1,2-Dibromoethane	50.0000	46.5169	7.0	93	0.00
67	T	1-Chlorohexane	50.0000	51.0139	-2.0	100	0.00
68	P	Chlorobenzene	50.0000	47.2577	5.5	94	0.00
69	T	1,1,1,2-Tetrachloroethane	50.0000	47.3685	5.3	92	0.01
70	C	Ethylbenzene	50.0000	49.1595	1.7	96	0.00
71	T	m-,p-Xylene	100.0000	99.3970	0.6	97	0.00
72	T	o-Xylene	50.0000	48.6646	2.7	94	0.00
73	T	Styrene	50.0000	49.4690	1.1	93	0.00
74	P	Bromoform	50.0000	47.6305	4.7	93	0.01
75	T	Isopropylbenzene	50.0000	49.7292	0.5	95	0.00
76	I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	105	0.01
77	P	1,1,2,2-Tetrachloroethane	50.0000	44.6411	10.7	95	0.00
78	S	p-Bromofluorobenzene	25.0000	22.6060	9.6	95	0.00
79	T	1,2,3-Trichloropropane	50.0000	45.0540	9.9	94	0.00
80	T	trans-1,4-Dichloro-2-Butene	50.0000	43.7106	12.6	89	0.00
81	T	n-Propylbenzene	50.0000	49.0644	1.9	94	0.00
82	T	Bromobenzene	50.0000	43.7959	12.4	93	0.00
83	T	1,3,5-Trimethylbenzene	50.0000	48.8671	2.3	95	0.00
84	T	2-Chlorotoluene	50.0000	53.9763	-8.0	108	0.01
85	T	4-Chlorotoluene	50.0000	39.6618	20.7	78	0.01
86	T	a-Methylstyrene	50.0000	48.2277	3.5	96	0.01
87	T	tert-Butylbenzene	50.0000	48.5323	2.9	96	0.00
88	T	1,2,4-Trimethylbenzene	50.0000	48.2831	3.4	94	0.00
89	T	sec-Butylbenzene	50.0000	49.0268	1.9	96	0.00
90	T	p-Isopropyltoluene	50.0000	49.7985	0.4	97	0.00
91	T	1,3-Dichlorobenzene	50.0000	45.6118	8.8	94	0.00
92	T	1,4-Dichlorobenzene	50.0000	44.2957	11.4	93	0.00
93	T	n-Butylbenzene	50.0000	48.7450	2.5	96	0.01
94	T	1,2-Dichlorobenzene	50.0000	44.0212	12.0	92	0.00
95	T	1,2-Dibromo-3-Chloropropane	50.0000	42.0462	15.9	90	0.00
96	T	1,2,4-Trichlorobenzene	50.0000	42.8339	14.3	89	0.00
97	T	Hexachlorobutadiene	50.0000	49.2114	1.6	106	0.00
98	T	Naphthalene	50.0000	44.2665	11.5	87	0.00
99	T	1,2,3-Trichlorobenzene	50.0000	39.7375	20.5	86	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
11M15139.D 8260WT.M Mon Nov 14 16:32:07 2016 Page 2

2.1.1.5 Raw QC Data

CLPBFB

Data File : C:\MSDCHEM\1\DATA\081516\11M13628.D Vial: 2
Acq On : 15 Aug 2016 14:52 Operator: JDS
Sample : WG580279-01 50ng BFB STD 8260 Inst : hpms11
Misc : 1,1 STD77509 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11



AutoFind: Scans 173, 174, 175; Background Corrected with Scan 167

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.7	13531	PASS
75	95	30	60	47.0	33928	PASS
95	95	100	100	100.0	72218	PASS
96	95	5	9	6.7	4803	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	99.7	72018	PASS
175	174	5	9	8.0	5730	PASS
176	174	95	101	97.1	69941	PASS
177	176	5	9	6.5	4520	PASS

11M13628.D A9FOOWT.M Tue Aug 16 08:54:32 2016

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081516\11M13628.D Vial: 2
Acq On : 15 Aug 2016 14:52 Operator: JDS
Sample : WG580279-01 50ng BFB STD 8260 Inst : hpms11
Misc : 1,1 STD77509 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 09:05:15 2016 Quant Results File: A9FOOWT.RES

Quant Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration
DataAcq Meth : BFB

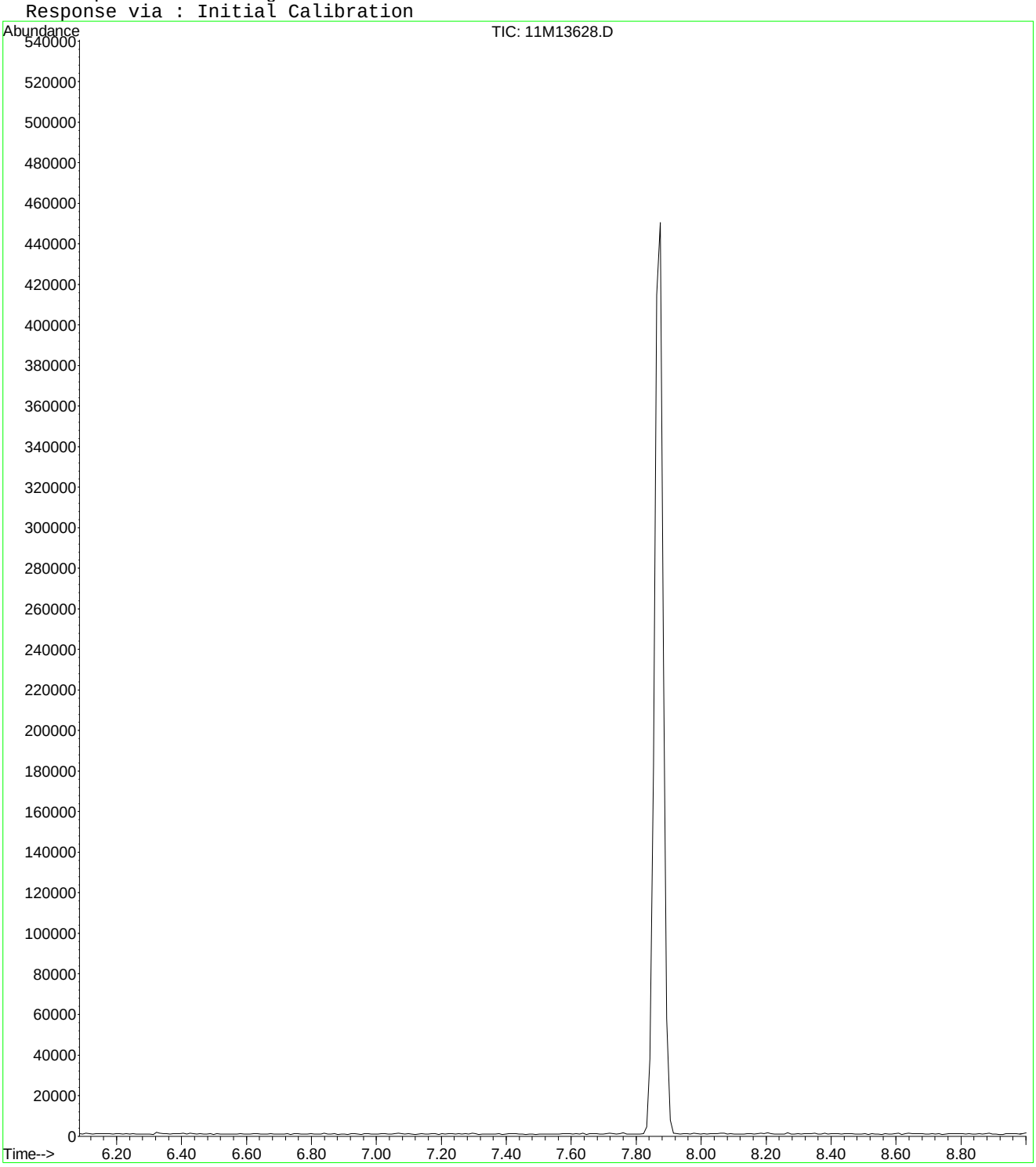
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	0.00	96	0	0.00	ug/L	-10.59
12) Chlorobenzene-d5	0.00	117	0	0.00	ug/L	-14.23
13) 1,4-Dichlorobenzene-d4	0.00	152	0	0.00	ug/L	-17.04

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
11M13628.D A9FOOWT.M Tue Aug 16 09:05:17 2016 Page 1

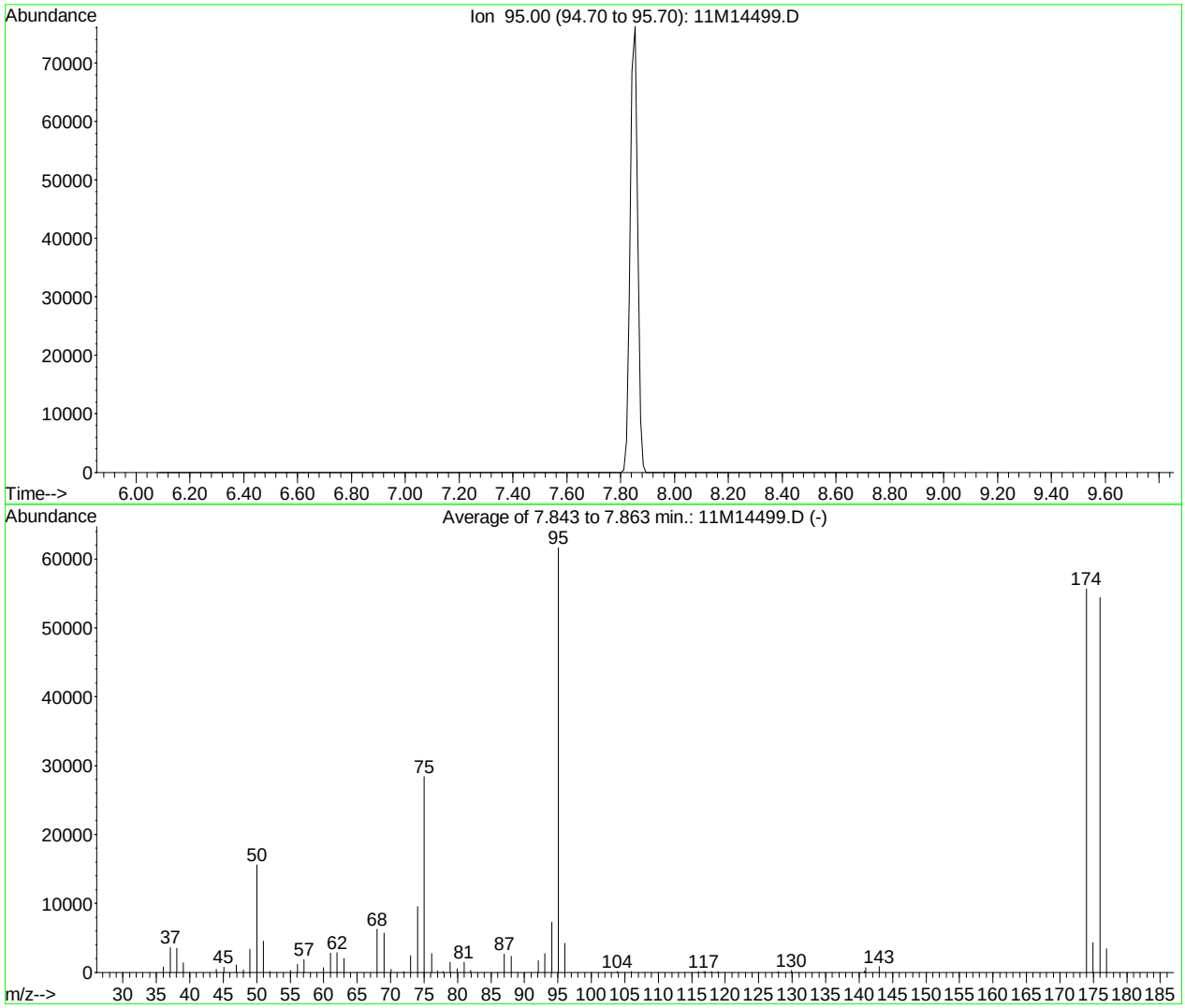
Data File : C:\MSDCHEM\1\DATA\081516\11M13628.D Vial: 2
Acq On : 15 Aug 2016 14:52 Operator: JDS
Sample : WG580279-01 50ng BFB STD 8260 Inst : hpms11
Misc : 1,1 STD77509 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 16 9:05 2016 Quant Results File: A9FOOWT.RES

Method : C:\MSDCHEM\1\METHODS\A9FOOWT.M (RTE Integrator)
Title : Appendix IX (SOP:OVL MSV01) Water 081516 HPMS11
Last Update : Tue Aug 16 08:51:14 2016
Response via : Initial Calibration



BFB

Data File : C:\MSDCHEM\1\DATA\101316\11M14499.D Vial: 1
Acq On : 13 Oct 2016 12:50 Operator: FJB
Sample : WG587480-01 BFB 50ng 8260 Inst : hpms11
Misc : 1,1 STD78474 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11



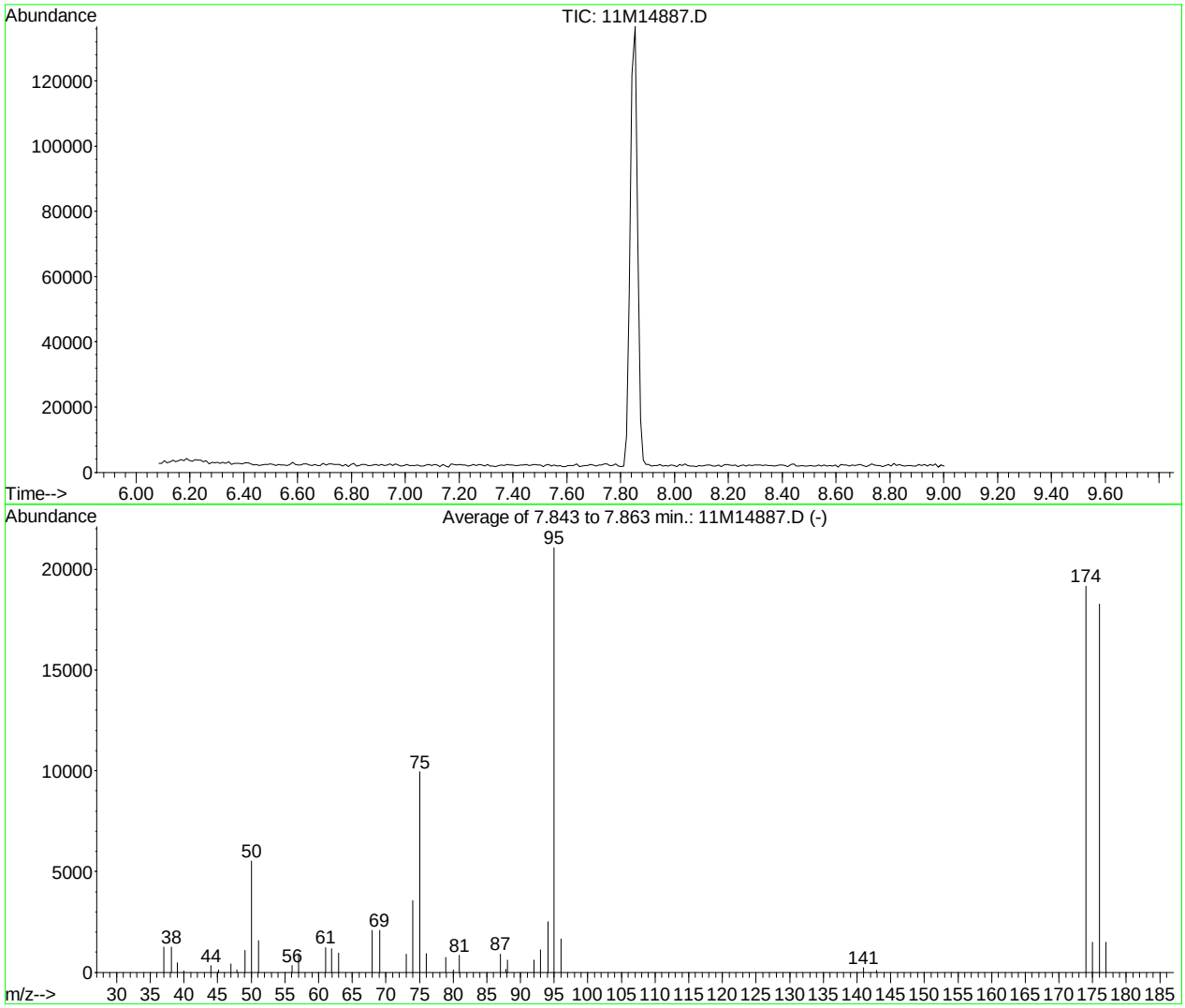
AutoFind: Scans 171, 172, 173; Background Corrected with Scan 165

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	25.3	15619	PASS
75	95	30	60	46.1	28389	PASS
95	95	100	100	100.0	61637	PASS
96	95	5	9	6.8	4166	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	90.3	55672	PASS
175	174	5	9	7.7	4260	PASS
176	174	95	101	97.7	54378	PASS
177	176	5	9	6.2	3381	PASS

11M14499.D 8260WT.M Fri Oct 14 09:26:00 2016

BFB

Data File : C:\MSDCHEM\1\DATA\110216\11M14887.D Vial: 1
Acq On : 2 Nov 2016 14:41 Operator: ADC
Sample : WG590132-01 BFB 50ng 8260 Inst : hpms11
Misc : 1,1 STD78474 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\MSDCHEM\1\METHODS\BFB.M (RTE Integrator)
Title : SOP: OVL MSV01



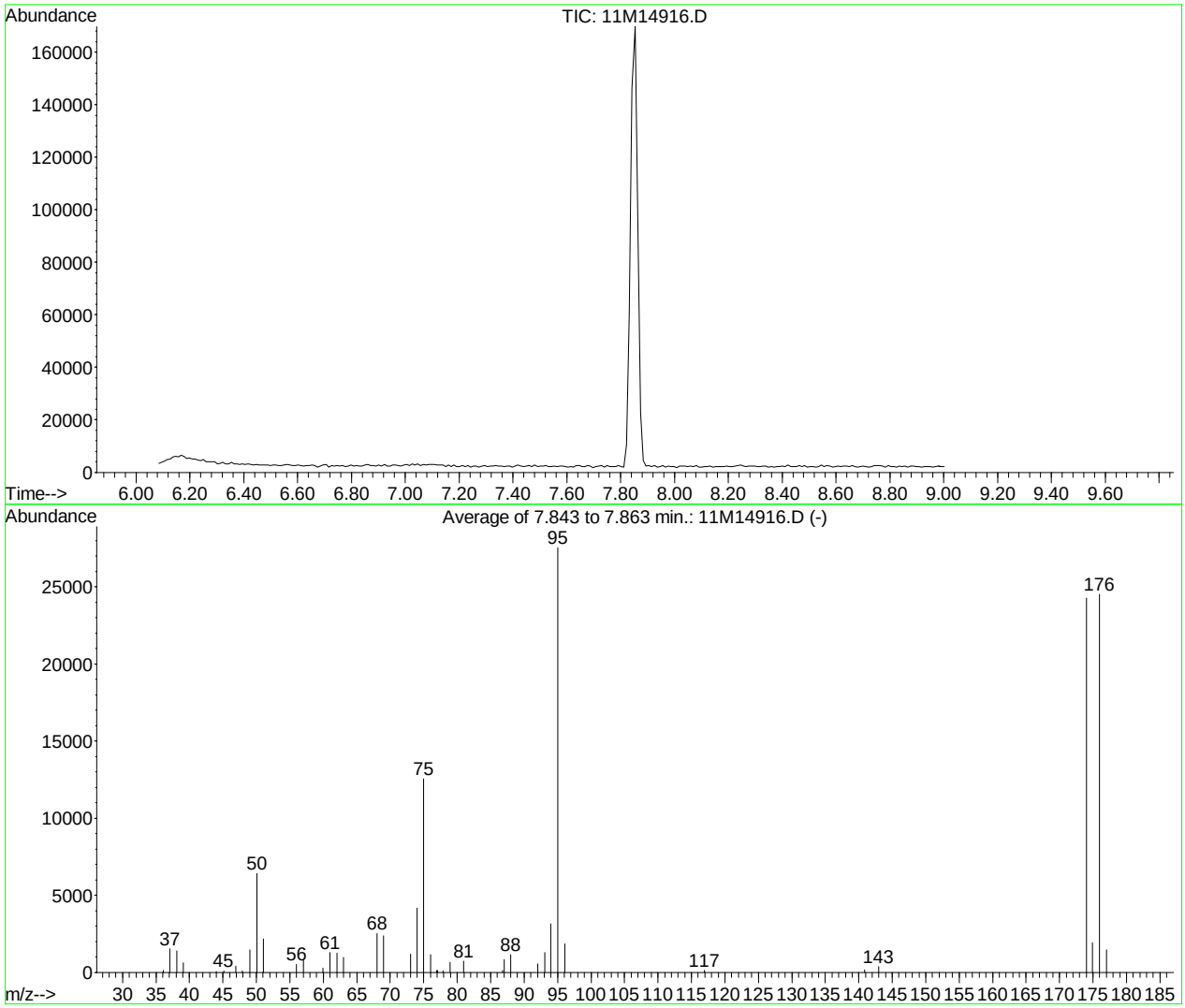
AutoFind: Scans 171, 172, 173; Background Corrected with Scan 166

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	26.2	5530	PASS
75	95	30	60	47.2	9953	PASS
95	95	100	100	100.0	21068	PASS
96	95	5	9	7.8	1640	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	91.0	19166	PASS
175	174	5	9	7.8	1489	PASS
176	174	95	101	95.3	18266	PASS
177	176	5	9	8.2	1500	PASS

11M14887.D BFB.M Mon Nov 07 16:54:26 2016

BFB

Data File : C:\MSDCHEM\1\DATA\110316\11M14916.D Vial: 1
Acq On : 3 Nov 2016 15:45 Operator: ADC
Sample : WG590291-01 BFB 50ng 8260 Inst : hpms11
Misc : 1,1 STD78474 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11



AutoFind: Scans 171, 172, 173; Background Corrected with Scan 166

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.2	6399	PASS
75	95	30	60	45.6	12545	PASS
95	95	100	100	100.0	27538	PASS
96	95	5	9	6.7	1835	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	88.1	24261	PASS
175	174	5	9	8.0	1931	PASS
176	174	95	101	101.0	24496	PASS
177	176	5	9	5.9	1456	PASS

11M14916.D 8260WT.M Wed Nov 09 11:27:21 2016

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\111116\11M15138.D Vial: 1
Acq On : 11 Nov 2016 14:15 Operator: ADC
Sample : WG591384-01 50ng BFB Inst : hpms11
Misc : 1,1 STD78474 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 14:24:52 2016 Quant Results File: BFB.RES

Quant Method : C:\MSDCHEM\1\METHODS\BFB.M (RTE Integrator)
Title : SOP: OVL MSV01
Last Update : Thu May 14 12:14:12 2015
Response via : Initial Calibration
DataAcq Meth : BFB

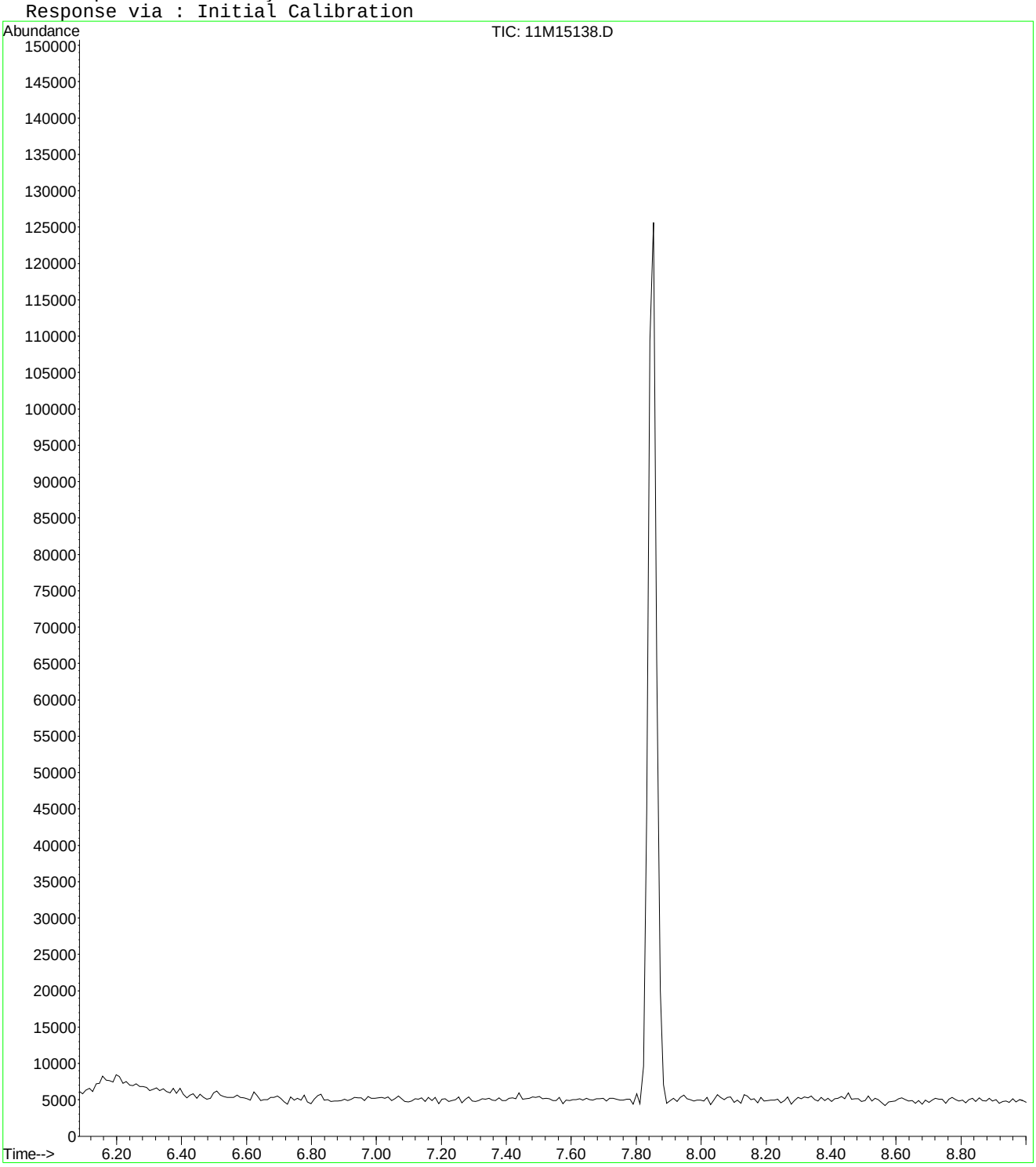
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
Target Compounds						Qvalue
1) BFB	7.85	95	45117	No Calib		

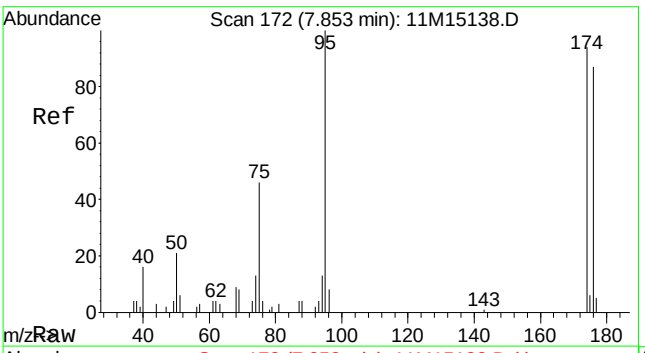
(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\111116\11M15138.D Vial: 1
Acq On : 11 Nov 2016 14:15 Operator: ADC
Sample : WG591384-01 50ng BFB Inst : hpms11
Misc : 1,1 STD78474 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 14:24 2016 Quant Results File: BFB.RES

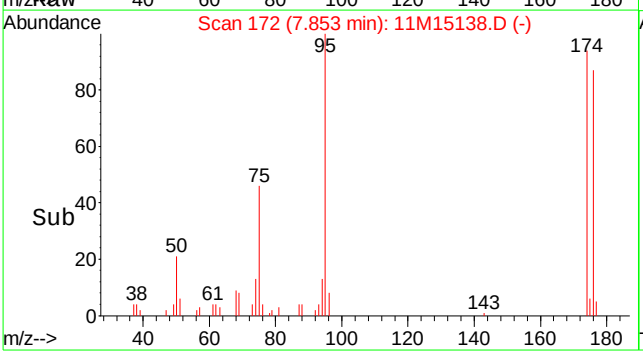
Method : C:\MSDCHEM\1\METHODS\BFB.M (RTE Integrator)
Title : SOP: OVL MSV01
Last Update : Thu May 14 12:14:12 2015
Response via : Initial Calibration

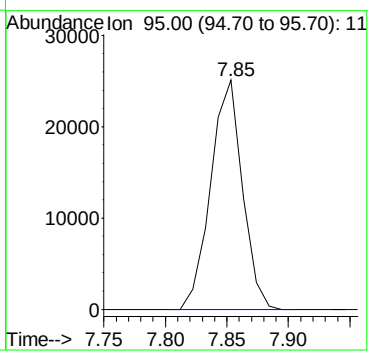




#1
BFB
Concen: N.D.
RT: 7.85 min Scan# 172
Delta R.T. -0.01 min
Lab File: 11M15138.D
Acq: 11 Nov 2016 14:15

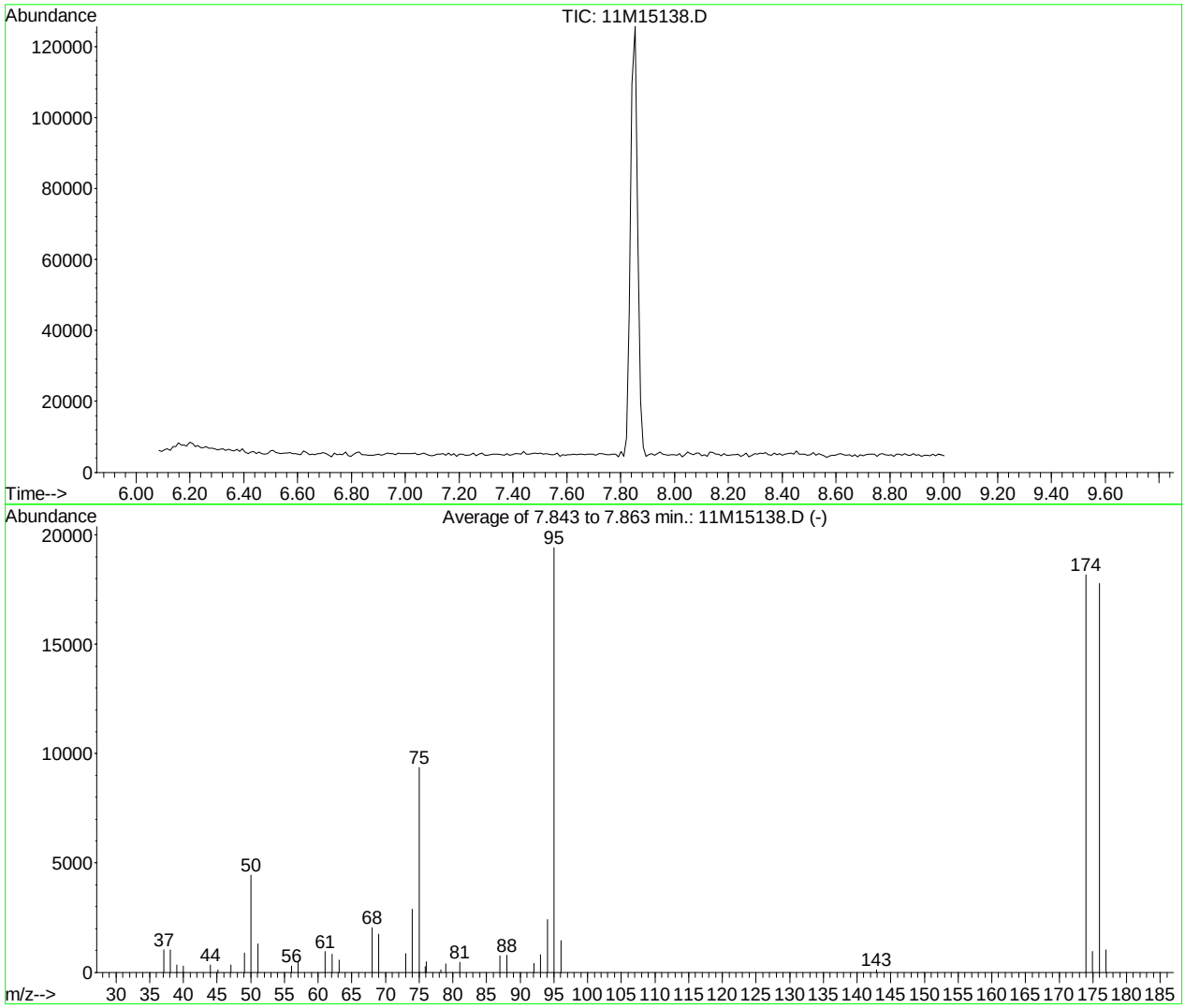
Tgt Ion: 95 Resp: 45117





BFB

Data File : C:\MSDCHEM\1\DATA\111116\11M15138.D Vial: 1
Acq On : 11 Nov 2016 14:15 Operator: ADC
Sample : WG591384-01 50ng BFB Inst : hpms11
Misc : 1,1 STD78474 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11



AutoFind: Scans 171, 172, 173; Background Corrected with Scan 166

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.8	4430	PASS
75	95	30	60	48.2	9359	PASS
95	95	100	100	100.0	19418	PASS
96	95	5	9	7.4	1446	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	93.6	18182	PASS
175	174	5	9	5.2	954	PASS
176	174	95	101	97.8	17783	PASS
177	176	5	9	5.8	1039	PASS

11M15138.D 8260WT.M Fri Nov 11 15:37:56 2016

Data File : C:\MSDCHEM\1\DATA\110216\11M14890.D Vial: 3
Acq On : 2 Nov 2016 16:04 Operator: ADC
Sample : WG590133-01 BLANK 8260 Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 02 16:26:17 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

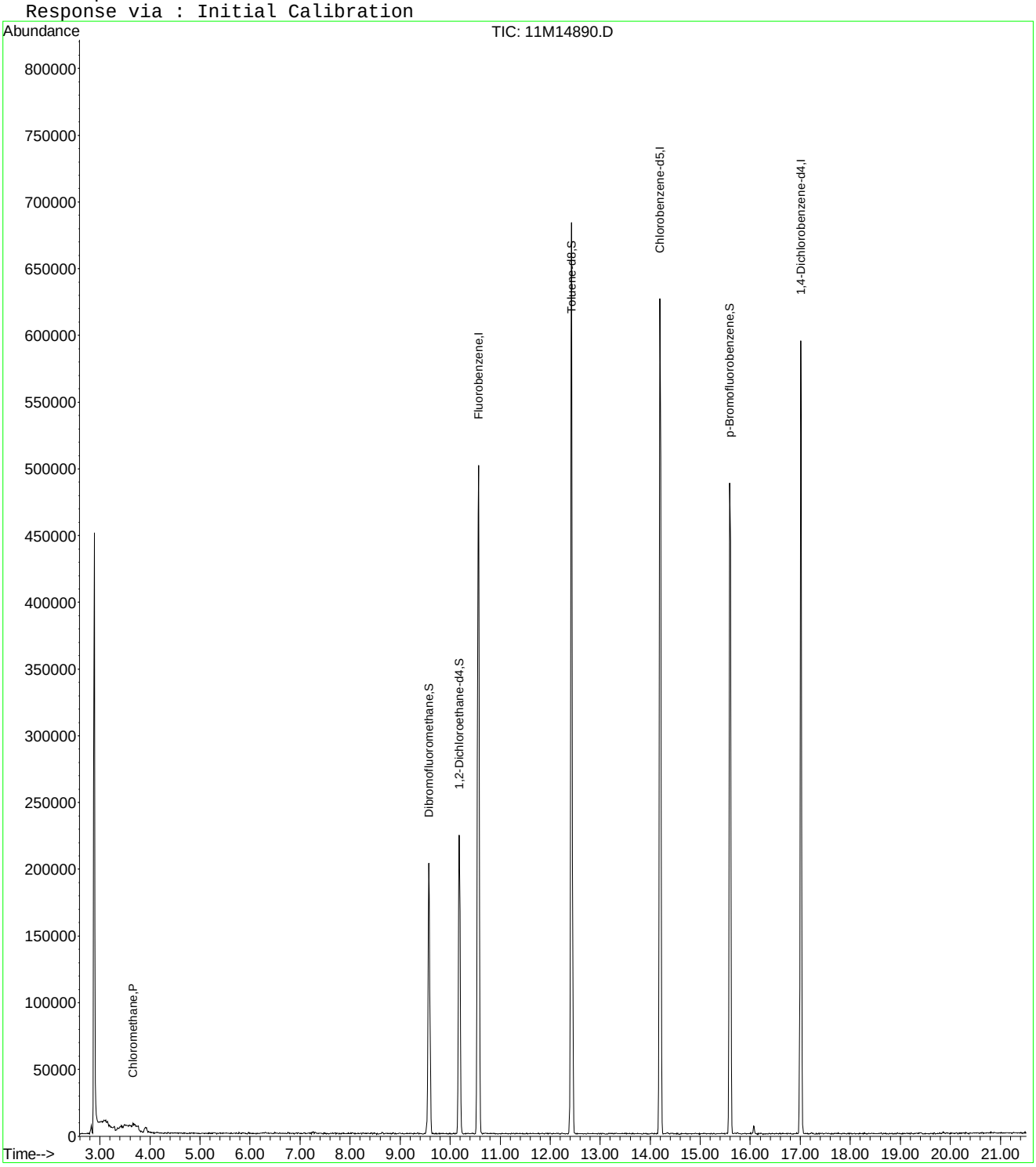
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	547078	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	410268	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	193855	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	165216	25.1057	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 100.44%			
43) 1,2-Dichloroethane-d4	10.18	65	180116	24.3786	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 97.52%			
57) Toluene-d8	12.43	98	546836	25.1518	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 100.60%			
78) p-Bromofluorobenzene	15.59	95	191457	24.6863	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 98.76%			
Target Compounds						Qvalue
3) Chloromethane	3.66	50	1790	0.1758	ug/L #	13
36) Tetrahydrofuran	9.54	42	4114	Below Cal		93

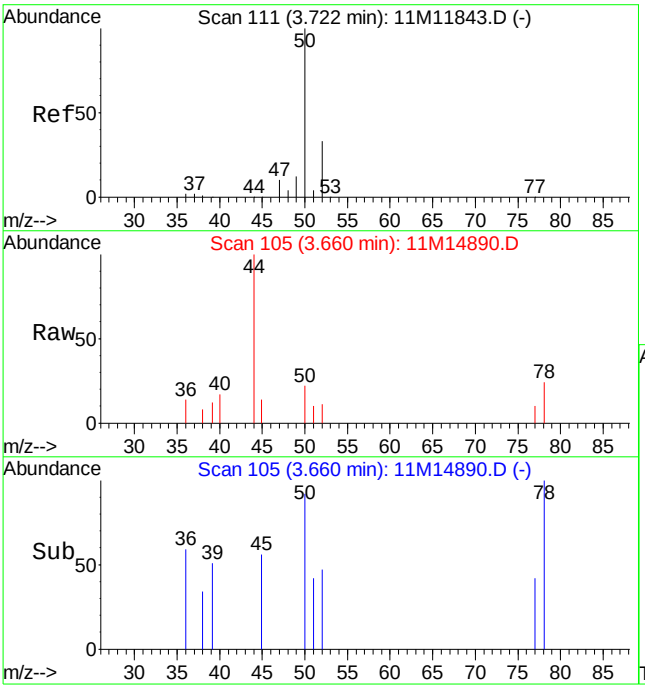
(#) = qualifier out of range (m) = manual integration
11M14890.D 8260WT.M Thu Nov 03 14:15:40 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110216\11M14890.D Vial: 3
Acq On : 2 Nov 2016 16:04 Operator: ADC
Sample : WG590133-01 BLANK 8260 Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 2 16:26 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

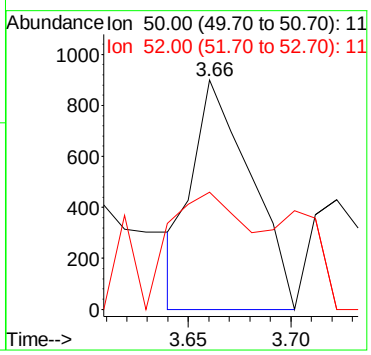


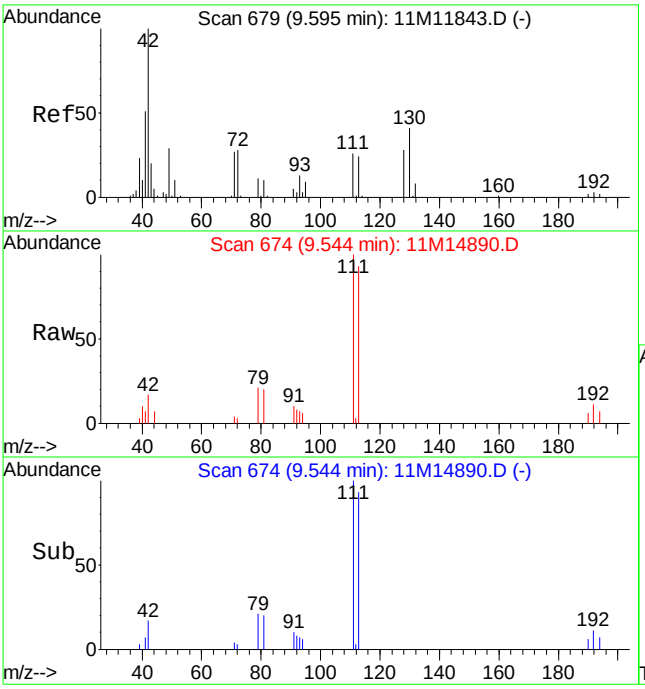


#3
Chloromethane
Concen: 0.18 ug/L
RT: 3.66 min Scan# 105
Delta R.T. 0.00 min
Lab File: 11M14890.D
Acq: 2 Nov 2016 16:04

Tgt Ion: 50 Resp: 1790

Ion	Ratio	Lower	Upper
50	100		
52	78.1	18.4	42.8#

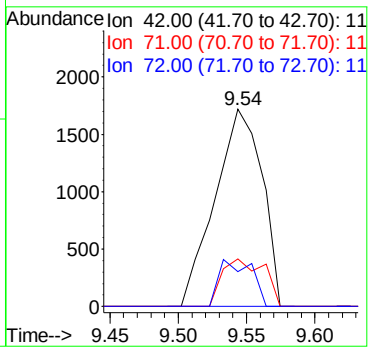




#36
Tetrahydrofuran
Concen: Below Cal
RT: 9.54 min Scan# 674
Delta R.T. -0.00 min
Lab File: 11M14890.D
Acq: 2 Nov 2016 16:04

Tgt Ion: 42 Resp: 4114

Ion	Ratio	Lower	Upper
42	100		
71	21.3	12.8	30.0
72	16.4	14.0	32.6



Data File : C:\MSDCHEM\1\DATA\110316\11M14919.D Vial: 3
Acq On : 3 Nov 2016 17:10 Operator: ADC
Sample : WG590292-01 BLANK 8260 Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:11:32 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

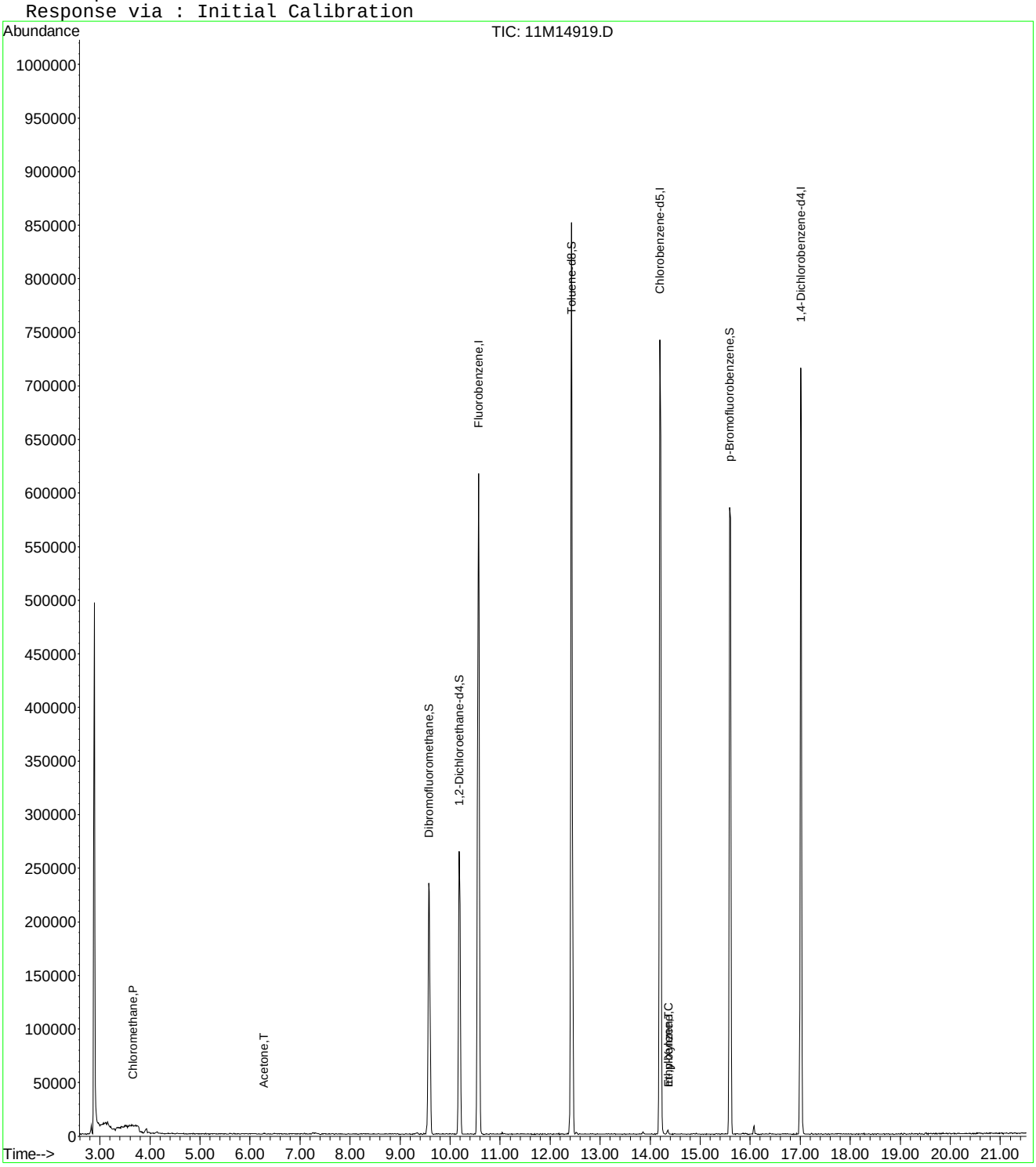
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.57	96	692515	25.00 ug/L	0.00
56) Chlorobenzene-d5	14.20	117	508653	25.00 ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	238359	25.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.57	111	198311	23.8060 ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 95.24%		
43) 1,2-Dichloroethane-d4	10.18	65	207061	22.1399 ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 88.56%		
57) Toluene-d8	12.43	98	687336	25.4992 ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 102.00%		
78) p-Bromofluorobenzene	15.59	95	251932	26.4188 ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 105.68%		
Target Compounds					Qvalue
3) Chloromethane	3.66	50	1718	0.1333 ug/L	# 1
13) Acetone	6.28	43	1406	0.5233 ug/L	# 50
36) Tetrahydrofuran	9.54	42	5562	Below Cal	95
70) Ethylbenzene	14.36	106	1774	0.1526 ug/L	# 36
71) m-,p-Xylene	14.36	106	1774	0.1296 ug/L	94

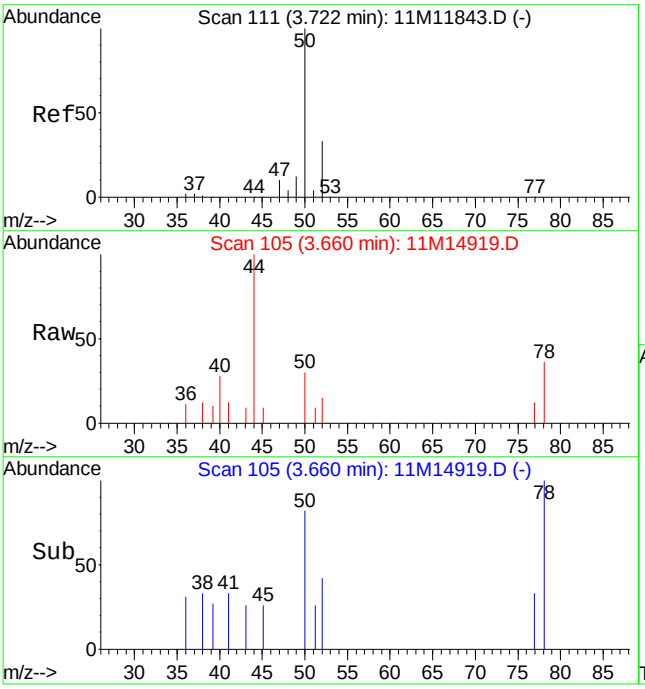
(#) = qualifier out of range (m) = manual integration
11M14919.D 8260WT.M Wed Nov 09 11:11:33 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14919.D Vial: 3
Acq On : 3 Nov 2016 17:10 Operator: ADC
Sample : WG590292-01 BLANK 8260 Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:11 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

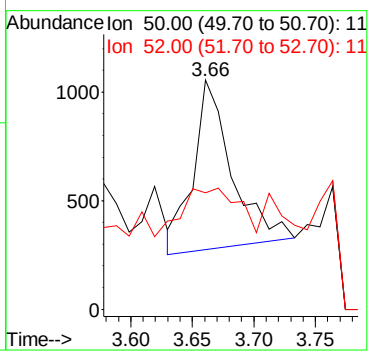


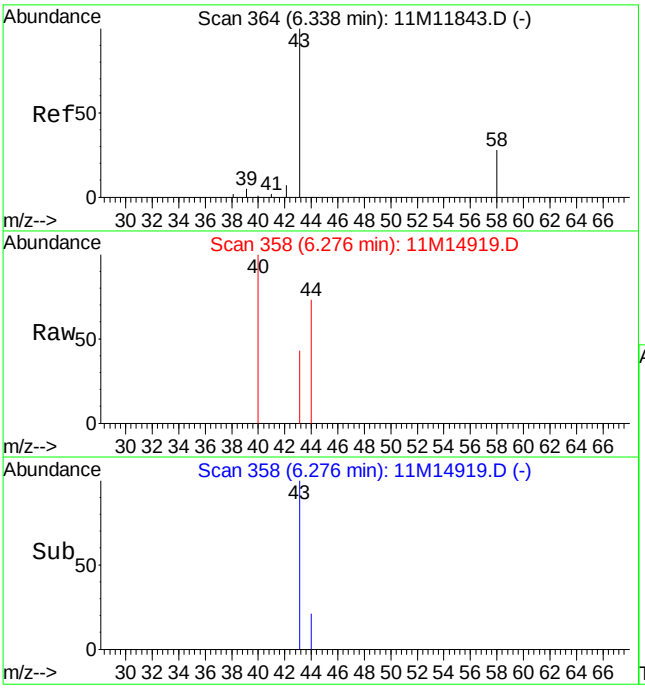


#3
Chloromethane
Concen: 0.13 ug/L
RT: 3.66 min Scan# 105
Delta R.T. 0.00 min
Lab File: 11M14919.D
Acq: 3 Nov 2016 17:10

Tgt Ion: 50 Resp: 1718

Ion	Ratio	Lower	Upper
50	100		
52	123.1	18.4	42.8#

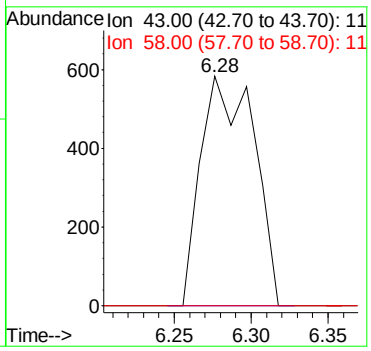


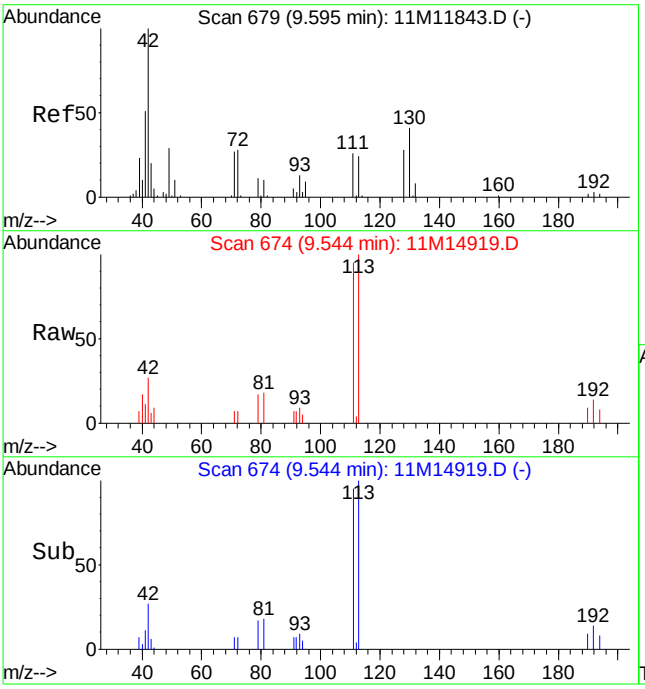


#13
Acetone
Concen: 0.52 ug/L
RT: 6.28 min Scan# 358
Delta R.T. 0.00 min
Lab File: 11M14919.D
Acq: 3 Nov 2016 17:10

Tgt Ion: 43 Resp: 1406

Ion	Ratio	Lower	Upper
43	100		
58	0.0	15.1	35.1#

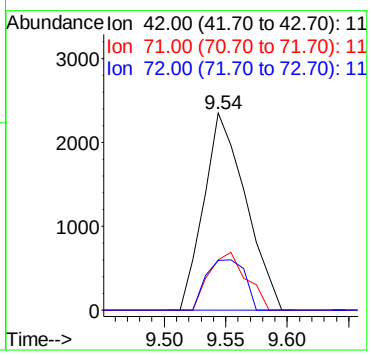


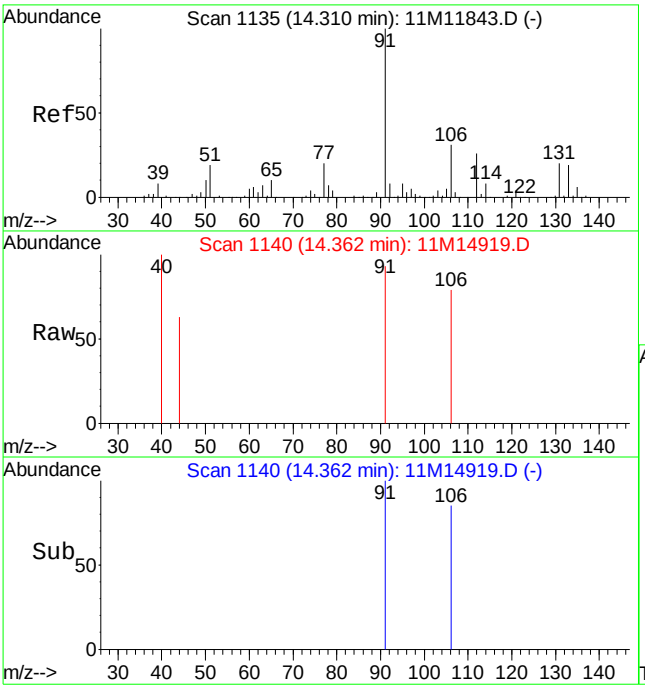


#36
Tetrahydrofuran
Concen: Below Cal
RT: 9.54 min Scan# 674
Delta R.T. 0.00 min
Lab File: 11M14919.D
Acq: 3 Nov 2016 17:10

Tgt Ion: 42 Resp: 5562

Ion	Ratio	Lower	Upper
42	100		
71	26.3	12.8	30.0
72	23.5	14.0	32.6

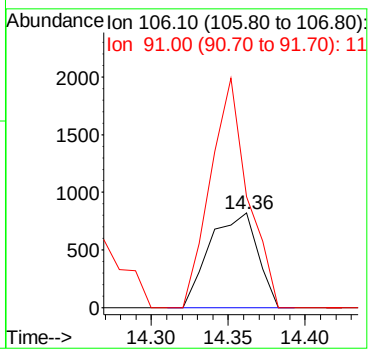


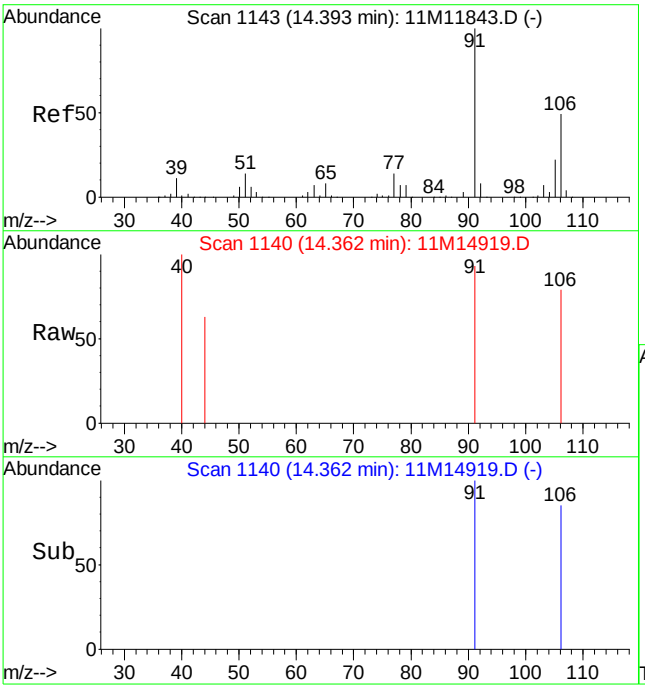


#70
Ethylbenzene
Concen: 0.15 ug/L
RT: 14.36 min Scan# 1140
Delta R.T. 0.09 min
Lab File: 11M14919.D
Acq: 3 Nov 2016 17:10

Tgt Ion:106 Resp: 1774

Ion	Ratio	Lower	Upper
106	100		
91	190.1	193.0	450.4#

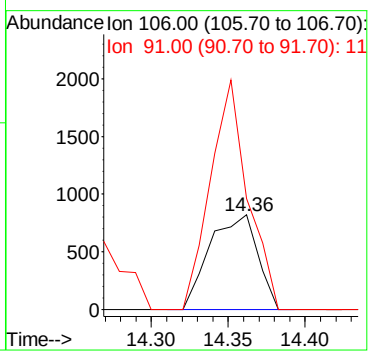




#71
m-,p-Xylene
Concen: 0.13 ug/L
RT: 14.36 min Scan# 1140
Delta R.T. 0.01 min
Lab File: 11M14919.D
Acq: 3 Nov 2016 17:10

Tgt Ion:106 Resp: 1774

Ion	Ratio	Lower	Upper
106	100		
91	190.1	119.9	279.7



Data File : C:\MSDCHEM\1\DATA\111116\11M15141.D Vial: 3
Acq On : 11 Nov 2016 15:37 Operator: ADC
Sample : WG591385-01 BLANK Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 14 12:58:54 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

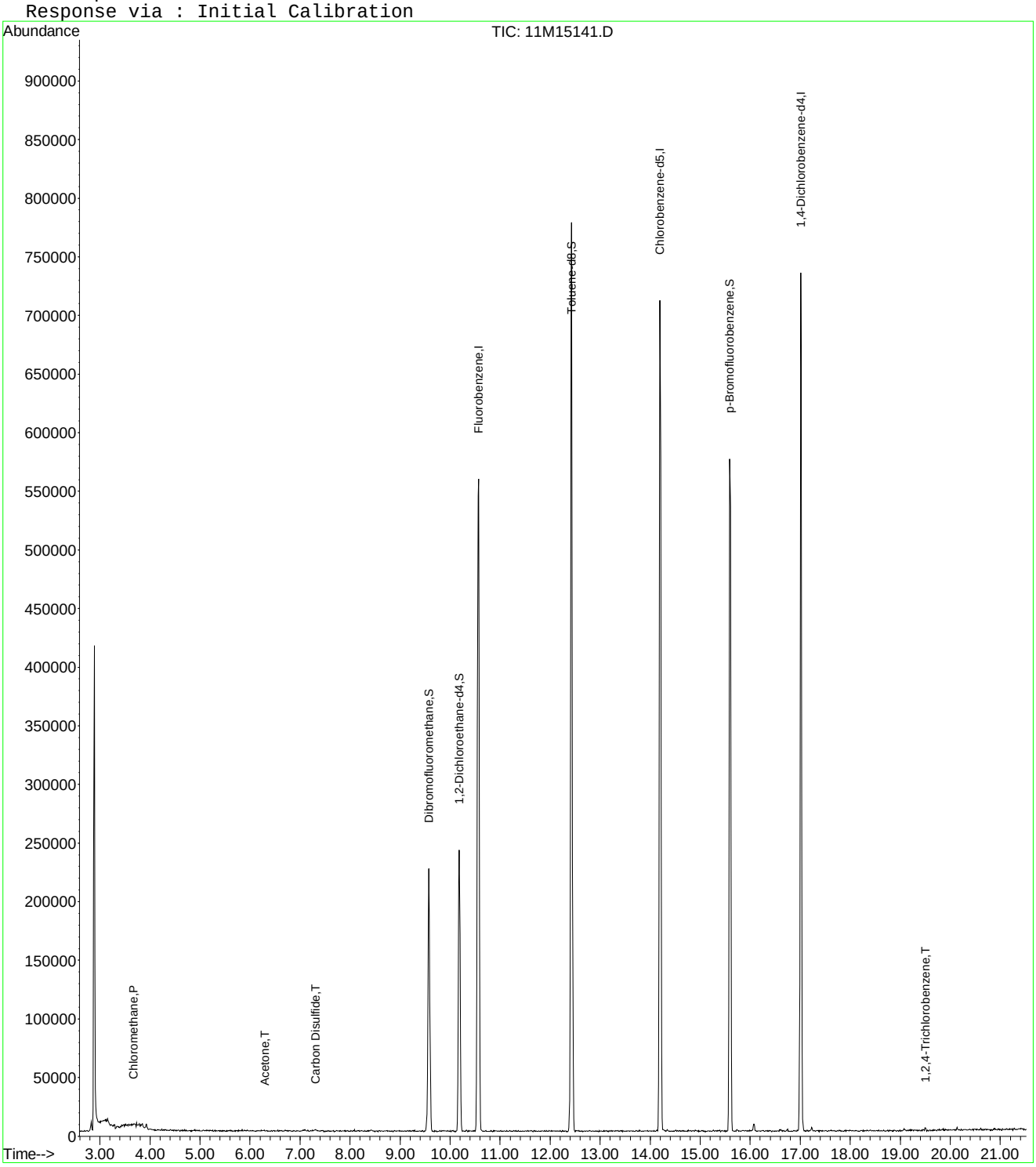
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.57	96	654449	25.00 ug/L	0.00
56) Chlorobenzene-d5	14.20	117	487170	25.00 ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	245578	25.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.57	111	183097	23.2581 ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 93.04%		
43) 1,2-Dichloroethane-d4	10.18	65	196215	22.2005 ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 88.80%		
57) Toluene-d8	12.43	98	659352	25.5397 ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 102.16%		
78) p-Bromofluorobenzene	15.59	95	241157	24.5455 ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 98.20%		
Target Compounds					Qvalue
3) Chloromethane	3.67	50	1804	0.1481 ug/L	95
13) Acetone	6.30	43	507	0.1997 ug/L #	50
20) Carbon Disulfide	7.31	76	2717	0.1214 ug/L #	74
36) Tetrahydrofuran	9.54	42	6842	Below Cal	93
96) 1,2,4-Trichlorobenzene	19.50	180	1606	0.1313 ug/L	89

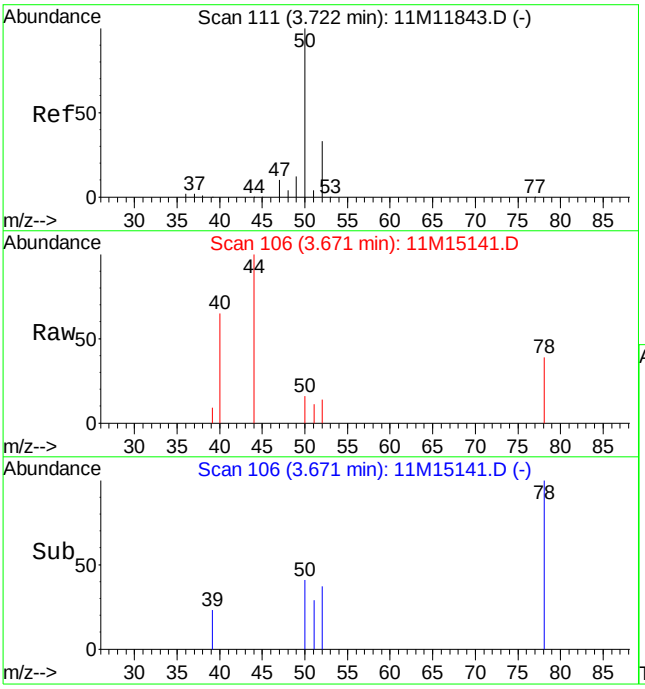
(#) = qualifier out of range (m) = manual integration
11M15141.D 8260WT.M Mon Nov 14 12:58:55 2016 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\111116\11M15141.D Vial: 3
Acq On : 11 Nov 2016 15:37 Operator: ADC
Sample : WG591385-01 BLANK Inst : hpms11
Misc : 1,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 14 12:58 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration

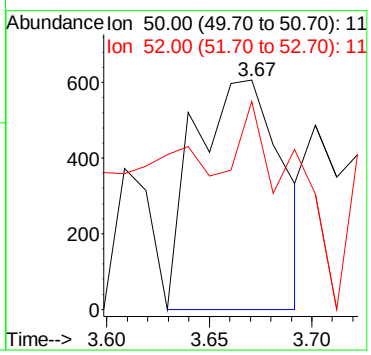


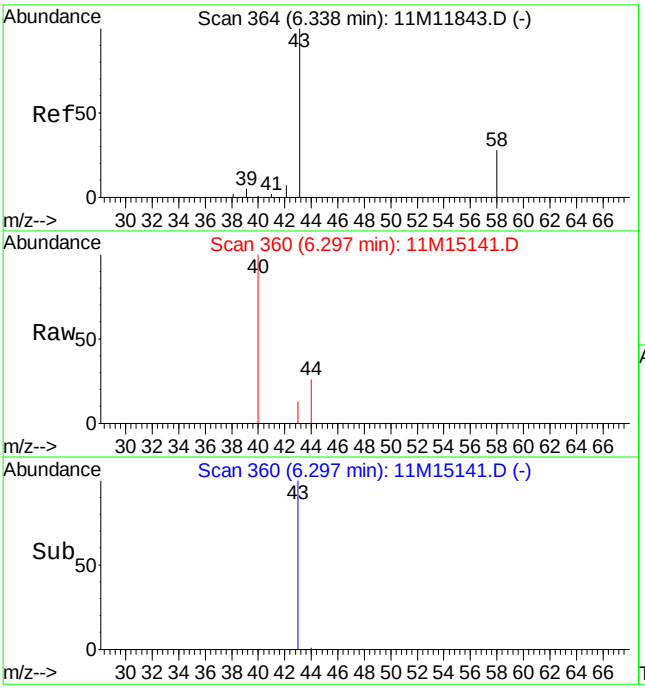


#3
Chloromethane
Concen: 0.15 ug/L
RT: 3.67 min Scan# 106
Delta R.T. 0.01 min
Lab File: 11M15141.D
Acq: 11 Nov 2016 15:37

Tgt Ion: 50 Resp: 1804

Ion	Ratio	Lower	Upper
50	100		
52	27.9	18.4	42.8

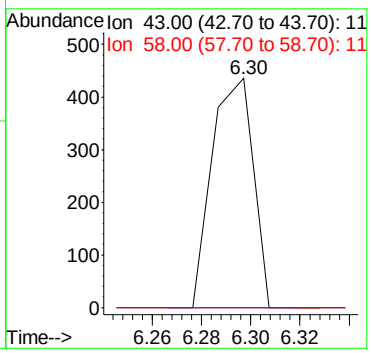


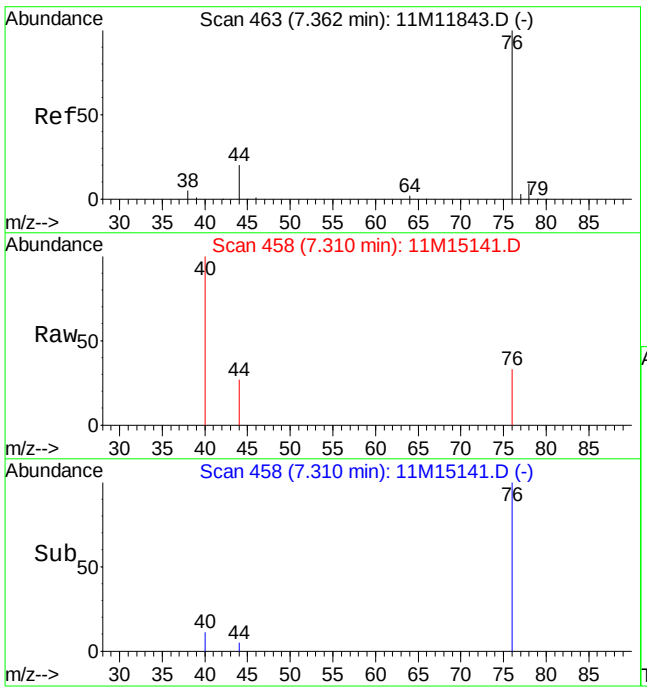


#13
Acetone
Concen: 0.20 ug/L
RT: 6.30 min Scan# 360
Delta R.T. 0.02 min
Lab File: 11M15141.D
Acq: 11 Nov 2016 15:37

Tgt Ion: 43 Resp: 507

Ion	Ratio	Lower	Upper
43	100		
58	0.0	15.1	35.1#

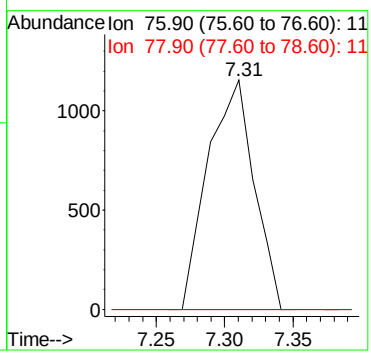


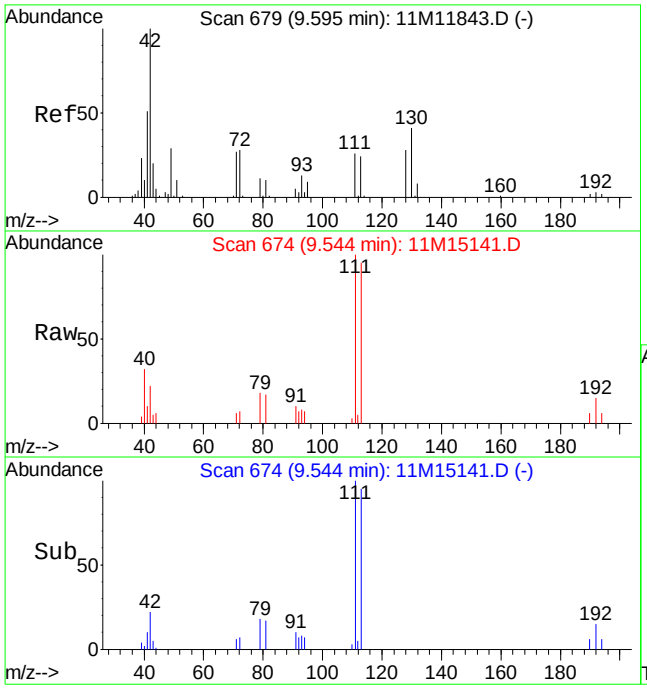


#20
Carbon Disulfide
Concen: 0.12 ug/L
RT: 7.31 min Scan# 458
Delta R.T. 0.00 min
Lab File: 11M15141.D
Acq: 11 Nov 2016 15:37

Tgt Ion: 76 Resp: 2717

Ion	Ratio	Lower	Upper
76	100		
78	0.0	5.6	13.0#

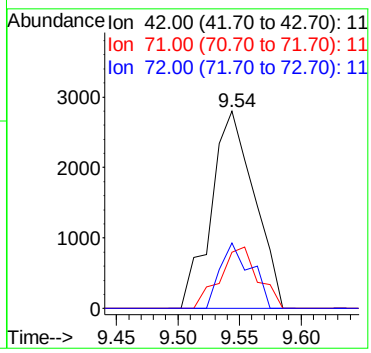


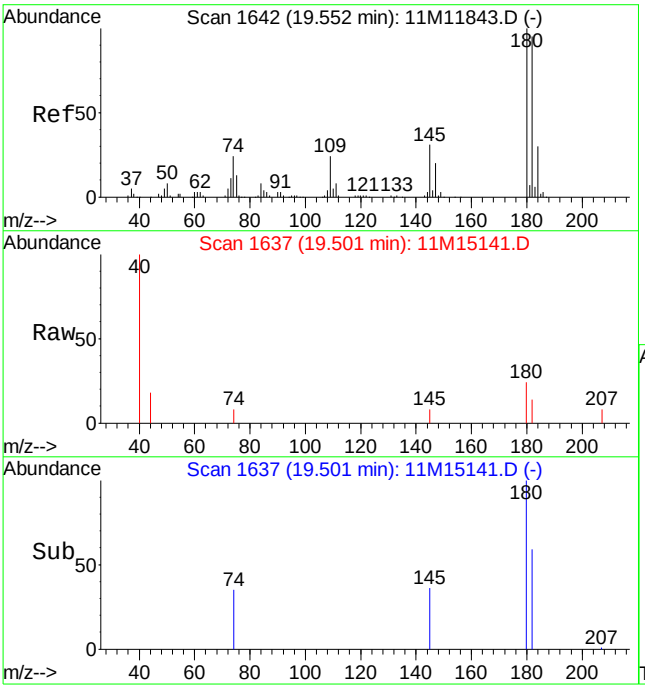


#36
Tetrahydrofuran
Concen: Below Cal
RT: 9.54 min Scan# 674
Delta R.T. 0.00 min
Lab File: 11M15141.D
Acq: 11 Nov 2016 15:37

Tgt Ion: 42 Resp: 6842

Ion	Ratio	Lower	Upper
42	100		
71	27.6	12.8	30.0
72	23.8	14.0	32.6

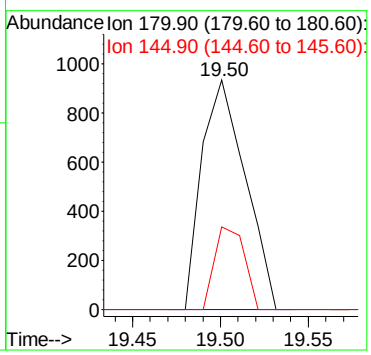




#96
1,2,4-Trichlorobenzene
Concen: 0.13 ug/L
RT: 19.50 min Scan# 1637
Delta R.T. 0.00 min
Lab File: 11M15141.D
Acq: 11 Nov 2016 15:37

Tgt Ion:180 Resp: 1606

Ion	Ratio	Lower	Upper
180	100		
145	24.6	18.5	43.3



Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\110216\11M14891.D Vial: 4
Acq On : 2 Nov 2016 16:33 Operator: ADC
Sample : WG590133-02 20ug/L LCS 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 02 16:54:54 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	557080	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	422281	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	210069	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	166577	24.8580	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 99.44%			
43) 1,2-Dichloroethane-d4	10.18	65	180177	23.9490	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 95.80%			
57) Toluene-d8	12.43	98	562002	25.1140	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 100.44%			
78) p-Bromofluorobenzene	15.59	95	205695	24.4750	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 97.92%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	159896	16.9181	ug/L	97
3) Chloromethane	3.66	50	226675	21.8677	ug/L	99
4) Vinyl Chloride	3.90	62	175813	19.0205	ug/L	100
5) 1,3-Butadiene	3.94	54	170106	22.6073	ug/L	94
6) Bromomethane	4.80	94	94871	21.1820	ug/L	99
7) Chloroethane	4.95	64	109430	20.2079	ug/L	100
8) Trichlorofluoromethane	5.44	101	217514	20.2177	ug/L	99
9) Diethyl ether	5.95	59	619905	117.8783	ug/L	96
10) Isoprene	5.99	67	199065	20.2752	ug/L	98
11) Acrolein	6.17	56	87627	199.9851	ug/L	97
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	124751	21.5605	ug/L	97
13) Acetone	6.28	43	32661	15.1119	ug/L	93
14) 1,1-Dichloroethene	6.50	61	236082	20.5349	ug/L	99
15) Tert-Butyl Alcohol	6.60	59	47636	85.3932	ug/L	99
16) Dimethyl Sulfide	6.75	62	183041	23.2296	ug/L	97
17) Iodomethane	7.00	142	180082	23.6078	ug/L	100
18) Methyl acetate	7.01	43	102468	16.0767	ug/L	95
19) Methylene Chloride	7.26	84	136124	20.8271	ug/L	97
20) Carbon Disulfide	7.31	76	335167	17.5885	ug/L	100
21) Acrylonitrile	7.43	53	52722	18.1568	ug/L	95
22) Methyl Tert Butyl Ether	7.47	73	323618	20.1381	ug/L	98
23) trans-1,2-Dichloroethene	7.70	96	135743	20.8356	ug/L	96
24) n-Hexane	7.77	57	214098	19.2170	ug/L	99
25) Diisopropyl ether	8.10	45	3405362	108.0753	ug/L	98
26) Vinyl Acetate	8.26	43	350305	20.7995	ug/L	100
27) 1,1-Dichloroethane	8.29	63	287442	21.5272	ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	2284295	97.7565	ug/L	99
29) 2-Butanone	8.82	43	58099	15.9989	ug/L	100
30) Propionitrile	8.92	54	76435	75.9668	ug/L	100
31) 2,2-Dichloropropane	9.04	77	203804	22.3975	ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	157506	21.9524	ug/L	98
33) Chloroform	9.30	83	259340	22.1363	ug/L	100
34) 1-Bromopropane	9.43	122	30079	24.4764	ug/L	99
35) Bromochloromethane	9.52	130	100341	21.6949	ug/L	95
36) Tetrahydrofuran	9.54	42	201052	81.4052	ug/L	95
38) 1,1,1-Trichloroethane	9.81	97	238967	23.1338	ug/L	99
39) Cyclohexane	9.83	56	236005	15.5857	ug/L	98
40) 1,1-Dichloropropene	9.99	75	183247	21.4292	ug/L	98
41) Carbon Tetrachloride	10.13	117	221729	22.9736	ug/L	99
42) Tert-Amyl-Methyl ether	10.08	73	1601374	101.2012	ug/L	98

(#) = qualifier out of range (m) = manual integration
11M14891.D 8260WT.M Wed Nov 02 16:54:55 2016 Page 1

Data File : C:\MSDchem\1\data\110216\11M14891.D Vial: 4
Acq On : 2 Nov 2016 16:33 Operator: ADC
Sample : WG590133-02 20ug/L LCS 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 02 16:54:54 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

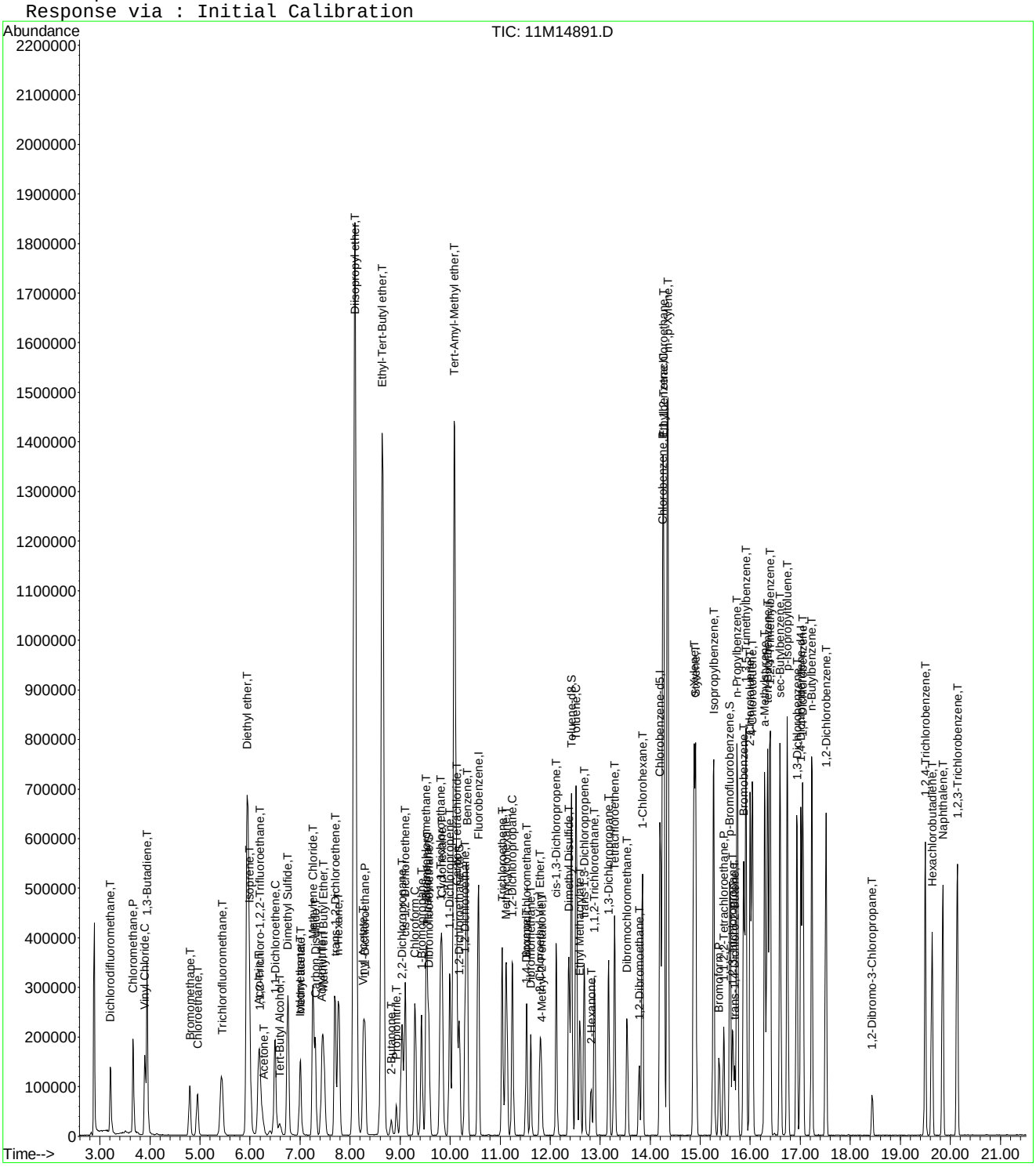
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	221618	22.0198 ug/L	99
45)	Benzene	10.34	78	556435	22.0285 ug/L	99
46)	Trichloroethene	11.04	130	155017	21.2182 ug/L	98
47)	Methylcyclohexane	11.12	83	179760	18.1503 ug/L	97
48)	1,2-Dichloropropane	11.24	63	165182	22.1851 ug/L	100
49)	1,4-Dioxane	11.52	88	3212	61.8864 ug/L	98
50)	Bromodichloromethane	11.53	83	195682	22.1054 ug/L	99
51)	Dibromomethane	11.61	93	85760	21.7241 ug/L	99
52)	2-Chloroethyl Vinyl Ether	11.80	63	77362	17.7388 ug/L	98
53)	4-Methyl-2-Pentanone	11.83	58	42976	16.0506 ug/L	99
54)	cis-1,3-Dichloropropene	12.12	75	225939	23.0921 ug/L	100
55)	Dimethyl Disulfide	12.38	79	110197	18.7659 ug/L	89
58)	Toluene	12.52	91	612068	23.0176 ug/L	100
59)	Ethyl Methacrylate	12.59	69	127016	18.6878 ug/L	92
60)	trans-1,3-Dichloropropene	12.68	75	190698	21.9037 ug/L	100
61)	1,1,2-Trichloroethane	12.88	97	118305	22.8674 ug/L	98
62)	2-Hexanone	12.82	43	89473	16.0445 ug/L #	78
63)	1,3-Dichloropropane	13.17	76	201083	23.1216 ug/L	90
64)	Tetrachloroethene	13.29	164	129581	22.4511 ug/L	100
65)	Dibromochloromethane	13.53	129	157187	22.6685 ug/L	99
66)	1,2-Dibromoethane	13.78	107	112868	21.1929 ug/L	98
67)	1-Chlorohexane	13.84	91	170567	19.8770 ug/L	98
68)	Chlorobenzene	14.25	112	422214	22.3759 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	155852	23.1579 ug/L	99
70)	Ethylbenzene	14.27	106	223062	23.1193 ug/L	100
71)	m-,p-Xylene	14.35	106	533055	46.8941 ug/L	98
72)	o-Xylene	14.88	106	262646	23.4885 ug/L	99
73)	Styrene	14.91	104	440083	23.1856 ug/L	98
74)	Bromoform	15.38	173	94545	21.0252 ug/L	97
75)	Isopropylbenzene	15.27	105	668180	23.3232 ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	134382	22.6836 ug/L	100
79)	1,2,3-Trichloropropane	15.65	110	41838	23.2877 ug/L	92
80)	trans-1,4-Dichloro-2-Buten	15.69	53	47355	19.5709 ug/L	90
81)	n-Propylbenzene	15.74	91	800837	25.6233 ug/L	99
82)	Bromobenzene	15.87	156	187197	23.3687 ug/L	96
83)	1,3,5-Trimethylbenzene	15.91	105	571985	25.5152 ug/L	99
84)	2-Chlorotoluene	16.00	91	482549	24.3989 ug/L	88
85)	4-Chlorotoluene	16.04	91	498303	24.7380 ug/L	88
86)	a-Methylstyrene	16.28	118	291377	22.1133 ug/L	99
87)	tert-Butylbenzene	16.35	134	123770	25.2371 ug/L	99
88)	1,2,4-Trimethylbenzene	16.40	105	589337	25.5552 ug/L	100
89)	sec-Butylbenzene	16.60	105	729022	25.6807 ug/L	99
90)	p-Isopropyltoluene	16.74	119	628203	25.4307 ug/L	99
91)	1,3-Dichlorobenzene	16.94	146	342321	23.1793 ug/L	100
92)	1,4-Dichlorobenzene	17.05	146	343920	22.7249 ug/L	99
93)	n-Butylbenzene	17.23	91	559761	24.1523 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	331422	23.4924 ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	24199	21.2513 ug/L	99
96)	1,2,4-Trichlorobenzene	19.50	180	227713	21.7646 ug/L	100
97)	Hexachlorobutadiene	19.63	225	102198	24.9576 ug/L	98
98)	Naphthalene	19.85	128	494073	22.7134 ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	217521	21.5461 ug/L	99

(#) = qualifier out of range (m) = manual integration
11M14891.D 8260WT.M Wed Nov 02 16:54:56 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\110216\11M14891.D Vial: 4
Acq On : 2 Nov 2016 16:33 Operator: ADC
Sample : WG590133-02 20ug/L LCS 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 2 16:54 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14920.D Vial: 4
Acq On : 3 Nov 2016 17:38 Operator: ADC
Sample : WG590292-02 20ug/L LCS 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:28:02 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	633881	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	472773	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	233363	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	179795	23.5797	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 94.32%			
43) 1,2-Dichloroethane-d4	10.18	65	187070	21.8526	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 87.40%			
57) Toluene-d8	12.43	98	613781	24.4985	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 98.00%			
78) p-Bromofluorobenzene	15.59	95	225814	24.1869	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 96.76%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	169401	15.7521	ug/L	94
3) Chloromethane	3.66	50	223555	18.9537	ug/L	98
4) Vinyl Chloride	3.90	62	210952	20.0569	ug/L	99
5) 1,3-Butadiene	3.94	54	160958	18.7997	ug/L	86
6) Bromomethane	4.79	94	108872	21.3629	ug/L	97
7) Chloroethane	4.94	64	125203	20.3194	ug/L	100
8) Trichlorofluoromethane	5.43	101	232937	19.0280	ug/L	99
9) Diethyl ether	5.95	59	750288	125.3853	ug/L	93
10) Isoprene	5.99	67	228735	20.4745	ug/L	96
11) Acrolein	6.17	56	125025	250.7647	ug/L	97
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	140789	21.3842	ug/L	96
13) Acetone	6.28	43	47505	19.3169	ug/L	93
14) 1,1-Dichloroethene	6.50	61	258001	19.7224	ug/L	95
15) Tert-Butyl Alcohol	6.60	59	110638	174.3019	ug/L	95
16) Dimethyl Sulfide	6.75	62	221479	24.7022	ug/L	89
17) Iodomethane	7.00	142	203280	23.4240	ug/L	98
18) Methyl acetate	7.01	43	129015	17.7892	ug/L	95
19) Methylene Chloride	7.26	84	157186	21.1357	ug/L	89
20) Carbon Disulfide	7.31	76	378488	17.4553	ug/L	99
21) Acrylonitrile	7.43	53	68388	20.6985	ug/L	98
22) Methyl Tert Butyl Ether	7.47	73	407301	22.2747	ug/L	97
23) trans-1,2-Dichloroethene	7.70	96	150292	20.2737	ug/L	99
24) n-Hexane	7.78	57	243493	19.2075	ug/L	99
25) Diisopropyl ether	8.10	45	3813964	106.3774	ug/L	96
26) Vinyl Acetate	8.26	43	395940	20.6607	ug/L	98
27) 1,1-Dichloroethane	8.29	63	326848	21.5126	ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	2752670	103.5279	ug/L	99
29) 2-Butanone	8.82	43	78252	18.9377	ug/L	97
30) Propionitrile	8.93	54	116074	101.3856	ug/L	98
31) 2,2-Dichloropropane	9.04	77	219136	21.1646	ug/L	100
32) cis-1,2-Dichloroethene	9.10	96	181327	22.2104	ug/L	95
33) Chloroform	9.31	83	290997	21.8290	ug/L	99
34) 1-Bromopropane	9.43	122	33846	24.2048	ug/L	91
35) Bromochloromethane	9.52	130	119388	22.6856	ug/L	88
36) Tetrahydrofuran	9.54	42	262550	93.8207	ug/L	92
38) 1,1,1-Trichloroethane	9.81	97	256808	21.8488	ug/L	96
39) Cyclohexane	9.84	56	274946	15.9574	ug/L	98
40) 1,1-Dichloropropene	10.00	75	208747	21.4536	ug/L	100
41) Carbon Tetrachloride	10.13	117	235376	21.4328	ug/L	98
42) Tert-Amyl-Methyl ether	10.09	73	2004576	111.3334	ug/L	94

(#) = qualifier out of range (m) = manual integration
11M14920.D 8260WT.M Wed Nov 09 11:28:03 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110316\11M14920.D Vial: 4
Acq On : 3 Nov 2016 17:38 Operator: ADC
Sample : WG590292-02 20ug/L LCS 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:28:02 2016 Quant Results File: 8260WT.RES

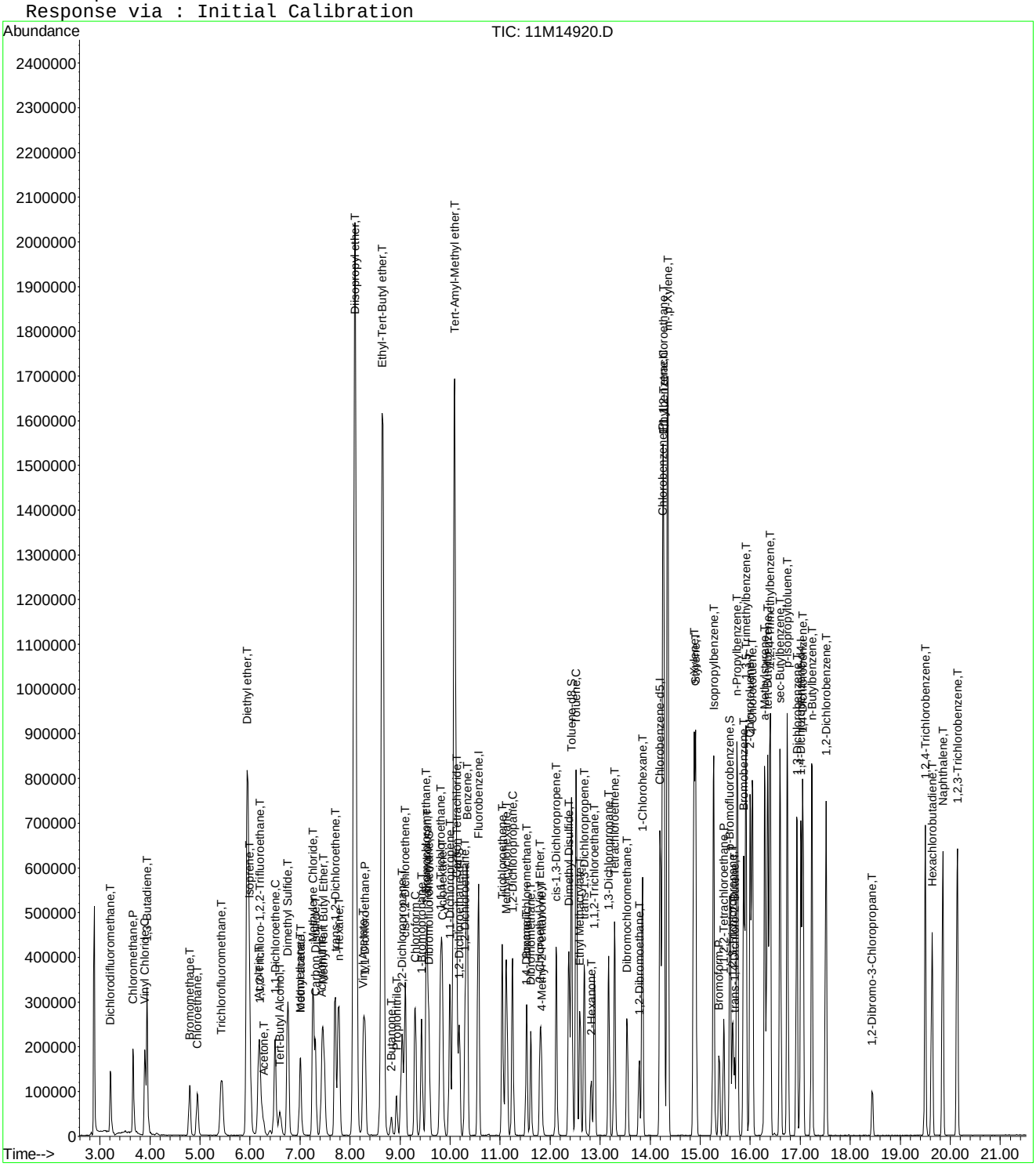
Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	244584	21.3573	ug/L	98
45)	Benzene	10.34	78	640143	22.2719	ug/L	98
46)	Trichloroethene	11.04	130	180280	21.6864	ug/L	98
47)	Methylcyclohexane	11.13	83	208686	18.5180	ug/L	95
48)	1,2-Dichloropropane	11.25	63	196057	23.1415	ug/L	98
49)	1,4-Dioxane	11.52	88	9001	152.4124	ug/L	100
50)	Bromodichloromethane	11.53	83	220812	21.9220	ug/L	99
51)	Dibromomethane	11.61	93	101434	22.5814	ug/L	98
52)	2-Chloroethyl Vinyl Ether	11.80	63	96260	19.3978	ug/L	96
53)	4-Methyl-2-Pentanone	11.83	58	56914	18.6808	ug/L	97
54)	cis-1,3-Dichloropropene	12.12	75	264656	23.7719	ug/L	99
55)	Dimethyl Disulfide	12.38	79	135173	20.2301	ug/L	95
58)	Toluene	12.52	91	710439	23.8636	ug/L	100
59)	Ethyl Methacrylate	12.59	69	164386	21.6030	ug/L	82
60)	trans-1,3-Dichloropropene	12.68	75	222615	22.8388	ug/L	98
61)	1,1,2-Trichloroethane	12.88	97	139499	24.0843	ug/L	99
62)	2-Hexanone	12.82	43	112742	18.0580	ug/L	92
63)	1,3-Dichloropropane	13.17	76	240519	24.7025	ug/L	81
64)	Tetrachloroethene	13.29	164	146958	22.7425	ug/L	100
65)	Dibromochloromethane	13.53	129	179574	23.1312	ug/L	99
66)	1,2-Dibromoethane	13.78	107	138842	23.2857	ug/L	99
67)	1-Chlorohexane	13.84	91	199480	20.7636	ug/L	91
68)	Chlorobenzene	14.25	112	493710	23.3706	ug/L	98
69)	1,1,1,2-Tetrachloroethane	14.27	131	179396	23.8094	ug/L	97
70)	Ethylbenzene	14.27	106	259307	24.0056	ug/L	96
71)	m-,p-Xylene	14.35	106	609460	47.8895	ug/L	98
72)	o-Xylene	14.88	106	302335	24.1503	ug/L	98
73)	Styrene	14.91	104	515626	24.2643	ug/L	98
74)	Bromoform	15.38	173	111738	22.1948	ug/L	98
75)	Isopropylbenzene	15.27	105	765351	23.8618	ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	164548	25.0031	ug/L	99
79)	1,2,3-Trichloropropane	15.65	110	50292	25.1991	ug/L	96
80)	trans-1,4-Dichloro-2-Buten	15.69	53	55073	20.4887	ug/L	89
81)	n-Propylbenzene	15.74	91	906297	26.1031	ug/L	100
82)	Bromobenzene	15.87	156	214874	24.1462	ug/L	95
83)	1,3,5-Trimethylbenzene	15.91	105	654624	26.2867	ug/L	100
84)	2-Chlorotoluene	16.00	91	554790	25.2515	ug/L	88
85)	4-Chlorotoluene	16.04	91	574290	25.6645	ug/L	88
86)	a-Methylstyrene	16.29	118	334804	22.8728	ug/L	100
87)	tert-Butylbenzene	16.35	134	143641	26.3653	ug/L	93
88)	1,2,4-Trimethylbenzene	16.40	105	672523	26.2514	ug/L	99
89)	sec-Butylbenzene	16.60	105	826035	26.1935	ug/L	100
90)	p-Isopropyltoluene	16.74	119	727791	26.5213	ug/L	99
91)	1,3-Dichlorobenzene	16.94	146	396856	24.1896	ug/L	98
92)	1,4-Dichlorobenzene	17.05	146	396273	23.5706	ug/L	99
93)	n-Butylbenzene	17.24	91	635905	24.6989	ug/L	100
94)	1,2-Dichlorobenzene	17.52	146	388813	24.8094	ug/L	98
95)	1,2-Dibromo-3-Chloropropan	18.44	75	29676	23.4598	ug/L	92
96)	1,2,4-Trichlorobenzene	19.50	180	270816	23.3006	ug/L	99
97)	Hexachlorobutadiene	19.64	225	117239	25.7728	ug/L	98
98)	Naphthalene	19.85	128	620799	25.6905	ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	263310	23.4782	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14920.D 8260WT.M Wed Nov 09 11:28:03 2016 Page 2

Data File : C:\MSDCHEM\1\DATA\110316\11M14920.D Vial: 4
Acq On : 3 Nov 2016 17:38 Operator: ADC
Sample : WG590292-02 20ug/L LCS 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:28 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



Data File : C:\MSDchem\1\data\111116\11M15142.D Vial: 4
Acq On : 11 Nov 2016 16:06 Operator: ADC
Sample : WG591385-02 20ug/Kg LCS Inst : hpms11
Misc : 1,1 STD78758 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 16:28:07 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	641603	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	493617	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	264179	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	179295	23.2312	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 92.92%			
43) 1,2-Dichloroethane-d4	10.18	65	193108	22.2864	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 89.16%			
57) Toluene-d8	12.43	98	651233	24.8958	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 99.60%			
78) p-Bromofluorobenzene	15.59	95	246208	23.2952	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 93.20%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	145564	13.3727	ug/L	93
3) Chloromethane	3.66	50	184887	15.4867	ug/L	95
4) Vinyl Chloride	3.90	62	185463	17.4213	ug/L	99
5) 1,3-Butadiene	3.94	54	112019	12.9262	ug/L	89
6) Bromomethane	4.79	94	103351	20.0355	ug/L	98
7) Chloroethane	4.94	64	120090	19.2550	ug/L	99
8) Trichlorofluoromethane	5.42	101	218969	17.6717	ug/L	100
9) Diethyl ether	5.95	59	707924	116.8817	ug/L	92
10) Isoprene	5.99	67	210235	18.5920	ug/L	93
11) Acrolein	6.18	56	98225	194.6404	ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	126910	19.0441	ug/L	93
13) Acetone	6.28	43	47004	18.8831	ug/L	93
14) 1,1-Dichloroethene	6.50	61	213766	16.1443	ug/L	93
15) Tert-Butyl Alcohol	6.61	59	138993	216.3377	ug/L	92
16) Dimethyl Sulfide	6.75	62	195539	21.5466	ug/L	89
17) Iodomethane	7.00	142	187119	21.3503	ug/L	95
18) Methyl acetate	7.01	43	139442	18.9956	ug/L	95
19) Methylene Chloride	7.26	84	133069	17.6775	ug/L	86
20) Carbon Disulfide	7.31	76	350792	15.9833	ug/L	100
21) Acrylonitrile	7.43	53	68155	20.3797	ug/L	98
22) Methyl Tert Butyl Ether	7.47	73	345524	18.6688	ug/L	98
23) trans-1,2-Dichloroethene	7.69	96	132894	17.7111	ug/L	94
24) n-Hexane	7.77	57	220678	17.1982	ug/L	99
25) Diisopropyl ether	8.10	45	3485449	96.0446	ug/L	96
26) Vinyl Acetate	8.26	43	339403	17.4974	ug/L	98
27) 1,1-Dichloroethane	8.29	63	275547	17.9178	ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	2531537	94.0652	ug/L	98
29) 2-Butanone	8.82	43	79240	18.9460	ug/L	95
30) Propionitrile	8.92	54	121371	104.7364	ug/L	98
31) 2,2-Dichloropropane	9.04	77	196654	18.7646	ug/L	98
32) cis-1,2-Dichloroethene	9.10	96	156434	18.9307	ug/L	92
33) Chloroform	9.30	83	249186	18.4676	ug/L	99
34) 1-Bromopropane	9.43	122	32397	22.8897	ug/L	94
35) Bromochloromethane	9.52	130	97616	18.3253	ug/L	87
36) Tetrahydrofuran	9.54	42	275385	97.3199	ug/L	91
38) 1,1,1-Trichloroethane	9.81	97	228091	19.1721	ug/L	94
39) Cyclohexane	9.83	56	253074	14.5112	ug/L	98
40) 1,1-Dichloropropene	9.99	75	180505	18.3278	ug/L	99
41) Carbon Tetrachloride	10.13	117	205510	18.4880	ug/L	98
42) Tert-Amyl-Methyl ether	10.08	73	1863567	102.2561	ug/L	93

(#) = qualifier out of range (m) = manual integration
11M15142.D 8260WT.M Fri Nov 11 16:28:08 2016 Page 1

Data File : C:\MSDchem\1\data\111116\11M15142.D Vial: 4
Acq On : 11 Nov 2016 16:06 Operator: ADC
Sample : WG591385-02 20ug/Kg LCS Inst : hpms11
Misc : 1,1 STD78758 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 16:28:07 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

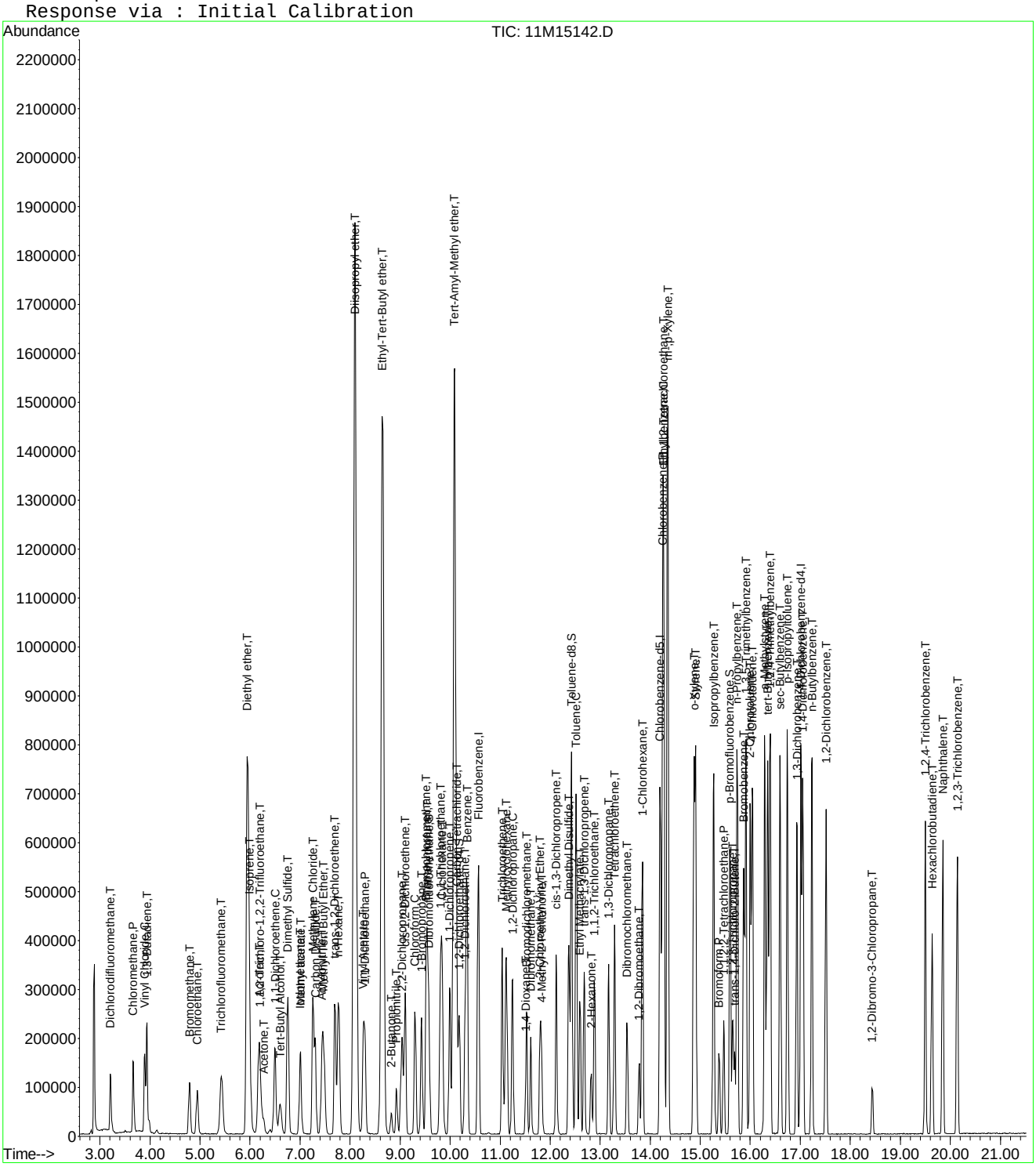
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	206154	17.7849 ug/L	97
45)	Benzene	10.34	78	551399	18.9534 ug/L	98
46)	Trichloroethene	11.04	130	162975	19.3687 ug/L	97
47)	Methylcyclohexane	11.13	83	194272	17.0315 ug/L	96
48)	1,2-Dichloropropane	11.25	63	160217	18.6835 ug/L	98
49)	1,4-Dioxane	11.51	88	11740	196.3989 ug/L	91
50)	Bromodichloromethane	11.53	83	186192	18.2625 ug/L	99
51)	Dibromomethane	11.61	93	84950	18.6841 ug/L	96
52)	2-Chloroethyl Vinyl Ether	11.80	63	92088	18.3338 ug/L	97
53)	4-Methyl-2-Pentanone	11.83	58	57119	18.5224 ug/L	98
54)	cis-1,3-Dichloropropene	12.12	75	227565	20.1943 ug/L	98
55)	Dimethyl Disulfide	12.38	79	128132	18.9456 ug/L	90
58)	Toluene	12.52	91	613961	19.7520 ug/L	100
59)	Ethyl Methacrylate	12.59	69	159569	20.0845 ug/L	82
60)	trans-1,3-Dichloropropene	12.68	75	190153	18.6847 ug/L	96
61)	1,1,2-Trichloroethane	12.88	97	123009	20.3405 ug/L	98
62)	2-Hexanone	12.82	43	115619	17.7368 ug/L	91
63)	1,3-Dichloropropane	13.17	76	208822	20.5414 ug/L	80
64)	Tetrachloroethene	13.29	164	130809	19.3885 ug/L	100
65)	Dibromochloromethane	13.53	129	157757	19.4628 ug/L	100
66)	1,2-Dibromoethane	13.77	107	121333	19.4899 ug/L	99
67)	1-Chlorohexane	13.84	91	198408	19.7800 ug/L	90
68)	Chlorobenzene	14.25	112	427441	19.3792 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	152522	19.3879 ug/L	99
70)	Ethylbenzene	14.27	106	224327	19.8903 ug/L	98
71)	m-,p-Xylene	14.35	106	542103	40.7981 ug/L	99
72)	o-Xylene	14.88	106	265649	20.3238 ug/L	98
73)	Styrene	14.91	104	450355	20.2979 ug/L	97
74)	Bromoform	15.38	173	104162	19.8163 ug/L	97
75)	Isopropylbenzene	15.27	105	675700	20.1771 ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	148079	19.8759 ug/L	100
79)	1,2,3-Trichloropropane	15.65	110	47995	21.2430 ug/L	97
80)	trans-1,4-Dichloro-2-Buten	15.69	53	54665	17.9647 ug/L	87
81)	n-Propylbenzene	15.74	91	811533	20.6472 ug/L	100
82)	Bromobenzene	15.87	156	185338	18.3977 ug/L	96
83)	1,3,5-Trimethylbenzene	15.91	105	582412	20.6589 ug/L	99
84)	2-Chlorotoluene	16.00	91	486150	19.5462 ug/L	86
85)	4-Chlorotoluene	16.04	91	518910	20.4846 ug/L	89
86)	a-Methylstyrene	16.28	118	333879	20.1489 ug/L	99
87)	tert-Butylbenzene	16.35	134	127870	20.7327 ug/L	97
88)	1,2,4-Trimethylbenzene	16.40	105	594843	20.5107 ug/L	99
89)	sec-Butylbenzene	16.60	105	740759	20.7494 ug/L	100
90)	p-Isopropyltoluene	16.74	119	659060	21.2152 ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	356592	19.2000 ug/L	99
92)	1,4-Dichlorobenzene	17.05	146	364147	19.1331 ug/L	98
93)	n-Butylbenzene	17.24	91	587842	20.1688 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	343605	19.3673 ug/L	100
95)	1,2-Dibromo-3-Chloropropan	18.44	75	28453	19.8692 ug/L	87
96)	1,2,4-Trichlorobenzene	19.50	180	253765	19.2867 ug/L	100
97)	Hexachlorobutadiene	19.64	225	110043	21.3691 ug/L	97
98)	Naphthalene	19.85	128	587542	21.4780 ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	236398	18.6198 ug/L	99

(#) = qualifier out of range (m) = manual integration
11M15142.D 8260WT.M Fri Nov 11 16:28:08 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\111116\11M15142.D Vial: 4
Acq On : 11 Nov 2016 16:06 Operator: ADC
Sample : WG591385-02 20ug/Kg LCS Inst : hpms11
Misc : 1,1 STD78758 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 16:28 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



Data File : C:\MSDchem\1\data\110216\11M14892.D Vial: 5
Acq On : 2 Nov 2016 17:01 Operator: ADC
Sample : WG590133-03 20ug/L LCSDUP 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 02 17:23:34 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.57	96	519643	25.00 ug/L	0.00
56) Chlorobenzene-d5	14.20	117	397289	25.00 ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	200908	25.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.57	111	157804	25.2454 ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 101.00%		
43) 1,2-Dichloroethane-d4	10.18	65	170707	24.3250 ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 97.28%		
57) Toluene-d8	12.43	98	529571	25.1534 ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 100.60%		
78) p-Bromofluorobenzene	15.59	95	192036	23.8917 ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 95.56%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.21	85	154180	17.4886 ug/L	96
3) Chloromethane	3.66	50	235364	24.3418 ug/L	98
4) Vinyl Chloride	3.90	62	200273	23.2277 ug/L	98
5) 1,3-Butadiene	3.94	54	180410	25.7040 ug/L	93
6) Bromomethane	4.80	94	95365	22.8263 ug/L	99
7) Chloroethane	4.95	64	107771	21.3353 ug/L	99
8) Trichlorofluoromethane	5.43	101	214401	21.3640 ug/L	99
9) Diethyl ether	5.95	59	627888	127.9980 ug/L	96
10) Isoprene	5.99	67	199129	21.7429 ug/L	97
11) Acrolein	6.18	56	90990	222.6209 ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	126667	23.4688 ug/L	100
13) Acetone	6.28	43	33846	16.7884 ug/L	99
14) 1,1-Dichloroethene	6.50	61	232881	21.7158 ug/L	97
15) Tert-Butyl Alcohol	6.60	59	55989	107.5978 ug/L	97
16) Dimethyl Sulfide	6.76	62	184352	25.0815 ug/L	97
17) Iodomethane	7.01	142	186510	26.1629 ug/L	97
18) Methyl acetate	7.01	43	102647	17.2650 ug/L	95
19) Methylene Chloride	7.26	84	141893	23.2738 ug/L	93
20) Carbon Disulfide	7.31	76	330925	18.6170 ug/L	100
21) Acrylonitrile	7.43	53	52607	19.4225 ug/L	100
22) Methyl Tert Butyl Ether	7.47	73	327332	21.8367 ug/L	98
23) trans-1,2-Dichloroethene	7.70	96	136451	22.4532 ug/L	95
24) n-Hexane	7.77	57	206282	19.8494 ug/L	99
25) Diisopropyl ether	8.10	45	3458703	117.6762 ug/L	98
26) Vinyl Acetate	8.26	43	353098	22.4757 ug/L	99
27) 1,1-Dichloroethane	8.29	63	289784	23.2661 ug/L	99
28) Ethyl-Tert-Butyl ether	8.64	59	2315811	106.2451 ug/L	99
29) 2-Butanone	8.82	43	56628	16.7173 ug/L	96
30) Propionitrile	8.92	54	78552	83.6954 ug/L	97
31) 2,2-Dichloropropane	9.04	77	210982	24.8567 ug/L	98
32) cis-1,2-Dichloroethene	9.10	96	159200	23.7870 ug/L	99
33) Chloroform	9.31	83	263336	24.0967 ug/L	98
34) 1-Bromopropane	9.43	122	31089	27.1209 ug/L	97
35) Bromochloromethane	9.52	130	100567	23.3102 ug/L	95
36) Tetrahydrofuran	9.54	42	200009	86.9951 ug/L	95
38) 1,1,1-Trichloroethane	9.81	97	240179	24.9263 ug/L	98
39) Cyclohexane	9.84	56	235691	16.6863 ug/L	98
40) 1,1-Dichloropropene	9.99	75	185979	23.3156 ug/L	100
41) Carbon Tetrachloride	10.13	117	227259	25.2430 ug/L	99
42) Tert-Amyl-Methyl ether	10.09	73	1659828	112.4524 ug/L	97

(#) = qualifier out of range (m) = manual integration
11M14892.D 8260WT.M Wed Nov 02 17:23:35 2016 Page 1

Data File : C:\MSDchem\1\data\110216\11M14892.D Vial: 5
Acq On : 2 Nov 2016 17:01 Operator: ADC
Sample : WG590133-03 20ug/L LCSDUP 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 02 17:23:34 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

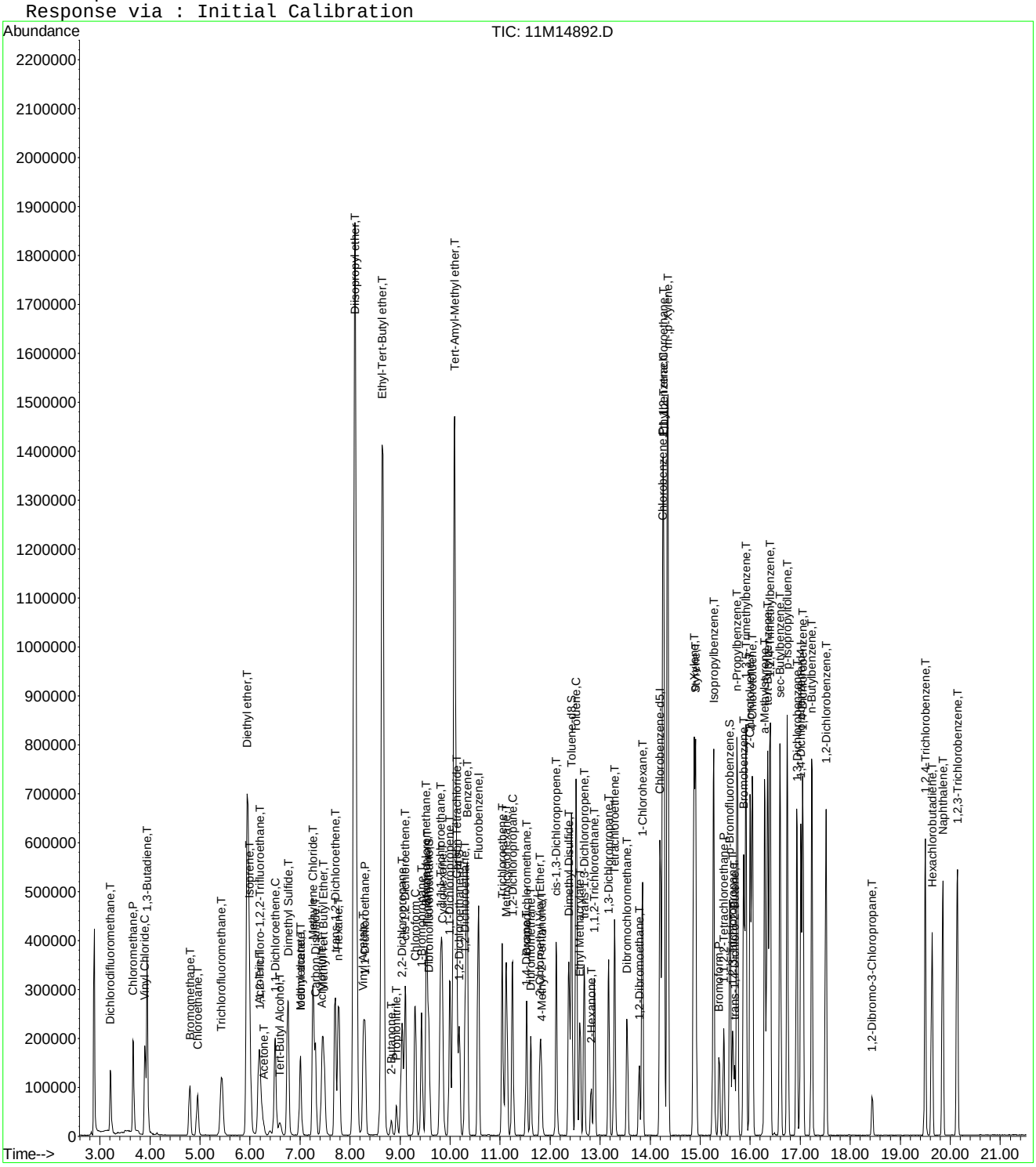
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	224981	23.9644 ug/L	97
45)	Benzene	10.34	78	562167	23.8588 ug/L	99
46)	Trichloroethene	11.04	130	155268	22.7837 ug/L	99
47)	Methylcyclohexane	11.13	83	176650	19.1213 ug/L	97
48)	1,2-Dichloropropane	11.25	63	169130	24.3519 ug/L	99
49)	1,4-Dioxane	11.52	88	4812	99.3935 ug/L	90
50)	Bromodichloromethane	11.53	83	201390	24.3893 ug/L	99
51)	Dibromomethane	11.61	93	88657	24.0759 ug/L	98
52)	2-Chloroethyl Vinyl Ether	11.80	63	75571	18.5765 ug/L	94
53)	4-Methyl-2-Pentanone	11.83	58	42790	17.1325 ug/L	99
54)	cis-1,3-Dichloropropene	12.12	75	233226	25.5541 ug/L	100
55)	Dimethyl Disulfide	12.38	79	111432	20.3433 ug/L	91
58)	Toluene	12.52	91	623723	24.9314 ug/L	100
59)	Ethyl Methacrylate	12.59	69	127651	19.9627 ug/L	92
60)	trans-1,3-Dichloropropene	12.68	75	191846	23.4217 ug/L	100
61)	1,1,2-Trichloroethane	12.88	97	118872	24.4224 ug/L	99
62)	2-Hexanone	12.82	43	87386	16.6561 ug/L	100
63)	1,3-Dichloropropane	13.17	76	204304	24.9697 ug/L	90
64)	Tetrachloroethene	13.29	164	130435	24.0207 ug/L	99
65)	Dibromochloromethane	13.53	129	157926	24.2078 ug/L	100
66)	1,2-Dibromoethane	13.78	107	118232	23.5966 ug/L	97
67)	1-Chlorohexane	13.85	91	170713	21.1454 ug/L	96
68)	Chlorobenzene	14.25	112	432333	24.3535 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	159925	25.2579 ug/L	97
70)	Ethylbenzene	14.27	106	224066	24.6843 ug/L	99
71)	m-,p-Xylene	14.35	106	537681	50.2766 ug/L	97
72)	o-Xylene	14.88	106	268041	25.4789 ug/L	100
73)	Styrene	14.91	104	449174	25.1532 ug/L	98
74)	Bromoform	15.38	173	99420	23.5001 ug/L	100
75)	Isopropylbenzene	15.27	105	687165	25.4947 ug/L	99
77)	1,1,2,2-Tetrachloroethane	15.47	83	137282	24.2298 ug/L	98
79)	1,2,3-Trichloropropane	15.65	110	41586	24.2029 ug/L	97
80)	trans-1,4-Dichloro-2-Buten	15.69	53	47634	20.5839 ug/L	88
81)	n-Propylbenzene	15.74	91	816737	27.3236 ug/L	99
82)	Bromobenzene	15.87	156	189713	24.7626 ug/L	96
83)	1,3,5-Trimethylbenzene	15.91	105	578291	26.9727 ug/L	100
84)	2-Chlorotoluene	16.00	91	494900	26.1644 ug/L	88
85)	4-Chlorotoluene	16.04	91	513753	26.6680 ug/L	88
86)	a-Methylstyrene	16.29	118	292308	23.1955 ug/L	100
87)	tert-Butylbenzene	16.35	134	127341	27.1492 ug/L	99
88)	1,2,4-Trimethylbenzene	16.40	105	593167	26.8941 ug/L	99
89)	sec-Butylbenzene	16.60	105	736447	27.1251 ug/L	100
90)	p-Isopropyltoluene	16.74	119	649917	27.5094 ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	353431	25.0228 ug/L	98
92)	1,4-Dichlorobenzene	17.05	146	352656	24.3647 ug/L	100
93)	n-Butylbenzene	17.23	91	572884	25.8456 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	337998	25.0510 ug/L	97
95)	1,2-Dibromo-3-Chloropropan	18.44	75	24359	22.3672 ug/L	98
96)	1,2,4-Trichlorobenzene	19.50	180	232121	23.1975 ug/L	100
97)	Hexachlorobutadiene	19.64	225	104837	26.7695 ug/L	99
98)	Naphthalene	19.85	128	510773	24.5518 ug/L	100
99)	1,2,3-Trichlorobenzene	20.14	180	223997	23.1993 ug/L	100

(#) = qualifier out of range (m) = manual integration
11M14892.D 8260WT.M Wed Nov 02 17:23:35 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\110216\11M14892.D Vial: 5
Acq On : 2 Nov 2016 17:01 Operator: ADC
Sample : WG590133-03 20ug/L LCSDUP 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 2 17:23 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14921.D Vial: 5
Acq On : 3 Nov 2016 18:08 Operator: ADC
Sample : WG590292-03 20ug/L LCSDUP 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:28:08 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	678628	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	503968	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	245940	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	198024	24.2580	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 97.04%			
43) 1,2-Dichloroethane-d4	10.18	65	206622	22.5450	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 90.20%			
57) Toluene-d8	12.43	98	684779	25.6405	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 102.56%			
78) p-Bromofluorobenzene	15.59	95	254669	25.8826	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 103.52%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	176449	15.3256	ug/L	95
3) Chloromethane	3.66	50	228729	18.1137	ug/L	96
4) Vinyl Chloride	3.90	62	219699	19.5112	ug/L	98
5) 1,3-Butadiene	3.94	54	171607	18.7219	ug/L	86
6) Bromomethane	4.80	94	109056	19.9880	ug/L	98
7) Chloroethane	4.95	64	129966	19.7016	ug/L	100
8) Trichlorofluoromethane	5.43	101	242477	18.5012	ug/L	98
9) Diethyl ether	5.95	59	755958	118.0027	ug/L	93
10) Isoprene	5.99	67	241898	20.2250	ug/L	94
11) Acrolein	6.18	56	122999	230.4343	ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	146904	20.8417	ug/L	97
13) Acetone	6.28	43	45206	17.1700	ug/L	91
14) 1,1-Dichloroethene	6.50	61	269025	19.2091	ug/L	96
15) Tert-Butyl Alcohol	6.60	59	105152	154.7360	ug/L	94
16) Dimethyl Sulfide	6.76	62	224918	23.4317	ug/L	88
17) Iodomethane	7.01	142	224071	24.1030	ug/L	97
18) Methyl acetate	7.01	43	130531	16.8115	ug/L	95
19) Methylene Chloride	7.26	84	163100	20.4849	ug/L	88
20) Carbon Disulfide	7.31	76	396040	17.0605	ug/L	100
21) Acrylonitrile	7.43	53	67359	19.0428	ug/L	96
22) Methyl Tert Butyl Ether	7.47	73	403211	20.5970	ug/L	97
23) trans-1,2-Dichloroethene	7.70	96	160874	20.2703	ug/L	93
24) n-Hexane	7.78	57	248852	18.3358	ug/L	99
25) Diisopropyl ether	8.10	45	3879516	101.0709	ug/L	96
26) Vinyl Acetate	8.26	43	369391	18.0044	ug/L	98
27) 1,1-Dichloroethane	8.29	63	338733	20.8248	ug/L	99
28) Ethyl-Tert-Butyl ether	8.65	59	2774501	97.4685	ug/L	99
29) 2-Butanone	8.83	43	74263	16.7873	ug/L	95
30) Propionitrile	8.93	54	112973	92.1705	ug/L	98
31) 2,2-Dichloropropane	9.04	77	230398	20.7850	ug/L	98
32) cis-1,2-Dichloroethene	9.11	96	187105	21.4070	ug/L	95
33) Chloroform	9.31	83	298464	20.9128	ug/L	98
34) 1-Bromopropane	9.44	122	36565	24.4251	ug/L	98
35) Bromochloromethane	9.52	130	119046	21.1290	ug/L	88
36) Tetrahydrofuran	9.54	42	259147	86.2897	ug/L	91
38) 1,1,1-Trichloroethane	9.81	97	271016	21.5373	ug/L	95
39) Cyclohexane	9.84	56	283758	15.3829	ug/L	98
40) 1,1-Dichloropropene	10.00	75	209936	20.1531	ug/L	98
41) Carbon Tetrachloride	10.13	117	246028	20.9256	ug/L	98
42) Tert-Amyl-Methyl ether	10.09	73	1983891	102.9192	ug/L	94

(#) = qualifier out of range (m) = manual integration
11M14921.D 8260WT.M Wed Nov 09 11:28:09 2016 Page 1

Data File : C:\MSDCHEM\1\DATA\110316\11M14921.D Vial: 5
Acq On : 3 Nov 2016 18:08 Operator: ADC
Sample : WG590292-03 20ug/L LCSDUP 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 09 11:28:08 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

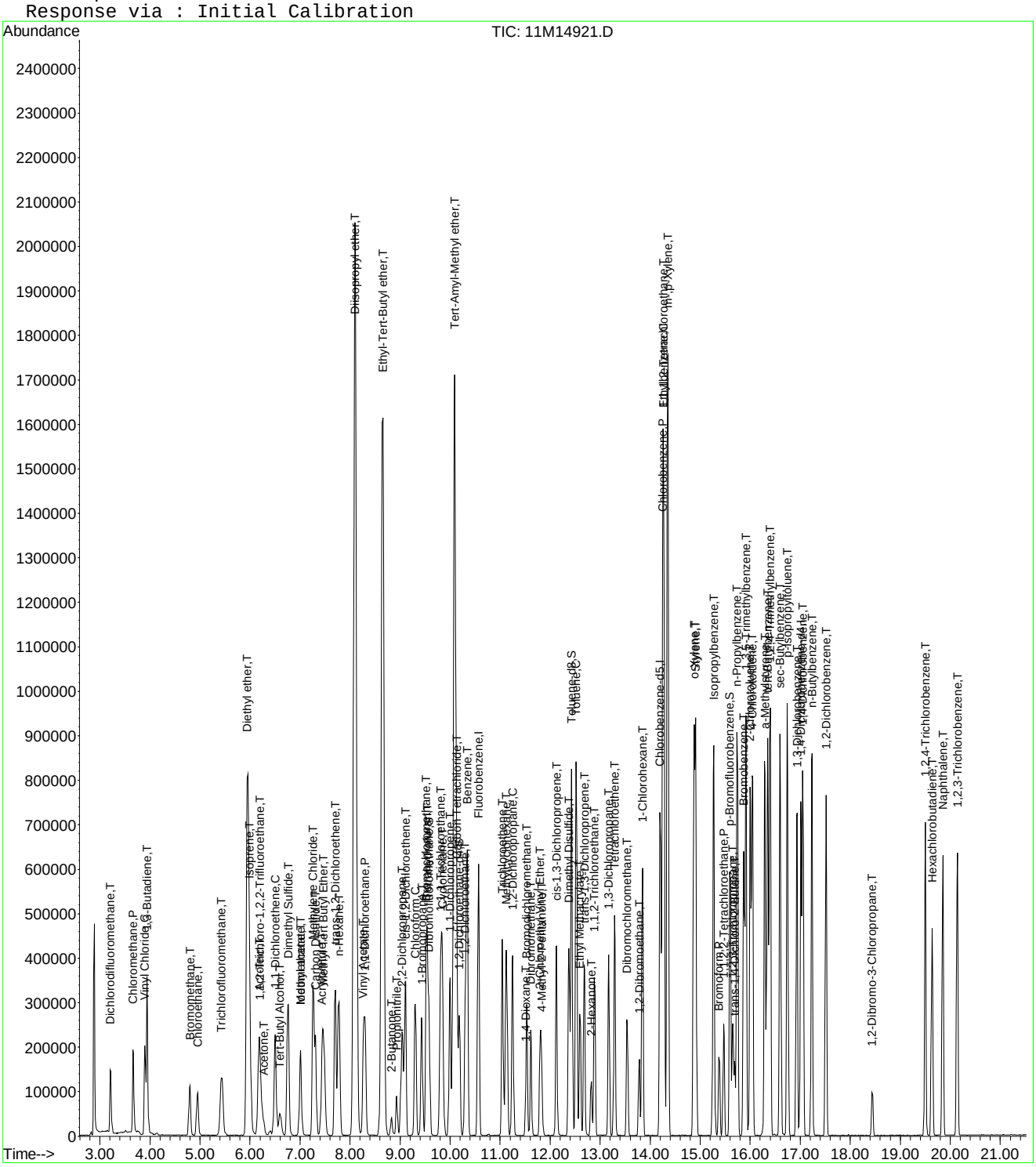
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	248113	20.2369 ug/L	97
45)	Benzene	10.34	78	662729	21.5373 ug/L	99
46)	Trichloroethene	11.04	130	189271	21.2667 ug/L	97
47)	Methylcyclohexane	11.13	83	215981	17.9016 ug/L	95
48)	1,2-Dichloropropane	11.25	63	199655	22.0123 ug/L	97
49)	1,4-Dioxane	11.51	88	9061	143.3117 ug/L	95
50)	Bromodichloromethane	11.53	83	223544	20.7299 ug/L	100
51)	Dibromomethane	11.61	93	100780	20.9565 ug/L	98
52)	2-Chloroethyl Vinyl Ether	11.80	63	94072	17.7069 ug/L	99
53)	4-Methyl-2-Pentanone	11.83	58	57545	17.6425 ug/L	99
54)	cis-1,3-Dichloropropene	12.13	75	270533	22.6975 ug/L	100
55)	Dimethyl Disulfide	12.38	79	135872	18.9939 ug/L	92
58)	Toluene	12.52	91	732990	23.0970 ug/L	99
59)	Ethyl Methacrylate	12.59	69	160939	19.8408 ug/L	85
60)	trans-1,3-Dichloropropene	12.69	75	225421	21.6952 ug/L	96
61)	1,1,2-Trichloroethane	12.88	97	139613	22.6120 ug/L	99
62)	2-Hexanone	12.82	43	108066	16.2376 ug/L	90
63)	1,3-Dichloropropane	13.17	76	237565	22.8888 ug/L	84
64)	Tetrachloroethene	13.29	164	153385	22.2678 ug/L	100
65)	Dibromochloromethane	13.53	129	179433	21.6824 ug/L	100
66)	1,2-Dibromoethane	13.78	107	142178	22.3692 ug/L	98
67)	1-Chlorohexane	13.84	91	208769	20.3854 ug/L	92
68)	Chlorobenzene	14.25	112	501085	22.2515 ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	179537	22.3531 ug/L	99
70)	Ethylbenzene	14.27	106	261681	22.7258 ug/L	99
71)	m-,p-Xylene	14.35	106	630887	46.5047 ug/L	98
72)	o-Xylene	14.88	106	313881	23.5206 ug/L	99
73)	Styrene	14.91	104	528815	23.3446 ug/L	98
74)	Bromoform	15.38	173	111881	20.8476 ug/L	97
75)	Isopropylbenzene	15.27	105	791081	23.1374 ug/L	100
77)	1,1,2,2-Tetrachloroethane	15.47	83	159451	22.9896 ug/L	100
79)	1,2,3-Trichloropropane	15.65	110	50139	23.8377 ug/L	94
80)	trans-1,4-Dichloro-2-Buten	15.69	53	54750	19.3269 ug/L	81
81)	n-Propylbenzene	15.74	91	936054	25.5815 ug/L	99
82)	Bromobenzene	15.87	156	218160	23.2618 ug/L	97
83)	1,3,5-Trimethylbenzene	15.91	105	678469	25.8509 ug/L	100
84)	2-Chlorotoluene	16.00	91	566324	24.4583 ug/L	88
85)	4-Chlorotoluene	16.04	91	593439	25.1640 ug/L	89
86)	a-Methylstyrene	16.30	118	349090	22.6292 ug/L	99
87)	tert-Butylbenzene	16.35	134	148105	25.7945 ug/L	92
88)	1,2,4-Trimethylbenzene	16.40	105	695868	25.7736 ug/L	100
89)	sec-Butylbenzene	16.60	105	851042	25.6064 ug/L	100
90)	p-Isopropyltoluene	16.74	119	757117	26.1790 ug/L	99
91)	1,3-Dichlorobenzene	16.94	146	405060	23.4271 ug/L	99
92)	1,4-Dichlorobenzene	17.05	146	410618	23.1748 ug/L	100
93)	n-Butylbenzene	17.24	91	649686	23.9437 ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	394841	23.9057 ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	28961	21.7237 ug/L	86
96)	1,2,4-Trichlorobenzene	19.50	180	280493	22.8990 ug/L	97
97)	Hexachlorobutadiene	19.64	225	120606	25.1572 ug/L	98
98)	Naphthalene	19.85	128	613139	24.0759 ug/L	99
99)	1,2,3-Trichlorobenzene	20.14	180	264099	22.3444 ug/L	99

(#) = qualifier out of range (m) = manual integration
11M14921.D 8260WT.M Wed Nov 09 11:28:09 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\110316\11M14921.D Vial: 5
Acq On : 3 Nov 2016 18:08 Operator: ADC
Sample : WG590292-03 20ug/L LCSDUP 8260 Inst : hpms11
Misc : 1,1 STD78491 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 9 11:28 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



11M14921.D 8260WT.M Wed Nov 09 11:28:10 2016 Page 3

Data File : C:\MSDchem\1\data\111116\11M15143.D Vial: 5
Acq On : 11 Nov 2016 16:35 Operator: ADC
Sample : WG591385-03 20ug/Kg LCSDUP Inst : hpms11
Misc : 1,1 STD78758 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 16:56:47 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.57	96	594029	25.00	ug/L	0.00
56) Chlorobenzene-d5	14.20	117	455171	25.00	ug/L	0.00
76) 1,4-Dichlorobenzene-d4	17.01	152	239194	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.57	111	169100	23.6649	ug/L	0.00
Spiked Amount 25.000	Range 86 - 118		Recovery = 94.64%			
43) 1,2-Dichloroethane-d4	10.18	65	181216	22.5889	ug/L	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 90.36%			
57) Toluene-d8	12.43	98	608404	25.2230	ug/L	0.00
Spiked Amount 25.000	Range 88 - 110		Recovery = 100.88%			
78) p-Bromofluorobenzene	15.59	95	226845	23.7050	ug/L	0.00
Spiked Amount 25.000	Range 86 - 115		Recovery = 94.84%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.21	85	151768	15.0593	ug/L	93
3) Chloromethane	3.66	50	180038	16.2882	ug/L	96
4) Vinyl Chloride	3.90	62	179850	18.2470	ug/L	100
5) 1,3-Butadiene	3.94	54	114829	14.3117	ug/L	87
6) Bromomethane	4.79	94	106110	22.2178	ug/L	96
7) Chloroethane	4.94	64	122208	21.1639	ug/L	99
8) Trichlorofluoromethane	5.42	101	226292	19.7253	ug/L	100
9) Diethyl ether	5.95	59	712856	127.1219	ug/L	93
10) Isoprene	5.99	67	216510	20.6804	ug/L	94
11) Acrolein	6.17	56	107407	229.8805	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	133445	21.6285	ug/L	95
13) Acetone	6.28	43	49599	21.5214	ug/L	92
14) 1,1-Dichloroethene	6.49	61	217313	17.7266	ug/L	94
15) Tert-Butyl Alcohol	6.60	59	142981	240.3678	ug/L	92
16) Dimethyl Sulfide	6.75	62	199063	23.6916	ug/L	89
17) Iodomethane	7.00	142	200468	24.6249	ug/L	96
18) Methyl acetate	7.01	43	140109	20.6150	ug/L	96
19) Methylene Chloride	7.26	84	132952	19.0765	ug/L	87
20) Carbon Disulfide	7.30	76	364419	17.9340	ug/L	100
21) Acrylonitrile	7.43	53	68544	22.1375	ug/L	98
22) Methyl Tert Butyl Ether	7.47	73	349554	20.3991	ug/L	98
23) trans-1,2-Dichloroethene	7.69	96	134552	19.3682	ug/L	95
24) n-Hexane	7.77	57	234816	19.7657	ug/L	100
25) Diisopropyl ether	8.10	45	3536068	105.2431	ug/L	96
26) Vinyl Acetate	8.26	43	374191	20.8357	ug/L	98
27) 1,1-Dichloroethane	8.29	63	280472	19.6987	ug/L	100
28) Ethyl-Tert-Butyl ether	8.64	59	2562079	102.8243	ug/L	99
29) 2-Butanone	8.83	43	81782	21.1198	ug/L	96
30) Propionitrile	8.92	54	122517	114.1926	ug/L	99
31) 2,2-Dichloropropane	9.04	77	208899	21.5294	ug/L	99
32) cis-1,2-Dichloroethene	9.10	96	157948	20.6447	ug/L	95
33) Chloroform	9.30	83	255727	20.4702	ug/L	99
34) 1-Bromopropane	9.43	122	33973	25.9256	ug/L	98
35) Bromochloromethane	9.52	130	100096	20.2958	ug/L	86
36) Tetrahydrofuran	9.54	42	279089	106.7810	ug/L	91
38) 1,1,1-Trichloroethane	9.80	97	231968	21.0595	ug/L	94
39) Cyclohexane	9.83	56	261126	16.1720	ug/L	97
40) 1,1-Dichloropropene	9.99	75	181737	19.9307	ug/L	97
41) Carbon Tetrachloride	10.13	117	211618	20.5622	ug/L	99
42) Tert-Amyl-Methyl ether	10.09	73	1921821	113.8979	ug/L	92

(#) = qualifier out of range (m) = manual integration
11M15143.D 8260WT.M Fri Nov 11 16:56:48 2016 Page 1

Data File : C:\MSDchem\1\data\111116\11M15143.D Vial: 5
Acq On : 11 Nov 2016 16:35 Operator: ADC
Sample : WG591385-03 20ug/Kg LCSDUP Inst : hpms11
Misc : 1,1 STD78758 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 16:56:47 2016 Quant Results File: 8260WT.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration
DataAcq Meth : 8260WT

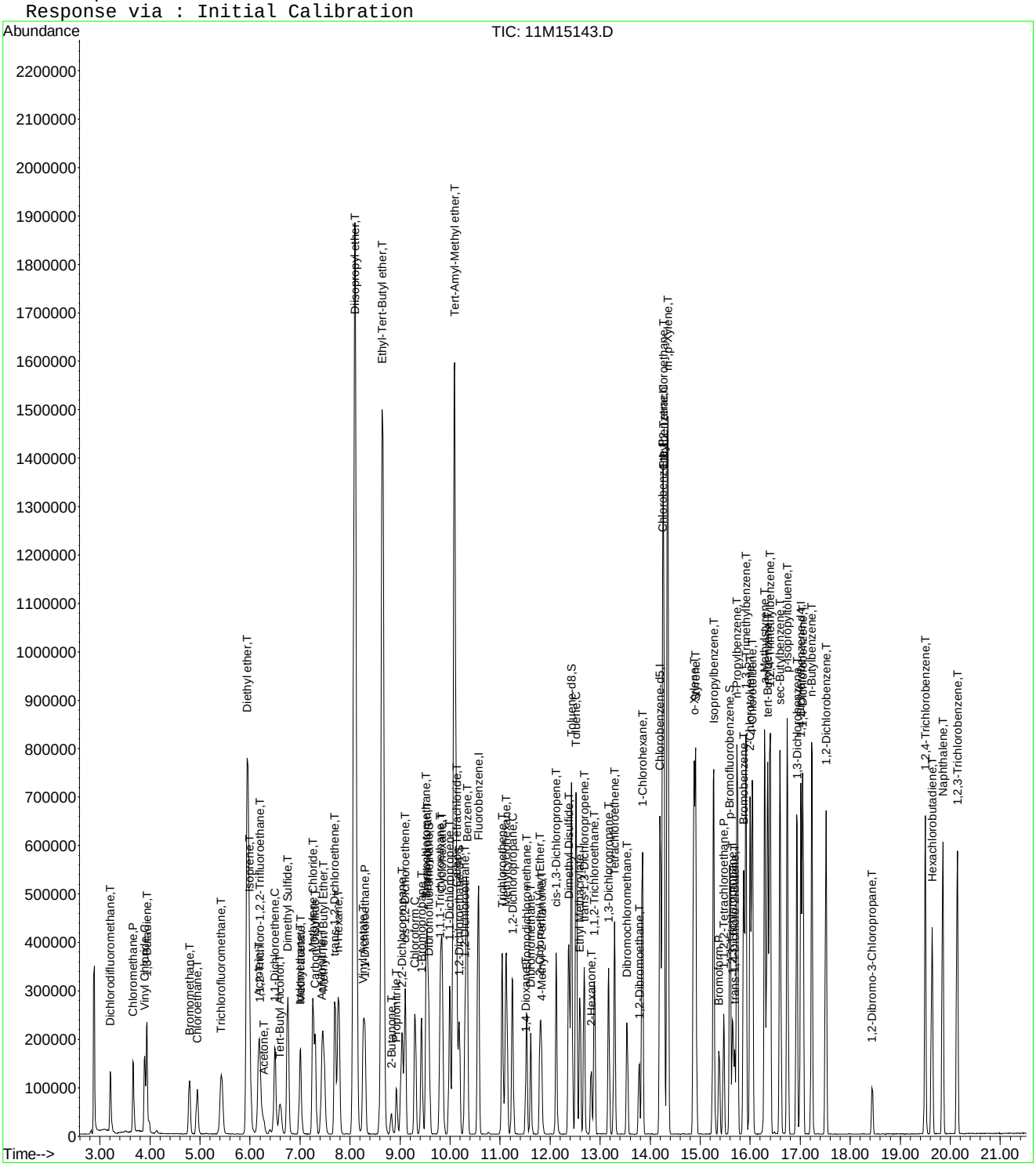
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44)	1,2-Dichloroethane	10.30	62	207345	19.3202	ug/L	97
45)	Benzene	10.34	78	556798	20.6718	ug/L	99
46)	Trichloroethene	11.04	130	161579	20.7407	ug/L	99
47)	Methylcyclohexane	11.13	83	200491	18.9844	ug/L	95
48)	1,2-Dichloropropane	11.25	63	160998	20.2782	ug/L	99
49)	1,4-Dioxane	11.51	88	11569	209.0381	ug/L	94
50)	Bromodichloromethane	11.53	83	187965	19.9129	ug/L	98
51)	Dibromomethane	11.61	93	87278	20.7335	ug/L	97
52)	2-Chloroethyl Vinyl Ether	11.80	63	96050	20.6540	ug/L	98
53)	4-Methyl-2-Pentanone	11.83	58	60308	21.1228	ug/L	99
54)	cis-1,3-Dichloropropene	12.12	75	231723	22.2101	ug/L	100
55)	Dimethyl Disulfide	12.38	79	132134	21.1020	ug/L	92
58)	Toluene	12.52	91	620121	21.6353	ug/L	99
59)	Ethyl Methacrylate	12.59	69	165713	22.6195	ug/L	81
60)	trans-1,3-Dichloropropene	12.68	75	193057	20.5723	ug/L	97
61)	1,1,2-Trichloroethane	12.88	97	122160	21.9063	ug/L	100
62)	2-Hexanone	12.82	43	119193	19.8296	ug/L	93
63)	1,3-Dichloropropane	13.17	76	204305	21.7946	ug/L	83
64)	Tetrachloroethene	13.29	164	134481	21.6164	ug/L	99
65)	Dibromochloromethane	13.53	129	161073	21.5504	ug/L	96
66)	1,2-Dibromoethane	13.78	107	123965	21.5946	ug/L	98
67)	1-Chlorohexane	13.84	91	207866	22.4732	ug/L	90
68)	Chlorobenzene	14.25	112	429026	21.0940	ug/L	99
69)	1,1,1,2-Tetrachloroethane	14.27	131	157062	21.6513	ug/L	96
70)	Ethylbenzene	14.27	106	225510	21.6841	ug/L	98
71)	m-,p-Xylene	14.35	106	552464	45.0897	ug/L	99
72)	o-Xylene	14.88	106	269772	22.3825	ug/L	100
73)	Styrene	14.91	104	460416	22.5041	ug/L	97
74)	Bromoform	15.38	173	107988	22.2794	ug/L	99
75)	Isopropylbenzene	15.27	105	689660	22.3335	ug/L	99
77)	1,1,2,2-Tetrachloroethane	15.47	83	155799	23.0965	ug/L	98
79)	1,2,3-Trichloropropane	15.64	110	47671	23.3035	ug/L	98
80)	trans-1,4-Dichloro-2-Buten	15.69	53	55948	20.3068	ug/L	88
81)	n-Propylbenzene	15.74	91	833362	23.4173	ug/L	99
82)	Bromobenzene	15.87	156	192615	21.1172	ug/L	93
83)	1,3,5-Trimethylbenzene	15.91	105	586782	22.9880	ug/L	99
84)	2-Chlorotoluene	16.00	91	505700	22.4561	ug/L	99
85)	4-Chlorotoluene	16.04	91	521135	22.7213	ug/L	100
86)	a-Methylstyrene	16.29	118	347762	23.1789	ug/L	98
87)	tert-Butylbenzene	16.35	134	132257	23.6839	ug/L	95
88)	1,2,4-Trimethylbenzene	16.40	105	607993	23.1540	ug/L	98
89)	sec-Butylbenzene	16.60	105	749257	23.1797	ug/L	100
90)	p-Isopropyltoluene	16.74	119	679741	24.1665	ug/L	100
91)	1,3-Dichlorobenzene	16.94	146	365769	21.7513	ug/L	99
92)	1,4-Dichlorobenzene	17.05	146	370417	21.4955	ug/L	99
93)	n-Butylbenzene	17.23	91	608485	23.0578	ug/L	99
94)	1,2-Dichlorobenzene	17.52	146	351269	21.8674	ug/L	99
95)	1,2-Dibromo-3-Chloropropan	18.44	75	28557	22.0248	ug/L	87
96)	1,2,4-Trichlorobenzene	19.50	180	262041	21.9960	ug/L	99
97)	Hexachlorobutadiene	19.64	225	113726	24.3911	ug/L	98
98)	Naphthalene	19.85	128	601216	24.2736	ug/L	98
99)	1,2,3-Trichlorobenzene	20.14	180	246491	21.4428	ug/L	100

(#) = qualifier out of range (m) = manual integration
11M15143.D 8260WT.M Fri Nov 11 16:56:48 2016 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\111116\11M15143.D Vial: 5
Acq On : 11 Nov 2016 16:35 Operator: ADC
Sample : WG591385-03 20ug/Kg LCSDUP Inst : hpms11
Misc : 1,1 STD78758 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 11 16:56 2016 Quant Results File: 8260WT.RES

Method : C:\MSDCHEM\1\METHODS\8260WT.M (RTE Integrator)
Title : 8260B/624 (SOP: OVL MSV01) Water 101316 HPMS11
Last Update : Fri Oct 14 09:20:10 2016
Response via : Initial Calibration



11M15143.D 8260WT.M Fri Nov 11 16:56:49 2016 Page 3

2.1.2 RSK 175

2.1.2.1 Summary Data

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW13-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 15:36
Collect Date:	11/01/2016 08:10	**Dilution:**	1	**File ID:**	16G50938
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	17.9		5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW13-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:06
Collect Date:	11/01/2016 08:10	**Dilution:**	10	**File ID:**	16G50960
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	464000		100000	50000	25000

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW14-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 15:47
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	16G50939
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	9.64		5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW14-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:17
Collect Date:	11/01/2016 09:15	**Dilution:**	5	**File ID:**	16G50961
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	309000		50000	25000	12500

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW11-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:00
Collect Date:	11/01/2016 10:20	**Dilution:**	1	**File ID:**	16G50940
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	9.71		5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-05	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW11-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:29
Collect Date:	11/01/2016 10:20	**Dilution:**	10	**File ID:**	16G50962
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	651000		100000	50000	25000

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW06-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:11
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	16G50941
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	2.00	U	5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-07	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW06-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:40
Collect Date:	11/01/2016 11:20	**Dilution:**	5	**File ID:**	16G50963
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	353000		50000	25000	12500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW12-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:23
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	16G50942
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	2.26	J	5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was less than the LOQ.
J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-09	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW12-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 16:52
Collect Date:	11/01/2016 13:30	**Dilution:**	10	**File ID:**	16G50964
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	663000		100000	50000	25000

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW23-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590198	**Analyst:**	JDS	**Run Date:**	11/03/2016 16:34
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	16G50943
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	2.00	U	5.00	2.00	1.00
ethene	74-85-1	2.00	U	5.00	2.00	1.00
ethane	74-84-0	2.00	U	5.00	2.00	1.00

J	Estimated value ; the analyte concentration was greater than the highest standard
U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	HP16
Client ID:	50WW23-110116	**Prep Method:**	5021	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	RSK175	**Cal Date:**	03/25/2016 12:34
Workgroup #:	WG590416	**Analyst:**	JDS	**Run Date:**	11/04/2016 17:04
Collect Date:	11/01/2016 14:35	**Dilution:**	5	**File ID:**	16G50965
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	274000		50000	25000	12500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

2.1.2.2 QC Summary Data

RSK-175 - Example Calculation for Methane

1.0 Linear Calibration Models

Option A - Average RF Method

ICAL_x	ICAL_r		RF
1.67	19901		11917
6.67	69174		10371
16.7	176923		10594
66.7	685135		10272
133	1324853		9961
300	2845104		9484
		Average RF:	**10433**

Where:
ICAL_x = the ICAL concentration
ICAL_r = the ICAL response (area)
RF = calibration factor = ICAL_r / ICAL_x

Option B - Agilent Linear Regression Constant

ICAL_x	ICAL_r	[ICAL_r}^2	[ICAL-x][ICAL-r]
1.67	19901	396049801	33235
6.67	69174	4785042276	461391
16.7	176923	31301747929	2954614
66.7	685135	4.6941E+11	45698505
133	1324853	1.75524E+12	176205449
300	2845104	8.09462E+12	853531200
Summation:		**1.03557E+13**	**1078884393**

Agilent Linear Regression Constant : **9598.567853**
(1.03557E+13)/1078884393)

2.0 Calculate the concentration in extract, Cx

Where:	
y = area response of methane from quant report	**1157414**
a = average RF (or Agilent regression constant)	**10433.00**
Cx = y/a	**110.9377935**

3.0 Calculate the concentration in sample

Cs = Cx (MW/Tf) (HS/S) (DF)

Where:		
Cx = Concentration in extract	**110.9377935**	umol/mol
MW = molecular weight of analyte	**16.04**	ug/umol
TF = temperature factor = (22.4)(313/273)	**25.68**	L/mol
HS = headspace volume	**0.015**	L
S = sample volume remaining after headspace removal	**0.00547**	L
DF = dilution factor	**2**	
Cs = calculated sample concentration	**380.034301**	ug/L

RSK-175 - Example Calculation for Carbon Dioxide

ICAL Plot - Quadratic Regression (y = Ax^2 + Bx +C)

Ax^2 + Bx + (C - y) = 0

Step 1 - Calculate the concentration in extract, Cx

Data from quadratic regression plot:		
Value of A from plot:	**0.916**	
Value of B from plot:	**1540**	
Value of C from plot:	**0**	
Response for methane from quantitation report (y):	**8763828**	
Value of C - y	**-8763828**	
Solving for Cx using the quadratic formula:		
Root 1 - Computed Cx1:	**2364.716284**	umol/mol
Root 2 - Computed Cx2:	**-4045.938991**	

Step 2 - Calculate the concentration in sample

Cs = Cx (MW/Tf) (HS/S) (DF)

Where:

Cx = Concentration in extract :	**2364.716284**	umol/mol
MW = molecular weight of analyte:	**44.0**	ug/umol
TF = temperature factor = (22.4)(313/273):	**25.68**	L/mol
HS = initial headspace volume (extraction log):	**0.015**	L
S = final volume (extraction log):	**0.00547**	L
DF = dilution factor:	**10**	
Cs = calculated sample concentration:	**111106.798**	ug/L

Other Notes:

Temperature of headspace = 40 C = 313 K

Analyte	**MW (g/mol)**
Methane	16.04
Ethane	30.07
Ethene	28.05
Propane	44.1
Carbon Dioxide	44.0

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HP16 Dataset: 032516
Analyst1: JDS Analyst2: NA
Method: RSK175 SOP: RSK01 Rev: 19
Method: 5021 SOP: RSK01 Rev: 19

Maintenance Log ID:

Internal Standard: NA Surrogate Standard: NA
CCV: STD75351 LCS: STD68250 MS/MSD: NA

Column 1 ID: RTQBOND Column 2 ID: RTQBOND
Workgroups: WG562401 WG562514

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
16G49625	RINSE	NA	1	1		03/25/16 11:11
16G49626	WG562401-01 0.67umol/moL STD RSK175	NA	1	1	STD67276	03/25/16 11:22
16G49627	WG562401-02 1.67umol/moL STD RSK175	NA	1	1	STD67276	03/25/16 11:34
16G49628	WG562401-03 33.3umol/moL STD RSK175	NA	1	1	STD67276	03/25/16 11:46
16G49629	WG562401-04 66.7umol/moL STD RSK175	NA	1	1	STD67276	03/25/16 11:58
16G49630	WG562401-05 133umol/moL STD RSK175	NA	1	1	STD75351	03/25/16 12:10
16G49631	WG562401-06 333umol/moL STD RSK175	NA	1	1	STD75351	03/25/16 12:22
16G49632	WG562401-07 533umol/moL STD RSK175	NA	1	1	STD75351	03/25/16 12:34
16G49633	RINSE	NA	1	1		03/25/16 12:46
16G49634	WG562401-08 133umol/moL ALT SRC STD	NA	1	1	STD68250	03/25/16 13:47
16G49635	WG562401-08 133umol/moL ALT SRC STD	NA	1	1	STD68250	03/25/16 18:26
16G49636	WG562514-01 BLANK STD RSK175	NA	1	1		03/25/16 18:38
16G49637	WG562514-02 67umol/moL LCS STD RSK1	NA	1	1	STD68250	03/25/16 18:50
16G49638	WG562514-03 67umol/moL LCS2 STD RSK	NA	1	1	STD68250	03/25/16 19:02
16G49639	L16031272-14 B A1 RSK175	<2	1	1		03/25/16 19:14
16G49640	L16031272-15 B A1 RSK175	<2	1	1		03/25/16 19:26
16G49641	L16031272-22 B A1 RSK175	<2	1	1		03/25/16 19:38
16G49642	L16031272-03 B D1 10X RSK175	<2	1	10		03/25/16 19:50
16G49643	L16031272-04 B D1 5X RSK175	<2	1	5		03/25/16 20:01
16G49644	L16031272-08 B D1 50X RSK175	<2	1	50		03/25/16 20:13
16G49645	L16031272-19 B D1 10X RSK175	<2	1	10		03/25/16 20:25
16G49646	WG562401-09 133umol/moL CCV STD RSK	NA	1	1	STD75351	03/25/16 20:37
16G49647	L16031363-04 A RSK175	<2	1	1		03/25/16 20:49
16G49648	L16031363-05 A RSK175	<2	1	1		03/25/16 21:01
16G49649	L16031363-11 A RSK175	<2	1	1		03/25/16 21:12
16G49650	L16031363-12 A RSK175	<2	1	1		03/25/16 21:24
16G49651	L16031363-17 A RSK175	<2	1	1		03/25/16 21:36
16G49652	L16031388-01 A RSK175	<2	1	1		03/25/16 21:48
16G49653	WG562401-10 133umol/moL CCV STD RSK	NA	1	1	STD75351	03/25/16 21:59

Comments

Seq.	Rerun	Dil.	Reason	Analytes
10	X			CO2

Approved: April 01, 2016

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Instrument Run Log

Instrument: HP16 Dataset: 032516
Analyst1: JDS Analyst2: NA
Method: RSK175 SOP: RSK01 Rev: 19
Method: 5021 SOP: RSK01 Rev: 19

Maintenance Log ID:

Internal Standard: NA Surrogate Standard: NA
CCV: STD75351 LCS: STD68250 MS/MSD: NA

Column 1 ID: RTQBOND Column 2 ID: RTQBOND
Workgroups: WG562401 WG562514

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 16G49634				
	Alt. Src. failed low for CO2			
23	X	50	Over Calibration Range	m
File ID: 16G49647				
	L16031363-04			
24	X	20	Over Calibration Range	m
File ID: 16G49648				
	L16031363-05			
25	X	5	Over Calibration Range	m
File ID: 16G49649				
	L16031363-11			
26	X	5	Over Calibration Range	m
File ID: 16G49650				
	L16031363-12			
27	X	10	Over Calibration Range	m
File ID: 16G49651				
	L16031363-17			
28	X	5	Over Calibration Range	m, p
File ID: 16G49652				
	L16031388-01 took prop. hit with high failing prop result in CCV.			
33			Check Standard Failure	p
File ID: 16G49653				
	WG562401-10 failed high for prop.			

Approved: April 01, 2016

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HP16 Dataset: 110316
Analyst1: JDS Analyst2: NA
Method: RSK175 SOP: RSK01 Rev: 19
Method: 5021 SOP: RSK01 Rev: 19

Maintenance Log ID:

Internal Standard: NA Surrogate Standard: NA
CCV: STD75351 LCS: STD68250 MS/MSD: NA

Column 1 ID: RTQBOND Column 2 ID: RTQBOND
Workgroups: WG590198

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
16G50934	WG590196-01 133umol/mol CCV RSK175	NA	1	1	STD75351	11/03/16 14:14
16G50935	WG590198-01 BLANK RSK175	NA	1	1		11/03/16 14:39
16G50936	WG590198-02 67umol/mol LCS RSK175	NA	1	1	STD68250	11/03/16 14:51
16G50937	WG590198-03 67umol/mol LCS2 RSK175	NA	1	1	STD68250	11/03/16 15:02
16G50938	L16110074-01 A RSK175	7	1	1		11/03/16 15:36
16G50939	L16110074-03 A RSK175	7	1	1		11/03/16 15:47
16G50940	L16110074-05 A RSK175	7	1	1		11/03/16 16:00
16G50941	L16110074-07 A RSK175	7	1	1		11/03/16 16:11
16G50942	L16110074-09 A RSK175	7	1	1		11/03/16 16:23
16G50943	L16110074-11 A RSK175	7	1	1		11/03/16 16:34
16G50944	L16110126-01 A RSK175	<2	1	1		11/03/16 16:46
16G50945	WG590196-02 133umol/mol CCV RSK175	NA	1	1	STD75351	11/03/16 16:57
16G50946	L16110089-01 A RSK175	<2	1	1		11/03/16 17:09
16G50947	L16110089-02 A RSK175	<2	1	1		11/03/16 17:20
16G50948	L16110075-03 A RSK175	<2	1	1		11/03/16 17:32
16G50949	L16110075-04 A RSK175	<2	1	1		11/03/16 17:44
16G50950	L16110075-05 A RSK175	<2	1	1		11/03/16 17:55
16G50951	L16110144-01 A RSK175	7	1	1		11/03/16 18:07
16G50952	L16110144-03 A RSK175	7	1	1		11/03/16 18:18
16G50953	L16110144-05 A RSK175	6	1	1		11/03/16 18:30
16G50954	L16110146-01 A RSK175	<2	1	1		11/03/16 18:41
16G50955	L16110146-02 A RSK175	<2	1	1		11/03/16 18:53
16G50956	WG590196-03 133umol/mol CCV RSK175	NA	1	1	STD75351	11/03/16 19:05

Comments

Seq.	Rerun	Dil.	Reason	Analytes
4	X	10	Over Calibration Range	CO2
File ID: 16G50938				
	L16110074-01			
5	X	5	Over Calibration Range	CO2
File ID: 16G50939				
	L16110074-03			
6	X	10	Over Calibration Range	CO2

Approved: November 04, 2016
Sarah Vandenberg

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HP16 Dataset: 110316
Analyst1: JDS Analyst2: NA
Method: RSK175 SOP: RSK01 Rev: 19
Method: 5021 SOP: RSK01 Rev: 19

Maintenance Log ID:

Internal Standard: NA Surrogate Standard: NA
CCV: STD75351 LCS: STD68250 MS/MSD: NA

Column 1 ID: RTQBOND Column 2 ID: RTQBOND
Workgroups: WG590198

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 16G50940				
	L16110074-05			
7	X	5	Over Calibration Range	CO2
File ID: 16G50941				
	L16110074-07			
8	X	10	Over Calibration Range	CO2
File ID: 16G50942				
	L16110074-09			
9	X	5	Over Calibration Range	CO2
File ID: 16G50943				
	L16110074-11			
14	X	25	Over Calibration Range	M
File ID: 16G50948				
	L16110075-03			
15	X	25	Over Calibration Range	M
File ID: 16G50949				
	L16110075-04			
16	X	20	Over Calibration Range	M
File ID: 16G50950				
	L16110075-05			
17	X	10	Over Calibration Range	CO2
File ID: 16G50951				
	L16110144-01			
18	X	10	Over Calibration Range	CO2
File ID: 16G50952				
	L16110144-03			
19	X	10	Over Calibration Range	CO2
File ID: 16G50953				
	L16110144-05			

Approved: November 04, 2016
Sarah Vandenberg

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HP16 Dataset: 110416
Analyst1: JDS Analyst2: NA
Method: RSK175 SOP: RSK01 Rev: 19
Method: 5021 SOP: RSK01 Rev: 19

Maintenance Log ID:

Internal Standard: NA Surrogate Standard: NA
CCV: STD75351 LCS: STD68250 MS/MSD: STD68250

Column 1 ID: RTQBOND Column 2 ID: RTQBOND
Workgroups: WG590416

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
16G50957	WG590415-01 133umol/mol CCV RSK175	NA	1	1	STD75351	11/04/16 14:45
16G50958	WG590416-01 BLANK RSK175	NA	1	1		11/04/16 15:43
16G50959	WG590416-02 67umol/mol LCS RSK175	NA	1	1	STD68250	11/04/16 15:54
16G50960	L16110074-01 B D1 10X RSK175	7	1	10		11/04/16 16:06
16G50961	L16110074-03 B D1 5X RSK175	7	1	5		11/04/16 16:17
16G50962	L16110074-05 B D1 10X RSK175	7	1	10		11/04/16 16:29
16G50963	L16110074-07 B D1 5X RSK175	7	1	5		11/04/16 16:40
16G50964	L16110074-09 B D1 10X RSK175	7	1	10		11/04/16 16:52
16G50965	L16110074-11 B D1 5X RSK175	7	1	5		11/04/16 17:04
16G50966	L16110075-03 B D1 25X RSK175	<2	1	25		11/04/16 17:16
16G50967	L16110075-04 B D1 25X RSK175	<2	1	25		11/04/16 17:28
16G50968	WG590415-02 133umol/mol CCV RSK175	NA	1	1	STD75351	11/04/16 17:39
16G50969	L16110075-05 B D1 20X RSK175	<2	1	20		11/04/16 17:52
16G50970	L16110144-05 B D1 10X RSK175	6	1	10		11/04/16 18:03
16G50971	L16110144-03 B D1 10X RSK175	7	1	10		11/04/16 18:15
16G50972	L16110144-01 B D1 10X RSK175	7	1	10		11/04/16 18:27
16G50973	L16110147-02 A RSK175	<2	1	1		11/04/16 18:39
16G50974	L16110147-03 A RSK175	<2	1	1		11/04/16 18:51
16G50975	L16110147-04 A RSK175	<2	1	1		11/04/16 19:03
16G50976	L16110147-05 A REF RSK175	<2	1	1		11/04/16 19:15
16G50977	L16110147-06 A MS RSK175	<2	1	1	STD68250	11/04/16 19:27
16G50978	L16110147-07 A MSD RSK175	<2	1	1	STD68250	11/04/16 19:39
16G50979	WG590415-03 133umol/mol CCV RSK175	NA	1	1	STD75351	11/04/16 19:51
16G50980	L16110147-09 A RSK175	<2	1	1		11/04/16 20:03
16G50981	L16110147-08 A RSK175	<2	1	1		11/04/16 20:15
16G50982	WG590415-04 133umol/mol CCV RSK175	NA	1	1	STD75351	11/04/16 20:27

Comments

Seq.	Rerun	Dil.	Reason	Analytes
17	X	20	Over Calibration Range	M
File ID: 16G50973				
L16110147-02				
18	X	20	Over Calibration Range	M, ethene

Approved: November 08, 2016

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HP16 Dataset: 110416
Analyst1: JDS Analyst2: NA
Method: RSK175 SOP: RSK01 Rev: 19
Method: 5021 SOP: RSK01 Rev: 19

Maintenance Log ID:

Internal Standard: NA Surrogate Standard: NA
CCV: STD75351 LCS: STD68250 MS/MSD: STD68250

Column 1 ID: RTQBOND Column 2 ID: RTQBOND
Workgroups: WG590416

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 16G50974				
	L16110147-03			
20	X	50	Over Calibration Range	M
File ID: 16G50976				
	L16110147-05			
24	X	50	Over Calibration Range	M
File ID: 16G50980				
	L16110147-09			
25	X	50	Over Calibration Range	M
File ID: 16G50981				
	L16110147-08			

Approved: November 08, 2016

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UPLOAD BATCH EXTRACTION INFORMATION

Batch #: B220401

	Initial Amount		Nominal Amount		Spike Amount		Surrogate Spike Amount		Final Amount		Final Nominal Amount		Temp (C)
WG562401-01	15	mL	15	mL					5.47	mL	5.47	mL	40
WG562401-02	15	mL	15	mL					5.47	mL	5.47	mL	40
WG562401-03	15	mL	15	mL					5.47	mL	5.47	mL	40
WG562401-04	15	mL	15	mL					5.47	mL	5.47	mL	40
WG562401-05	15	mL	15	mL					5.47	mL	5.47	mL	40
WG562401-06	15	mL	15	mL					5.47	mL	5.47	mL	40
WG562401-07	15	mL	15	mL					5.47	mL	5.47	mL	40
WG562401-08	15	mL	15	mL					5.47	mL	5.47	mL	40

Microbac Laboratories Inc.
UPLOAD BATCH EXTRACTION INFORMATION

Batch #: B230608

	Initial Amount		Nominal Amount		Spike Amount		Surrogate Spike Amount		Final Amount		Final Nominal Amount		Temp (C)
WG590196-01	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590196-02	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-03	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-07	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-05	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110075-03	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110075-04	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590198-01	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-11	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110126-01	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110089-01	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-01	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-09	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590198-03	15	mL	15	mL	.1	mL			5.47	mL	5.47	mL	40
WG590198-02	15	mL	15	mL	.1	mL			5.47	mL	5.47	mL	40
L16110089-02	15	mL	15	mL					5.47	mL	5.47	mL	40

Microbac Laboratories Inc.
UPLOAD BATCH EXTRACTION INFORMATION

Batch #: B230691

	Initial Amount		Nominal Amount		Spike Amount		Surrogate Spike Amount		Final Amount		Final Nominal Amount		Temp (C)
WG590415-01	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590415-02	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590415-03	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590415-04	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590416-05	15	mL	15	mL	.1	mL			5.47	mL	5.47	mL	40
L16110147-09	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110147-03	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110147-05	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590416-04	15	mL	15	mL	.1	mL			5.47	mL	5.47	mL	40
L16110147-08	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590416-02	15	mL	15	mL	.1	mL			5.47	mL	5.47	mL	40
L16110074-09	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110075-05	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110144-05	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590416-03	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-01	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110147-04	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110147-06	15	mL	15	mL	.1	mL			5.47	mL	5.47	mL	40
L16110075-03	15	mL	15	mL					5.47	mL	5.47	mL	40
WG590416-01	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110147-07	15	mL	15	mL	.1	mL			5.47	mL	5.47	mL	40
L16110074-03	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110075-04	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110144-01	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110144-03	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-05	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110147-02	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-07	15	mL	15	mL					5.47	mL	5.47	mL	40
L16110074-11	15	mL	15	mL					5.47	mL	5.47	mL	40

Microbac Laboratories Inc.

Data Checklist

Date: 25-MAR-2016
Analyst: JDS
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 74110
Analytical Workgroups: WG562401 WG562514

Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	NA
Samples	X
Surrogates	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	FJB
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the resonableness of the results	X

Primary Reviewer:
31-MAR-2016

Secondary Reviewer:
01-APR-2016

CHECKLIST1 - Modified 03/05/2008
Generated: APR-01-2016 11:20:23

Microbac Laboratories Inc.

Data Checklist

Date: 03-NOV-2016
Analyst: JDS
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 78496
Analytical Workgroups: WG590198

Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	NA
Samples	X
Surrogates	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	NA
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	SAV
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the resonableness of the results	X

Primary Reviewer:
04-NOV-2016

Secondary Reviewer:
04-NOV-2016

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-04-2016 12:29:26

Microbac Laboratories Inc.

Data Checklist

Date: 04-NOV-2016
Analyst: JDS
Analyst: NA
Method: RSK175
Instrument: HP16
Curve Workgroup: NA
Runlog ID: 78528
Analytical Workgroups: WG590416

Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	NA
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	NA
MS/MSD/Duplicates	X
Samples	X
Surrogates	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	WTD
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the resonableness of the results	X

Primary Reviewer:
07-NOV-2016

Secondary Reviewer:
08-NOV-2016

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-08-2016 09:54:43

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: RSK175 **AAB#:** WG590198

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW13-110116	01	11/01/16					11/03/2016	2.3	7		11/03/16	2.3	7	
50WW14-110116	03	11/01/16					11/03/2016	2.3	7		11/03/16	2.3	7	
50WW11-110116	05	11/01/16					11/03/2016	2.2	7		11/03/16	2.2	7	
50WW06-110116	07	11/01/16					11/03/2016	2.2	7		11/03/16	2.2	7	
50WW12-110116	09	11/01/16					11/03/2016	2.1	7		11/03/16	2.1	7	
50WW23-110116	11	11/01/16					11/03/2016	2.1	7		11/03/16	2.1	7	

*** = SEE PROJECT QAPP REQUIREMENTS**

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5008530
Report generated 11/08/2016 09:06

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: RSK175 AAB#: WG590416

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW13-110116	01	11/01/16					11/04/2016	3.3	7		11/04/16	3.3	7	
50WW14-110116	03	11/01/16					11/04/2016	3.3	7		11/04/16	3.3	7	
50WW11-110116	05	11/01/16					11/04/2016	3.3	7		11/04/16	3.3	7	
50WW06-110116	07	11/01/16					11/04/2016	3.2	7		11/04/16	3.2	7	
50WW12-110116	09	11/01/16					11/04/2016	3.1	7		11/04/16	3.1	7	
50WW23-110116	11	11/01/16					11/04/2016	3.1	7		11/04/16	3.1	7	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5008530
Report generated 11/08/2016 09:06

METHOD BLANK SUMMARY

Login Number: L16110074
Blank File ID: 16G50935
Prep Date: 11/03/16 14:39
Analyzed Date: 11/03/16 14:39
Analyst: JDS

Work Group: WG590198
Blank Sample ID: WG590198-01
Instrument ID: HP16
Method: RSK175

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590198-02	16G50936	11/03/16 14:51	01
LCS2	WG590198-03	16G50937	11/03/16 15:02	01
50WW13-110116	L16110074-01	16G50938	11/03/16 15:36	01
50WW14-110116	L16110074-03	16G50939	11/03/16 15:47	01
50WW11-110116	L16110074-05	16G50940	11/03/16 16:00	01
50WW06-110116	L16110074-07	16G50941	11/03/16 16:11	01
50WW12-110116	L16110074-09	16G50942	11/03/16 16:23	01
50WW23-110116	L16110074-11	16G50943	11/03/16 16:34	01

Report Name: BLANK_SUMMARY
PDF File ID: 5008531
Report generated 11/08/2016 09:06

METHOD BLANK SUMMARY

Login Number: L16110074
Blank File ID: 16G50958
Prep Date: 11/04/16 15:43
Analyzed Date: 11/04/16 15:43
Analyst: JDS

Work Group: WG590416
Blank Sample ID: WG590416-01
Instrument ID: HP16
Method: RSK175

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590416-02	16G50959	11/04/16 15:54	01
50WW13-110116	L16110074-01	16G50960	11/04/16 16:06	DL01
50WW14-110116	L16110074-03	16G50961	11/04/16 16:17	DL01
50WW11-110116	L16110074-05	16G50962	11/04/16 16:29	DL01
50WW06-110116	L16110074-07	16G50963	11/04/16 16:40	DL01
50WW12-110116	L16110074-09	16G50964	11/04/16 16:52	DL01
50WW23-110116	L16110074-11	16G50965	11/04/16 17:04	DL01

Report Name: BLANK_SUMMARY
PDF File ID: 5008531
Report generated 11/08/2016 09:06

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L16110074 Prep Date:11/03/16 14:39 Sample ID:WG590198-01
Instrument ID:HP16 Run Date:11/03/16 14:39 Prep Method:5021
File ID:16G50935 Analyst:JDS Method:RSK175
Workgroup (AAB#):WG590198 Matrix:Water Units:ug/L
Contract #: Cal ID: HP16-25-MAR-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Methane	1.00	5.00	1.00	1	U
ethene	1.00	5.00	1.00	1	U
ethane	1.00	5.00	1.00	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5008532
08-NOV-2016 09:06

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L16110074 Prep Date: 11/04/16 15:43 Sample ID: WG590416-01
Instrument ID: HP16 Run Date: 11/04/16 15:43 Prep Method: 5021
File ID: 16G50958 Analyst: JDS Method: RSK175
Workgroup (AAB#): WG590416 Matrix: Water Units: ug/L
Contract #: Cal ID: HP16-25-MAR-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Carbon Dioxide	2500	10000	2500	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5008532
08-NOV-2016 09:06

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Run Date: 11/04/2016 Sample ID: WG590416-02
Instrument ID: HP16 Run Time: 15:54 Prep Method: 5021
File ID: 16G50959 Analyst: JDS Method: RSK175
Workgroup (AAB#): WG590416 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD68250 Cal ID: HP16-25-MAR-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Carbon Dioxide	31300	27800	88.7	53.1 - 130	

LCS - Modified 03/06/2008
PDF File ID: 5012731
Report generated: 11/08/2016 09:06

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: JDS Prep Method: 5021
Instrument ID: HP16 Matrix: Water Method: RSK175
Workgroup (AAB#): WG590198 Units: ug/L
QC Key: DOD4 Lot #: STD68250

Sample ID: WG590198-02 LCS File ID: 16G50936 Run Date: 11/03/2016 14:51
Sample ID: WG590198-03 LCS2 File ID: 16G50937 Run Date: 11/03/2016 15:02

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Methane	114	110	96.2	114	110	96.4	0.187	85 - 115	20	
ethene	200	181	90.7	200	181	90.4	0.265	85 - 115	20	
ethane	214	197	92.0	214	197	91.8	0.212	85 - 115	20	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5008533
Report generated: 11/08/2016 09:06

Calibration Table Report
Method: RSKEXT1.M
Title: RSK175 HP16 (SOP: OVL RSK01) 032516
Last Calibration: Fri Mar 25 13:38:01 2016
Curve: WG562401
Calibration Files

		0.67	1.67	33.3	66.7	133	333	533			
		16G49626.	16G49627.	16G49628.	16G49629.	16G49630.	16G49631.	16G49632.D			
	Compound								Avg	%RSD	Linear
T	methane		357678.3	191763.4	178440.8	176333.2	180289.8	181011.4	210919.0	34.2	1.00
T	ethene		326426.9	323789.7	303078.0	300924.8	311353.3	306803.0	312063.0	3.4	
T	acetylene		320308.2	339363.3	305153.5	300205.1	309436.5	299142.0	312268.0	4.9	
T	ethane	315183.9	335780.5	332335.5	309080.0	306732.7	318673.0	314718.5	318929.0	3.5	
T	propane	455610.0	490813.9	490102.0	464477.8	457676.8	478108.3	465536.1	471761.0	3.1	
T	n-butane	583900.4	644607.5	634321.2	604644.0	590464.7	622084.9	599806.6	611404.0	3.7	
	Signal #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
T	carbon dioxide		4817.9	5324.5	5339.4	5356.8	5546.3	5286.4	5278.5	4.6	

Mon Mar 28 10:00:37 2016

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L16110074 Run Date: 03/25/2016 Sample ID: WG562401-08
Instrument ID: HP16 Run Time: 18:26 Method: RSK175
File ID: 16G49635 Analyst: JDS QC Key: DOD4
ICal Workgroup: WG562401 Cal ID: HP16 - 25-MAR-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
carbon dioxide		62500	68700	ug/L	5800	9.90	15	
methane		228	235	ug/L	187000	3.20	15	
ethene		398	400	ug/L	314000	0.500	15	
ethane		427	434	ug/L	324000	1.70	15	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5008534
Report generated 11/08/2016 09:07

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590196-01

Instrument ID: HP16 Run Time: 14:14 Method: RSK175

File ID: 16G50934 Analyst: JDS QC Key: DOD4

Workgroup (AAB#): WG590198 Cal ID: HP16 - 25-MAR-16

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		228	214	ug/L	171000	5.95	15	
ethene		398	361	ug/L	283000	9.33	15	
ethane		427	385	ug/L	288000	9.73	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 5008535

Report generated 11/08/2016 09:07

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590196-02

Instrument ID: HP16 Run Time: 16:57 Method: RSK175

File ID: 16G50945 Analyst: JDS QC Key: DOD4

Workgroup (AAB#): WG590198 Cal ID: HP16 - 25-MAR-16

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
methane		228	222	ug/L	177000	2.64	15	
ethene		398	375	ug/L	294000	5.77	15	
ethane		427	401	ug/L	300000	6.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 5008535

Report generated 11/08/2016 09:07

Login Number: L16110074 Run Date: 11/04/2016 Sample ID: WG590415-01
Instrument ID: HP16 Run Time: 14:45 Method: RSK175
File ID: 16G50957 Analyst: JDS QC Key: DOD4
Workgroup (AAB#): WG590416 Cal ID: HP16 - 25-MAR-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
carbon dioxide		62500	62500	ug/L	5280	0.0295	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 5008535
Report generated 11/08/2016 09:07

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/04/2016 Sample ID: WG590415-02

Instrument ID: HP16 Run Time: 17:39 Method: RSK175

File ID: 16G50968 Analyst: JDS QC Key: DOD4

Workgroup (AAB#): WG590416 Cal ID: HP16 - 25-MAR-16

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
carbon dioxide		62500	57100	ug/L	4830	8.56	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 5008535

Report generated 11/08/2016 09:07

2.1.2.3 Sample Data

Signal #1 : C:\MSDchem\1\DATA\110316\16G50938.D\FID1A.CH Vial: 5
Signal #2 : C:\MSDchem\1\DATA\110316\16G50938.D\TCD2B.CH
Acq On : 03 Nov 2016 15:36 Operator: JDS
Sample : L16110074-01 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 15:42:15 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

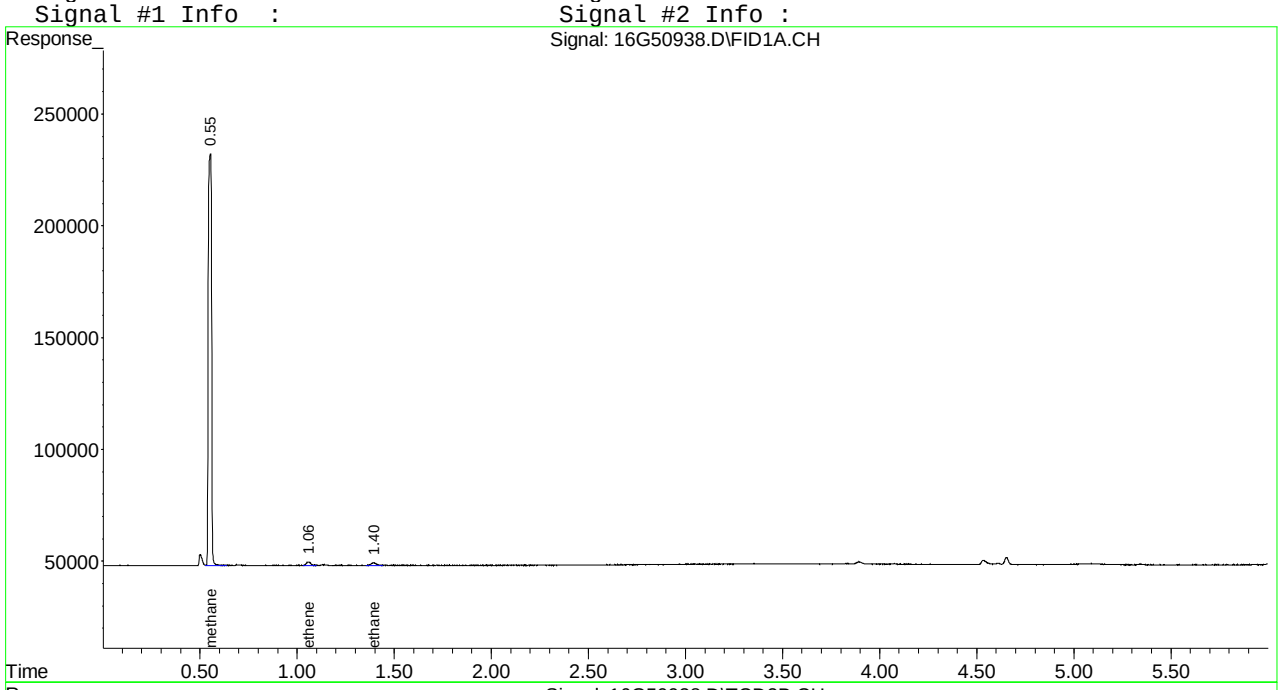
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	2168188	10.482	umol/
2) T	ethene	1.06	25499	0.082	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	1.40	25135	0.079	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	747972408	141701.033	umol/

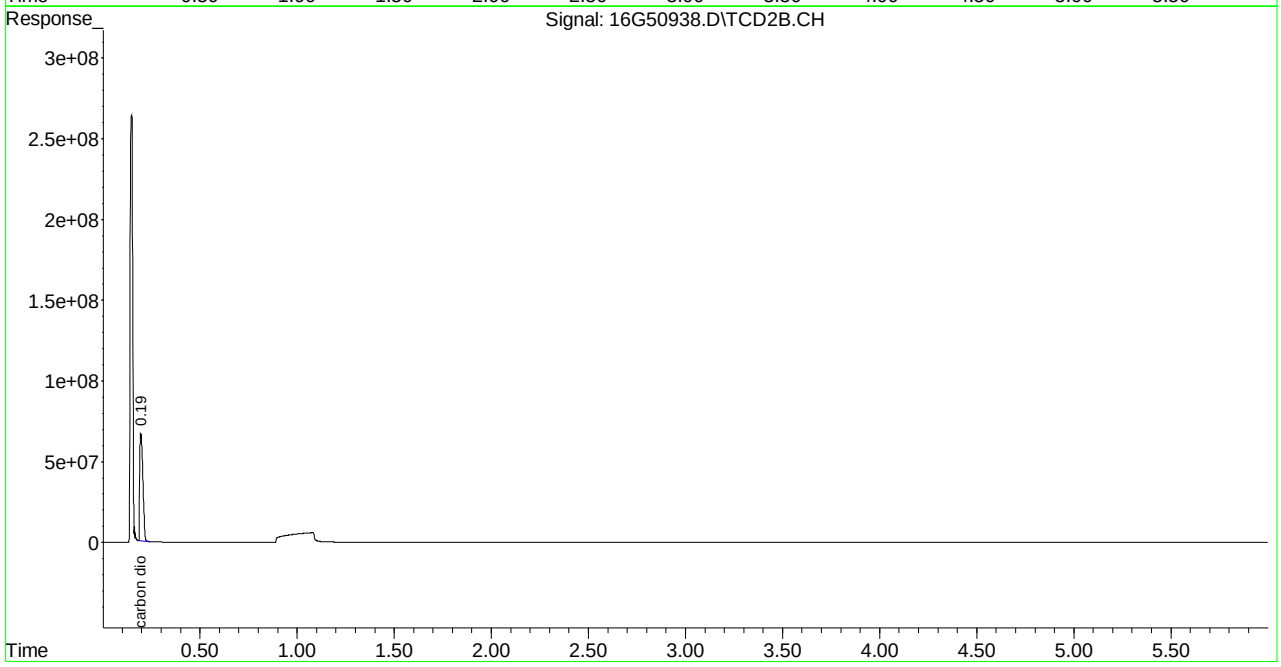
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50938.D RSKEXT1.M Thu Nov 03 15:42:16 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50938.D\FID1A.CH Vial: 5
Signal #2 : C:\MSDchem\1\DATA\110316\16G50938.D\TCD2B.CH
Acq On : 03 Nov 2016 15:36 Operator: JDS
Sample : L16110074-01 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 15:42 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110416\16G50960.D\FID1A.CH Vial: 4
Signal #2 : C:\MSDchem\1\DATA\110416\16G50960.D\TCD2B.CH
Acq On : 04 Nov 2016 16:06 Operator: JDS
Sample : L16110074-01 B D1 10X RSK175 Inst : HP16
Misc : 1,10 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 16:12:37 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

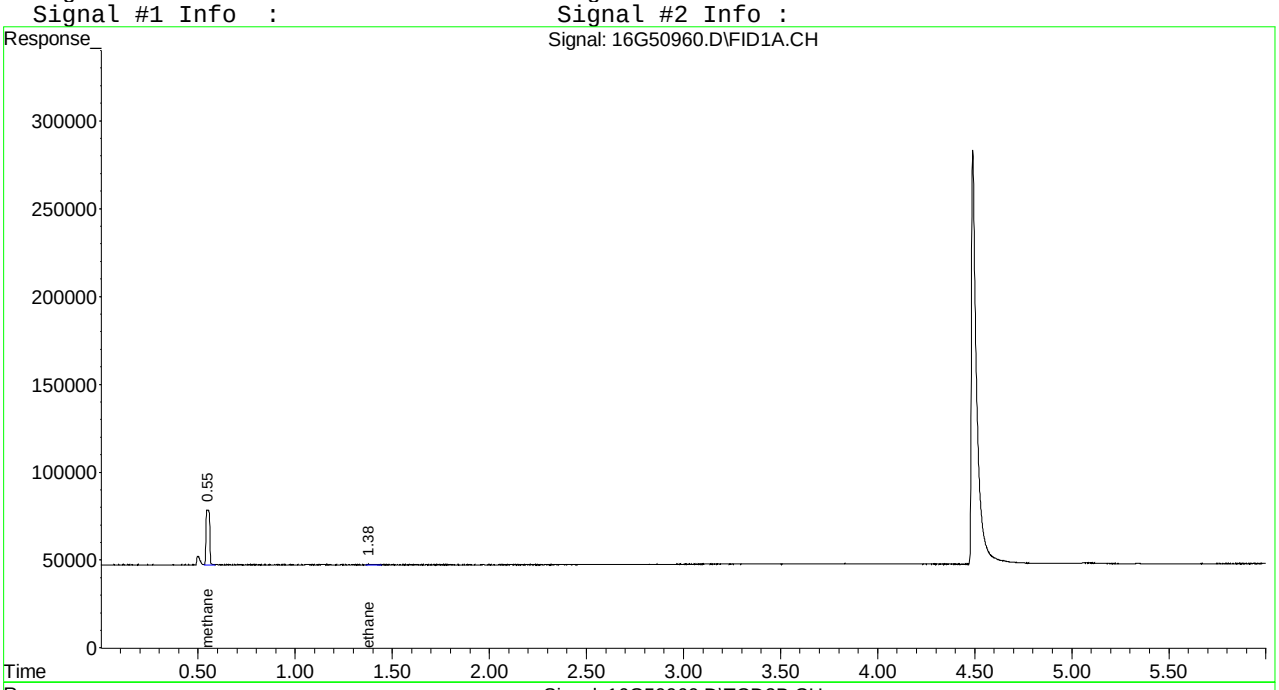
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	405615	0.639	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	1.38	7650	0.024	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	52138981	9877.567	umol/

(f)=RT Delta > 1/2 Window (m)=manual int.
16G50960.D RSKEXT1.M Fri Nov 04 16:12:38 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50960.D\FID1A.CH Vial: 4
Signal #2 : C:\MSDchem\1\DATA\110416\16G50960.D\TCD2B.CH
Acq On : 04 Nov 2016 16:06 Operator: JDS
Sample : L16110074-01 B D1 10X RSK175 Inst : HP16
Misc : 1,10 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 16:12 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : C:\MSDchem\1\DATA\110316\16G50939.D\FID1A.CH Vial: 6
Signal #2 : C:\MSDchem\1\DATA\110316\16G50939.D\TCD2B.CH
Acq On : 03 Nov 2016 15:47 Operator: JDS
Sample : L16110074-03 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 15:53:45 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

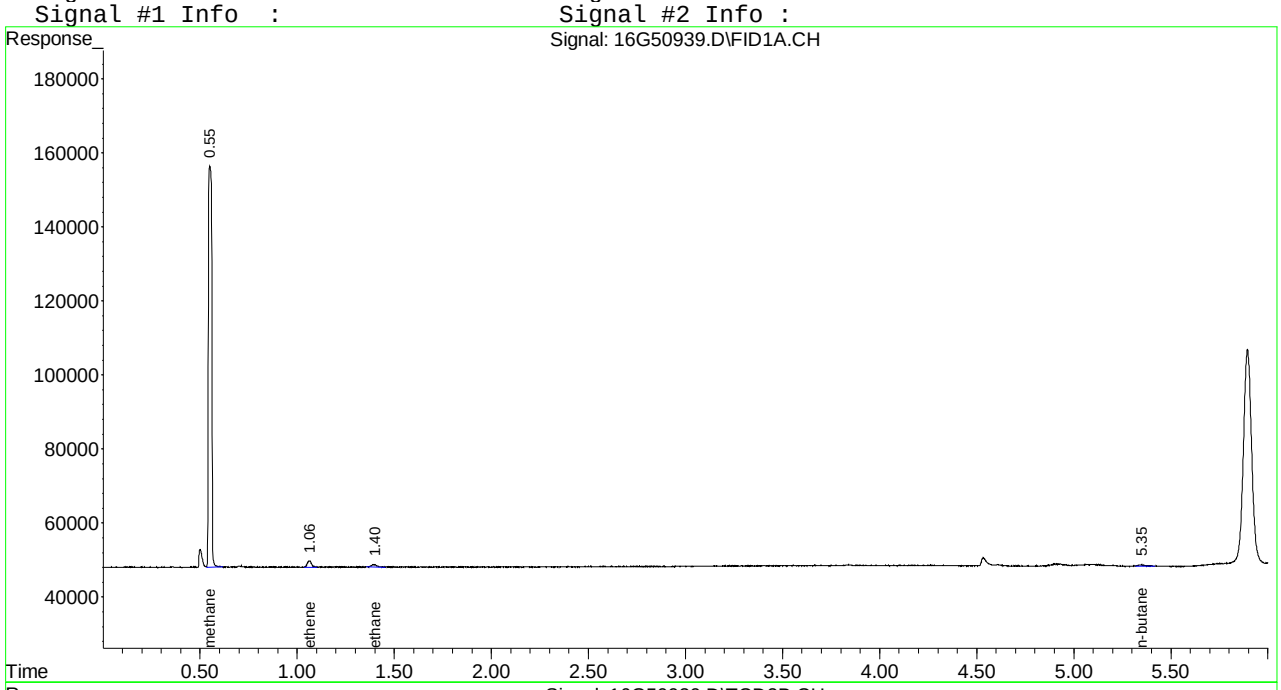
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	1299685	5.632 umol/
2) T	ethene	1.06	27934	0.090 umol/
3) T	acetylene	0.00	0	N.D. umol/
4) T	ethane	1.40	13417	0.042 umol/
5) T	propane	0.00	0	N.D. umol/
6) T	n-butane	5.35	10240	0.017 umol/
8) T	carbon dioxide	0.20	491536147	93119.986 umol/

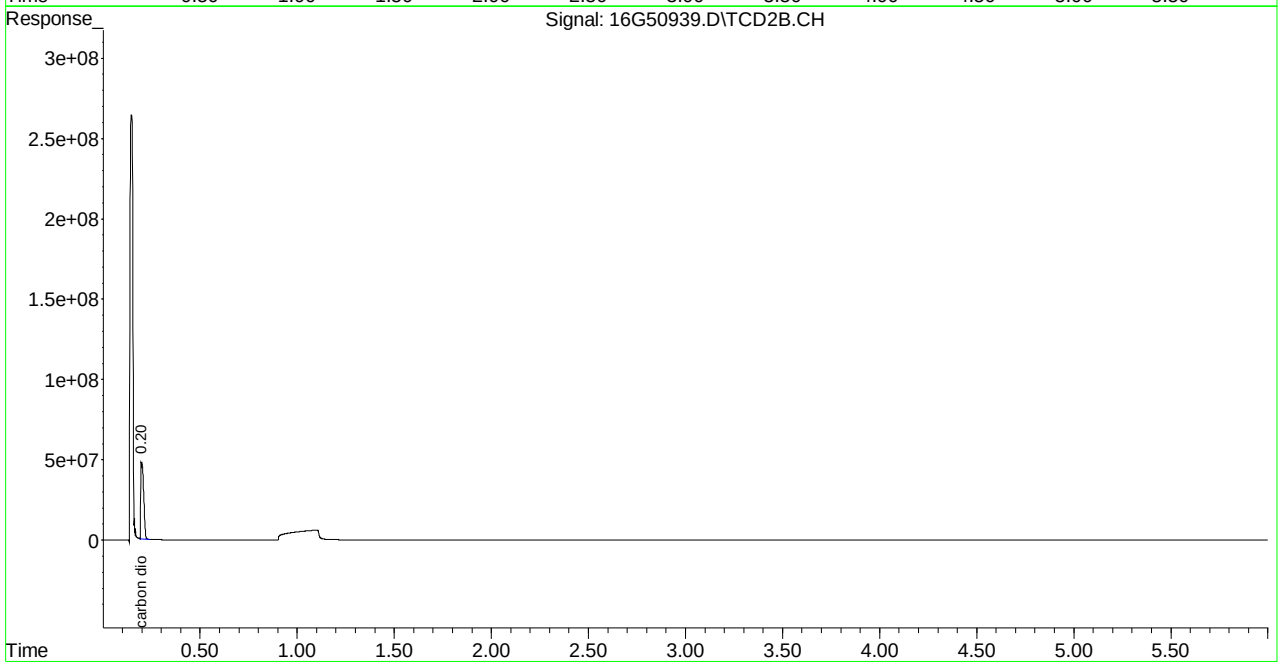
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50939.D RSKEXT1.M Thu Nov 03 15:53:45 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50939.D\FID1A.CH Vial: 6
Signal #2 : C:\MSDchem\1\DATA\110316\16G50939.D\TCD2B.CH
Acq On : 03 Nov 2016 15:47 Operator: JDS
Sample : L16110074-03 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 15:53 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110416\16G50961.D\FID1A.CH Vial: 5
Signal #2 : C:\MSDchem\1\DATA\110416\16G50961.D\TCD2B.CH
Acq On : 04 Nov 2016 16:17 Operator: JDS
Sample : L16110074-03 B D1 5X RSK175 Inst : HP16
Misc : 1,5 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 16:23:39 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

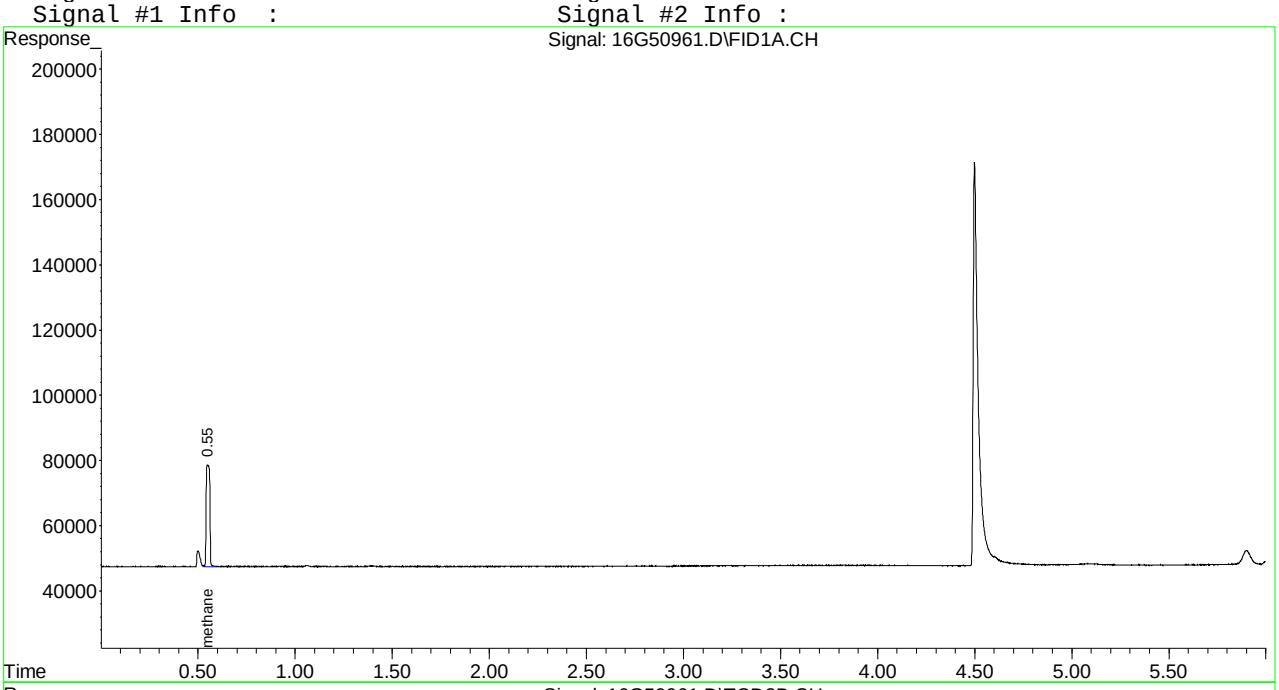
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	403084	0.625	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	0.00	0	N.D.	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	69345876	13137.359	umol/

(f)=RT Delta > 1/2 Window (m)=manual int.
16G50961.D RSKEXT1.M Fri Nov 04 16:23:39 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50961.D\FID1A.CH Vial: 5
Signal #2 : C:\MSDchem\1\DATA\110416\16G50961.D\TCD2B.CH
Acq On : 04 Nov 2016 16:17 Operator: JDS
Sample : L16110074-03 B D1 5X RSK175 Inst : HP16
Misc : 1,5 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 16:23 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : C:\MSDchem\1\DATA\110316\16G50940.D\FID1A.CH Vial: 7
Signal #2 : C:\MSDchem\1\DATA\110316\16G50940.D\TCD2B.CH
Acq On : 03 Nov 2016 16:00 Operator: JDS
Sample : L16110074-05 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 16:06:03 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

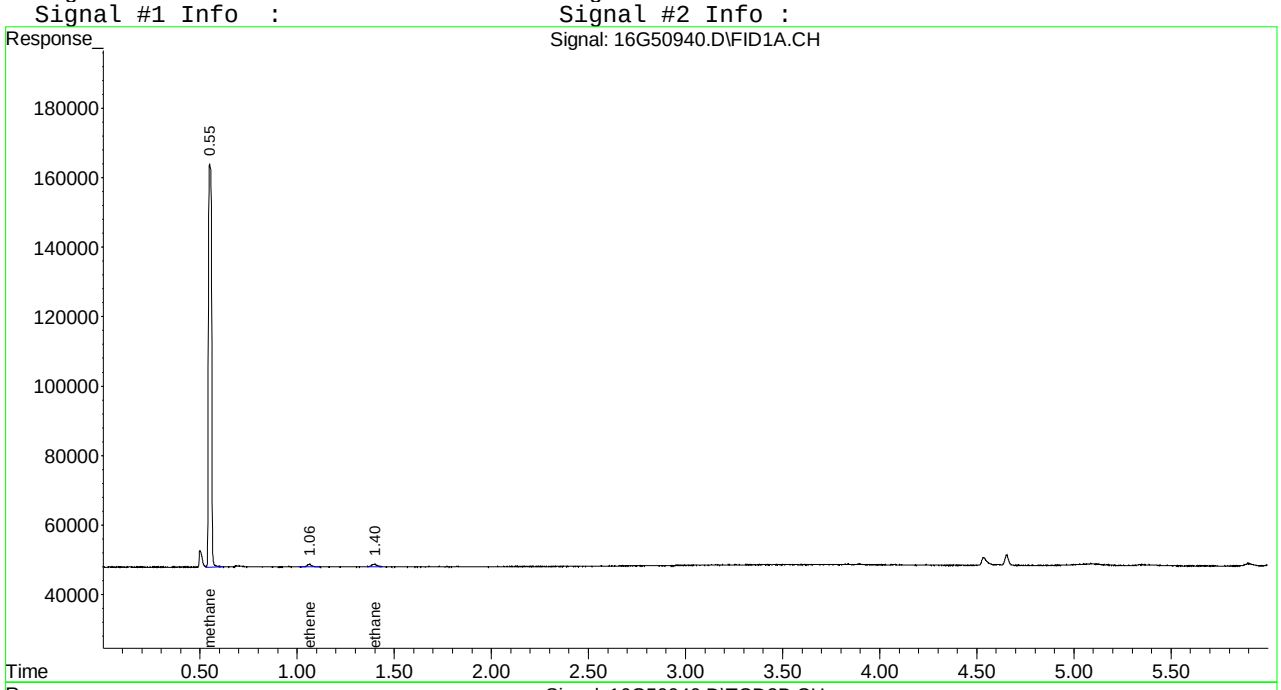
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	1305665	5.665	umol/
2) T	ethene	1.06	12988	0.042	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	1.40	14969	0.047	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.19	952177337	180387.018	umol/

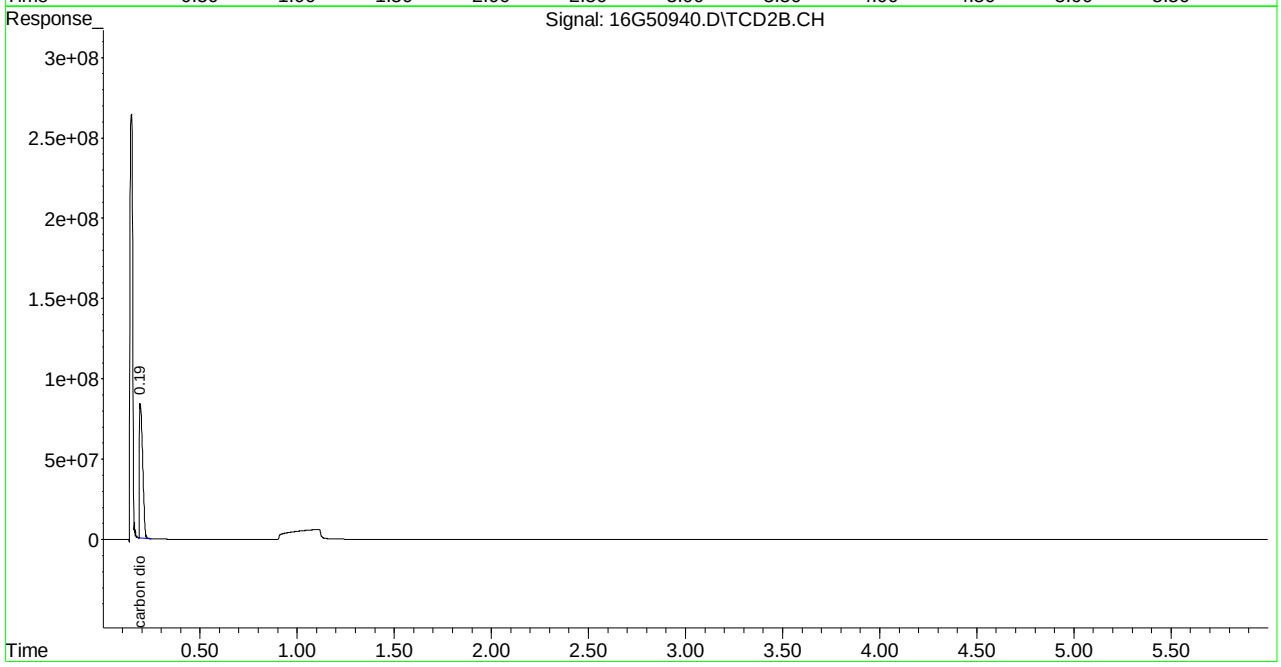
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50940.D RSKEXT1.M Thu Nov 03 16:06:04 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50940.D\FID1A.CH Vial: 7
Signal #2 : C:\MSDchem\1\DATA\110316\16G50940.D\TCD2B.CH
Acq On : 03 Nov 2016 16:00 Operator: JDS
Sample : L16110074-05 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 16:06 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110416\16G50962.D\FID1A.CH Vial: 6
Signal #2 : C:\MSDchem\1\DATA\110416\16G50962.D\TCD2B.CH
Acq On : 04 Nov 2016 16:29 Operator: JDS
Sample : L16110074-05 B D1 10X RSK175 Inst : HP16
Misc : 1,10 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 16:35:44 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

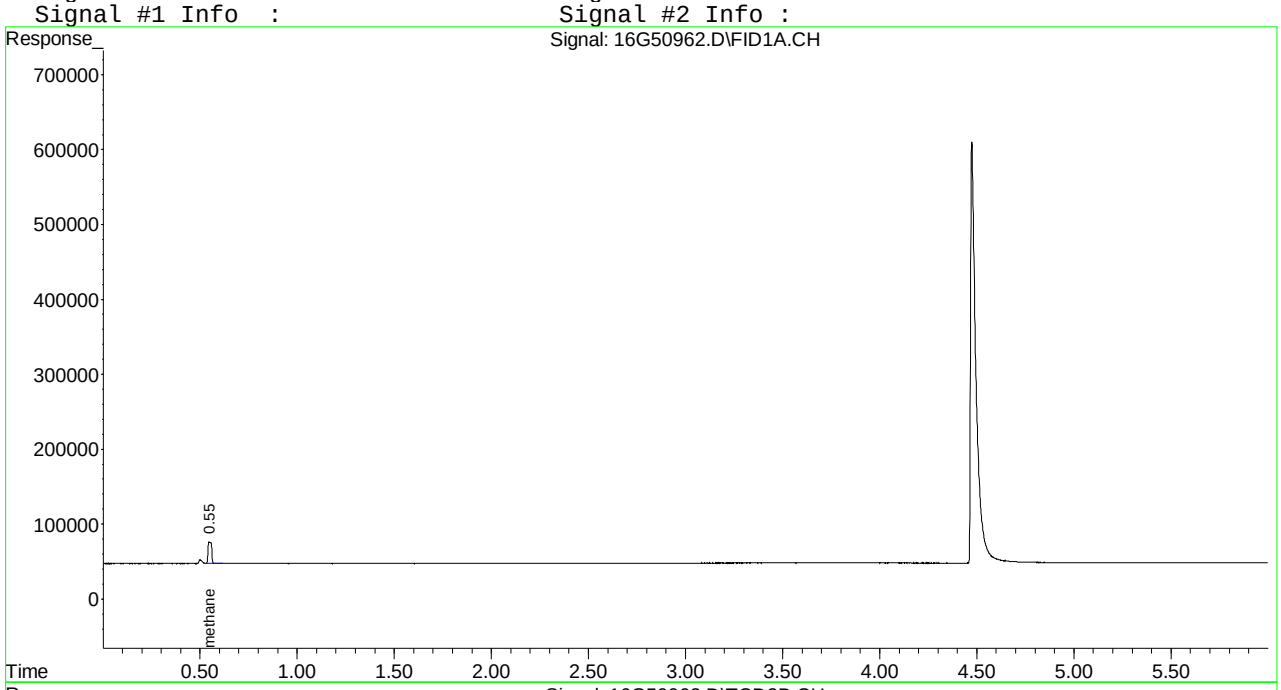
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	371035	0.446	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	0.00	0	N.D.	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	73111290	13850.705	umol/

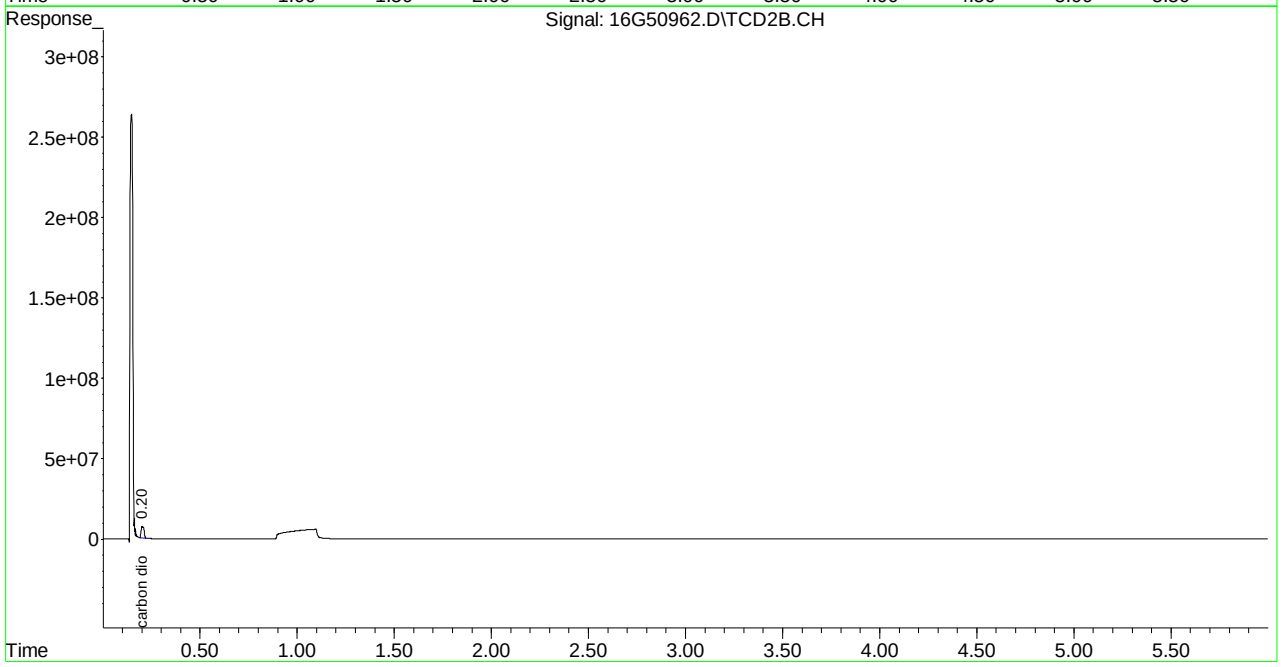
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50962.D RSKEXT1.M Fri Nov 04 16:35:45 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50962.D\FID1A.CH Vial: 6
Signal #2 : C:\MSDchem\1\DATA\110416\16G50962.D\TCD2B.CH
Acq On : 04 Nov 2016 16:29 Operator: JDS
Sample : L16110074-05 B D1 10X RSK175 Inst : HP16
Misc : 1,10 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 16:35 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110316\16G50941.D\FID1A.CH Vial: 8
Signal #2 : C:\MSDchem\1\DATA\110316\16G50941.D\TCD2B.CH
Acq On : 03 Nov 2016 16:11 Operator: JDS
Sample : L16110074-07 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 16:17:11 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

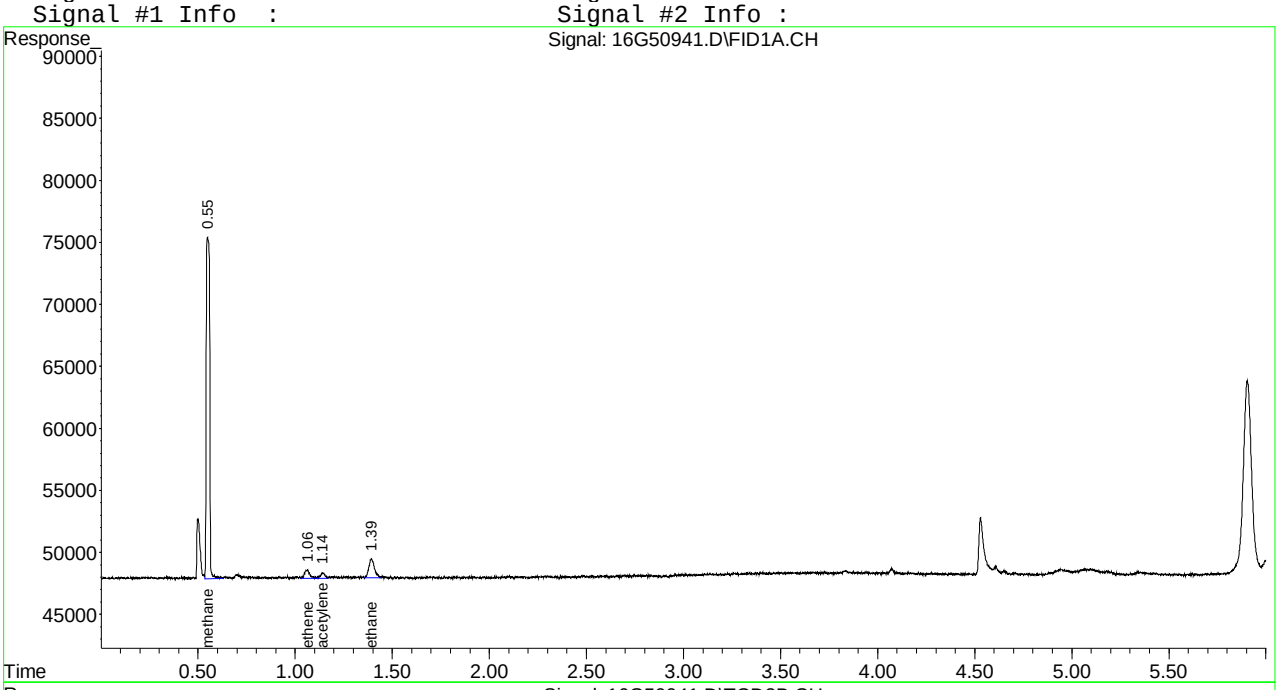
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	336123	0.251 umol/
2) T	ethene	1.06	12521	0.040 umol/
3) T	acetylene	1.15	6595	0.021 umol/
4) T	ethane	1.39	30771	0.096 umol/
5) T	propane	0.00	0	N.D. umol/
6) T	n-butane	0.00	0	N.D. umol/
8) T	carbon dioxide	0.20	559690738	106031.660 umol/

(f)=RT Delta > 1/2 Window (m)=manual int.
16G50941.D RSKEXT1.M Thu Nov 03 16:17:11 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50941.D\FID1A.CH Vial: 8
Signal #2 : C:\MSDchem\1\DATA\110316\16G50941.D\TCD2B.CH
Acq On : 03 Nov 2016 16:11 Operator: JDS
Sample : L16110074-07 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 16:17 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : C:\MSDchem\1\DATA\110416\16G50963.D\FID1A.CH Vial: 7
Signal #2 : C:\MSDchem\1\DATA\110416\16G50963.D\TCD2B.CH
Acq On : 04 Nov 2016 16:40 Operator: JDS
Sample : L16110074-07 B D1 5X RSK175 Inst : HP16
Misc : 1,5 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 16:46:50 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

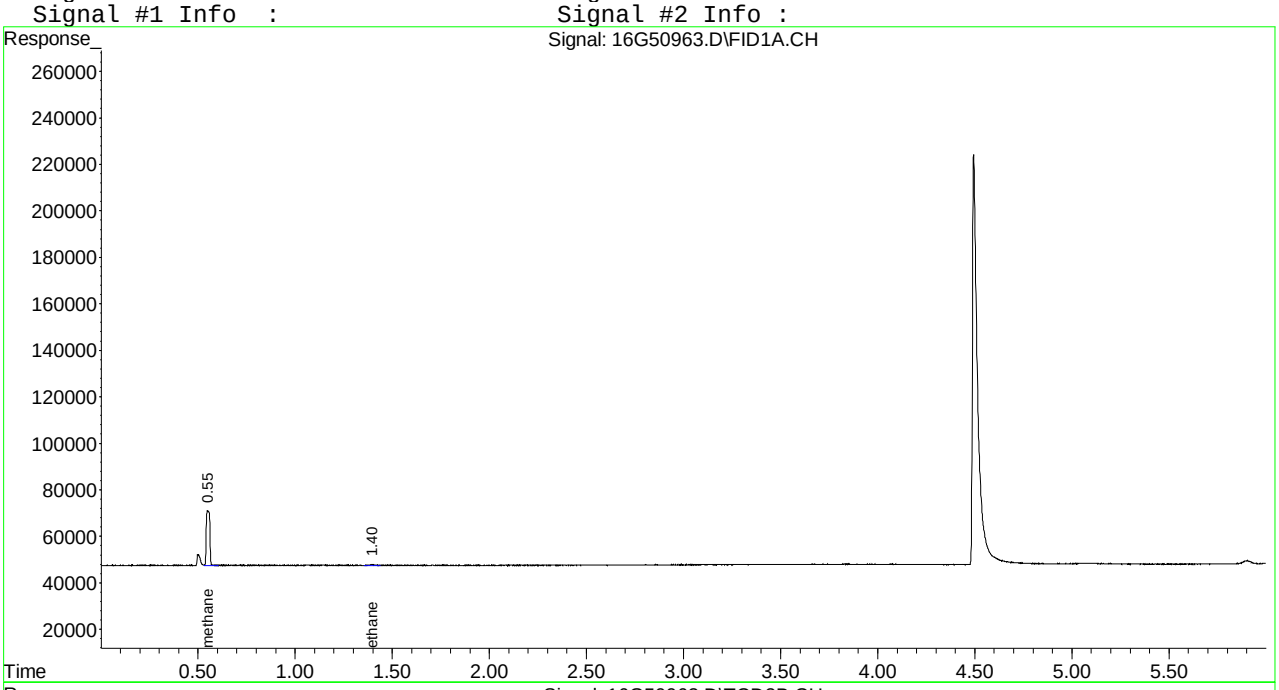
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	297321	0.035	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	1.40	9596	0.030	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	79410682	15044.105	umol/

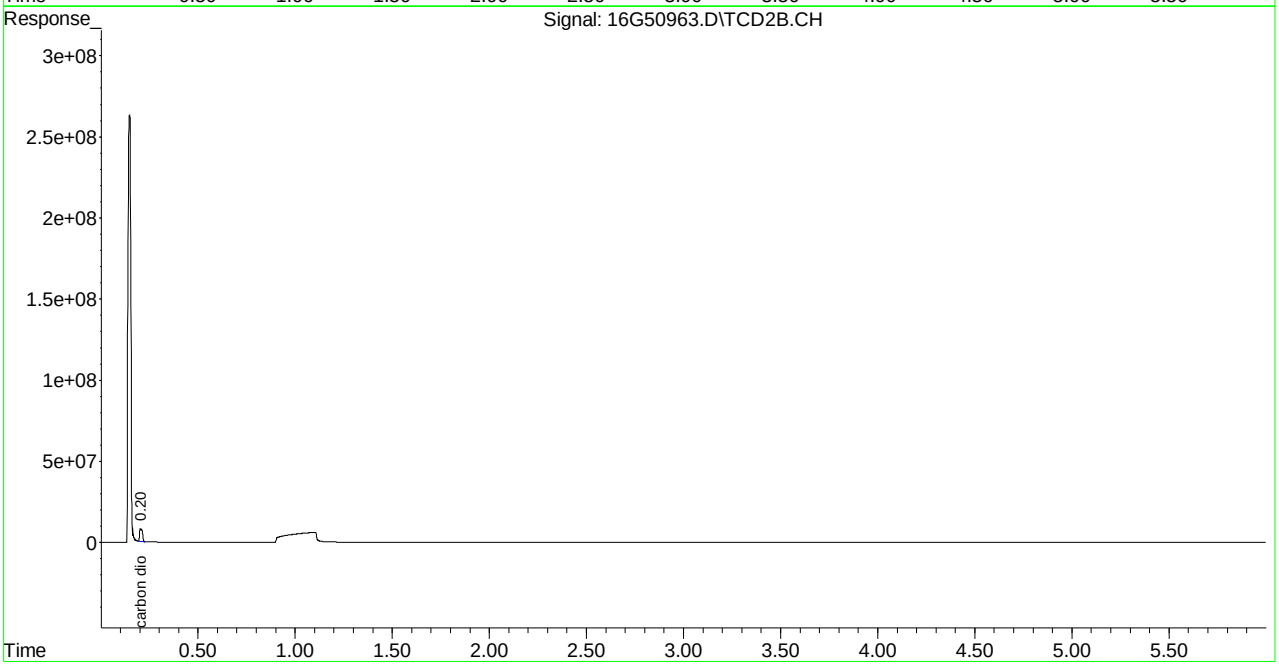
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50963.D RSKEXT1.M Fri Nov 04 16:46:51 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50963.D\FID1A.CH Vial: 7
Signal #2 : C:\MSDchem\1\DATA\110416\16G50963.D\TCD2B.CH
Acq On : 04 Nov 2016 16:40 Operator: JDS
Sample : L16110074-07 B D1 5X RSK175 Inst : HP16
Misc : 1,5 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 16:46 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110316\16G50942.D\FID1A.CH Vial: 9
Signal #2 : C:\MSDchem\1\DATA\110316\16G50942.D\TCD2B.CH
Acq On : 03 Nov 2016 16:23 Operator: JDS
Sample : L16110074-09 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 16:29:16 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

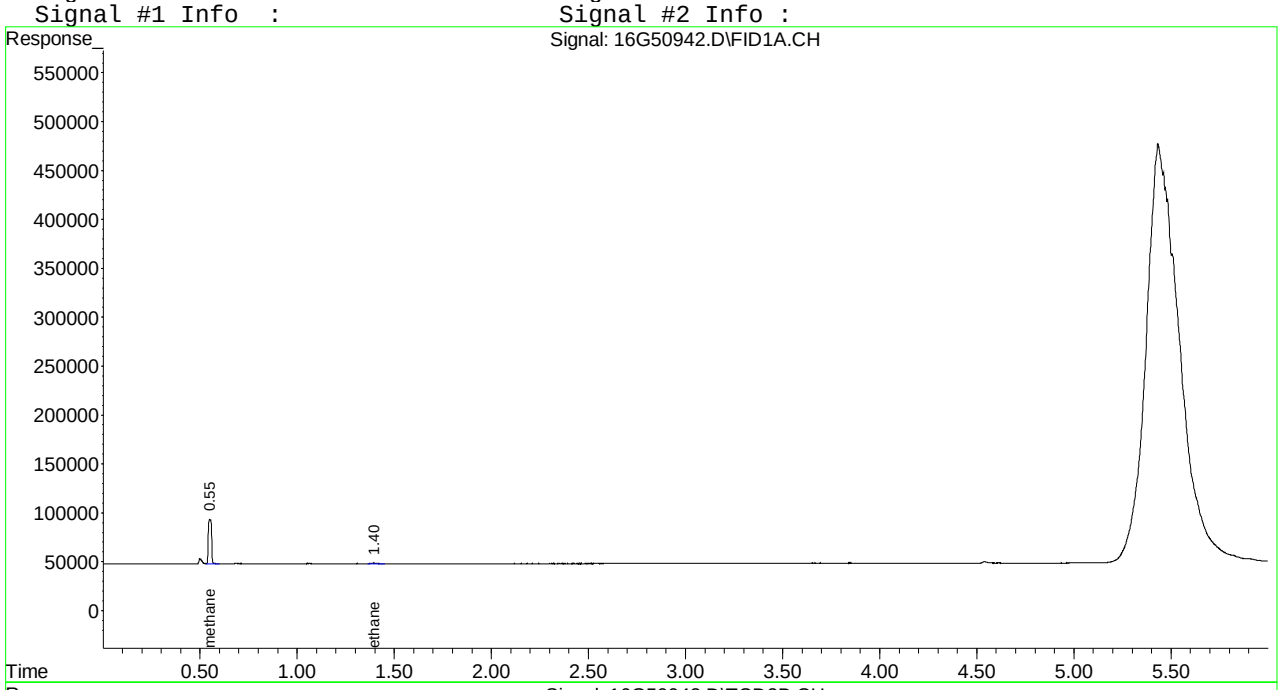
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	527468	1.320	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	1.40	15264	0.048	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.19	1109472903	210186.171	umol/

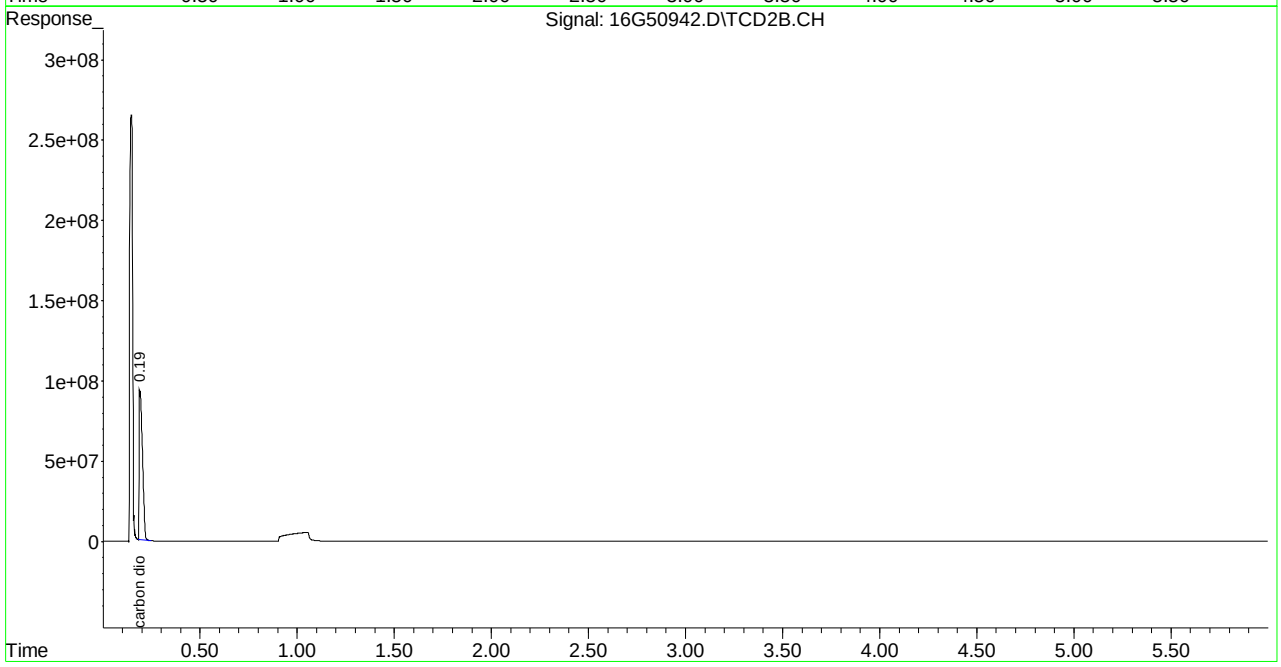
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50942.D RSKEXT1.M Thu Nov 03 16:29:17 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50942.D\FID1A.CH Vial: 9
Signal #2 : C:\MSDchem\1\DATA\110316\16G50942.D\TCD2B.CH
Acq On : 03 Nov 2016 16:23 Operator: JDS
Sample : L16110074-09 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 16:29 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110416\16G50964.D\FID1A.CH Vial: 8
Signal #2 : C:\MSDchem\1\DATA\110416\16G50964.D\TCD2B.CH
Acq On : 04 Nov 2016 16:52 Operator: JDS
Sample : L16110074-09 B D1 10X RSK175 Inst : HP16
Misc : 1,10 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 16:58:41 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

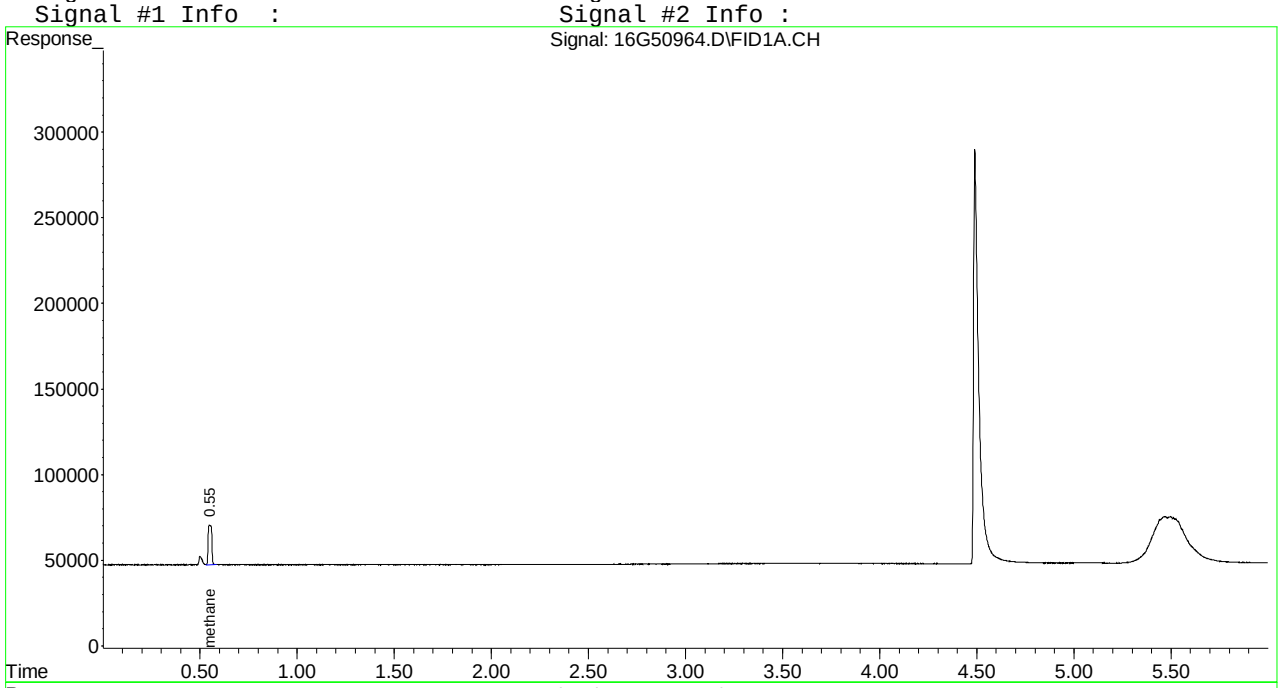
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	297456	0.035	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	0.00	0	N.D.	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	74419577	14098.556	umol/

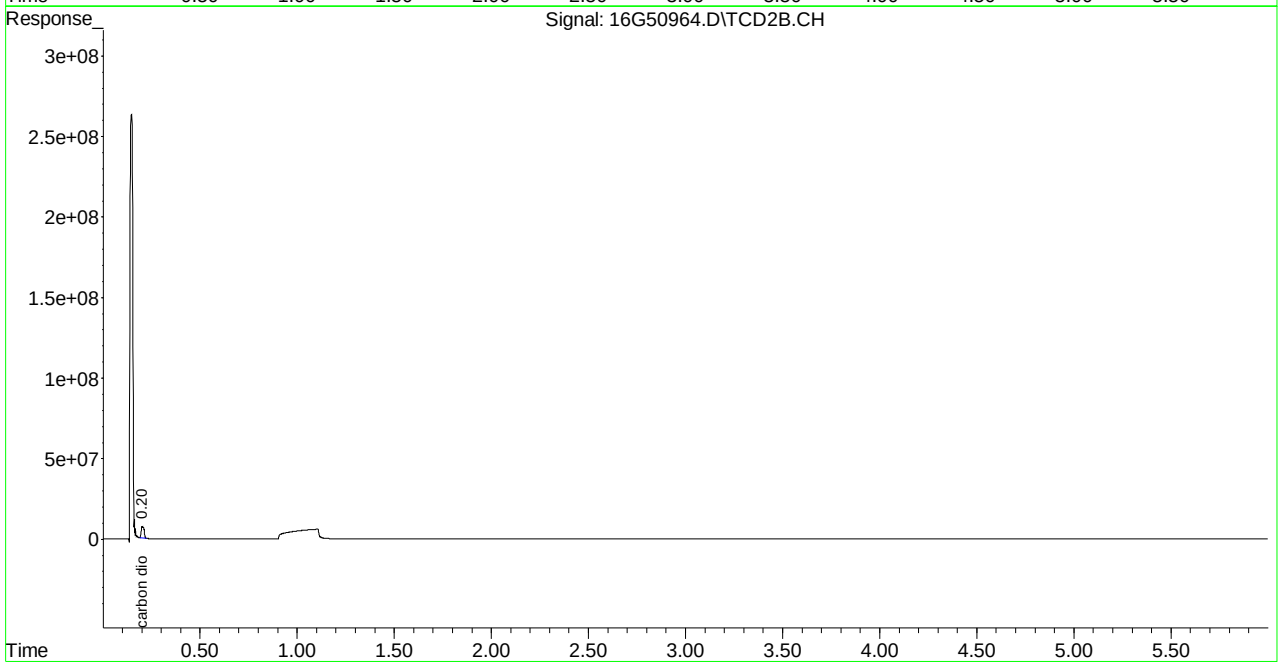
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50964.D RSKEXT1.M Fri Nov 04 16:58:42 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50964.D\FID1A.CH Vial: 8
Signal #2 : C:\MSDchem\1\DATA\110416\16G50964.D\TCD2B.CH
Acq On : 04 Nov 2016 16:52 Operator: JDS
Sample : L16110074-09 B D1 10X RSK175 Inst : HP16
Misc : 1,10 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 16:58 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50943.D\FID1A.CH Vial: 10
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50943.D\TCD2B.CH
Acq On : 03 Nov 2016 16:34 Operator: JDS
Sample : L16110074-11 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 16:40:17 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

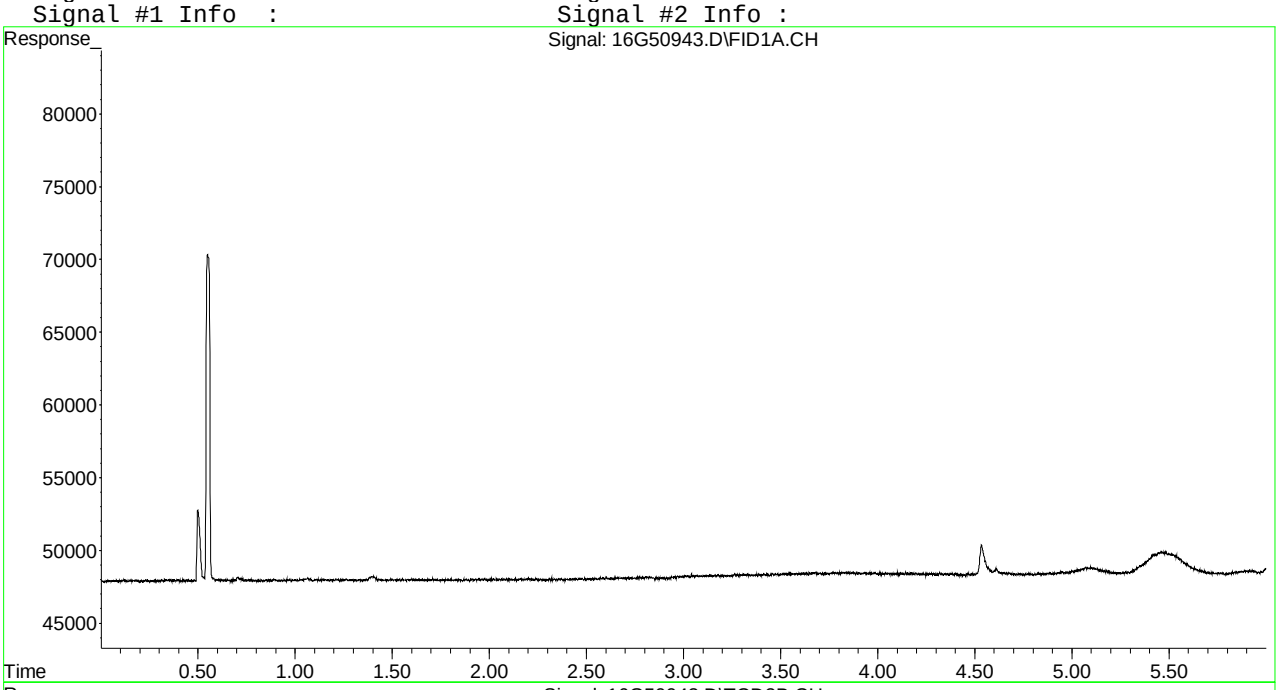
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	283375	N.D.	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	0.00	0	N.D.	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	388554016	73610.343	umol/

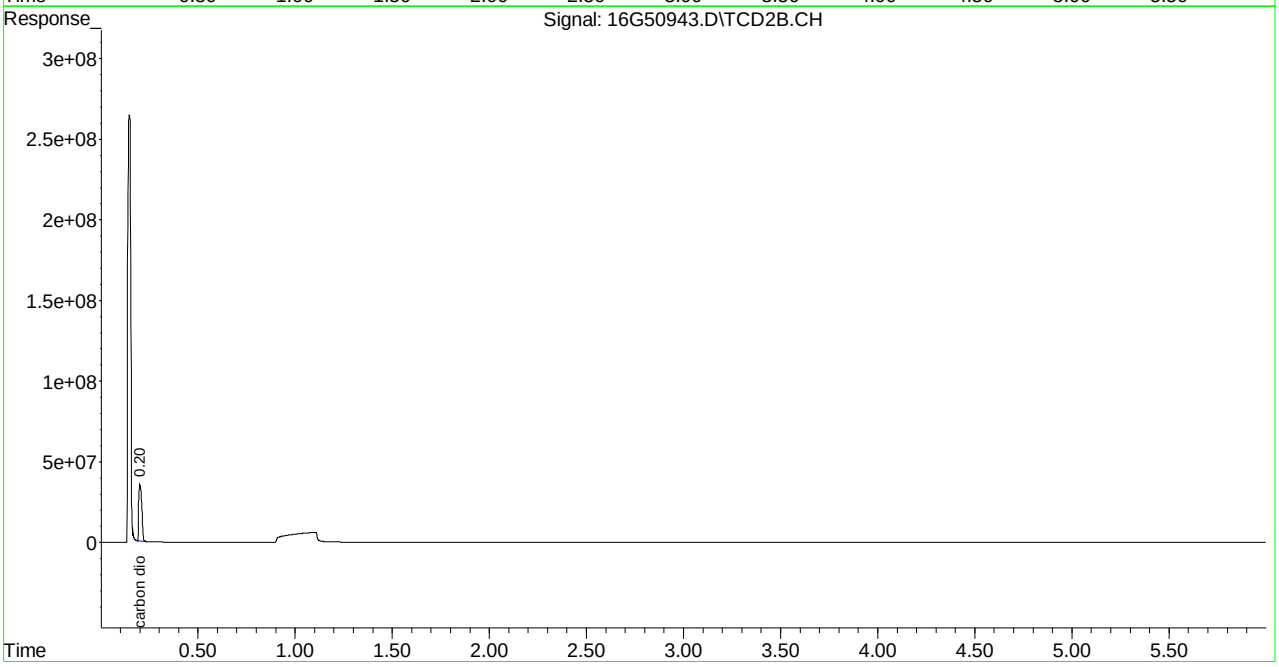
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50943.D RSKEXT1.M Fri Nov 04 09:06:59 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50943.D\FID1A.CH Vial: 10
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50943.D\TCD2B.CH
Acq On : 03 Nov 2016 16:34 Operator: JDS
Sample : L16110074-11 A RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 16:40 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50965.D\FID1A.CH Vial: 9
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50965.D\TCD2B.CH
Acq On : 04 Nov 2016 17:04 Operator: JDS
Sample : L16110074-11 B D1 5X RSK175 Inst : HP16
Misc : 1,5 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 17:10:40 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

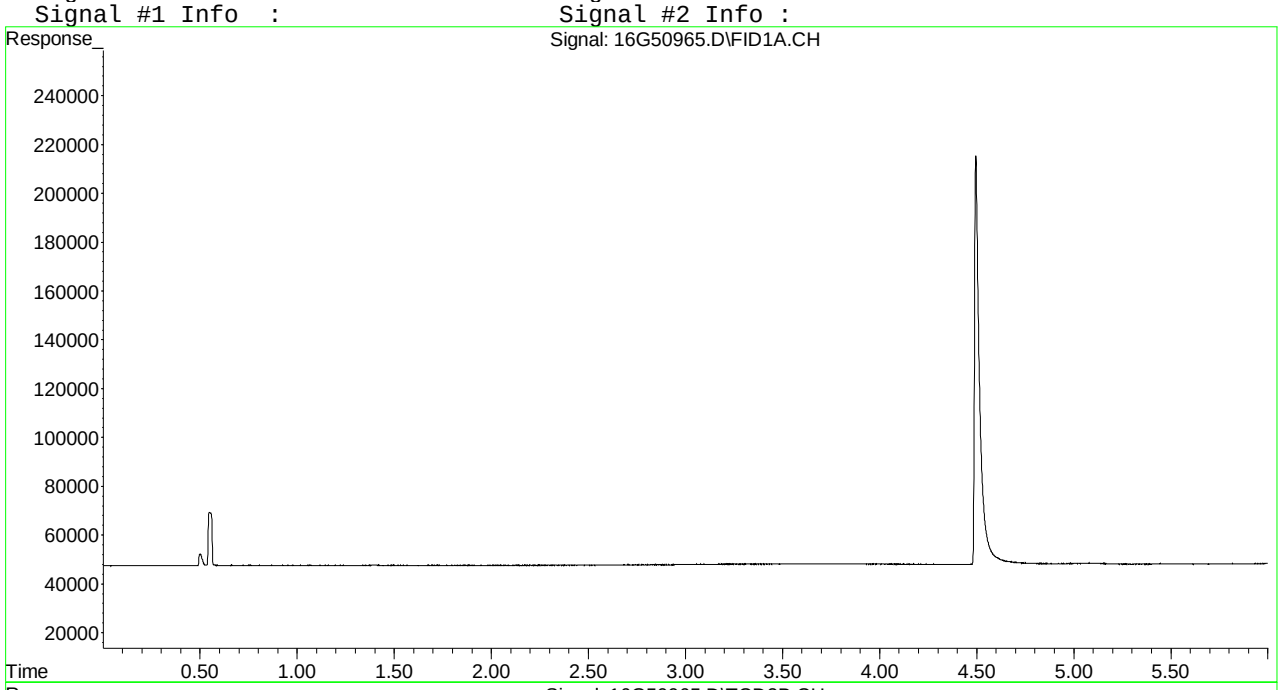
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	284773	N.D.	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	0.00	0	N.D.	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.20	61666694	11682.562	umol/

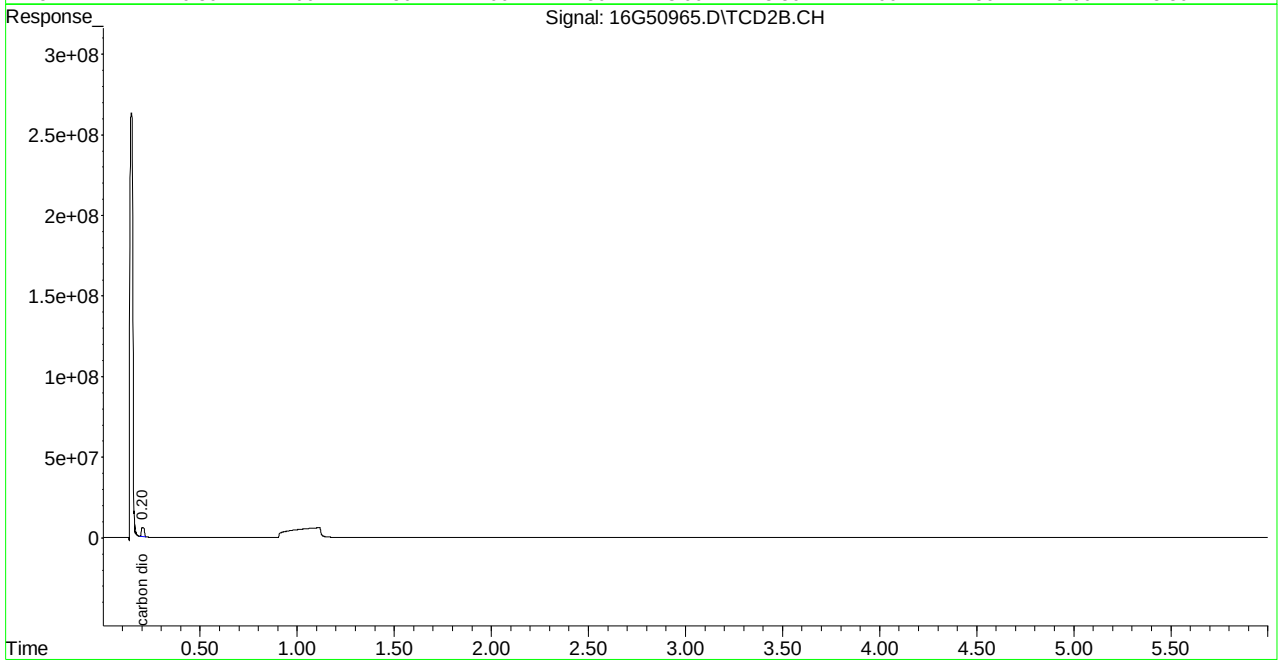
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50965.D RSKEXT1.M Mon Nov 07 09:38:52 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50965.D\FID1A.CH Vial: 9
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50965.D\TCD2B.CH
Acq On : 04 Nov 2016 17:04 Operator: JDS
Sample : L16110074-11 B D1 5X RSK175 Inst : HP16
Misc : 1,5 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 16:10 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





2.1.2.4 Standards Data

Quantitation Report (Not Reviewed)

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49626.D\FID1A.CH Vial: 2
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49626.D\TCD2B.CH
Acq On : 25 Mar 2016 11:22 Operator: JDS
Sample : WG562401-01 0.67umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:32:57 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:31:58 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

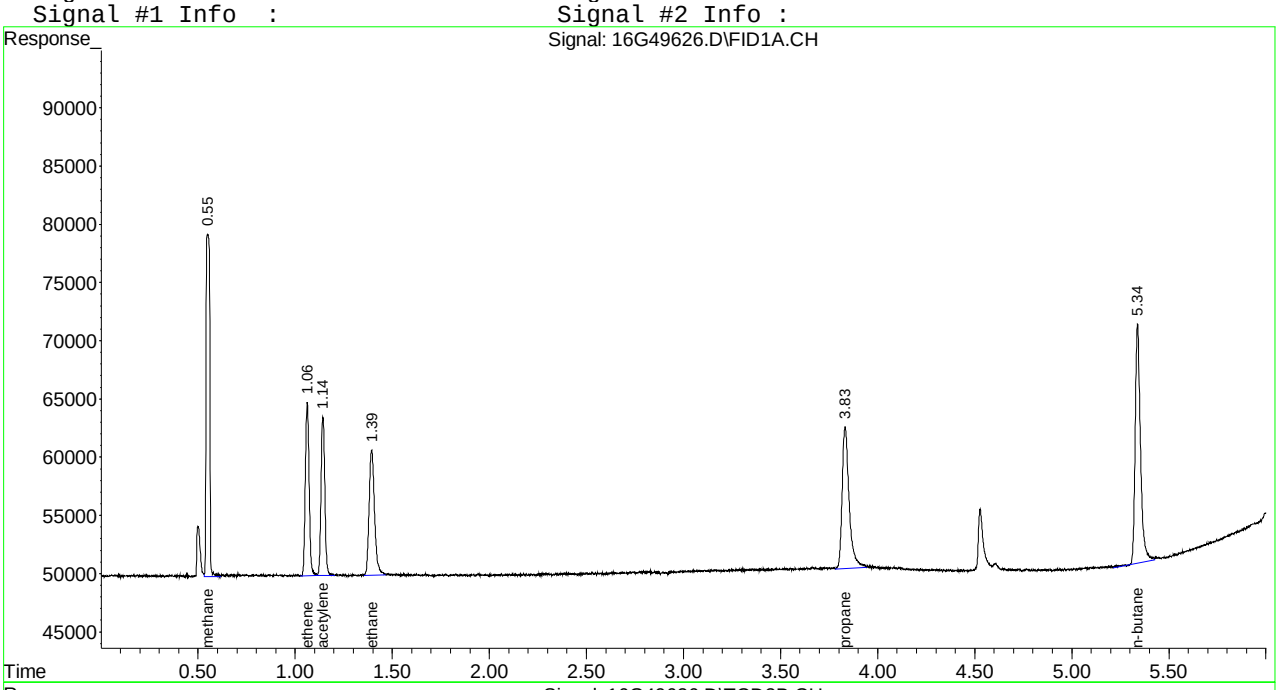
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	386491	0.533	umol/
2) T	ethene	1.06	205756	0.659	umol/
3) T	acetylene	1.14	186400	0.597	umol/
4) T	ethane	1.39	210228	0.659	umol/
5) T	propane	3.83	303892	0.644	umol/
6) T	n-butane	5.34	389462	0.637	umol/
8) T	carbon dioxide	0.00	0	N.D.	umol/

(f)=RT Delta > 1/2 Window (m)=manual int.
16G49626.D RSKEXT1.M Fri Mar 25 13:33:07 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49626.D\FID1A.CH Vial: 2
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49626.D\TCD2B.CH
Acq On : 25 Mar 2016 11:22 Operator: JDS
Sample : WG562401-01 0.67umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:32 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:31:58 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49627.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49627.D\TCD2B.CH
Acq On : 25 Mar 2016 11:34 Operator: JDS
Sample : WG562401-02 1.67umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:38:12 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

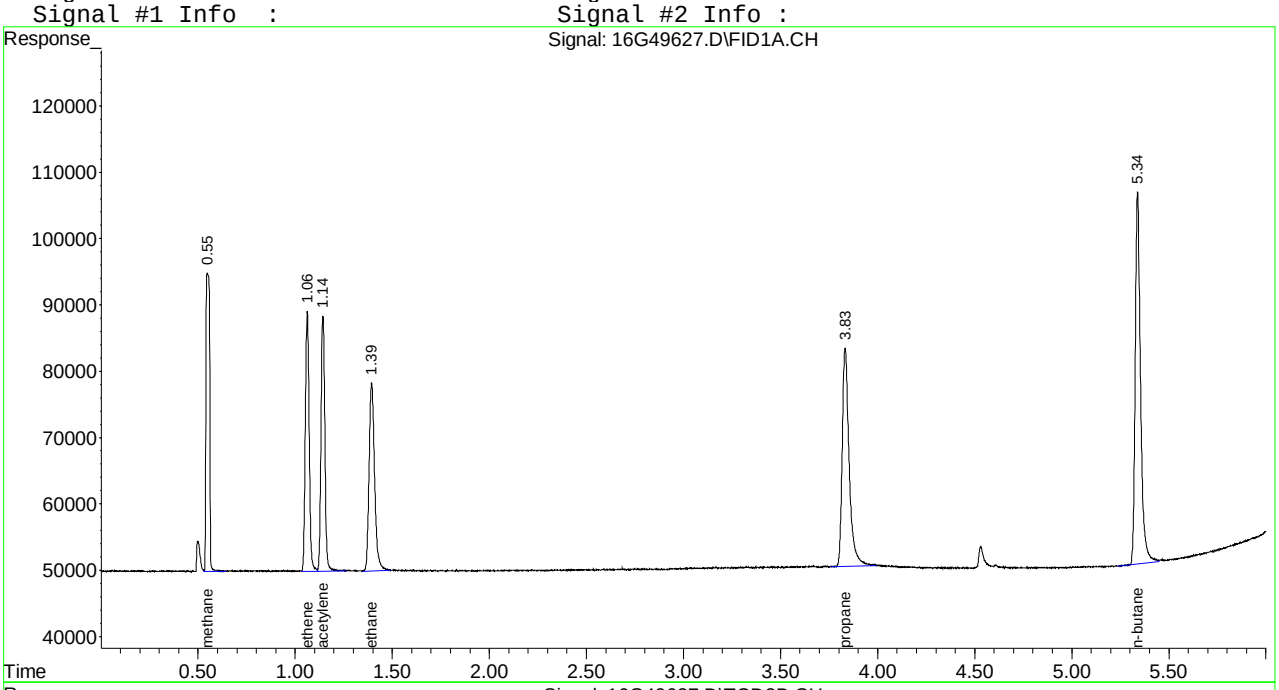
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	597323	1.710	umol/
2) T	ethene	1.06	545133	1.747	umol/
3) T	acetylene	1.14	534915	1.713	umol/
4) T	ethane	1.39	560754	1.758	umol/
5) T	propane	3.83	819659	1.737	umol/
6) T	n-butane	5.34	1076495	1.761	umol/
8) T	carbon dioxide	0.20	9635725	1825.458	umol/

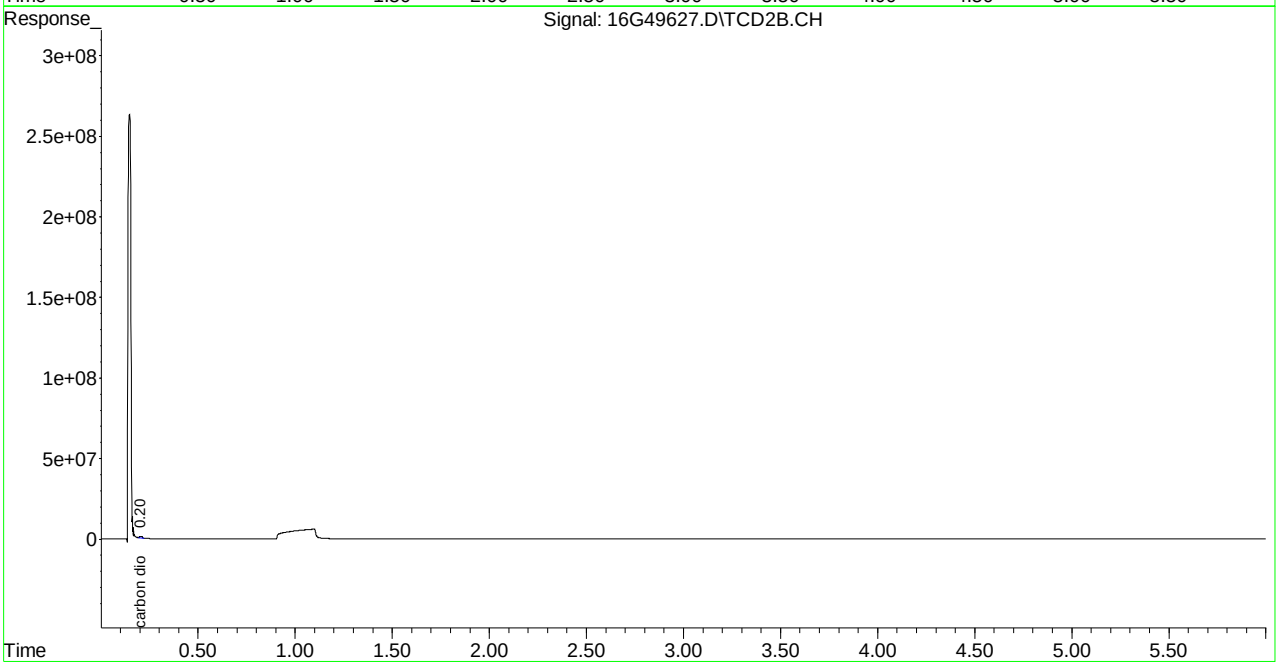
(f)=RT Delta > 1/2 Window (m)=manual int.
16G49627.D RSKEXT1.M Fri Mar 25 13:38:12 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49627.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49627.D\TCD2B.CH
Acq On : 25 Mar 2016 11:34 Operator: JDS
Sample : WG562401-02 1.67umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:38 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49627.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49627.D\TCD2B.CH
Acq On : 25 Mar 2016 11:34 Operator: JDS
Sample : WG562401-02 1.67umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	T	methane	1.670	1.710	-2.4	100	0.00
2	T	ethene	1.670	1.747	-4.6	100	0.00
3	T	acetylene	1.670	1.713	-2.6	100	0.00
4	T	ethane	1.670	1.758	-5.3	100	0.00
5	T	propane	1.670	1.737	-4.0	100	0.00
6	T	n-butane	1.670	1.761	-5.4	100	0.00
		Signal #2					
8	T	carbon dioxide	2000.000	1825.458	8.7	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G49627.D RSKEXT1.M Fri Mar 25 13:38:22 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49627.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49627.D\TCD2B.CH
Acq On : 25 Mar 2016 11:34 Operator: JDS
Sample : WG562401-02 1.67umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Dev	Area%	Dev(min)

Signal #2

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49628.D\FID1A.CH Vial: 4
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49628.D\TCD2B.CH
Acq On : 25 Mar 2016 11:46 Operator: JDS
Sample : WG562401-03 33.3umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33:25 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

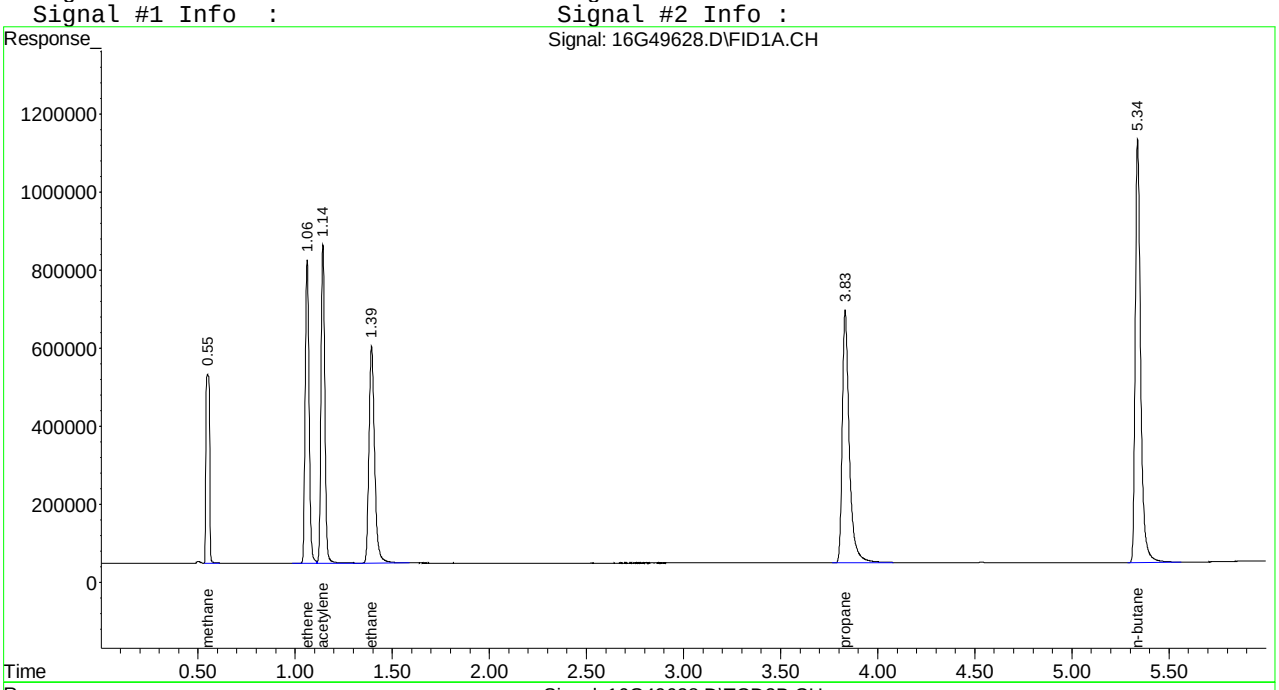
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	6385721	34.033	umol/
2) T	ethene	1.06	10782198	34.551	umol/
3) T	acetylene	1.14	11300799	36.189	umol/
4) T	ethane	1.39	11066771	34.700	umol/
5) T	propane	3.83	16320395	34.595	umol/
6) T	n-butane	5.34	21122896	34.548	umol/
8) T	carbon dioxide	0.20	17730539	3358.995	umol/

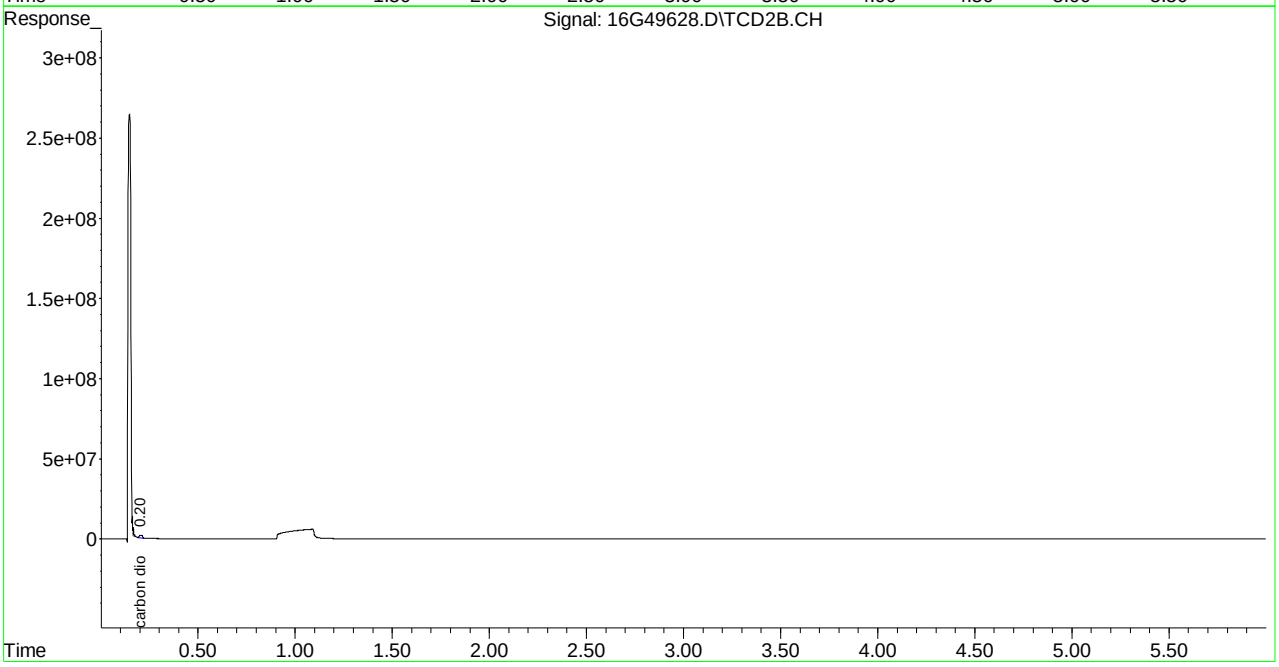
(f)=RT Delta > 1/2 Window (m)=manual int.
16G49628.D RSKEXT1.M Fri Mar 25 13:33:26 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49628.D\FID1A.CH Vial: 4
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49628.D\TCD2B.CH
Acq On : 25 Mar 2016 11:46 Operator: JDS
Sample : WG562401-03 33.3umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49629.D\FID1A.CH Vial: 5
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49629.D\TCD2B.CH
Acq On : 25 Mar 2016 11:58 Operator: JDS
Sample : WG562401-04 66.7umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33:26 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

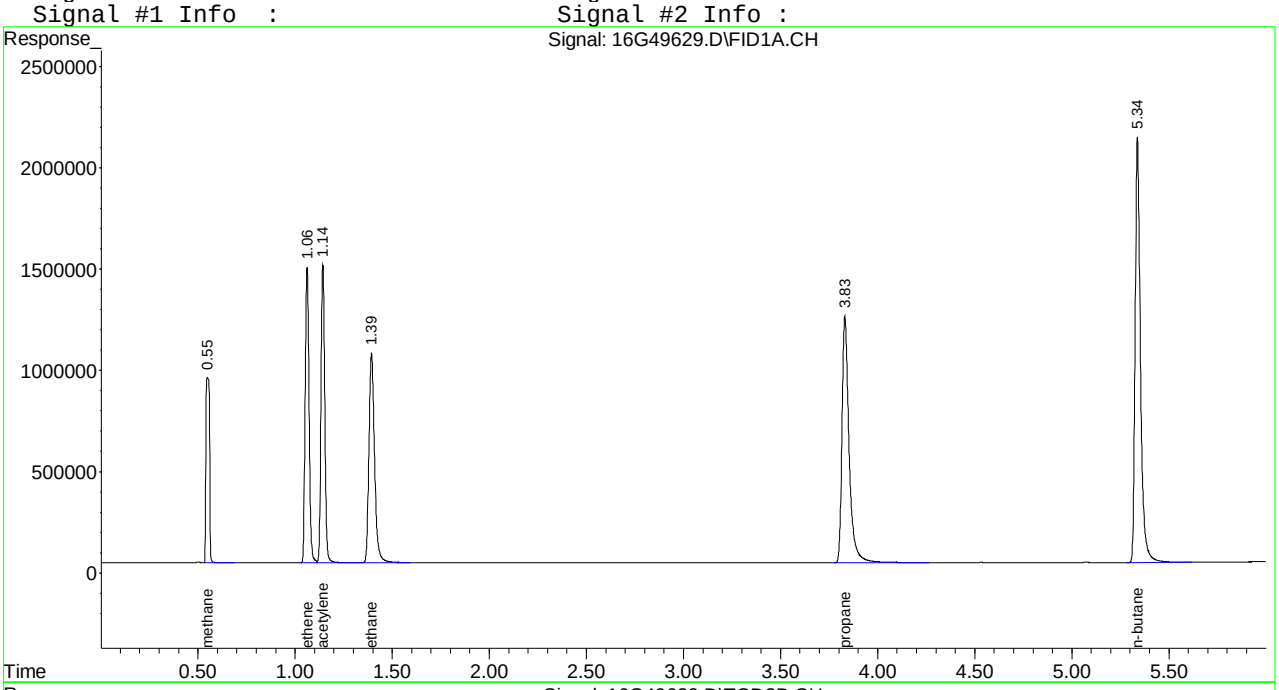
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	11901999	64.837 umol/
2) T	ethene	1.06	20215300	64.780 umol/
3) T	acetylene	1.14	20353735	65.180 umol/
4) T	ethane	1.39	20615639	64.640 umol/
5) T	propane	3.83	30980672	65.670 umol/
6) T	n-butane	5.34	40329758	65.963 umol/
8) T	carbon dioxide	0.20	35613763	6746.916 umol/

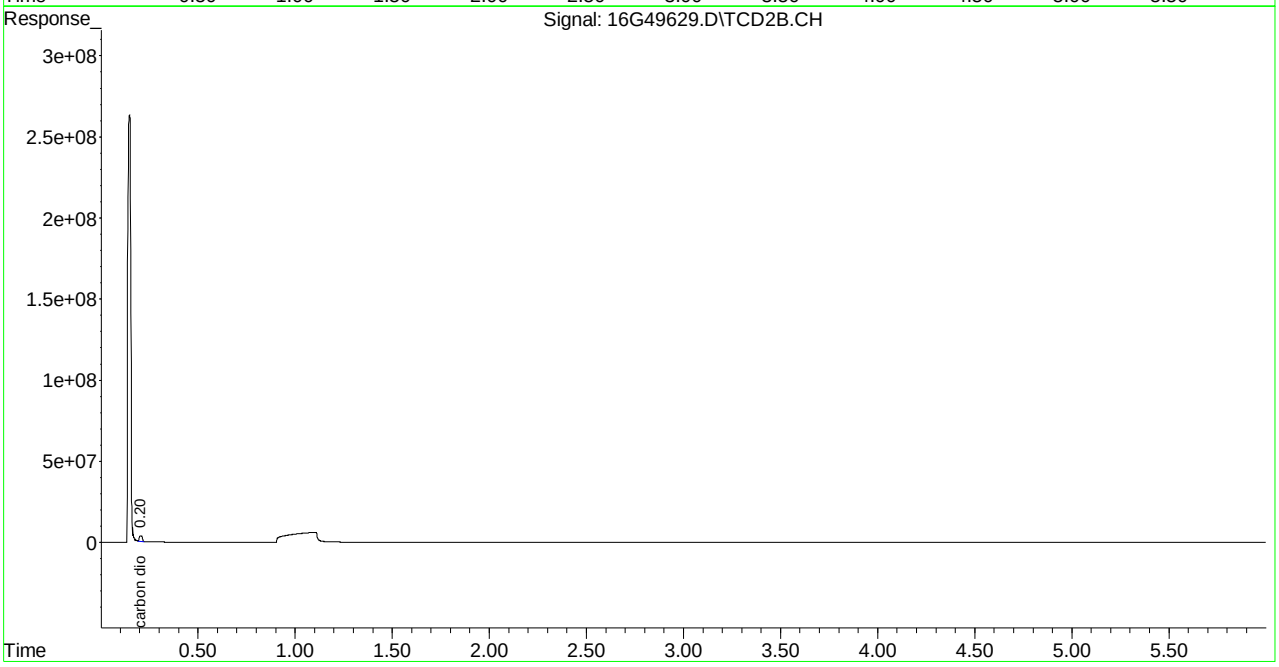
(f)=RT Delta > 1/2 Window (m)=manual int.
16G49629.D RSKEXT1.M Fri Mar 25 13:33:27 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49629.D\FID1A.CH Vial: 5
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49629.D\TCD2B.CH
Acq On : 25 Mar 2016 11:58 Operator: JDS
Sample : WG562401-04 66.7umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD67276 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49630.D\FID1A.CH Vial: 6
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49630.D\TCD2B.CH
Acq On : 25 Mar 2016 12:10 Operator: JDS
Sample : WG562401-05 133umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33:27 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

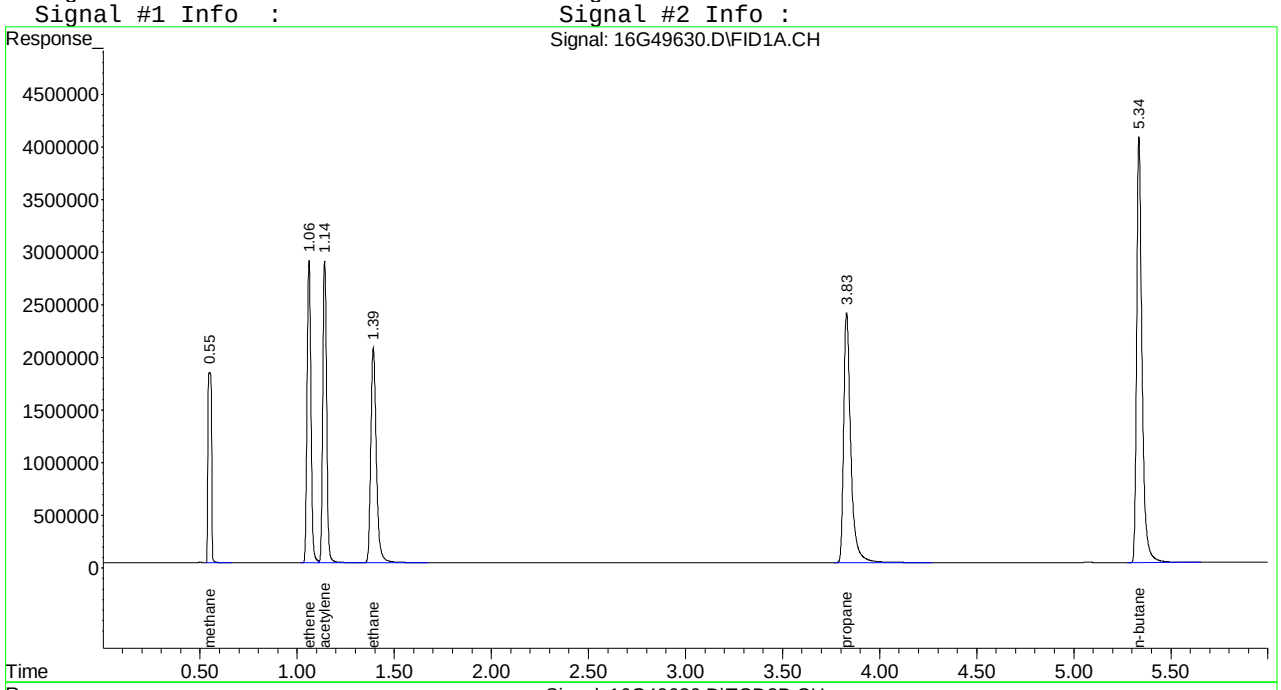
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	23452315	129.335 umol/
2) T	ethene	1.06	40022999	128.253 umol/
3) T	acetylene	1.14	39927283	127.862 umol/
4) T	ethane	1.39	40795450	127.914 umol/
5) T	propane	3.83	60871012	129.029 umol/
6) T	n-butane	5.34	78531804	128.445 umol/
8) T	carbon dioxide	0.20	71244989	13497.140 umol/

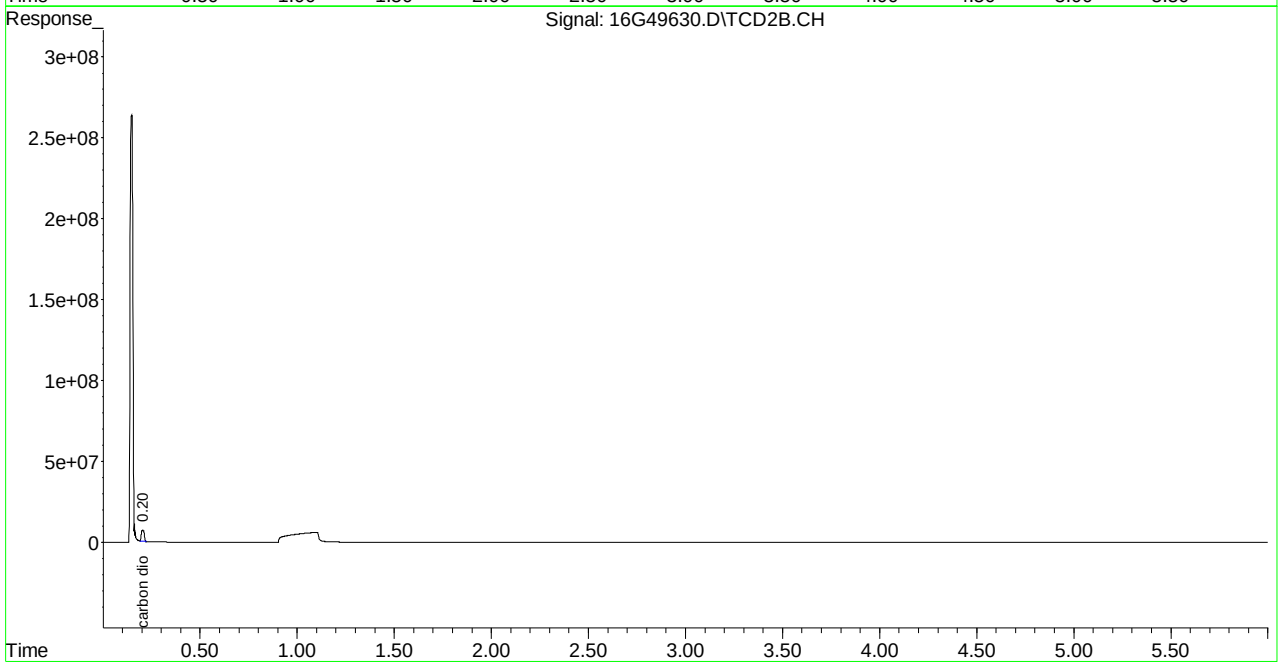
(f)=RT Delta > 1/2 Window (m)=manual int.
16G49630.D RSKEXT1.M Fri Mar 25 13:33:27 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49630.D\FID1A.CH Vial: 6
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49630.D\TCD2B.CH
Acq On : 25 Mar 2016 12:10 Operator: JDS
Sample : WG562401-05 133umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49631.D\FID1A.CH Vial: 7
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49631.D\TCD2B.CH
Acq On : 25 Mar 2016 12:22 Operator: JDS
Sample : WG562401-06 333umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33:28 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

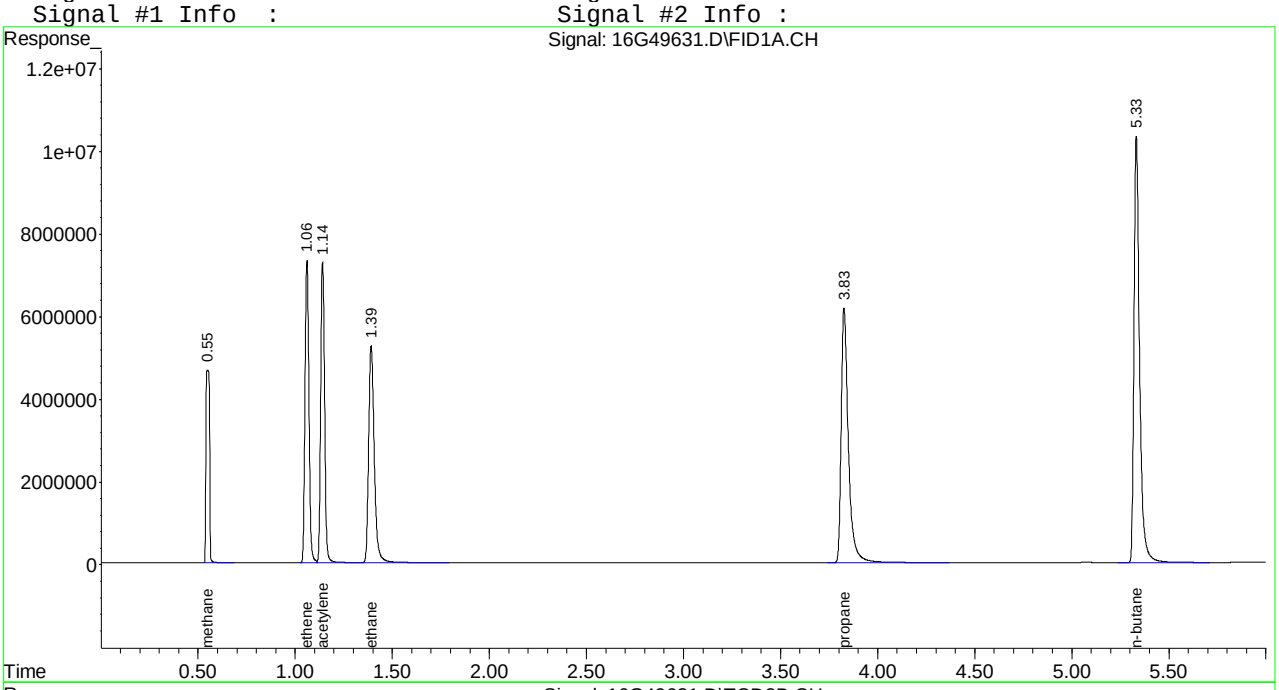
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	60036501	333.627 umol/
2) T	ethene	1.06	103680653	332.243 umol/
3) T	acetylene	1.14	103042347	329.980 umol/
4) T	ethane	1.39	106118124	332.733 umol/
5) T	propane	3.83	159210076	337.481 umol/
6) T	n-butane	5.33	207154261	338.817 umol/
8) T	carbon dioxide	0.20	184690679	34989.072 umol/

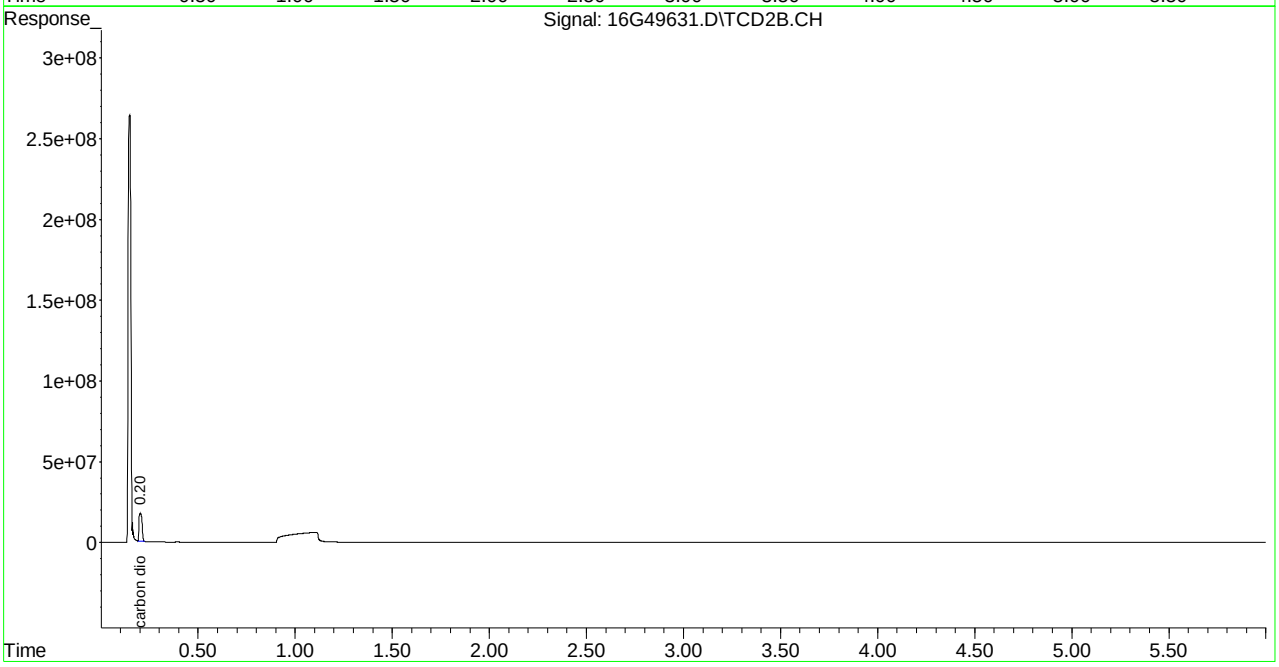
(f)=RT Delta > 1/2 Window (m)=manual int.
16G49631.D RSKEXT1.M Fri Mar 25 13:33:28 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49631.D\FID1A.CH Vial: 7
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49631.D\TCD2B.CH
Acq On : 25 Mar 2016 12:22 Operator: JDS
Sample : WG562401-06 333umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49632.D\FID1A.CH Vial: 8
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49632.D\TCD2B.CH
Acq On : 25 Mar 2016 12:34 Operator: JDS
Sample : WG562401-07 533umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33:29 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

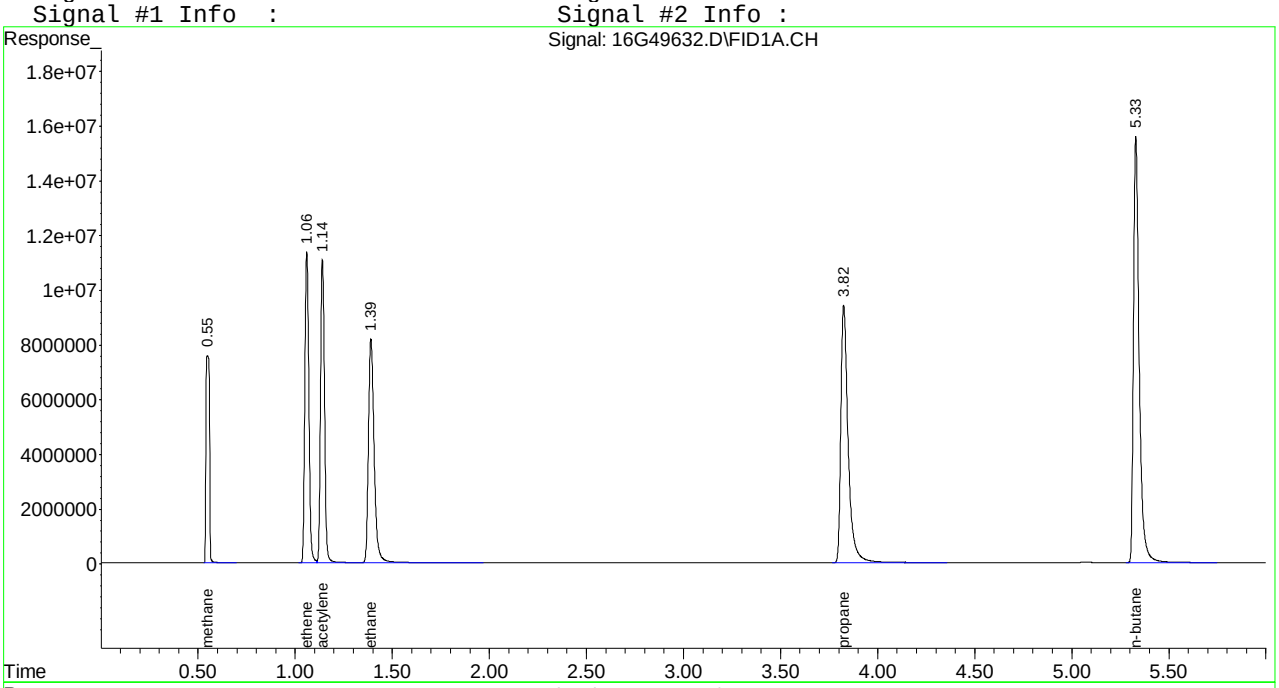
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	96479096	537.128 umol/
2) T	ethene	1.06	163526008	524.017 umol/
3) T	acetylene	1.14	159442689	510.596 umol/
4) T	ethane	1.39	167744947	525.963 umol/
5) T	propane	3.83	248130764	525.967 umol/
6) T	n-butane	5.33	319696896	522.890 umol/
8) T	carbon dioxide	0.20	281763639	53379.240 umol/

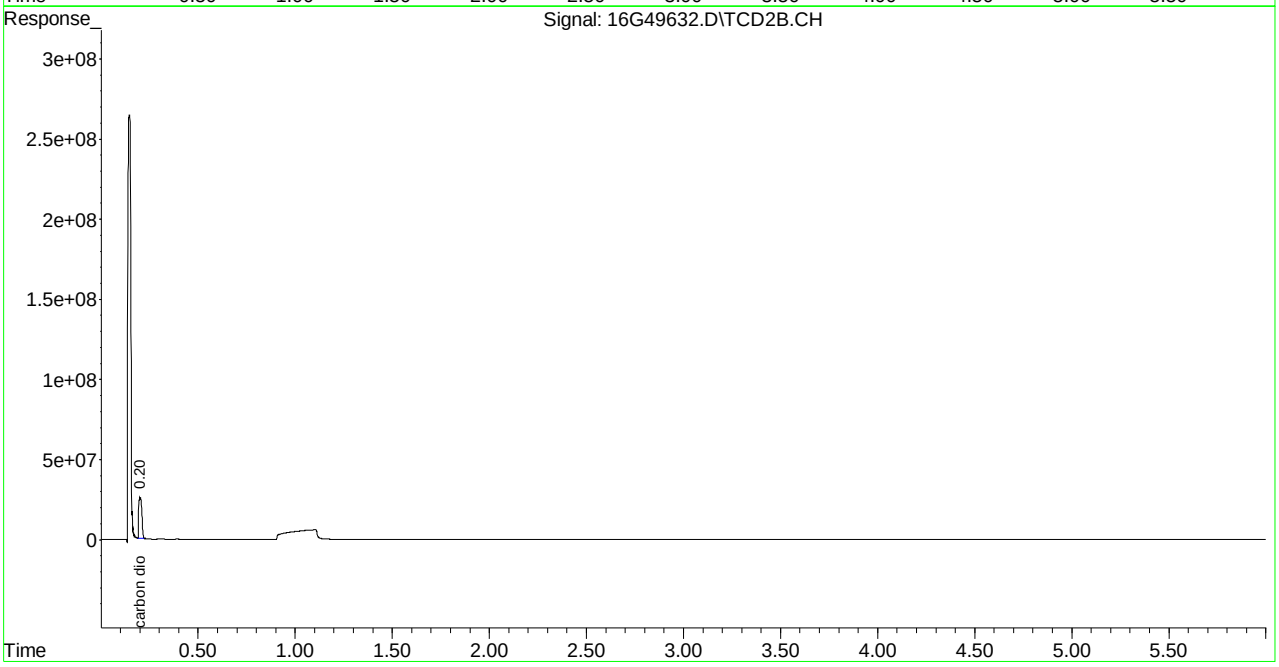
(f)=RT Delta > 1/2 Window (m)=manual int.
16G49632.D RSKEXT1.M Fri Mar 25 13:33:29 2016 Page 1

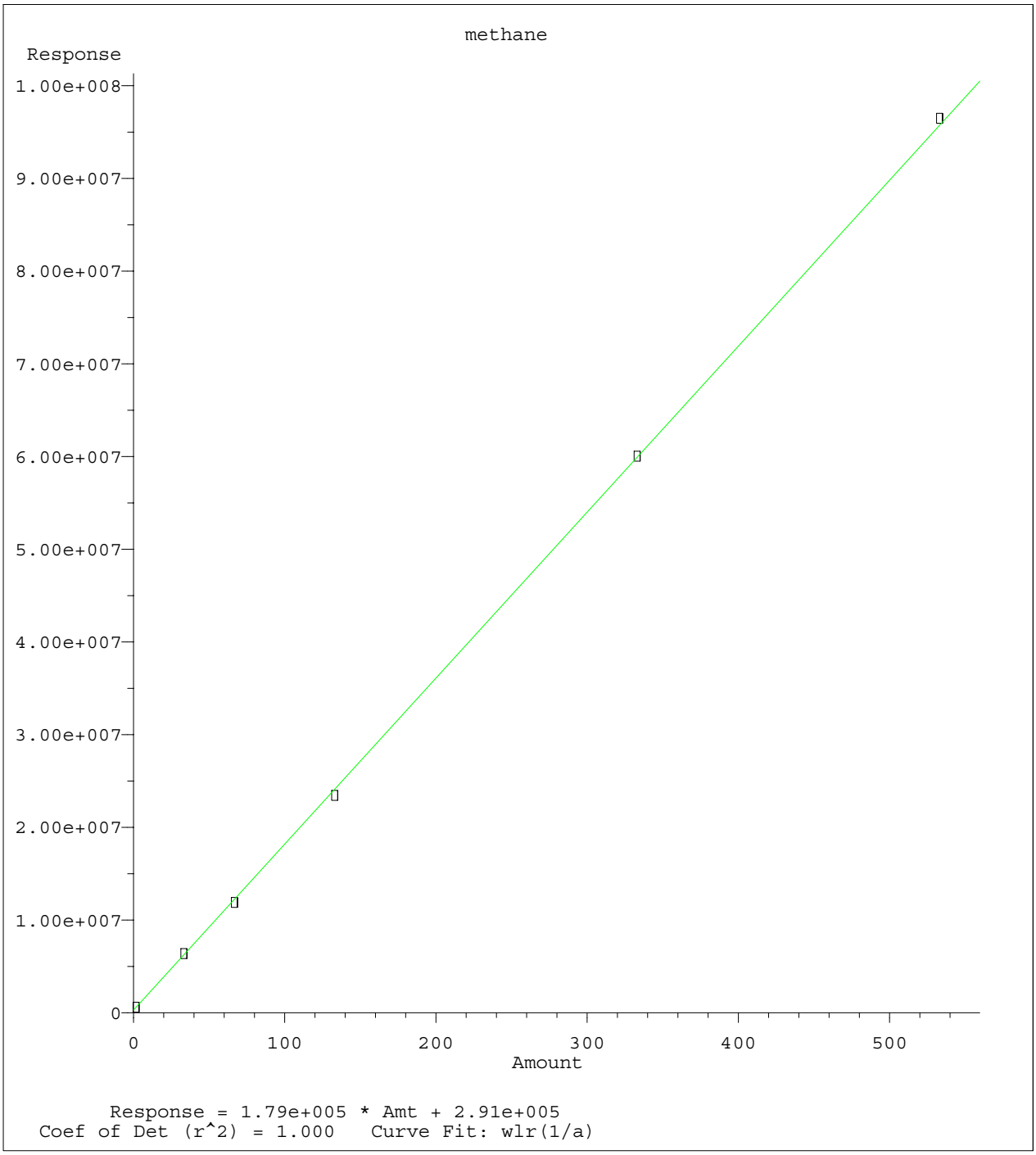
Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49632.D\FID1A.CH Vial: 8
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49632.D\TCD2B.CH
Acq On : 25 Mar 2016 12:34 Operator: JDS
Sample : WG562401-07 533umol/moL STD RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 13:33 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:32:42 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :







Method Name: C:\MSDCHEM\1\METHODS\RSKEXT1.M
Calibration Table Last Updated: Fri Mar 25 13:38:01 2016

Signal #1 : C:\MSDchem\1\DATA\032516\16G49635.D\FID1A.CH Vial: 11
Signal #2 : C:\MSDchem\1\DATA\032516\16G49635.D\TCD2B.CH
Acq On : 25 Mar 2016 18:26 Operator: JDS
Sample : WG562401-08 133umol/moL ALT SRC STD RSK1 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 18:32:35 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

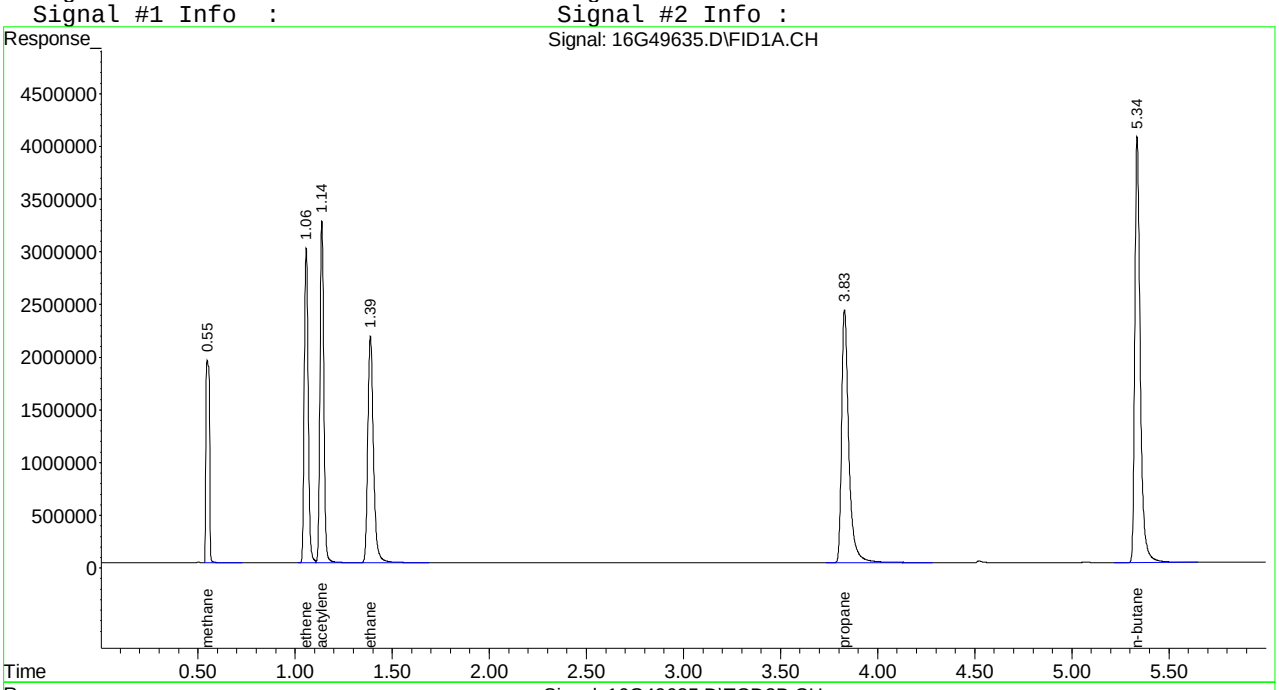
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	24881813	137.318 umol/
2) T	ethene	1.06	41706426	133.648 umol/
3) T	acetylene	1.14	45236671	144.865 umol/
4) T	ethane	1.39	43137584	135.258 umol/
5) T	propane	3.83	62226584	131.903 umol/
6) T	n-butane	5.34	79421956	129.901 umol/
8) T	carbon dioxide	0.20	77169864	14619.589 umol/

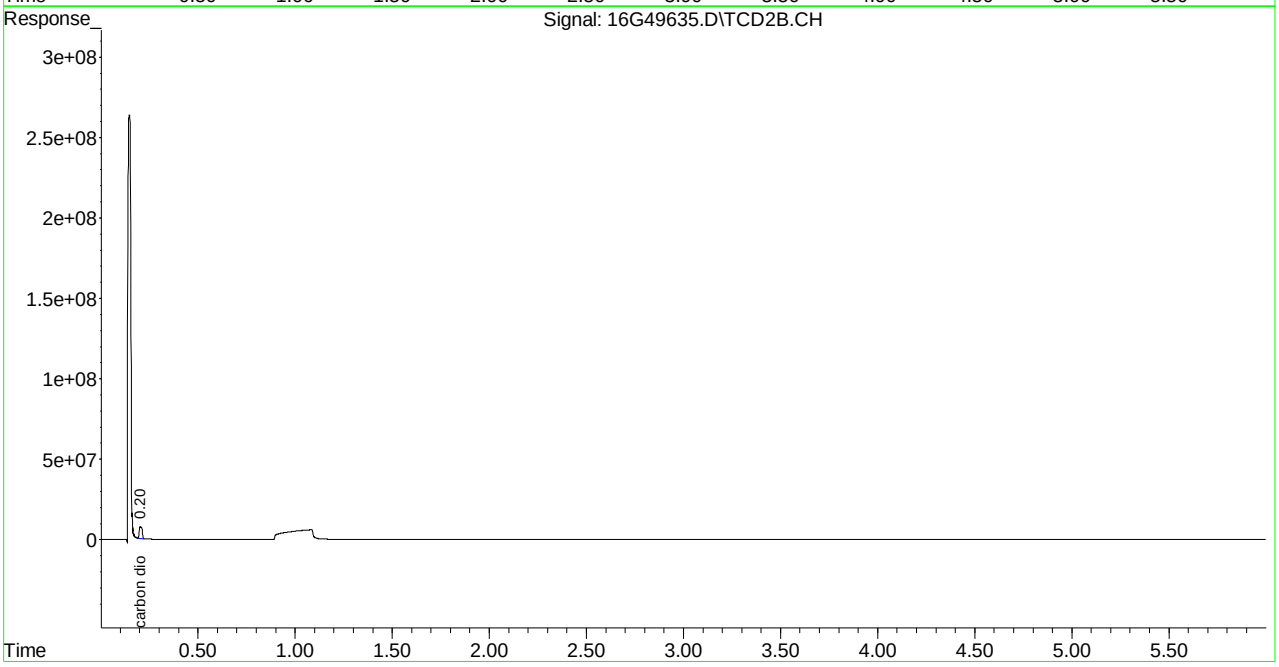
(f)=RT Delta > 1/2 Window (m)=manual int.
16G49635.D RSKEXT1.M Fri Mar 25 18:32:35 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\032516\16G49635.D\FID1A.CH Vial: 11
Signal #2 : C:\MSDchem\1\DATA\032516\16G49635.D\TCD2B.CH
Acq On : 25 Mar 2016 18:26 Operator: JDS
Sample : WG562401-08 133umol/moL ALT SRC STD RSK1 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Mar 25 18:32 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49635.D\FID1A.CH Vial: 11
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49635.D\TCD2B.CH
Acq On : 25 Mar 2016 18:26 Operator: JDS
Sample : WG562401-08 133umol/moL ALT SRC STD RSK1 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	T	methane	133.000	137.318	-3.2	106	0.00
2	T	ethene	133.000	133.648	-0.5	104	0.00
3	T	acetylene	133.000	144.865	-8.9	113	0.00
4	T	ethane	133.000	135.258	-1.7	106	0.00
5	T	propane	133.000	131.903	0.8	102	0.00
6	T	n-butane	133.000	129.901	2.3	101	0.00
		Signal #2					
8	T	carbon dioxide	13300.000	14619.589	-9.9	108	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G49635.D RSKEXT1.M Mon Mar 28 09:35:32 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\032516\16G49635.D\FID1A.CH Vial: 11
Signal #2 : C:\MSDCHEM\1\DATA\032516\16G49635.D\TCD2B.CH
Acq On : 25 Mar 2016 18:26 Operator: JDS
Sample : WG562401-08 133umol/moL ALT SRC STD RSK1 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Dev	Area%	Dev(min)

Signal #2

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50934.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50934.D\TCD2B.CH
Acq On : 03 Nov 2016 14:14 Operator: JDS
Sample : WG590196-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 08:58:09 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

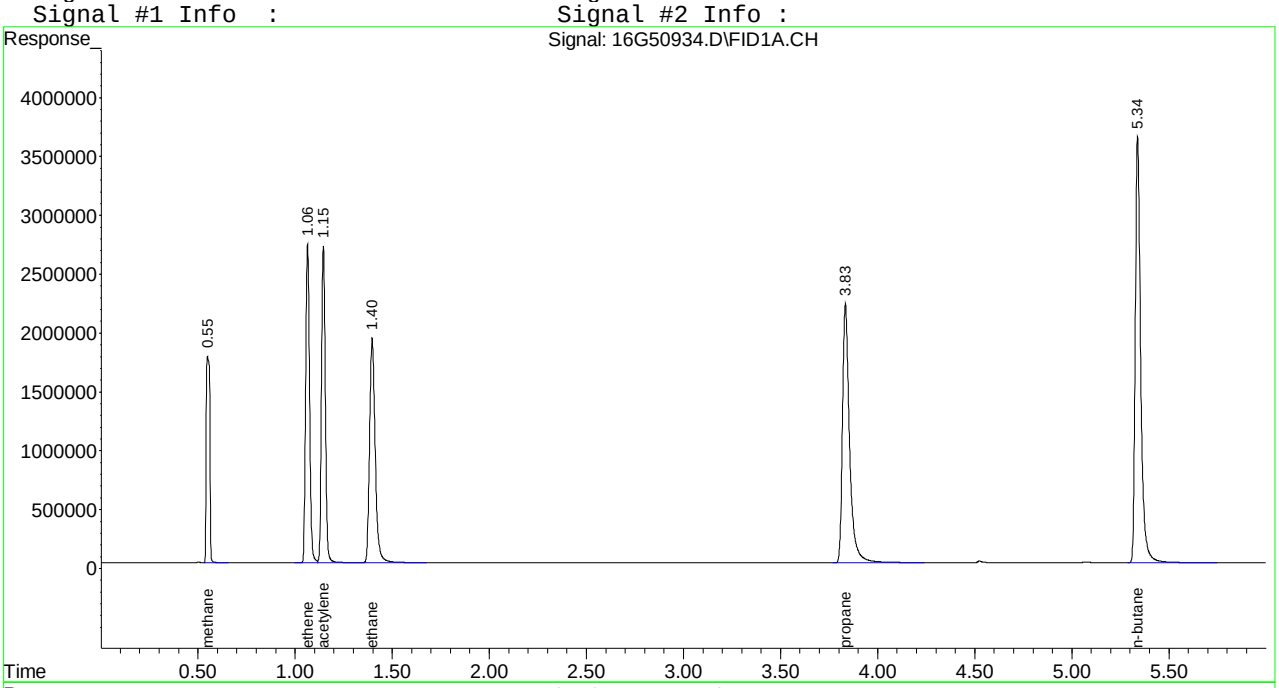
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	22692228	125.091 umol/
2) T	ethene	1.06	37632439	120.593 umol/
3) T	acetylene	1.15	37520833	120.156 umol/
4) T	ethane	1.40	38290853	120.061 umol/
5) T	propane	3.83	55980030	118.662 umol/
6) T	n-butane	5.34	70744576	115.708 umol/
8) T	carbon dioxide	0.20	65832467	12471.755 umol/

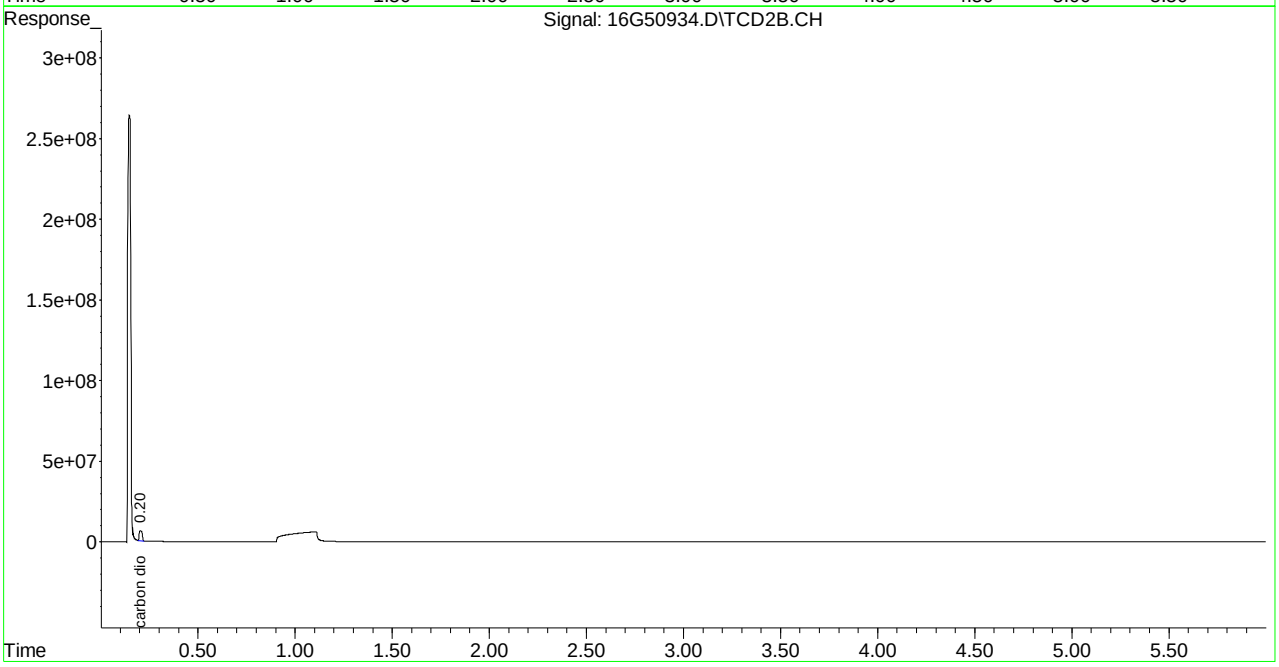
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50934.D RSKEXT1.M Fri Nov 04 08:58:09 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50934.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50934.D\TCD2B.CH
Acq On : 03 Nov 2016 14:14 Operator: JDS
Sample : WG590196-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 8:58 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50934.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50934.D\TCD2B.CH
Acq On : 03 Nov 2016 14:14 Operator: JDS
Sample : WG590196-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	T	methane	133.000	125.091	5.9	97	0.00
2	T	ethene	133.000	120.593	9.3	94	0.00
3	T	acetylene	133.000	120.156	9.7	94	0.00
4	T	ethane	133.000	120.061	9.7	94	0.00
5	T	propane	133.000	118.662	10.8	92	0.00
6	T	n-butane	133.000	115.708	13.0	90	0.00
		Signal #2					
8	T	carbon dioxide	13300.000	12471.755	6.2	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50934.D RSKEXT1.M Fri Nov 04 08:54:34 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50934.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50934.D\TCD2B.CH
Acq On : 03 Nov 2016 14:14 Operator: JDS
Sample : WG590196-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Dev	Area%	Dev(min)

Signal #2

Signal #1 : C:\MSDchem\1\DATA\110316\16G50945.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDchem\1\DATA\110316\16G50945.D\TCD2B.CH
Acq On : 03 Nov 2016 16:57 Operator: JDS
Sample : WG590196-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 17:03:35 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

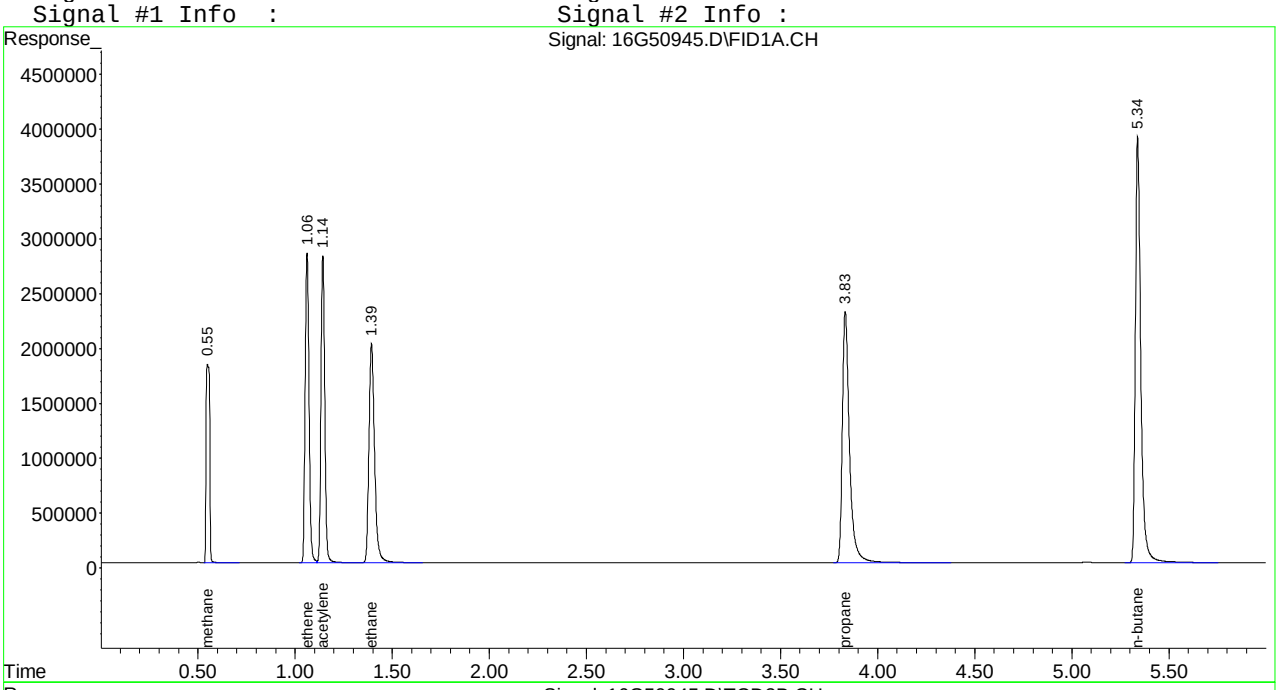
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	23479438	129.487 umol/
2) T	ethene	1.06	39111087	125.331 umol/
3) T	acetylene	1.14	38644169	123.753 umol/
4) T	ethane	1.39	39871084	125.015 umol/
5) T	propane	3.83	58790950	124.620 umol/
6) T	n-butane	5.34	75931971	124.193 umol/
8) T	carbon dioxide	0.20	66610113	12619.078 umol/

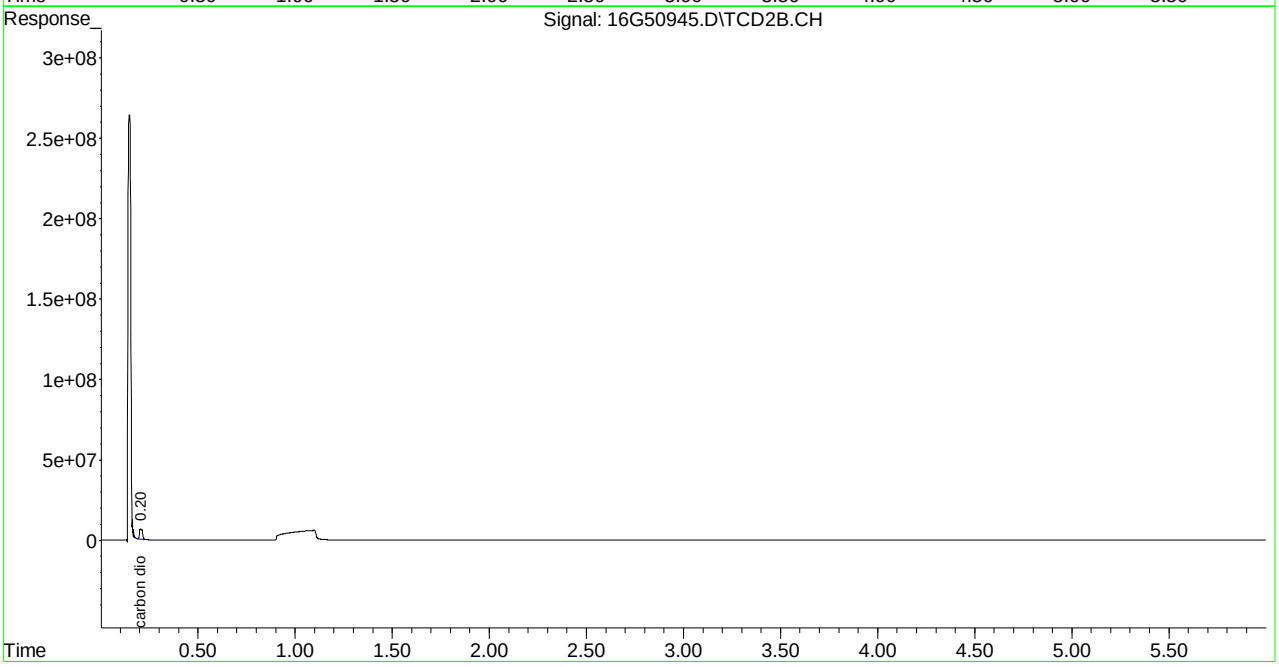
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50945.D RSKEXT1.M Thu Nov 03 17:03:35 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50945.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDchem\1\DATA\110316\16G50945.D\TCD2B.CH
Acq On : 03 Nov 2016 16:57 Operator: JDS
Sample : WG590196-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 17:03 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50945.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50945.D\TCD2B.CH
Acq On : 03 Nov 2016 16:57 Operator: JDS
Sample : WG590196-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	T	methane	133.000	129.487	2.6	100	0.00
2	T	ethene	133.000	125.331	5.8	98	0.00
3	T	acetylene	133.000	123.753	7.0	97	0.00
4	T	ethane	133.000	125.015	6.0	98	0.00
5	T	propane	133.000	124.620	6.3	97	0.00
6	T	n-butane	133.000	124.193	6.6	97	0.00
		Signal #2					
8	T	carbon dioxide	13300.000	12619.078	5.1	93	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50945.D RSKEXT1.M Fri Nov 04 08:54:51 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50945.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50945.D\TCD2B.CH
Acq On : 03 Nov 2016 16:57 Operator: JDS
Sample : WG590196-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Dev	Area%	Dev(min)

Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50945.D RSKEXT1.M Fri Nov 04 08:54:51 2016 Page 2

Signal #1 : C:\MSDchem\1\DATA\110416\16G50957.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDchem\1\DATA\110416\16G50957.D\TCD2B.CH
Acq On : 04 Nov 2016 14:45 Operator: JDS
Sample : WG590415-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 14:51:12 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

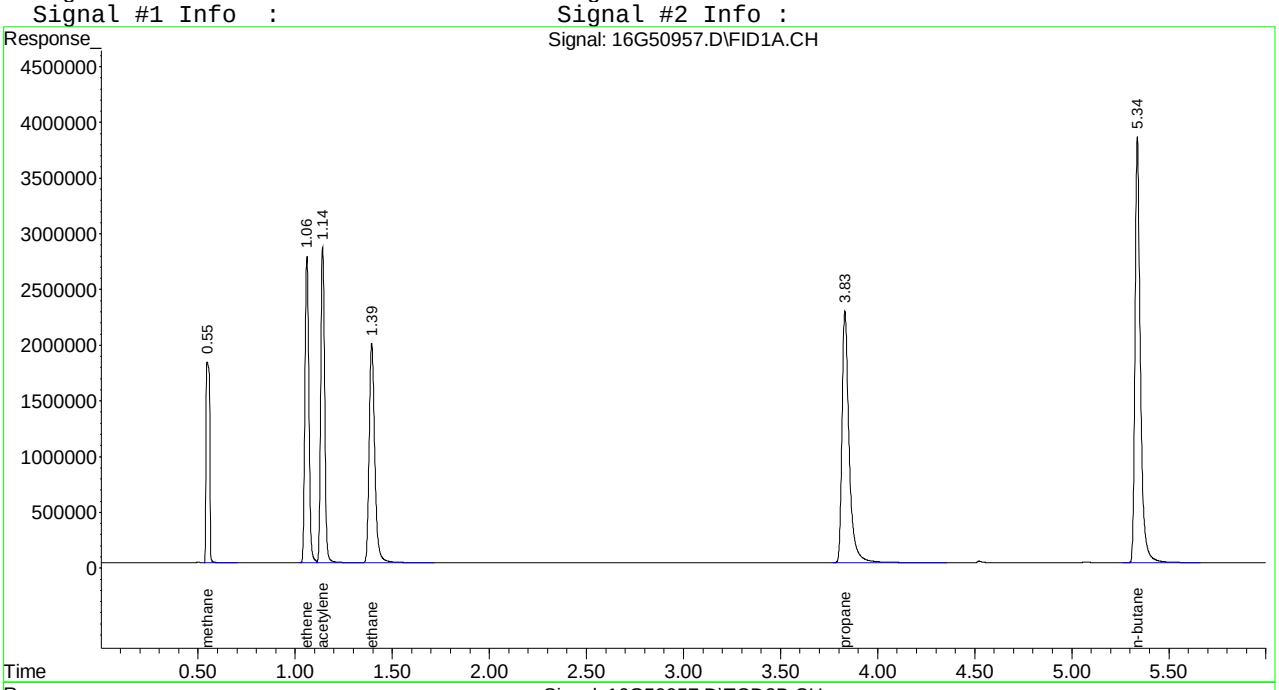
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	23597972	130.149 umol/
2) T	ethene	1.06	39075473	125.217 umol/
3) T	acetylene	1.14	40257762	128.921 umol/
4) T	ethane	1.39	39671453	124.390 umol/
5) T	propane	3.83	57934054	122.804 umol/
6) T	n-butane	5.34	73909424	120.885 umol/
8) T	carbon dioxide	0.20	70225089	13303.923 umol/

(f)=RT Delta > 1/2 Window (m)=manual int.
16G50957.D RSKEXT1.M Fri Nov 04 14:51:13 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50957.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDchem\1\DATA\110416\16G50957.D\TCD2B.CH
Acq On : 04 Nov 2016 14:45 Operator: JDS
Sample : WG590415-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 14:51 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50957.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50957.D\TCD2B.CH
Acq On : 04 Nov 2016 14:45 Operator: JDS
Sample : WG590415-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	T	methane	133.000	130.149	2.1	101	0.00
2	T	ethene	133.000	125.217	5.9	98	0.00
3	T	acetylene	133.000	128.921	3.1	101	0.00
4	T	ethane	133.000	124.390	6.5	97	0.00
5	T	propane	133.000	122.804	7.7	95	0.00
6	T	n-butane	133.000	120.885	9.1	94	0.00
		Signal #2					
8	T	carbon dioxide	13300.000	13303.923	-0.0	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50957.D RSKEXT1.M Mon Nov 07 09:33:08 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50957.D\FID1A.CH Vial: 1
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50957.D\TCD2B.CH
Acq On : 04 Nov 2016 14:45 Operator: JDS
Sample : WG590415-01 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Dev	Area%	Dev(min)

Signal #2

Signal #1 : C:\MSDchem\1\DATA\110416\16G50968.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDchem\1\DATA\110416\16G50968.D\TCD2B.CH
Acq On : 04 Nov 2016 17:39 Operator: JDS
Sample : WG590415-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 17:45:58 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

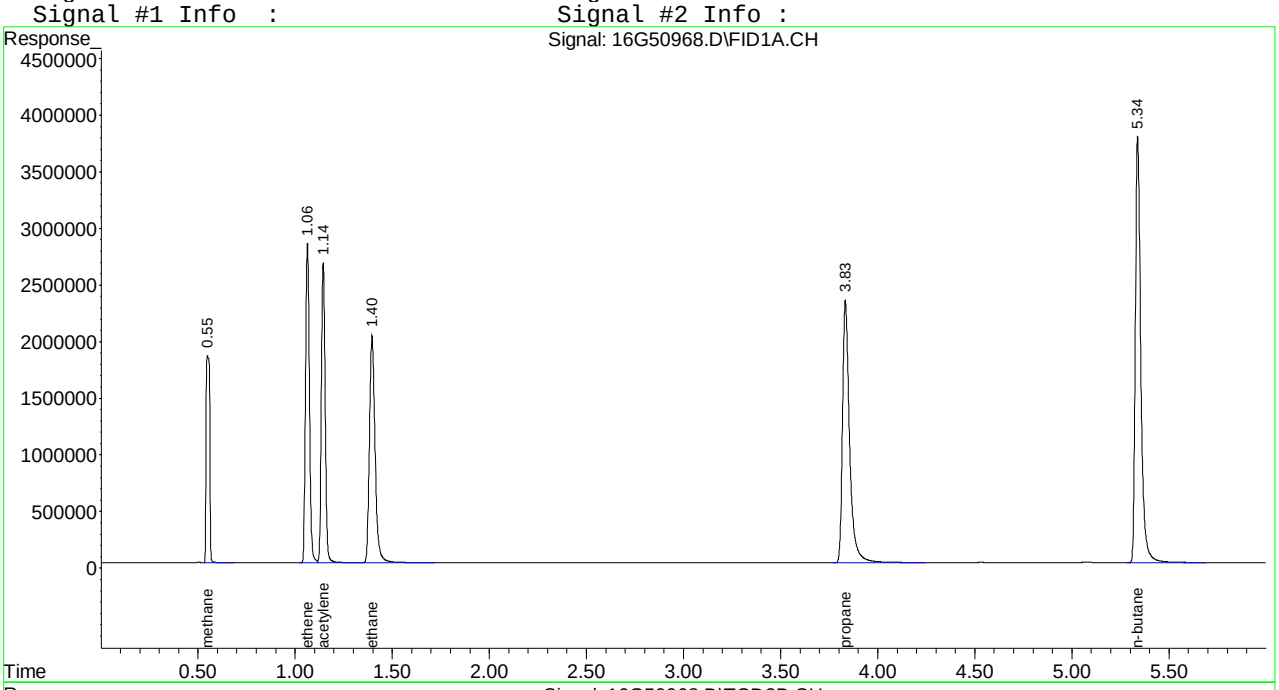
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	23852470	131.570 umol/
2) T	ethene	1.06	39361516	126.133 umol/
3) T	acetylene	1.14	36919468	118.230 umol/
4) T	ethane	1.40	40275806	126.284 umol/
5) T	propane	3.83	58887713	124.825 umol/
6) T	n-butane	5.34	74379968	121.654 umol/
8) T	carbon dioxide	0.20	64193062	12161.175 umol/

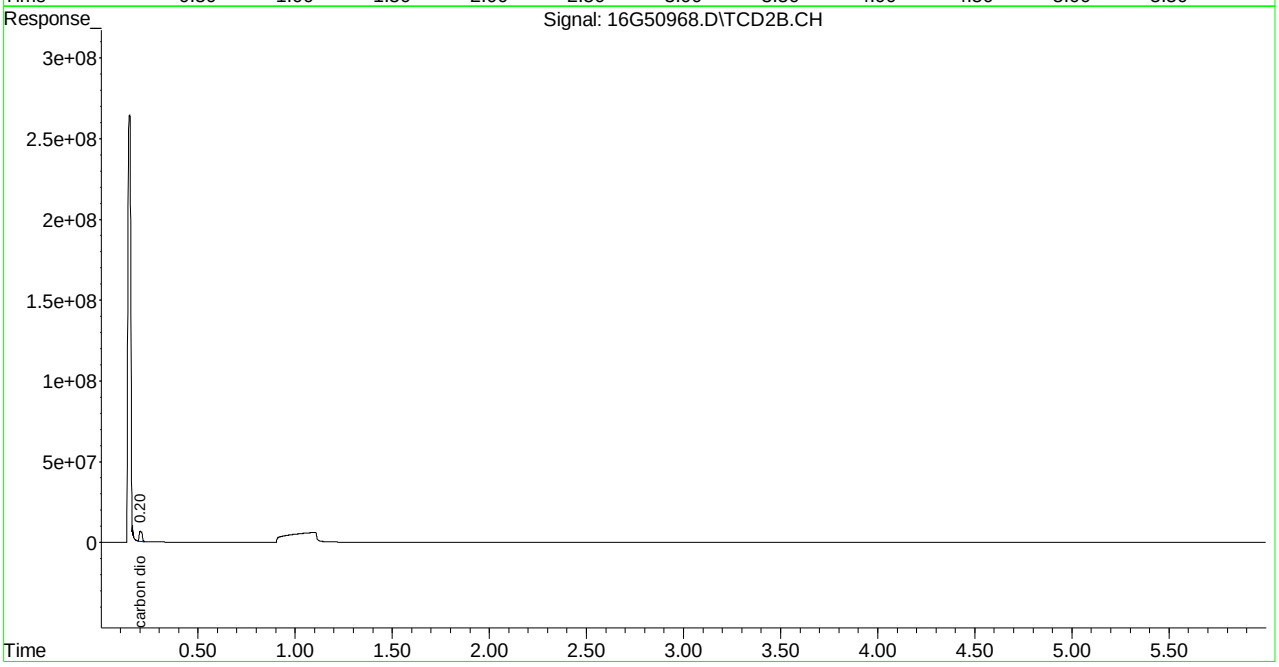
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50968.D RSKEXT1.M Fri Nov 04 17:45:58 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50968.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDchem\1\DATA\110416\16G50968.D\TCD2B.CH
Acq On : 04 Nov 2016 17:39 Operator: JDS
Sample : WG590415-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 17:45 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50968.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50968.D\TCD2B.CH
Acq On : 04 Nov 2016 17:39 Operator: JDS
Sample : WG590415-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	T	methane	133.000	131.570	1.1	102	0.00
2	T	ethene	133.000	126.133	5.2	98	0.00
3	T	acetylene	133.000	118.230	11.1	92	0.00
4	T	ethane	133.000	126.284	5.0	99	0.00
5	T	propane	133.000	124.825	6.1	97	0.00
6	T	n-butane	133.000	121.654	8.5	95	0.00
		Signal #2					
8	T	carbon dioxide	13300.000	12161.175	8.6	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50968.D RSKEXT1.M Mon Nov 07 09:33:15 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50968.D\FID1A.CH Vial: 12
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50968.D\TCD2B.CH
Acq On : 04 Nov 2016 17:39 Operator: JDS
Sample : WG590415-02 133umol/mol CCV RSK175 Inst : HP16
Misc : 1,1 STD75351 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

Compound	Amount	Calc.	%Dev	Area%	Dev(min)

Signal #2

Microbac Laboratories Inc.
Daily Retention Time Window Determination

Login #: L16110074 **Run Date:** 11/03/2016 **Sample ID:** WG590196-01
Instrument: HP16 **Run Time:** 14:14 **Method:** RSK175
Workgroup (AAB#): WG590198 **File ID:** 16G50934

RT Standard	Analysis Date	File ID	Analyst
WG579713-01	08/10/2016	16G50503	JDS
WG579606-01	08/09/2016	16G50480	JDS
WG579429-01	08/08/2016	16G50447	JDS

Analyte	RT #1	RT #2	RT #3	STD	Lower	Upper
METHANE	.55	.55	.55	.55	0.520	0.580
ETHENE	1.06	1.06	1.06	1.06	1.030	1.090
ETHANE	1.4	1.39	1.39	1.4	1.370	1.430
PROPANE	3.83	3.83	3.83	3.83	3.800	3.860
N-BUTANE	5.34	5.34	5.34	5.34	5.310	5.370
CARBON DIOXIDE	.2	.2	.2	.2	0.170	0.230
ACETYLENE	1.14	1.14	1.14	1.15	1.120	1.180

RT_WIN - Modified 01/06/2010
PDF File ID: 5008536
Report generated 11/08/2016 09:07

Microbac Laboratories Inc.
Daily Retention Time Window Determination

Login #: L16110074 **Run Date:** 11/04/2016 **Sample ID:** WG590415-01
Instrument: HP16 **Run Time:** 14:45 **Method:** RSK175
Workgroup (AAB#): WG590416 **File ID:** 16G50957

RT Standard	Analysis Date	File ID	Analyst
WG579713-01	08/10/2016	16G50503	JDS
WG579606-01	08/09/2016	16G50480	JDS
WG579429-01	08/08/2016	16G50447	JDS

Analyte	RT #1	RT #2	RT #3	STD	Lower	Upper
METHANE	.55	.55	.55	.55	0.520	0.580
ETHENE	1.06	1.06	1.06	1.06	1.030	1.090
ETHANE	1.4	1.39	1.39	1.39	1.360	1.420
PROPANE	3.83	3.83	3.83	3.83	3.800	3.860
N-BUTANE	5.34	5.34	5.34	5.34	5.310	5.370
CARBON DIOXIDE	.2	.2	.2	.2	0.170	0.230
ACETYLENE	1.14	1.14	1.14	1.14	1.110	1.170

RT_WIN - Modified 01/06/2010
PDF File ID: 5008536
Report generated 11/08/2016 09:07

2.1.2.5 Raw QC Data

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50935.D\FID1A.CH Vial: 2
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50935.D\TCD2B.CH
Acq On : 03 Nov 2016 14:39 Operator: JDS
Sample : WG590198-01 BLANK RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 14:45:39 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

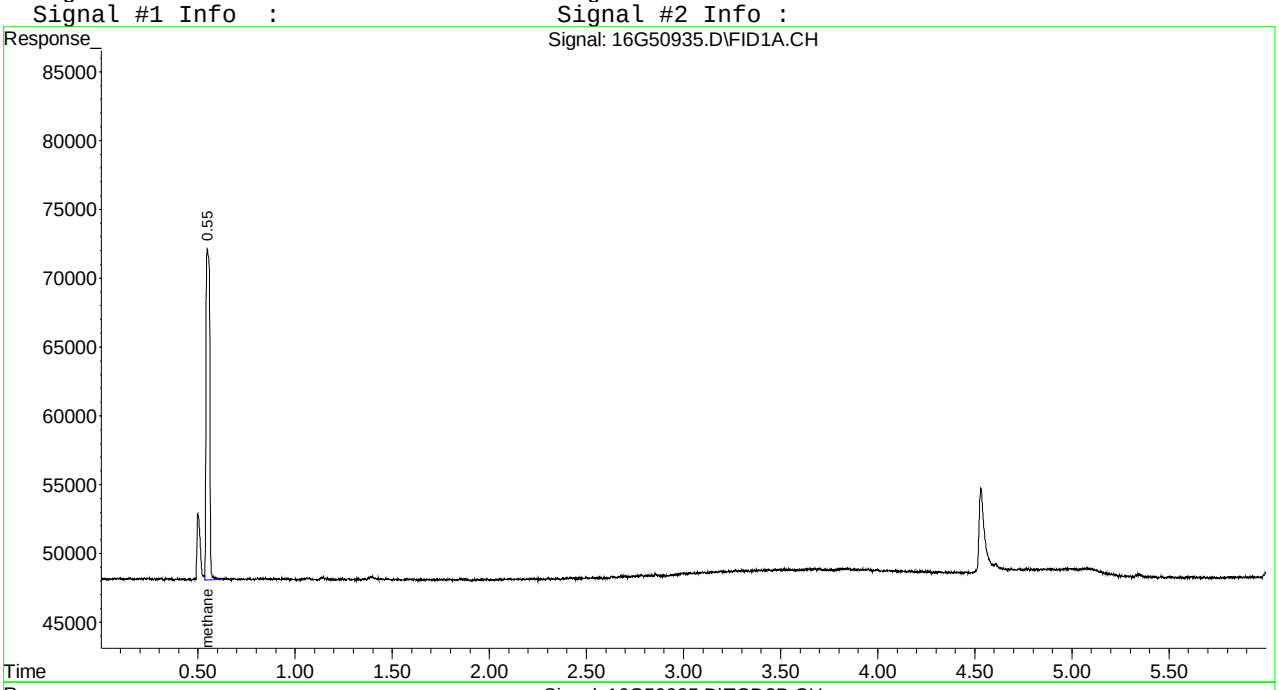
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	316015	0.139	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	0.00	0	N.D.	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.00	0	N.D.	umol/

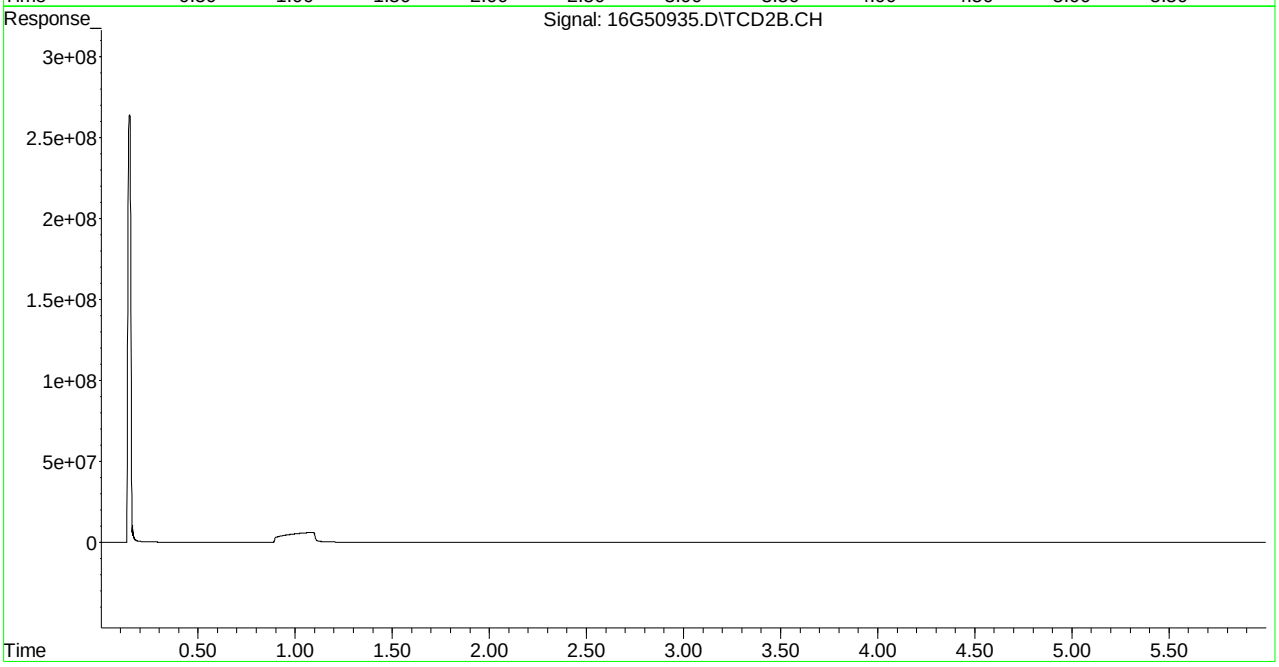
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50935.D RSKEXT1.M Fri Nov 04 08:58:15 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50935.D\FID1A.CH Vial: 2
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50935.D\TCD2B.CH
Acq On : 03 Nov 2016 14:39 Operator: JDS
Sample : WG590198-01 BLANK RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 14:45 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50958.D\FID1A.CH Vial: 2
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50958.D\TCD2B.CH
Acq On : 04 Nov 2016 15:43 Operator: JDS
Sample : WG590416-01 BLANK RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 07 09:36:47 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

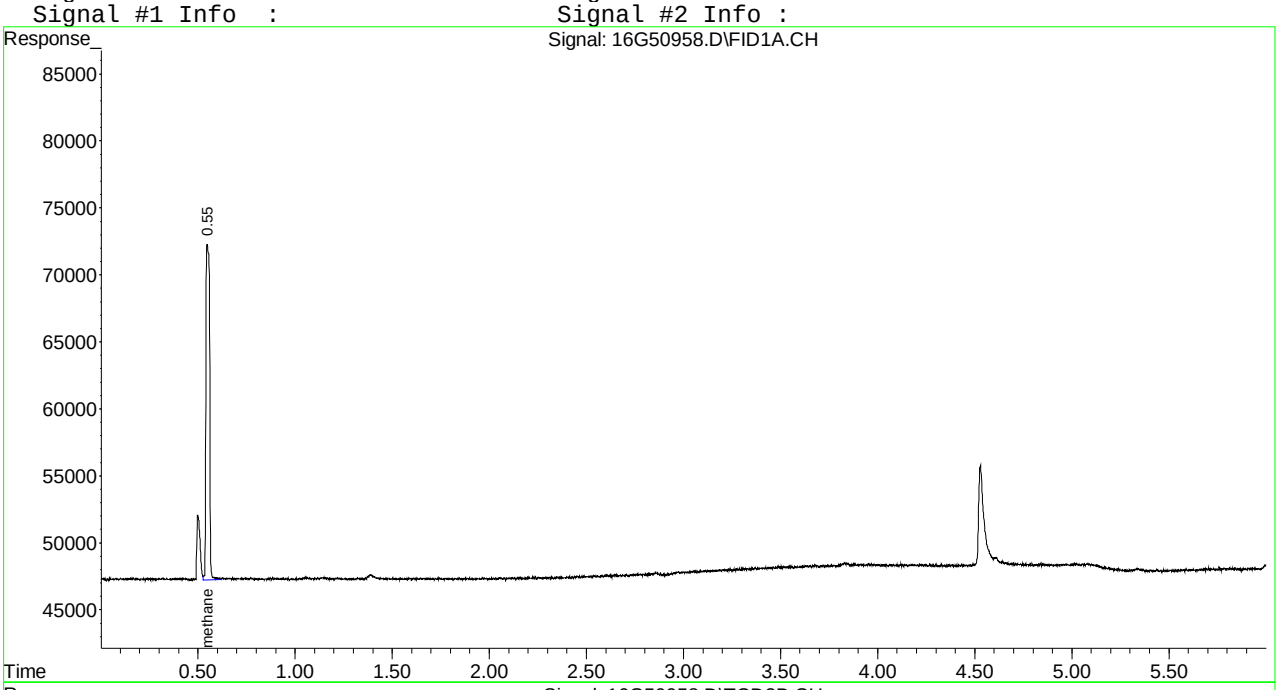
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1) T	methane	0.55	329839	0.216	umol/
2) T	ethene	0.00	0	N.D.	umol/
3) T	acetylene	0.00	0	N.D.	umol/
4) T	ethane	0.00	0	N.D.	umol/
5) T	propane	0.00	0	N.D.	umol/
6) T	n-butane	0.00	0	N.D.	umol/
8) T	carbon dioxide	0.00	0	N.D.	umol/

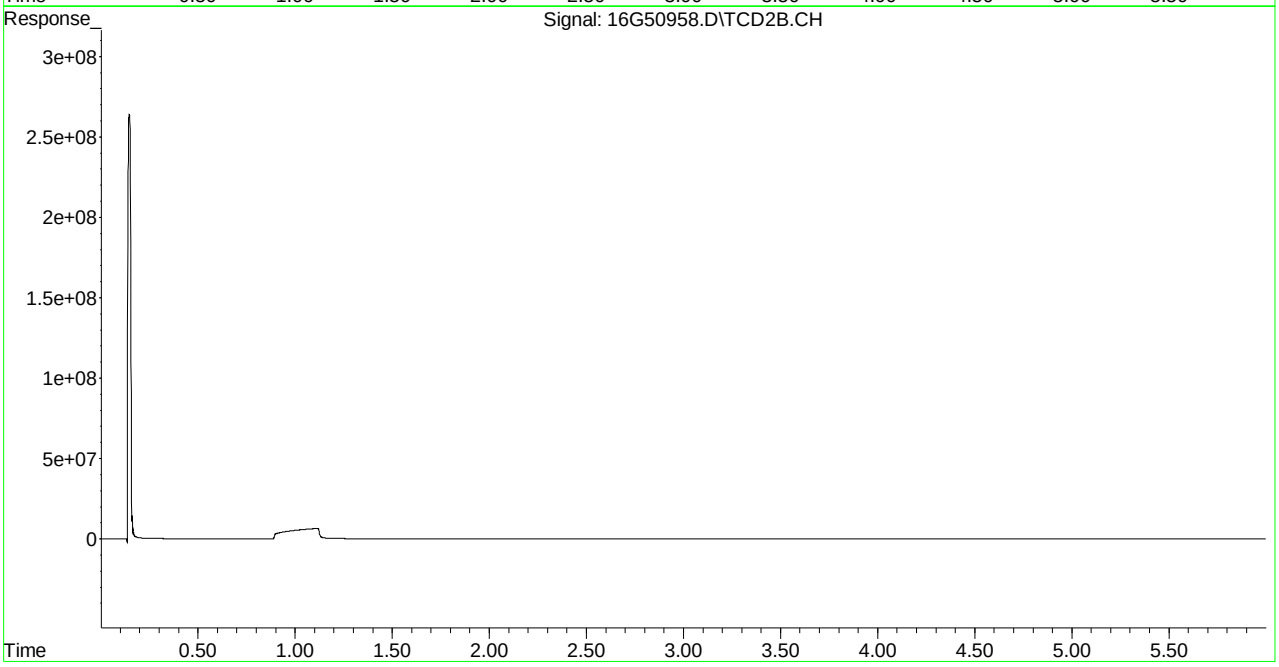
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50958.D RSKEXT1.M Mon Nov 07 09:36:56 2016 Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50958.D\FID1A.CH Vial: 2
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50958.D\TCD2B.CH
Acq On : 04 Nov 2016 15:43 Operator: JDS
Sample : WG590416-01 BLANK RSK175 Inst : HP16
Misc : 1,1 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 7 9:36 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110316\16G50936.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDchem\1\DATA\110316\16G50936.D\TCD2B.CH
Acq On : 03 Nov 2016 14:51 Operator: JDS
Sample : WG590198-02 67umol/mol LCS RSK175 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 14:57:19 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

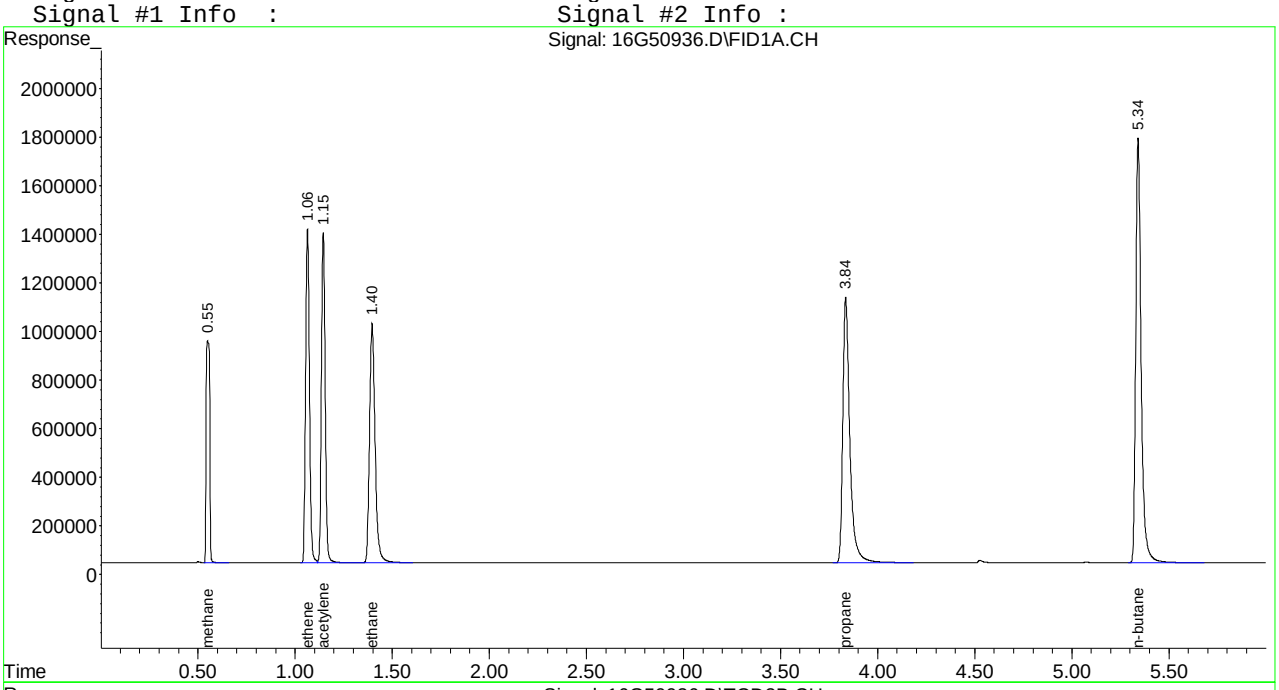
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	11778271	64.146 umol/
2) T	ethene	1.06	18865952	60.456 umol/
3) T	acetylene	1.15	18623779	59.640 umol/
4) T	ethane	1.40	19570800	61.364 umol/
5) T	propane	3.84	27552752	58.404 umol/
6) T	n-butane	5.34	33877616	55.410 umol/
8) T	carbon dioxide	0.20	27053573	5125.215 umol/

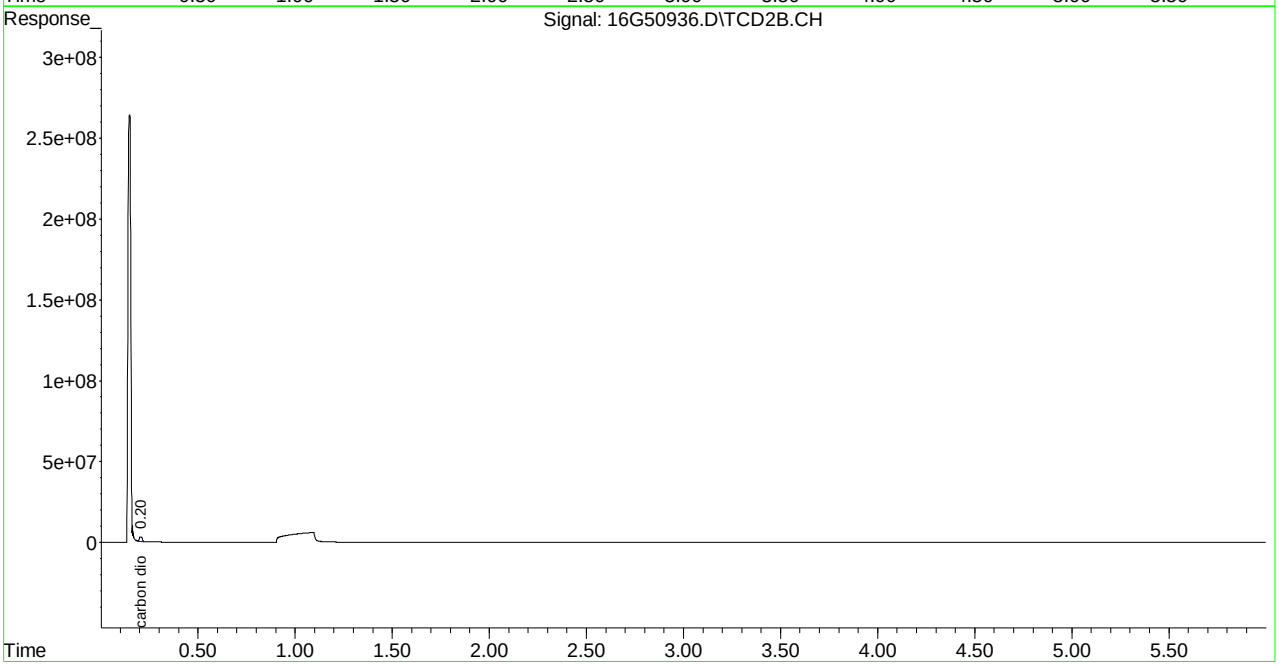
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50936.D RSKEXT1.M Thu Nov 03 14:57:19 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50936.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDchem\1\DATA\110316\16G50936.D\TCD2B.CH
Acq On : 03 Nov 2016 14:51 Operator: JDS
Sample : WG590198-02 67umol/mol LCS RSK175 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 14:57 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110416\16G50959.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDchem\1\DATA\110416\16G50959.D\TCD2B.CH
Acq On : 04 Nov 2016 15:54 Operator: JDS
Sample : WG590416-02 67umol/mol LCS RSK175 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 04 16:00:45 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

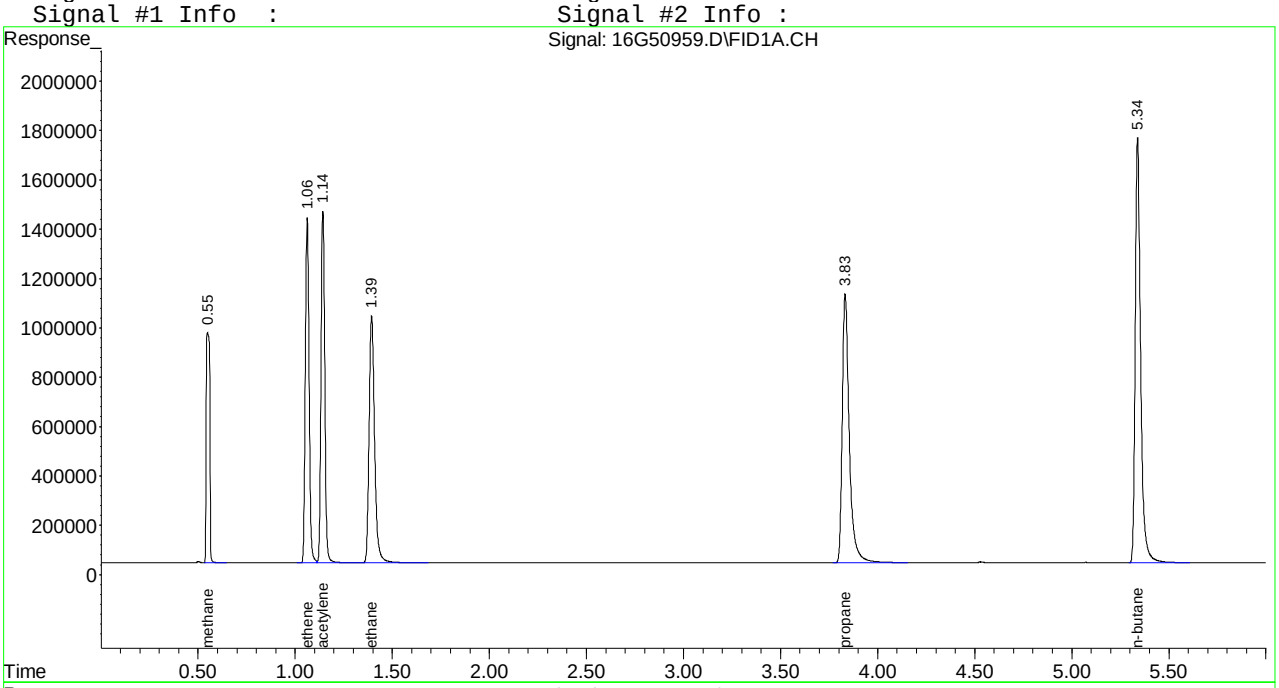
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	11989595	65.326 umol/
2) T	ethene	1.06	19136956	61.324 umol/
3) T	acetylene	1.14	19466066	62.338 umol/
4) T	ethane	1.39	19845055	62.224 umol/
5) T	propane	3.83	27662342	58.636 umol/
6) T	n-butane	5.34	33646258	55.031 umol/
8) T	carbon dioxide	0.21	31222924	5915.085 umol/

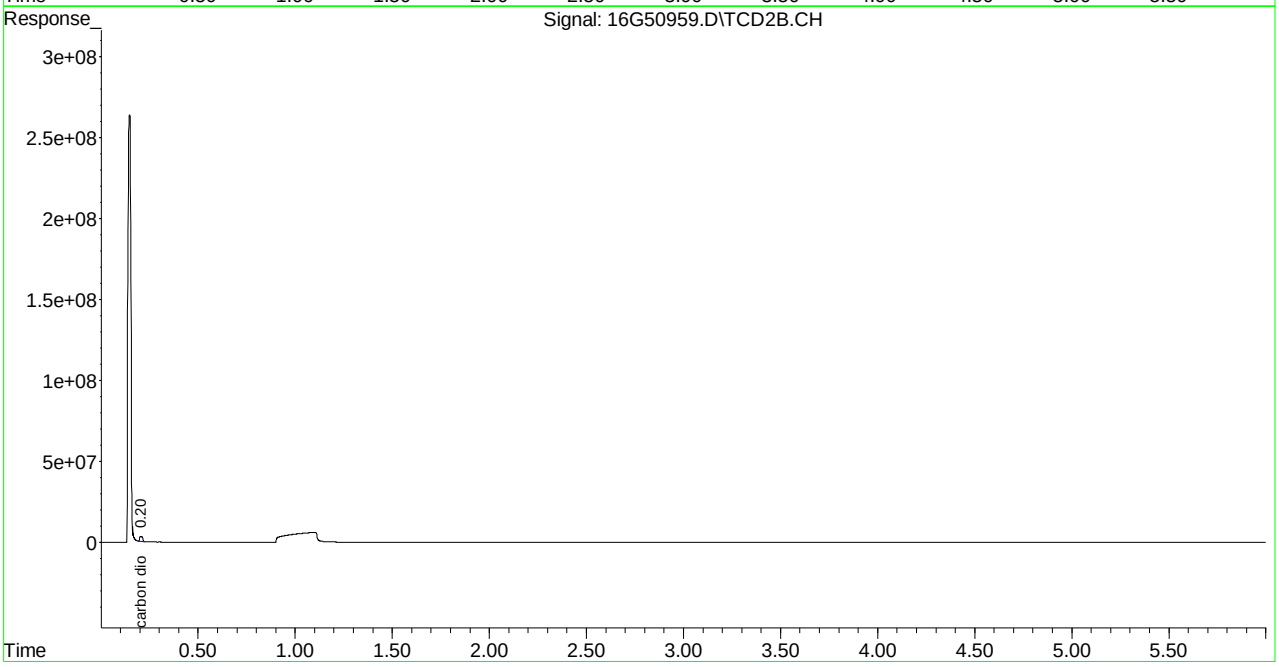
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50959.D RSKEXT1.M Fri Nov 04 16:00:45 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50959.D\FID1A.CH Vial: 3
Signal #2 : C:\MSDchem\1\DATA\110416\16G50959.D\TCD2B.CH
Acq On : 04 Nov 2016 15:54 Operator: JDS
Sample : WG590416-02 67umol/mol LCS RSK175 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 4 16:00 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Signal #1 : C:\MSDchem\1\DATA\110316\16G50937.D\FID1A.CH Vial: 4
Signal #2 : C:\MSDchem\1\DATA\110316\16G50937.D\TCD2B.CH
Acq On : 03 Nov 2016 15:02 Operator: JDS
Sample : WG590198-03 67umol/mol LCS2 RSK175 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 03 15:08:40 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Initial Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

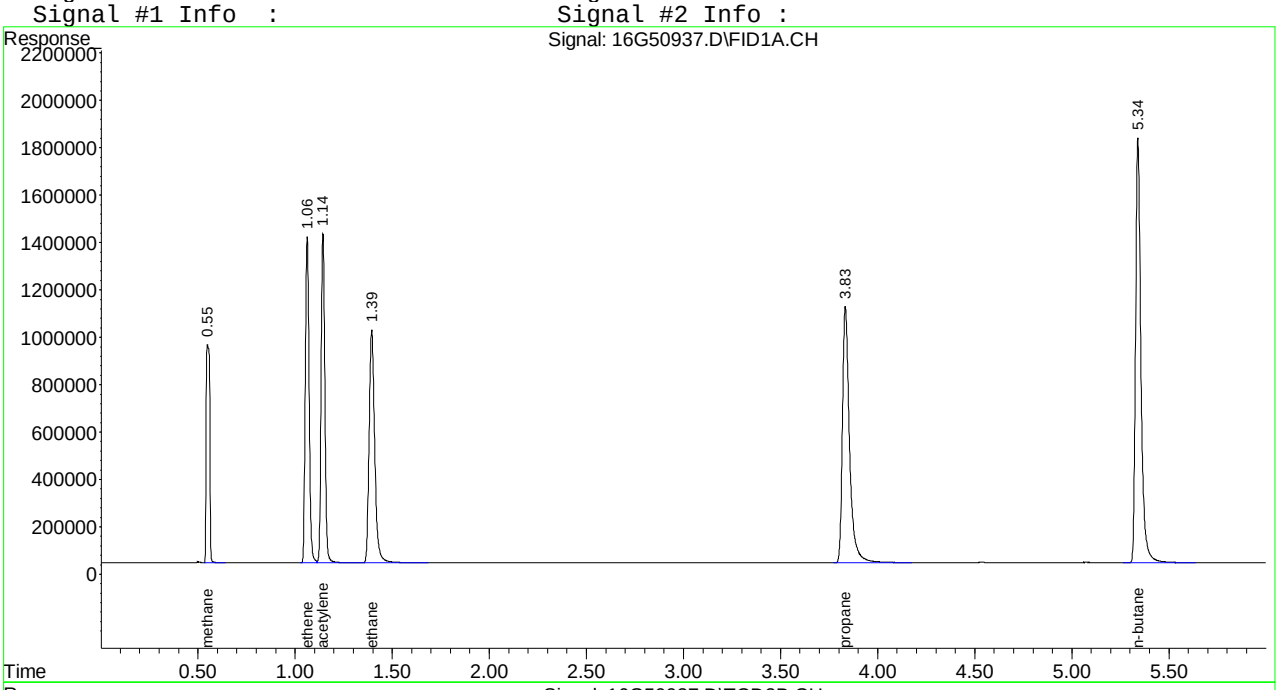
	Compound	R.T.	Response	Conc Units
	Target Compounds			
1) T	methane	0.55	11801282	64.274 umol/
2) T	ethene	1.06	18817362	60.300 umol/
3) T	acetylene	1.14	18925815	60.608 umol/
4) T	ethane	1.39	19528323	61.231 umol/
5) T	propane	3.83	27549471	58.397 umol/
6) T	n-butane	5.34	34660134	56.689 umol/
8) T	carbon dioxide	0.21	31734441	6011.991 umol/

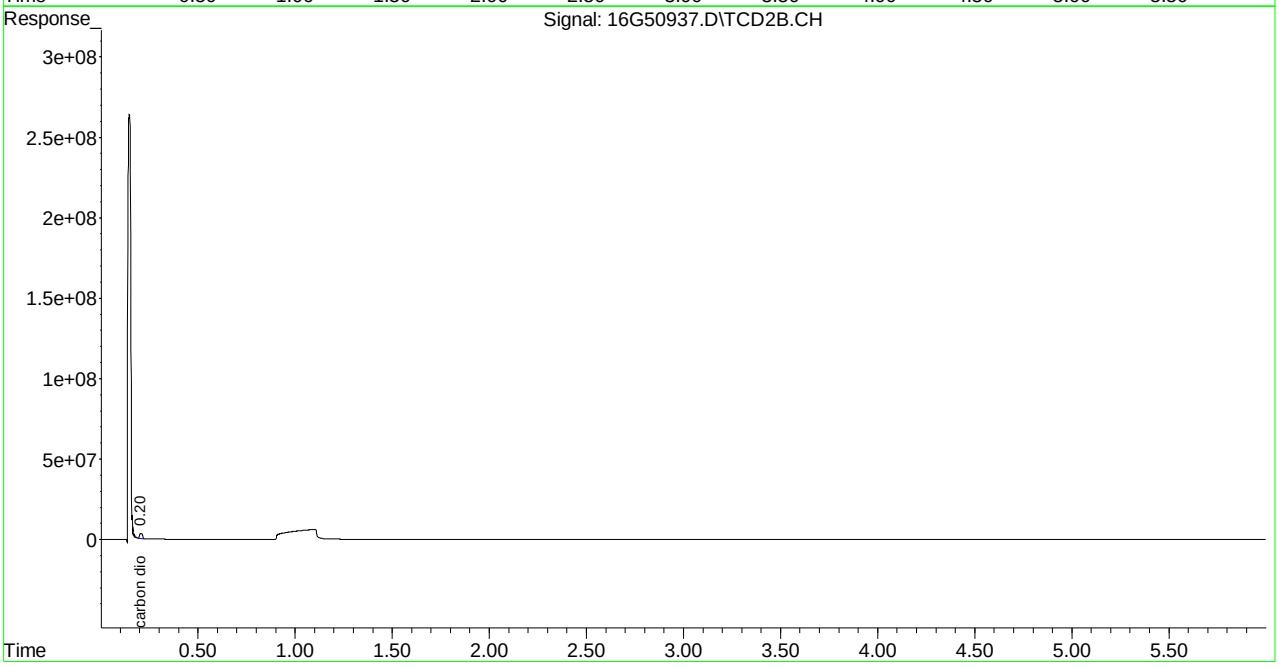
(f)=RT Delta > 1/2 Window (m)=manual int.
16G50937.D RSKEXT1.M Thu Nov 03 15:08:41 2016 Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50937.D\FID1A.CH Vial: 4
Signal #2 : C:\MSDchem\1\DATA\110316\16G50937.D\TCD2B.CH
Acq On : 03 Nov 2016 15:02 Operator: JDS
Sample : WG590198-03 67umol/mol LCS2 RSK175 Inst : HP16
Misc : 1,1 STD68250 Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Nov 3 15:08 2016 Quant Results File: RSKEXT1.RES

Quant Method : C:\MSDCHEM\1\METHODS\RSKEXT1.M (Chemstation Integrator)
Title : RSK175 HP16 (SOP: OVL RSK01) 032516
Last Update : Fri Mar 25 13:38:01 2016
Response via : Multiple Level Calibration
DataAcq Meth : RSKEXT1.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





2.2 General Chromatography Data

2.2.1 6850 LC/MS Data

2.2.1.1 Summary Data

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW13-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 17:50
Collect Date:	11/01/2016 08:10	**Dilution:**	5000	**File ID:**	1LM.LM37555
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	8650		2000	1000	500

Certificate of Analysis

Sample #:	L16110074-03	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW14-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 18:09
Collect Date:	11/01/2016 09:15	**Dilution:**	1	**File ID:**	1LM.LM37556
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.200	U	0.400	0.200	0.100

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110074-05 **PrePrep Method:** N/A **Instrument:** LCMS1
Client ID: 50WW11-110116 **Prep Method:** 6850 **Prep Date:** 11/08/2016 15:00
Matrix: Water **Analytical Method:** 6850 **Cal Date:** 05/03/2016 17:18
Workgroup #: WG590828 **Analyst:** JWR **Run Date:** 11/08/2016 18:28
Collect Date: 11/01/2016 10:20 **Dilution:** 10000 **File ID:** 1LM.LM37557
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	13400		4000	2000	1000

Certificate of Analysis

Sample #: L16110074-07 **PrePrep Method:** N/A **Instrument:** LCMS1
Client ID: 50WW06-110116 **Prep Method:** 6850 **Prep Date:** 11/08/2016 15:00
Matrix: Water **Analytical Method:** 6850 **Cal Date:** 05/03/2016 17:18
Workgroup #: WG590828 **Analyst:** JWR **Run Date:** 11/08/2016 18:47
Collect Date: 11/01/2016 11:20 **Dilution:** 1000 **File ID:** 1LM.LM37558
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	5240		400	200	100

Certificate of Analysis

Sample #: L16110074-09 **PrePrep Method:** N/A **Instrument:** LCMS1
Client ID: 50WW12-110116 **Prep Method:** 6850 **Prep Date:** 11/08/2016 15:00
Matrix: Water **Analytical Method:** 6850 **Cal Date:** 05/03/2016 17:18
Workgroup #: WG590828 **Analyst:** JWR **Run Date:** 11/08/2016 19:06
Collect Date: 11/01/2016 13:30 **Dilution:** 10000 **File ID:** 1LM.LM37559
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	25300		4000	2000	1000

Certificate of Analysis

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Sample #:	L16110074-11	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	50WW23-110116	**Prep Method:**	6850	**Prep Date:**	11/08/2016 15:00
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	05/03/2016 17:18
Workgroup #:	WG590828	**Analyst:**	JWR	**Run Date:**	11/08/2016 19:25
Collect Date:	11/01/2016 14:35	**Dilution:**	4	**File ID:**	1LM.LM37560
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	4.76		1.60	0.800	0.400

2.2.1.2 QC Summary Data

Example Calculation 6850 - Perchlorate

Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of internal standard (IS) = Rx/Ristd

x = amount ratio = concentration analyte/concentration internal standard (IS) = Cx / Cistd

m = slope from curve (1.45)

b = intercept from curve (-0.00242)

y = 1.45x + -0.00242

Step 2: Substitute the value for y

where y = 12600/226000 = 0.055752

Step 3: Solve for x

x = (y - b)/m = 0.0040119

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(x) = (5 ug/L)(0.040119) = 0.200594 ug/L

Example Calculation - Water:

Slope from curve, m:	1.45
Intercept from curve, b:	-0.00242
Response of analyte, Rx:	12600
Response of Internal Standard , Ristd:	226000
Concentration of IS, Cistd (ug/L):	5.00
Response Ratio:	0.05575
Amount Ratio:	0.04012
Analyte Concentration, Cx (ug/L) :	0.200594

Example Calculation - Soil:

Analyte Concentration, Cx (ug/L):	0.20059
Amount of soil extracted (g):	5.00
Final volume of extract (mL):	50.00
Percent solids (Pct wt.)	100
Concentration in soil (ug/kg):	2.005938

Perchlorate Conductivity Check
(perchlorate1)

Conductivity Probe Calibration Check: 1371 /1410 µs/cm

Working MCT Level: 10,000 µs/cm

Sample	Conductivity (µs/cm)	Pretreatment or Dilution Needed
WG590828-01 MCT	9,830.	
-02 Blank	0.35	
-03 LCS	0.39	
-04 LCS2	0.42	
L16110074-01	2,580.	
-03	2,600.	
-05	2,620.	
-07	1,476.	
-09	5,130.	
-11	6,550.	
L16110144-01	2,670.	
-03	5,040.	
-05	315.	
-07	1,604.	
-08	1,925.	
-09	1,936.	
L16110385-01	3,360.	

Analyst: John Richards

Date/Time: 11/09/16 / 10:45

DCN#122100

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG567013 (soils)
Internal STD: COA18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD75510 LCS STD: STD75512 MS/MSD STD: STD75512

Comments: ICAL WG567320 : Alternate Source STD75512
Analytical Column : RPPX 5um (250x4.6mm)
K'Prime S/N RPPX250-02115

Samples L16041363(-05 and -10) were analyzed at dilutions based on their pre-run screen results.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM34686	WG567320-01 CCB	1	1		05/03/16 15:06
2	1LM.LM34687	WG567320-02 STD (0.1 ug/L)	1	1	STD75510	05/03/16 15:25
3	1LM.LM34688	WG567320-03 STD (0.2 ug/L)	1	1	STD75510	05/03/16 15:43
4	1LM.LM34689	WG567320-04 STD (0.5 ug/L)	1	1	STD75510	05/03/16 16:02
5	1LM.LM34690	WG567320-05 STD (1.0 ug/L)	1	1	STD75510	05/03/16 16:21
6	1LM.LM34691	WG567320-06 STD (2.0 ug/L)	1	1	STD75510	05/03/16 16:40
7	1LM.LM34692	WG567320-07 STD (5.0 ug/L)	1	1	STD75510	05/03/16 16:59
8	1LM.LM34693	WG567320-08 STD (10 ug/L)	1	1	STD75510	05/03/16 17:18
9	1LM.LM34694	WG567320-09 SSCV (1.0 ug/L)	1	1	STD75512	05/03/16 17:37
10	1LM.LM34695	WG567321-01 CCB	1	1		05/03/16 17:56
11	1LM.LM34696	WG567321-02 CCV (1.0ug/L)	1	1	STD75510	05/03/16 18:15
12	1LM.LM34697	WG567013-07 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 18:34
13	1LM.LM34698	WG567013-01 MCT (2.0ug/kg)	7	1	STD75512	05/03/16 18:53
14	1LM.LM34699	WG567013-02 BLANK	7	1		05/03/16 19:12
15	1LM.LM34700	WG567013-03 LCS (2.0ug/kg)	7	1	STD75512	05/03/16 19:31
16	1LM.LM34701	L16041363-07 RS	7	1		05/03/16 19:50
17	1LM.LM34702	L16041363-08 MS	7	1	STD75512	05/03/16 20:09
18	1LM.LM34703	L16041363-09 MSD	7	1	STD75512	05/03/16 20:28
19	1LM.LM34704	L16041363-01	7	1		05/03/16 20:46
20	1LM.LM34705	L16041363-02	7	1		05/03/16 21:05
21	1LM.LM34706	L16041363-03	7	1		05/03/16 21:24
22	1LM.LM34707	L16041363-04	7	1		05/03/16 21:43
23	1LM.LM34708	WG567321-03 CCV (1.0ug/L)	1	1	STD75510	05/03/16 22:02
24	1LM.LM34709	WG567013-08 MRL (2.0ug/kg)	7	1	STD75510	05/03/16 22:21
25	1LM.LM34710	WG567321-04 CCB	1	1		05/03/16 22:40
26	1LM.LM34711	L16041363-05 (5x)	7	5		05/03/16 22:59
27	1LM.LM34712	L16041363-06	7	1		05/03/16 23:18
28	1LM.LM34713	L16041363-10 (5x)	7	5		05/03/16 23:37
29	1LM.LM34714	WG567321-05 CCV (1.0ug/L)	1	1	STD75510	05/03/16 23:56
30	1LM.LM34715	WG567013-09 MRL (2.0ug/kg)	7	1	STD75510	05/04/16 00:15
31	1LM.LM34716	WG567321-06 CCB	1	1		05/04/16 00:34

Comments

Page: 1 Approved: 05-MAY-16

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 050316_JWR.TXT

Analyst1: JWR Analyst2: NA

Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 151125254

Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA

Analytical WG567013 (soils)

Internal STD: COA18071 Surrogate STD: NA STD75510 (05/03/2016)

CCV STD: STD75510 LCS STD: STD75512 STD75512

Comments

Seq.	Rerun	Dil.	Reason	Analytes
17				
	L16041363-08 MS : The MS %Rec is 129%. This is above the advisory limit of 120%. The parent sample to this MS had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MS %Rec would be 93.9%.			
18				
	L16041363-09 MSD : The MSD %Rec is 131%. This is above the advisory limit of 120%. The parent sample to this MSD had responses that passed the ion-ratio criteria, but had a quantified value below the method's detection limit, resulting in an assigned value of zero. If the quantified value for the parent sample were used in the %Rec calculation, the MSD %Rec would be 95.4%.			

Page: 2 Approved: 05-MAY-16

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 110816_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 8

Maintenance Log ID: Syringe Filter Lot#: 160109254
Eluent ID#:

Workgroups: Column 1 ID: KP-RPPX250 Column 2 ID: NA
Analytical WG590828 (waters)
Internal STD: STD18071 Surrogate STD: NA Calibration STD STD75510 (05/03/2016)
CCV STD: STD78249 LCS STD: STD78251 MS/MSD STD: STD78251

Comments: Samples L16110074(-01,-05,-11), L16110144-01 and L16110385-01 were analyzed at dilutions based on their pre-run screen results.
Samples L16110074(-07,-09) were analyzed at dilutions based on their historical results.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM37548	WG590829-01 CCB	1	1		11/08/16 15:37
2	1LM.LM37549	WG590829-02 CCV (1.0ug/L)	1	1	STD78249	11/08/16 15:56
3	1LM.LM37550	WG590828-05 MRL (0.2ug/L)	1	1	STD78249	11/08/16 16:15
4	1LM.LM37551	WG590828-01 MCT (0.2ug/L)	1	1	STD78251	11/08/16 16:34
5	1LM.LM37552	WG590828-02 BLANK	1	1		11/08/16 16:53
6	1LM.LM37553	WG590828-03 LCS (0.2ug/L)	1	1	STD78251	11/08/16 17:12
7	1LM.LM37554	WG590828-04 LCS2 (0.2ug/L)	1	1	STD78251	11/08/16 17:31
8	1LM.LM37555	L16110074-01 (5,000x)	1	5000		11/08/16 17:50
9	1LM.LM37556	L16110074-03	1	1		11/08/16 18:09
10	1LM.LM37557	L16110074-05 (10,000x)	1	10000		11/08/16 18:28
11	1LM.LM37558	L16110074-07 (1,000x)	1	1000		11/08/16 18:47
12	1LM.LM37559	L16110074-09 (10,000x)	1	10000		11/08/16 19:06
13	1LM.LM37560	L16110074-11 (4x)	1	4		11/08/16 19:25
14	1LM.LM37561	WG590829-03 CCV (1.0ug/L)	1	1	STD78249	11/08/16 19:44
15	1LM.LM37562	WG590828-06 MRL (0.2ug/L)	1	1	STD78249	11/08/16 20:03
16	1LM.LM37563	WG590829-04 CCB	1	1		11/08/16 20:22
17	1LM.LM37564	L16110144-01 (100x)	1	100		11/08/16 20:40
18	1LM.LM37565	L16110144-03	1	1		11/08/16 20:59
19	1LM.LM37566	L16110144-05	1	1		11/08/16 21:18
20	1LM.LM37567	L16110144-07	1	1		11/08/16 21:37
21	1LM.LM37568	L16110144-08	1	1		11/08/16 21:56
22	1LM.LM37569	L16110144-09	1	1		11/08/16 22:15
23	1LM.LM37570	L16110385-01 (10x)	1	10		11/08/16 22:34
24	1LM.LM37571	WG590829-05 CCV (1.0ug/L)	1	1	STD78249	11/08/16 22:53
25	1LM.LM37572	WG590828-07 MRL (0.2ug/L)	1	1	STD78249	11/08/16 23:12
26	1LM.LM37573	WG590829-06 CCB	1	1		11/08/16 23:31

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1 Approved: 09-NOV-16

Microbac Laboratories Inc.

Data Checklist

Date: 03-MAY-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: WG567320
Runlog ID: 74891
Analytical Workgroups: L16041363 (SOILS)

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	WTD

Primary Reviewer:
04-MAY-2016
John Richards

Secondary Reviewer:
05-MAY-2016
Wade D

CHECKLIST1 - Modified 03/05/2008
Generated: MAY-05-2016 16:23:46

Microbac Laboratories Inc.

Data Checklist

Date: 08-NOV-2016
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: NA
Runlog ID: 78585
Analytical Workgroups: L16110074, L16110144, L16110385

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	NA
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	ECL

Primary Reviewer:
09-NOV-2016
John Richards

Secondary Reviewer:
09-NOV-2016
Eric C. Zimmerman

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-09-2016 16:29:19

Microbac

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6850 AAB#: WG590828

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW13-110116	01	11/01/16					11/08/2016	7.3	28		11/08/16	.1	28	
50WW14-110116	03	11/01/16					11/08/2016	7.2	28		11/08/16	.1	28	
50WW11-110116	05	11/01/16					11/08/2016	7.2	28		11/08/16	.1	28	
50WW06-110116	07	11/01/16					11/08/2016	7.2	28		11/08/16	.2	28	
50WW12-110116	09	11/01/16					11/08/2016	7.1	28		11/08/16	.2	28	
50WW23-110116	11	11/01/16					11/08/2016	7	28		11/08/16	.2	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5014397
Report generated 11/09/2016 16:36

METHOD BLANK SUMMARY

Login Number: L16110074
Blank File ID: 1LM.LM37552
Prep Date: 11/08/16 15:00
Analyzed Date: 11/08/16 16:53
Analyst: JWR

Work Group: WG590828
Blank Sample ID: WG590828-02
Instrument ID: LCMS1
Method: 6850

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
QCMRL	WG590828-05	1LM.LM37550	11/08/16 16:15	01
MCT	WG590828-01	1LM.LM37551	11/08/16 16:34	01
LCS	WG590828-03	1LM.LM37553	11/08/16 17:12	01
LCS2	WG590828-04	1LM.LM37554	11/08/16 17:31	01
50WW13-110116	L16110074-01	1LM.LM37555	11/08/16 17:50	DL01
50WW14-110116	L16110074-03	1LM.LM37556	11/08/16 18:09	01
50WW11-110116	L16110074-05	1LM.LM37557	11/08/16 18:28	DL01
50WW06-110116	L16110074-07	1LM.LM37558	11/08/16 18:47	DL01
50WW12-110116	L16110074-09	1LM.LM37559	11/08/16 19:06	DL01
50WW23-110116	L16110074-11	1LM.LM37560	11/08/16 19:25	DL01
QCMRL	WG590828-06	1LM.LM37562	11/08/16 20:03	01
QCMRL	WG590828-07	1LM.LM37572	11/08/16 23:12	01

Report Name: BLANK_SUMMARY
PDF File ID: 5014398
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L16110074 Prep Date: 11/08/16 15:00 Sample ID: WG590828-02
Instrument ID: LCMS1 Run Date: 11/08/16 16:53 Prep Method: 6850
File ID: 1LM.LM37552 Analyst: JWR Method: 6850
Workgroup (AAB#): WG590828 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Perchlorate	0.100	0.400	0.100	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5014399
09-NOV-2016 16:36

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Analyst: JWR Prep Method: 6850
Instrument ID: LCMS1 Matrix: Water Method: 6850
Workgroup (AAB#): WG590828 Units: ug/L
QC Key: DOD4 Lot #: STD78251

Sample ID: WG590828-03 LCS File ID: 1LM.LM37553 Run Date: 11/08/2016 17:12
Sample ID: WG590828-04 LCS2 File ID: 1LM.LM37554 Run Date: 11/08/2016 17:31

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Perchlorate	0.200	0.183	91.5	0.200	0.175	87.5	4.47	80 - 120	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5014400
Report generated: 11/09/2016 16:36

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L16110074
Analytical Method: 6850
ICAL Workgroup: WG567320

Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Perchlorate		1.699	4.81	1.00000	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 5015996
Report generated 11/09/2016 16:36

Login Number: L16110074
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-02			WG567320-03			WG567320-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	0.100	17900.0000	1.792	0.200	34100.0000	1.718	0.500	82200.0000	1.637

INT_CAL - Modified 03/06/2008
PDF File ID: 5015996
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.
INITIAL CALIBRATION DATA

Login Number: L16110074
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-05			WG567320-06			WG567320-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	1.00	168000.000	1.697	2.00	330000.000	1.672	5.00	810000.000	1.695

INT_CAL - Modified 03/06/2008
PDF File ID: 5015996
Report generated 11/09/2016 16:36

Login Number: L16110074
Analytical Method: 6850
Instrument ID: LCMS1
Initial Calibration Date: 03-MAY-16 17:18
Column ID: F

Analyte	WG567320-08		
	CONC	RESP	RF
Perchlorate	10.0	1530000.00	1.680

INT_CAL - Modified 03/06/2008
PDF File ID: 5015996
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L16110074 Run Date: 05/03/2016 Sample ID: WG567320-09
Instrument ID: LCMS1 Run Time: 17:37 Method: 6850
File ID: 1LM.LM34694 Analyst: JWR QC Key: DOD4
ICal Workgroup: WG567320 Cal ID: LCMS1 - 03-MAY-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Perchlorate		1.00	0.985	ug/L	1.66	1.50	15	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5015997
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/08/2016	Sample ID:	WG590829-01
Instrument ID:	LCMS1	Run Time:	15:37	Method:	6850
File ID:	1LM.LM37548	Analyst:	JWR	Units:	ug/L
Workgroup (AAB#):	WG590828	Cal ID:	LCMS1 - 03-MAY-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5014403
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/08/2016	Sample ID:	WG590829-04
Instrument ID:	LCMS1	Run Time:	20:22	Method:	6850
File ID:	1LM.LM37563	Analyst:	JWR	Units:	ug/L
Workgroup (AAB#):	WG590828	Cal ID:	LCMS1 - 03-MAY-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5014403
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L16110074 | Run Date: 11/08/2016 | Sample ID: WG590829-06
Instrument ID: LCMS1 | Run Time: 23:31 | Method: 6850
File ID: 1LM.LM37573 | Analyst: JWR | Units: ug/L
Workgroup (AAB#): WG590828 | Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER | QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.400	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5014403
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590829-02

Instrument ID: LCMS1 Run Time: 15:56 Method: 6850

File ID: 1LM.LM37549 Analyst: JWR QC Key: DOD4

Workgroup (AAB#): WG590828 Cal ID: LCMS1 - 03-MAY-16

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.952	ug/L	1.61	4.80	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 5014402

Report generated 11/09/2016 16:36

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590829-03
Instrument ID: LCMS1 Run Time: 19:44 Method: 6850
File ID: 1LM.LM37561 Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG590828 Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.964	ug/L	1.63	3.60	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 5014402
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590829-05
Instrument ID: LCMS1 Run Time: 22:53 Method: 6850
File ID: 1LM.LM37571 Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG590828 Cal ID: LCMS1 - 03-MAY-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.935	ug/L	1.58	6.50	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 5014402
Report generated 11/09/2016 16:36

Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590828-05
Instrument ID: LCMS1 Run Time: 16:15 Prep Method: 6850
File ID: 1LM.LM37550 Analyst: JWR Method: 6850
Workgroup (AAB#): WG590828 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.201	101	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 5014401
Report generated 11/09/2016 16:36

Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590828-06
Instrument ID: LCMS1 Run Time: 20:03 Prep Method: 6850
File ID: 1LM.LM37562 Analyst: JWR Method: 6850
Workgroup (AAB#): WG590828 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.200	100	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 5014401
Report generated 11/09/2016 16:36

Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590828-07
Instrument ID: LCMS1 Run Time: 23:12 Prep Method: 6850
File ID: 1LM.LM37572 Analyst: JWR Method: 6850
Workgroup (AAB#): WG590828 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-03-MAY-16

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.200	100	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 5014401
Report generated 11/09/2016 16:36

Microbac Laboratories Inc.
INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number: L16110074
Instrument ID: LCMS1
Workgroup (AAB#): WG590828

ICAL CCV Number: WG567320-05
CAL ID: LCMS1-03-MAY-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1
WG567320	NA	NA	489000
Upper Limit	NA	NA	733500
Lower Limit	NA	NA	244500
L16110074-01	5000	DL01	411000
L16110074-03	1.00	01	322000
L16110074-05	10000	DL01	427000
L16110074-07	1000	DL01	424000
L16110074-09	10000	DL01	439000
L16110074-11	4.00	DL01	337000
WG590828-02	1.00	01	404000
WG590828-03	1.00	01	404000
WG590828-04	1.00	01	420000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 5014404
Report generated 11/09/2016 16:36

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	L16110074-01
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37555
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 17:50	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	240000	84400	2.84	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	L16110074-03
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37556
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 18:09	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	6790	2540	2.67	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	L16110074-05
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37557
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 18:28	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	194000	67900	2.86	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	L16110074-07
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37558
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 18:47	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	748000	250000	2.99	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	L16110074-09
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37559
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 19:06	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	374000	130000	2.88	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	L16110074-11
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37560
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 19:25	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	136000	46300	2.94	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-02
Instrument:	LCMS1	**Prep Date:**	05/03/2016 15:25	**File ID:**	1LM.LM34687
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 15:25	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	17900	6950	2.58	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-03
Instrument:	LCMS1	**Prep Date:**	05/03/2016 15:43	**File ID:**	1LM.LM34688
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 15:43	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34100	11900	2.87	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-04
Instrument:	LCMS1	**Prep Date:**	05/03/2016 16:02	**File ID:**	1LM.LM34689
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 16:02	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	82200	29400	2.80	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-05
Instrument:	LCMS1	**Prep Date:**	05/03/2016 16:21	**File ID:**	1LM.LM34690
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 16:21	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	168000	56600	2.97	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-06
Instrument:	LCMS1	**Prep Date:**	05/03/2016 16:40	**File ID:**	1LM.LM34691
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 16:40	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	330000	108000	3.06	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-07
Instrument:	LCMS1	**Prep Date:**	05/03/2016 16:59	**File ID:**	1LM.LM34692
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 16:59	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	810000	269000	3.01	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-08
Instrument:	LCMS1	**Prep Date:**	05/03/2016 17:18	**File ID:**	1LM.LM34693
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 17:18	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	1530000	512000	2.99	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG567320-09
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM34694
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	05/03/2016 17:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	169000	56300	3.00	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	WG590828-01
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37551
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 16:34	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	26400	9660	2.73	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	WG590828-02
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37552
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 16:53	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	WG590828-03
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37553
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 17:12	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	25300	9110	2.78	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	WG590828-04
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37554
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 17:31	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	25200	9610	2.62	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	WG590828-05
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37550
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 16:15	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	28500	10400	2.74	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	WG590828-06
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37562
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 20:03	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	32200	10500	3.07	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**	6850	**Samplenum:**	WG590828-07
Instrument:	LCMS1	**Prep Date:**	11/08/2016 15:00	**File ID:**	1LM.LM37572
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 23:12	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	32900	11000	2.99	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG590829-01
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM37548
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 15:37	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG590829-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM37549
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 15:56	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	132000	46700	2.83	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG590829-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM37561
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 19:44	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	143000	49200	2.91	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG590829-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM37563
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 20:22	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG590829-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM37571
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 22:53	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	151000	51600	2.93	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L16110074	**Prep Method:**		**Samplenum:**	WG590829-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM37573
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG590828	**Analysis Date:**	11/08/2016 23:31	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	0.000	0.000	2.3	3.8	*

2.2.1.3 Sample Data

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Data File	LM37555.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 5:50:32 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

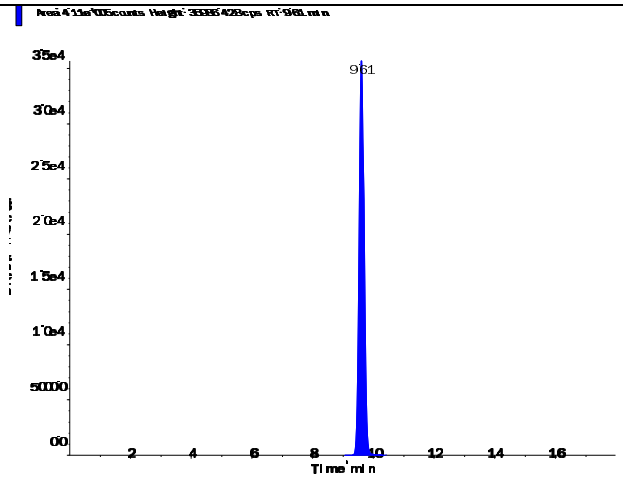
Sample Name	L16110074-01 (5,000x)	**Injection Vial**	8.00
Data File	LM37555.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 5:50:32 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	L16110074-01	**Dilution Factor**	1.00
Sample Comment	1,5000 (screened)	**Weight to Volume**	0.00

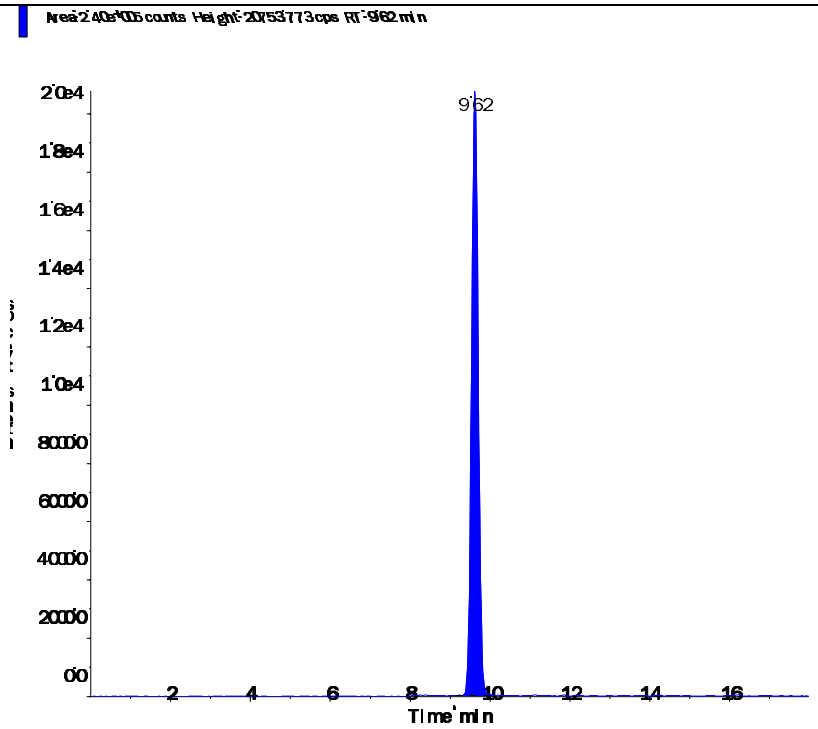
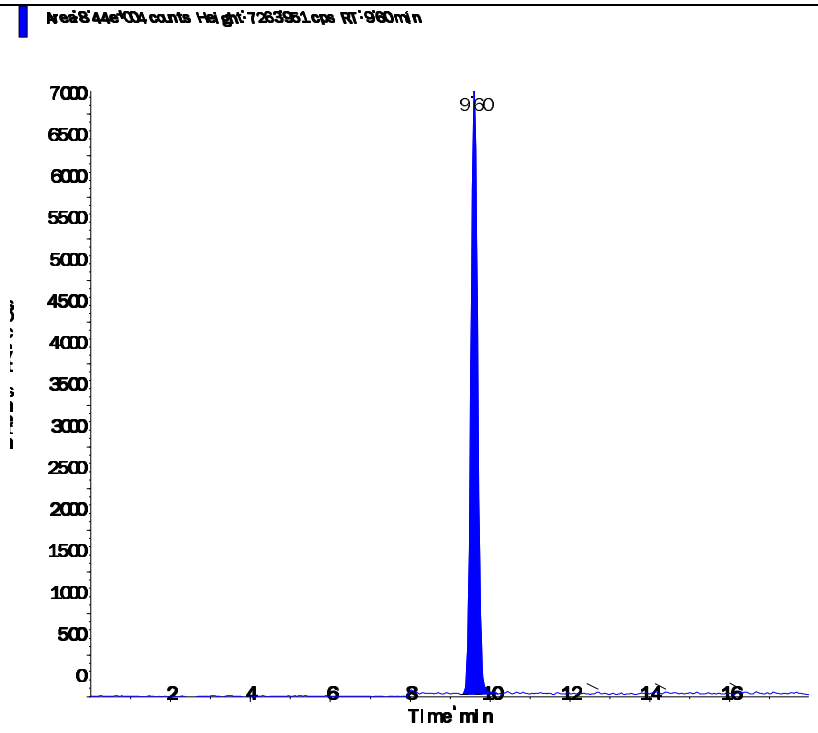
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.110e+05	9.61	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.400e+05	9.62	N/A	1.73
Perchlorate conf	8.440e+04	9.60	N/A	1.82

O18LP (Internal Standard)

RT (Exp. RT): 9.61(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.62 (9.84) min Calculated conc: 1.73 ng/ml Area Ratio: 0.585 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.60 (9.84) min Calculated conc: 1.82 ng/ml Area Ratio: 0.206 Sample Type: (Unknown)	

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Printed: 11/9/2016 10:39 AM

Data File	LM37556.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 6:09:30 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

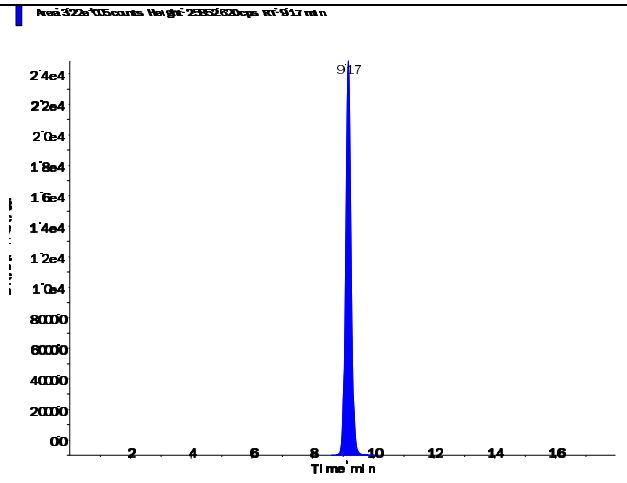
Sample Name	L16110074-03	**Injection Vial**	9.00
Data File	LM37556.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 6:09:30 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	L16110074-03	**Dilution Factor**	1.00
Sample Comment	1,1 (Hist)	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	3.220e+05	9.17	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	6.790e+03	9.18	N/A	0.0588
Perchlorate conf	2.540e+03	9.17	N/A	0.0501

O18LP (Internal Standard)

RT (Exp. RT): 9.17(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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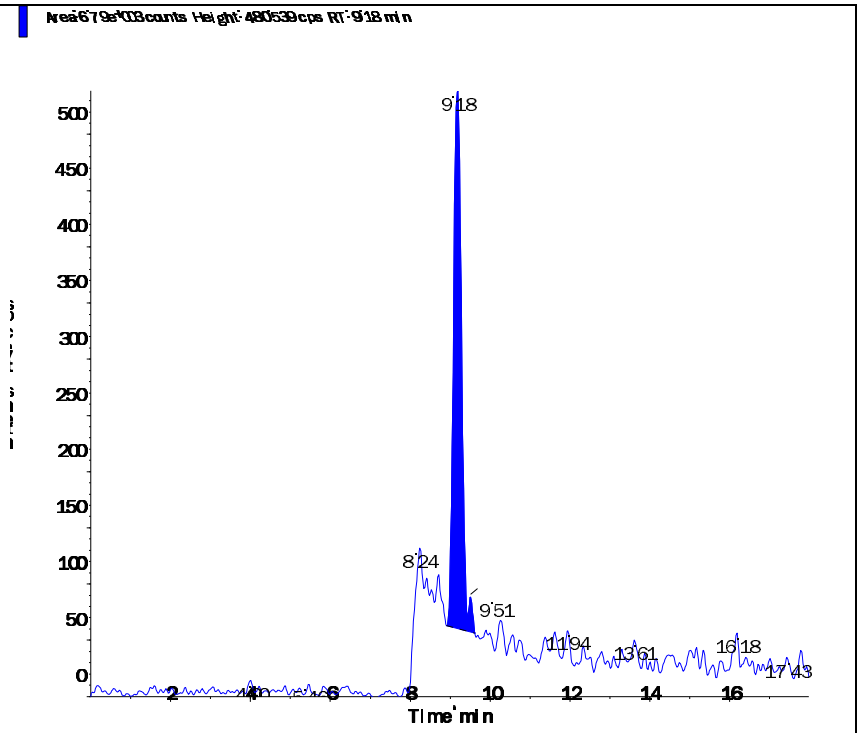
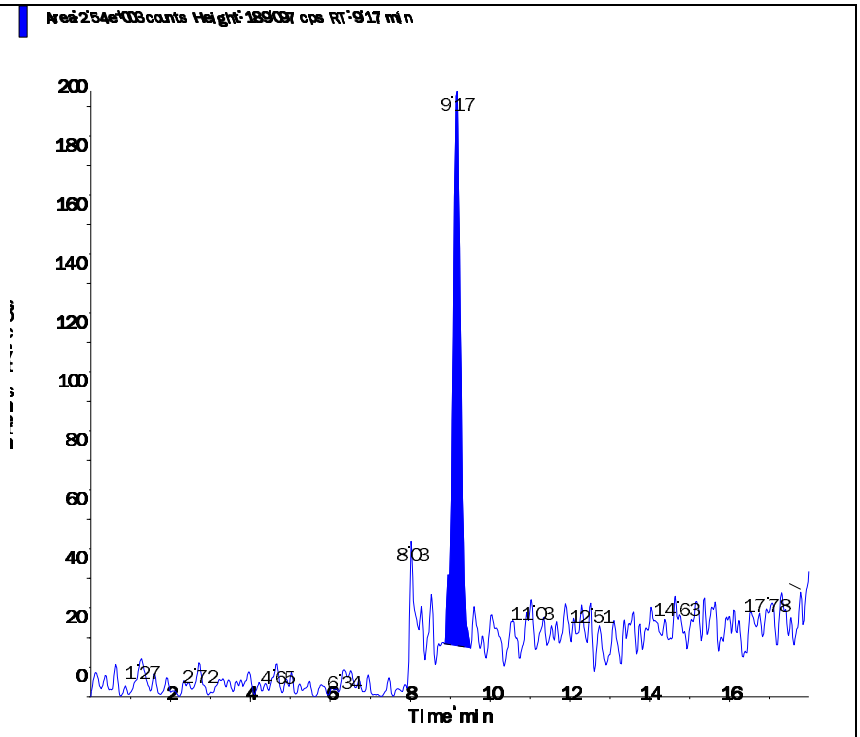
Perchlorate (98.8/83.3 amu)	
RT (Exp. RT):	9.18 (9.84) min
Calculated conc:	0.0588 ng/ml
Area Ratio:	0.021
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT):	9.17 (9.84) min
Calculated conc:	0.0501 ng/ml
Area Ratio:	0.008
Sample Type:	(Unknown)



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Printed: 11/9/2016 10:39 AM

Data File	LM37557.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 6:28:29 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

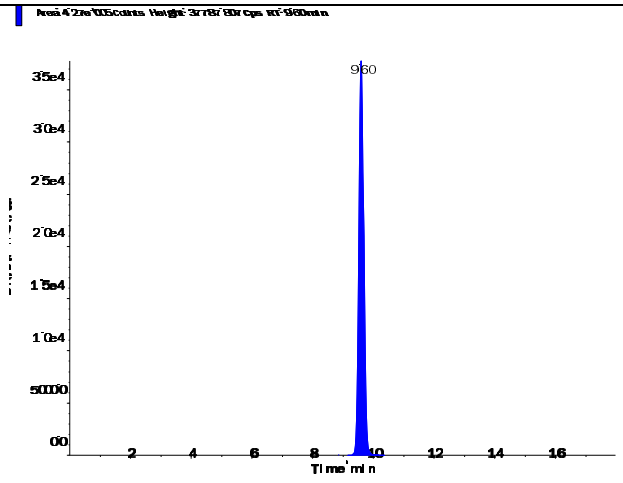
Sample Name	L16110074-05 (10,000x)	**Injection Vial**	10.00
Data File	LM37557.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 6:28:29 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	L16110074-05	**Dilution Factor**	1.00
Sample Comment	1,10000 (screened)	**Weight to Volume**	0.00

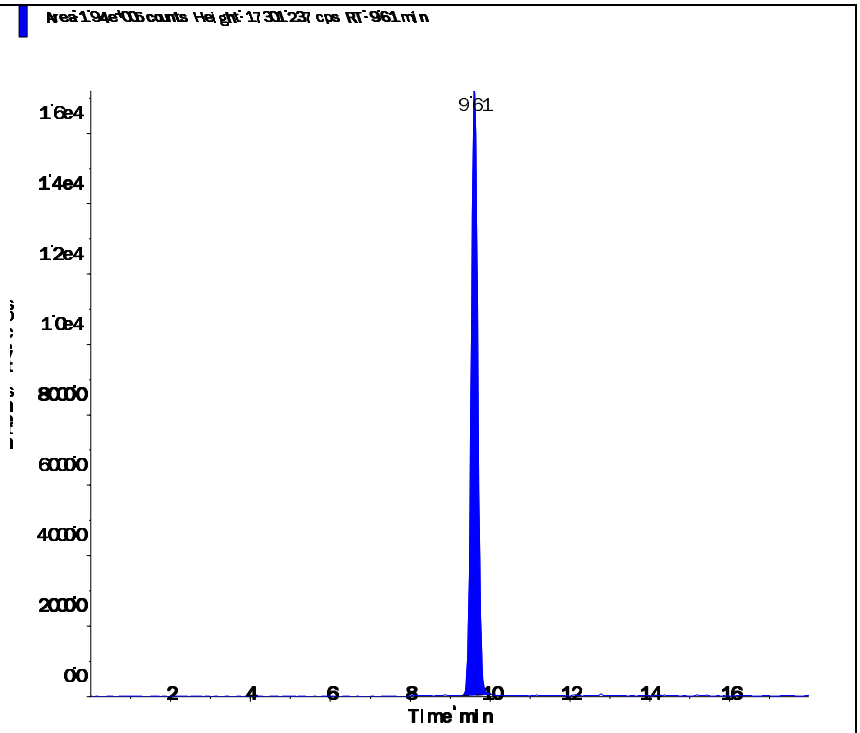
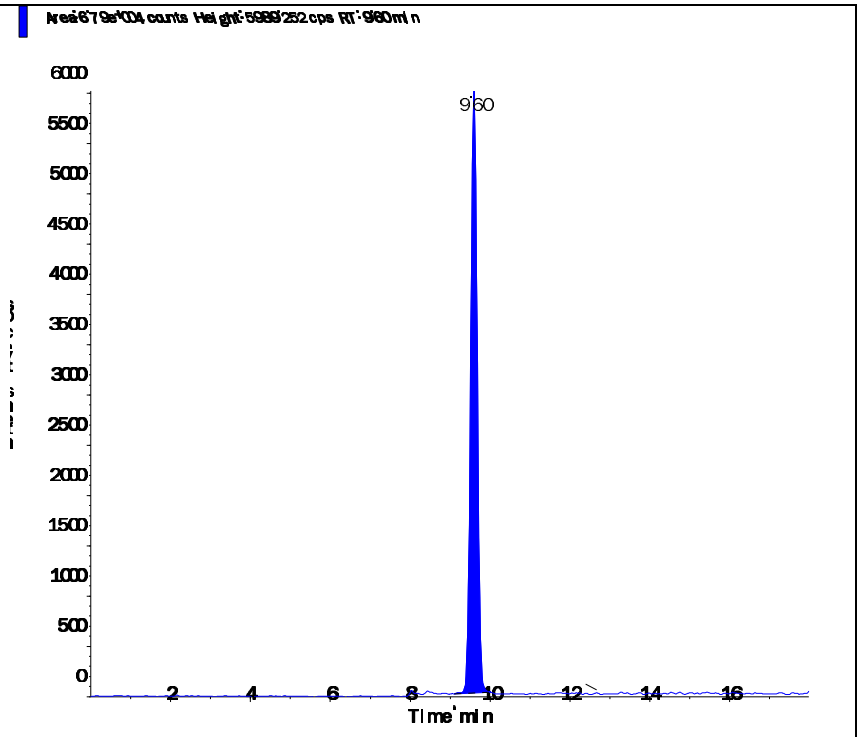
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.270e+05	9.60	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.940e+05	9.61	N/A	1.34
Perchlorate conf	6.790e+04	9.60	N/A	1.40

O18LP (Internal Standard)

RT (Exp. RT): 9.60(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.61 (9.84) min Calculated conc: 1.34 ng/ml Area Ratio: 0.453 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.60 (9.84) min Calculated conc: 1.40 ng/ml Area Ratio: 0.159 Sample Type: (Unknown)	

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Data File	LM37558.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 6:47:24 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

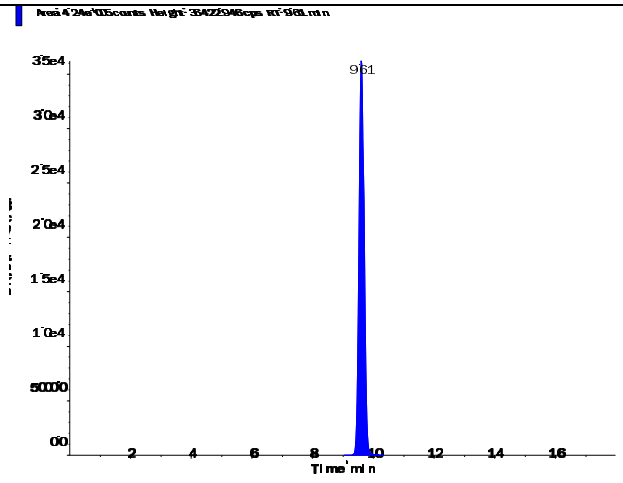
Sample Name	L16110074-07 (1,000x)	**Injection Vial**	11.00
Data File	LM37558.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 6:47:24 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	L16110074-07	**Dilution Factor**	1.00
Sample Comment	1,1000 (Hist)	**Weight to Volume**	0.00

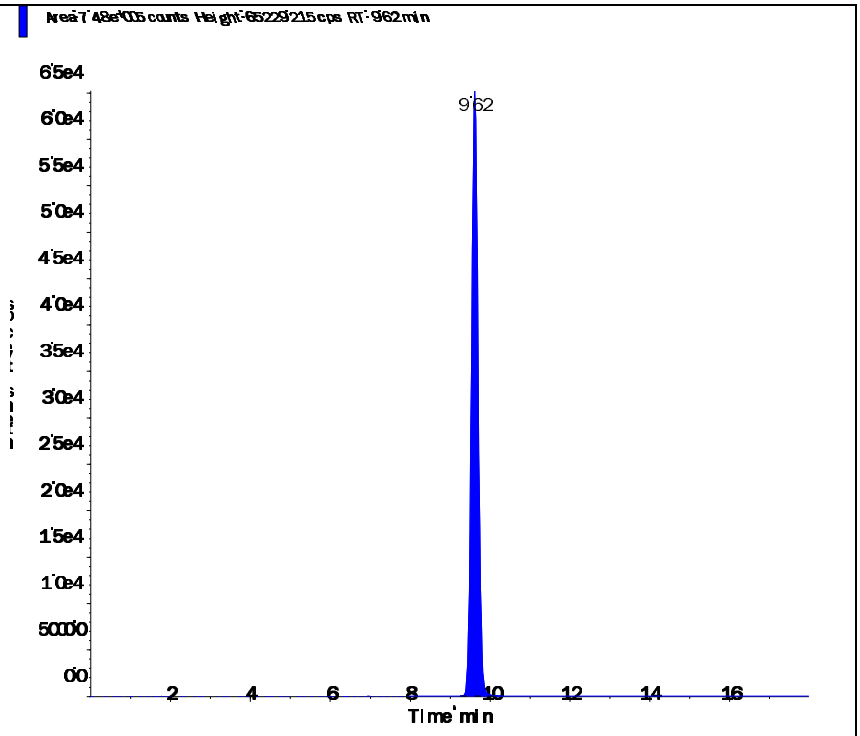
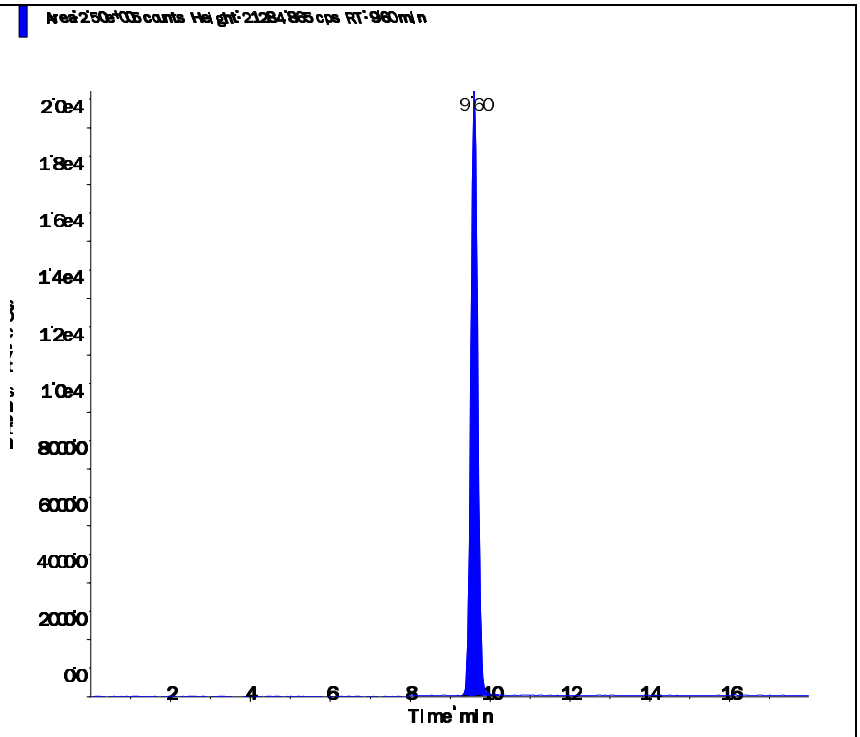
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.240e+05	9.61	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	7.480e+05	9.62	N/A	5.24
Perchlorate conf	2.500e+05	9.60	N/A	5.27

O18LP (Internal Standard)

RT (Exp. RT): 9.61(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.62 (9.84) min Calculated conc: 5.24 ng/ml Area Ratio: 1.764 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.60 (9.84) min Calculated conc: 5.27 ng/ml Area Ratio: 0.59 Sample Type: (Unknown)	

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Printed: 11/9/2016 10:40 AM

Data File	LM37559.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 7:06:20 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

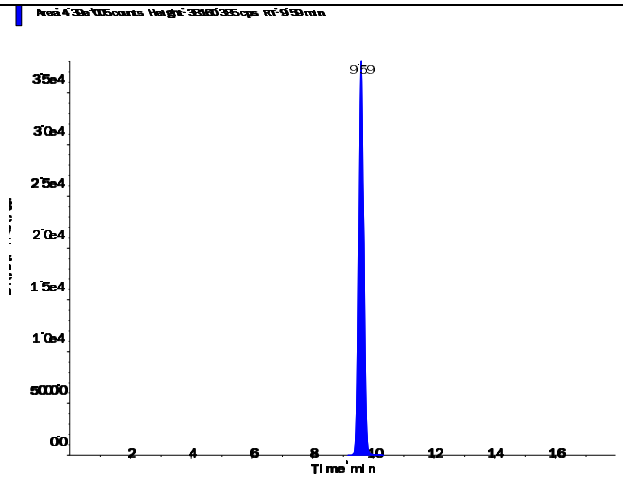
Sample Name	L16110074-09 (10,000x)	**Injection Vial**	12.00
Data File	LM37559.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 7:06:20 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	L16110074-09	**Dilution Factor**	1.00
Sample Comment	1,10000 (Hist)	**Weight to Volume**	0.00

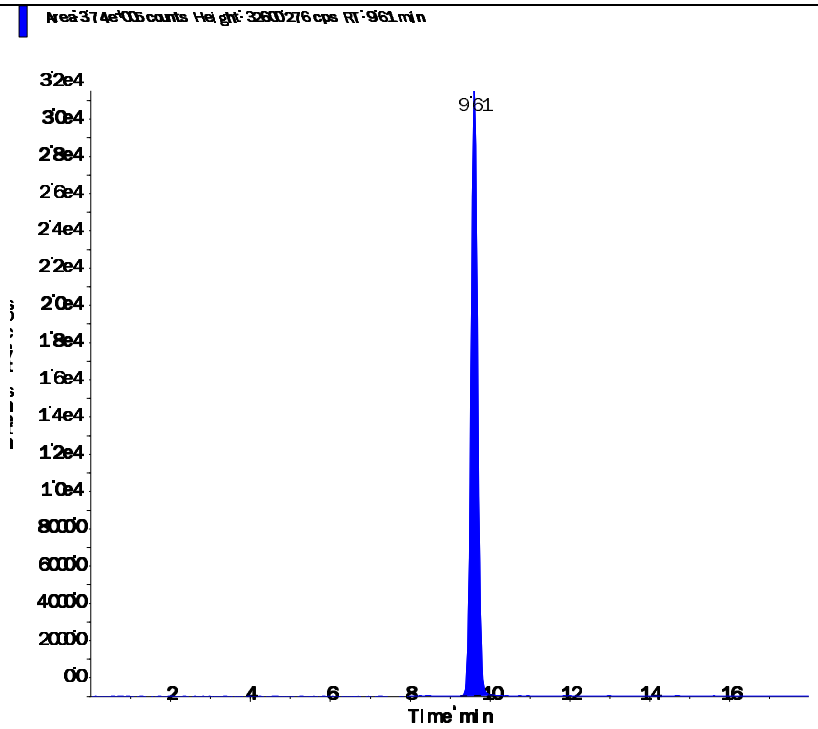
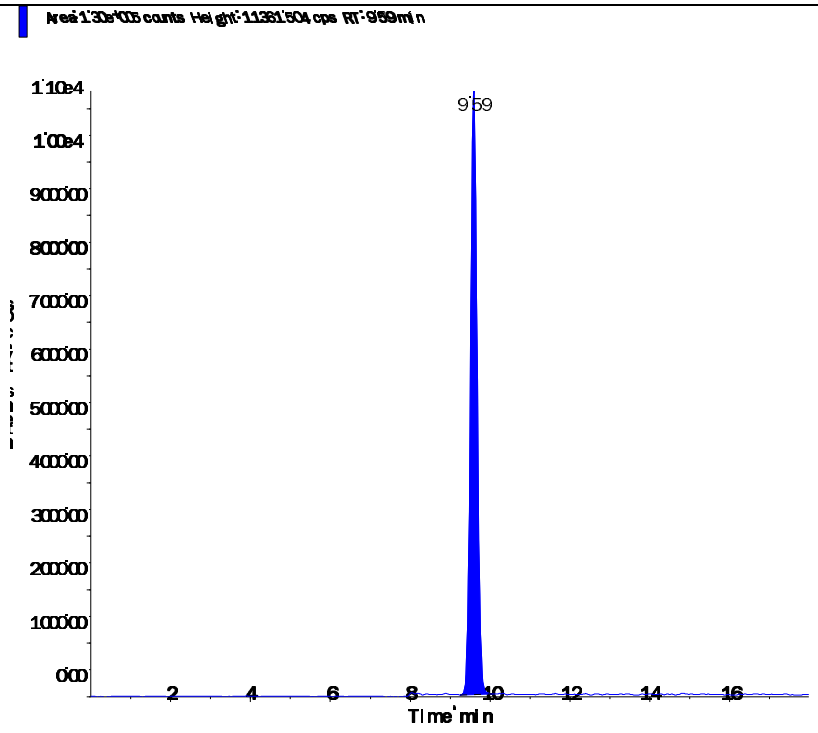
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.390e+05	9.59	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.740e+05	9.61	N/A	2.53
Perchlorate conf	1.300e+05	9.59	N/A	2.64

O18LP (Internal Standard)

RT (Exp. RT): 9.59(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.61 (9.84) min Calculated conc: 2.53 ng/ml Area Ratio: 0.852 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.59 (9.84) min Calculated conc: 2.64 ng/ml Area Ratio: 0.297 Sample Type: (Unknown)	

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Data File	LM37560.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 7:25:14 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

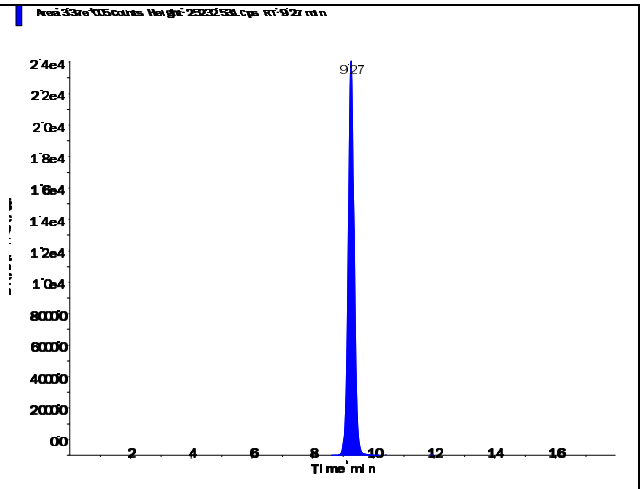
Sample Name	L16110074-11 (4x)	**Injection Vial**	13.00
Data File	LM37560.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 7:25:14 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	L16110074-11	**Dilution Factor**	1.00
Sample Comment	1,4 (screened)	**Weight to Volume**	0.00

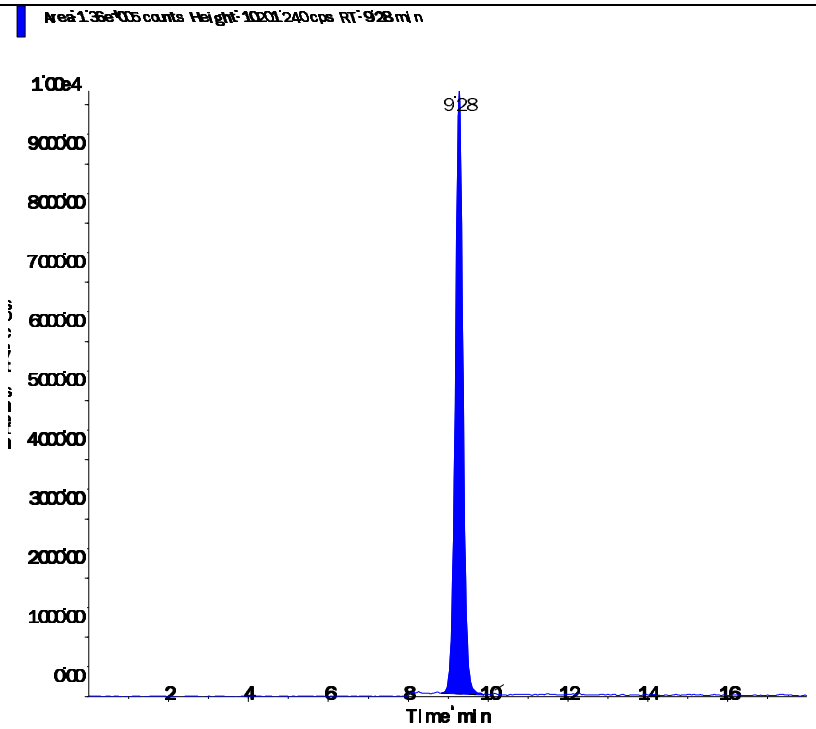
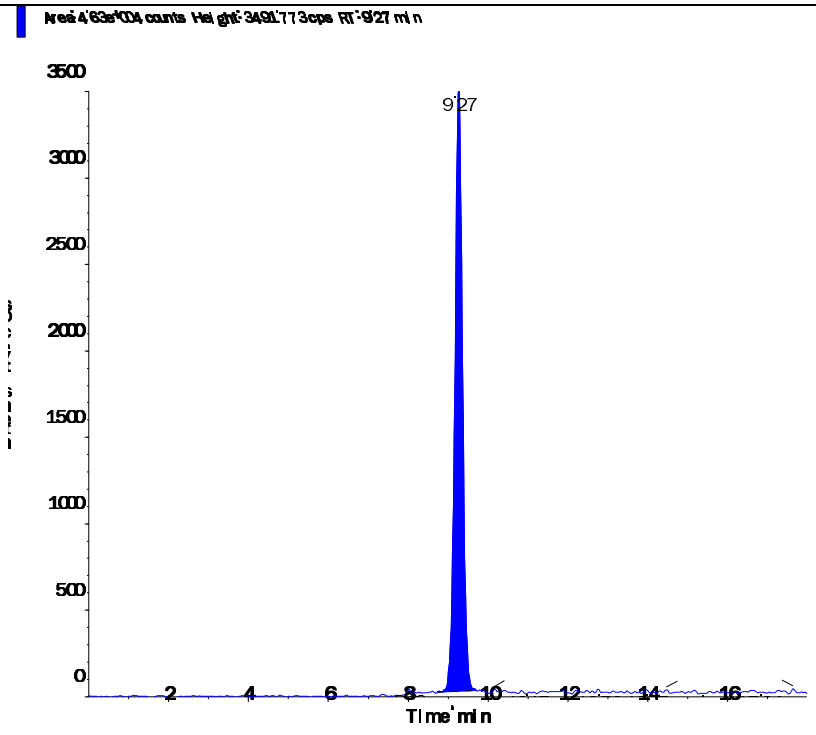
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	3.370e+05	9.27	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.360e+05	9.28	N/A	1.19
Perchlorate conf	4.630e+04	9.27	N/A	1.21

O18LP (Internal Standard)

RT (Exp. RT): 9.27(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.28 (9.84) min Calculated conc: 1.19 ng/ml Area Ratio: 0.402 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.27 (9.84) min Calculated conc: 1.21 ng/ml Area Ratio: 0.137 Sample Type: (Unknown)	

2.2.1.4 Standards Data

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Data File	LM34686.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

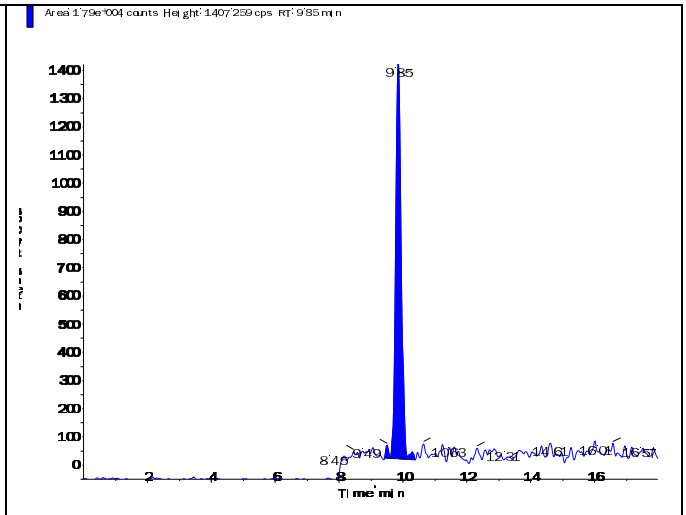
Sample Name	WG567320-01 CCB	**Injection Vial**	1.00
Data File	LM34686.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.020e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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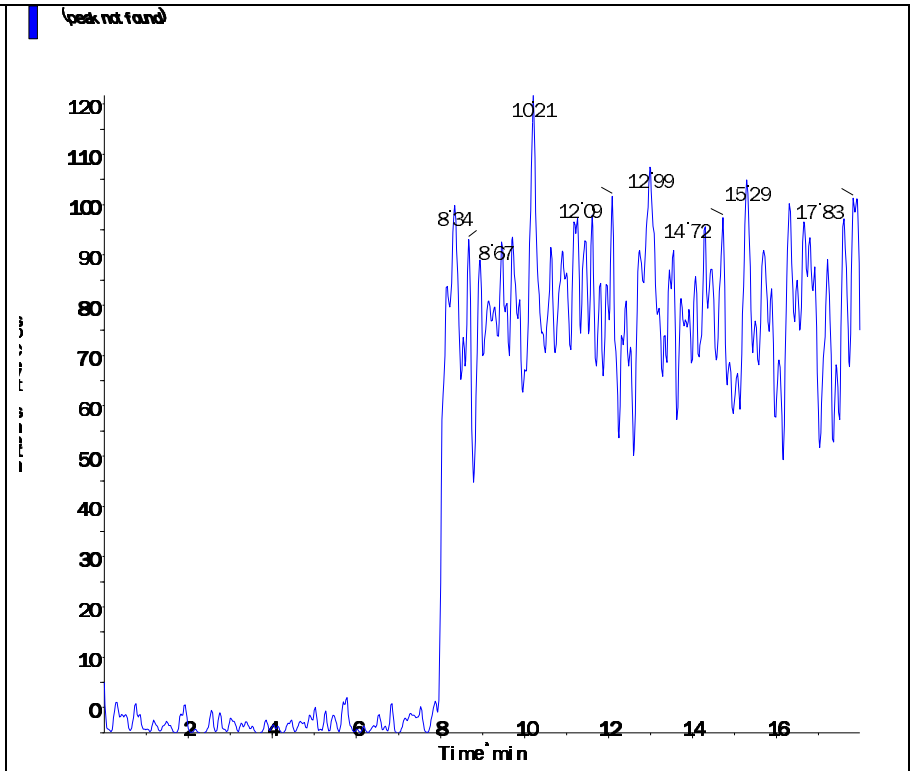
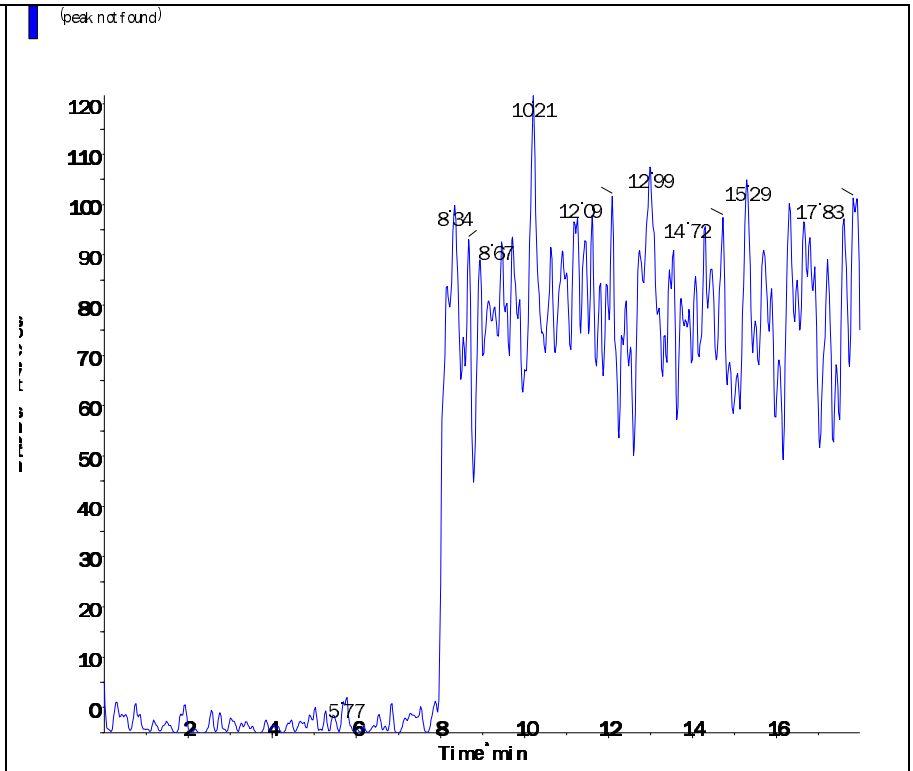
Perchlorate (98.8/83.3 amu)	
RT (Exp. RT): 0.00 (9.84) min Calculated conc: No Peak ng/ml Area Ratio: 0.00 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT): 0.00 (9.84) min Calculated conc: No Peak ng/ml Area Ratio: 0.00 Sample Type: (Unknown)	

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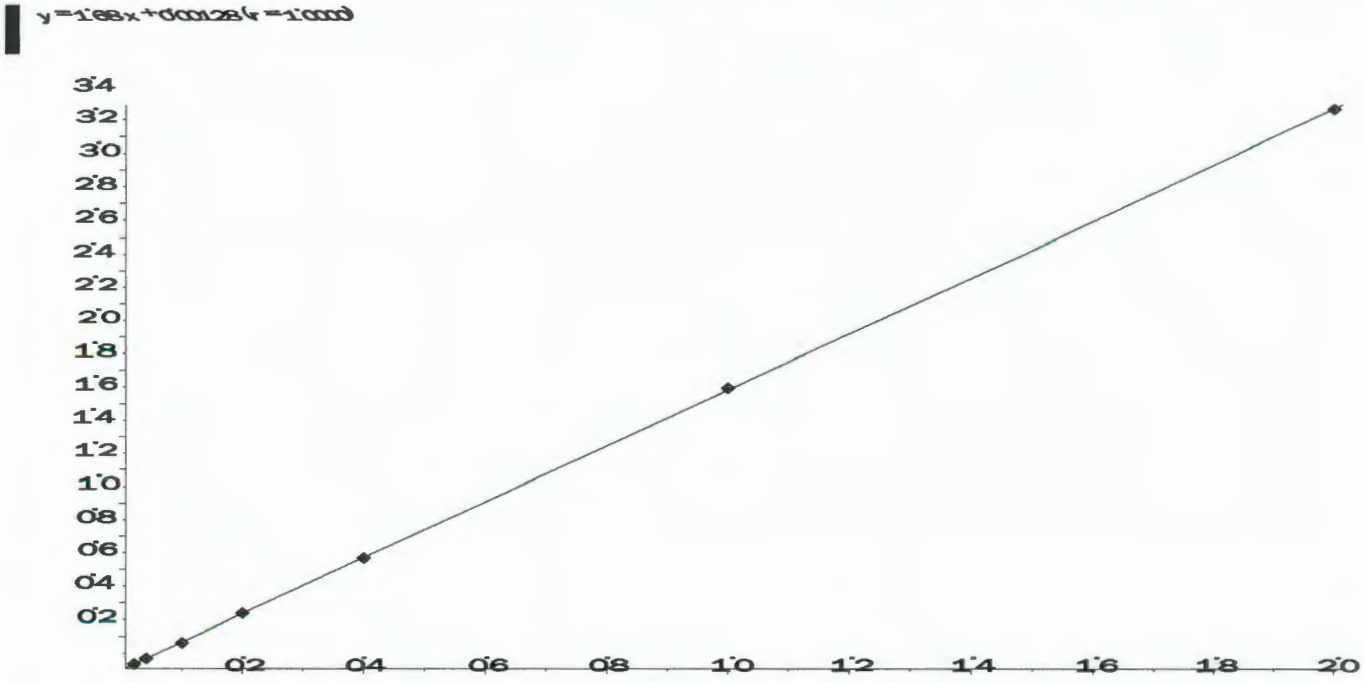
Analyte Name: **Perchlorate**
Internal Standard: O18LP

Data File	LM34686.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 1.68 x + 0.00128 (r = 1.0000)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	102.8	N/A	N/A
0.20	1	0.20	100.3	N/A	N/A
0.50	1	0.48	96.6	N/A	N/A
1.00	1	1.01	100.5	N/A	N/A
2.00	1	1.99	99.3	N/A	N/A
5.00	1	5.04	100.7	N/A	N/A
10.00	1	9.99	99.9	N/A	N/A



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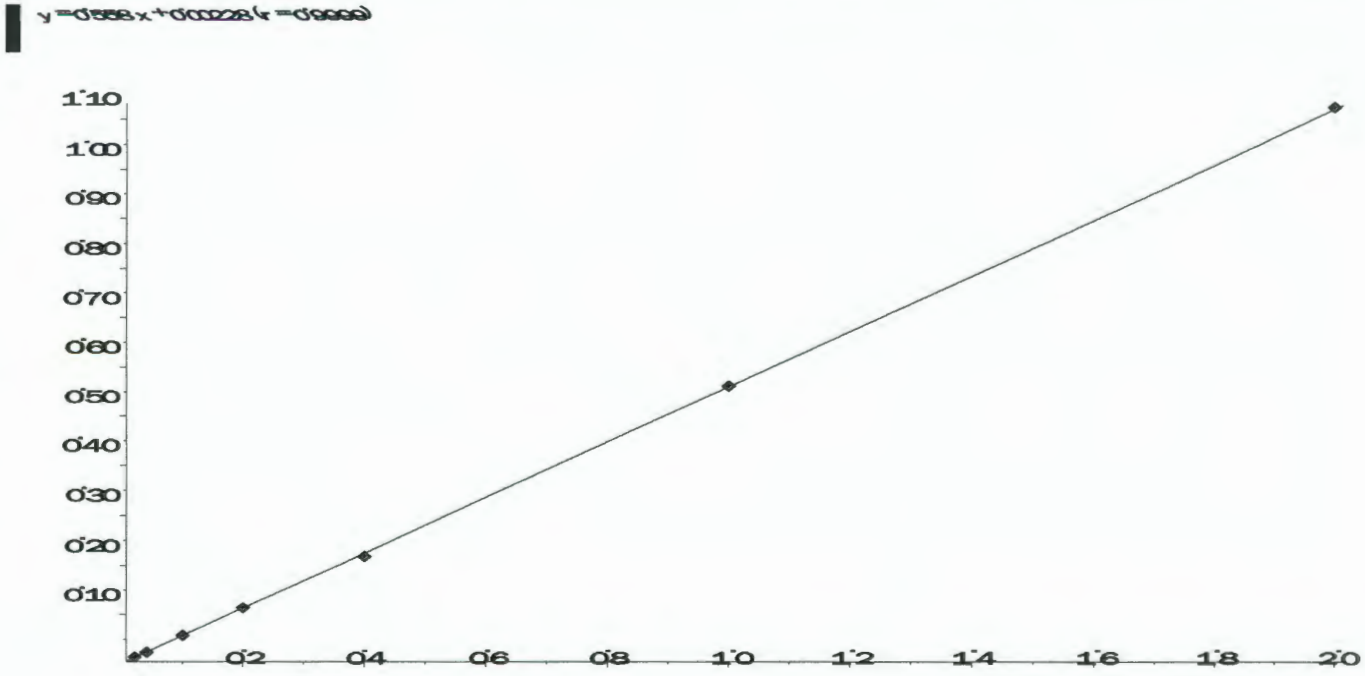
Printed: 5/4/2016 1:20 PM

Analyte Name: **Perchlorate conf**
Internal Standard: O18LP

Data File	LM34686.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 3:06:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 0.558 x + 0.00228 (r = 0.9999)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	104.3	N/A	N/A
0.20	1	0.19	96.8	N/A	N/A
0.50	1	0.50	100.6	N/A	N/A
1.00	1	1.00	100.5	N/A	N/A
2.00	1	1.94	97.2	N/A	N/A
5.00	1	5.02	100.4	N/A	N/A
10.00	1	10.03	100.3	N/A	N/A



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Data File	LM34687.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 3:25:04 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

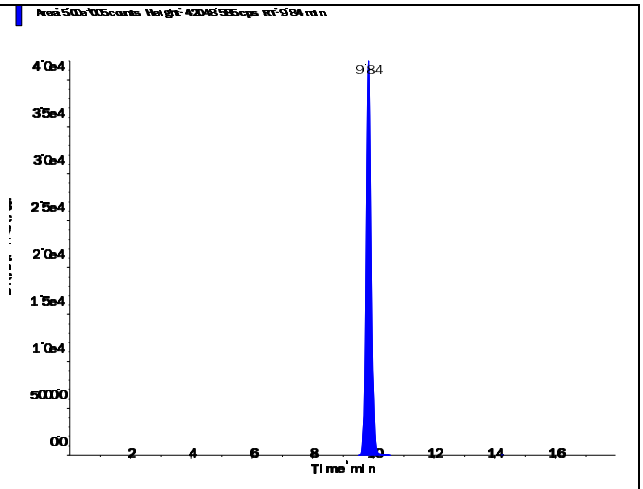
Sample Name	WG567320-02 STD (0.1 ug/L)	**Injection Vial**	2.00
Data File	LM34687.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:25:04 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.000e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.790e+04	9.85	0.10	0.103
Perchlorate conf	6.950e+03	9.83	0.10	0.104

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



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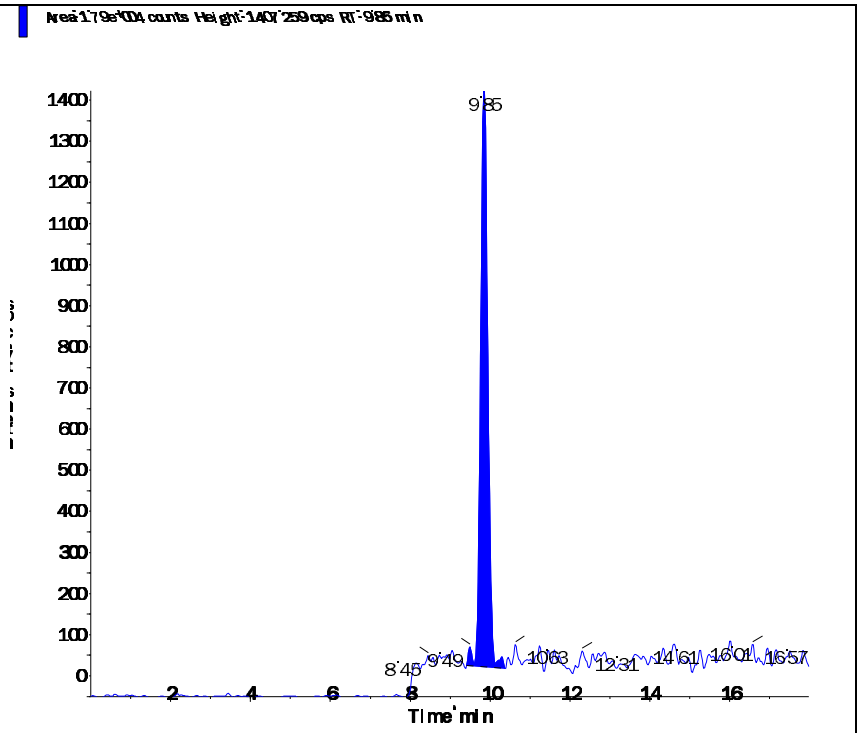
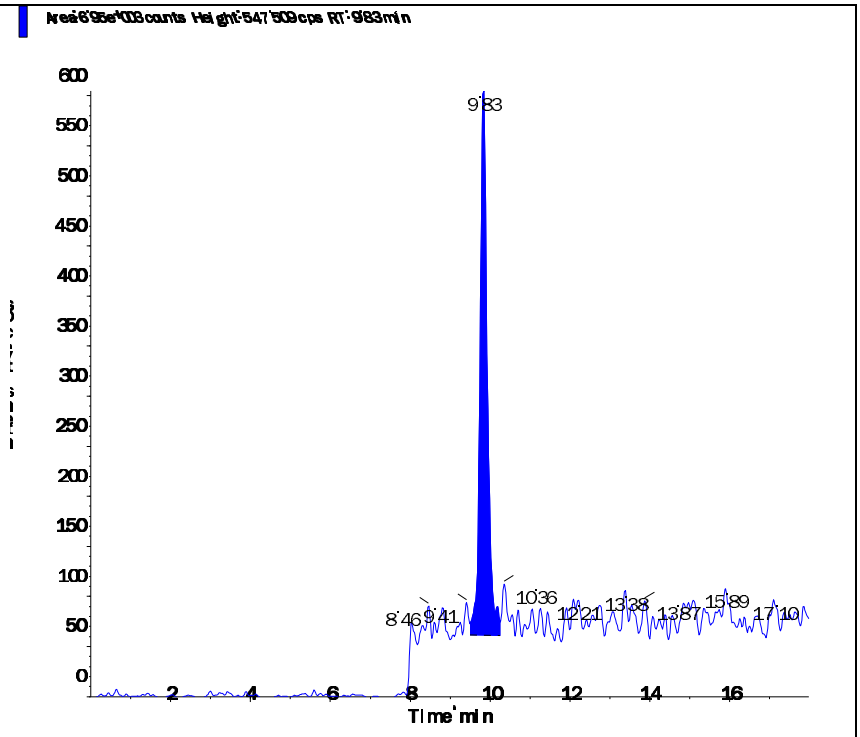
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.85 (9.84) min 0.103 ng/ml 0.036 (Standard)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	9.83 (9.84) min 0.104 ng/ml 0.014 (Standard)



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Data File	LM34688.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 3:43:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

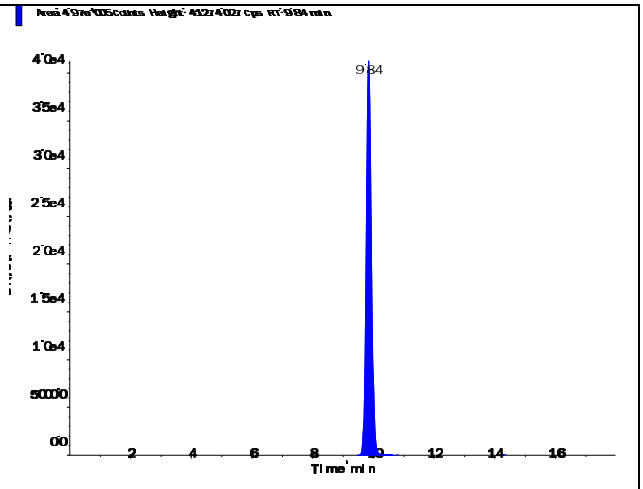
Sample Name	WG567320-03 STD (0.2 ug/L)	**Injection Vial**	3.00
Data File	LM34688.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 3:43:59 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.970e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.410e+04	9.85	0.20	0.201
Perchlorate conf	1.190e+04	9.84	0.20	0.194

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



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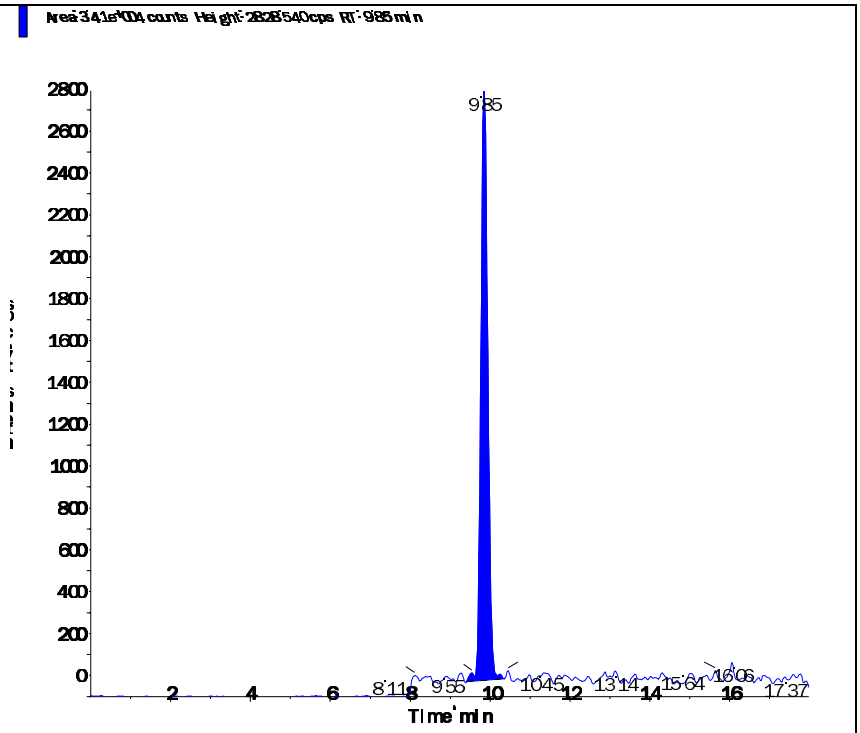
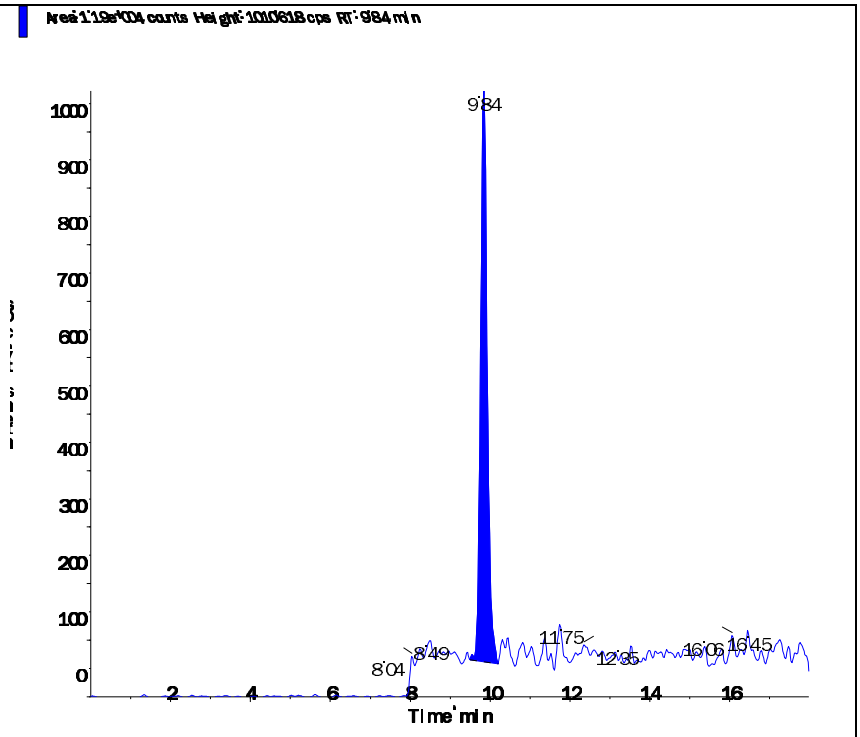
Perchlorate (98.8/83.3 amu)	
RT (Exp. RT):	9.85 (9.84) min
Calculated conc:	0.201 ng/ml
Area Ratio:	0.069
Sample Type:	(Standard)



Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT):	9.84 (9.84) min
Calculated conc:	0.194 ng/ml
Area Ratio:	0.024
Sample Type:	(Standard)



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Data File	LM34689.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 4:02:52 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

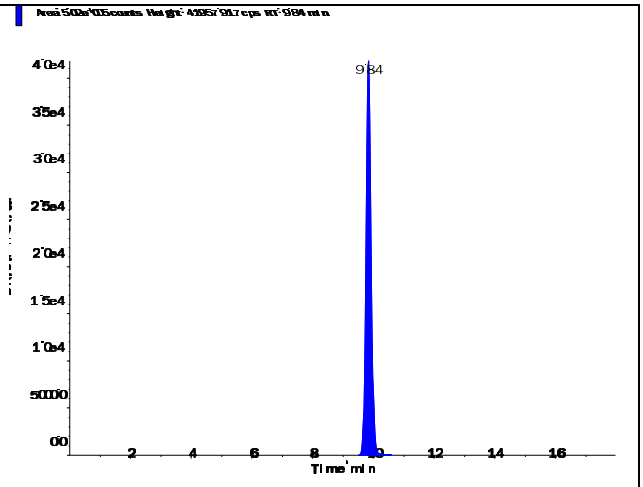
Sample Name	WG567320-04 STD (0.5 ug/L)	**Injection Vial**	4.00
Data File	LM34689.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:02:52 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-04	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.020e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	8.220e+04	9.85	0.50	0.483
Perchlorate conf	2.940e+04	9.84	0.50	0.503

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



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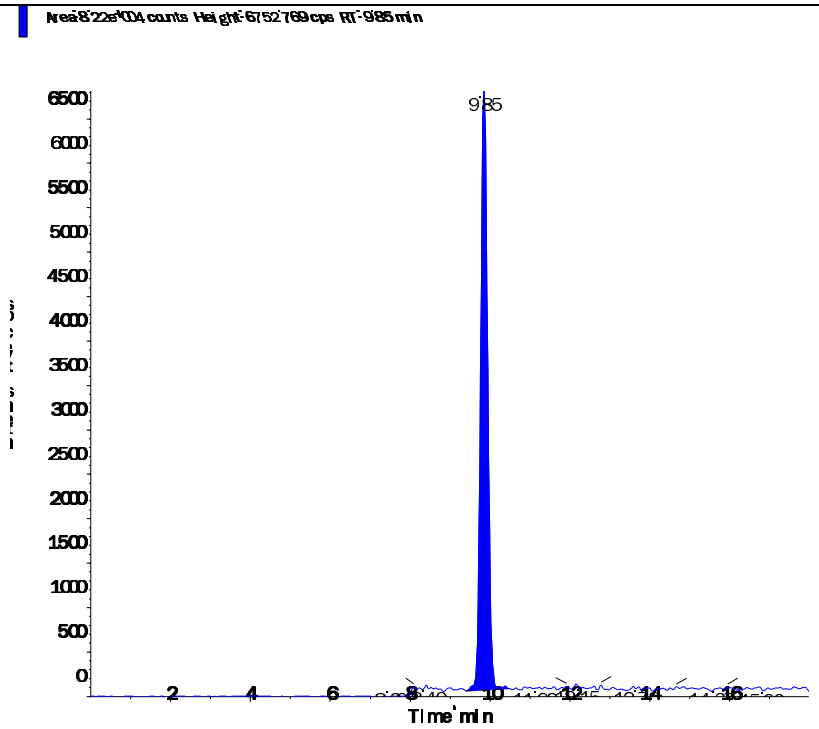
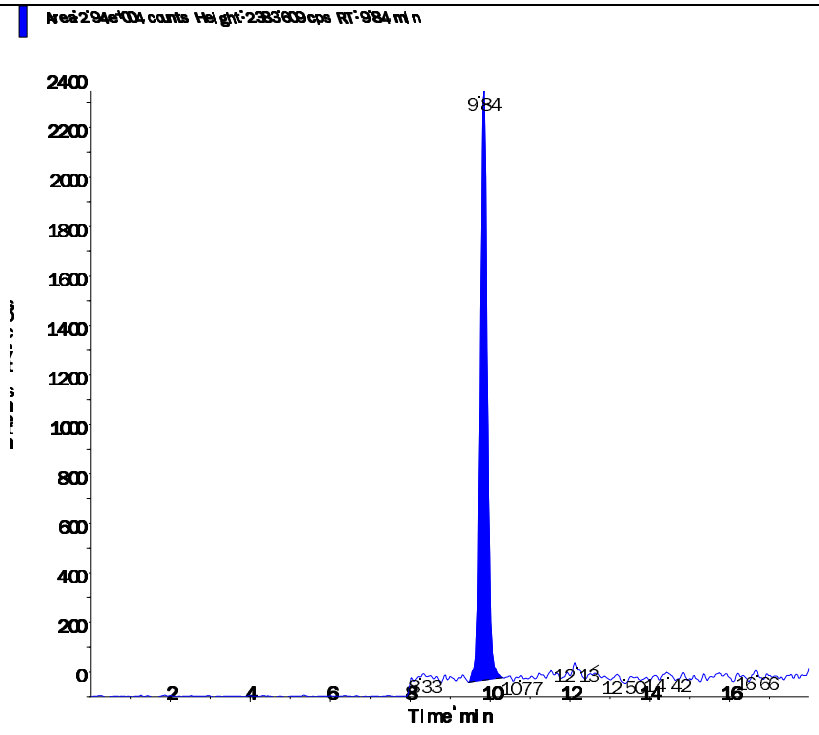
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.85 (9.84) min 0.483 ng/ml 0.164 (Standard)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.84 (9.84) min 0.503 ng/ml 0.058 (Standard)



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Printed: 11/9/2016 10:35 AM

Data File	LM34690.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 4:21:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

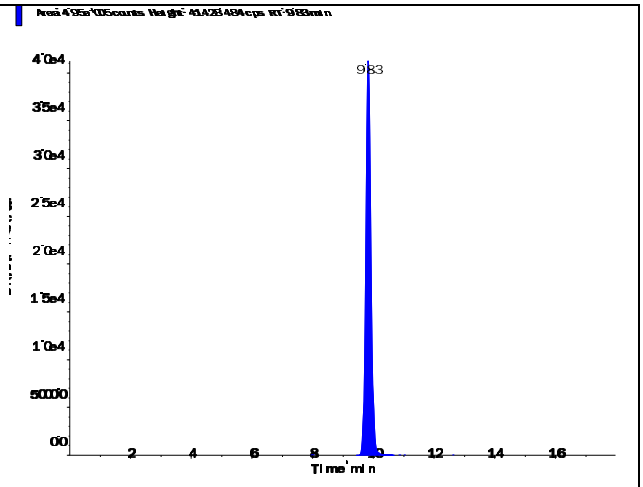
Sample Name	WG567320-05 STD (1.0 ug/L)	**Injection Vial**	5.00
Data File	LM34690.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:21:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

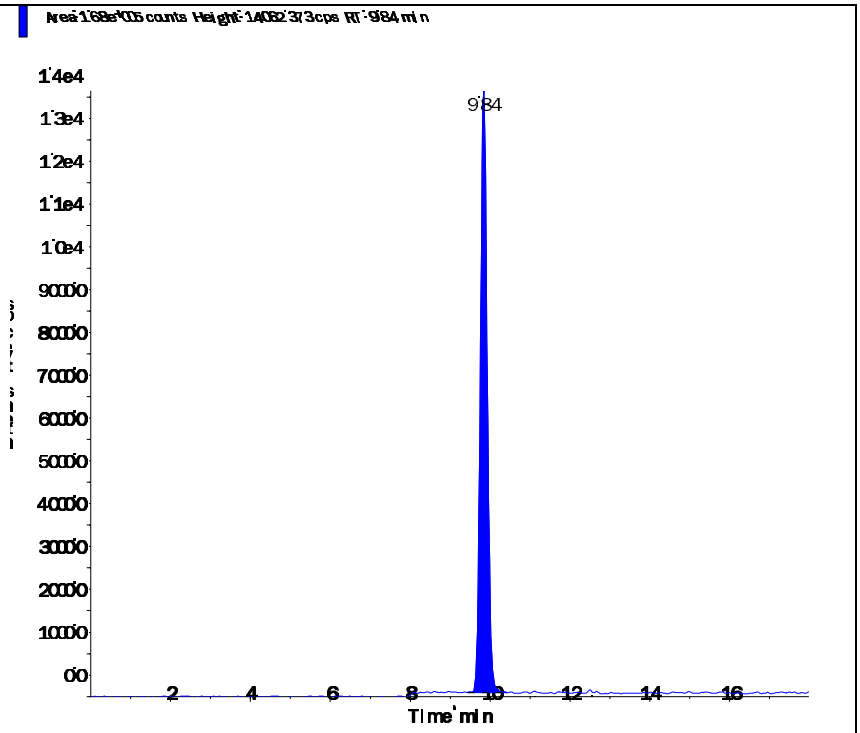
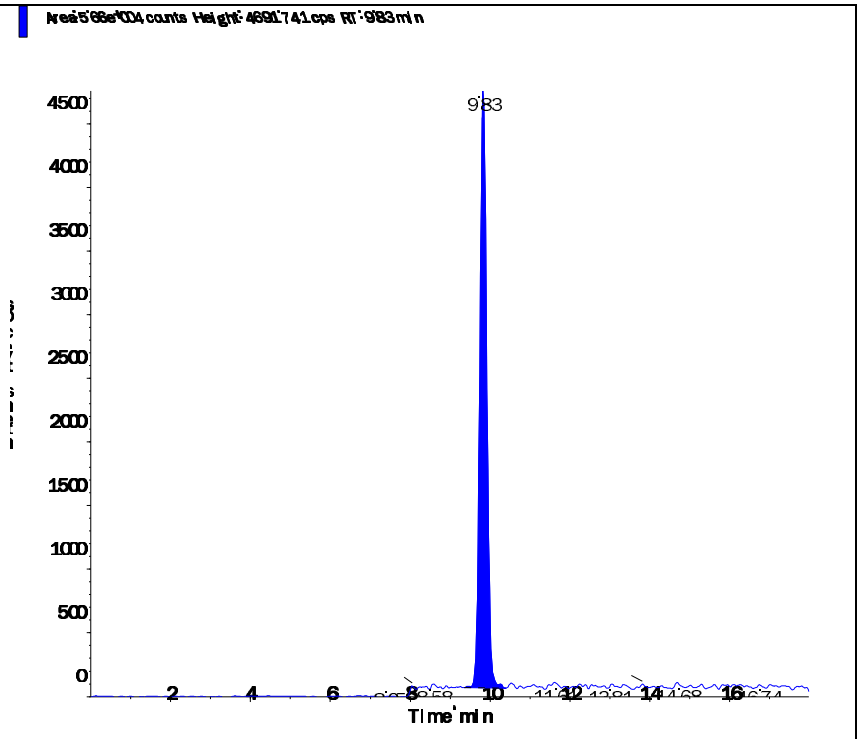
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.950e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.680e+05	9.84	1.00	1.01
Perchlorate conf	5.660e+04	9.83	1.00	1.00

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 1.01 ng/ml Area Ratio: 0.339 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 1.00 ng/ml Area Ratio: 0.114 Sample Type: (Standard)	

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Data File	LM34691.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 4:40:45 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

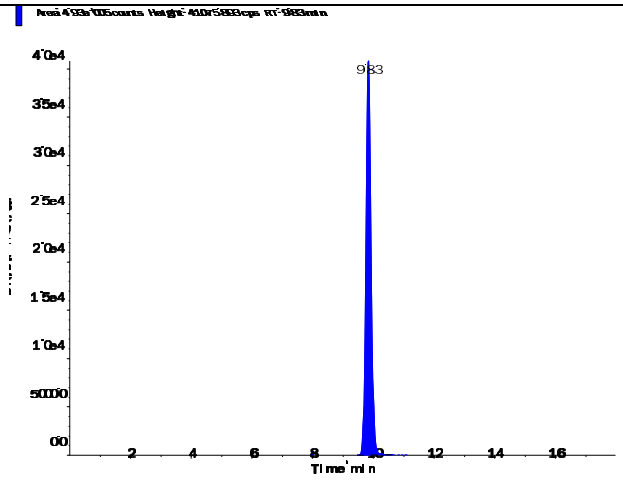
Sample Name	WG567320-06 STD (2.0 ug/L)	**Injection Vial**	6.00
Data File	LM34691.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:40:45 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-06	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

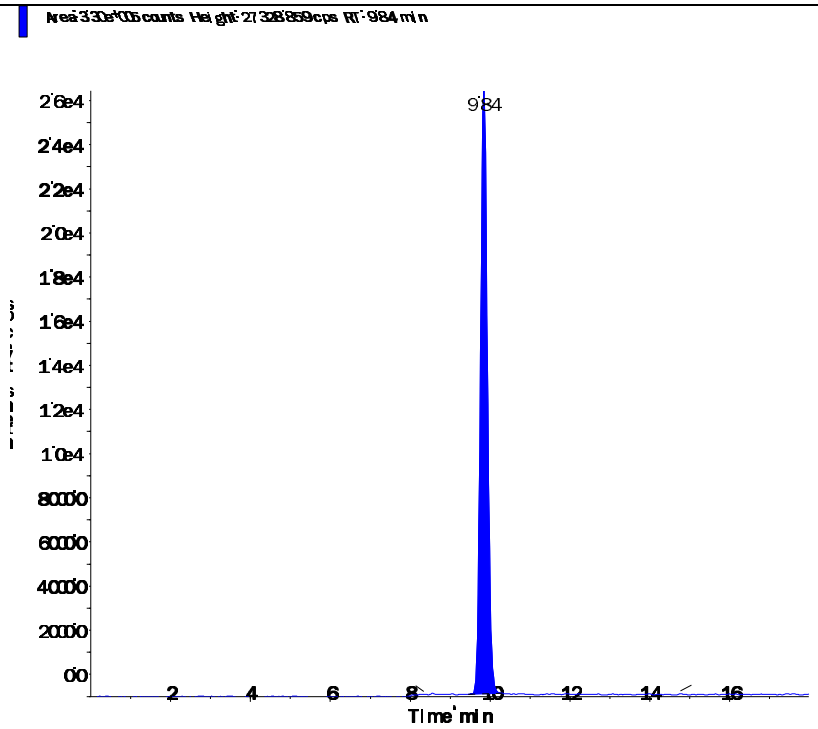
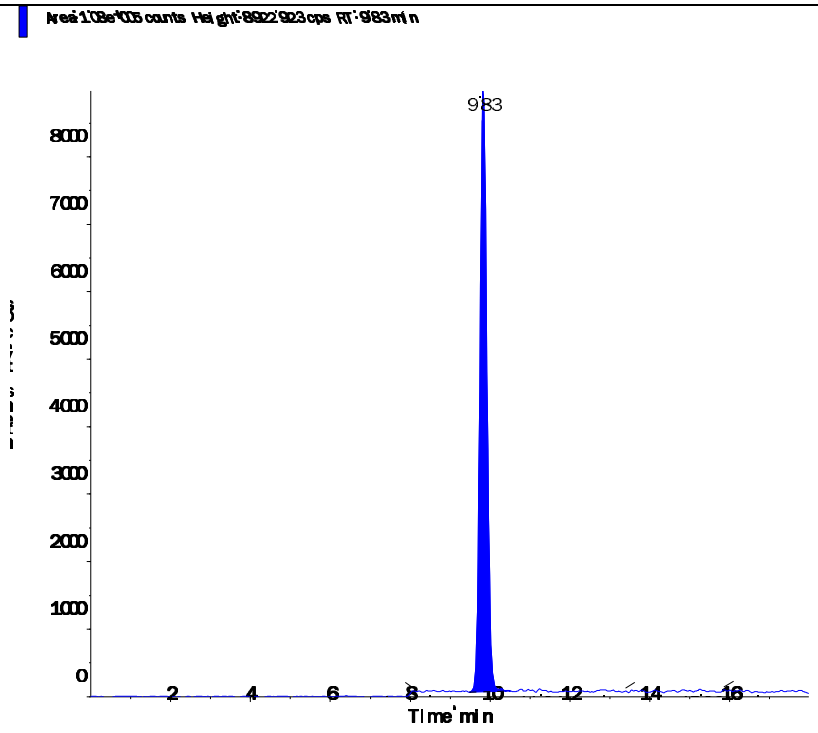
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.930e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.300e+05	9.84	2.00	1.99
Perchlorate conf	1.080e+05	9.83	2.00	1.94

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 1.99 ng/ml Area Ratio: 0.669 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 1.94 ng/ml Area Ratio: 0.219 Sample Type: (Standard)	

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Data File	LM34692.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 4:59:42 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

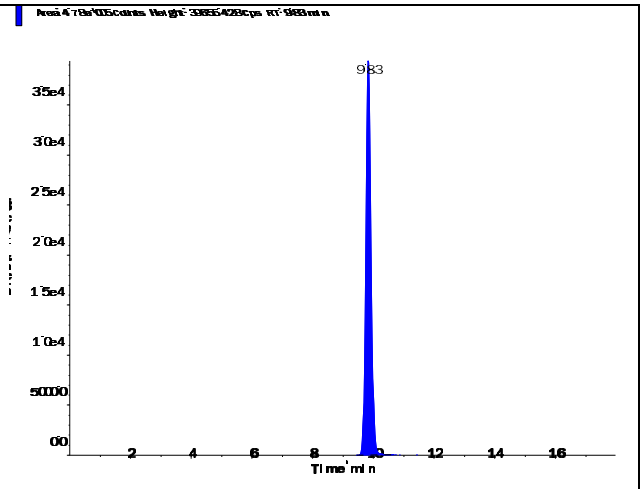
Sample Name	WG567320-07 STD (5.0 ug/L)	**Injection Vial**	7.00
Data File	LM34692.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 4:59:42 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

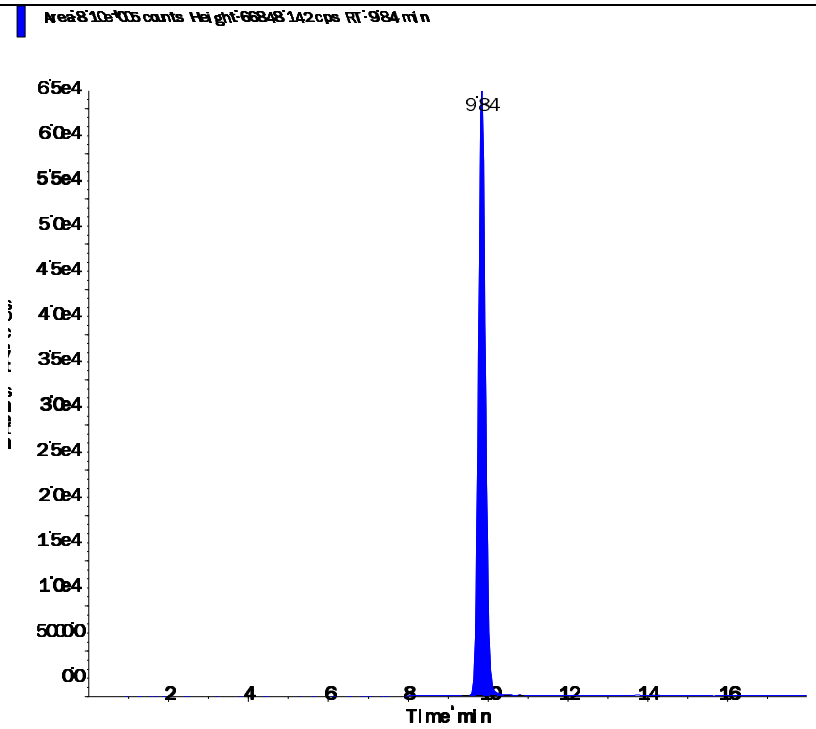
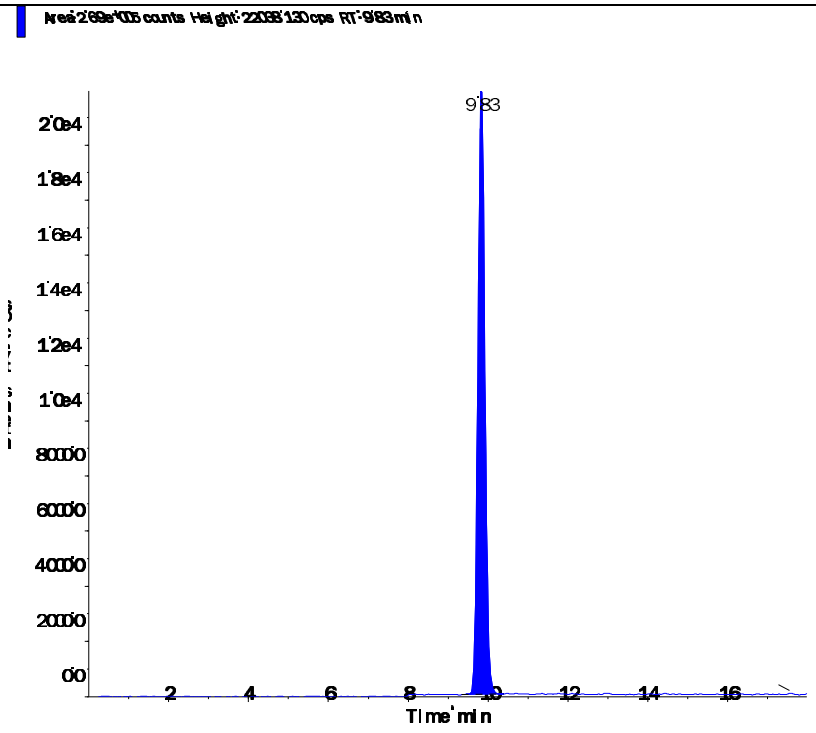
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.780e+05	9.83	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	8.100e+05	9.84	5.00	5.04
Perchlorate conf	2.690e+05	9.83	5.00	5.02

O18LP (Internal Standard)

RT (Exp. RT): 9.83(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.84 (9.84) min Calculated conc: 5.04 ng/ml Area Ratio: 1.695 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 5.02 ng/ml Area Ratio: 0.562 Sample Type: (Standard)	

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Data File	LM34693.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	5/3/2016 5:18:37 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

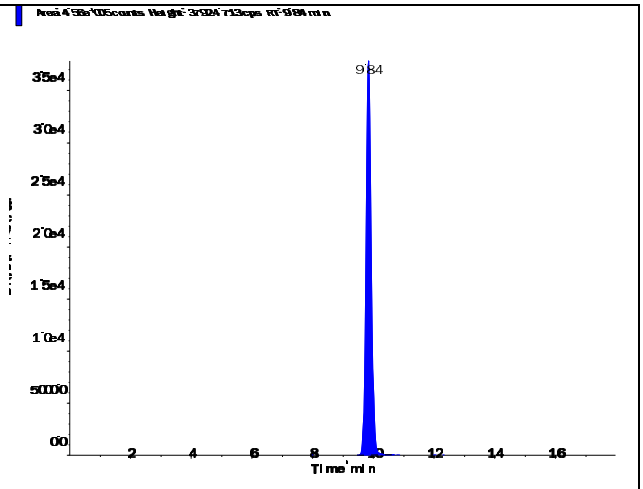
Sample Name	WG567320-08 STD (10 ug/L)	**Injection Vial**	8.00
Data File	LM34693.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 5:18:37 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG567320-08	**Dilution Factor**	1.00
Sample Comment	1,1 STD75510	**Weight to Volume**	0.00

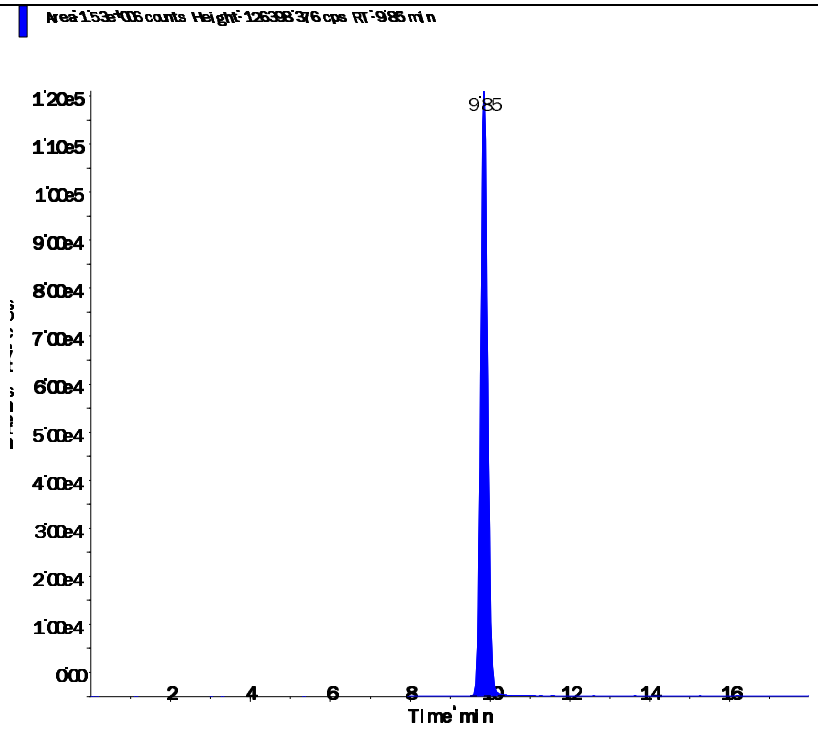
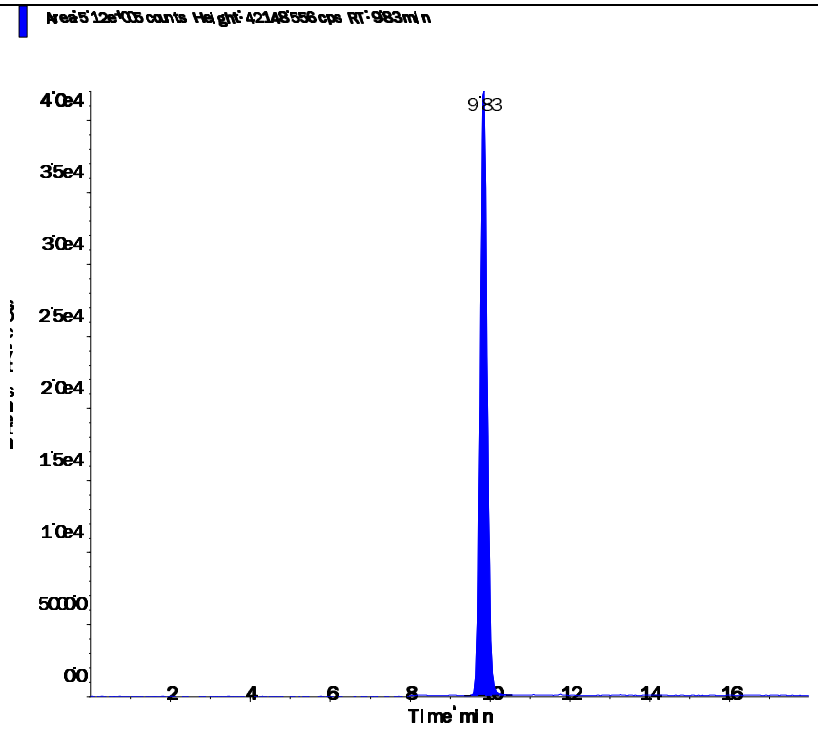
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.560e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.530e+06	9.85	10.00	9.99
Perchlorate conf	5.120e+05	9.83	10.00	10.00

O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.85 (9.84) min Calculated conc: 9.99 ng/ml Area Ratio: 3.36 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.83 (9.84) min Calculated conc: 10.00 ng/ml Area Ratio: 1.122 Sample Type: (Standard)	

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Data File	LM34694.wiff	**Result Table**	050316_JWR.rdb
Acquisition Date	5/3/2016 5:37:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

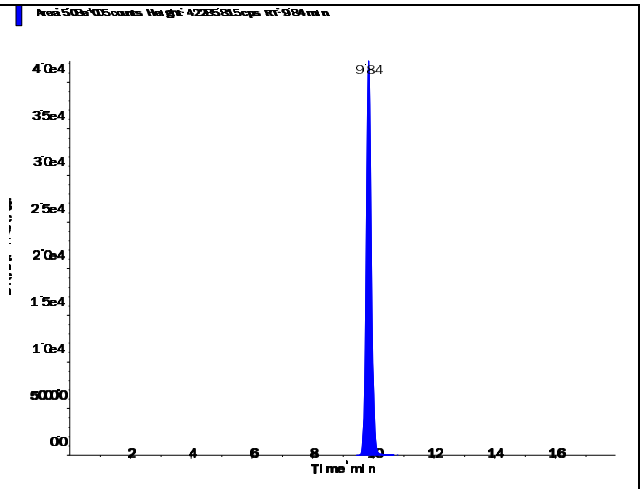
Sample Name	WG567320-09 SSCV (1.0 ug/L)	**Injection Vial**	9.00
Data File	LM34694.wiff	**Injection Volume**	10.00
Acquisition Date	5/3/2016 5:37:34 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	050316_JWR.rdb
Sample ID	WG567320-09	**Dilution Factor**	1.00
Sample Comment	1,1 STD75512	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.080e+05	9.84	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.690e+05	9.85	1.00	0.985
Perchlorate conf	5.630e+04	9.84	1.00	0.973

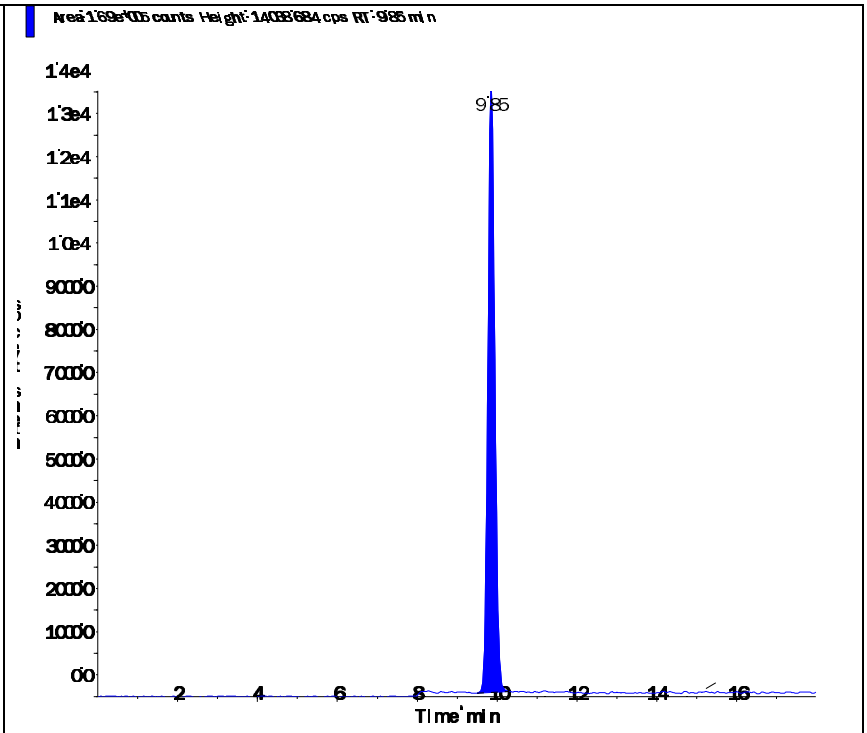
O18LP (Internal Standard)

RT (Exp. RT): 9.84(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



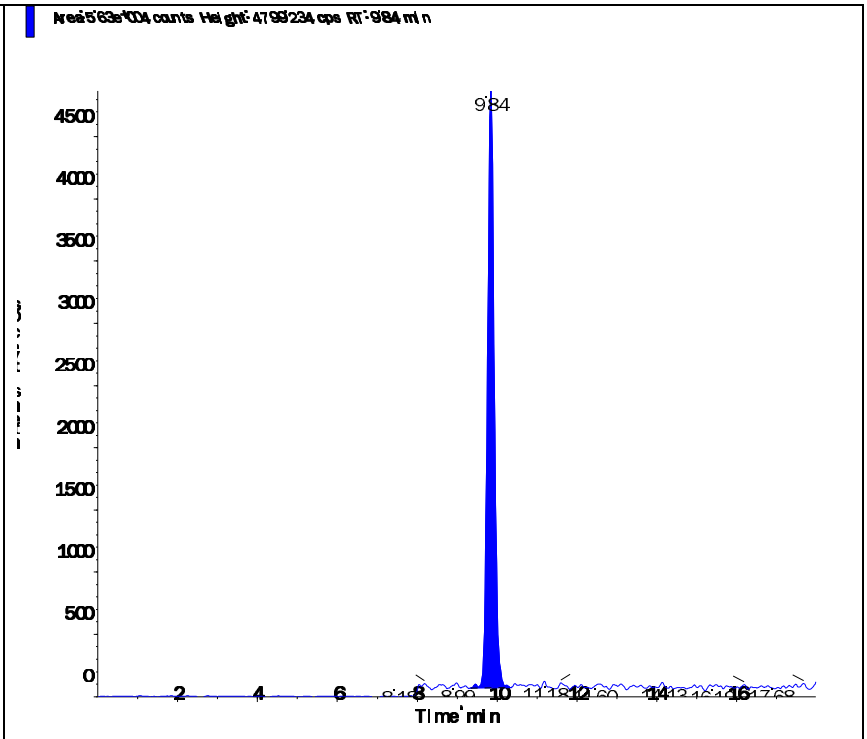
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	9.85 (9.84) min
Calculated conc:	0.985 ng/ml
Area Ratio:	0.332
Sample Type:	(Quality Control)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	9.84 (9.84) min
Calculated conc:	0.973 ng/ml
Area Ratio:	0.111
Sample Type:	(Quality Control)



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Data File	LM37549.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 3:56:56 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

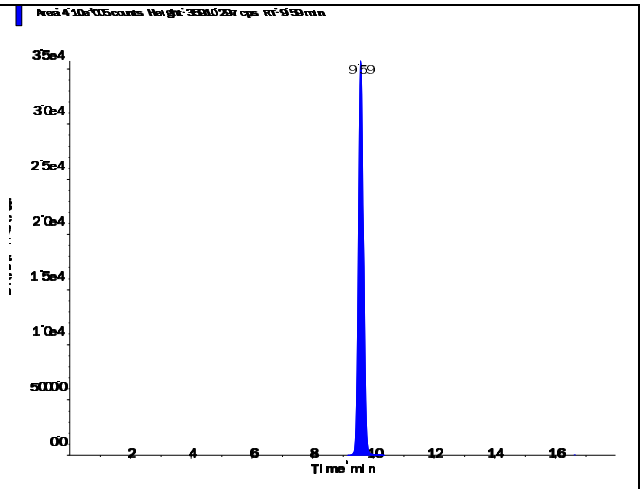
Sample Name	WG590829-02 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM37549.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 3:56:56 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590829-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD78249	**Weight to Volume**	0.00

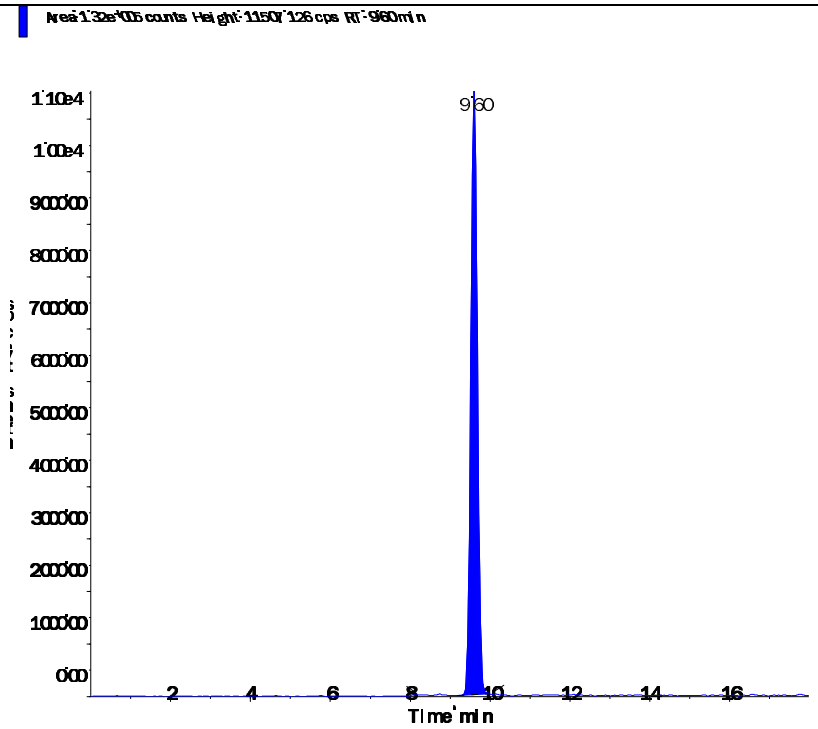
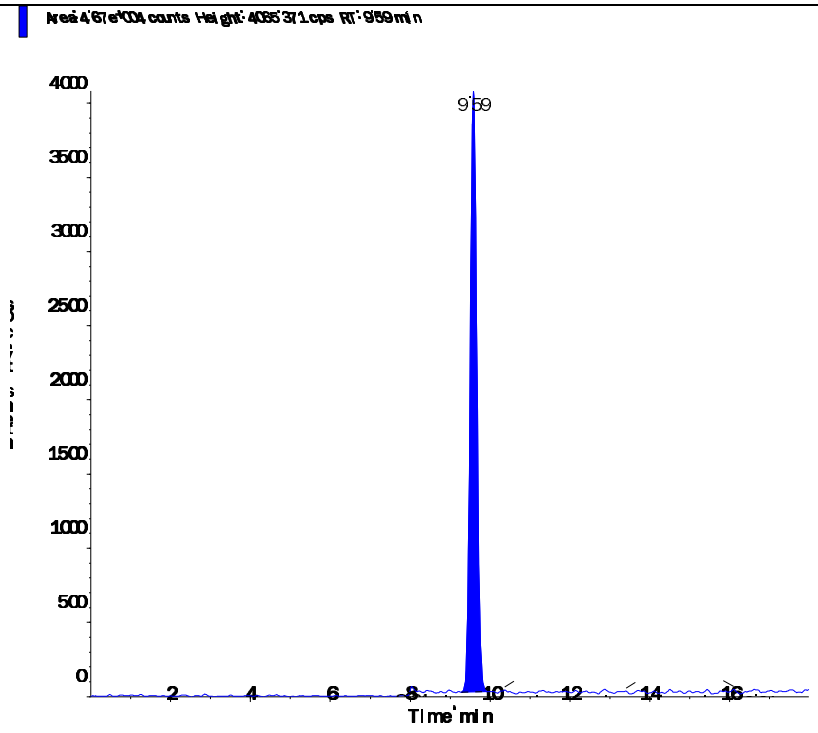
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.100e+05	9.59	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.320e+05	9.60	1.00	0.952
Perchlorate conf	4.670e+04	9.59	1.00	1.00

O18LP (Internal Standard)

RT (Exp. RT): 9.59(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.60 (9.84) min Calculated conc: 0.952 ng/ml Area Ratio: 0.322 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.59 (9.84) min Calculated conc: 1.00 ng/ml Area Ratio: 0.114 Sample Type: (Quality Control)	

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Data File	LM37561.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 7:44:10 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

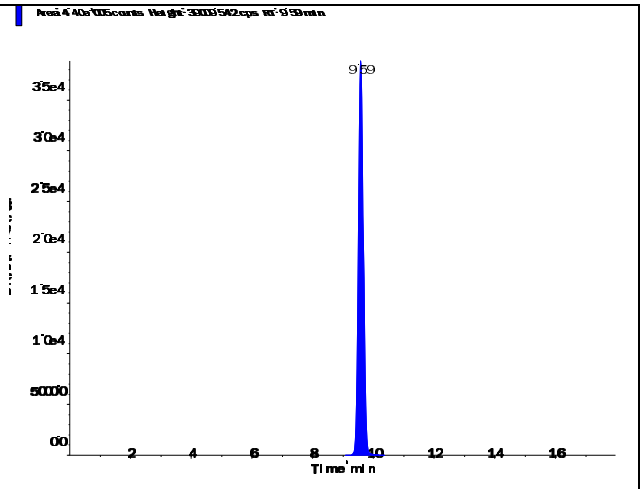
Sample Name	WG590829-03 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM37561.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 7:44:10 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590829-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD78249	**Weight to Volume**	0.00

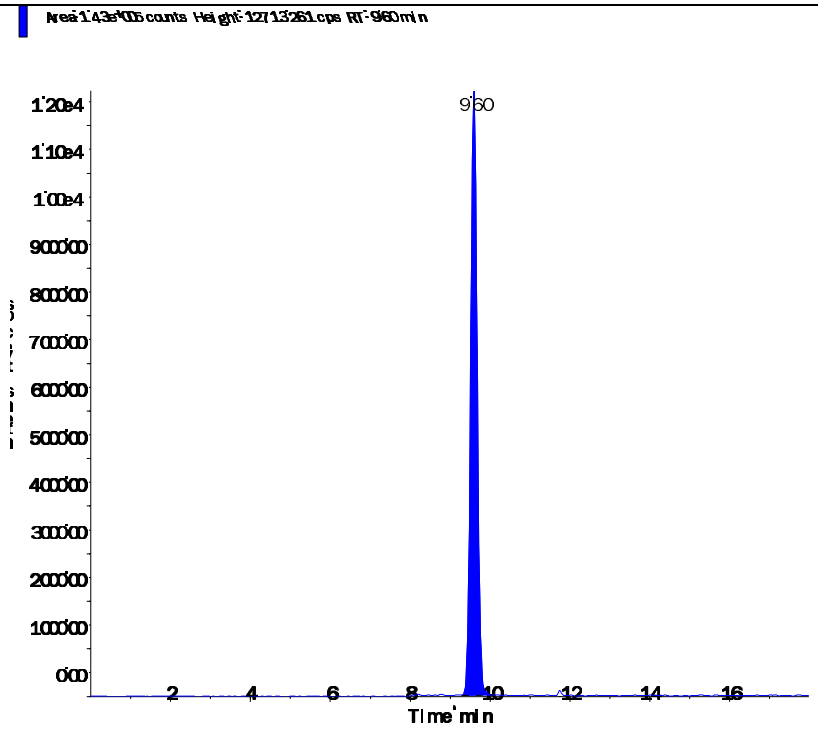
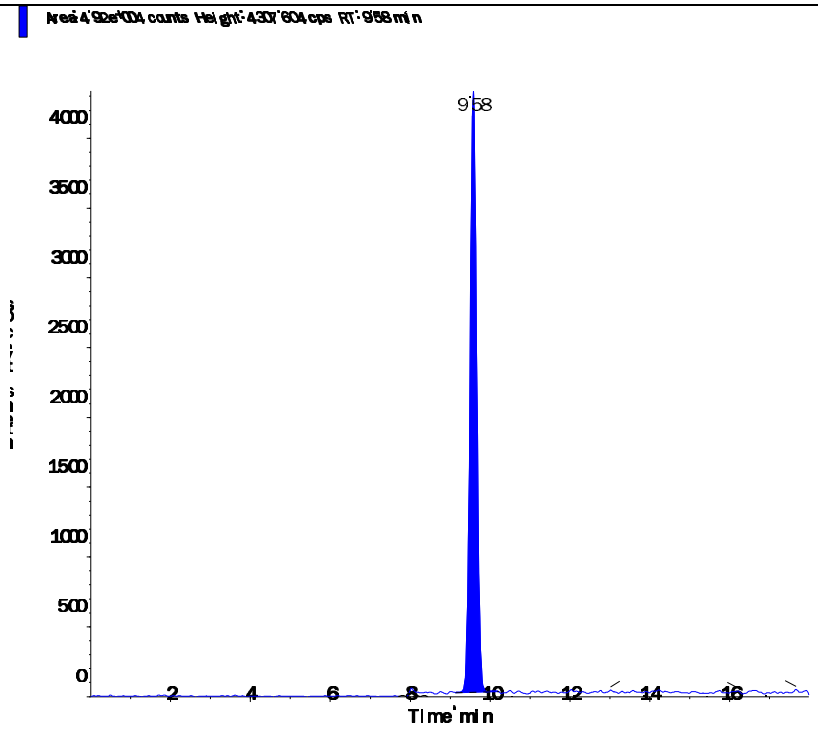
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.400e+05	9.59	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.430e+05	9.60	1.00	0.964
Perchlorate conf	4.920e+04	9.58	1.00	0.981

O18LP (Internal Standard)

RT (Exp. RT): 9.59(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.60 (9.84) min Calculated conc: 0.964 ng/ml Area Ratio: 0.326 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.58 (9.84) min Calculated conc: 0.981 ng/ml Area Ratio: 0.112 Sample Type: (Quality Control)	

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Data File	LM37571.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 10:53:32 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

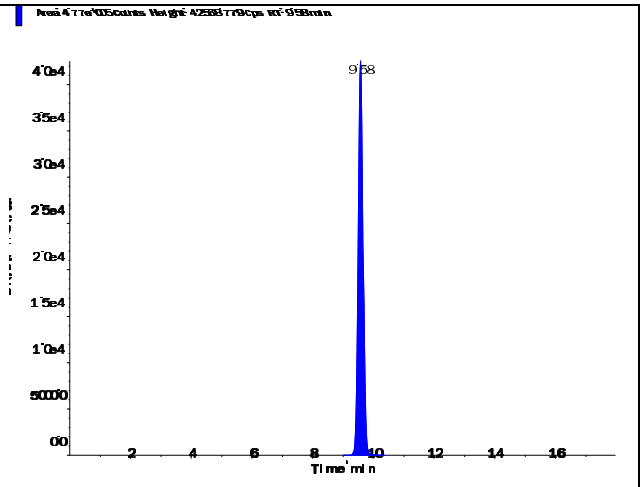
Sample Name	WG590829-05 CCV (1.0ug/L)	**Injection Vial**	3.00
Data File	LM37571.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 10:53:32 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590829-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD78249	**Weight to Volume**	0.00

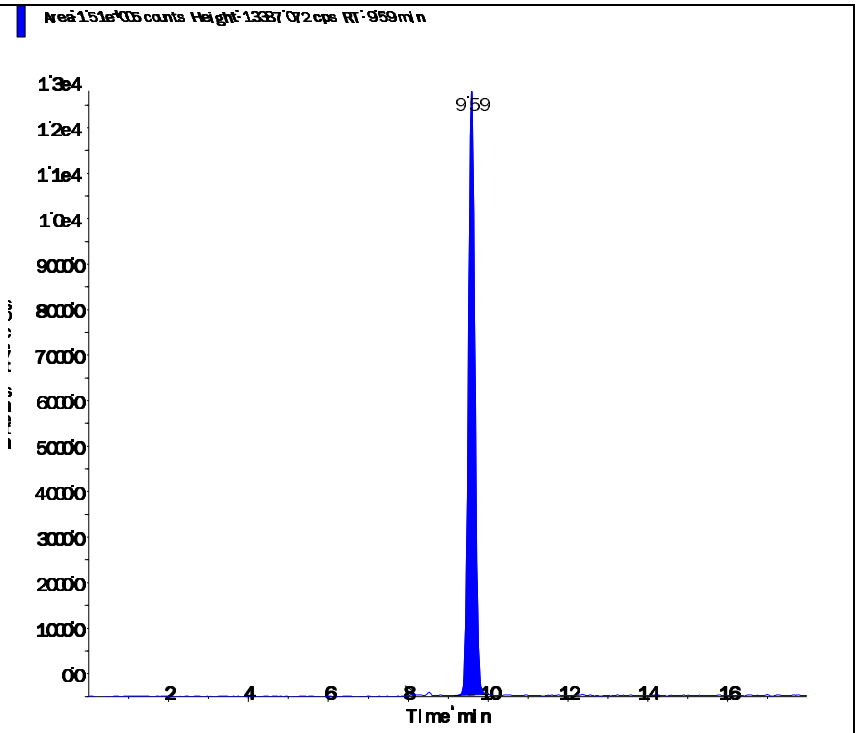
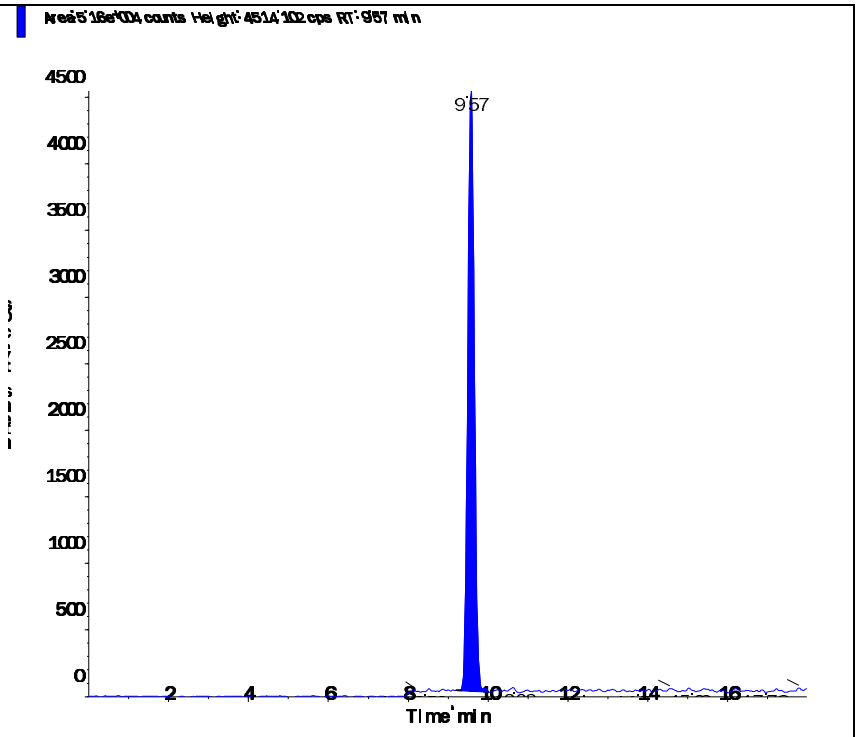
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.770e+05	9.58	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.510e+05	9.59	1.00	0.935
Perchlorate conf	5.160e+04	9.57	1.00	0.949

O18LP (Internal Standard)

RT (Exp. RT): 9.58(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.59 (9.84) min Calculated conc: 0.935 ng/ml Area Ratio: 0.316 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.57 (9.84) min Calculated conc: 0.949 ng/ml Area Ratio: 0.108 Sample Type: (Quality Control)	

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Data File	LM37550.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 4:15:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

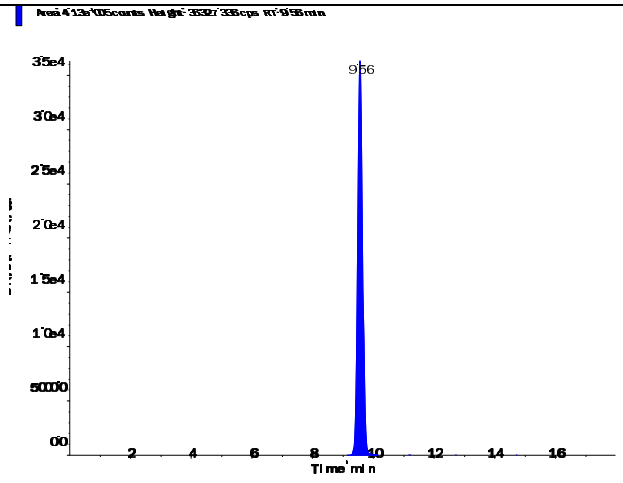
Sample Name	WG590828-05 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM37550.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 4:15:49 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590828-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD78249	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.130e+05	9.56	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.850e+04	9.57	N/A	0.201
Perchlorate conf	1.040e+04	9.56	N/A	0.205

O18LP (Internal Standard)

RT (Exp. RT): 9.56(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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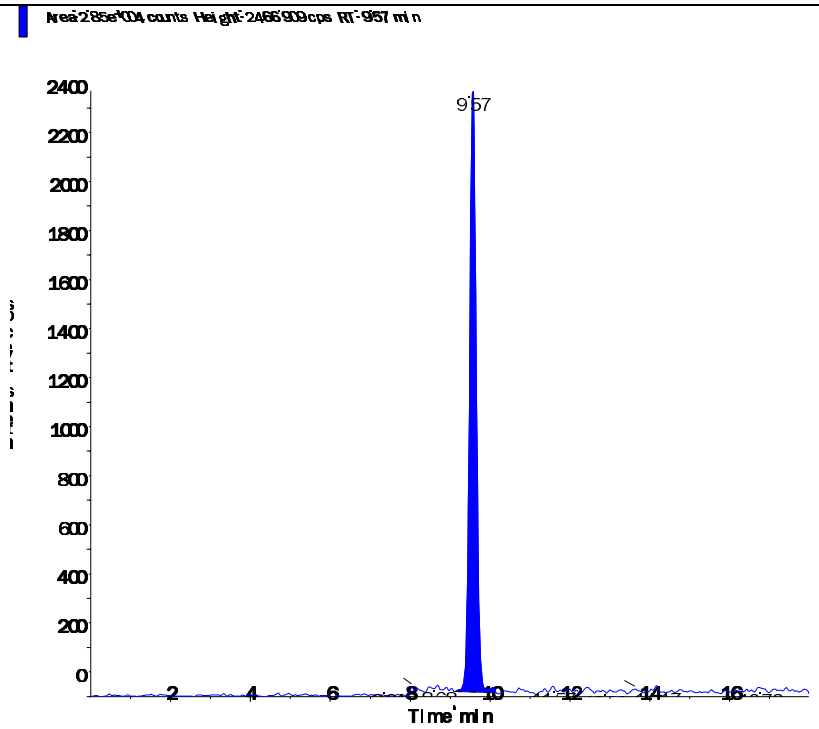
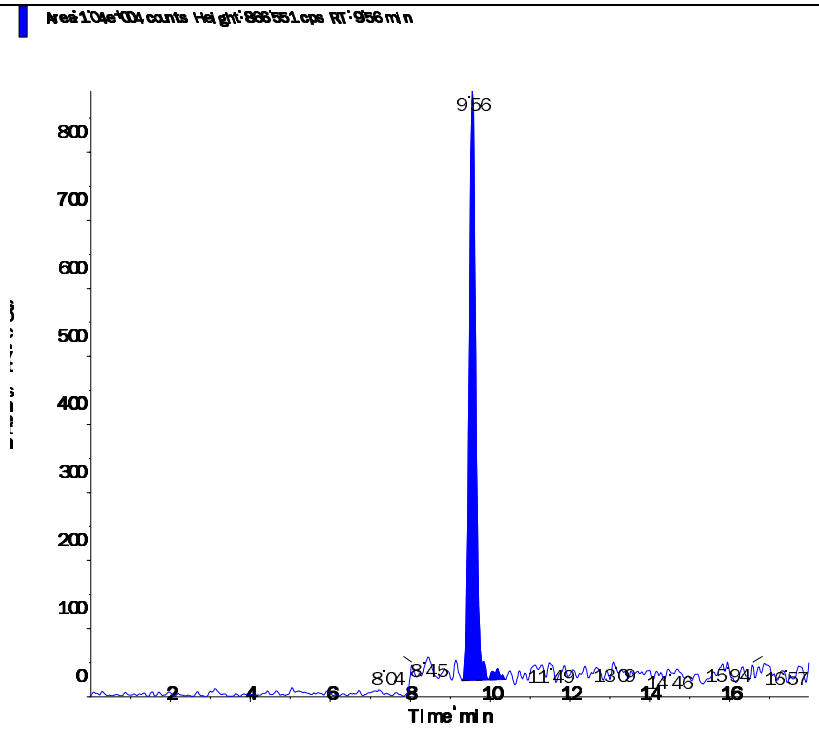
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.57 (9.84) min 0.201 ng/ml 0.069 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.56 (9.84) min 0.205 ng/ml 0.025 (Unknown)



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Data File	LM37562.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 8:03:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

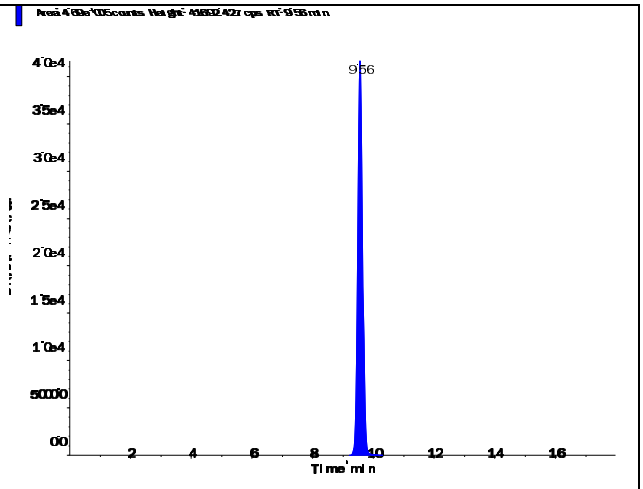
Sample Name	WG590828-06 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM37562.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 8:03:05 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590828-06	**Dilution Factor**	1.00
Sample Comment	1,1 STD78249	**Weight to Volume**	0.00

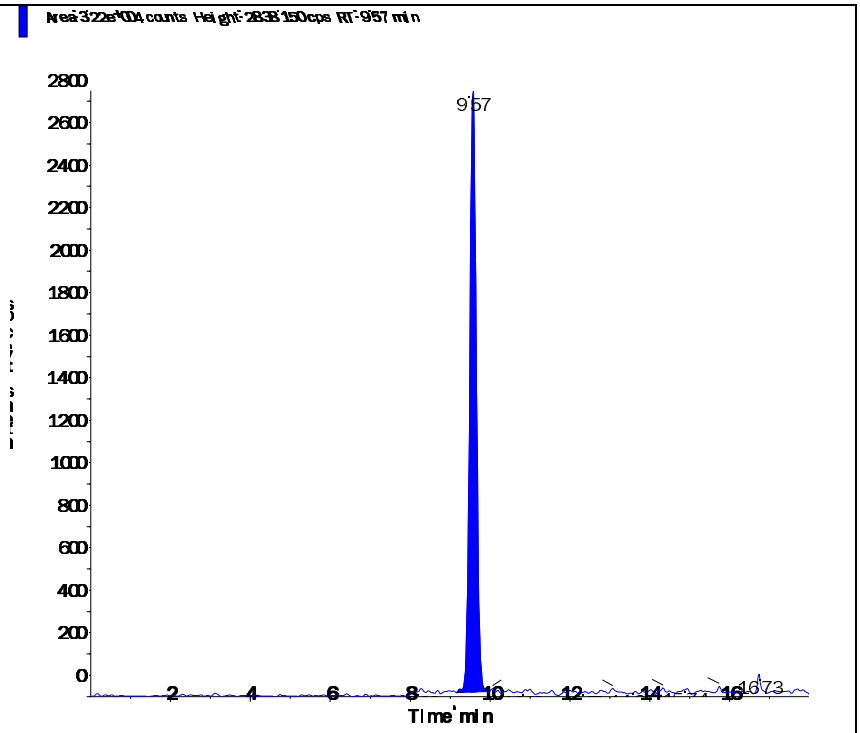
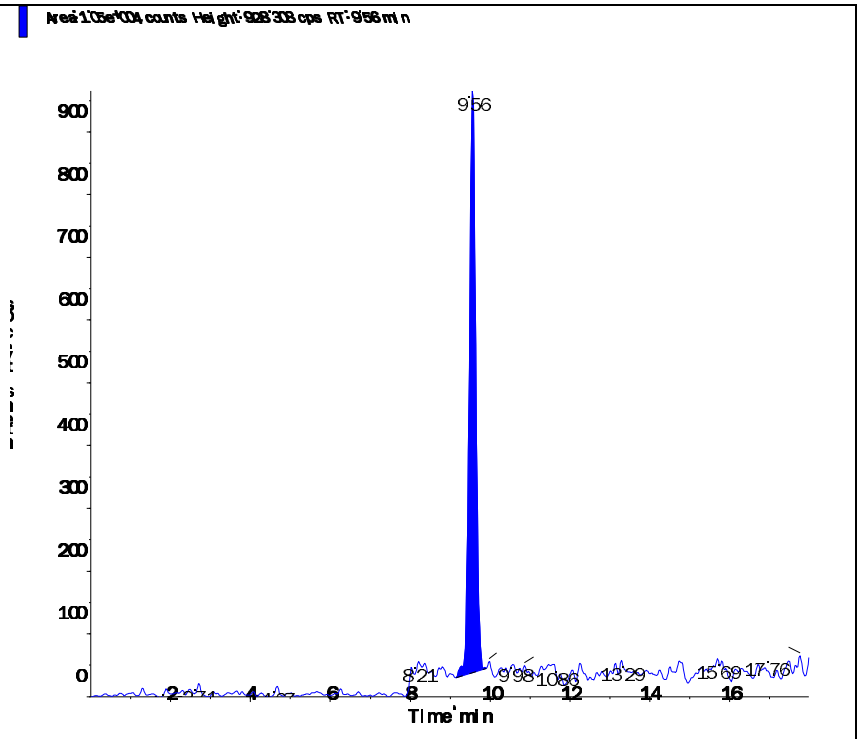
Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.690e+05	9.56	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.220e+04	9.57	N/A	0.20
Perchlorate conf	1.050e+04	9.56	N/A	0.18

O18LP (Internal Standard)

RT (Exp. RT): 9.56(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 9.57 (9.84) min Calculated conc: 0.20 ng/ml Area Ratio: 0.069 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 9.56 (9.84) min Calculated conc: 0.18 ng/ml Area Ratio: 0.022 Sample Type: (Unknown)	

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Data File	LM37572.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 11:12:29 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

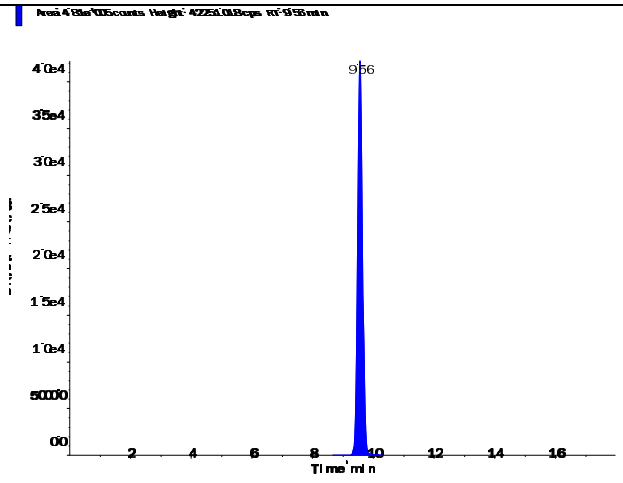
Sample Name	WG590828-07 MRL (0.2ug/L)	**Injection Vial**	2.00
Data File	LM37572.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 11:12:29 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590828-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD78249	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.810e+05	9.56	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.290e+04	9.57	N/A	0.20
Perchlorate conf	1.100e+04	9.55	N/A	0.185

O18LP (Internal Standard)

RT (Exp. RT): 9.56(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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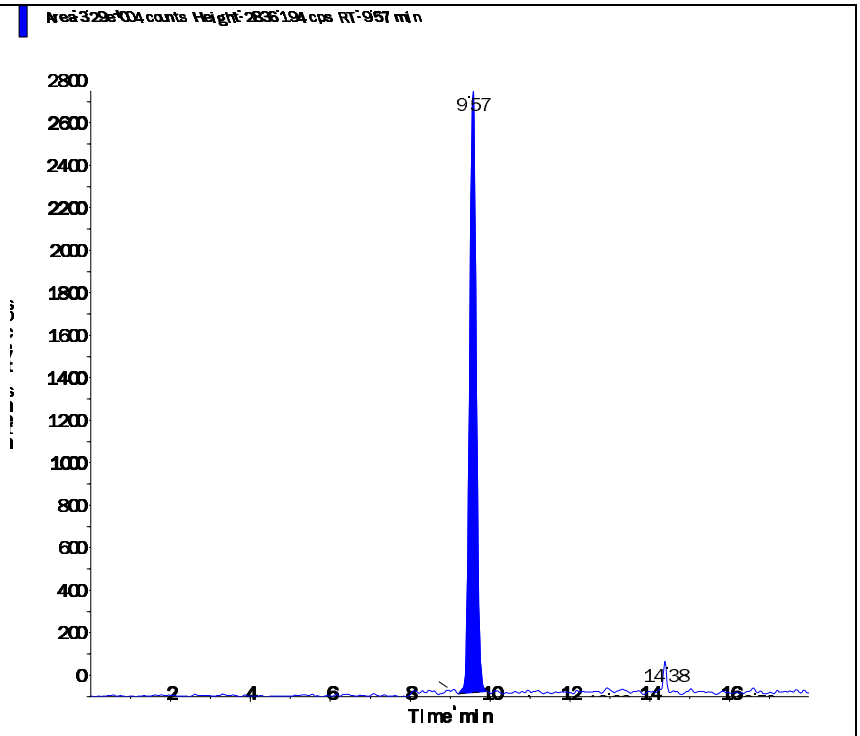
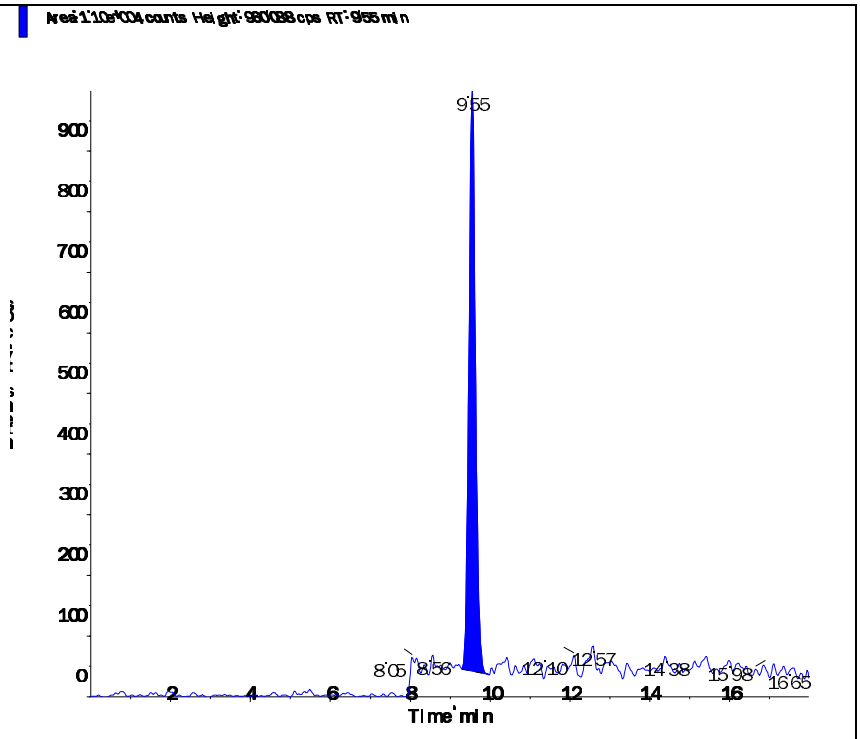
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.57 (9.84) min 0.20 ng/ml 0.068 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.55 (9.84) min 0.185 ng/ml 0.023 (Unknown)



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Created with Analyst Reporter
Printed: 11/9/2016 10:36 AM

Data File	LM37548.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 3:37:58 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

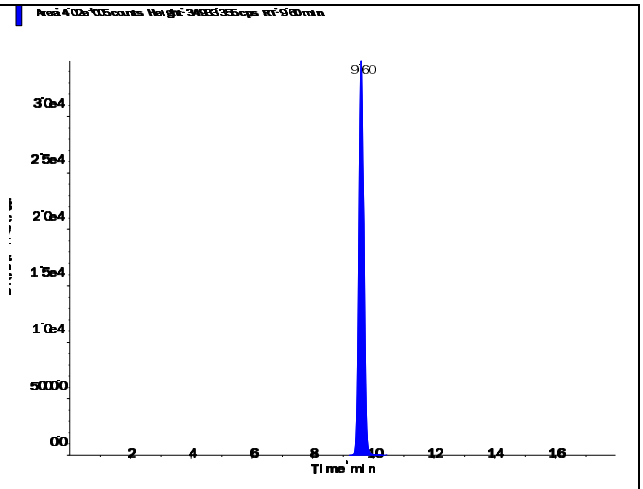
Sample Name	WG590829-01 CCB	**Injection Vial**	1.00
Data File	LM37548.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 3:37:58 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590829-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.020e+05	9.60	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.60(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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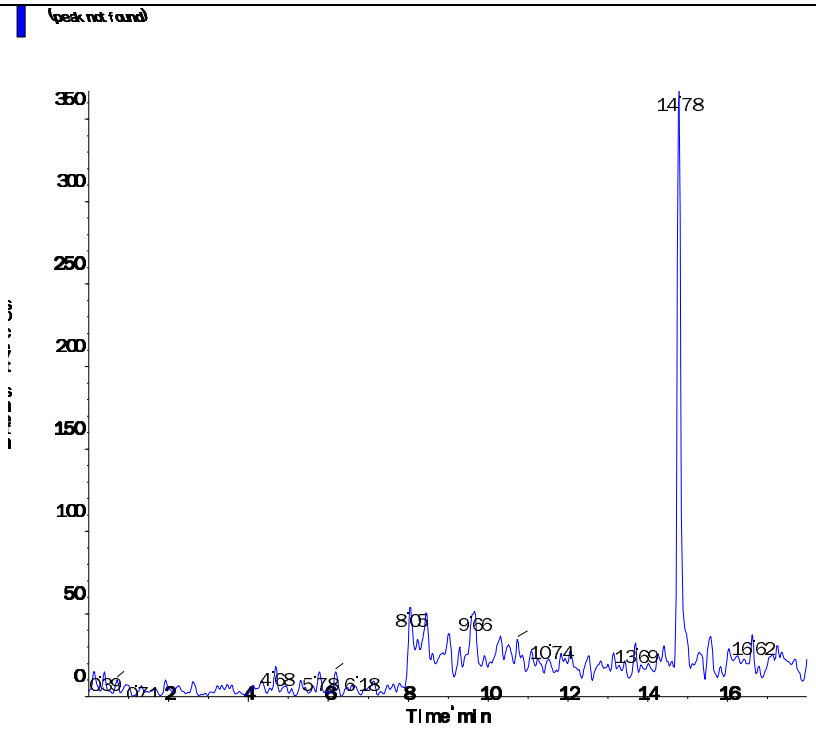
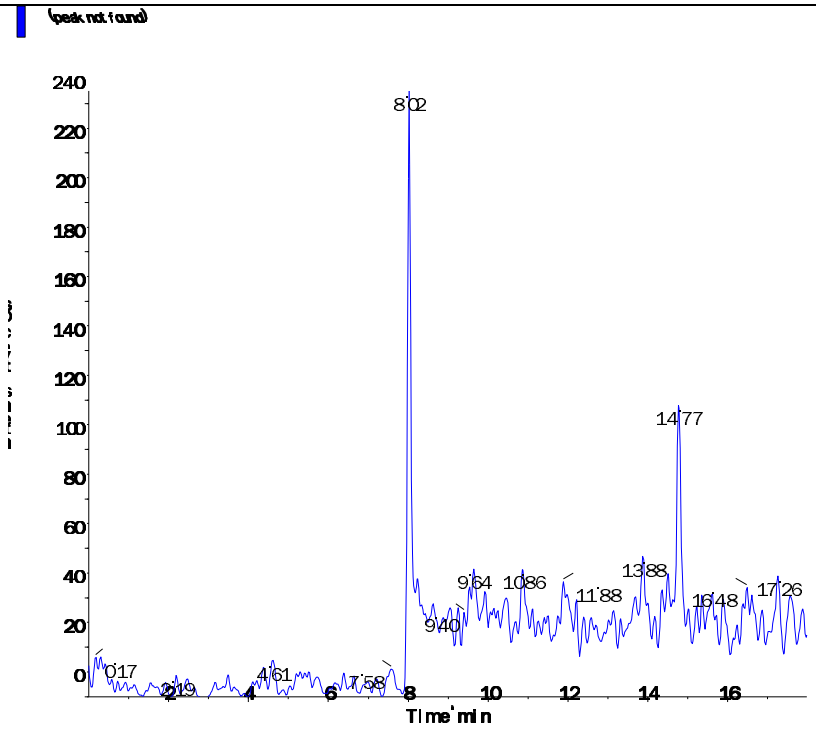
Printed: 11/9/2016 10:36 AM

Perchlorate (98.8/83.3 amu)	
RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



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Printed: 11/9/2016 10:41 AM

Data File	LM37563.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 8:22:02 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

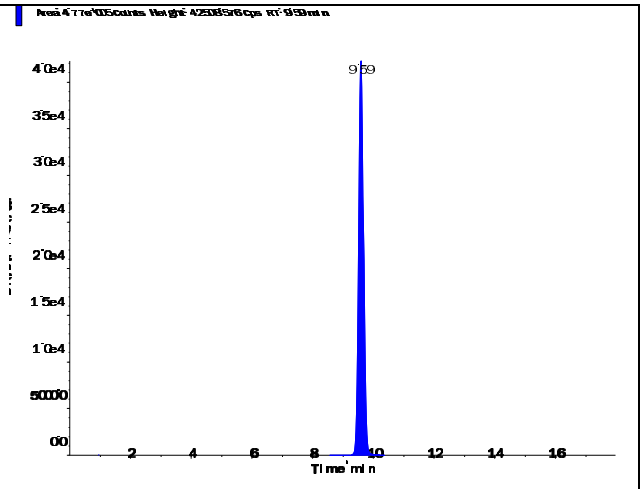
Sample Name	WG590829-04 CCB	**Injection Vial**	1.00
Data File	LM37563.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 8:22:02 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590829-04	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.770e+05	9.59	5.00	-

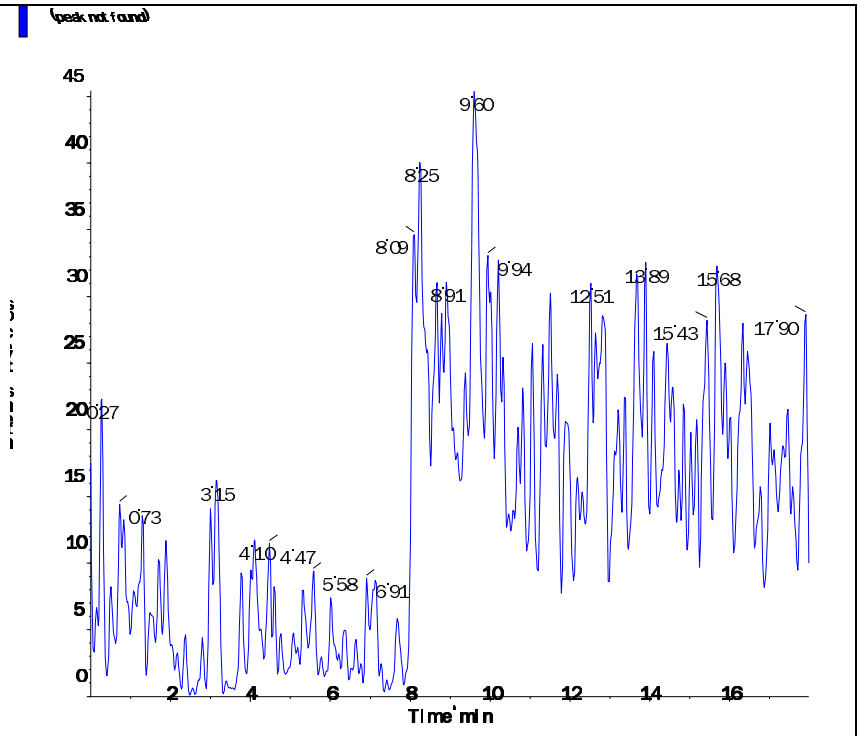
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

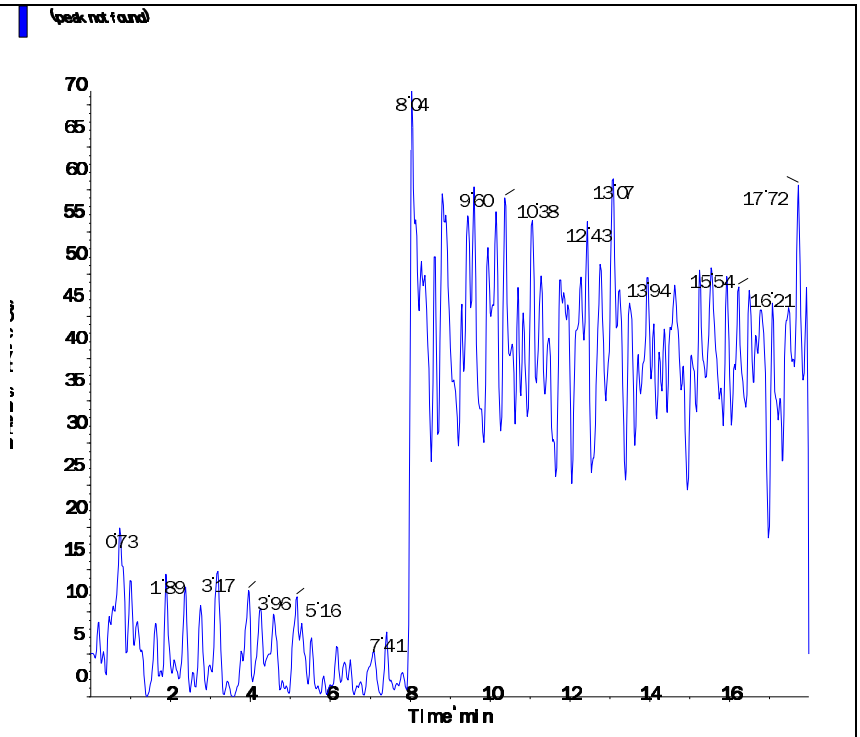
RT (Exp. RT): 9.59(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



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Data File	LM37573.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 11:31:25 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

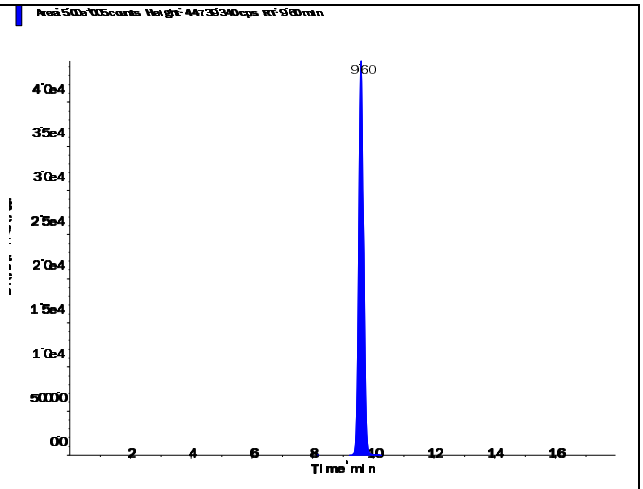
Sample Name	WG590829-06 CCB	**Injection Vial**	1.00
Data File	LM37573.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 11:31:25 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590829-06	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	5.000e+05	9.60	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.60(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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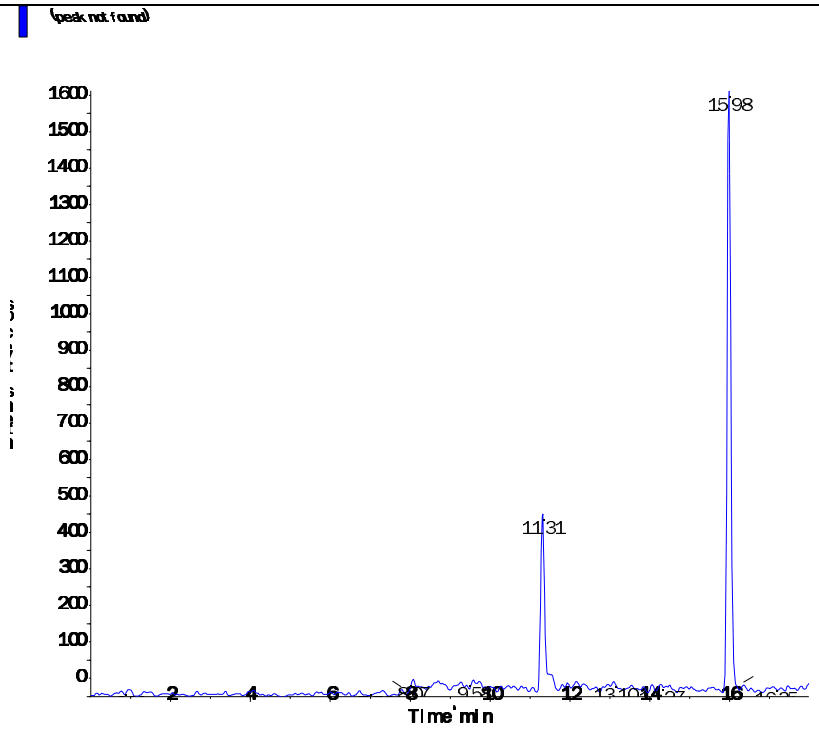
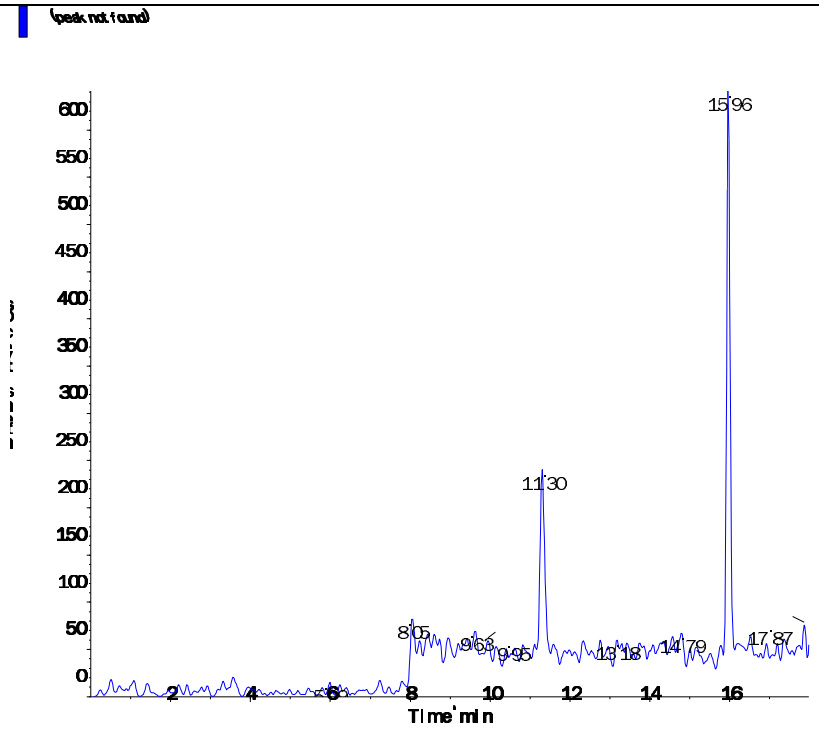
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 0.00 (9.84) min No Peak ng/ml 0.00 (Unknown)



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Data File	LM37551.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 4:34:47 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

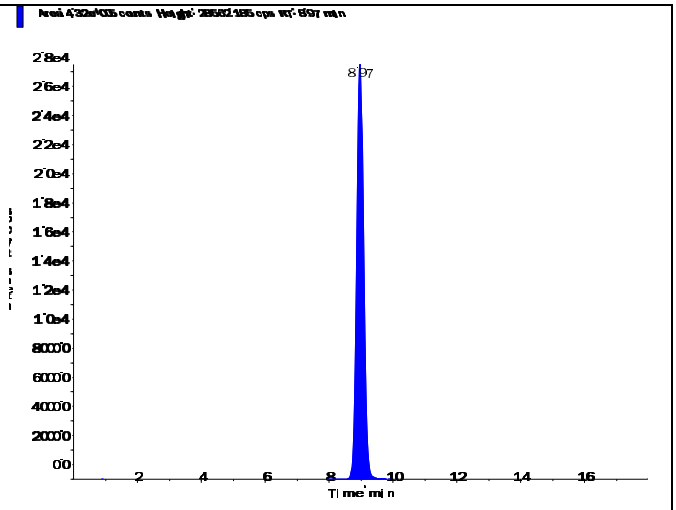
Sample Name	WG590828-01 MCT (0.2ug/L)	**Injection Vial**	4.00
Data File	LM37551.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 4:34:47 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590828-01	**Dilution Factor**	1.00
Sample Comment	1,1 STD78251	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.320e+05	8.97	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.640e+04	8.97	N/A	0.177
Perchlorate conf	9.660e+03	8.99	N/A	0.18

O18LP (Internal Standard)

RT (Exp. RT): 8.97(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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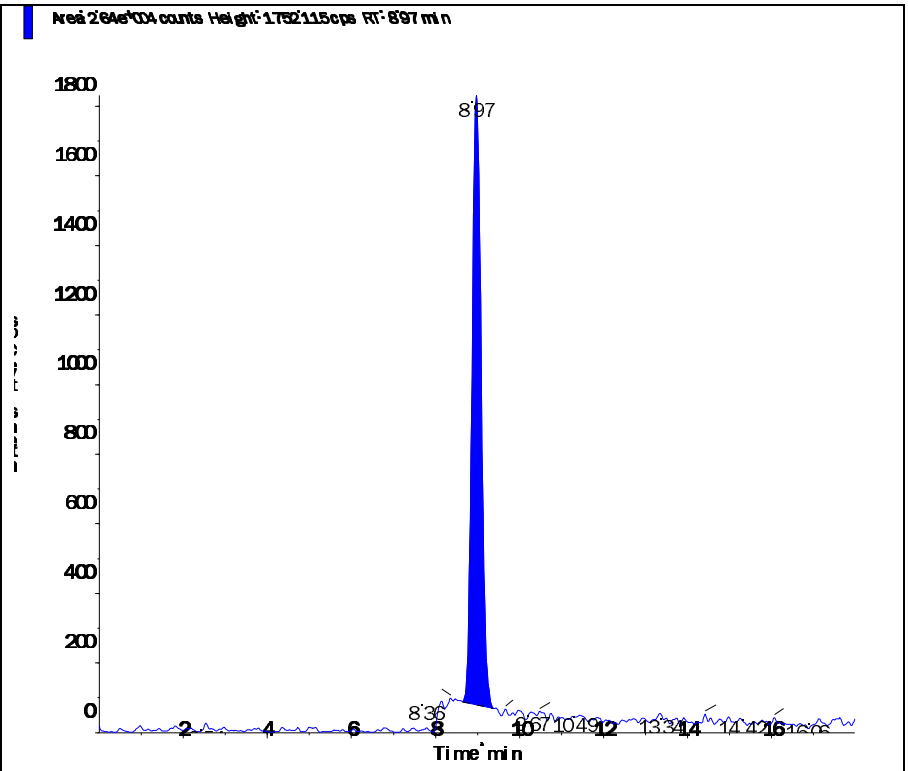
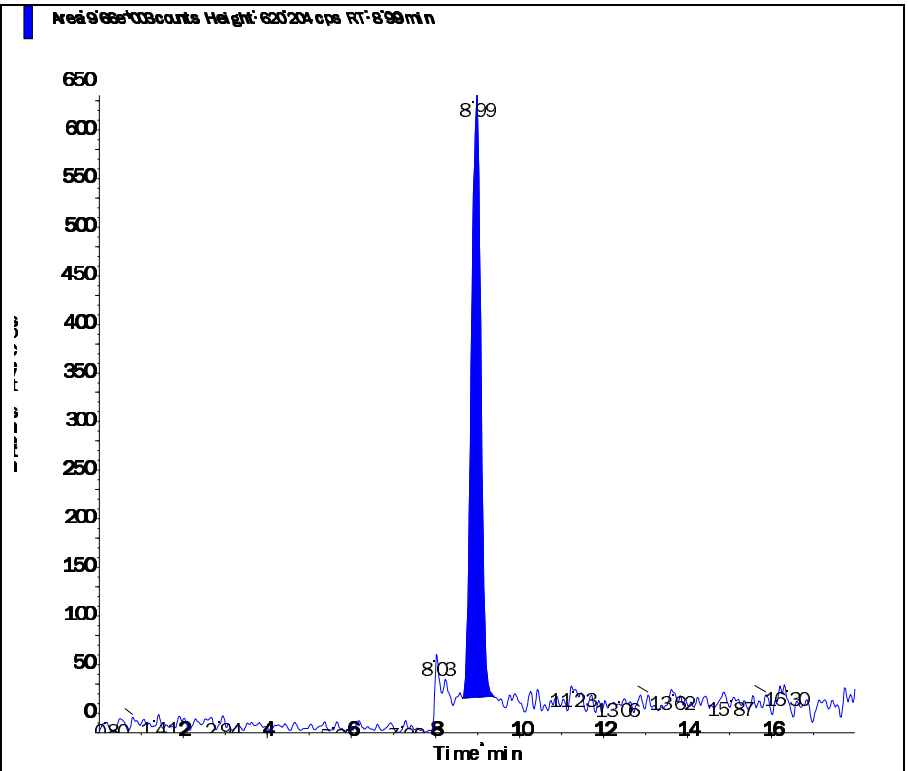
Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	8.97 (9.84) min 0.177 ng/ml 0.061 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	8.99 (9.84) min 0.18 ng/ml 0.022 (Unknown)



2.2.1.5 Raw QC Data

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Data File	LM37552.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 4:53:43 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

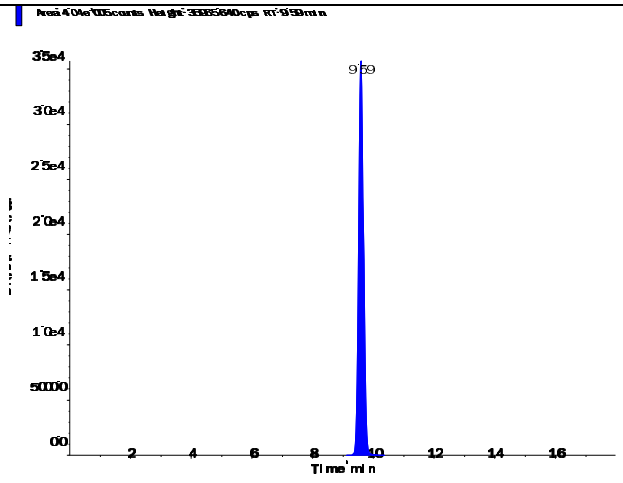
Sample Name	WG590828-02 BLANK	**Injection Vial**	5.00
Data File	LM37552.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 4:53:43 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590828-02	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.040e+05	9.59	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	0.000e+00	0.00	N/A	No Peak

O18LP (Internal Standard)

RT (Exp. RT): 9.59(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



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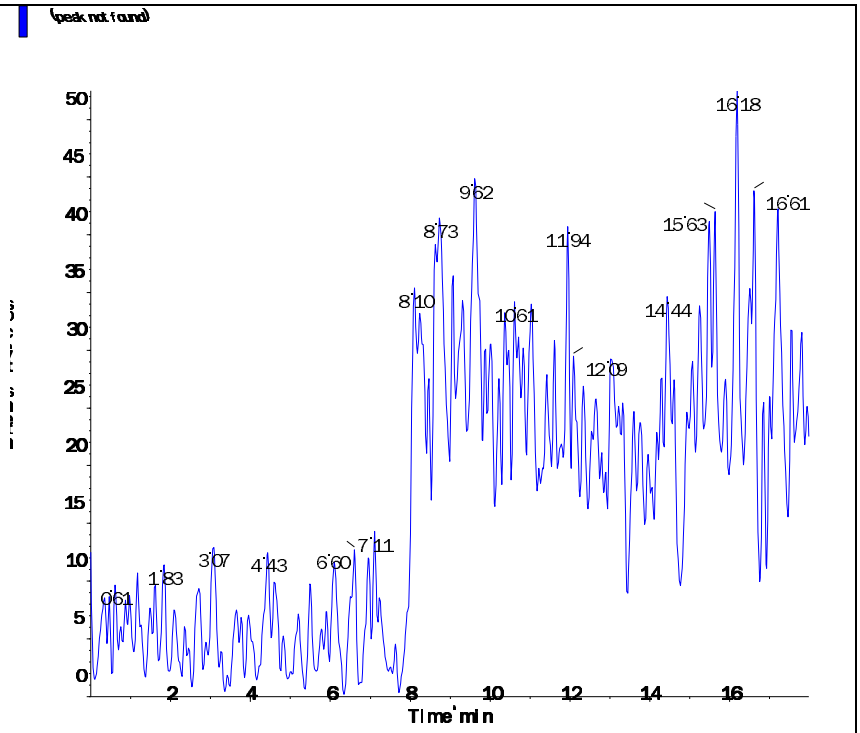
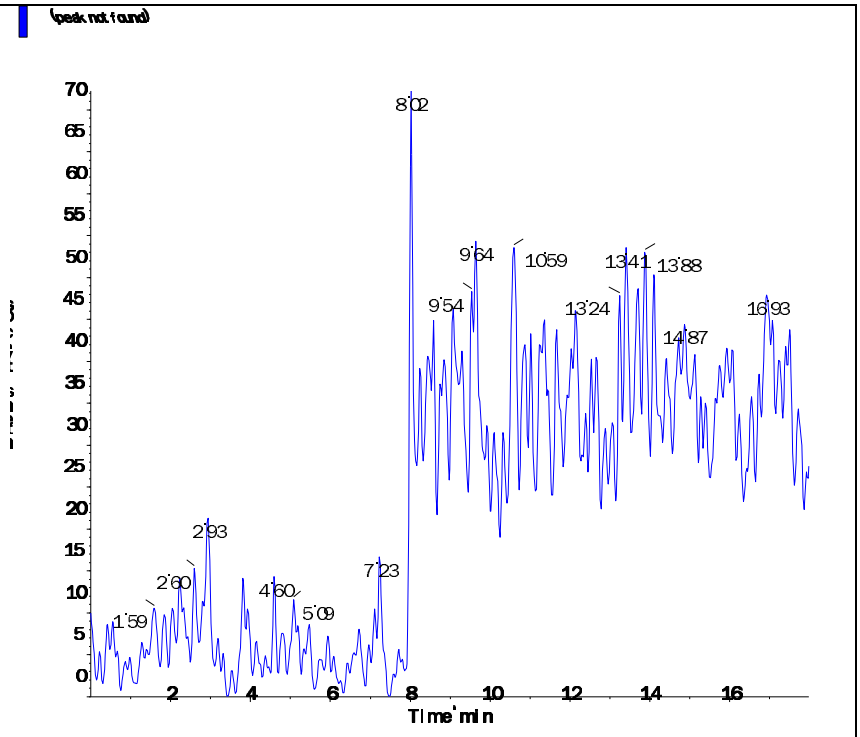
Perchlorate (98.8/83.3 amu)	
RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT):	0.00 (9.84) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Applied Biosystems | MDS SCIEX

Created with Analyst Reporter
Printed: 11/9/2016 10:38 AM

Data File	LM37553.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 5:12:39 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

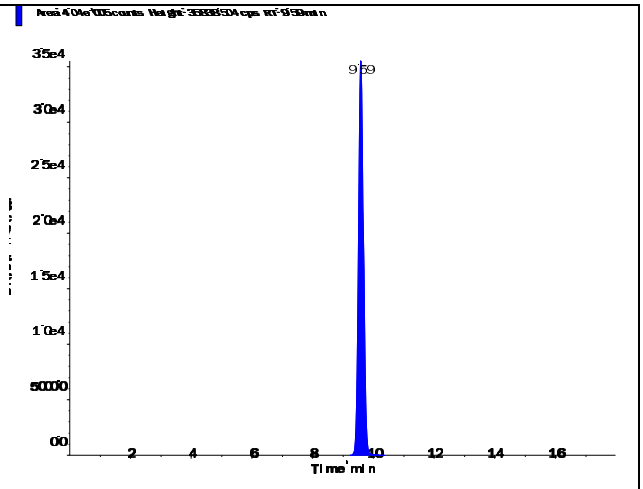
Sample Name	WG590828-03 LCS (0.2ug/L)	**Injection Vial**	6.00
Data File	LM37553.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 5:12:39 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590828-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD78251	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.040e+05	9.59	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.530e+04	9.60	N/A	0.183
Perchlorate conf	9.110e+03	9.59	N/A	0.182

O18LP (Internal Standard)

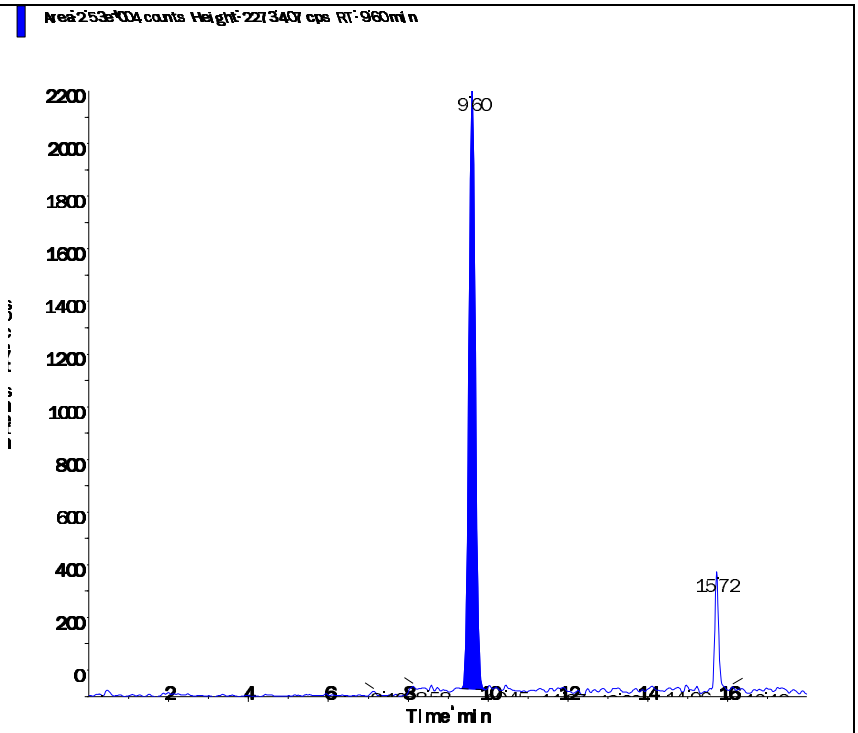
RT (Exp. RT): 9.59(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



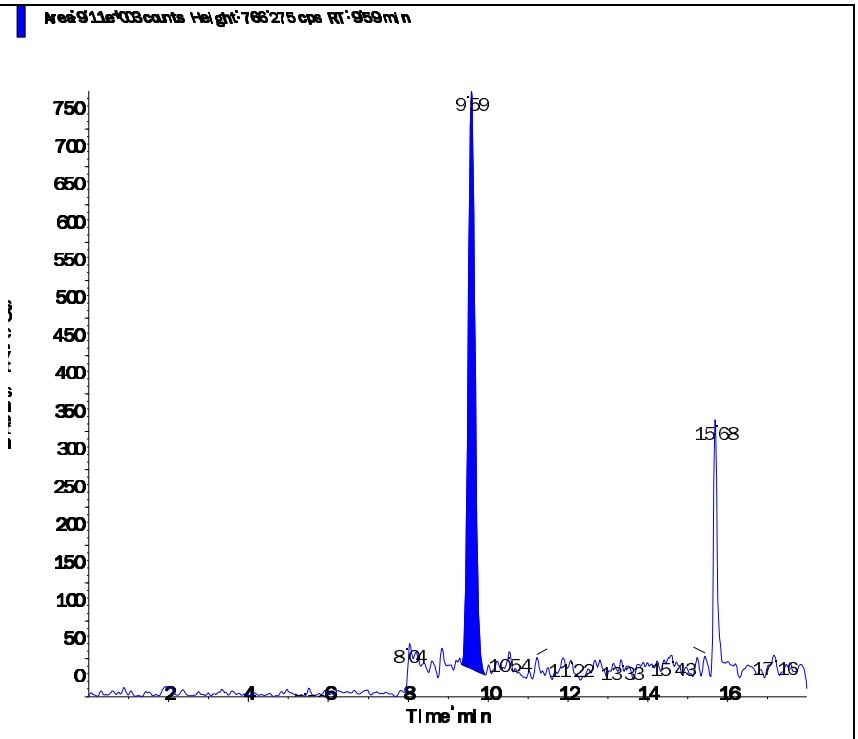
Applied Biosystems | MDS SCIEX

Created with Analyst Reporter
Printed: 11/9/2016 10:38 AM

Perchlorate (98.8/83.3 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.60 (9.84) min 0.183 ng/ml 0.063 (Unknown)



Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): Calculated conc: Area Ratio: Sample Type:	 9.59 (9.84) min 0.182 ng/ml 0.023 (Unknown)



Applied Biosystems | MDS SCIEX

Created with Analyst Reporter
Printed: 11/9/2016 10:39 AM

Data File	LM37554.wiff	**Result Table**	110816_JWR.rdb
Acquisition Date	11/8/2016 5:31:36 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

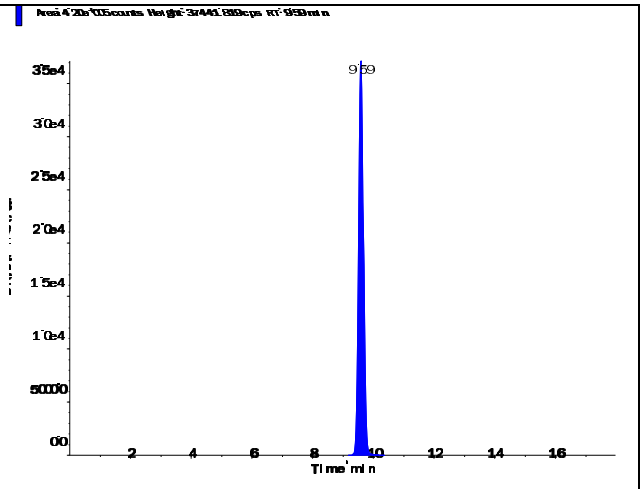
Sample Name	WG590828-04 LCS2 (0.2ug/L)	**Injection Vial**	7.00
Data File	LM37554.wiff	**Injection Volume**	10.00
Acquisition Date	11/8/2016 5:31:36 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110816_JWR.rdb
Sample ID	WG590828-04	**Dilution Factor**	1.00
Sample Comment	1,1 STD78251	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	4.200e+05	9.59	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.520e+04	9.61	N/A	0.175
Perchlorate conf	9.610e+03	9.58	N/A	0.185

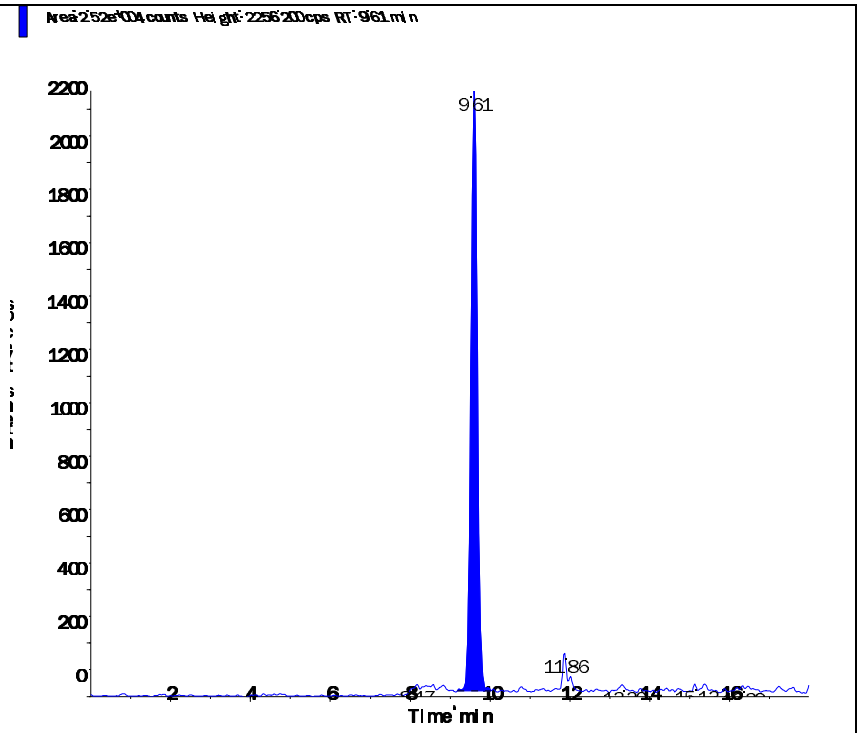
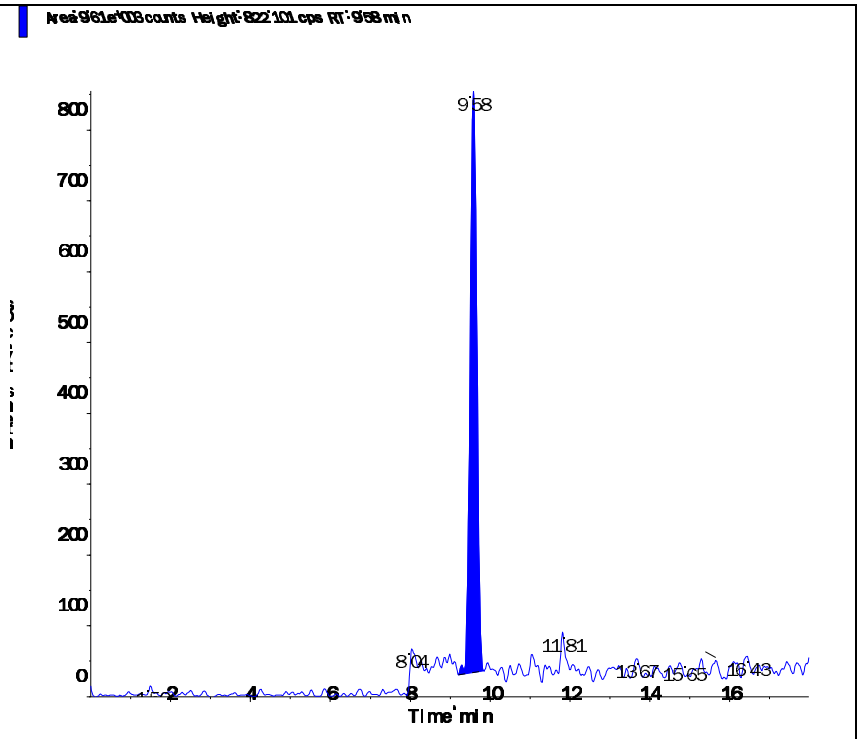
O18LP (Internal Standard)

RT (Exp. RT): 9.59(9.84) min
Concentration: 5.00 ug/L
Sample Type: (Unknown)



Applied Biosystems | MDS SCIEX

Created with Analyst Reporter
Printed: 11/9/2016 10:39 AM

Perchlorate (98.8/83.3 amu)	
RT (Exp. RT): 9.61 (9.84) min	
Calculated conc: 0.175 ng/ml	
Area Ratio: 0.06	
Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu)	
RT (Exp. RT): 9.58 (9.84) min	
Calculated conc: 0.185 ng/ml	
Area Ratio: 0.023	
Sample Type: (Unknown)	

2.3 Metals Data

2.3.1 Metals I C P Data

2.3.1.1 Summary Data

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110074-02 | **PrePrep Method:** N/A | **Instrument:** ICP-THERMO4
Client ID: 50WW13FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:52
Matrix: Water | **Analytical Method:** 6010C | **Cal Date:** 11/07/2016 13:19
Workgroup #: WG590619 | **Analyst:** KKB | **Run Date:** 11/07/2016 18:44
Collect Date: 11/01/2016 08:10 | **Dilution:** 1 | **File ID:** T4.110716.184432
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.155		0.100	0.100	0.0500

Certificate of Analysis

Sample #: L16110074-04 | **PrePrep Method:** N/A | **Instrument:** ICP-THERMO4
Client ID: 50WW14FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:52
Matrix: Water | **Analytical Method:** 6010C | **Cal Date:** 11/07/2016 13:19
Workgroup #: WG590619 | **Analyst:** KKB | **Run Date:** 11/07/2016 18:48
Collect Date: 11/01/2016 09:15 | **Dilution:** 1 | **File ID:** T4.110716.184816
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	6.93		0.100	0.100	0.0500

Certificate of Analysis

Sample #: L16110074-06 | **PrePrep Method:** N/A | **Instrument:** ICP-THERMO4
Client ID: 50WW11FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:52
Matrix: Water | **Analytical Method:** 6010C | **Cal Date:** 11/07/2016 13:19
Workgroup #: WG590619 | **Analyst:** KKB | **Run Date:** 11/07/2016 18:52
Collect Date: 11/01/2016 10:20 | **Dilution:** 1 | **File ID:** T4.110716.185202
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.456		0.100	0.100	0.0500

Certificate of Analysis

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Sample #:	L16110074-08	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW06FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 18:55
Collect Date:	11/01/2016 11:20	**Dilution:**	1	**File ID:**	T4.110716.185546
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.100	U	0.100	0.100	0.0500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-10	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW12FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 18:59
Collect Date:	11/01/2016 13:30	**Dilution:**	1	**File ID:**	T4.110716.185931
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.100	U	0.100	0.100	0.0500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #:	L16110074-12	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	50WW23FF-110116	**Prep Method:**	3015	**Prep Date:**	11/02/2016 12:52
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	11/07/2016 13:19
Workgroup #:	WG590619	**Analyst:**	KKB	**Run Date:**	11/07/2016 19:03
Collect Date:	11/01/2016 14:35	**Dilution:**	1	**File ID:**	T4.110716.190324
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	0.100	U	0.100	0.100	0.0500

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

2.3.1.2 QC Summary Data

Example 6010 Calculations
Thermo Scientific IRIS Advantage

1.0 Initial Calibration (ICAL) Parameters
The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

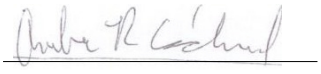
Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup: WG590094
Analyst: AC
Spike Analyst: AC
Run Date: 11/02/2016 12:52
Method: 3015
Balance: BAL019
Instrument: MW-4
Instrument Start: 11/02/2016 12:52

SOP: ME407 Revison 19
Spike Solution: STD78692
Spike Witness: VC
HNO3 Lot #: COA19196
HCL Lot #: COA19265
ICP FILTERS LOT#R6BA1587: RGT37256
40 & 50 ML. DIGESTION TU: COA18987

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG590094-02	BLANK	1	40 mL	50 mL	206.011 g	205.996 g		
2	WG590094-03	LCS	1	40 mL	50 mL	212.691 g	212.678 g	5 mL	
3	L16110010-01	SAMP	1	40 mL	50 mL	207.609 g	207.6 g		11/08/16
4	L16110013-01	SAMP	1	40 mL	50 mL	205.801 g	205.786 g		11/08/16
5	L16110027-01	SAMP	1	40 mL	50 mL	205.571 g	205.542 g		11/11/16
6	L16110027-02	SAMP	1	40 mL	50 mL	205.996 g	205.97 g		11/11/16
7	L16110072-02	SAMP	1	40 mL	50 mL	203.708 g	203.674 g		11/11/16
8	L16110072-03	SAMP	1	40 mL	50 mL	207.118 g	207.101 g		11/11/16
9	WG590094-01	REF	1	40 mL	50 mL	203.335 g	203.313 g		
10	L16110072-04	RS01	1	40 mL	50 mL	203.335 g	203.313 g		11/11/16
11	L16110072-05	SAMP	1	40 mL	50 mL	206.429 g	206.398 g		11/11/16
12	WG590094-04	MS	1	40 mL	50 mL	208.825 g	208.805 g	5 mL	
13	L16110072-06	MS01	1	40 mL	50 mL	208.825 g	208.805 g	5 mL	11/11/16
14	WG590094-05	MSD	1	40 mL	50 mL	209.264 g	209.239 g	5 mL	
15	L16110072-07	SD01	1	40 mL	50 mL	209.264 g	209.239 g	5 mL	11/11/16
16	L16110074-02	SAMP	1	40 mL	50 mL	203.333 g	203.314 g		11/11/16
17	L16110074-04	SAMP	1	40 mL	50 mL	204.566 g	204.541 g		11/11/16
18	L16110074-06	SAMP	1	40 mL	50 mL	205.874 g	205.858 g		11/11/16
19	L16110074-08	SAMP	1	40 mL	50 mL	204.557 g	204.511 g		11/11/16
20	L16110074-10	SAMP	1	40 mL	50 mL	203.783 g	203.769 g		11/11/16
21	L16110074-12	SAMP	1	40 mL	50 mL	206.448 g	206.412 g		11/11/16
22	L16110083-02	SAMP	1	1 mL	50 mL	208.054 g	208.038 g		11/09/16
23	L16110083-04	SAMP	1	1 mL	50 mL	205.698 g	205.684 g		11/09/16
24	L16110083-06	SAMP	1	1 mL	50 mL	206.261 g	206.245 g		11/09/16
25	L16110084-01	SAMP	1	40 mL	50 mL	205.509 g	205.499 g		11/11/16
26	L16110084-02	SAMP	1	40 mL	50 mL	204.178 g	204.15 g		11/11/16
27	L16110084-03	SAMP	1	40 mL	50 mL	207.426 g	207.404 g		11/11/16

L16110013-01	Filtered Digestate
L16110083-04	Filtered Digestate
L16110084-03	Filtered Digestate

Analyst: 

Reviewer: 

MW_DIG - Modified 09/30/2009
PDF ID: 5005309
Report generated: 11/02/2016 14:37

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 110716T4.1R.TXT
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD78879 ICV Std: STD78878 Post Spike: STD77492
ICSA: STD78682 ICSAB: STD78784 Int. Std: RGT37691
CCV: STD78785 LLCCV: COA19158 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 590617,590619,590620

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	T4.110716.130439	WG590772-01	Calibration Point		1		11/07/16 13:04
2	T4.110716.130828	WG590772-02	Calibration Point		1		11/07/16 13:08
3	T4.110716.131215	WG590772-03	Calibration Point		1		11/07/16 13:12
4	T4.110716.131604	WG590772-04	Calibration Point		1		11/07/16 13:16
5	T4.110716.131936	WG590772-05	Calibration Point		1		11/07/16 13:19
6	T4.110716.132308	WG590772-06	Initial Calibration Verification		1		11/07/16 13:23
7	T4.110716.132640	WG590772-07	Initial Calib Blank		1		11/07/16 13:26
8	T4.110716.133028	WG590772-08	Low Level Initial Calibration V		1		11/07/16 13:30
9	T4.110716.133414	WG590772-09	Low Level Initial Calibration V		1		11/07/16 13:34
10	T4.110716.133801	WG590772-10	Interference Check		1		11/07/16 13:38
11	T4.110716.134154	WG590772-11	Interference Check		1		11/07/16 13:41
12	T4.110716.134539	WG590772-12	CCV		1		11/07/16 13:45
13	T4.110716.134910	WG590772-13	CCB		1		11/07/16 13:49
14	T4.110716.150000	WG590772-14	CCV		1		11/07/16 15:00
15	T4.110716.150329	WG590772-15	CCB		1		11/07/16 15:03
16	T4.110716.150720	WG590036-02	Method/Prep Blank	40/50	1		11/07/16 15:07
17	T4.110716.151107	WG590036-03	Laboratory Control S	40/50	1		11/07/16 15:11
18	T4.110716.151454	L16110006-01	6-10-18 W1	40/50	1		11/07/16 15:14
19	T4.110716.151838	L16110006-02	6-10-18 S4	40/50	1		11/07/16 15:18
20	T4.110716.152223	L16110006-03	6-10-18 S3	40/50	1		11/07/16 15:22
21	T4.110716.152608	L16110006-04	6-10-18 S7	40/50	1		11/07/16 15:26
22	T4.110716.152953	L16110006-05	6-10-11 W2	40/50	1		11/07/16 15:29
23	T4.110716.153338	L16110006-06	6-10-11 W1	40/50	1		11/07/16 15:33
24	T4.110716.153722	WG590617-01	Post Digestion Spike		1	L16110006-06	11/07/16 15:37
25	T4.110716.154056	WG590617-02	Serial Dilution		5	L16110006-06	11/07/16 15:40
26	T4.110716.154442	WG590772-16	CCV		1		11/07/16 15:44
27	T4.110716.154813	WG590772-17	CCB		1		11/07/16 15:48
28	T4.110716.155204	L16110006-07	6-10-11 W1	40/50	1		11/07/16 15:52
29	T4.110716.155547	L16110006-08	6-10-11 P1	40/50	1		11/07/16 15:55
30	T4.110716.155932	L16110006-09	6-10-19.03 S2	40/50	1		11/07/16 15:59
31	T4.110716.160318	L16110006-10	6-10-19.03 S1	40/50	1		11/07/16 16:03
32	T4.110716.160703	L16110006-11	6-10-19.03 W1	40/50	1		11/07/16 16:07
33	T4.110716.161048	L16110006-12	59-10-2.02 P1	40/50	1		11/07/16 16:10
34	T4.110716.161434	L16110006-13	59-10-2.02 S1	40/50	1		11/07/16 16:14

Page: 1 Approved: November 08, 2016

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 110716T4.1R.TXT
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD78879 ICV Std: STD78878 Post Spike: STD77492
ICSA: STD78682 ICSAB: STD78784 Int. Std: RGT37691
CCV: STD78785 LLCCV: COA19158 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 590617,590619,590620

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	T4.110716.161820	L16110006-14	59-9-1.07 S1	40/50	1		11/07/16 16:18
36	T4.110716.162204	L16110006-15	59-11-11.22 W1	40/50	1		11/07/16 16:22
37	T4.110716.162549	L16110006-16	59-11-11.25 W1	40/50	1		11/07/16 16:25
38	T4.110716.162935	WG590772-18	CCV		1		11/07/16 16:29
39	T4.110716.163306	WG590772-19	CCB		1		11/07/16 16:33
40	T4.110716.163656	L16110006-17	6-7-32 W1	40/50	1		11/07/16 16:36
41	T4.110716.164040	L16110006-18	59-11-10.03 S3	40/50	1		11/07/16 16:40
42	T4.110716.164424	L16110006-19	59-11-10.03 P1	40/50	1		11/07/16 16:44
43	T4.110716.164809	WG590036-01	Reference Sample		1	L16110006-20	11/07/16 16:48
44	T4.110716.165153	WG590036-04	Matrix Spike	40/50	1	L16110006-20	11/07/16 16:51
45	T4.110716.165538	WG590036-05	Matrix Spike Duplica	40/50	1	L16110006-20	11/07/16 16:55
46	T4.110716.165923	WG590772-20	CCV		1		11/07/16 16:59
47	T4.110716.170254	WG590772-21	CCB		1		11/07/16 17:02
48	T4.110716.173737	WG590772-22	Low Level Continuing Calibra		1		11/07/16 17:37
49	T4.110716.174124	WG590772-23	Low Level Continuing Calibra		1		11/07/16 17:41
50	T4.110716.174509	WG590094-02	Method/Prep Blank	40/50	1		11/07/16 17:45
51	T4.110716.174857	WG590094-03	Laboratory Control S	40/50	1		11/07/16 17:48
52	T4.110716.175233	L16110010-01	2208-137W1	40/50	1		11/07/16 17:52
53	T4.110716.175618	L16110013-01	0101-138S3	40/50	1		11/07/16 17:56
54	T4.110716.175959	L16110027-01	LH18/24-SP650-6405-GRAB	40/50	1		11/07/16 17:59
55	T4.110716.180350	L16110027-02	LH18/24-SP650-6405-COMP	40/50	1		11/07/16 18:03
56	T4.110716.180741	L16110072-02	MW-41S-110116	40/50	1		11/07/16 18:07
57	T4.110716.181126	L16110072-03	MW-39S-110116	40/50	1		11/07/16 18:11
58	T4.110716.181516	WG590619-01	Post Digestion Spike		1	L16110072-03	11/07/16 18:15
59	T4.110716.181851	WG590619-02	Serial Dilution		5	L16110072-03	11/07/16 18:18
60	T4.110716.182237	WG590772-24	CCV		1		11/07/16 18:22
61	T4.110716.182608	WG590772-25	CCB		1		11/07/16 18:26
62	T4.110716.182956	WG590094-01	Reference Sample		1	L16110072-04	11/07/16 18:29
63	T4.110716.183339	L16110072-05	DUP-110116	40/50	1		11/07/16 18:33
64	T4.110716.183723	WG590094-04	Matrix Spike	40/50	1	L16110072-04	11/07/16 18:37
65	T4.110716.184057	WG590094-05	Matrix Spike Duplica	40/50	1	L16110072-04	11/07/16 18:40
66	T4.110716.184432	L16110074-02	50WW13FF-110116	40/50	1		11/07/16 18:44
67	T4.110716.184816	L16110074-04	50WW14FF-110116	40/50	1		11/07/16 18:48
68	T4.110716.185202	L16110074-06	50WW11FF-110116	40/50	1		11/07/16 18:52

Page: 2 Approved: November 08, 2016

Kym H. Rhoden

Microbac

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 110716T4.1R.TXT
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD78879 ICV Std: STD78878 Post Spike: STD77492
ICSA: STD78682 ICSAB: STD78784 Int. Std: RGT37691
CCV: STD78785 LLCCV: COA19158 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 590617,590619,590620

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
69	T4.110716.185546	L16110074-08	50WW06FF-110116	40/50	1		11/07/16 18:55
70	T4.110716.185931	L16110074-10	50WW12FF-110116	40/50	1		11/07/16 18:59
71	T4.110716.190324	L16110074-12	50WW23FF-110116	40/50	1		11/07/16 19:03
72	T4.110716.190718	WG590772-26	CCV		1		11/07/16 19:07
73	T4.110716.191050	WG590772-27	CCB		1		11/07/16 19:10
74	T4.110716.191439	L16110083-02	PERMEATE(T-3100)	1/50	1		11/07/16 19:14
75	T4.110716.191826	L16110083-04	BLEED(T-3100)	1/50	1		11/07/16 19:18
76	T4.110716.192211	L16110083-06	N. DOCK FLUME(BLD. 72)	1/50	1		11/07/16 19:22
77	T4.110716.192559	L16110084-01	201 EFFLUENT	40/50	1		11/07/16 19:25
78	T4.110716.192951	L16110084-02	202 EFFLUENT	40/50	1		11/07/16 19:29
79	T4.110716.193343	L16110084-03	FLUME	40/50	1		11/07/16 19:33
80	T4.110716.193735	WG590772-28	CCV		1		11/07/16 19:37
81	T4.110716.194106	WG590772-29	CCB		1		11/07/16 19:41
82	T4.110716.194455	WG590772-30	Low Level Continuing Calibra		1		11/07/16 19:44
83	T4.110716.194842	WG590772-31	Low Level Continuing Calibra		1		11/07/16 19:48
84	T4.110716.195227	WG590360-02	Method/Prep Blank	40/50	1		11/07/16 19:52
85	T4.110716.195615	WG590360-03	Laboratory Control S	40/50	1		11/07/16 19:56
86	T4.110716.195951	WG590360-06	Filter Blank		1		11/07/16 19:59
87	T4.110716.200339	WG590201-01	Fluid Blank 1		1		11/07/16 20:03
88	T4.110716.200726	L16110109-01	T1360	40/50	1		11/07/16 20:07
89	T4.110716.201114	L16110109-02	T1362	40/50	1		11/07/16 20:11
90	T4.110716.201500	L16110109-03	T1363	40/50	1		11/07/16 20:15
91	T4.110716.201851	L16110109-04	T1365	40/50	1		11/07/16 20:18
92	T4.110716.202244	L16110120-01	S6K0116-01	5/50	1		11/07/16 20:22
93	T4.110716.202631	L16110140-01	V6K0103-01	5/50	1		11/07/16 20:26
94	T4.110716.203016	WG590772-32	CCV		1		11/07/16 20:30
95	T4.110716.203346	WG590772-33	CCB		1		11/07/16 20:33
96	T4.110716.203733	L16110151-02	MW-7D-110216	40/50	1		11/07/16 20:37
97	T4.110716.204118	WG590620-01	Post Digestion Spike		1	L16110151-02	11/07/16 20:41
98	T4.110716.204452	WG590620-02	Serial Dilution		5	L16110151-02	11/07/16 20:44
99	T4.110716.204837	L16110151-03	MW-18D-110216	40/50	1		11/07/16 20:48
100	T4.110716.205220	L16110151-04	MW-31D-110216	40/50	1		11/07/16 20:52
101	T4.110716.205604	L16110151-05	MW-38D-110216	40/50	1		11/07/16 20:56
102	T4.110716.205949	WG590360-01	Reference Sample		1	L16110151-06	11/07/16 20:59

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Kym H. Rhoden

Microbac

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 110716T4.1R.TXT
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD78879 ICV Std: STD78878 Post Spike: STD77492
ICSA: STD78682 ICSAB: STD78784 Int. Std: RGT37691
CCV: STD78785 LLCCV: COA19158 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 590617,590619,590620

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
103	T4.110716.210332	L16110151-07	DUP-110216	40/50	1		11/07/16 21:03
104	T4.110716.210715	WG590360-04	Matrix Spike	40/50	1	L16110151-06	11/07/16 21:07
105	T4.110716.211050	WG590360-05	Matrix Spike Duplica	40/50	1	L16110151-06	11/07/16 21:10
106	T4.110716.211425	WG590772-34	CCV		1		11/07/16 21:14
107	T4.110716.211757	WG590772-35	CCB		1		11/07/16 21:17
108	T4.110716.212145	L16110151-10	MW-30D-110216	40/50	1		11/07/16 21:21
109	T4.110716.212529	L16110158-01	J6K0174-01	5/50	1		11/07/16 21:25
110	T4.110716.212915	L16110161-04	SCF-SW-RO-110216	5/50	1		11/07/16 21:29
111	T4.110716.213303	L16110201-02	MW-27D-11316	40/50	1		11/07/16 21:33
112	T4.110716.213647	L16110201-03	BW-1-11316	40/50	1		11/07/16 21:36
113	T4.110716.214031	L16110201-04	BW-5-11316	40/50	1		11/07/16 21:40
114	T4.110716.214415	L16110201-05	ER-11316	40/50	1		11/07/16 21:44
115	T4.110716.214804	WG590772-36	CCV		1		11/07/16 21:48
116	T4.110716.215134	WG590772-37	CCB		1		11/07/16 21:51
117	T4.110716.215522	WG590772-38	Low Level Continuing Calibra		1		11/07/16 21:55
118	T4.110716.215909	WG590772-39	Low Level Continuing Calibra		1		11/07/16 21:59
119	T4.110716.220256	WG590772-40	CCV		1		11/07/16 22:02
120	T4.110716.220626	WG590772-41	CCB		1		11/07/16 22:06
121	T4.110716.221016	WG590772-42	Interference Check		1		11/07/16 22:10
122	T4.110716.221409	WG590772-43	Interference Check		1		11/07/16 22:14
123	T4.110716.221758	WG590772-44	CCV		1		11/07/16 22:17
124	T4.110716.222129	WG590772-45	CCB		1		11/07/16 22:21

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Microbac

Microbac Laboratories Inc.

Data Checklist

Date: 07-NOV-2016
Analyst: KKB
Analyst: NA
Method: 6010B/6010C
Instrument: ICP-THERMO4
Curve Workgroup: 590772
Runlog ID: 78556
Analytical Workgroups: 590617,590619,590620

Add'l WGs	
STD ID#s on Runlog	X
Calibration/Linearity	X
ICV/CCV	X
ICV RSD < 3% (EPA 200.7 only)	
ICB/CCB	X
ICSA/ICSAB	X
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	X
Client Forms	X
Level X	
Level 3	0161
Level 4	0072,0074,0151,0201
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	KKB
Secondary Reviewer	KHR
Comments	

Primary Reviewer:
08-NOV-2016

Secondary Reviewer:
08-NOV-2016

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-08-2016 11:49:16

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6010C AAB#: WG590619

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW13FF-110116	02	11/01/16					11/02/2016	1.2	180		11/07/16	6.4	180	
50WW14FF-110116	04	11/01/16					11/02/2016	1.2	180		11/07/16	6.4	180	
50WW11FF-110116	06	11/01/16					11/02/2016	1.1	180		11/07/16	6.4	180	
50WW06FF-110116	08	11/01/16					11/02/2016	1.1	180		11/07/16	6.3	180	
50WW12FF-110116	10	11/01/16					11/02/2016	1	180		11/07/16	6.2	180	
50WW23FF-110116	12	11/01/16					11/02/2016	.9	180		11/07/16	6.2	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5013033
Report generated 11/08/2016 10:29

METHOD BLANK SUMMARY

Login Number: L16110074 **Work Group:** WG590619
Blank File ID: T4.110716.174509 **Blank Sample ID:** WG590094-02
Prep Date: 11/02/16 12:52 **Instrument ID:** ICP-THERMO4
Analyzed Date: 11/07/16 17:45 **Method:** 6010C
Analyst: KKB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590094-03	T4.110716.174857	11/07/16 17:48	01
50WW13FF-110116	L16110074-02	T4.110716.184432	11/07/16 18:44	01
50WW14FF-110116	L16110074-04	T4.110716.184816	11/07/16 18:48	01
50WW11FF-110116	L16110074-06	T4.110716.185202	11/07/16 18:52	01
50WW06FF-110116	L16110074-08	T4.110716.185546	11/07/16 18:55	01
50WW12FF-110116	L16110074-10	T4.110716.185931	11/07/16 18:59	01
50WW23FF-110116	L16110074-12	T4.110716.190324	11/07/16 19:03	01

Report Name: BLANK_SUMMARY
PDF File ID: 5013034
Report generated 11/08/2016 10:30

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L16110074 Prep Date: 11/02/16 12:52 Sample ID: WG590094-02
Instrument ID: ICP-THERMO4 Run Date: 11/07/16 17:45 Prep Method: 3015
File ID: T4.110716.174509 Analyst: KKB Method: 6010C
Workgroup (AAB#): WG590619 Matrix: Water Units: mg/L
Contract #: Cal ID: ICP-TH-07-NOV-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Iron, Dissolved	0.0500	0.100	0.0500	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5013035
08-NOV-2016 10:30

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590094-03
Instrument ID: ICP-THERMO4 Run Time: 17:48 Prep Method: 3015
File ID: T4.110716.174857 Analyst: KKB Method: 6010C
Workgroup (AAB#): WG590619 Matrix: Water Units: mg/L
QC Key: DOD4 Lot#: STD78692 Cal ID: ICP-TH-07-NOV-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Iron, Dissolved	2.50	2.46	98.5	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 5013036
Report generated: 11/08/2016 10:30

Microbac Laboratories Inc.
MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L16110074 Cal ID:ICP-THERMO4- Worknum:WG590619
Instrument ID:ICP-THERMO4 Contract #: Method:6010C
Parent ID:WG590094-01 File ID:T4.110716.182956 Dil:1 Matrix:WATER
Sample ID:WG590094-04 MS File ID:T4.110716.183723 Dil:1 Units:mg/L
Sample ID:WG590094-05 MSD File ID:T4.110716.184057 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Iron, Dissolved	23.6	2.50	25.6	80.3	2.50	25.7	83.9	0.355	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 05/26/2011
PDF File ID: 5013037
Report generated 11/08/2016 10:30

Microbac Laboratories Inc.
Serial Dilution Report

Login: L16110074 **Worknum:** WG590619
Instrument: ICP-THERMO4 **Method:** 6010C
Serial Dil: WG590619-02 **File ID:** T4.110716.181851 **Dil:** 5 **Units:** ug/L
Sample: L16110072-03 **File ID:** T4.110716.181126 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Iron	28100		29400		4.73	

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 25 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 25 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 5013031
11/08/2016 10:30

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L16110074 **Worknum:** WG590619
Instrument ID: ICP-THERMO4 **Method:** 6010C
Post Spike ID: WG590619-01 **File ID:** T4.110716.181516 **Dil:** 1 **Units:** ug/L
Sample ID: L16110072-03 **File ID:** T4.110716.181126 **Dil:** 1 **Matrix:** Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
IRON	27200		28100		2000	97.3	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 5013032
Report generated: 11/08/2016 10:30

Microbac Laboratories Inc.
Initial Calibration Summary

Login:	**L16110074**	Workgroup (AAB#):	**WG590619**
Analytical Method:	**6010C**	Instrument ID:	**ICP-THERMO4**
ICAL Worknum:	**WG590772**	Initial Calibration Date:	**07-NOV-2016 13:19**

	WG590772-01		WG590772-02		WG590772-03		WG590772-04		WG590772-05			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
IRON	0	0.0000700	.04	0.000260	.08	0.000650	4	0.0383	8	0.0793	.999676	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5013040
Report generated: 08-NOV-2016 10:30

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-07
Instrument ID: ICP-THERMO4 Run Time: 13:26 Method: 6010C
File ID: T4.110716.132640 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG590619 Cal ID: ICP-THERI - 07-NOV-16
Matrix: WATER

Analytes	MDL	RDL	Concentration	Qualifier
IRON	.04	.08	.04	U

U = Result is less than 2 x MDL

F = Result is between MDL and 2 x MDL

* = Result is above 2 x MDL

ICB - Modified 07/14/2009
PDF File ID: 5013042
Report generated 11/08/2016 10:30

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L16110074 | Run Date: 11/07/2016 | Sample ID: WG590772-13
Instrument ID: ICP-THERMO4 | Run Time: 13:49 | Method: 6010C
File ID: T4.110716.134910 | Analyst: KKB | Units: mg/L
Workgroup (AAB#): WG590619 | Cal ID: ICP-TH - 07-NOV-16
Matrix: WATER | QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Iron	0.0400	0.0800	0.0400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5013045
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/07/2016	Sample ID:	WG590772-21
Instrument ID:	ICP-THERMO4	Run Time:	17:02	Method:	6010C
File ID:	T4.110716.170254	Analyst:	KKB	Units:	mg/L
Workgroup (AAB#):	WG590619	Cal ID:	ICP-TH - 07-NOV-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Iron	0.0400	0.0800	0.0400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5013045
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L16110074 | Run Date: 11/07/2016 | Sample ID: WG590772-25
Instrument ID: ICP-THERMO4 | Run Time: 18:26 | Method: 6010C
File ID: T4.110716.182608 | Analyst: KKB | Units: mg/L
Workgroup (AAB#): WG590619 | Cal ID: ICP-TH - 07-NOV-16
Matrix: WATER | QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Iron	0.0400	0.0800	0.0400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5013045
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/07/2016	Sample ID:	WG590772-27
Instrument ID:	ICP-THERMO4	Run Time:	19:10	Method:	6010C
File ID:	T4.110716.191050	Analyst:	KKB	Units:	mg/L
Workgroup (AAB#):	WG590619	Cal ID:	ICP-TH - 07-NOV-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Iron	0.0400	0.0800	0.0400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5013045
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-06
Instrument ID: ICP-THERMO4 Run Time: 13:23 Method: 6010C
File ID: T4.110716.132308 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16
QC Key: DOD4

Analyte	Expected	Found	%REC	LIMITS	Q
Iron	4	3.93	98.2	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 5013041
Report generated 11/08/2016 10:30

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-12

Instrument ID: ICP-THERMO4 Run Time: 13:45 Method: 6010C

File ID: T4.110716.134539 Analyst: KKB QC Key: DOD4

Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Iron		4.00	3.98	mg/L	99.5	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5013044

Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-20
Instrument ID: ICP-THERMO4 Run Time: 16:59 Method: 6010C
File ID: T4.110716.165923 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Iron		4.00	4.13	mg/L	103	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5013044
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-24
Instrument ID: ICP-THERMO4 Run Time: 18:22 Method: 6010C
File ID: T4.110716.182237 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Iron		4.00	4.10	mg/L	102	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5013044
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-26

Instrument ID: ICP-THERMO4 Run Time: 19:07 Method: 6010C

File ID: T4.110716.190718 Analyst: KKB QC Key: DOD4

Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Iron		4.00	4.15	mg/L	104	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5013044

Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-08
Instrument ID: ICP-THERMO4 Run Time: 13:30 Method: 6010C
File ID: T4.110716.133028 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Iron		0.0800	0.0669	mg/L	83.7	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5013046
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-22
Instrument ID: ICP-THERMO4 Run Time: 17:37 Method: 6010C
File ID: T4.110716.173737 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Iron		0.0800	0.0697	mg/L	87.2	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5013046
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L16110074 Run Date: 11/07/2016 Sample ID: WG590772-30
Instrument ID: ICP-THERMO4 Run Time: 19:44 Method: 6010C
File ID: T4.110716.194455 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590619 Cal ID: ICP-TH - 07-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Iron		0.0800	0.0899	mg/L	112	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5013046
Report generated 11/08/2016 10:31

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L16110074 **Workgroup (AAB#):** WG590619
Instrument ID: ICP-THERMO4 **Method:** 6010C
Sol. A : WG590772-10 **File ID:** T4.110716.133801 **Units:** mg/L
Sol. AB : WG590772-11 **File ID:** T4.110716.134154 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Iron	100	97.3	97.3	100	97.7	97.7	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5013043
Report generated 11/08/2016 10:30

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L16110074 **Date:** 07/25/2016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	AG	AL	AS	B	BA
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0	0.00000900	0	0	0
ARSENIC	189.00	0	0	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0.00000100	0	0	0
BORON	249.60	0	0	0	0	0
CADMIUM	228.80	0	0	0.00200	0	-0.0000800
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0
COBALT	228.60	0	0	0	0	0
COPPER	224.70	0	0	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	-0.000130	0	0	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	-0.000130	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	-0.0000490	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	0.0000180	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	0
ZINC	206.20	0	0.0000180	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5013039
Report generated: 11/08/2016 10:29

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L16110074 **Date:** 07/25/2016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	BE	CA	CD	CO	CR
ALUMINUM	308.20	0	0	0	-0.000820	0
ANTIMONY	206.80	0	0	0	0	0.0138
ARSENIC	189.00	0	0	0	0	-0.00190
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	0	0	0.00343	0
CADMIUM	228.80	0	0	0	-0.00210	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0
COBALT	228.60	0	0	0	0	-0.000200
COPPER	224.70	0	0	0	0.0000770	0
IRON	261.10	0	0	0	0	-0.00100
LEAD	220.30	0	0	0	-0.0000130	-0.000132
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	-0.0000920
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0	0	-0.000500	0
PHOSPHORUS	214.90	0	0	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0.00000500	0	0	0
THALLIUM	190.80	0	0	0	0.00300	0.000276
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	-0.00138
ZINC	206.20	0	0	0	0	-0.000800
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5013039
Report generated: 11/08/2016 10:29

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L16110074 **Date:** 07/25/2016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	CU	FE	K	LI	MG
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0	0.0000560	0	0	0
ARSENIC	189.00	0	0.0000120	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	-0.000619	0	0	0
CADMIUM	228.80	0	0.00000400	0	0	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0.00000500	0	0	0
COBALT	228.60	0	0	0	0	0
COPPER	224.70	0	0.000830	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0.000609	0	0	0	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0.00000300
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0.0000470	0	0	0
PHOSPHORUS	214.90	-0.323	-0.000530	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0.0000300	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	-0.0000100	0	0	0

CORR_FACTORS - Modified 03/05/2008
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Report generated: 11/08/2016 10:29

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L16110074 **Date:** 07/25/2016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	MN	MO	NA	NI	P
ALUMINUM	308.20	0	0.0163	0	0	0
ANTIMONY	206.80	0	0.000670	0	0	0
ARSENIC	189.00	0	0.000139	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	-0.00190	0	0	0
CADMIUM	228.80	0	0.0000320	0	-0.000128	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0.000330	0	0	0	0
COBALT	228.60	0	-0.000983	0	0.000175	0
COPPER	224.70	0	0.00200	0	-0.0120	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	-0.00280	0	0.000110	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	-0.00190	-0.0130	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	0.00710	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0.000800	0.000156	0	0	0
SILICON	212.40	0	0.0187	0	0	0
SILVER	328.10	0	-0.0000440	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	-0.000153	0	0	0
VANADIUM	292.40	-0.000110	-0.00778	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
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Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L16110074 **Date:** 07/25/2016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	PB	SB	SE	SI	SN
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0	0	0	0	-0.00840
ARSENIC	189.00	0	0	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	0	0	0	0
CADMIUM	228.80	0	0	0	0	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0
COBALT	228.60	0	0	0	0	0
COPPER	224.70	0.00300	0	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	0	0	0	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	0	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
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Report generated: 11/08/2016 10:29

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L16110074 **Date:** 07/25/2016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	SR	TI	TL	V	ZN
ALUMINUM	308.20	0	0	0	0.00300	0
ANTIMONY	206.80	0	-0.00400	0	-0.00138	0
ARSENIC	189.00	0	0	0	0.000107	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	-0.000770	0	0.000800	0
BORON	249.60	0	0	0	0	0
CADMIUM	228.80	0	0	0	0.000102	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0.0000550	0	0	0
COBALT	228.60	0	0.00158	0	0.0000200	0
COPPER	224.70	0	0.000269	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	0	0	-0.000126	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	-0.00290	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0	0	-0.000110	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	0	0	-0.00100	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	-0.00620	0	-0.00617	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	-0.000700	0	0.000660	0
TIN	189.90	0	-0.00260	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0.000600	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5013039
Report generated: 11/08/2016 10:29

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L16110074 **Date:** 07/25/2016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	ZR
ALUMINUM	308.20	0
ANTIMONY	206.80	0
ARSENIC	189.00	0
BARIUM	455.40	0
BERYLLIUM	313.10	0
BORON	249.60	0
CADMIUM	228.80	0
CALCIUM	422.60	0
CHROMIUM	267.70	0
COBALT	228.60	0
COPPER	224.70	0
IRON	261.10	0
LEAD	220.30	0
LITHIUM	670.70	0
MAGNESIUM	279.10	0
MANGANESE	257.60	0
MOLYBDENUM	202.00	0
NICKEL	231.60	0
PHOSPHORUS	214.90	0
POTASSIUM	766.40	0
SELENIUM	196.10	0
SILICON	212.40	0
SILVER	328.10	0
SODIUM	589.50	0
STRONTIUM	407.70	0
THALLIUM	190.80	0
TIN	189.90	0
TITANIUM	337.20	0
VANADIUM	292.40	0
ZINC	206.20	0
ZIRCONIUM	339.10	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5013039
Report generated: 11/08/2016 10:29

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L16110074 **Date:** 10/25/0016
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Aluminum	10.00	900.0
Antimony	20.00	45.0
Arsenic	10.00	45.0
Barium	10.00	45.0
Beryllium	10.00	1.8
Boron	20.00	45.0
Cadmium	20.00	4.5
Calcium	8.00	270.0
Chromium	20.00	36.0
Cobalt	20.00	45.0
Copper	20.00	180.0
Iron	8.00	720.0
Lead	20.00	225.0
Lithium	8.00	36.0
Magnesium	8.00	900.0
Manganese	10.00	36.0
Molybdenum	20.00	27.0
Nickel	20.00	90.0
Phosphorus	20.00	180.0
Potassium	8.00	360.0
Selenium	20.00	90.0
Silicon	20.00	36.0
Silver	10.00	4.5
Sodium	8.00	270.0
Strontium	8.00	9.0
Thallium	20.00	18.0
Tin	20.00	45.0
Titanium	8.00	45.0
Vanadium	20.00	27.0
Zinc	20.00	45.0
Zirconium	10.00	45.0

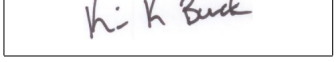
Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: 5013038
Report generated: 11/08/2016 10:29

2.3.1.3 Raw Data

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)
Ag 328.068 {103}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000399	0.052802	0.000000	1.000000
Al 308.215 {109}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.001666	0.010238	0.000000	1.000000
As 189.042 {478}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000015	0.028562	0.000000	1.000000
B 249.678 {135}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000215	0.017439	0.000000	1.000000
Ba 455.403 { 74}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.008626	1.519762	0.000000	1.000000
Be 313.107 {108}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000198	0.930618	0.000000	1.000000
Ca 422.673 { 80}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000312	0.035326	0.000000	1.000000
Cd 228.802 {447}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000590	0.470523	0.000000	1.000000
Co 228.616 {447}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000121	0.361587	0.000000	1.000000
Cr 267.716 {126}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000027	0.046493	0.000000	1.000000
Cu 224.700 {450}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000472	0.113243	0.000000	1.000000
Fe 261.187 {129}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000067	0.009777	0.000000	1.000000
K 766.490 { 44}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.004756	0.020965	0.000000	1.000000
Li 670.784 { 50}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.001308	0.405207	0.000000	1.000000
Mg 279.079 {121}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000260	0.002612	0.000000	1.000000
Mn 257.610 {131}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000540	0.104684	0.000000	1.000000
Mo 202.030 {467}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000072	0.138341	0.000000	1.000000
Na 589.592 { 57}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.004037	0.062218	0.000000	1.000000
Ni 231.604 {446}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000788	0.096817	0.000000	1.000000
P 214.914 {457}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000082	0.013029	0.000000	1.000000
Pb 220.353 {453}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000675	0.063976	0.000000	1.000000
Sb 206.833 {463}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000337	0.028005	0.000000	1.000000
Se 196.090 {472}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000293	0.014745	0.000000	1.000000
Si 212.412 {459}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000419	0.031499	0.000000	1.000000
Sn 189.989 {477}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000155	0.081837	0.000000	1.000000
Sr 407.771 { 83}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.002168	2.745251	0.000000	1.000000
Ti 337.280 {100}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000980	0.082090	0.000000	1.000000
Tl 190.856 {477}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000128	0.021459	0.000000	1.000000
V 292.402 {115}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.000003	0.061876	0.000000	1.000000
Y 224.306 {450}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
Y 360.073 { 94}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
Y 377.433 { 89}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
Zn 206.200 {463}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	0.000428	0.495729	0.000000	1.000000
Zr 339.198 { 99}	11/7/2016 13:23:01	11/7/2016 13:23:01	Linear	1/Conc	-0.004590	0.011660	0.000000	1.000000

Approved: November 08, 2016



	Element, Wavelength and Order	Correlation	Std Error of Est	Predicted MDL	Predicted MQL	Status	Reslope		QC Norm	
							Slope	Y-int	Slope factor	Offset
	Ag 328.068 {103}	0.999653	0.000004	0.001641	0.005471	OK.	1.000000	0.000000	1	0
	Al 308.215 {109}	0.999972	0.000005	0.005720	0.019066	OK.	1.000000	0.000000	1	0
	As 189.042 {478}	0.997483	0.000008	0.003335	0.011118	OK.	1.000000	0.000000	1	0
	B 249.678 {135}	0.999825	0.000002	0.002384	0.007945	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	0.999905	0.000133	0.000610	0.002032	OK.	1.000000	0.000000	1	0
	Be 313.107 {108}	0.999865	0.000005	0.000062	0.000208	OK.	1.000000	0.000000	1	0
	Ca 422.673 { 80}	0.999926	0.000027	0.020294	0.067647	OK.	1.000000	0.000000	1	0
	Cd 228.802 {447}	0.999741	0.000004	0.000314	0.001048	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	0.999906	0.000006	0.000477	0.001590	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	0.999897	0.000002	0.001075	0.003584	OK.	1.000000	0.000000	1	0
	Cu 224.700 {450}	0.999965	0.000003	0.001711	0.005704	OK.	1.000000	0.000000	1	0
	Fe 261.187 {129}	0.999676	0.000006	0.018347	0.061156	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	0.999933	0.000077	0.082381	0.274602	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	0.999884	0.000061	0.004485	0.014950	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	0.999356	0.000009	0.076449	0.254830	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	0.999911	0.000004	0.002178	0.007260	OK.	1.000000	0.000000	1	0
	Mo 202.030 {467}	0.999933	0.000010	0.000626	0.002088	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	0.998491	0.001086	0.027683	0.092276	OK.	1.000000	0.000000	1	0
	Ni 231.604 {446}	0.999887	0.000005	0.001645	0.005485	OK.	1.000000	0.000000	1	0
	P 214.914 {457}	0.999899	0.000012	0.008254	0.027515	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	0.999335	0.000007	0.003968	0.013226	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	0.999877	0.000003	0.005443	0.018144	OK.	1.000000	0.000000	1	0
	Se 196.090 {472}	0.999195	0.000002	0.008361	0.027870	OK.	1.000000	0.000000	1	0
	Si 212.412 {459}	0.999962	0.000009	0.003231	0.010769	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	0.999969	0.000004	0.000969	0.003231	OK.	1.000000	0.000000	1	0
	Sr 407.771 { 83}	0.999894	0.000254	0.000270	0.000899	OK.	1.000000	0.000000	1	0
	Ti 337.280 {100}	0.999792	0.000011	0.004704	0.015681	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	0.999489	0.000003	0.004714	0.015712	OK.	1.000000	0.000000	1	0
	V 292.402 {115}	0.999893	0.000006	0.000884	0.002945	OK.	1.000000	0.000000	1	0
	Y 224.306 {450}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
	Y 360.073 { 94}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
	Y 377.433 { 89}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
	Zn 206.200 {463}	0.999966	0.000026	0.000213	0.000711	OK.	1.000000	0.000000	1	0
	Zr 339.198 { 99}	0.939789	0.000027	0.054168	0.180559	OK.	1.000000	0.000000	1	0

Approved: November 08, 2016

Kim K Buck

Sample Name: S0 Acquired: 11/7/2016 13:04:39 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00040**	**.00167**	**-.00001**	**.00021**	**.00863**	**-.00020**	**.00031**
Stddev	.00006	.00002	.00006	.00002	.00083	.00004	.00023
%RSD	14.869	.93810	417.25	9.6120	9.6684	20.945	72.487
#1	-.00035	.00165	-.00007	.00020	.00818	-.00015	.00010
#2	-.00038	.00167	.00005	.00024	.00959	-.00022	.00029
#3	-.00047	.00168	-.00003	.00020	.00811	-.00022	.00055

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00059**	**.00012**	**.00003**	**-.00047**	**.00007**	**.00476**	**-.00131**
Stddev	.00006	.00014	.00001	.00002	.00006	.00070	.00146
%RSD	10.891	116.48	47.542	4.1899	92.579	14.615	111.54
#1	.00065	-.00003	.00003	-.00048	.00001	.00542	-.00209
#2	.00059	.00014	.00001	-.00049	.00013	.00481	-.00221
#3	.00053	.00025	.00004	-.00045	.00006	.00404	.00038

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00026**	**.00054**	**.00007**	**-.00407**	**-.00079**	**-.00008**	**-.00067**
Stddev	.00002	.00007	.00005	.00098	.00010	.00004	.00011
%RSD	9.1980	12.791	74.148	24.071	12.381	50.475	16.972
#1	-.00024	.00057	.00008	-.00389	-.00076	-.00004	-.00055
#2	-.00029	.00059	.00002	-.00318	-.00090	-.00009	-.00077
#3	-.00025	.00046	.00012	-.00512	-.00071	-.00012	-.00071

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00034**	**-.00029**	**.00042**	**.00016**	**.00217**	**-.00098**	**-.00013**
Stddev	.00017	.00006	.00007	.00001	.00043	.00016	.00007
%RSD	51.332	19.082	17.044	5.2937	19.700	16.485	53.902
#1	.00045	-.00023	.00050	.00016	.00174	-.00111	-.00021
#2	.00014	-.00032	.00040	.00016	.00217	-.00103	-.00009
#3	.00042	-.00033	.00036	.00015	.00259	-.00080	-.00008

Approved: November 08, 2016

Kristi K Buck

Sample Name: S0 Acquired: 11/7/2016 13:04:39 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	**-.00000**	**.00043**	**-.00459**
Stddev	.00006	.00006	.00065
%RSD	1844.6	13.174	14.053
#1	-.00005	.00043	-.00409
#2	-.00002	.00037	-.00532
#3	.00006	.00048	-.00436

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7127.8**	**89550.**	**9752.5**
Stddev	80.0	217.	110.2
%RSD	1.1228	.24183	1.1299
#1	7167.6	89782.	9812.6
#2	7180.2	89354.	9819.7
#3	7035.7	89514.	9625.3

Approved: November 08, 2016

Kim K Buck

Sample Name: S1 Acquired: 11/7/2016 13:08:28 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	Ba4554	Be3131	Ca4226	Cd2288	Co2286
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00020**	**.00255**	**.02030**	**.00015**	**.00318**	**.00078**	**.00059**
Stddev	.00006	.00008	.00059	.00003	.00061	.00012	.00019
%RSD	31.186	3.2347	2.9060	19.935	19.109	15.372	31.638
#1	-.00022	.00265	.01962	.00012	.00378	.00084	.00038
#2	-.00013	.00253	.02063	.00017	.00256	.00064	.00075
#3	-.00025	.00249	.02065	.00017	.00320	.00086	.00063

Elem	Cr2677	Cu2247	Fe2611	K_7664	Mn2576	Mo2020	Na5895
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00019**	**-.00001**	**.00026**	**.01323**	**.00102**	**.00123**	**.04686**
Stddev	.00002	.00024	.00005	.00142	.00023	.00005	.00098
%RSD	12.916	3093.4	19.259	10.768	22.491	4.0234	2.0881
#1	.00021	-.00022	.00028	.01283	.00107	.00128	.04755
#2	.00020	-.00006	.00021	.01481	.00077	.00124	.04574
#3	.00016	.00025	.00030	.01204	.00123	.00118	.04730

Elem	Ni2316	P_2149	Pb2203	Sb2068	Si2124	Sn1899	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00044**	**.00093**	**-.00026**	**.00053**	**.00170**	**.00081**	**.02475**
Stddev	.00025	.00007	.00012	.00009	.00009	.00004	.00079
%RSD	57.524	7.5918	47.637	16.872	5.0154	4.8940	3.1977
#1	-.00059	.00087	-.00012	.00062	.00167	.00079	.02511
#2	-.00059	.00092	-.00036	.00044	.00180	.00079	.02529
#3	-.00015	.00101	-.00029	.00054	.00164	.00086	.02384

Elem	Ti3372	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00018**	**.00051**	**.00455**	**-.00386**
Stddev	.00021	.00002	.00012	.00025
%RSD	120.89	3.5515	2.7191	6.3812
#1	-.00037	.00049	.00441	-.00410
#2	-.00022	.00051	.00464	-.00387
#3	.00005	.00052	.00461	-.00361

Approved: November 08, 2016

Ki K Buck

Sample Name: S1 Acquired: 11/7/2016 13:08:28 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	7164.1	89700.	10126.
Stddev	105.6	264.	56.
%RSD	1.4747	.29475	.55748
#1	7057.0	89954.	10105.
#2	7167.0	89721.	10082.
#3	7268.2	89426.	10190.

Approved: November 08, 2016

Kristi K Buck

Sample Name: S2 Acquired: 11/7/2016 13:12:15 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00004**	**.00346**	**.00034**	**.00037**	**.03339**	**.00051**	**.00600**
Stddev	.00005	.00005	.00005	.00005	.00088	.00002	.00045
%RSD	118.85	1.4866	13.380	14.084	2.6215	4.8711	7.5627
#1	.00010	.00347	.00033	.00033	.03423	.00053	.00636
#2	-.00001	.00341	.00039	.00043	.03249	.00050	.00614
#3	.00005	.00351	.00030	.00035	.03344	.00048	.00549

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00088**	**.00139**	**.00038**	**.00049**	**.00065**	**.02206**	**.00609**
Stddev	.00007	.00003	.00003	.00014	.00003	.00085	.00166
%RSD	8.3126	2.2359	7.4082	28.214	4.5005	3.8629	27.317
#1	.00089	.00140	.00035	.00062	.00064	.02198	.00458
#2	.00080	.00135	.00038	.00035	.00063	.02125	.00582
#3	.00095	.00140	.00040	.00050	.00068	.02295	.00787

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00035**	**.00142**	**.00233**	**.05039**	**.00012**	**.00194**	**-.00028**
Stddev	.00019	.00007	.00001	.00155	.00004	.00009	.00004
%RSD	54.514	4.6719	.39997	3.0815	35.114	4.6245	14.118
#1	.00014	.00137	.00232	.04861	.00013	.00194	-.00033
#2	.00042	.00141	.00233	.05145	.00016	.00185	-.00027
#3	.00051	.00150	.00234	.05110	.00008	.00203	-.00025

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00087**	**-.00025**	**.00290**	**.00143**	**.04733**	**.00051**	**-.00004**
Stddev	.00007	.00007	.00005	.00007	.00080	.00025	.00003
%RSD	7.5965	26.811	1.7589	4.7537	1.6942	48.305	83.447
#1	.00094	-.00031	.00284	.00138	.04825	.00050	-.00006
#2	.00085	-.00027	.00291	.00150	.04678	.00027	-.00006
#3	.00081	-.00018	.00294	.00140	.04697	.00077	-.00000

Approved: November 08, 2016

Ki K Buck

Sample Name: S2 Acquired: 11/7/2016 13:12:15 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	**.00095**	**.00857**	**-.00419**
Stddev	.00003	.00007	.00065
%RSD	3.4331	.82389	15.447
#1	.00091	.00865	-.00461
#2	.00097	.00854	-.00344
#3	.00097	.00852	-.00451

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7121.8**	**90660.**	**10051.**
Stddev	71.0	401.	103.
%RSD	.99674	.44268	1.0296
#1	7108.5	91024.	10021.
#2	7058.3	90728.	10167.
#3	7198.4	90230.	9966.4

Approved: November 08, 2016

Kristi K Buck

Sample Name: S3 Acquired: 11/7/2016 13:16:04 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

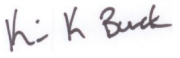
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02034**	**.10480**	**.01110**	**.00871**	**1.4991**	**.04626**	**.34746**	**.02605**
Stddev	.00013	.00012	.00013	.00004	.0043	.00019	.00211	.00010
%RSD	.66291	.11863	1.1290	.50885	.28743	.41391	.60793	.40299
#1	.02020	.10467	.01124	.00870	1.5041	.04604	.34980	.02611
#2	.02047	.10491	.01100	.00868	1.4965	.04642	.34569	.02593
#3	.02034	.10483	.01105	.00876	1.4967	.04631	.34689	.02610

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.07166**	**.02290**	**.05592**	**.03833**	**1.0359**	**.39714**	**.02536**	**.05212**
Stddev	.00032	.00008	.00028	.00033	.0041	.00165	.00019	.00034
%RSD	.44106	.33526	.49922	.85209	.39868	.41495	.73126	.64453
#1	.07193	.02282	.05623	.03871	1.0397	.39900	.02536	.05250
#2	.07131	.02296	.05570	.03815	1.0315	.39653	.02555	.05196
#3	.07173	.02294	.05582	.03814	1.0365	.39588	.02518	.05189

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.13617**	**3.0585**	**.04721**	**.12799**	**.03137**	**.03294**	**.00562**	**.15660**
Stddev	.00079	.0105	.00043	.00081	.00014	.00013	.00008	.00105
%RSD	.58129	.34274	.90521	.63312	.45580	.38451	1.4338	.66801
#1	.13708	3.0685	.04770	.12887	.03149	.03304	.00572	.15778
#2	.13573	3.0476	.04693	.12785	.03139	.03297	.00559	.15581
#3	.13569	3.0594	.04699	.12726	.03121	.03280	.00556	.15619

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.08097**	**2.6910**	**.07937**	**.00973**	**.06048**	**.49028**	**.00656**
Stddev	.00034	.0063	.00068	.00005	.00010	.00190	.00023
%RSD	.42504	.23440	.85193	.53256	.17314	.38703	3.5586
#1	.08134	2.6971	.07983	.00975	.06036	.49247	.00630
#2	.08090	2.6845	.07859	.00968	.06052	.48909	.00675
#3	.08066	2.6914	.07968	.00977	.06055	.48929	.00664

Approved: November 08, 2016



Sample Name: S3 Acquired: 11/7/2016 13:16:04 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	6997.6	86331.	10081.
Stddev	38.2	344.	117.
%RSD	.54627	.39896	1.1580
#1	6968.4	86656.	9994.7
#2	7040.8	86366.	10214.
#3	6983.5	85970.	10035.

Approved: November 08, 2016

Kristi K Buck

Sample Name: S4 Acquired: 11/7/2016 13:19:36 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.04184**	**.20818**	**.02276**	**.01779**	**3.0775**	**.09577**	**.71287**	**.05236**
Stddev	.00021	.00069	.00015	.00004	.0078	.00011	.00030	.00022
%RSD	.49288	.33310	.64226	.25033	.25378	.11839	.04208	.41762
#1	.04196	.20893	.02290	.01778	3.0686	.09580	.71254	.05256
#2	.04160	.20757	.02276	.01783	3.0833	.09586	.71311	.05240
#3	.04195	.20803	.02261	.01774	3.0805	.09564	.71296	.05213

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.14518**	**.04699**	**.11407**	**.07927**	**2.1177**	**.81495**	**.05207**	**.10590**
Stddev	.00044	.00007	.00068	.00033	.0036	.00240	.00017	.00029
%RSD	.30650	.13873	.59973	.42065	.16766	.29497	.33528	.27593
#1	.14547	.04706	.11467	.07901	2.1215	.81233	.05212	.10593
#2	.14541	.04697	.11421	.07915	2.1146	.81548	.05188	.10618
#3	.14467	.04694	.11332	.07964	2.1168	.81705	.05222	.10559

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.27885**	**6.2354**	**.09635**	**.26383**	**.06382**	**.06681**	**.01155**	**.31853**
Stddev	.00140	.0307	.00062	.00124	.00032	.00045	.00005	.00200
%RSD	.50371	.49179	.64859	.47090	.49752	.66629	.44119	.62807
#1	.28042	6.2005	.09686	.26515	.06419	.06729	.01156	.32066
#2	.27844	6.2579	.09653	.26364	.06364	.06673	.01149	.31824
#3	.27770	6.2479	.09565	.26269	.06364	.06641	.01159	.31669

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.16442**	**5.5476**	**.16438**	**.01956**	**.12473**	**.99652**	**.01838**
Stddev	.00058	.0090	.00098	.00008	.00011	.00603	.00068
%RSD	.35378	.16231	.59318	.42647	.09023	.60527	3.7157
#1	.16498	5.5372	.16401	.01956	.12460	1.0023	.01799
#2	.16447	5.5534	.16548	.01965	.12481	.99703	.01798
#3	.16382	5.5522	.16364	.01948	.12477	.99025	.01917

Approved: November 08, 2016

Ki K Buck

Sample Name: S4 Acquired: 11/7/2016 13:19:36 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	6799.3	84653.	9776.0
Stddev	21.8	202.	10.0
%RSD	.32008	.23875	.10271
#1	6821.1	84836.	9778.3
#2	6777.6	84436.	9784.6
#3	6799.1	84687.	9765.0

Approved: November 08, 2016

Kristi K Buck

Sample Name: ICV Acquired: 11/7/2016 13:23:08 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40015**	**9.9948**	**.41214**	**.49183**	**.99395**	**.04981**	**10.114**
Stddev	.00244	.0476	.00181	.00177	.00306	.00031	.044
%RSD	.60947	.47677	.43857	.35909	.30810	.61238	.43121
#1	.40158	10.044	.41367	.49212	.99461	.04947	10.079
#2	.39733	9.9485	.41261	.48994	.99062	.04991	10.102
#3	.40153	9.9923	.41015	.49343	.99663	.05005	10.163
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05126**	**.20286**	**.49587**	**.50816**	**3.9281**	**49.647**	**1.0041**
Stddev	.00037	.00090	.00291	.00364	.0191	.243	.0034
%RSD	.71760	.44340	.58664	.71703	.48634	.48868	.33632
#1	.05092	.20183	.49258	.50486	3.9128	49.903	1.0075
#2	.05120	.20325	.49690	.50754	3.9219	49.421	1.0007
#3	.05165	.20349	.49812	.51207	3.9495	49.619	1.0042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.9548**	**.49665**	**.95501**	**50.006**	**.50442**	**10.124**	**.50921**
Stddev	.0743	.00178	.00382	.206	.00109	.040	.00612
%RSD	.74625	.35923	.39956	.41139	.21604	.39749	1.2024
#1	9.9847	.49556	.95112	49.793	.50479	10.078	.50220
#2	9.8702	.49568	.95516	50.022	.50528	10.144	.51189
#3	10.009	.49871	.95875	50.203	.50319	10.151	.51353
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: ICV Acquired: 11/7/2016 13:23:08 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2309**	**.40110**	**5.0024**	**1.0384**	**.99434**	**.99648**	**.50875**
Stddev	.0032	.00807	.0217	.0015	.00144	.00792	.00364
%RSD	.26227	2.0109	.43345	.14498	.14435	.79437	.71615
#1	1.2273	.39281	4.9777	1.0366	.99520	.99741	.50879
#2	1.2334	.40156	5.0116	1.0390	.99269	.98814	.51238
#3	1.2319	.40892	5.0180	1.0395	.99515	1.0039	.50510
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.97842**	**1.0106**	F **.04707**
Stddev	.00244	.0012	.03177
%RSD	.24979	.11344	67.508
#1	.97833	1.0098	.07860
#2	.97603	1.0100	.04754
#3	.98091	1.0119	.01506
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-5.0000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6900.1**	**86479.**	**10060.**
Stddev	17.6	942.	47.
%RSD	.25522	1.0890	.47111
#1	6883.4	87496.	10006.
#2	6918.5	86303.	10094.
#3	6898.3	85637.	10081.

Approved: November 08, 2016

Ki K Buck

Sample Name: ICB Acquired: 11/7/2016 13:26:40 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00120**	**-.00146**	**.00347**	**.00195**	**-.00027**	**.00003**	**-.00410**
Stddev	.00063	.00418	.00136	.00149	.00010	.00012	.01235
%RSD	52.397	286.28	39.247	76.368	36.270	418.37	301.13
#1	.00065	-.00209	.00478	.00323	-.00035	.00015	-.00485
#2	.00107	-.00529	.00206	.00031	-.00031	-.00008	.00861
#3	.00189	.00300	.00358	.00232	-.00016	.00001	-.01607
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00036**	**-.00027**	**-.00069**	**.00035**	**.00115**	**.06266**	**-.00061**
Stddev	.00012	.00033	.00070	.00102	.00256	.07599	.00273
%RSD	32.643	122.19	100.23	291.64	223.79	121.28	446.12
#1	-.00047	-.00006	.00011	.00150	.00410	-.00113	-.00334
#2	-.00024	-.00064	-.00105	-.00046	-.00036	.14674	-.00062
#3	-.00039	-.00009	-.00114	.00002	-.00031	.04237	.00212
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.07536**	**.00032**	**-.00009**	**.03701**	**-.00144**	**-.00103**	F **.00723**
Stddev	.07551	.00078	.00028	.03528	.00184	.00595	.00331
%RSD	100.21	243.38	316.89	95.345	128.03	578.75	45.791
#1	.08771	.00074	-.00012	-.00066	-.00348	-.00719	.00606
#2	.14393	-.00058	-.00035	.04240	-.00096	-.00057	.00467
#3	-.00557	.00081	.00021	.06928	.00011	.00468	.01097
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							.00500
Low Limit							-.00500

Approved: November 08, 2016

Ki K Buck

Sample Name: ICB Acquired: 11/7/2016 13:26:40 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00062**	**-.00169**	**.00187**	**-.00044**	**-.00009**	**.00313**	**-.00495**
Stddev	.00433	.00708	.00033	.00105	.00015	.00251	.00106
%RSD	695.91	419.91	17.539	239.53	160.57	80.157	21.470
#1	.00198	-.00032	.00213	-.00161	-.00005	.00450	-.00443
#2	.00177	.00461	.00150	.00042	-.00026	.00023	-.00425
#3	-.00562	-.00935	.00198	-.00012	.00003	.00466	-.00617
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00051**	**.00087**	F **.06474**
Stddev	.00048	.00013	.00860
%RSD	95.610	14.546	13.285
#1	.00076	.00078	.06390
#2	.00081	.00102	.05659
#3	-.00005	.00082	.07372
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7120.5**	**89113.**	**9902.1**
Stddev	181.1	329.	42.6
%RSD	2.5439	.36863	.42980
#1	6912.2	89490.	9926.4
#2	7208.1	88966.	9926.9
#3	7241.2	88885.	9852.9

Approved: November 08, 2016

Ki K Buck

Sample Name: LLICV Acquired: 11/7/2016 13:30:28 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00847**	**.17620**	**.01088**	**.07540**	**.00809**	**.00159**	**.40664**	**.00053**
Stddev	.00140	.00238	.00210	.00002	.00024	.00004	.00626	.00029
%RSD	16.521	1.3507	19.299	.03083	2.9892	2.6247	1.5404	54.663
#1	.00823	.17837	.01329	.07539	.00792	.00158	.41227	.00020
#2	.00997	.17658	.00997	.07539	.00798	.00164	.40774	.00073
#3	.00721	.17365	.00940	.07543	.00837	.00157	.39989	.00067
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00399**	**.00425**	**.00544**	**.06692**	**.90205**	**.08544**	**.46271**	**.00858**
Stddev	.00010	.00087	.00030	.01770	.03375	.00338	.06184	.00166
%RSD	2.4973	20.352	5.5674	26.457	3.7412	3.9565	13.365	19.345
#1	.00408	.00525	.00571	.07169	.86328	.08483	.39412	.00697
#2	.00388	.00379	.00511	.08175	.92481	.08240	.51420	.01029
#3	.00399	.00372	.00549	.04732	.91805	.08908	.47981	.00847
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00785**	**.46762**	**.01654**	**.79471**	**.01054**	**.08745**	**.01248**	**.80764**
Stddev	.00066	.01175	.00040	.00842	.00250	.00028	.00344	.00384
%RSD	8.4044	2.5126	2.4386	1.0589	23.709	.31928	27.576	.47535
#1	.00718	.47349	.01698	.78725	.00853	.08720	.01074	.80647
#2	.00850	.47528	.01619	.80383	.01334	.08740	.01644	.81193
#3	.00785	.45410	.01646	.79305	.00976	.08775	.01025	.80453
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LLICV Acquired: 11/7/2016 13:30:28 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41617**	**.04112**	**.02962**	**.16894**	**.00743**	**.01769**	**6.9130**
Stddev	.00233	.00002	.00497	.00366	.00068	.00017	.1058
%RSD	.55946	.04465	16.787	2.1660	9.2027	.98326	1.5301
#1	.41523	.04110	.03489	.16659	.00771	.01788	6.9799
#2	.41882	.04112	.02896	.16707	.00665	.01754	6.7911
#3	.41446	.04114	.02501	.17315	.00793	.01764	6.9681
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7105.6**	**90063.**	**9905.6**
Stddev	91.0	261.	90.3
%RSD	1.2811	.28929	.91175
#1	7021.7	90364.	9859.4
#2	7092.7	89929.	10010.
#3	7202.4	89897.	9847.8

Approved: November 08, 2016

Ki K Buck

Sample Name: LLICV Acquired: 11/7/2016 13:34:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01264**	**.22271**	**.01423**	**.09515**	**.01036**	**.00189**	**.50259**	**.00087**
Stddev	.00085	.00204	.00100	.00242	.00012	.00007	.01196	.00018
%RSD	6.7495	.91467	7.0453	2.5471	1.1902	3.8611	2.3796	21.179
#1	.01286	.22332	.01530	.09467	.01025	.00196	.50269	.00093
#2	.01169	.22044	.01407	.09301	.01035	.00189	.49057	.00102
#3	.01336	.22437	.01331	.09778	.01049	.00182	.51449	.00067
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00521**	**.00396**	**.00508**	**.10495**	**1.0419**	**.10339**	**.50034**	**.00994**
Stddev	.00044	.00032	.00080	.01665	.0721	.00457	.03696	.00135
%RSD	8.4797	8.0466	15.775	15.868	6.9229	4.4173	7.3863	13.627
#1	.00519	.00433	.00416	.10198	.96122	.10023	.53596	.01089
#2	.00478	.00382	.00561	.08999	1.1002	.10132	.46218	.01054
#3	.00566	.00375	.00546	.12290	1.0643	.10863	.50289	.00839
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01009**	**.55813**	**.02028**	**1.0029**	**.01267**	**.10692**	**.01556**	**1.0054**
Stddev	.00047	.02528	.00084	.0121	.00105	.00308	.00294	.0010
%RSD	4.6216	4.5290	4.1251	1.2051	8.2989	2.8759	18.918	.09934
#1	.01004	.53758	.02102	.98904	.01256	.11029	.01401	1.0043
#2	.00966	.58635	.02045	1.0115	.01377	.10622	.01896	1.0054
#3	.01059	.55045	.01937	1.0081	.01168	.10426	.01372	1.0063
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LLICV Acquired: 11/7/2016 13:34:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.52251	.05190	.03176	.21104	.00991	.02194	8.5665
Stddev	.00132	.00019	.00077	.00028	.00090	.00008	.0772
%RSD	.25323	.36300	2.4368	.13069	9.1162	.34314	.90086
#1	.52135	.05208	.03086	.21135	.00911	.02186	8.4774
#2	.52395	.05190	.03218	.21082	.00973	.02201	8.6117
#3	.52224	.05171	.03222	.21094	.01089	.02195	8.6105
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	7094.2	90567.	10092.
Stddev	21.7	394.	61.
%RSD	.30562	.43475	.60459
#1	7118.4	90198.	10101.
#2	7076.6	90982.	10148.
#3	7087.6	90522.	10027.

Approved: November 08, 2016

Ki K Buck

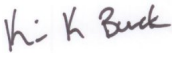
Sample Name: ICSA Acquired: 11/7/2016 13:38:01 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00396	241.57	.00001	.00214	-.00002	-.00006	221.61
Stddev	.00197	3.73	.00268	.00184	.00033	.00009	.86
%RSD	49.703	1.5432	39608.	85.935	2134.5	132.71	.38870
#1	.00348	241.50	-.00258	.00426	-.00040	-.00014	221.60
#2	.00613	245.34	-.00016	.00092	.00022	.00003	220.76
#3	.00228	237.88	.00277	.00125	.00014	-.00009	222.48
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00026	-.00069	-.00275	-.00010	97.265	.13828	.00748
Stddev	.00019	.00039	.00058	.00089	.128	.05341	.00307
%RSD	72.740	56.868	20.896	867.59	.13147	38.622	41.078
#1	.00040	-.00038	-.00221	.00040	97.328	.12029	.01095
#2	.00033	-.00057	-.00270	.00042	97.118	.09620	.00637
#3	.00004	-.00114	-.00335	-.00113	97.349	.19837	.00511
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	243.08	.00194	-.00098	.06850	-.00310	.04711	.00197
Stddev	.57	.00278	.00037	.00523	.00067	.00300	.00236
%RSD	.23497	143.16	37.528	7.6331	21.639	6.3746	119.71
#1	242.91	.00470	-.00064	.06630	-.00238	.04614	.00231
#2	242.60	.00201	-.00092	.06473	-.00321	.04472	-.00054
#3	243.71	-.00087	-.00137	.07447	-.00370	.05048	.00413
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016



Sample Name: ICSA Acquired: 11/7/2016 13:38:01 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00196**	**-.00001**	**.23074**	**-.00063**	**.00135**	**.00501**	**.00040**
Stddev	.00611	.00735	.00325	.00069	.00015	.00492	.00532
%RSD	311.91	108850.	1.4068	108.31	11.331	98.098	1327.7
#1	.00836	-.00797	.23443	-.00036	.00135	.00990	.00436
#2	-.00382	.00142	.22949	-.00141	.00120	.00007	.00250
#3	.00134	.00653	.22831	-.00013	.00151	.00506	-.00565
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00460**	**-.00603**	F **-.85283**
Stddev	.00098	.00018	.06446
%RSD	21.372	2.9230	7.5582
#1	.00571	-.00594	-.90958
#2	.00381	-.00623	-.86617
#3	.00429	-.00592	-.78275
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02000
Low Limit			-.02000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6632.8**	**81668.**	**9717.6**
Stddev	6.4	160.	110.0
%RSD	.09594	.19563	1.1321
#1	6630.9	81845.	9654.2
#2	6639.9	81625.	9844.6
#3	6627.6	81535.	9654.0

Approved: November 08, 2016

Ki K Buck

Sample Name: ICSAB Acquired: 11/7/2016 13:41:54 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.51699**	**246.54**	**.24186**	**-.01529**	**.25017**	**.25540**	**221.14**
Stddev	.00086	1.71	.00581	.00063	.00097	.00075	.75
%RSD	.16641	.69239	2.4021	4.0977	.38969	.29551	.34103
#1	.51750	246.61	.24340	-.01515	.24930	.25470	221.64
#2	.51748	244.80	.23543	-.01598	.25123	.25620	221.50
#3	.51600	248.21	.24674	-.01475	.24998	.25532	220.27
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.46739**	**.23828**	**.24548**	**.24567**	**97.735**	**5.4076**	**.00493**
Stddev	.00025	.00038	.00206	.00014	.181	.0283	.00102
%RSD	.05310	.15891	.84028	.05709	.18513	.52376	20.781
#1	.46766	.23787	.24372	.24562	97.709	5.4125	.00570
#2	.46737	.23860	.24775	.24583	97.928	5.4332	.00532
#3	.46716	.23839	.24497	.24557	97.569	5.3772	.00377
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**243.96**	**.24405**	**-.00058**	**5.2281**	**.47628**	**.00095**	**.48032**
Stddev	.54	.00396	.00048	.0273	.00194	.00768	.00028
%RSD	.21997	1.6227	82.731	.52204	.40765	804.85	.05848
#1	244.32	.24533	-.00019	5.2422	.47435	-.00407	.48054
#2	244.21	.23960	-.00044	5.2455	.47624	.00979	.48001
#3	243.34	.24721	-.00111	5.1967	.47824	-.00285	.48043
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: ICSAB Acquired: 11/7/2016 13:41:54 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48655**	**.23398**	**.00297**	**.00051**	**.00126**	**.00163**	**.44198**
Stddev	.00161	.01113	.00272	.00138	.00017	.00143	.00689
%RSD	.32999	4.7551	91.699	271.62	13.812	87.861	1.5584
#1	.48824	.23625	.00066	.00172	.00127	.00304	.43416
#2	.48504	.24379	.00597	.00081	.00107	.00019	.44714
#3	.48636	.22189	.00228	-.00100	.00142	.00165	.44464
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.25399**	**.47683**	F **-.89094**
Stddev	.00161	.00080	.04346
%RSD	.63330	.16857	4.8780
#1	.25222	.47772	-.94085
#2	.25537	.47661	-.86146
#3	.25436	.47615	-.87052
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02500
Low Limit			-.02500

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6706.1**	**82098.**	**9910.6**
Stddev	29.9	190.	63.5
%RSD	.44577	.23144	.64024
#1	6679.8	82292.	9849.5
#2	6699.9	81912.	9976.1
#3	6738.7	82090.	9906.1

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCV Acquired: 11/7/2016 13:45:39 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40012**	**10.103**	**.40048**	**.49251**	**1.0032**	**.04993**	**10.020**
Stddev	.00139	.020	.00225	.00129	.0041	.00006	.041
%RSD	.34630	.19770	.56183	.26201	.41182	.11550	.41280
#1	.39930	10.125	.40306	.49396	.99847	.04995	9.9740
#2	.40172	10.086	.39949	.49147	1.0055	.04997	10.033
#3	.39933	10.098	.39891	.49211	1.0058	.04986	10.054
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05032**	**.20290**	**.50242**	**.50631**	**3.9791**	**50.340**	**1.0035**
Stddev	.00057	.00067	.00159	.00093	.0231	.247	.0052
%RSD	1.1287	.32932	.31677	.18381	.58144	.48990	.51942
#1	.05087	.20356	.50300	.50558	3.9635	50.056	.99904
#2	.04973	.20222	.50365	.50599	3.9682	50.488	1.0023
#3	.05037	.20292	.50062	.50736	4.0057	50.477	1.0092
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.9746**	**.49584**	**1.0023**	**50.124**	**.50736**	**10.027**	**.50850**
Stddev	.0792	.00563	.0005	.164	.00024	.012	.00282
%RSD	.79424	1.1363	.04627	.32750	.04778	.12117	.55421
#1	9.9491	.49320	1.0028	49.950	.50750	10.037	.51122
#2	9.9112	.49202	1.0024	50.146	.50708	10.013	.50559
#3	10.063	.50231	1.0018	50.276	.50750	10.030	.50869
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 13:45:39 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2087**	**.40452**	**5.0150**	**1.0041**	**1.0059**	**.99050**	**.51192**
Stddev	.0013	.00188	.0059	.0023	.0046	.00496	.00389
%RSD	.10791	.46579	.11760	.23005	.45966	.50034	.75964
#1	1.2075	.40492	5.0082	1.0021	1.0006	.98827	.51330
#2	1.2101	.40247	5.0183	1.0036	1.0091	.99618	.50753
#3	1.2086	.40617	5.0184	1.0066	1.0080	.98705	.51494
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0010**	**1.0144**	F **.05342**
Stddev	.0001	.0016	.03832
%RSD	.01225	.15718	71.733
#1	1.0009	1.0127	.00932
#2	1.0010	1.0147	.07238
#3	1.0011	1.0158	.07857
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7081.5**	**88030.**	**10051.**
Stddev	20.7	163.	52.
%RSD	.29201	.18476	.51270
#1	7105.0	87938.	10079.
#2	7066.2	87934.	10083.
#3	7073.4	88218.	9991.9

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 13:49:10 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00055**	**-.00153**	**.00332**	**-.00089**	**.00025**	**-.00005**	**-.01385**	**-.00035**
Stddev	.00123	.00637	.00181	.00115	.00038	.00000	.00817	.00011
%RSD	222.31	416.27	54.522	129.33	151.43	4.3501	59.006	30.501
#1	-.00081	-.00869	.00140	-.00220	-.00011	-.00005	-.02312	-.00027
#2	.00158	.00062	.00357	-.00007	.00022	-.00005	-.01078	-.00031
#3	.00089	.00348	.00499	-.00039	.00064	-.00005	-.00767	-.00047
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00019**	**-.00023**	**-.00072**	**.00948**	**.14776**	**-.00127**	**.03689**	**-.00132**
Stddev	.00023	.00035	.00103	.00882	.04578	.00210	.06813	.00097
%RSD	121.77	154.97	142.75	92.966	30.980	165.60	184.69	73.914
#1	-.00033	-.00020	-.00010	.00399	.19178	-.00251	.02017	-.00244
#2	.00008	.00011	-.00192	.00481	.10041	.00116	-.02133	-.00073
#3	-.00030	-.00059	-.00015	.01966	.15110	-.00246	.11182	-.00078
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00006**	**.02180**	**-.00099**	**.00427**	**.00331**	**.00199**	**-.00180**	**.00131**
Stddev	.00029	.02262	.00158	.00240	.00353	.00634	.00574	.00094
%RSD	487.13	103.79	159.89	56.123	106.65	318.02	319.28	71.242
#1	-.00006	.02457	-.00086	.00500	.00286	-.00269	.00371	.00033
#2	-.00015	.04291	-.00263	.00622	.00003	.00920	-.00136	.00142
#3	.00039	-.00209	.00053	.00159	.00704	-.00053	-.00775	.00220
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCB Acquired: 11/7/2016 13:49:10 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00052**	**-.00002**	**.00347**	**-.00436**	**.00017**	**.00015**	**.03515**
Stddev	.00069	.00011	.00320	.00122	.00029	.00014	.02942
%RSD	132.76	590.13	92.197	27.987	173.36	95.073	83.691
#1	.00027	-.00010	.00004	-.00307	.00002	.00003	.00219
#2	-.00103	.00010	.00399	-.00549	-.00002	.00011	.04453
#3	-.00079	-.00006	.00638	-.00453	.00051	.00031	.05874
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7235.2**	**90429.**	**9957.1**
Stddev	5.6	386.	88.7
%RSD	.07696	.42630	.89054
#1	7231.0	90824.	9951.9
#2	7241.5	90411.	10048.
#3	7233.2	90054.	9871.2

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 15:00:00 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40559**	**10.318**	**.40017**	**.50828**	**1.0131**	**.04982**	**10.168**
Stddev	.00261	.109	.00308	.00190	.0009	.00007	.031
%RSD	.64290	1.0580	.76936	.37463	.08782	.14042	.30780
#1	.40804	10.434	.39981	.50924	1.0121	.04976	10.176
#2	.40587	10.304	.40342	.50950	1.0138	.04982	10.194
#3	.40285	10.217	.39729	.50608	1.0133	.04990	10.133
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05098**	**.20357**	**.50299**	**.50855**	**4.0253**	**50.621**	**1.0165**
Stddev	.00024	.00077	.00065	.00211	.0423	.141	.0050
%RSD	.46986	.37793	.12879	.41575	1.0512	.27826	.48940
#1	.05107	.20269	.50374	.50617	3.9842	50.484	1.0222
#2	.05071	.20395	.50260	.50928	4.0688	50.614	1.0146
#3	.05116	.20408	.50264	.51021	4.0228	50.766	1.0127
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.162**	**.50686**	**1.0116**	**50.923**	**.51303**	**10.016**	**.51205**
Stddev	.018	.00146	.0012	.071	.00056	.007	.00344
%RSD	.17725	.28842	.11986	.13909	.10940	.07244	.67132
#1	10.177	.50521	1.0104	50.993	.51267	10.011	.50847
#2	10.142	.50739	1.0116	50.925	.51368	10.025	.51235
#3	10.165	.50798	1.0128	50.852	.51275	10.013	.51532
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 15:00:00 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2074**	**.40355**	**5.0173**	**1.0107**	**1.0118**	**1.0099**	**.51829**
Stddev	.0029	.00121	.0080	.0007	.0009	.0053	.00143
%RSD	.24227	.29872	.16032	.06889	.08912	.52307	.27676
#1	1.2070	.40433	5.0132	1.0109	1.0112	1.0160	.51696
#2	1.2048	.40216	5.0121	1.0113	1.0128	1.0068	.51809
#3	1.2106	.40416	5.0265	1.0100	1.0113	1.0068	.51981
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0070**	**1.0076**	F **.06201**
Stddev	.0010	.0015	.03555
%RSD	.09715	.14809	57.327
#1	1.0079	1.0061	.09295
#2	1.0060	1.0077	.06989
#3	1.0073	1.0090	.02318
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6988.4**	**85953.**	**9805.3**
Stddev	43.6	199.	54.1
%RSD	.62336	.23099	.55139
#1	7027.7	85909.	9842.3
#2	6996.1	86169.	9743.2
#3	6941.6	85779.	9830.3

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 15:03:29 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00156**	**.00233**	**.00284**	**.00005**	**-.00011**	**-.00002**	**-.02599**	**-.00014**
Stddev	.00045	.00592	.00165	.00096	.00043	.00002	.01021	.00009
%RSD	29.052	253.86	58.015	1943.2	379.14	103.00	39.296	67.010
#1	.00206	-.00409	.00350	.00109	-.00058	.00000	-.01430	-.00004
#2	.00145	.00350	.00405	-.00015	.00025	-.00003	-.03319	-.00014
#3	.00117	.00758	.00096	-.00080	-.00000	-.00003	-.03049	-.00023
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00015**	**-.00077**	**-.00034**	**.00028**	**.12153**	**-.00224**	**.01474**	**-.00153**
Stddev	.00039	.00015	.00112	.00489	.03321	.00360	.03952	.00152
%RSD	253.45	19.121	329.58	1719.5	27.324	161.06	268.10	99.201
#1	-.00015	-.00082	.00090	.00271	.10974	.00044	-.03057	.00018
#2	.00024	-.00088	-.00128	-.00534	.15902	-.00633	.04212	-.00205
#3	-.00054	-.00060	-.00064	.00348	.09583	-.00081	.03267	-.00272
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00023**	**.01676**	**-.00035**	**.00559**	**-.00029**	**.00129**	**.00151**	**-.00018**
Stddev	.00110	.01844	.00055	.01048	.00268	.00111	.00932	.00358
%RSD	471.82	110.06	156.14	187.60	936.17	86.031	618.51	2037.8
#1	.00101	-.00119	-.00086	.00601	.00281	.00182	-.00907	-.00186
#2	-.00063	.03566	-.00044	-.00510	-.00186	.00205	.00851	.00394
#3	-.00108	.01580	.00024	.01585	-.00181	.00002	.00508	-.00260
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 15:03:29 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00067**	**.00018**	**.00350**	**-.00323**	**.00012**	**.00005**	**-.01670**
Stddev	.00034	.00021	.00249	.00387	.00090	.00017	.01497
%RSD	50.127	116.06	71.237	119.77	728.26	309.40	89.663
#1	-.00031	.00022	.00072	-.00730	-.00079	-.00007	-.02494
#2	-.00098	-.00005	.00423	.00041	.00017	-.00001	.00058
#3	-.00072	.00037	.00555	-.00281	.00099	.00025	-.02574
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7118.5**	**87718.**	**9771.0**
Stddev	85.2	93.	253.8
%RSD	1.1971	.10557	2.5974
#1	7022.6	87752.	9751.0
#2	7185.7	87789.	10034.
#3	7147.2	87613.	9527.8

Approved: November 08, 2016

Ki K Buck

Sample Name: PBW 07 Acquired: 11/7/2016 15:07:20 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00171**	**.01205**	**.00389**	**.00262**	**.00034**	**-.00005**	**.02365**	**-.00009**
Stddev	.00074	.00732	.00195	.00108	.00073	.00005	.02123	.00012
%RSD	43.198	60.735	50.012	41.241	216.43	94.314	89.750	128.36
#1	.00188	.00613	.00481	.00387	-.00050	-.00009	.00173	.00002
#2	.00236	.02023	.00521	.00196	.00066	.00000	.02512	-.00008
#3	.00090	.00979	.00166	.00203	.00085	-.00006	.04411	-.00022
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00001**	**.00007**	**.00026**	**-.00515**	**.10419**	**-.00625**	**-.01162**	**.00172**
Stddev	.00022	.00084	.00102	.01298	.04533	.00071	.12046	.00156
%RSD	2381.6	1224.5	396.51	251.93	43.511	11.422	1036.4	91.143
#1	-.00004	.00102	.00112	.00982	.10180	-.00571	.12601	.00336
#2	-.00018	-.00023	.00052	-.01331	.06009	-.00706	-.09783	.00025
#3	.00025	-.00058	-.00087	-.01196	.15066	-.00599	-.06305	.00154
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00006**	**-.01430**	**-.00009**	**-.00655**	**.00163**	**-.00052**	**.00121**	**.00261**
Stddev	.00018	.02787	.00043	.00582	.00388	.00340	.00400	.00055
%RSD	300.58	194.88	481.55	88.918	237.83	659.71	329.94	21.089
#1	-.00014	.00739	-.00031	-.01324	.00407	-.00425	.00166	.00302
#2	.00019	-.04573	-.00037	-.00266	-.00284	.00031	-.00299	.00199
#3	.00013	-.00457	.00041	-.00374	.00367	.00240	.00497	.00283
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: PBW 07 Acquired: 11/7/2016 15:07:20 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00039**	**.00050**	**.00363**	**-.00579**	**-.00031**	**.00058**	**.01099**
Stddev	.00032	.00017	.00689	.00486	.00011	.00016	.01347
%RSD	80.426	33.625	190.14	84.003	34.325	26.871	122.57
#1	-.00041	.00063	-.00183	-.00648	-.00025	.00069	.02653
#2	-.00070	.00031	.00133	-.01027	-.00024	.00065	.00270
#3	-.00007	.00056	.01137	-.00062	-.00043	.00040	.00374
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7101.4**	**89672.**	**9731.4**
Stddev	41.0	1136.	45.1
%RSD	.57803	1.2672	.46367
#1	7140.0	88361.	9721.7
#2	7058.3	90292.	9780.5
#3	7106.0	90364.	9691.8

Approved: November 08, 2016

Kristi K Buck

Sample Name: LCSW 07 Acquired: 11/7/2016 15:11:07 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.16171**	**5.4318**	**.00159**	**.00051**	**-.00003**	**.02565**	**5.1754**	**.00018**
Stddev	.00170	.0367	.00219	.00185	.00015	.00005	.0133	.00011
%RSD	1.0539	.67588	137.44	366.98	449.13	.19803	.25661	60.289
#1	.16204	5.4731	.00412	.00203	-.00003	.02568	5.1645	.00030
#2	.16322	5.4028	.00034	-.00156	-.00018	.02559	5.1902	.00016
#3	.15986	5.4195	.00031	.00104	.00011	.02568	5.1716	.00008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00009**	**-.00201**	**-.00023**	**2.0607**	**25.956**	**-.00064**	**5.1564**	**.26138**
Stddev	.00023	.00094	.00104	.0111	.122	.00133	.0490	.00162
%RSD	252.50	46.819	446.40	.53676	.46857	208.60	.95065	.62155
#1	-.00005	-.00107	-.00052	2.0709	26.095	-.00086	5.1878	.26291
#2	-.00034	-.00203	.00092	2.0489	25.871	.00079	5.0999	.26157
#3	.00012	-.00295	-.00109	2.0623	25.901	-.00185	5.1815	.25968
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00004**	**26.221**	**-.00077**	**-.00210**	**.00011**	**.00038**	**.00349**	**.00134**
Stddev	.00046	.056	.00187	.00505	.00372	.00274	.00579	.00120
%RSD	1312.9	.21192	241.26	240.81	3422.5	714.51	166.10	89.756
#1	.00025	26.164	-.00240	-.00445	-.00365	.00330	-.00243	.00250
#2	-.00057	26.275	-.00119	.00370	.00020	-.00214	.00375	.00142
#3	.00021	26.224	.00127	-.00553	.00378	-.00001	.00914	.00010
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Sample Name: LCSW 07 Acquired: 11/7/2016 15:11:07 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-03

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00042**	**.00027**	**.00287**	**-.00316**	**.00048**	**.00062**	**.03098**
Stddev	.00029	.00025	.00253	.00295	.00106	.00014	.01157
%RSD	70.127	93.256	88.043	93.524	219.78	22.623	37.354
#1	-.00064	.00056	-.00003	-.00315	.00102	.00046	.02218
#2	-.00053	.00011	.00402	-.00021	-.00074	.00072	.04409
#3	-.00009	.00014	.00461	-.00611	.00117	.00069	.02667
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6960.8**	**87618.**	**9973.8**
Stddev	49.8	323.	51.3
%RSD	.71546	.36876	.51407
#1	7015.1	87277.	10027.
#2	6917.3	87659.	9970.7
#3	6950.0	87919.	9924.1

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000601 Acquired: 11/7/2016 15:14:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00162**	**.04144**	**.00525**	**.01720**	**.07856**	**-.00003**	**45.989**	**.00012**
Stddev	.00062	.00321	.00168	.00136	.00186	.00005	.387	.00007
%RSD	38.412	7.7541	31.960	7.8938	2.3668	171.97	.84085	58.008
#1	.00186	.04185	.00549	.01603	.08044	.00002	46.434	.00014
#2	.00209	.04443	.00347	.01689	.07852	-.00009	45.797	.00019
#3	.00092	.03804	.00680	.01869	.07672	-.00002	45.735	.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00019**	**-.00025**	**.00326**	**.26329**	**1.2961**	**.00846**	**9.2378**	**.00720**
Stddev	.00053	.00083	.00187	.02725	.0623	.00652	.0203	.00281
%RSD	281.96	327.52	57.496	10.350	4.8059	77.113	.21990	39.076
#1	-.00041	.00009	.00487	.29438	1.3402	.00889	9.2242	.00398
#2	.00059	-.00121	.00120	.24358	1.2249	.00174	9.2279	.00916
#3	.00039	.00035	.00369	.25190	1.3233	.01476	9.2611	.00846
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00080**	**6.2620**	**-.00143**	**.01792**	**.00186**	**.00134**	**.00126**	**5.5513**
Stddev	.00059	.0630	.00156	.00669	.00362	.00281	.00270	.0092
%RSD	74.241	1.0061	109.06	37.321	194.33	209.26	213.82	.16475
#1	.00140	6.3347	-.00248	.02517	.00401	-.00082	.00411	5.5446
#2	.00077	6.2292	.00036	.01658	-.00232	.00032	.00094	5.5477
#3	.00022	6.2222	-.00217	.01200	.00390	.00452	-.00126	5.5617
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000601 Acquired: 11/7/2016 15:14:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00045**	**.28285**	**.00273**	**-.00231**	**.00027**	**.00323**	**.04504**
Stddev	.00018	.00273	.00292	.00218	.00038	.00043	.03291
%RSD	40.062	.96408	107.20	94.077	141.91	13.381	73.085
#1	.00034	.28595	-.00065	-.00460	.00054	.00336	.03224
#2	.00066	.28081	.00432	-.00209	.00044	.00275	.08243
#3	.00035	.28179	.00450	-.00026	-.00017	.00359	.02044
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6947.1**	**86747.**	**9744.7**
Stddev	17.7	234.	95.2
%RSD	.25547	.26993	.97735
#1	6932.7	86806.	9636.0
#2	6966.9	86490.	9813.6
#3	6941.6	86947.	9784.4

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611000602 Acquired: 11/7/2016 15:18:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00091**	**.14066**	**.00406**	**.01567**	**.05675**	**.00002**	**45.915**	**-.00001**
Stddev	.00087	.00023	.00295	.00329	.00101	.00004	.236	.00022
%RSD	94.685	.16210	72.524	20.999	1.7714	178.64	.51505	1830.2
#1	.00171	.14086	.00708	.01898	.05655	-.00001	45.834	-.00018
#2	.00104	.14069	.00392	.01240	.05784	.00007	46.182	-.00009
#3	-.00001	.14041	.00119	.01564	.05586	.00001	45.730	.00024
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00010**	**-.00035**	**.00005**	**.17104**	**1.1694**	**.00455**	**8.8090**	**.00840**
Stddev	.00006	.00026	.00046	.02906	.0543	.00378	.0835	.00233
%RSD	65.074	73.447	945.91	16.988	4.6436	82.962	.94761	27.778
#1	-.00006	-.00029	.00041	.16541	1.2287	.00022	8.7985	.00587
#2	-.00006	-.00063	.00021	.20250	1.1221	.00632	8.8972	.01047
#3	-.00017	-.00013	-.00047	.14521	1.1574	.00712	8.7313	.00886
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00016**	**4.2217**	**-.00021**	**.00795**	**.00212**	**-.00431**	**.00247**	**4.2753**
Stddev	.00081	.0156	.00026	.00475	.00225	.00285	.00517	.0101
%RSD	509.30	.36839	120.03	59.754	106.16	66.097	209.56	.23678
#1	-.00046	4.2119	-.00021	.01179	-.00021	-.00111	-.00336	4.2855
#2	.00108	4.2136	.00004	.00942	.00428	-.00527	.00425	4.2751
#3	-.00014	4.2397	-.00047	.00264	.00229	-.00656	.00651	4.2652
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000602 Acquired: 11/7/2016 15:18:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00035**	**.26834**	**-.00102**	**-.00456**	**.00038**	**.00148**	**.06163**
Stddev	.00068	.00100	.00359	.00194	.00080	.00007	.02060
%RSD	193.88	.37336	350.59	42.490	208.82	4.9125	33.422
#1	-.00091	.26798	-.00383	-.00669	-.00005	.00140	.05570
#2	.00041	.26947	-.00226	-.00290	-.00011	.00150	.08454
#3	-.00055	.26756	.00302	-.00409	.00130	.00153	.04465
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6989.3**	**86594.**	**9863.9**
Stddev	21.7	602.	83.8
%RSD	.31113	.69566	.84951
#1	6986.3	86644.	9821.6
#2	7012.4	85968.	9809.7
#3	6969.2	87170.	9960.4

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611000603 Acquired: 11/7/2016 15:22:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00063**	**.12941**	**.00369**	**.01509**	**.05561**	**-.00001**	**45.261**	**-.00011**
Stddev	.00150	.00675	.00084	.00116	.00050	.00002	.135	.00017
%RSD	237.04	5.2182	22.784	7.6723	.89707	213.39	.29742	163.02
#1	.00234	.12445	.00424	.01386	.05535	-.00001	45.282	-.00027
#2	.00007	.12668	.00272	.01616	.05619	-.00003	45.117	.00007
#3	-.00050	.13710	.00411	.01526	.05530	.00001	45.384	-.00012
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00024**	**.00019**	**.00128**	**.18036**	**1.0872**	**.00602**	**8.5580**	**.00888**
Stddev	.00044	.00110	.00083	.01301	.0211	.00252	.0830	.00140
%RSD	183.69	566.62	65.052	7.2148	1.9407	41.785	.97004	15.792
#1	-.00052	-.00008	.00043	.16539	1.0783	.00750	8.5245	.00798
#2	.00027	.00141	.00209	.18896	1.0720	.00312	8.6525	.01049
#3	-.00047	-.00074	.00133	.18673	1.1113	.00745	8.4969	.00815
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00013**	**4.1495**	**-.00099**	**.00830**	**-.00006**	**-.00092**	**.00400**	**4.1953**
Stddev	.00062	.0433	.00142	.00427	.00236	.00622	.00338	.0080
%RSD	480.21	1.0431	142.68	51.456	4160.9	672.75	84.401	.18973
#1	.00052	4.1695	.00064	.00517	.00154	.00619	.00140	4.2032
#2	-.00020	4.0998	-.00183	.00656	-.00276	-.00366	.00781	4.1872
#3	-.00071	4.1790	-.00179	.01317	.00106	-.00531	.00278	4.1954
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000603 Acquired: 11/7/2016 15:22:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00065**	**.26394**	**.00072**	**-.00647**	**-.00018**	**.00155**	**.02271**
Stddev	.00034	.00052	.00537	.00326	.00025	.00014	.01890
%RSD	52.543	.19855	745.58	50.382	141.07	9.0688	83.230
#1	-.00037	.26373	.00688	-.00333	-.00003	.00153	.04431
#2	-.00055	.26356	-.00300	-.00623	-.00047	.00169	.01455
#3	-.00103	.26454	-.00172	-.00983	-.00003	.00141	.00926
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7037.5**	**87365.**	**9880.8**
Stddev	24.7	675.	100.8
%RSD	.35139	.77247	1.0202
#1	7060.9	87597.	9853.0
#2	7011.6	87892.	9992.6
#3	7039.8	86604.	9796.9

Approved: November 08, 2016

Kristi K Buck

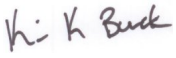
Sample Name: L1611000604 Acquired: 11/7/2016 15:26:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00097**	**.19045**	**.00268**	**.00951**	**.08112**	**.00002**	**44.289**	**.00004**
Stddev	.00094	.00352	.00315	.00154	.00112	.00007	.045	.00030
%RSD	96.728	1.8476	117.63	16.199	1.3749	332.78	.10231	740.65
#1	.00204	.19113	.00387	.01129	.08052	-.00005	44.292	.00012
#2	.00033	.19357	-.00089	.00862	.08240	.00004	44.332	.00029
#3	.00054	.18663	.00506	.00863	.08043	.00008	44.242	-.00029
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00021**	**-.00005**	**.00007**	**.28883**	**.79614**	**.00303**	**4.3002**	**.02764**
Stddev	.00029	.00082	.00350	.01084	.09264	.00612	.0193	.00113
%RSD	141.28	1763.6	4770.2	3.7526	11.637	202.38	.44960	4.1048
#1	-.00054	.00090	.00360	.27885	.89476	-.00096	4.2917	.02756
#2	.00001	-.00046	-.00340	.28727	.78273	-.00004	4.3223	.02881
#3	-.00010	-.00058	.00003	.30036	.71093	.01007	4.2865	.02654
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00011**	**2.1819**	**-.00009**	**.01938**	**.00371**	**.00123**	**.00284**	**4.2788**
Stddev	.00024	.0374	.00124	.00408	.00317	.00349	.00514	.0199
%RSD	213.83	1.7166	1429.8	21.053	85.412	283.67	181.18	.46389
#1	.00004	2.2179	-.00151	.01662	.00625	.00522	.00707	4.2653
#2	.00001	2.1848	.00074	.02406	.00016	-.00125	-.00289	4.3016
#3	-.00038	2.1431	.00051	.01745	.00470	-.00028	.00434	4.2695
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611000604 Acquired: 11/7/2016 15:26:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00049**	**.14920**	**.00475**	**-.00229**	**.00062**	**.00188**	**.01494**
Stddev	.00028	.00042	.00091	.00294	.00055	.00002	.04343
%RSD	56.891	.28227	19.095	128.12	88.498	.94254	290.70
#1	-.00021	.14871	.00448	-.00316	.00108	.00187	.06274
#2	-.00077	.14945	.00401	-.00470	.00001	.00187	-.02209
#3	-.00050	.14943	.00577	.00098	.00077	.00190	.00417
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6991.0**	**88420.**	**9978.6**
Stddev	69.0	235.	50.2
%RSD	.98673	.26553	.50309
#1	7032.9	88200.	9951.1
#2	6911.4	88667.	9948.2
#3	7028.8	88393.	10037.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611000605 Acquired: 11/7/2016 15:29:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00087**	**.02658**	**.00216**	**.21788**	**.02359**	**-.00007**	**1.5383**	**-.00003**
Stddev	.00122	.00448	.00231	.00178	.00036	.00006	.0106	.00032
%RSD	139.10	16.846	106.60	.81791	1.5218	84.309	.68594	1148.0
#1	-.00050	.02815	-.00047	.21817	.02400	-.00009	1.5276	-.00013
#2	.00180	.02153	.00384	.21950	.02344	-.00001	1.5487	-.00029
#3	.00133	.03006	.00312	.21597	.02333	-.00013	1.5387	.00033
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00032**	**-.00029**	**-.00074**	**.04394**	**.60887**	**.00199**	**.24996**	**.00660**
Stddev	.00029	.00075	.00093	.01889	.03173	.00400	.06138	.00308
%RSD	90.679	254.23	124.88	42.981	5.2113	200.34	24.557	46.713
#1	-.00065	-.00113	-.00177	.02289	.57890	-.00150	.29013	.00809
#2	-.00009	-.00006	-.00050	.04953	.64211	.00113	.17930	.00865
#3	-.00022	.00030	.00004	.05941	.60562	.00635	.28045	.00305
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00001**	**201.73**	**.00018**	**.09847**	**-.00107**	**.00280**	**-.00172**	**2.8456**
Stddev	.00033	.95	.00078	.00528	.00311	.00254	.00731	.0082
%RSD	2989.5	.47250	432.76	5.3588	291.38	90.794	426.27	.28714
#1	.00037	202.82	.00039	.09706	-.00448	.00132	-.00621	2.8550
#2	-.00027	201.29	.00083	.09404	.00162	.00573	-.00566	2.8406
#3	-.00006	201.07	-.00068	.10430	-.00034	.00134	.00672	2.8411
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000605 Acquired: 11/7/2016 15:29:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00070**	**.04843**	**.00432**	**-.00341**	**-.00116**	**.00098**	**.01501**
Stddev	.00101	.00034	.00392	.00124	.00070	.00019	.04697
%RSD	143.31	.69658	90.590	36.457	60.229	19.682	312.90
#1	.00039	.04807	.00019	-.00418	-.00139	.00089	.06830
#2	-.00092	.04873	.00480	-.00198	-.00171	.00085	-.02039
#3	-.00159	.04851	.00798	-.00408	-.00037	.00120	-.00287
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6684.7**	**83831.**	**9621.0**
Stddev	54.2	153.	64.5
%RSD	.81154	.18210	.67069
#1	6736.2	84007.	9549.4
#2	6689.9	83750.	9639.0
#3	6628.1	83737.	9674.6

Approved: November 08, 2016

Ki K Buck

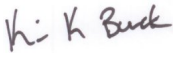
Sample Name: L1611000606 Acquired: 11/7/2016 15:33:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00059**	**.01579**	**.00683**	**.11085**	**.27038**	**-.00003**	**21.028**	**.00009**
Stddev	.00086	.00140	.00195	.00104	.00056	.00002	.078	.00022
%RSD	144.42	8.8557	28.584	.93518	.20886	58.341	.36905	257.13
#1	.00021	.01497	.00672	.11198	.27087	-.00005	21.071	.00006
#2	.00158	.01499	.00493	.11064	.27051	-.00002	21.074	-.00012
#3	-.00000	.01740	.00883	.10994	.26976	-.00002	20.938	.00032
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00013**	**-.00048**	**-.00027**	**.89290**	**.59655**	**.00134**	**5.7896**	**.12873**
Stddev	.00027	.00110	.00109	.00736	.12859	.00407	.0690	.00289
%RSD	200.16	227.87	408.20	.82416	21.555	303.44	1.1919	2.2485
#1	-.00016	.00077	-.00044	.88794	.46260	-.00177	5.8314	.13050
#2	.00036	-.00094	-.00126	.88941	.60806	.00594	5.8274	.13029
#3	.00020	-.00127	.00090	.90136	.71900	-.00015	5.7100	.12539
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00257**	**90.066**	**-.00031**	**.04635**	**.00357**	**-.00012**	**.00369**	**3.9133**
Stddev	.00036	.324	.00132	.00171	.00313	.00848	.00216	.0058
%RSD	14.193	.35983	426.12	3.6875	87.579	6788.0	58.462	.14907
#1	.00274	90.271	-.00144	.04692	-.00001	-.00922	.00442	3.9192
#2	.00282	90.234	-.00064	.04771	.00496	.00128	.00126	3.9131
#3	.00215	89.692	.00114	.04443	.00576	.00756	.00539	3.9075
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611000606 Acquired: 11/7/2016 15:33:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00058**	**.33197**	**.00135**	**-.00304**	**.00024**	**.16532**	**.01770**
Stddev	.00074	.00074	.00574	.00443	.00055	.00030	.03419
%RSD	128.28	.22300	424.50	145.81	229.55	.17865	193.16
#1	-.00026	.33283	.00487	-.00611	-.00038	.16562	-.01308
#2	-.00005	.33158	-.00527	.00204	.00066	.16503	.01169
#3	-.00143	.33151	.00447	-.00504	.00044	.16529	.05450
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6885.9**	**86139.**	**9870.6**
Stddev	36.0	50.	75.8
%RSD	.52295	.05775	.76811
#1	6848.9	86115.	9783.1
#2	6888.0	86196.	9914.7
#3	6920.8	86107.	9914.1

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000606PS Acquired: 11/7/2016 15:37:22 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590617-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20050**	**5.0255**	**.20687**	**1.0631**	**.75855**	**.02511**	**24.046**	**.02486**
Stddev	.00019	.0210	.00321	.0024	.00190	.00007	.086	.00041
%RSD	.09711	.41746	1.5523	.22842	.25059	.27264	.35590	1.6426
#1	.20028	5.0055	.20350	1.0609	.75875	.02503	24.141	.02469
#2	.20062	5.0238	.20724	1.0629	.75656	.02516	23.974	.02533
#3	.20061	5.0473	.20989	1.0657	.76034	.02514	24.024	.02456
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.10059**	**.25380**	**.25314**	**2.8471**	**25.878**	**.51487**	**10.254**	**.36945**
Stddev	.00055	.00089	.00077	.0186	.047	.00227	.056	.00337
%RSD	.54717	.34897	.30269	.65381	.18048	.44050	.54624	.91258
#1	.10121	.25466	.25375	2.8666	25.931	.51739	10.278	.37334
#2	.10041	.25289	.25339	2.8295	25.844	.51421	10.190	.36759
#3	.10016	.25386	.25228	2.8453	25.859	.51300	10.294	.36741
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.51389**	**106.55**	**.25228**	**4.9520**	**.25545**	**.59944**	**.19017**	**6.0514**
Stddev	.00067	.40	.00065	.0037	.00179	.00619	.01011	.0051
%RSD	.13071	.37926	.25653	.07420	.70079	1.0333	5.3145	.08397
#1	.51427	106.94	.25278	4.9515	.25398	.59322	.19830	6.0499
#2	.51312	106.14	.25251	4.9485	.25492	.60560	.19334	6.0571
#3	.51430	106.56	.25155	4.9558	.25744	.59949	.17885	6.0473
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000606PS Acquired: 11/7/2016 15:37:22 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590617-01

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50450**	**.80968**	**.50749**	**.24817**	**.50781**	**.65539**	**.03958**
Stddev	.00055	.00122	.00301	.00316	.00239	.00185	.03272
%RSD	.10997	.15043	.59320	1.2745	.47022	.28154	82.672
#1	.50513	.81055	.51092	.25090	.50636	.65751	.00869
#2	.50431	.80829	.50527	.24470	.50650	.65419	.07387
#3	.50407	.81020	.50630	.24892	.51056	.65446	.03617
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6852.2**	**84791.**	**9804.7**
Stddev	57.2	124.	170.9
%RSD	.83513	.14617	1.7435
#1	6787.7	84927.	9718.9
#2	6896.8	84760.	10002.
#3	6872.2	84686.	9693.7

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000606SDL Acquired: 11/7/2016 15:40:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG590617-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00076**	**.00647**	**.00295**	**.02375**	**.05505**	**-.00005**	**4.2835**	**-.00014**
Stddev	.00157	.00565	.00050	.00214	.00095	.00003	.0358	.00015
%RSD	207.66	87.334	16.920	9.0155	1.7229	55.440	.83543	101.79
#1	.00253	.00785	.00242	.02602	.05594	-.00002	4.2830	-.00027
#2	-.00046	.01130	.00303	.02344	.05517	-.00008	4.2479	-.00017
#3	.00020	.00026	.00341	.02177	.05405	-.00004	4.3195	.00001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00017**	**-.00121**	**-.00094**	**.19025**	**.17526**	**.00064**	**1.2936**	**.02586**
Stddev	.00033	.00085	.00075	.01255	.02616	.00077	.0366	.00192
%RSD	196.87	70.563	79.658	6.5962	14.929	121.63	2.8315	7.4362
#1	-.00021	-.00023	-.00157	.18825	.17977	.00031	1.2516	.02762
#2	.00018	-.00182	-.00011	.20368	.14713	.00152	1.3189	.02616
#3	-.00048	-.00157	-.00114	.17882	.19888	.00008	1.3104	.02381
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00039**	**18.807**	**-.00058**	**.01680**	**.00196**	**-.00123**	**.00418**	**.80322**
Stddev	.00048	.001	.00034	.00072	.00275	.00298	.00570	.00428
%RSD	124.09	.00678	59.150	4.2628	139.86	242.69	136.43	.53317
#1	-.00012	18.806	-.00070	.01670	-.00058	-.00349	.00112	.79871
#2	.00044	18.808	-.00019	.01613	.00488	-.00235	.01075	.80373
#3	.00085	18.808	-.00084	.01756	.00160	.00215	.00066	.80723
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000606SDL Acquired: 11/7/2016 15:40:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG590617-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00059**	**.06799**	**-.00060**	**-.00056**	**.00065**	**.03480**	**-.00059**
Stddev	.00096	.00056	.00368	.00138	.00035	.00023	.07454
%RSD	161.54	.82044	611.93	245.30	53.284	.66229	12563.
#1	.00041	.06858	.00226	-.00029	.00103	.03460	.08048
#2	-.00150	.06794	-.00475	.00066	.00060	.03474	-.06618
#3	-.00069	.06746	.00069	-.00205	.00033	.03505	-.01608
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7077.0**	**88584.**	**10028.**
Stddev	34.7	174.	85.
%RSD	.49101	.19628	.84566
#1	7053.8	88744.	10122.
#2	7060.2	88399.	10008.
#3	7116.9	88608.	9956.0

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCV Acquired: 11/7/2016 15:44:42 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40678**	**10.348**	**.40727**	**.50904**	**1.0411**	**.05104**	**10.380**
Stddev	.00172	.052	.00394	.00029	.0020	.00016	.027
%RSD	.42247	.50506	.96619	.05728	.19120	.31524	.25766
#1	.40716	10.401	.40343	.50878	1.0396	.05096	10.360
#2	.40491	10.296	.41130	.50897	1.0404	.05123	10.368
#3	.40828	10.348	.40709	.50936	1.0434	.05095	10.410
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05158**	**.20675**	**.51558**	**.51707**	**4.1527**	**51.547**	**1.0338**
Stddev	.00054	.00070	.00100	.00245	.0411	.157	.0027
%RSD	1.0550	.33723	.19325	.47437	.98897	.30373	.25836
#1	.05139	.20755	.51641	.51983	4.1200	51.367	1.0362
#2	.05115	.20642	.51448	.51515	4.1988	51.627	1.0309
#3	.05219	.20628	.51587	.51624	4.1394	51.647	1.0343
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.270**	**.51802**	**1.0245**	**52.054**	**.51772**	**10.247**	**.52360**
Stddev	.048	.00211	.0014	.285	.00082	.025	.00356
%RSD	.46900	.40674	.13488	.54731	.15892	.24293	.67909
#1	10.234	.51613	1.0250	52.258	.51848	10.259	.52053
#2	10.324	.51762	1.0230	51.729	.51783	10.264	.52749
#3	10.250	.52029	1.0256	52.176	.51684	10.219	.52278
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 15:44:42 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2322**	**.41118**	**5.0961**	**1.0301**	**1.0349**	**1.0141**	**.52160**
Stddev	.0026	.00255	.0060	.0019	.0019	.0116	.00323
%RSD	.21039	.61931	.11847	.17946	.18115	1.1464	.61830
#1	1.2314	.41407	5.1008	1.0312	1.0329	1.0200	.51907
#2	1.2351	.41019	5.0893	1.0311	1.0353	1.0007	.52523
#3	1.2301	.40928	5.0982	1.0280	1.0366	1.0216	.52049
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0245**	**1.0363**	F **.08323**
Stddev	.0026	.0030	.03661
%RSD	.25744	.28753	43.983
#1	1.0245	1.0347	.09585
#2	1.0218	1.0398	.04198
#3	1.0271	1.0345	.11186
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6819.7**	**84927.**	**9812.3**
Stddev	64.4	156.	43.0
%RSD	.94431	.18334	.43790
#1	6893.3	85000.	9824.9
#2	6773.2	85032.	9847.5
#3	6792.8	84748.	9764.4

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 15:48:13 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00031**	**.00080**	**.00139**	**.00047**	**.00016**	**.00002**	**.00497**	**-.00018**
Stddev	.00133	.00067	.00370	.00062	.00058	.00004	.01428	.00007
%RSD	424.95	84.141	266.98	130.51	355.10	182.75	287.16	35.793
#1	-.00105	.00038	-.00167	-.00021	-.00032	-.00001	.01021	-.00014
#2	.00038	.00158	.00033	.00099	.00081	.00000	-.01119	-.00014
#3	.00161	.00045	.00551	.00063	-.00000	.00007	.01590	-.00026
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00058**	**.00024**	**.00003**	**-.02376**	**.05995**	**.00034**	**.04126**	**-.00166**
Stddev	.00032	.00062	.00082	.00591	.09297	.00282	.06754	.00086
%RSD	55.351	257.13	2490.2	24.875	155.08	817.59	163.69	51.551
#1	-.00028	.00058	.00096	-.01696	.05018	-.00047	-.01898	-.00074
#2	-.00092	.00062	-.00061	-.02663	-.02775	-.00198	.02848	-.00243
#3	-.00053	-.00047	-.00024	-.02769	.15742	.00348	.11427	-.00182
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00020**	**.01820**	**.00045**	**-.00521**	**.00191**	**-.00088**	**-.00091**	**-.00074**
Stddev	.00013	.01662	.00058	.00271	.00116	.00418	.00232	.00308
%RSD	65.503	91.320	127.88	52.038	60.610	473.81	256.38	413.92
#1	.00006	.01272	.00082	-.00235	.00318	-.00418	-.00201	-.00426
#2	.00021	.03686	-.00021	-.00552	.00165	.00381	-.00247	.00057
#3	.00032	.00501	.00075	-.00774	.00091	-.00228	.00176	.00146
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 15:48:13 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00099**	**-.00008**	**-.00008**	**-.00256**	**.00014**	**.00015**	**.03740**
Stddev	.00080	.00012	.00139	.00043	.00038	.00015	.09019
%RSD	80.913	157.31	1847.0	16.935	271.68	105.37	241.14
#1	-.00185	-.00003	-.00154	-.00262	.00041	.00000	.11923
#2	-.00085	-.00022	.00008	-.00210	.00031	.00031	-.05929
#3	-.00027	.00001	.00123	-.00296	-.00030	.00012	.05226
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7067.9**	**88390.**	**9860.2**
Stddev	14.1	168.	48.6
%RSD	.19931	.19005	.49320
#1	7051.7	88199.	9870.5
#2	7077.5	88517.	9902.8
#3	7074.4	88454.	9807.2

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000607 Acquired: 11/7/2016 15:52:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00020**	**.01686**	**.00505**	**.10873**	**.25216**	**-.00004**	**20.785**	**.00009**
Stddev	.00055	.00494	.00020	.00063	.00090	.00003	.069	.00031
%RSD	278.61	29.325	3.9183	.57518	.35506	72.186	.33244	331.13
#1	.00042	.01173	.00484	.10936	.25132	-.00002	20.740	.00035
#2	-.00043	.02160	.00509	.10811	.25206	-.00007	20.750	.00018
#3	.00061	.01725	.00523	.10872	.25310	-.00003	20.864	-.00025
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00068**	**-.00006**	**.00152**	**.02001**	**.60261**	**.00588**	**5.8133**	**.11647**
Stddev	.00041	.00036	.00155	.01414	.01571	.00283	.0988	.00135
%RSD	60.902	584.91	102.16	70.659	2.6067	48.127	1.6987	1.1574
#1	-.00069	.00014	-.00026	.02022	.61439	.00559	5.7332	.11605
#2	-.00026	.00015	.00220	.03404	.60867	.00885	5.7832	.11798
#3	-.00108	-.00048	.00260	.00577	.58478	.00321	5.9237	.11539
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00236**	**88.945**	**.00001**	**.00444**	**.00294**	**-.00048**	**.00150**	**3.8326**
Stddev	.00048	.150	.00145	.00608	.00332	.00390	.00253	.0083
%RSD	20.250	.16868	19442.	136.88	112.87	809.37	168.88	.21587
#1	.00198	88.785	-.00166	-.00019	.00482	-.00497	.00418	3.8407
#2	.00289	88.968	.00097	.01133	-.00089	.00153	.00114	3.8331
#3	.00220	89.082	.00071	.00219	.00489	.00200	-.00083	3.8241
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000607 Acquired: 11/7/2016 15:52:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00015**	**.33152**	**.00235**	**-.00266**	**-.00011**	**.07682**	**-.02431**
Stddev	.00041	.00089	.00409	.00581	.00034	.00027	.06165
%RSD	264.58	.26970	173.91	218.65	310.73	.35559	253.62
#1	.00062	.33064	.00623	.00148	.00022	.07697	.03963
#2	-.00002	.33148	.00274	-.00930	-.00010	.07651	-.08339
#3	-.00014	.33243	-.00192	-.00015	-.00045	.07699	-.02917
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6832.5**	**85348.**	**9828.8**
Stddev	23.0	334.	57.4
%RSD	.33627	.39098	.58375
#1	6810.9	85479.	9886.5
#2	6829.9	85597.	9771.8
#3	6856.6	84969.	9828.2

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000608 Acquired: 11/7/2016 15:55:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00045**	**.08741**	**.00153**	**.02075**	**.04866**	**-.00003**	**27.970**	**-.00015**
Stddev	.00189	.00403	.00286	.00103	.00064	.00004	.018	.00039
%RSD	421.08	4.6123	186.52	4.9535	1.3205	143.40	.06511	252.13
#1	.00263	.08733	.00141	.01998	.04812	-.00002	27.959	.00013
#2	-.00054	.08343	-.00126	.02035	.04937	-.00007	27.991	-.00059
#3	-.00074	.09149	.00446	.02192	.04849	.00001	27.959	-.00000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00021**	**-.00035**	**.00029**	**.30961**	**2.5787**	**-.00370**	**3.6874**	**.11182**
Stddev	.00048	.00097	.00177	.02491	.0405	.00547	.0115	.00011
%RSD	225.16	278.80	603.78	8.0471	1.5710	147.86	.31265	.10265
#1	.00019	-.00026	-.00164	.28283	2.5579	.00260	3.6842	.11174
#2	-.00075	.00057	.00068	.33211	2.5527	-.00721	3.6778	.11195
#3	-.00008	-.00137	.00184	.31390	2.6253	-.00648	3.7002	.11178
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00016**	**4.7347**	**-.00059**	**.07746**	**.00238**	**.00521**	**.00223**	**3.6173**
Stddev	.00042	.0130	.00043	.00462	.00283	.00321	.00578	.0124
%RSD	260.31	.27371	72.874	5.9610	118.96	61.638	259.00	.34286
#1	-.00006	4.7383	-.00101	.07237	.00025	.00541	.00767	3.6287
#2	-.00010	4.7454	-.00015	.08139	.00558	.00190	-.00384	3.6191
#3	.00065	4.7203	-.00061	.07862	.00130	.00832	.00286	3.6041
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000608 Acquired: 11/7/2016 15:55:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00086**	**.08896**	**.00423**	**-.00457**	**.00080**	**.00195**	**.05148**
Stddev	.00048	.00039	.00118	.00136	.00049	.00006	.03740
%RSD	56.194	.43290	27.817	29.733	60.915	3.3176	72.651
#1	-.00031	.08869	.00318	-.00354	.00127	.00192	.02612
#2	-.00119	.08940	.00401	-.00611	.00030	.00203	.09443
#3	-.00109	.08880	.00550	-.00405	.00082	.00191	.03388
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6977.9**	**89323.**	**10138.**
Stddev	94.6	434.	113.
%RSD	1.3554	.48621	1.1113
#1	6963.0	89329.	10201.
#2	6891.6	89755.	10205.
#3	7079.0	88886.	10008.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000609 Acquired: 11/7/2016 15:59:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00103**	**.09787**	**.00336**	**.02030**	**.04733**	**-.00001**	**27.055**	**-.00007**
Stddev	.00079	.00546	.00218	.00129	.00023	.00011	.027	.00024
%RSD	76.672	5.5802	64.763	6.3535	.49517	972.50	.10084	339.68
#1	.00124	.10289	.00092	.02178	.04725	.00010	27.086	-.00030
#2	.00169	.09865	.00510	.01971	.04760	-.00003	27.038	.00017
#3	.00016	.09205	.00406	.01941	.04715	-.00011	27.040	-.00007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00033**	**-.00009**	**.00104**	**.34371**	**2.5173**	**-.00301**	**3.5363**	**.11067**
Stddev	.00040	.00038	.00070	.03911	.0404	.00427	.0445	.00312
%RSD	119.44	430.57	67.907	11.379	1.6046	142.10	1.2571	2.8165
#1	-.00062	.00011	.00027	.29959	2.5562	.00186	3.5610	.10766
#2	-.00050	-.00052	.00120	.35744	2.5201	-.00477	3.5629	.11047
#3	.00012	.00015	.00165	.37412	2.4756	-.00611	3.4850	.11388
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00027**	**4.5781**	**.00040**	**.08239**	**.00066**	**-.00209**	**.00041**	**3.5000**
Stddev	.00049	.0192	.00164	.00823	.00139	.00276	.00518	.0042
%RSD	181.70	.41987	407.02	9.9863	210.35	132.29	1251.8	.12082
#1	.00042	4.5713	-.00138	.08378	.00039	-.00515	.00157	3.5009
#2	-.00028	4.5999	.00075	.08983	-.00057	-.00130	-.00525	3.5037
#3	.00066	4.5633	.00184	.07356	.00217	.00019	.00492	3.4954
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016
Ki K Buck

Sample Name: L1611000609 Acquired: 11/7/2016 15:59:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00004**	**.08606**	**.00447**	**-.00450**	**.00039**	**.00223**	**.02924**
Stddev	.00053	.00024	.00165	.00133	.00017	.00008	.02143
%RSD	1346.9	.27819	37.023	29.469	42.459	3.6129	73.307
#1	.00034	.08611	.00617	-.00602	.00037	.00232	.00449
#2	-.00064	.08626	.00286	-.00359	.00024	.00220	.04115
#3	.00019	.08579	.00437	-.00388	.00057	.00217	.04207
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7166.6**	**88574.**	**10071.**
Stddev	3.0	1162.	78.
%RSD	.04117	1.3114	.77394
#1	7167.0	87927.	10127.
#2	7163.6	87879.	10104.
#3	7169.4	89915.	9981.8

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000610 Acquired: 11/7/2016 16:03:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00061**	**.08441**	**.00150**	**.01903**	**.04885**	**.00001**	**27.590**	**.00014**
Stddev	.00156	.00438	.00322	.00152	.00003	.00002	.044	.00054
%RSD	255.88	5.1912	214.12	7.9916	.05321	408.39	.15889	376.41
#1	.00139	.07947	-.00205	.01892	.04888	.00002	27.568	-.00042
#2	-.00119	.08784	.00234	.02060	.04884	-.00002	27.562	.00019
#3	.00162	.08591	.00422	.01757	.04883	.00002	27.641	.00066
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00025**	**.00034**	**-.00035**	**.30794**	**2.4975**	**-.00036**	**3.5355**	**.10985**
Stddev	.00025	.00100	.00117	.00988	.0310	.00263	.0602	.00100
%RSD	97.771	295.44	338.55	3.2076	1.2410	734.16	1.7022	.91078
#1	-.00054	.00144	.00030	.29854	2.4938	-.00203	3.4972	.11082
#2	-.00014	.00008	-.00170	.30704	2.4685	-.00173	3.6049	.10882
#3	-.00008	-.00051	.00036	.31823	2.5301	.00268	3.5044	.10990
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00036**	**4.6395**	**.00081**	**.07481**	**.00407**	**-.00191**	**-.00154**	**3.5266**
Stddev	.00087	.0371	.00177	.00320	.00249	.00104	.00131	.0122
%RSD	245.61	.80016	217.75	4.2712	61.059	54.262	85.163	.34669
#1	.00037	4.6800	.00144	.07452	.00684	-.00092	-.00303	3.5364
#2	-.00052	4.6312	-.00118	.07177	.00204	-.00184	-.00057	3.5304
#3	.00122	4.6072	.00219	.07814	.00334	-.00299	-.00101	3.5129
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000610 Acquired: 11/7/2016 16:03:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00089**	**.08773**	**.00363**	**-.00244**	**.00026**	**.00148**	**.04381**
Stddev	.00033	.00016	.00525	.00209	.00036	.00008	.02957
%RSD	37.119	.18367	144.63	85.403	137.74	5.1109	67.492
#1	-.00051	.08778	.00042	-.00020	.00064	.00155	.05262
#2	-.00106	.08755	.00078	-.00432	-.00007	.00140	.01084
#3	-.00111	.08786	.00968	-.00281	.00022	.00149	.06796
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7069.3**	**88083.**	**10061.**
Stddev	26.9	300.	87.
%RSD	.38111	.34070	.86211
#1	7039.0	88183.	10075.
#2	7078.4	87746.	9967.7
#3	7090.5	88320.	10139.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000611 Acquired: 11/7/2016 16:07:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00105**	**.03448**	**.00323**	**.03552**	**.06097**	**-.00001**	**79.006**	**.00020**
Stddev	.00053	.00142	.00091	.00167	.00026	.00003	.254	.00009
%RSD	50.050	4.1122	28.193	4.7054	.42318	320.65	.32137	41.956
#1	.00061	.03290	.00366	.03387	.06076	.00001	78.926	.00012
#2	.00164	.03489	.00385	.03721	.06126	-.00004	79.291	.00029
#3	.00091	.03565	.00219	.03549	.06088	-.00000	78.802	.00020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00014**	**.00000**	**.00116**	**.05658**	**2.6939**	**.00852**	**9.3227**	**.00138**
Stddev	.00050	.00079	.00134	.00859	.0236	.00070	.1504	.00238
%RSD	362.25	20355.	115.75	15.182	.87556	8.1633	1.6132	172.86
#1	-.00038	.00007	.00155	.04777	2.7191	.00931	9.3905	.00074
#2	.00044	-.00081	-.00033	.05702	2.6902	.00801	9.4273	.00401
#3	-.00047	.00076	.00226	.06494	2.6724	.00825	9.1504	-.00062
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00158**	**6.9589**	**.00092**	**.06022**	**.00411**	**-.00078**	**.00304**	**5.4406**
Stddev	.00068	.0491	.00054	.00827	.00443	.00202	.00752	.0356
%RSD	43.338	.70588	58.372	13.732	107.70	258.03	247.11	.65381
#1	.00216	6.9425	.00154	.06954	.00847	.00040	.00676	5.4032
#2	.00082	7.0141	.00071	.05733	.00426	.00036	-.00561	5.4740
#3	.00175	6.9200	.00053	.05378	-.00039	-.00311	.00798	5.4444
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000611 Acquired: 11/7/2016 16:07:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00042**	**.24737**	**-.00242**	**.00144**	**.00031**	**.00630**	**-.00306**
Stddev	.00061	.00073	.00416	.00211	.00029	.00022	.06842
%RSD	144.30	.29492	171.63	145.84	95.226	3.4398	2239.5
#1	.00024	.24704	-.00495	-.00014	.00022	.00654	-.07719
#2	-.00096	.24821	.00238	.00383	.00007	.00627	.01036
#3	-.00055	.24687	-.00469	.00063	.00063	.00611	.05767
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6936.1**	**86217.**	**9906.9**
Stddev	74.2	737.	109.6
%RSD	1.0700	.85468	1.1062
#1	6850.9	87063.	9855.2
#2	6970.6	85864.	9832.7
#3	6986.8	85722.	10033.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000612 Acquired: 11/7/2016 16:10:48 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00226**	**.00951**	**.00183**	**.01216**	**.02202**	**-.00005**	**33.322**	**.00009**
Stddev	.00173	.00520	.00036	.00058	.00054	.00003	.057	.00013
%RSD	76.696	54.720	19.423	4.7528	2.4609	51.917	.17192	150.57
#1	.00056	.01363	.00144	.01272	.02264	-.00006	33.286	.00011
#2	.00220	.00366	.00214	.01218	.02164	-.00002	33.388	.00021
#3	.00402	.01123	.00191	.01157	.02179	-.00008	33.292	-.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00040**	**-.00095**	**.00077**	**.86512**	**7.5594**	**-.00014**	**1.4092**	**.08097**
Stddev	.00018	.00052	.00174	.02852	.0959	.00198	.0401	.00373
%RSD	45.622	54.506	226.80	3.2969	1.2681	1381.9	2.8468	4.6070
#1	-.00020	-.00137	.00117	.86520	7.5229	-.00028	1.4550	.08000
#2	-.00045	-.00037	.00227	.83656	7.4871	-.00205	1.3927	.08509
#3	-.00056	-.00110	-.00114	.89361	7.6681	.00190	1.3801	.07783
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00016**	**.97312**	**-.00026**	**.10318**	**.00481**	**.00091**	**-.00249**	**1.0306**
Stddev	.00023	.00437	.00101	.00796	.00219	.00306	.00472	.0015
%RSD	142.03	.44861	390.81	7.7183	45.549	336.44	189.55	.14362
#1	-.00010	.96877	.00012	.09408	.00331	.00045	-.00656	1.0315
#2	-.00041	.97309	-.00140	.10888	.00733	.00417	-.00361	1.0313
#3	.00003	.97750	.00051	.10658	.00380	-.00189	.00269	1.0289
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000612 Acquired: 11/7/2016 16:10:48 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00080**	**.08343**	**.00094**	**-.00407**	**.00020**	**.00105**	**.03874**
Stddev	.00084	.00012	.00446	.00386	.00074	.00011	.01685
%RSD	104.50	.14721	474.26	94.773	364.41	10.784	43.496
#1	-.00131	.08356	-.00391	-.00621	.00067	.00099	.03728
#2	-.00125	.08331	.00189	.00038	-.00065	.00118	.05627
#3	.00016	.08341	.00484	-.00639	.00059	.00098	.02267
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7110.0**	**89235.**	**10110.**
Stddev	19.5	296.	70.
%RSD	.27400	.33207	.69315
#1	7100.4	88967.	10066.
#2	7132.4	89184.	10191.
#3	7097.1	89553.	10072.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611000613 Acquired: 11/7/2016 16:14:34 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00066**	**.06103**	**.00288**	**.01761**	**.09427**	**.00001**	**71.174**	**.00005**
Stddev	.00110	.00638	.00075	.00127	.00021	.00001	.102	.00020
%RSD	165.29	10.450	25.866	7.2359	.22619	54.868	.14387	435.96
#1	.00140	.06621	.00373	.01652	.09437	.00002	71.259	.00017
#2	.00119	.06296	.00234	.01730	.09403	.00001	71.061	-.00019
#3	-.00060	.05391	.00257	.01901	.09442	.00001	71.203	.00015
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00018**	**.00044**	**.00070**	**.07481**	**1.1446**	**.00419**	**12.374**	**.00515**
Stddev	.00035	.00106	.00125	.01893	.0782	.00096	.098	.00172
%RSD	190.97	240.15	178.53	25.300	6.8316	22.910	.79210	33.441
#1	.00039	.00100	-.00035	.09548	1.2175	.00309	12.280	.00655
#2	-.00022	.00110	.00037	.05834	1.1543	.00487	12.368	.00323
#3	.00037	-.00078	.00209	.07061	1.0620	.00461	12.475	.00567
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00105**	**4.0650**	**-.00015**	**.00378**	**.00077**	**.00136**	**.00014**	**4.3800**
Stddev	.00028	.0092	.00100	.00101	.00187	.00157	.00273	.0061
%RSD	26.386	.22724	678.85	26.790	243.48	115.63	2007.5	.13884
#1	.00101	4.0655	.00099	.00265	-.00048	-.00019	.00022	4.3809
#2	.00080	4.0740	-.00091	.00409	-.00014	.00294	.00283	4.3856
#3	.00135	4.0555	-.00052	.00460	.00292	.00131	-.00264	4.3735
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000613 Acquired: 11/7/2016 16:14:34 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00071**	**.27660**	**-.00140**	**-.00365**	**.00051**	**.00244**	**.01885**
Stddev	.00130	.00024	.00147	.00579	.00096	.00015	.03205
%RSD	182.85	.08572	104.74	158.65	190.70	6.2365	170.02
#1	-.00206	.27666	-.00160	.00116	.00146	.00230	.05578
#2	.00053	.27634	.00015	-.00203	-.00046	.00260	.00264
#3	-.00060	.27681	-.00276	-.01007	.00052	.00243	-.00186
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7031.9**	**87749.**	**10041.**
Stddev	6.0	163.	37.
%RSD	.08524	.18619	.37328
#1	7026.5	87560.	10082.
#2	7030.9	87841.	10034.
#3	7038.4	87845.	10008.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000614 Acquired: 11/7/2016 16:18:20 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00067**	**.65549**	**.00288**	**.01435**	**.06330**	**.00001**	**67.740**	**.00012**
Stddev	.00183	.00196	.00184	.00139	.00031	.00008	.158	.00008
%RSD	275.21	.29954	64.059	9.6970	.48700	824.43	.23331	64.484
#1	.00032	.65381	.00408	.01388	.06302	-.00004	67.558	.00003
#2	-.00097	.65503	.00379	.01591	.06363	.00011	67.819	.00017
#3	.00265	.65765	.00075	.01325	.06324	-.00003	67.843	.00017
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00013**	**.00058**	**.00182**	**.60163**	**.88486**	**.00238**	**7.9677**	**.01685**
Stddev	.00025	.00049	.00070	.01030	.06568	.00095	.0447	.00119
%RSD	189.62	84.809	38.593	1.7113	7.4226	40.065	.56152	7.0401
#1	-.00012	.00109	.00106	.60043	.94964	.00344	8.0194	.01692
#2	.00014	.00010	.00244	.61247	.81832	.00211	7.9412	.01563
#3	.00037	.00055	.00197	.59198	.88663	.00159	7.9426	.01799
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00027**	**3.4986**	**.00112**	**.01385**	**.00238**	**.00256**	**.00020**	**4.6754**
Stddev	.00087	.0249	.00080	.00161	.00257	.00330	.00646	.0054
%RSD	317.67	.71115	71.808	11.630	108.32	129.00	3217.7	.11581
#1	.00016	3.4699	.00076	.01417	.00222	-.00016	.00656	4.6816
#2	-.00053	3.5139	.00056	.01527	.00502	.00623	-.00635	4.6732
#3	.00119	3.5121	.00204	.01210	-.00012	.00160	.00039	4.6715
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000614 Acquired: 11/7/2016 16:18:20 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00059**	**.20802**	**.00649**	**-.00420**	**.00149**	**.00234**	**.10564**
Stddev	.00048	.00098	.00431	.00182	.00038	.00013	.03805
%RSD	81.277	.47053	66.385	43.454	25.268	5.7062	36.020
#1	-.00072	.20715	.00171	-.00592	.00115	.00220	.06650
#2	-.00099	.20908	.00768	-.00439	.00189	.00246	.10792
#3	-.00006	.20784	.01007	-.00229	.00142	.00237	.14251
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7050.9**	**88264.**	**10151.**
Stddev	44.0	559.	65.
%RSD	.62365	.63297	.64440
#1	7029.9	88608.	10087.
#2	7021.3	88565.	10218.
#3	7101.4	87619.	10148.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000615 Acquired: 11/7/2016 16:22:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00040**	**.01508**	**.00124**	**.00994**	**.07875**	**.00004**	**78.249**	**.00027**
Stddev	.00074	.00422	.00210	.00209	.00062	.00003	.073	.00013
%RSD	187.31	27.977	168.63	21.031	.78930	77.027	.09271	46.075
#1	-.00106	.01946	.00366	.01144	.07805	.00008	78.167	.00014
#2	.00041	.01475	.00022	.01082	.07899	.00004	78.276	.00038
#3	-.00054	.01104	-.00014	.00755	.07922	.00001	78.305	.00030
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00026**	**.00022**	**.00077**	**.01046**	**.59819**	**.00345**	**6.6147**	**.00243**
Stddev	.00012	.00029	.00050	.01181	.03940	.00290	.0345	.00135
%RSD	47.004	131.96	64.948	112.96	6.5872	84.020	.52076	55.566
#1	-.00025	-.00002	.00042	-.00076	.57513	.00011	6.5754	.00259
#2	-.00039	.00013	.00134	.02278	.57575	.00525	6.6288	.00101
#3	-.00014	.00054	.00054	.00935	.64369	.00499	6.6398	.00369
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00047**	**3.2588**	**-.00081**	**-.00291**	**.00577**	**.00074**	**-.00022**	**3.6615**
Stddev	.00020	.0259	.00144	.00598	.00274	.00521	.00309	.0217
%RSD	43.381	.79529	179.02	205.62	47.402	705.11	1395.3	.59303
#1	.00062	3.2575	-.00245	-.00855	.00540	-.00410	.00188	3.6866
#2	.00056	3.2854	.00022	-.00354	.00324	.00626	-.00377	3.6504
#3	.00024	3.2336	-.00019	.00336	.00868	.00005	.00123	3.6477
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000615 Acquired: 11/7/2016 16:22:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00102**	**.16696**	**-.00430**	**-.00710**	**-.00015**	**.00204**	**.00859**
Stddev	.00023	.00046	.00608	.00317	.00039	.00011	.00751
%RSD	22.621	.27726	141.60	44.711	253.76	5.3047	87.456
#1	-.00110	.16668	-.01130	-.00375	.00026	.00202	.01029
#2	-.00076	.16749	-.00031	-.00748	-.00051	.00194	.00037
#3	-.00120	.16670	-.00128	-.01006	-.00021	.00215	.01510
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6928.1**	**85475.**	**9997.2**
Stddev	101.1	203.	32.3
%RSD	1.4587	.23747	.32313
#1	6814.8	85706.	10035.
#2	7009.0	85325.	9978.3
#3	6960.5	85395.	9978.8

Approved: November 08, 2016

Kristi K Buck

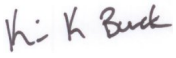
Sample Name: L1611000616 Acquired: 11/7/2016 16:25:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00112**	**.02482**	**.00223**	**.01030**	**.07806**	**.00001**	**77.259**	**.00015**
Stddev	.00105	.00744	.00247	.00061	.00008	.00005	.302	.00024
%RSD	93.343	29.996	110.74	5.9037	.10141	932.56	.39119	155.94
#1	.00233	.01708	.00206	.00972	.07806	-.00000	77.586	-.00010
#2	.00060	.03193	.00478	.01024	.07798	-.00004	77.199	.00019
#3	.00044	.02544	-.00015	.01094	.07814	.00006	76.991	.00037
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00047**	**-.00031**	**.00139**	**.02971**	**.64731**	**.00674**	**6.5192**	**-.00012**
Stddev	.00013	.00041	.00091	.00221	.05939	.00150	.1231	.00177
%RSD	27.918	132.74	65.062	7.4518	9.1750	22.332	1.8888	1510.9
#1	-.00062	.00013	.00035	.03206	.59406	.00700	6.5984	-.00079
#2	-.00043	-.00037	.00202	.02766	.63649	.00512	6.5819	.00189
#3	-.00037	-.00069	.00180	.02941	.71136	.00810	6.3774	-.00146
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00482**	**3.1527**	**-.00052**	**-.00149**	**.00161**	**.00305**	**.00466**	**3.6255**
Stddev	.00080	.0404	.00139	.00689	.00366	.00124	.00225	.0050
%RSD	16.527	1.2811	267.67	461.34	228.02	40.593	48.300	.13736
#1	.00507	3.1953	-.00149	.00093	.00582	.00336	.00594	3.6313
#2	.00393	3.1477	.00108	.00385	-.00023	.00411	.00597	3.6224
#3	.00547	3.1150	-.00115	-.00927	-.00077	.00169	.00206	3.6230
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611000616 Acquired: 11/7/2016 16:25:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00069**	**.16516**	**-.00052**	**-.00588**	**-.00015**	**.00154**	**-.01690**
Stddev	.00022	.00052	.00160	.00329	.00057	.00006	.02086
%RSD	31.384	.31689	304.78	55.969	385.41	3.8931	123.40
#1	-.00075	.16473	.00033	-.00476	-.00070	.00157	-.03914
#2	-.00086	.16500	-.00237	-.00959	.00044	.00158	.00223
#3	-.00045	.16574	.00047	-.00330	-.00018	.00148	-.01380
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7043.5**	**87708.**	**10110.**
Stddev	19.6	592.	96.
%RSD	.27789	.67461	.94471
#1	7022.9	87414.	10005.
#2	7045.8	88389.	10136.
#3	7061.9	87321.	10191.

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCV Acquired: 11/7/2016 16:29:35 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40614**	**10.359**	**.40319**	**.50263**	**1.0303**	**.05044**	**10.272**
Stddev	.00176	.052	.00202	.00449	.0010	.00018	.043
%RSD	.43325	.50535	.50199	.89322	.10157	.34892	.42054
#1	.40713	10.388	.40521	.50687	1.0305	.05049	10.309
#2	.40411	10.299	.40320	.49793	1.0313	.05058	10.283
#3	.40719	10.390	.40116	.50310	1.0292	.05024	10.224
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05071**	**.20422**	**.50962**	**.51116**	**4.0887**	**51.028**	**1.0277**
Stddev	.00005	.00044	.00145	.00016	.0186	.125	.0038
%RSD	.08910	.21357	.28549	.03204	.45458	.24448	.37378
#1	.05068	.20470	.51023	.51098	4.0715	51.114	1.0275
#2	.05076	.20411	.50796	.51121	4.1084	51.086	1.0316
#3	.05069	.20385	.51068	.51130	4.0862	50.885	1.0239
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.147**	**.50874**	**1.0099**	**51.631**	**.51059**	**10.141**	**.51621**
Stddev	.045	.00167	.0004	.075	.00071	.010	.00290
%RSD	.43910	.32904	.04380	.14512	.13979	.10044	.56106
#1	10.198	.50691	1.0096	51.659	.51141	10.142	.51514
#2	10.113	.51018	1.0104	51.688	.51017	10.151	.51949
#3	10.132	.50915	1.0097	51.546	.51018	10.131	.51400
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 16:29:35 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2216**	**.39940**	**5.0526**	**1.0136**	**1.0226**	**.99943**	**.51723**
Stddev	.0036	.00278	.0016	.0020	.0026	.00606	.00319
%RSD	.29357	.69650	.03084	.20088	.25356	.60601	.61765
#1	1.2191	.40108	5.0539	1.0126	1.0235	1.0058	.51767
#2	1.2258	.39619	5.0531	1.0122	1.0247	.99374	.52017
#3	1.2200	.40093	5.0509	1.0159	1.0197	.99875	.51383
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0091**	**1.0267**	F **.05933**
Stddev	.0012	.0007	.04722
%RSD	.12248	.06989	79.596
#1	1.0087	1.0270	.07285
#2	1.0105	1.0259	.09832
#3	1.0081	1.0273	.00682
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7039.0**	**85555.**	**10074.**
Stddev	29.2	388.	51.
%RSD	.41460	.45376	.50340
#1	7008.3	85791.	10131.
#2	7042.3	85767.	10056.
#3	7066.4	85107.	10034.

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 16:33:06 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00066**	**-.00100**	**.00451**	**.00020**	**.00015**	**.00003**	**-.01249**	**-.00023**
Stddev	.00131	.00448	.00427	.00103	.00040	.00001	.00492	.00012
%RSD	199.53	449.68	94.551	517.55	259.21	16.176	39.356	52.815
#1	.00215	-.00322	.00847	.00027	.00060	.00004	-.00683	-.00028
#2	-.00029	-.00393	-.00001	.00119	.00005	.00004	-.01494	-.00009
#3	.00011	.00416	.00507	-.00087	-.00018	.00003	-.01570	-.00032
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00009**	**-.00052**	**.00016**	**-.01892**	**.05978**	**.00089**	**.02076**	**-.00018**
Stddev	.00042	.00131	.00038	.01225	.05581	.00437	.04944	.00281
%RSD	461.37	251.89	234.07	64.748	93.362	492.07	238.14	1570.1
#1	-.00013	-.00057	.00010	-.01351	.03269	.00303	.02410	-.00305
#2	.00035	-.00181	-.00018	-.01031	.12396	.00378	.06845	-.00005
#3	-.00050	.00081	.00057	-.03295	.02268	-.00414	-.03027	.00256
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00054**	**.03486**	**-.00064**	**.00202**	**.00247**	**.00359**	**-.00100**	**-.00152**
Stddev	.00057	.02377	.00094	.00125	.00354	.00555	.00235	.00245
%RSD	106.72	68.185	148.18	61.942	143.17	154.53	235.76	161.83
#1	-.00007	.00750	-.00011	.00301	.00154	.00909	-.00034	-.00039
#2	-.00036	.05039	-.00007	.00061	-.00051	.00371	.00096	.00017
#3	-.00117	.04668	-.00173	.00243	.00639	-.00202	-.00360	-.00433
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 16:33:06 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00077**	**-.00002**	**.00200**	**-.00572**	**-.00034**	**.00014**	**.01579**
Stddev	.00044	.00004	.00549	.00304	.00035	.00008	.02391
%RSD	57.559	187.82	274.14	53.185	103.30	55.355	151.42
#1	-.00097	-.00000	-.00391	-.00404	-.00057	.00007	.02558
#2	-.00026	.00001	.00298	-.00924	.00006	.00012	-.01146
#3	-.00107	-.00006	.00695	-.00390	-.00052	.00022	.03327
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7045.5**	**89023.**	**10088.**
Stddev	71.2	1007.	78.
%RSD	1.0100	1.1307	.77419
#1	7043.8	90117.	10112.
#2	6975.2	88816.	10151.
#3	7117.4	88136.	10001.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611000617 Acquired: 11/7/2016 16:36:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00060**	**.01315**	**.00130**	**.02900**	**.06490**	**-.00001**	**83.259**	**.00038**
Stddev	.00087	.00082	.00182	.00103	.00081	.00004	.217	.00037
%RSD	144.57	6.2489	139.38	3.5363	1.2470	340.86	.26045	97.870
#1	.00131	.01405	.00098	.02792	.06398	.00001	83.051	.00063
#2	-.00037	.01244	.00326	.02911	.06520	-.00005	83.241	.00055
#3	.00087	.01296	-.00033	.02997	.06551	.00001	83.484	-.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00020**	**-.00066**	**.03063**	**-.00934**	**1.0711**	**.00504**	**5.5097**	**-.00076**
Stddev	.00060	.00062	.00184	.01192	.0258	.00379	.0679	.00101
%RSD	299.65	94.358	5.9924	127.60	2.4091	75.252	1.2325	132.81
#1	.00049	-.00030	.02880	-.02261	1.0709	.00630	5.4436	-.00172
#2	-.00050	-.00137	.03063	.00044	1.0454	.00078	5.5793	.00030
#3	-.00059	-.00029	.03247	-.00585	1.0970	.00805	5.5064	-.00086
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00076**	**20.087**	**-.00039**	**-.01038**	**.00708**	**.00235**	**.00270**	**4.4993**
Stddev	.00020	.158	.00109	.00287	.00065	.00241	.00866	.0091
%RSD	25.969	.78424	280.96	27.614	9.2175	102.53	321.10	.20113
#1	.00092	19.935	-.00070	-.00714	.00759	-.00002	.00620	4.5053
#2	.00084	20.077	-.00129	-.01258	.00634	.00480	-.00717	4.5038
#3	.00054	20.249	.00083	-.01143	.00730	.00227	.00906	4.4889
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000617 Acquired: 11/7/2016 16:36:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00084**	**.22411**	**.00007**	**-.00139**	**.00059**	**.02549**	**.06961**
Stddev	.00057	.00048	.00270	.00323	.00009	.00040	.01390
%RSD	67.896	.21466	3744.1	232.81	15.208	1.5663	19.961
#1	-.00129	.22360	.00200	-.00191	.00063	.02504	.07805
#2	-.00020	.22416	-.00302	.00207	.00049	.02565	.05357
#3	-.00103	.22456	.00123	-.00432	.00066	.02579	.07721
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6967.2**	**86837.**	**10115.**
Stddev	22.0	202.	62.
%RSD	.31558	.23261	.61213
#1	6982.6	87015.	10175.
#2	6976.9	86879.	10120.
#3	6942.0	86617.	10051.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000618 Acquired: 11/7/2016 16:40:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00049**	**.01583**	**.00237**	**.00722**	**.12609**	**.00002**	**90.309**	**.00002**
Stddev	.00119	.00559	.00107	.00094	.00039	.00008	.269	.00033
%RSD	244.48	35.286	45.286	13.046	.31135	356.38	.29748	1822.5
#1	.00185	.01401	.00122	.00795	.12634	-.00005	90.529	.00006
#2	-.00030	.01138	.00254	.00616	.12630	.00002	90.388	.00033
#3	-.00009	.02210	.00335	.00756	.12564	.00010	90.010	-.00033
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00034**	**.00007**	**.00257**	**.00494**	**.92903**	**.00289**	**5.2464**	**.00390**
Stddev	.00040	.00078	.00117	.01347	.01809	.00076	.1478	.00127
%RSD	117.84	1107.8	45.643	272.83	1.9468	26.370	2.8168	32.572
#1	-.00077	.00097	.00360	-.01014	.91572	.00246	5.2218	.00247
#2	.00001	-.00048	.00129	.00917	.92175	.00377	5.4050	.00433
#3	-.00026	-.00027	.00282	.01579	.94962	.00243	5.1125	.00490
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00059**	**7.0881**	**-.00089**	**.00747**	**.00398**	**.00204**	**-.00158**	**3.4654**
Stddev	.00044	.0413	.00212	.00148	.00337	.00285	.00653	.0023
%RSD	74.476	.58294	237.66	19.795	84.890	139.32	413.58	.06735
#1	.00082	7.1229	-.00314	.00722	.00052	-.00118	.00525	3.4659
#2	.00008	7.0989	-.00061	.00613	.00727	.00310	-.00224	3.4629
#3	.00087	7.0424	.00107	.00905	.00413	.00422	-.00775	3.4675
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611000618 Acquired: 11/7/2016 16:40:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00075**	**.22214**	**-.00573**	**-.00349**	**-.00002**	**.00489**	**-.01445**
Stddev	.00065	.00064	.00180	.00417	.00051	.00005	.03672
%RSD	86.932	.28994	31.442	119.53	2092.0	.94649	254.05
#1	-.00142	.22240	-.00448	-.00347	-.00011	.00487	-.03626
#2	-.00070	.22261	-.00491	-.00767	-.00048	.00494	-.03503
#3	-.00012	.22140	-.00779	.00067	.00052	.00486	.02794
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6987.0**	**87567.**	**10000.**
Stddev	4.4	225.	136.
%RSD	.06296	.25667	1.3603
#1	6987.8	87421.	9876.0
#2	6982.2	87826.	9979.2
#3	6990.9	87454.	10146.

Approved: November 08, 2016

Kristi K Buck

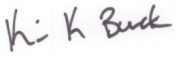
Sample Name: L1611000619 Acquired: 11/7/2016 16:44:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00196**	**.19703**	**.00128**	**.02451**	**.05362**	**.00002**	**27.974**	**.00001**
Stddev	.00126	.00116	.00206	.00042	.00054	.00007	.060	.00006
%RSD	64.144	.58870	161.59	1.7260	1.0106	336.70	.21348	1193.7
#1	.00272	.19672	.00363	.02402	.05424	.00006	28.013	.00002
#2	.00051	.19605	-.00023	.02481	.05324	.00007	28.003	-.00006
#3	.00265	.19831	.00043	.02469	.05337	-.00006	27.905	.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00007**	**-.00014**	**.00306**	**.35155**	**3.7952**	**.00068**	**2.7951**	**.12258**
Stddev	.00025	.00002	.00117	.01098	.0067	.00141	.0210	.00126
%RSD	336.19	11.695	38.182	3.1243	.17620	206.24	.75033	1.0244
#1	.00023	-.00015	.00430	.36075	3.7875	.00231	2.8042	.12292
#2	.00020	-.00015	.00291	.33939	3.7980	-.00007	2.7711	.12363
#3	-.00021	-.00012	.00198	.35450	3.8000	-.00019	2.8099	.12119
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00126**	**8.5930**	**-.00045**	**.05185**	**.00364**	**.00077**	**.00520**	**3.4426**
Stddev	.00050	.0382	.00093	.00414	.00187	.00700	.00816	.0151
%RSD	39.540	.44437	206.17	7.9789	51.397	903.76	156.89	.43913
#1	.00074	8.5602	-.00086	.05644	.00441	.00003	.00518	3.4584
#2	.00133	8.6349	-.00111	.05067	.00151	-.00582	.01337	3.4413
#3	.00173	8.5840	.00061	.04842	.00501	.00811	-.00295	3.4282
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611000619 Acquired: 11/7/2016 16:44:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00107**	**.07568**	**.00682**	**.00047**	**.00061**	**.00302**	**.07204**
Stddev	.00052	.00019	.00212	.00164	.00104	.00014	.05261
%RSD	48.772	.25475	31.087	345.12	170.32	4.6305	73.035
#1	-.00048	.07575	.00486	.00236	.00172	.00293	.03125
#2	-.00125	.07584	.00654	-.00064	-.00035	.00295	.05344
#3	-.00149	.07547	.00907	-.00029	.00046	.00318	.13142
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7127.5**	**89500.**	**10183.**
Stddev	14.6	392.	56.
%RSD	.20416	.43816	.55380
#1	7142.4	89096.	10216.
#2	7113.4	89879.	10214.
#3	7126.8	89526.	10117.

Approved: November 08, 2016

Kristi K Buck

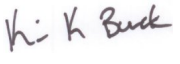
Sample Name: L1611000620 Acquired: 11/7/2016 16:48:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00082**	**.06297**	**.00099**	**.01032**	**.05991**	**.00000**	**54.774**	**.00025**
Stddev	.00084	.00473	.00480	.00281	.00035	.00002	.061	.00037
%RSD	103.46	7.5076	484.65	27.221	.59084	836.96	.11055	148.36
#1	.00040	.06685	.00622	.01285	.05953	.00002	54.705	-.00018
#2	.00179	.06437	-.00002	.00730	.06023	-.00002	54.816	.00045
#3	.00026	.05770	-.00323	.01082	.05997	.00000	54.802	.00048
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00032**	**.00058**	**.00241**	**.08566**	**1.1310**	**.00258**	**5.6247**	**.02096**
Stddev	.00028	.00018	.00093	.01136	.0459	.00587	.0852	.00304
%RSD	86.132	29.929	38.508	13.259	4.0600	227.23	1.5150	14.486
#1	-.00002	.00077	.00155	.07829	1.0922	.00715	5.5921	.01910
#2	-.00057	.00042	.00229	.07995	1.1817	-.00404	5.5607	.01932
#3	-.00037	.00057	.00339	.09874	1.1191	.00463	5.7214	.02447
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00005**	**7.1274**	**.00161**	**.02468**	**.00385**	**.00429**	**.00449**	**4.0433**
Stddev	.00051	.0096	.00060	.00896	.00068	.00326	.00630	.0060
%RSD	972.55	.13486	36.955	36.309	17.583	76.095	140.19	.14933
#1	-.00061	7.1180	.00230	.02702	.00310	.00764	.00565	4.0450
#2	.00039	7.1271	.00132	.03224	.00441	.00411	-.00230	4.0483
#3	.00007	7.1372	.00122	.01478	.00405	.00112	.01013	4.0366
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611000620 Acquired: 11/7/2016 16:48:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-01

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00155**	**.15022**	**.00074**	**-.00300**	**-.00017**	**.00629**	**.01571**
Stddev	.00040	.00023	.00192	.00310	.00047	.00015	.06747
%RSD	25.979	.15604	259.98	103.30	286.90	2.4163	429.57
#1	-.00113	.15000	-.00104	-.00657	-.00020	.00647	-.02972
#2	-.00193	.15046	.00048	-.00136	.00033	.00619	-.01639
#3	-.00159	.15019	.00277	-.00106	-.00062	.00622	.09324
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7063.0**	**88477.**	**10119.**
Stddev	14.9	119.	25.
%RSD	.21119	.13480	.25197
#1	7068.9	88340.	10124.
#2	7046.0	88551.	10091.
#3	7074.1	88541.	10142.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611000620MS Acquired: 11/7/2016 16:51:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.15654**	**5.1053**	**.00364**	**.01055**	**.06045**	**.02551**	**59.755**	**-.00007**
Stddev	.00062	.0146	.00351	.00140	.00027	.00006	.149	.00014
%RSD	.39483	.28659	96.324	13.258	.44028	.24844	.24935	192.74
#1	.15660	5.1107	.00296	.00952	.06025	.02554	59.902	-.00004
#2	.15713	5.0887	.00053	.01214	.06035	.02543	59.604	.00005
#3	.15590	5.1164	.00744	.00998	.06075	.02555	59.759	-.00023
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00070**	**-.00032**	**.00105**	**2.0795**	**26.660**	**.00612**	**10.500**	**.27667**
Stddev	.00031	.00093	.00065	.0144	.140	.00647	.067	.00207
%RSD	44.138	288.64	61.464	.68991	.52366	105.70	.63603	.74758
#1	-.00046	-.00111	.00128	2.0891	26.722	.01360	10.438	.27455
#2	-.00059	-.00057	.00155	2.0630	26.500	.00241	10.490	.27869
#3	-.00105	.00071	.00032	2.0863	26.758	.00236	10.571	.27678
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00006**	**32.633**	**.00154**	**.02938**	**.00003**	**.00099**	**.00238**	**4.1364**
Stddev	.00028	.106	.00102	.00204	.00212	.00808	.00414	.0083
%RSD	501.42	.32510	65.930	6.9276	6976.0	813.00	174.13	.20152
#1	-.00026	32.574	.00037	.02744	.00201	-.00793	.00258	4.1444
#2	.00028	32.570	.00219	.02920	-.00220	.00313	.00641	4.1372
#3	.00015	32.756	.00207	.03150	.00028	.00779	-.00186	4.1277
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611000620MS Acquired: 11/7/2016 16:51:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-04

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00140**	**.15047**	**.00225**	**-.00401**	**-.00037**	**.00544**	**-.00370**
Stddev	.00123	.00072	.00352	.00188	.00015	.00013	.02953
%RSD	87.765	.48127	156.76	46.908	41.354	2.3257	797.81
#1	-.00264	.15037	.00437	-.00501	-.00049	.00555	.00654
#2	-.00019	.14980	.00420	-.00518	-.00020	.00547	-.03699
#3	-.00137	.15124	-.00182	-.00184	-.00041	.00530	.01935
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6978.6**	**86705.**	**9955.5**
Stddev	9.4	780.	102.3
%RSD	.13511	.89940	1.0275
#1	6978.1	85812.	9849.9
#2	6969.5	87250.	10054.
#3	6988.3	87054.	9962.3

Approved: November 08, 2016

Kristi K Buck

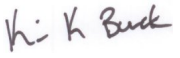
Sample Name: L1611000620MSD Acquired: 11/7/2016 16:55:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.15727**	**5.1962**	**.00379**	**.00814**	**.05930**	**.02561**	**59.214**	**.00007**
Stddev	.00051	.0218	.00172	.00066	.00058	.00010	.134	.00035
%RSD	.32665	.41937	45.456	8.1425	.97221	.40522	.22583	465.77
#1	.15694	5.2100	.00547	.00743	.05930	.02555	59.103	-.00028
#2	.15701	5.2074	.00203	.00825	.05988	.02556	59.362	.00010
#3	.15786	5.1710	.00387	.00874	.05873	.02573	59.176	.00041
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00024**	**-.00034**	**.00062**	**2.0882**	**26.640**	**.00429**	**10.430**	**.27454**
Stddev	.00055	.00143	.00132	.0173	.053	.00244	.200	.00146
%RSD	226.21	421.93	213.49	.82745	.19802	57.020	1.9199	.53017
#1	-.00074	-.00173	.00157	2.0937	26.699	.00674	10.199	.27297
#2	.00034	-.00043	-.00089	2.1021	26.597	.00426	10.546	.27585
#3	-.00033	.00113	.00117	2.0689	26.624	.00185	10.545	.27479
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00023**	**32.583**	**-.00123**	**.01710**	**.00247**	**.00085**	**.00022**	**4.1155**
Stddev	.00023	.142	.00033	.00234	.00144	.00337	.00619	.0142
%RSD	99.982	.43679	27.023	13.680	58.115	396.14	2787.2	.34444
#1	.00025	32.448	-.00123	.01978	.00082	.00188	.00703	4.1317
#2	.00044	32.731	-.00090	.01607	.00344	-.00292	-.00128	4.1097
#3	-.00001	32.569	-.00157	.01545	.00315	.00359	-.00508	4.1052
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611000620MSD Acquired: 11/7/2016 16:55:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590036-05

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00101**	**.14890**	**-.00324**	**-.00558**	**.00036**	**.00540**	**.01330**
Stddev	.00068	.00042	.00527	.00146	.00031	.00026	.02825
%RSD	67.413	.27919	162.72	26.153	86.188	4.7901	212.38
#1	-.00145	.14894	.00244	-.00558	.00037	.00527	.03806
#2	-.00023	.14930	-.00419	-.00412	.00068	.00524	.01933
#3	-.00134	.14847	-.00796	-.00703	.00005	.00570	-.01748
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6925.5**	**85685.**	**9991.4**
Stddev	81.9	224.	40.4
%RSD	1.1821	.26126	.40464
#1	6832.4	85454.	10030.
#2	6986.1	85901.	9994.6
#3	6957.9	85700.	9949.5

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 16:59:23 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41194**	**10.460**	**.41074**	**.50665**	**1.0504**	**.05146**	**10.445**
Stddev	.00176	.025	.00361	.00102	.0027	.00020	.015
%RSD	.42723	.23578	.87790	.20151	.25355	.39803	.14398
#1	.40991	10.442	.41197	.50552	1.0481	.05156	10.435
#2	.41300	10.488	.41357	.50749	1.0533	.05160	10.463
#3	.41292	10.450	.40668	.50696	1.0499	.05123	10.439
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05167**	**.20694**	**.51718**	**.52037**	**4.1296**	**52.052**	**1.0413**
Stddev	.00026	.00030	.00154	.00142	.0083	.166	.0016
%RSD	.49590	.14574	.29824	.27348	.20114	.31840	.15243
#1	.05156	.20661	.51613	.52045	4.1357	51.900	1.0431
#2	.05196	.20700	.51895	.52176	4.1201	52.229	1.0404
#3	.05149	.20720	.51647	.51891	4.1329	52.027	1.0403
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.284**	**.51805**	**1.0272**	**52.465**	**.51890**	**10.290**	**.52591**
Stddev	.017	.00431	.0031	.016	.00143	.016	.00051
%RSD	.16877	.83257	.30076	.03086	.27464	.15159	.09731
#1	10.299	.51775	1.0273	52.484	.52020	10.277	.52626
#2	10.265	.51390	1.0303	52.458	.51738	10.307	.52614
#3	10.288	.52251	1.0241	52.454	.51912	10.286	.52532
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 16:59:23 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2396**	**.41114**	**5.1326**	**1.0299**	**1.0432**	**1.0168**	**.52767**
Stddev	.0074	.00672	.0121	.0039	.0004	.0060	.00456
%RSD	.59885	1.6354	.23612	.38059	.03314	.58548	.86470
#1	1.2313	.40467	5.1240	1.0301	1.0428	1.0199	.52742
#2	1.2456	.41810	5.1464	1.0337	1.0435	1.0099	.52324
#3	1.2420	.41066	5.1273	1.0259	1.0433	1.0206	.53236
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0281**	**1.0439**	F **.06860**
Stddev	.0021	.0014	.04477
%RSD	.20606	.13361	65.257
#1	1.0263	1.0433	.11740
#2	1.0304	1.0455	.05899
#3	1.0277	1.0429	.02943
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6922.7**	**85158.**	**9854.6**
Stddev	8.8	281.	102.8
%RSD	.12681	.32986	1.0429
#1	6927.0	84859.	9903.8
#2	6912.6	85200.	9923.6
#3	6928.5	85416.	9736.5

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCB Acquired: 11/7/2016 17:02:54 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00090**	**-.00266**	**.00623**	**-.00140**	**.00072**	**.00001**	**-.00297**	**-.00036**
Stddev	.00054	.00394	.00267	.00146	.00009	.00004	.01031	.00035
%RSD	60.132	147.96	42.912	104.02	12.778	294.40	347.72	97.786
#1	.00031	-.00602	.00886	-.00028	.00072	.00000	.00894	-.00034
#2	.00103	-.00363	.00630	-.00088	.00063	-.00002	-.00876	-.00002
#3	.00137	.00167	.00352	-.00305	.00081	.00006	-.00908	-.00072
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00015**	**-.00071**	**.00033**	**-.00181**	**.08917**	**-.00255**	**.01691**	**-.00108**
Stddev	.00016	.00069	.00090	.00638	.07316	.00432	.04344	.00129
%RSD	106.47	97.303	274.50	353.30	82.050	169.47	256.81	119.23
#1	-.00022	-.00144	-.00062	-.00894	.01324	.00233	-.03318	-.00254
#2	.00003	-.00065	.00043	.00334	.15921	-.00410	.04416	-.00058
#3	-.00027	-.00006	.00117	.00019	.09506	-.00587	.03976	-.00012
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00009**	**.04348**	**-.00067**	**.00183**	**.00294**	**.00102**	**.00010**	**.00066**
Stddev	.00053	.02629	.00087	.00517	.00360	.00194	.00451	.00206
%RSD	616.36	60.466	129.64	283.14	122.74	189.78	4631.9	313.86
#1	.00061	.06848	-.00129	.00716	.00093	.00241	-.00307	-.00147
#2	-.00046	.01606	.00032	.00148	.00078	.00184	.00526	.00265
#3	.00011	.04592	-.00104	-.00316	.00710	-.00119	-.00190	.00079
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCB Acquired: 11/7/2016 17:02:54 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00078**	**-.00008**	**.00410**	**.00007**	**.00029**	**.00003**	**.03606**
Stddev	.00063	.00030	.00187	.00144	.00047	.00038	.04494
%RSD	81.145	391.32	45.479	2160.8	162.93	1496.4	124.60
#1	-.00095	.00027	.00620	.00172	-.00026	.00017	.08320
#2	-.00130	-.00025	.00350	-.00091	.00058	.00031	.03127
#3	-.00008	-.00025	.00261	-.00061	.00055	-.00040	-.00628
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7048.8**	**87928.**	**9829.2**
Stddev	10.4	465.	177.4
%RSD	.14751	.52862	1.8053
#1	7037.6	87427.	9821.5
#2	7058.2	88345.	10010.
#3	7050.7	88012.	9655.6

Approved: November 08, 2016

Ki K Buck

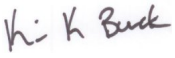
Sample Name: LLCCV Acquired: 11/7/2016 17:37:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00987**	**.18132**	**.00956**	**.07672**	**.00833**	**.00161**	**.45024**	**.00074**
Stddev	.00231	.00360	.00135	.00084	.00054	.00002	.00929	.00021
%RSD	23.445	1.9845	14.113	1.0939	6.4963	1.2810	2.0641	27.972
#1	.00728	.17840	.01109	.07603	.00851	.00160	.44359	.00090
#2	.01172	.18021	.00854	.07647	.00772	.00164	.46086	.00080
#3	.01061	.18534	.00904	.07765	.00876	.00160	.44627	.00051
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00433**	**.00409**	**.00390**	**.06974**	**.81592**	**.08739**	**.46682**	**.00708**
Stddev	.00009	.00029	.00118	.00574	.01501	.00157	.09086	.00076
%RSD	2.1090	7.1606	30.280	8.2289	1.8392	1.8015	19.463	10.762
#1	.00443	.00375	.00275	.06416	.82957	.08658	.55624	.00624
#2	.00424	.00423	.00511	.07563	.81834	.08920	.46962	.00772
#3	.00433	.00429	.00385	.06944	.79985	.08638	.37460	.00727
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00818**	**.44678**	**.01566**	**.80283**	**.00989**	**.08736**	**.01031**	**.81484**
Stddev	.00029	.01515	.00096	.00601	.00193	.00110	.01078	.00285
%RSD	3.5502	3.3917	6.1556	.74907	19.501	1.2629	104.56	.34957
#1	.00822	.44374	.01582	.79812	.01212	.08698	.00111	.81174
#2	.00787	.43338	.01463	.80078	.00886	.08650	.00764	.81735
#3	.00845	.46323	.01654	.80961	.00870	.08861	.02217	.81543
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: LLCCV Acquired: 11/7/2016 17:37:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.42193**	**.04279**	**.02606**	**.16327**	**.00738**	**.01877**	**6.8353**
Stddev	.00091	.00040	.00528	.00609	.00036	.00015	.0858
%RSD	.21477	.92524	20.248	3.7280	4.8860	.81153	1.2544
#1	.42138	.04281	.03197	.15650	.00715	.01881	6.8966
#2	.42144	.04239	.02437	.16498	.00780	.01860	6.8721
#3	.42298	.04318	.02184	.16831	.00720	.01890	6.7373
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7087.9**	**88686.**	**10107.**
Stddev	79.8	835.	13.
%RSD	1.1254	.94097	.12837
#1	6996.9	89363.	10095.
#2	7145.8	88941.	10121.
#3	7120.9	87753.	10105.

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 17:41:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01230**	**.23711**	**.01072**	**.10041**	**.01061**	**.00207**	**.58634**	**.00072**
Stddev	.00105	.00534	.00297	.00109	.00107	.00005	.01532	.00015
%RSD	8.5104	2.2519	27.671	1.0859	10.087	2.2494	2.6123	21.425
#1	.01351	.23303	.00833	.09937	.01155	.00202	.60396	.00080
#2	.01159	.23515	.01404	.10154	.01083	.00207	.57884	.00054
#3	.01181	.24316	.00979	.10030	.00944	.00211	.57622	.00083
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00565**	**.00435**	**.00672**	**.12117**	**1.0916**	**.10994**	**.61272**	**.01054**
Stddev	.00035	.00111	.00115	.01779	.0438	.00368	.05037	.00127
%RSD	6.1163	25.438	17.053	14.679	4.0113	3.3466	8.2206	12.061
#1	.00527	.00314	.00750	.11887	1.0411	.10603	.56114	.00912
#2	.00571	.00530	.00725	.10465	1.1160	.11333	.61523	.01093
#3	.00595	.00462	.00540	.14000	1.1178	.11046	.66179	.01158
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01012**	**.57662**	**.02086**	**1.0563**	**.01307**	**.11655**	**.01981**	**1.0616**
Stddev	.00088	.02651	.00113	.0048	.00181	.00437	.00542	.0041
%RSD	8.6699	4.5977	5.4397	.45831	13.856	3.7513	27.367	.38628
#1	.00993	.55769	.01974	1.0582	.01441	.11441	.01745	1.0574
#2	.00936	.56525	.02085	1.0599	.01380	.12158	.02601	1.0616
#3	.01108	.60692	.02201	1.0508	.01101	.11365	.01597	1.0656
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

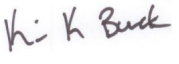
Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 17:41:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.55030**	**.05483**	**.03543**	**.21845**	**.01033**	**.02257**	**8.8182**
Stddev	.00107	.00018	.00432	.00287	.00025	.00008	.0474
%RSD	.19398	.33648	12.183	1.3141	2.4064	.34630	.53757
#1	.55043	.05465	.03742	.21974	.01021	.02259	8.7701
#2	.54917	.05502	.03839	.22045	.01062	.02248	8.8195
#3	.55129	.05483	.03048	.21516	.01016	.02263	8.8649
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7221.3**	**90070.**	**10326.**
Stddev	107.4	138.	32.
%RSD	1.4873	.15279	.30790
#1	7285.6	90138.	10312.
#2	7280.9	90160.	10362.
#3	7097.3	89911.	10303.

Approved: November 08, 2016



Sample Name: PBW 2P Acquired: 11/7/2016 17:45:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00131**	**.00248**	**.00013**	**-.00053**	**.00046**	**-.00006**	**.00170**	**-.00035**
Stddev	.00063	.00417	.00033	.00207	.00030	.00007	.00866	.00013
%RSD	47.993	168.19	259.63	393.02	65.524	124.66	509.11	37.461
#1	.00174	-.00153	.00013	-.00009	.00046	-.00010	-.00815	-.00045
#2	.00059	.00678	-.00021	-.00278	.00077	-.00009	.00814	-.00020
#3	.00161	.00218	.00046	.00129	.00016	.00002	.00512	-.00041
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00004**	**.00041**	**.00058**	**.00700**	**-.04567**	**-.00007**	**.12569**	**.00260**
Stddev	.00048	.00030	.00020	.01223	.03455	.01005	.04571	.00106
%RSD	1233.5	74.157	34.856	174.89	75.635	14608.	36.367	40.969
#1	.00051	.00012	.00081	.00122	-.06108	-.00468	.07515	.00143
#2	-.00036	.00037	.00045	.02105	-.06984	.01145	.13778	.00351
#3	-.00027	.00072	.00046	-.00128	-.00611	-.00699	.16414	.00286
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00022**	**-.00945**	**.00022**	**-.00558**	**.00504**	**.00290**	**-.00029**	**-.00032**
Stddev	.00043	.01534	.00043	.01000	.00477	.00192	.00466	.00064
%RSD	191.92	162.34	196.54	179.15	94.728	66.173	1606.6	200.87
#1	-.00005	-.02657	-.00028	-.01396	.01043	.00234	.00505	-.00105
#2	.00001	.00305	.00051	.00549	.00137	.00504	-.00351	-.00005
#3	.00072	-.00483	.00043	-.00827	.00331	.00133	-.00242	.00014
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: PBW 2P Acquired: 11/7/2016 17:45:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00098**	**.00014**	**.00061**	**-.00373**	**.00018**	**.00027**	**.02786**
Stddev	.00043	.00025	.00298	.00445	.00155	.00025	.02993
%RSD	44.466	171.02	485.42	119.37	841.40	91.012	107.46
#1	-.00068	.00027	.00089	-.00701	.00197	.00053	.04470
#2	-.00148	.00030	.00345	.00134	-.00073	.00025	-.00671
#3	-.00077	-.00014	-.00250	-.00552	-.00069	.00004	.04557
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7101.8**	**87684.**	**9885.5**
Stddev	36.5	715.	125.5
%RSD	.51424	.81559	1.2699
#1	7135.3	87466.	10010.
#2	7107.1	87104.	9888.3
#3	7062.9	88483.	9758.7

Approved: November 08, 2016

Kristi K Buck

Sample Name: LCSW 2P Acquired: 11/7/2016 17:48:57 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19670**	**5.0530**	**.19598**	**.91588**	**.50324**	**.02389**	**5.0181**	**.02426**
Stddev	.00178	.0172	.00200	.00194	.00029	.00001	.0196	.00023
%RSD	.90376	.34092	1.0185	.21218	.05675	.02741	.39070	.95642
#1	.19855	5.0707	.19745	.91736	.50303	.02388	5.0305	.02453
#2	.19500	5.0363	.19678	.91660	.50311	.02388	5.0282	.02410
#3	.19656	5.0521	.19370	.91368	.50356	.02389	4.9955	.02416
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09976**	**.24692**	**.24849**	**1.9701**	**24.586**	**.50155**	**4.9896**	**.24806**
Stddev	.00028	.00020	.00204	.0161	.007	.00387	.0541	.00283
%RSD	.27783	.08301	.82018	.81769	.02778	.77225	1.0846	1.1392
#1	.09944	.24673	.24614	1.9855	24.584	.49875	4.9341	.24678
#2	.09987	.24714	.24944	1.9534	24.580	.49992	4.9925	.24610
#3	.09996	.24688	.24987	1.9714	24.594	.50597	5.0422	.25130
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49700**	**25.161**	**.24955**	**4.6850**	**.25434**	**.58396**	**.18635**	**2.4740**
Stddev	.00037	.048	.00230	.0144	.00267	.00130	.00410	.0059
%RSD	.07528	.19206	.92353	.30795	1.0501	.22240	2.1990	.23839
#1	.49739	25.190	.24805	4.6709	.25737	.58352	.18867	2.4672
#2	.49697	25.186	.24839	4.6843	.25234	.58542	.18875	2.4767
#3	.49665	25.105	.25220	4.6998	.25330	.58294	.18161	2.4780
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LCSW 2P Acquired: 11/7/2016 17:48:57 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-03

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49569**	**.50028**	**.49275**	**.25267**	**.49258**	**.49388**	**.06899**
Stddev	.00116	.00039	.00507	.00108	.00091	.00110	.01759
%RSD	.23406	.07866	1.0290	.42776	.18549	.22347	25.495
#1	.49595	.50068	.49814	.25142	.49153	.49282	.08644
#2	.49670	.50027	.48807	.25330	.49322	.49503	.06927
#3	.49443	.49989	.49204	.25328	.49298	.49380	.05127
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6938.1**	**86407.**	**9995.3**
Stddev	66.0	53.	70.2
%RSD	.95142	.06091	.70201
#1	6862.5	86352.	9941.4
#2	6967.4	86415.	9969.8
#3	6984.4	86456.	10075.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611001001 Acquired: 11/7/2016 17:52:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00093**	**.02357**	**.00456**	**.02088**	**.20334**	**.00001**	**32.001**	**-.00003**
Stddev	.00086	.00553	.00468	.00080	.00044	.00002	.030	.00009
%RSD	92.549	23.444	102.63	3.8440	.21726	171.57	.09482	293.37
#1	.00192	.02227	.00415	.02086	.20299	.00002	31.990	.00003
#2	.00044	.02963	.00010	.02170	.20319	.00003	32.035	-.00013
#3	.00042	.01881	.00944	.02009	.20383	-.00001	31.977	.00001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00019**	**-.00036**	**.00191**	**1.7199**	**1.1512**	**-.00097**	**4.8603**	**.53153**
Stddev	.00019	.00052	.00148	.0032	.0451	.00112	.0050	.00288
%RSD	99.584	141.71	77.572	.18307	3.9145	115.57	.10268	.54153
#1	-.00001	-.00092	.00340	1.7230	1.0996	-.00196	4.8608	.52840
#2	-.00018	.00009	.00044	1.7198	1.1711	-.00118	4.8650	.53211
#3	-.00039	-.00026	.00189	1.7168	1.1828	.00024	4.8551	.53407
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00088**	**26.330**	**.00048**	**.02771**	**.00173**	**.00241**	**.00140**	**2.4463**
Stddev	.00054	.026	.00067	.00551	.00305	.00614	.00430	.0037
%RSD	61.475	.09928	139.76	19.869	176.65	254.53	306.54	.15266
#1	.00042	26.348	.00105	.03392	-.00016	.00693	.00620	2.4425
#2	.00074	26.341	-.00026	.02342	.00524	.00489	-.00208	2.4464
#3	.00147	26.300	.00066	.02580	.00009	-.00458	.00008	2.4500
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016
Ki K Buck

Sample Name: L1611001001 Acquired: 11/7/2016 17:52:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00132**	**.23764**	**.00493**	**-.00262**	**-.00018**	**.00130**	**.05178**
Stddev	.00072	.00031	.00087	.00448	.00054	.00016	.02358
%RSD	54.630	.13157	17.669	170.65	291.03	12.234	45.532
#1	-.00199	.23767	.00575	-.00729	-.00009	.00125	.02456
#2	-.00142	.23793	.00502	.00163	-.00076	.00118	.06542
#3	-.00055	.23731	.00402	-.00221	.00030	.00148	.06537
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6936.4**	**86878.**	**10108.**
Stddev	14.0	366.	44.
%RSD	.20222	.42098	.43289
#1	6952.1	87108.	10158.
#2	6925.2	87069.	10083.
#3	6931.9	86456.	10082.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611001301 Acquired: 11/7/2016 17:56:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00444**	**48.553**	**.01439**	**.04913**	**4.0396**	**.01706**	**228.11**	**.01134**
Stddev	.00020	.112	.00111	.00121	.0175	.00005	1.68	.00015
%RSD	4.4727	.23055	7.7167	2.4569	.43322	.30077	.73721	1.3461
#1	.00466	48.459	.01551	.04932	4.0580	.01704	229.90	.01135
#2	.00438	48.522	.01439	.04784	4.0232	.01712	226.56	.01119
#3	.00428	48.677	.01329	.05023	4.0375	.01702	227.88	.01149
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.15281**	**.04374**	**.12686**	**57.955**	**7.4032**	**.05097**	**23.118**	**23.393**
Stddev	.00028	.00050	.00163	.301	.0828	.00424	.086	.107
%RSD	.18102	1.1353	1.2830	.52023	1.1184	8.3167	.37170	.45653
#1	.15270	.04317	.12515	58.301	7.3690	.04885	23.149	23.499
#2	.15261	.04397	.12839	57.747	7.4976	.04820	23.021	23.286
#3	.15313	.04408	.12704	57.816	7.3429	.05585	23.185	23.394
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00164**	**3.4040**	**.14821**	**1.8985**	**.11177**	**.00380**	**.00907**	**33.715**
Stddev	.00043	.0222	.00053	.0079	.00224	.00152	.00151	.031
%RSD	26.481	.65110	.35520	.41747	2.0042	40.121	16.608	.09273
#1	.00154	3.4294	.14775	1.9057	.10945	.00354	.00995	33.749
#2	.00211	3.3939	.14809	1.8900	.11392	.00544	.00733	33.707
#3	.00126	3.3887	.14878	1.8997	.11194	.00242	.00994	33.688
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611001301 Acquired: 11/7/2016 17:56:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00214**	**.88911**	**.39042**	**-.00474**	**.12052**	**.40200**	**.12341**
Stddev	.00080	.00443	.00543	.00377	.00062	.00097	.02543
%RSD	37.367	.49823	1.3907	79.589	.51644	.24137	20.603
#1	.00200	.89387	.39645	-.00647	.12103	.40133	.12668
#2	.00142	.88510	.38593	-.00041	.12070	.40155	.14704
#3	.00300	.88835	.38887	-.00734	.11983	.40311	.09650
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7174.0**	**88347.**	**10609.**
Stddev	28.5	447.	159.
%RSD	.39667	.50604	1.5004
#1	7201.7	88859.	10429.
#2	7175.5	88147.	10732.
#3	7144.9	88035.	10667.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611002701 Acquired: 11/7/2016 17:59:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00122**	**.04193**	**.00200**	**.03247**	**.82663**	**.00004**	**89.794**
Stddev	.00186	.00480	.00202	.00218	.00675	.00002	.719
%RSD	152.61	11.445	100.74	6.7017	.81596	56.610	.80103
#1	.00241	.04736	-.00025	.03292	.82983	.00003	90.095
#2	.00218	.03827	.00261	.03438	.83118	.00003	90.314
#3	-.00093	.04016	.00365	.03010	.81888	.00007	88.973
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00089**	**.00535**	**.01343**	**.00142**	**.43230**	**1.4120**	**.02558**
Stddev	.00022	.00042	.00074	.00291	.01756	.0659	.00284
%RSD	24.064	7.7628	5.4818	205.00	4.0616	4.6653	11.112
#1	.00097	.00522	.01416	.00434	.41556	1.4149	.02764
#2	.00106	.00501	.01345	.00138	.45058	1.4763	.02676
#3	.00065	.00582	.01269	-.00147	.43076	1.3447	.02233
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**65.856**	**.42301**	**.00123**	F **346.34**	**.00711**	**2.8553**	**.00028**
Stddev	.527	.00388	.00075	2.46	.00081	.0156	.00415
%RSD	.79998	.91796	60.988	.71148	11.337	.54729	1491.5
#1	66.259	.42599	.00140	349.18	.00618	2.8509	.00464
#2	66.049	.42442	.00041	345.13	.00752	2.8726	-.00019
#3	65.260	.41862	.00188	344.72	.00763	2.8423	-.00362
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611002701 Acquired: 11/7/2016 17:59:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00429**	**.00516**	**17.316**	**-.00011**	**1.6793**	**-.00411**	**-.00553**
Stddev	.00880	.01026	.029	.00028	.0138	.00179	.00141
%RSD	205.37	199.07	.16923	270.32	.82265	43.422	25.440
#1	.01262	.00413	17.349	.00010	1.6851	-.00208	-.00411
#2	.00516	.01589	17.294	.00001	1.6892	-.00486	-.00692
#3	-.00492	-.00456	17.305	-.00043	1.6635	-.00540	-.00555
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00032**	**.06729**	**.01173**
Stddev	.00029	.00006	.03378
%RSD	91.054	.08258	288.14
#1	.00003	.06732	.05025
#2	.00061	.06734	-.00224
#3	.00032	.06723	-.01284
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6492.5**	**80434.**	**9754.9**
Stddev	68.7	810.	123.1
%RSD	1.0584	1.0075	1.2623
#1	6413.6	81059.	9708.8
#2	6524.4	80725.	9661.4
#3	6539.4	79518.	9894.4

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611002702 Acquired: 11/7/2016 18:03:50 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00100**	**.05184**	**.00165**	**.03410**	**.88979**	**-.00002**	**93.947**
Stddev	.00178	.00305	.00138	.00011	.00081	.00005	.048
%RSD	178.31	5.8785	83.643	.31209	.09117	224.98	.05152
#1	.00139	.05506	.00006	.03409	.88906	-.00004	93.961
#2	-.00094	.05144	.00251	.03399	.88964	.00004	93.893
#3	.00256	.04901	.00238	.03421	.89066	-.00007	93.987
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00110**	**.00748**	**.01592**	**.00177**	**.47525**	**1.5304**	**.02370**
Stddev	.00040	.00066	.00090	.00070	.02565	.0329	.00154
%RSD	36.255	8.8507	5.6725	39.776	5.3971	2.1522	6.4768
#1	.00067	.00790	.01669	.00256	.44997	1.5119	.02380
#2	.00119	.00782	.01614	.00123	.47453	1.5109	.02212
#3	.00145	.00672	.01493	.00150	.50126	1.5684	.02519
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**70.409**	**.45460**	**.00206**	F **333.37**	**.00899**	**2.8720**	**.00255**
Stddev	.264	.00359	.00021	5.82	.00093	.0086	.00529
%RSD	.37427	.78954	10.021	1.7466	10.326	.30082	207.18
#1	70.580	.45596	.00210	337.02	.00817	2.8624	-.00165
#2	70.105	.45053	.00184	336.44	.00880	2.8744	.00082
#3	70.542	.45731	.00224	326.66	.01000	2.8792	.00849
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611002702 Acquired: 11/7/2016 18:03:50 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00175**	**.00134**	**17.560**	**-.00103**	**1.7666**	**-.00436**	**-.00656**
Stddev	.00317	.00352	.027	.00041	.0028	.00286	.00094
%RSD	181.07	263.16	.15410	39.704	.15977	65.553	14.362
#1	.00459	-.00001	17.545	-.00096	1.7647	-.00375	-.00664
#2	.00233	.00533	17.591	-.00066	1.7653	-.00748	-.00558
#3	-.00167	-.00131	17.544	-.00148	1.7699	-.00186	-.00746
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00009**	**.09938**	F **-.04753**
Stddev	.00028	.00028	.03218
%RSD	305.72	.27877	67.708
#1	-.00020	.09943	-.01038
#2	.00023	.09963	-.06687
#3	-.00031	.09909	-.06533
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6473.9**	**80786.**	**9928.6**
Stddev	35.0	207.	57.1
%RSD	.54041	.25621	.57512
#1	6437.4	81003.	9887.5
#2	6477.1	80764.	9904.5
#3	6507.1	80590.	9993.8

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007202 Acquired: 11/7/2016 18:07:41 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00285	.01713	.01885	.06163	.13706	.00005	33.726
Stddev	.00048	.00948	.00331	.00154	.00017	.00007	.083
%RSD	16.956	55.374	17.567	2.4919	.12046	140.30	.24726
#1	.00340	.02659	.01566	.06191	.13704	.00010	33.794
#2	.00265	.00762	.02227	.05998	.13724	.00008	33.633
#3	.00250	.01716	.01862	.06301	.13691	-.00003	33.752
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00025	.00238	-.00032	.00098	13.332	1.6240	-.00087
Stddev	.00034	.00038	.00053	.00080	.084	.0517	.00259
%RSD	135.73	15.980	168.01	81.707	.62756	3.1868	297.41
#1	.00041	.00281	.00023	.00161	13.421	1.5737	-.00060
#2	.00048	.00218	-.00034	.00008	13.318	1.6771	.00158
#3	-.00014	.00213	-.00084	.00126	13.255	1.6212	-.00359
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.5992	6.2471	.00676	8.3010	-.00063	.26155	.00615
Stddev	.0583	.0205	.00002	.0789	.00069	.00692	.00041
%RSD	.76697	.32804	.25869	.95060	108.57	2.6453	6.6952
#1	7.6510	6.2685	.00674	8.3700	-.00034	.26932	.00657
#2	7.5361	6.2276	.00677	8.2150	-.00142	.25929	.00575
#3	7.6104	6.2451	.00677	8.3182	-.00014	.25605	.00613
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007202 Acquired: 11/7/2016 18:07:41 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00096**	**-.00349**	**4.9253**	**-.00048**	**.17427**	**.00128**	**-.00315**
Stddev	.00363	.00256	.0040	.00024	.00027	.00621	.00306
%RSD	379.68	73.213	.08011	49.350	.15488	484.22	97.253
#1	.00367	-.00419	4.9272	-.00059	.17457	-.00280	-.00622
#2	-.00316	-.00066	4.9279	-.00065	.17404	.00843	-.00009
#3	.00236	-.00563	4.9207	-.00021	.17420	-.00179	-.00314
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00163**	**.00449**	F **-.10748**
Stddev	.00005	.00019	.01404
%RSD	2.9586	4.2712	13.064
#1	.00160	.00450	-.11071
#2	.00169	.00467	-.09210
#3	.00161	.00429	-.11962
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7005.1**	**87442.**	**10007.**
Stddev	19.5	202.	83.
%RSD	.27821	.23048	.82818
#1	7027.2	87237.	9927.7
#2	6990.4	87640.	10093.
#3	6997.7	87449.	9999.4

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007203 Acquired: 11/7/2016 18:11:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00065**	**.01317**	**.05068**	**.05620**	**.58014**	**.00001**	**72.274**
Stddev	.00239	.00292	.00047	.00198	.00116	.00005	.253
%RSD	367.27	22.197	.93653	3.5143	.19969	344.16	.34937
#1	.00070	.01073	.05065	.05400	.57887	.00005	72.115
#2	.00301	.01236	.05116	.05681	.58114	-.00004	72.141
#3	-.00176	.01641	.05022	.05781	.58042	.00002	72.565
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00082**	**.00026**	**-.00158**	**.00243**	**28.101**	**.95069**	**.00617**
Stddev	.00010	.00038	.00032	.00088	.064	.07559	.00325
%RSD	12.235	145.90	20.291	36.077	.22610	7.9507	52.686
#1	.00078	-.00012	-.00131	.00148	28.034	.96972	.00760
#2	.00093	.00063	-.00150	.00260	28.107	.86741	.00245
#3	.00074	.00027	-.00194	.00320	28.161	1.0149	.00845
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**43.979**	**1.7950**	**.00097**	**13.602**	**-.00103**	**.30057**	**.00320**
Stddev	.304	.0022	.00052	.072	.00133	.00154	.00086
%RSD	.69039	.12208	53.257	.52889	128.20	.51124	26.922
#1	43.728	1.7948	.00082	13.522	-.00109	.30203	.00418
#2	43.891	1.7973	.00054	13.621	-.00233	.30072	.00284
#3	44.316	1.7929	.00154	13.662	.00032	.29896	.00257
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007203 Acquired: 11/7/2016 18:11:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00072**	**.00042**	**9.0132**	**-.00026**	**.43003**	**.00284**	**-.00343**
Stddev	.00235	.00733	.0163	.00022	.00041	.00331	.00193
%RSD	328.37	1750.1	.18108	87.490	.09493	116.30	56.296
#1	-.00172	.00287	8.9952	-.00038	.42981	.00569	-.00153
#2	.00090	.00621	9.0173	.00000	.43051	.00363	-.00337
#3	.00297	-.00783	9.0271	-.00039	.42979	-.00079	-.00539
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00226**	**.00198**	F **-.18774**
Stddev	.00105	.00007	.01260
%RSD	46.499	3.2879	6.7119
#1	.00177	.00198	-.17997
#2	.00347	.00192	-.20227
#3	.00155	.00205	-.18096
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6901.5**	**85539.**	**9935.8**
Stddev	7.6	176.	150.8
%RSD	.11002	.20585	1.5174
#1	6892.7	85575.	9871.9
#2	6906.6	85694.	10108.
#3	6905.1	85347.	9827.6

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007203PS Acquired: 11/7/2016 18:15:16 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590619-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20685**	**5.1415**	**.25325**	**1.0191**	**1.0422**	**.02548**	**69.651**
Stddev	.00254	.0251	.00295	.0064	.0022	.00005	.307
%RSD	1.2293	.48914	1.1655	.62383	.21610	.18109	.44010
#1	.20575	5.1244	.25536	1.0131	1.0428	.02552	69.579
#2	.20975	5.1704	.25452	1.0258	1.0397	.02549	69.387
#3	.20504	5.1297	.24988	1.0186	1.0441	.02543	69.987
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02604**	**.10107**	**.25607**	**.25682**	**27.237**	**26.706**	**.52460**
Stddev	.00030	.00059	.00049	.00042	.063	.227	.00347
%RSD	1.1680	.58431	.19025	.16410	.23143	.85101	.66203
#1	.02575	.10125	.25663	.25634	27.272	26.603	.52744
#2	.02603	.10155	.25576	.25714	27.164	26.549	.52073
#3	.02635	.10041	.25582	.25698	27.274	26.967	.52562
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**44.507**	**1.8629**	**.51509**	**38.113**	**.25131**	**5.3004**	**.26007**
Stddev	.286	.0089	.00095	.118	.00083	.0070	.00256
%RSD	.64262	.48052	.18414	.30861	.33208	.13212	.98455
#1	44.214	1.8526	.51616	38.073	.25193	5.3052	.26254
#2	44.521	1.8690	.51477	38.020	.25163	5.2923	.25743
#3	44.786	1.8669	.51434	38.245	.25036	5.3035	.26024
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007203PS Acquired: 11/7/2016 18:15:16 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590619-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.61345**	**.20210**	**10.640**	**.51001**	**.90287**	**.50776**	**.25494**
Stddev	.00519	.00217	.025	.00154	.00215	.00929	.00443
%RSD	.84684	1.0742	.23263	.30175	.23781	1.8297	1.7391
#1	.61248	.19995	10.669	.51176	.90294	.49709	.25162
#2	.60880	.20205	10.627	.50885	.90068	.51212	.25321
#3	.61906	.20429	10.626	.50943	.90498	.51406	.25997
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.51597**	**.51016**	F **-.18509**
Stddev	.00032	.00107	.05651
%RSD	.06151	.20954	30.529
#1	.51586	.51123	-.21345
#2	.51573	.51014	-.12002
#3	.51633	.50910	-.22180
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6701.8**	**83119.**	**9927.2**
Stddev	12.5	276.	166.8
%RSD	.18665	.33146	1.6798
#1	6687.8	82975.	9918.3
#2	6711.9	82944.	10098.
#3	6705.7	83436.	9765.1

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007203SDL Acquired: 11/7/2016 18:18:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG590619-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00006**	**.00678**	**.01104**	**.01266**	**.12111**	**-.00002**	**15.490**
Stddev	.00105	.00363	.00090	.00126	.00053	.00007	.006
%RSD	1678.8	53.527	8.1733	9.9203	.43761	362.58	.03950
#1	.00112	.00514	.01121	.01123	.12144	.00003	15.497
#2	-.00045	.00426	.01007	.01316	.12050	.00001	15.485
#3	-.00086	.01094	.01185	.01359	.12139	-.00010	15.489
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00002**	**.00000**	**-.00088**	**.00063**	**5.8860**	**.26046**	**.00033**
Stddev	.00029	.00005	.00082	.00183	.0300	.10274	.00302
%RSD	1166.9	1272.4	93.212	287.88	.50907	39.446	910.39
#1	-.00003	.00006	-.00108	-.00052	5.8915	.19444	-.00273
#2	.00027	-.00000	-.00159	.00274	5.8537	.37883	.00330
#3	-.00031	-.00005	.00002	-.00032	5.9129	.20810	.00042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.4670**	**.37986**	**-.00030**	**2.8781**	**-.00083**	**.06596**	**.00156**
Stddev	.0189	.00073	.00039	.0107	.00105	.01031	.00214
%RSD	.19990	.19193	132.57	.37121	126.38	15.623	137.41
#1	9.4567	.38065	-.00075	2.8708	.00038	.05764	.00150
#2	9.4888	.37972	-.00009	2.8732	-.00150	.07749	-.00055
#3	9.4553	.37921	-.00005	2.8904	-.00137	.06276	.00372
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007203SDL Acquired: 11/7/2016 18:18:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG590619-02

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00038**	**.00248**	**1.9023**	**-.00058**	**.08993**	**.00252**	**-.00645**
Stddev	.00507	.00230	.0072	.00113	.00001	.00370	.00238
%RSD	1320.0	92.579	.37915	193.32	.00805	147.13	36.849
#1	-.00018	.00510	1.9065	.00053	.08993	.00279	-.00456
#2	-.00555	.00153	1.8940	-.00173	.08993	.00608	-.00911
#3	.00458	.00081	1.9064	-.00055	.08992	-.00131	-.00567
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00104**	**.00125**	F **-.04574**
Stddev	.00015	.00017	.06943
%RSD	14.176	13.204	151.80
#1	.00117	.00144	-.07239
#2	.00088	.00115	-.09789
#3	.00106	.00116	.03307
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6930.0**	**87560.**	**9751.2**
Stddev	14.9	165.	28.9
%RSD	.21453	.18813	.29626
#1	6940.4	87387.	9740.4
#2	6913.0	87715.	9783.9
#3	6936.7	87577.	9729.2

Approved: November 08, 2016

Ki K Buck

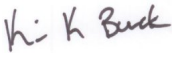
Sample Name: CCV Acquired: 11/7/2016 18:22:37 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40805**	**10.337**	**.41021**	**.50291**	**1.0441**	**.05137**	**10.403**
Stddev	.00196	.012	.00328	.00335	.0025	.00013	.079
%RSD	.48071	.11315	.79844	.66593	.24016	.25175	.76187
#1	.40783	10.325	.40707	.50148	1.0469	.05128	10.494
#2	.40621	10.338	.41360	.50052	1.0421	.05132	10.348
#3	.41012	10.348	.40996	.50674	1.0434	.05152	10.368
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05125**	**.20625**	**.51572**	**.51872**	**4.0978**	**51.749**	**1.0349**
Stddev	.00026	.00049	.00121	.00080	.0043	.257	.0035
%RSD	.51172	.23923	.23520	.15387	.10516	.49606	.33999
#1	.05111	.20680	.51652	.51948	4.1017	51.940	1.0390
#2	.05109	.20585	.51632	.51879	4.0985	51.457	1.0329
#3	.05155	.20611	.51432	.51789	4.0932	51.849	1.0329
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.109**	**.51395**	**1.0238**	**52.103**	**.51689**	**10.221**	**.52152**
Stddev	.045	.00383	.0009	.337	.00186	.017	.00096
%RSD	.44054	.74567	.08622	.64763	.35931	.16140	.18361
#1	10.155	.51827	1.0248	52.473	.51857	10.228	.52124
#2	10.067	.51263	1.0232	51.812	.51490	10.233	.52259
#3	10.104	.51095	1.0234	52.023	.51720	10.202	.52074
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016



Sample Name: CCV Acquired: 11/7/2016 18:22:37 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2275**	**.40517**	**5.0877**	**1.0241**	**1.0362**	**1.0055**	**.52605**
Stddev	.0046	.00445	.0024	.0025	.0022	.0039	.00203
%RSD	.37384	1.0992	.04800	.24156	.21456	.39044	.38597
#1	1.2321	.40302	5.0888	1.0269	1.0379	1.0089	.52810
#2	1.2274	.40219	5.0893	1.0229	1.0337	1.0012	.52601
#3	1.2230	.41029	5.0849	1.0224	1.0370	1.0065	.52404
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0263**	**1.0422**	F **.05076**
Stddev	.0009	.0008	.05405
%RSD	.08570	.07622	106.47
#1	1.0267	1.0431	.09248
#2	1.0253	1.0417	-.01029
#3	1.0269	1.0417	.07010
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6748.8**	**82797.**	**9553.8**
Stddev	7.3	391.	184.9
%RSD	.10810	.47220	1.9350
#1	6746.3	82550.	9448.6
#2	6743.0	82593.	9767.2
#3	6757.0	83248.	9445.5

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 18:26:08 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00066**	**.00088**	**.00327**	**.00176**	**.00049**	**.00002**	**.00307**
Stddev	.00106	.00358	.00181	.00304	.00023	.00004	.01119
%RSD	160.15	407.52	55.456	172.74	47.367	205.32	364.97
#1	.00154	-.00098	.00535	-.00040	.00047	.00005	.01353
#2	.00098	-.00140	.00243	.00523	.00027	-.00003	-.00874
#3	-.00052	.00501	.00203	.00044	.00073	.00004	.00441
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00002**	**.00001**	**-.00070**	**-.00036**	**-.00538**	**.10165**	**.00264**
Stddev	.00031	.00024	.00150	.00119	.01043	.11039	.00300
%RSD	1235.1	2547.4	214.28	330.91	194.05	108.59	113.42
#1	.00028	-.00024	-.00032	.00089	-.00776	.22223	.00148
#2	.00012	.00022	-.00236	-.00148	.00604	.00556	.00604
#3	-.00032	.00005	.00058	-.00049	-.01440	.07718	.00040
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.08773**	**.00058**	**.00016**	**.04804**	**-.00061**	**-.00393**	**.00055**
Stddev	.07543	.00256	.00029	.00917	.00094	.00276	.00235
%RSD	85.977	442.25	183.50	19.081	154.34	70.269	424.60
#1	.11462	.00149	.00040	.03831	-.00168	-.00705	.00086
#2	.00254	-.00231	.00023	.04930	-.00016	-.00182	.00273
#3	.14603	.00256	-.00016	.05651	.00002	-.00291	-.00194
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 18:26:08 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00021**	**-.00131**	**-.00096**	**-.00095**	**.00031**	**-.00149**	**-.00608**
Stddev	.00342	.00620	.00145	.00031	.00016	.00213	.00326
%RSD	1659.8	475.20	150.89	33.097	52.665	143.43	53.655
#1	.00092	.00015	-.00249	-.00131	.00049	-.00392	-.00607
#2	-.00351	.00404	.00039	-.00083	.00027	.00003	-.00283
#3	.00322	-.00811	-.00078	-.00071	.00017	-.00057	-.00935
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00023**	**-.00022**	F **-.06031**
Stddev	.00060	.00006	.05458
%RSD	262.31	29.068	90.502
#1	.00092	-.00029	-.11009
#2	-.00011	-.00017	-.06887
#3	-.00013	-.00019	-.00195
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6934.1**	**85870.**	**9528.6**
Stddev	32.1	657.	82.8
%RSD	.46294	.76464	.86863
#1	6903.3	85134.	9479.6
#2	6931.6	86080.	9624.1
#3	6967.3	86396.	9482.0

Approved: November 08, 2016

Kristi K Buck

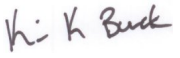
Sample Name: L1611007204 Acquired: 11/7/2016 18:29:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00089	.02017	.02499	.01975	.21581	.00000	70.337
Stddev	.00305	.00410	.00155	.00123	.00033	.00003	.019
%RSD	342.42	20.342	6.1929	6.2489	.15483	767.46	.02709
#1	-.00203	.02404	.02651	.01835	.21598	.00004	70.315
#2	.00406	.02061	.02341	.02026	.21602	-.00001	70.348
#3	.00064	.01587	.02504	.02065	.21542	-.00002	70.348
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00062	.00018	.00056	.00086	18.913	.52702	.00155
Stddev	.00018	.00010	.00102	.00205	.081	.10184	.00207
%RSD	28.569	59.024	183.66	238.34	.42595	19.324	133.73
#1	.00083	.00012	-.00048	.00014	18.951	.63088	.00165
#2	.00050	.00029	.00157	.00317	18.967	.42733	.00357
#3	.00054	.00011	.00058	-.00073	18.820	.52284	-.00057
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	36.828	7.9657	.00516	19.596	-.00164	.52128	.00623
Stddev	.136	.0186	.00032	.078	.00050	.00542	.00310
%RSD	.36856	.23341	6.2580	.39634	30.517	1.0404	49.837
#1	36.702	7.9472	.00535	19.508	-.00119	.52260	.00633
#2	36.811	7.9843	.00534	19.656	-.00218	.52591	.00928
#3	36.971	7.9657	.00478	19.623	-.00155	.51531	.00308
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016



Sample Name: L1611007204 Acquired: 11/7/2016 18:29:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00206**	**.00359**	**6.4168**	**-.00146**	**.34607**	**-.00015**	**-.00456**
Stddev	.00578	.00222	.0062	.00055	.00037	.00358	.00970
%RSD	280.36	61.901	.09616	37.548	.10805	2435.4	212.46
#1	.00375	.00469	6.4107	-.00181	.34648	-.00317	.00659
#2	-.00782	.00504	6.4230	-.00083	.34574	-.00106	-.01101
#3	-.00211	.00103	6.4167	-.00174	.34600	.00380	-.00927
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00136**	**.00169**	F **-.17598**
Stddev	.00181	.00027	.06535
%RSD	132.76	15.979	37.134
#1	.00002	.00160	-.21601
#2	.00065	.00148	-.10057
#3	.00342	.00200	-.21137
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6841.0**	**85684.**	**9874.9**
Stddev	21.1	996.	150.2
%RSD	.30857	1.1629	1.5212
#1	6865.2	84534.	9771.5
#2	6831.8	86275.	9806.0
#3	6826.1	86243.	10047.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007205 Acquired: 11/7/2016 18:33:39 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00117**	**.01825**	**.02407**	**.02011**	**.21997**	**.00003**	**72.374**
Stddev	.00060	.00282	.00218	.00031	.00037	.00003	.156
%RSD	51.248	15.436	9.0704	1.5331	.17012	99.548	.21567
#1	.00134	.01899	.02594	.01997	.21954	-.00000	72.351
#2	.00166	.02063	.02167	.01989	.22014	.00005	72.231
#3	.00050	.01514	.02460	.02046	.22024	.00005	72.541
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00066**	**.00038**	**.00005**	**.00093**	**19.023**	**.55600**	**.00541**
Stddev	.00019	.00030	.00023	.00179	.091	.05450	.00187
%RSD	29.011	80.356	476.61	192.95	.47675	9.8024	34.638
#1	.00086	.00054	.00009	.00173	18.933	.50829	.00462
#2	.00063	.00003	.00026	.00218	19.022	.61540	.00405
#3	.00048	.00056	-.00020	-.00112	19.114	.54432	.00755
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**38.680**	**7.5456**	**.00522**	**18.754**	**-.00102**	**.50663**	**.00220**
Stddev	.099	.0178	.00019	.060	.00106	.00765	.00626
%RSD	.25488	.23559	3.5469	.31949	103.51	1.5107	285.04
#1	38.598	7.5395	.00514	18.747	.00017	.50689	-.00493
#2	38.652	7.5318	.00544	18.698	-.00185	.49884	.00469
#3	38.789	7.5657	.00510	18.817	-.00138	.51414	.00683
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007205 Acquired: 11/7/2016 18:33:39 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00383**	**.00189**	**6.3181**	**-.00079**	**.35056**	**-.00117**	**-.00332**
Stddev	.00434	.00277	.0092	.00092	.00096	.00061	.00306
%RSD	113.42	146.84	.14567	117.41	.27493	52.056	92.332
#1	.00025	.00494	6.3270	-.00124	.34980	-.00087	-.00230
#2	.00866	-.00046	6.3188	.00028	.35024	-.00077	-.00676
#3	.00258	.00118	6.3086	-.00140	.35165	-.00187	-.00089
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00162**	**.00129**	F **-.22311**
Stddev	.00077	.00022	.01065
%RSD	47.487	16.666	4.7735
#1	.00196	.00143	-.22264
#2	.00074	.00105	-.21271
#3	.00216	.00140	-.23399
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6853.4**	**84784.**	**9705.3**
Stddev	11.8	515.	186.6
%RSD	.17169	.60774	1.9231
#1	6866.7	85194.	9515.5
#2	6849.1	84951.	9888.6
#3	6844.4	84206.	9711.8

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007206MS Acquired: 11/7/2016 18:37:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19836**	**4.8905**	**.21896**	**.94354**	**.71787**	**.02459**	**75.360**
Stddev	.00055	.0052	.00224	.00410	.00155	.00008	.312
%RSD	.27655	.10614	1.0241	.43473	.21617	.32602	.41414
#1	.19785	4.8870	.22049	.94039	.71742	.02456	75.361
#2	.19828	4.8879	.21638	.94204	.71660	.02452	75.048
#3	.19894	4.8964	.22000	.94817	.71960	.02468	75.672
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02448**	**.09775**	**.24731**	**.24781**	**20.518**	**25.603**	**.50533**
Stddev	.00032	.00017	.00122	.00114	.074	.064	.00252
%RSD	1.2905	.17110	.49212	.46083	.35881	.24839	.49772
#1	.02444	.09795	.24780	.24912	20.589	25.676	.50824
#2	.02481	.09764	.24593	.24724	20.523	25.572	.50387
#3	.02418	.09768	.24821	.24706	20.442	25.560	.50389
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**42.443**	**7.6580**	**.50303**	**43.591**	**.24442**	**5.3255**	**.24742**
Stddev	.142	.0312	.00110	.252	.00048	.0168	.00103
%RSD	.33486	.40710	.21872	.57887	.19613	.31523	.41536
#1	42.422	7.6405	.50311	43.632	.24484	5.3302	.24769
#2	42.313	7.6395	.50408	43.321	.24452	5.3394	.24829
#3	42.595	7.6940	.50188	43.821	.24390	5.3068	.24629
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007206MS Acquired: 11/7/2016 18:37:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-04

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.58976**	**.19854**	**8.6579**	**.49039**	**.84004**	**.49045**	**.24113**
Stddev	.00615	.00721	.0270	.00095	.00199	.00236	.00311
%RSD	1.0435	3.6322	.31197	.19399	.23693	.48092	1.2918
#1	.59672	.20165	8.6841	.49147	.84076	.49151	.23964
#2	.58503	.19030	8.6593	.48967	.83779	.48775	.24471
#3	.58753	.20368	8.6302	.49003	.84157	.49210	.23904
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.49783**	**.48920**	F **-.13986**
Stddev	.00087	.00142	.02622
%RSD	.17523	.28932	18.749
#1	.49714	.49045	-.16507
#2	.49755	.48949	-.11273
#3	.49881	.48767	-.14177
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6698.2**	**83662.**	**9711.8**
Stddev	52.7	205.	168.9
%RSD	.78703	.24530	1.7395
#1	6668.1	83593.	9595.6
#2	6667.3	83893.	9905.6
#3	6759.0	83500.	9634.3

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007207MSD Acquired: 11/7/2016 18:40:57 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19639**	**4.8646**	**.21674**	**.93503**	**.71659**	**.02428**	**75.809**
Stddev	.00130	.0066	.00190	.00377	.00144	.00010	.155
%RSD	.66445	.13674	.87620	.40319	.20036	.41711	.20407
#1	.19650	4.8660	.21479	.93339	.71825	.02436	75.965
#2	.19504	4.8574	.21684	.93236	.71584	.02417	75.655
#3	.19764	4.8705	.21859	.93935	.71570	.02431	75.808
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02453**	**.09681**	**.24367**	**.24451**	**20.591**	**25.368**	**.49940**
Stddev	.00030	.00045	.00063	.00069	.109	.140	.00419
%RSD	1.2076	.46076	.26055	.28289	.52936	.54998	.83999
#1	.02427	.09637	.24423	.24530	20.716	25.502	.50001
#2	.02447	.09681	.24298	.24417	20.535	25.224	.50326
#3	.02485	.09726	.24380	.24405	20.521	25.378	.49493
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**42.798**	**7.7047**	**.49865**	**43.414**	**.24060**	**5.2682**	**.24693**
Stddev	.085	.0065	.00106	.115	.00219	.0345	.00320
%RSD	.19965	.08404	.21284	.26511	.91097	.65432	1.2965
#1	42.888	7.7114	.49742	43.527	.23874	5.2294	.24713
#2	42.718	7.6985	.49926	43.297	.24004	5.2800	.24363
#3	42.788	7.7044	.49925	43.417	.24301	5.2952	.25002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007207MSD Acquired: 11/7/2016 18:40:57 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590094-05

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.57827**	**.19106**	**8.6553**	**.48512**	**.83893**	**.48564**	**.24037**
Stddev	.00291	.00640	.0153	.00129	.00284	.00340	.00450
%RSD	.50386	3.3510	.17624	.26529	.33907	.69964	1.8702
#1	.58048	.18832	8.6377	.48364	.84221	.48417	.23681
#2	.57497	.18649	8.6638	.48599	.83714	.48953	.24542
#3	.57936	.19838	8.6644	.48573	.83744	.48323	.23889
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.49322**	**.48427**	F **-.12438**
Stddev	.00026	.00045	.02486
%RSD	.05293	.09192	19.984
#1	.49338	.48395	-.14422
#2	.49292	.48408	-.13243
#3	.49337	.48477	-.09650
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6760.7**	**84091.**	**9890.1**
Stddev	9.1	271.	59.1
%RSD	.13494	.32196	.59793
#1	6757.2	84055.	9883.4
#2	6753.9	84378.	9952.3
#3	6771.0	83840.	9834.6

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007402 Acquired: 11/7/2016 18:44:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00132**	**.02684**	**.00238**	**.02818**	**.02757**	**-.00001**	**89.929**	**.00057**
Stddev	.00091	.00651	.00511	.00104	.00009	.00002	.275	.00028
%RSD	69.023	24.252	214.95	3.7054	.31773	320.84	.30524	49.326
#1	.00203	.03146	-.00204	.02719	.02763	-.00001	89.672	.00025
#2	.00165	.02967	.00798	.02927	.02747	-.00003	89.896	.00074
#3	.00029	.01940	.00120	.02809	.02761	.00002	90.218	.00073
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00157**	**-.00004**	**.00072**	**.12410**	**1.3273**	**.06456**	**45.168**	**.08001**
Stddev	.00063	.00122	.00082	.02180	.0327	.00033	.073	.00344
%RSD	40.050	3189.8	112.59	17.566	2.4611	.51087	.16230	4.2952
#1	.00227	-.00124	.00137	.13788	1.3619	.06448	45.159	.07611
#2	.00139	.00120	-.00019	.09897	1.3230	.06492	45.101	.08135
#3	.00105	-.00007	.00099	.13545	1.2970	.06428	45.246	.08258
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00023**	**227.35**	**.00255**	**.07245**	**.00350**	**.00453**	**-.00151**	**17.877**
Stddev	.00026	.63	.00090	.00550	.00088	.00097	.01085	.017
%RSD	112.41	.27600	35.444	7.5887	25.090	21.332	720.26	.09542
#1	.00052	226.70	.00233	.07545	.00249	.00558	.00686	17.896
#2	.00003	227.39	.00178	.07580	.00395	.00434	.00238	17.866
#3	.00014	227.96	.00355	.06611	.00405	.00367	-.01376	17.867
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007402 Acquired: 11/7/2016 18:44:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00085**	**1.2561**	**-.00363**	**-.00614**	**.00120**	**.00250**	**.03843**
Stddev	.00084	.0009	.00305	.00172	.00107	.00002	.04379
%RSD	98.815	.07452	83.998	28.067	88.962	.64284	113.96
#1	-.00181	1.2555	-.00605	-.00597	.00106	.00248	.05710
#2	-.00049	1.2555	-.00020	-.00794	.00021	.00250	-.01160
#3	-.00025	1.2571	-.00464	-.00451	.00234	.00251	.06979
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6590.5**	**81494.**	**9833.6**
Stddev	7.2	657.	69.4
%RSD	.10949	.80601	.70557
#1	6593.7	82170.	9777.0
#2	6582.3	81453.	9911.0
#3	6595.6	80859.	9812.9

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007404 Acquired: 11/7/2016 18:48:16 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00162**	**.06543**	**.00586**	**.02222**	**.04092**	**.00001**	**91.689**	**.00038**
Stddev	.00208	.00430	.00367	.00104	.00034	.00005	.267	.00044
%RSD	128.07	6.5714	62.570	4.6591	.84040	509.84	.29124	116.76
#1	.00400	.06344	.00314	.02231	.04131	.00005	91.504	-.00002
#2	.00069	.06249	.00441	.02115	.04065	.00002	91.567	.00031
#3	.00018	.07037	.01003	.02322	.04081	-.00004	91.995	.00085
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00251**	**.00043**	**.00054**	**5.5457**	**1.8575**	**.06629**	**46.518**	**.37001**
Stddev	.00053	.00043	.00037	.0181	.0338	.00676	.238	.00330
%RSD	20.989	99.334	69.507	.32591	1.8200	10.191	.51220	.89317
#1	.00285	.00064	.00084	5.5557	1.8441	.07208	46.246	.36689
#2	.00190	-.00006	.00012	5.5248	1.8959	.06794	46.623	.37347
#3	.00277	.00071	.00065	5.5565	1.8323	.05887	46.686	.36969
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00105**	**213.93**	**.00062**	**.02391**	**.00407**	**.00444**	**-.00065**	**13.405**
Stddev	.00074	.44	.00076	.01391	.00135	.00291	.00977	.066
%RSD	70.394	.20359	121.97	58.189	33.214	65.482	1491.5	.49553
#1	.00178	213.51	.00007	.02894	.00251	.00760	.00766	13.354
#2	.00030	213.89	.00149	.03461	.00475	.00189	-.01141	13.382
#3	.00108	214.38	.00031	.00818	.00494	.00382	.00178	13.480
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007404 Acquired: 11/7/2016 18:48:16 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00046**	**1.7424**	**.00069**	**-.00765**	**.00077**	**.00305**	**.00398**
Stddev	.00074	.0014	.00442	.00446	.00059	.00010	.04487
%RSD	161.70	.07883	643.13	58.314	75.830	3.2330	1126.2
#1	-.00012	1.7419	-.00435	-.01184	.00127	.00300	.05217
#2	-.00130	1.7413	.00393	-.00296	.00013	.00298	-.00361
#3	.00005	1.7439	.00248	-.00816	.00092	.00316	-.03660
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6581.5**	**81853.**	**9693.9**
Stddev	49.8	105.	232.6
%RSD	.75697	.12826	2.3998
#1	6536.6	81754.	9846.8
#2	6572.8	81963.	9808.8
#3	6635.1	81841.	9426.2

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007406 Acquired: 11/7/2016 18:52:02 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00056	.12305	.00333	.02956	.02797	.00004	95.899	.00081
Stddev	.00139	.00542	.00182	.00062	.00033	.00001	.119	.00027
%RSD	248.09	4.4061	54.662	2.0946	1.1684	29.007	.12460	33.377
#1	-.00019	.12906	.00469	.02912	.02829	.00005	96.018	.00084
#2	-.00030	.12155	.00126	.03027	.02799	.00003	95.901	.00107
#3	.00217	.11853	.00404	.02930	.02763	.00004	95.779	.00053
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00083	.00004	.00003	.36454	1.4580	.07309	47.286	.08194
Stddev	.00020	.00062	.00082	.01760	.0683	.00341	.127	.00021
%RSD	24.362	1615.3	2636.1	4.8286	4.6810	4.6662	.26821	.26106
#1	.00059	-.00007	.00080	.38178	1.4173	.07360	47.260	.08170
#2	.00096	-.00051	-.00083	.34660	1.5368	.07622	47.424	.08210
#3	.00092	.00070	.00012	.36523	1.4201	.06945	47.174	.08202
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00031	227.83	.00093	.07419	-.00051	.00359	.00157	18.349
Stddev	.00021	.63	.00067	.01235	.00168	.00307	.01040	.041
%RSD	67.769	.27657	72.125	16.640	326.25	85.485	663.71	.22355
#1	.00016	228.36	.00065	.08608	-.00242	.00714	.01007	18.347
#2	.00056	227.99	.00170	.06144	.00015	.00177	-.01003	18.392
#3	.00022	227.13	.00045	.07507	.00073	.00186	.00466	18.310
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007406 Acquired: 11/7/2016 18:52:02 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00052**	**1.3086**	**-.00001**	**-.00416**	**.00065**	**.00317**	**.05538**
Stddev	.00021	.0014	.00179	.00096	.00044	.00029	.05219
%RSD	40.178	.10831	16768.	23.158	66.947	9.0001	94.237
#1	-.00075	1.3083	-.00137	-.00322	.00074	.00329	.10814
#2	-.00034	1.3102	-.00068	-.00412	.00018	.00285	.00377
#3	-.00047	1.3074	.00202	-.00514	.00104	.00338	.05424
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6621.3**	**82041.**	**9978.5**
Stddev	48.3	377.	22.7
%RSD	.72948	.46007	.22772
#1	6637.1	82253.	9975.2
#2	6567.1	82266.	10003.
#3	6659.7	81606.	9957.6

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007408 Acquired: 11/7/2016 18:55:46 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00010**	**.04392**	**.00235**	**.02831**	**.25848**	**.00008**	**140.73**	**.00114**
Stddev	.00101	.00956	.00173	.00041	.00076	.00004	.40	.00021
%RSD	972.41	21.758	73.373	1.4599	.29339	45.254	.28403	18.422
#1	-.00106	.04808	.00430	.02809	.25922	.00005	140.88	.00119
#2	.00080	.03299	.00175	.02879	.25771	.00012	140.28	.00131
#3	.00057	.05069	.00101	.02806	.25852	.00007	141.04	.00090
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00039**	**.00324**	**-.00012**	**.02819**	**2.0533**	**.03608**	**13.215**	**.18721**
Stddev	.00044	.00069	.00090	.01938	.0456	.00353	.059	.00157
%RSD	113.29	21.440	729.59	68.754	2.2218	9.7950	.44850	.83869
#1	-.00088	.00398	-.00047	.00618	2.1059	.03817	13.151	.18757
#2	-.00023	.00260	.00090	.04270	2.0266	.03200	13.268	.18548
#3	-.00005	.00314	-.00080	.03568	2.0272	.03808	13.227	.18856
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00530**	**76.485**	**.00107**	**.01845**	**.00425**	**.00392**	**.00215**	**9.8937**
Stddev	.00024	.305	.00192	.00639	.00394	.00429	.00415	.0101
%RSD	4.5254	.39904	178.61	34.634	92.777	109.49	192.48	.10231
#1	.00508	76.834	.00080	.02557	.00147	.00867	-.00164	9.9054
#2	.00527	76.267	-.00069	.01655	.00877	.00277	.00659	9.8876
#3	.00556	76.353	.00312	.01323	.00252	.00032	.00151	9.8881
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007408 Acquired: 11/7/2016 18:55:46 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00055**	**5.3528**	**-.00734**	**-.00474**	**.00308**	**.00432**	**.01286**
Stddev	.00083	.0124	.00383	.00300	.00049	.00009	.02023
%RSD	151.20	.23184	52.184	63.336	15.801	2.0392	157.30
#1	.00000	5.3654	-.00711	-.00181	.00288	.00427	.01385
#2	-.00151	5.3406	-.01128	-.00781	.00271	.00427	-.00785
#3	-.00015	5.3524	-.00363	-.00460	.00363	.00442	.03257
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6704.1**	**82736.**	**9653.9**
Stddev	4.3	286.	251.9
%RSD	.06377	.34507	2.6090
#1	6699.2	82914.	9858.5
#2	6707.0	82886.	9730.8
#3	6706.2	82406.	9372.6

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611007410 Acquired: 11/7/2016 18:59:31 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00150**	**.03927**	**.00196**	**.04486**	**.02422**	**.00001**	**184.19**
Stddev	.00134	.00412	.00136	.00104	.00024	.00002	1.10
%RSD	89.196	10.485	69.252	2.3102	1.0109	184.09	.59964
#1	.00235	.04106	.00159	.04453	.02449	.00001	185.46
#2	.00219	.03456	.00347	.04404	.02412	-.00001	183.44
#3	-.00004	.04218	.00083	.04603	.02403	.00004	183.68
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00052**	**.00069**	**.00049**	**.00119**	**.02358**	**1.8199**	**.06477**
Stddev	.00007	.00029	.00087	.00027	.00451	.0357	.00308
%RSD	14.369	42.602	177.76	23.152	19.119	1.9605	4.7483
#1	.00044	.00077	.00024	.00087	.02333	1.8196	.06569
#2	.00055	.00036	.00146	.00138	.01920	1.8557	.06728
#3	.00058	.00093	-.00023	.00131	.02821	1.7844	.06134
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**88.782**	**.03862**	**.00025**	F **373.71**	**.00244**	**.08104**	**.00461**
Stddev	.273	.00145	.00023	8.35	.00113	.00918	.00125
%RSD	.30699	3.7631	92.050	2.2337	46.167	11.325	27.086
#1	89.089	.03823	.00032	372.63	.00185	.08160	.00329
#2	88.569	.04022	-.00001	382.55	.00374	.07159	.00476
#3	88.687	.03739	.00044	365.96	.00173	.08992	.00578
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007410 Acquired: 11/7/2016 18:59:31 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00088**	**.00830**	**17.647**	**-.00017**	**2.1663**	**-.01327**	**-.00608**
Stddev	.00529	.00773	.020	.00042	.0107	.00425	.00068
%RSD	598.57	93.063	.11486	246.41	.49479	32.024	11.188
#1	.00039	.00643	17.639	-.00017	2.1781	-.01371	-.00680
#2	.00640	.00169	17.632	.00025	2.1571	-.00882	-.00598
#3	-.00414	.01680	17.670	-.00060	2.1638	-.01728	-.00545
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00093**	**.00302**	**-.01794**
Stddev	.00038	.00013	.01757
%RSD	41.167	4.3901	97.974
#1	.00051	.00310	-.01421
#2	.00126	.00287	-.03708
#3	.00102	.00309	-.00253
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6396.7**	**78805.**	**9651.6**
Stddev	8.9	29.	32.4
%RSD	.13906	.03727	.33535
#1	6386.5	78835.	9627.9
#2	6400.9	78806.	9638.4
#3	6402.8	78776.	9688.5

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611007412 Acquired: 11/7/2016 19:03:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00046**	**.03140**	**.00364**	**.01678**	**.21120**	**.00009**	**268.89**
Stddev	.00092	.00429	.00337	.00203	.00065	.00006	1.25
%RSD	200.63	13.671	92.717	12.078	.30781	63.503	.46583
#1	.00152	.02662	.00738	.01595	.21146	.00012	268.78
#2	-.00009	.03265	.00269	.01529	.21047	.00002	267.70
#3	-.00006	.03493	.00084	.01909	.21169	.00012	270.20
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00091**	**.00004**	**.00142**	**.00202**	**-.00634**	**3.1426**	**.08240**
Stddev	.00011	.00030	.00044	.00067	.01151	.0348	.00389
%RSD	12.580	696.61	30.806	32.901	181.49	1.1062	4.7221
#1	.00078	.00010	.00165	.00162	-.01616	3.1827	.07837
#2	.00098	-.00028	.00092	.00279	-.00919	3.1226	.08614
#3	.00098	.00031	.00171	.00166	.00632	3.1224	.08269
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**124.24**	**.02086**	**.00073**	F **375.98**	**.00411**	**.07002**	**-.00019**
Stddev	.35	.00065	.00034	1.68	.00095	.01135	.00238
%RSD	.28053	3.1069	47.296	.44647	23.087	16.209	1246.7
#1	124.22	.02119	.00075	377.36	.00302	.08302	-.00008
#2	123.89	.02129	.00106	374.11	.00457	.06501	.00213
#3	124.59	.02012	.00037	376.46	.00473	.06204	-.00262
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

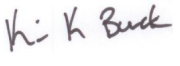
Sample Name: L1611007412 Acquired: 11/7/2016 19:03:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00716**	**.00024**	**16.842**	**-.00058**	**3.2634**	**-.01838**	**-.00646**
Stddev	.00685	.00584	.018	.00098	.0024	.00306	.00698
%RSD	95.760	2440.5	.10473	167.78	.07309	16.644	108.11
#1	.00716	.00659	16.847	-.00170	3.2607	-.01969	.00035
#2	.00030	-.00100	16.855	.00013	3.2645	-.02057	-.00612
#3	.01401	-.00488	16.822	-.00018	3.2650	-.01488	-.01361
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00059**	**.00385**	**-.00101**
Stddev	.00044	.00015	.02742
%RSD	74.122	3.9881	2727.4
#1	.00019	.00392	.02180
#2	.00106	.00367	.00660
#3	.00053	.00395	-.03143
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6402.8**	**78354.**	**9801.1**
Stddev	7.9	236.	105.7
%RSD	.12359	.30098	1.0782
#1	6407.0	78456.	9868.6
#2	6407.8	78521.	9855.3
#3	6393.7	78084.	9679.3

Approved: November 08, 2016



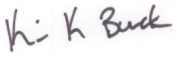
Sample Name: CCV Acquired: 11/7/2016 19:07:18 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41175**	**10.538**	**.40738**	**.50643**	**1.0563**	**.05141**	**10.520**
Stddev	.00112	.023	.00532	.00235	.0040	.00038	.027
%RSD	.27200	.21807	1.3062	.46480	.38067	.74259	.26068
#1	.41206	10.512	.40438	.50750	1.0520	.05178	10.489
#2	.41051	10.544	.40424	.50373	1.0599	.05143	10.541
#3	.41269	10.557	.41352	.50805	1.0571	.05102	10.530
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05127**	**.20528**	**.51903**	**.51756**	**4.1525**	**52.245**	**1.0448**
Stddev	.00019	.00170	.00220	.00264	.0325	.152	.0022
%RSD	.37186	.82649	.42426	.51089	.78183	.29079	.21141
#1	.05106	.20342	.51927	.51473	4.1282	52.096	1.0423
#2	.05141	.20568	.52110	.51798	4.1894	52.400	1.0463
#3	.05135	.20674	.51671	.51997	4.1400	52.240	1.0458
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.344**	**.51793**	**1.0167**	**52.544**	**.51366**	**10.222**	**.52136**
Stddev	.054	.00335	.0066	.264	.00407	.058	.00498
%RSD	.52505	.64637	.64493	.50202	.79273	.56668	.95431
#1	10.282	.51530	1.0091	52.269	.50958	10.156	.51728
#2	10.376	.51678	1.0208	52.567	.51773	10.243	.51989
#3	10.375	.52170	1.0201	52.795	.51368	10.266	.52690
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016



Sample Name: CCV Acquired: 11/7/2016 19:07:18 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2345**	**.40274**	**5.0844**	**1.0219**	**1.0454**	**1.0141**	**.52868**
Stddev	.0106	.00733	.0319	.0062	.0022	.0076	.00149
%RSD	.85788	1.8211	.62827	.60816	.20671	.74920	.28166
#1	1.2225	.39436	5.0475	1.0155	1.0430	1.0054	.52922
#2	1.2387	.40796	5.1044	1.0223	1.0463	1.0178	.52699
#3	1.2424	.40592	5.1012	1.0279	1.0470	1.0191	.52982
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0222**	**1.0456**	F **.05390**
Stddev	.0036	.0046	.06964
%RSD	.35506	.44118	129.19
#1	1.0251	1.0406	-.00867
#2	1.0235	1.0465	.04146
#3	1.0182	1.0498	.12892
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6778.3**	**82878.**	**9574.3**
Stddev	44.5	110.	152.4
%RSD	.65629	.13230	1.5912
#1	6728.7	82859.	9489.0
#2	6791.5	82779.	9750.2
#3	6814.6	82996.	9483.7

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 19:10:50 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00113**	**.00459**	**.00072**	**.00311**	**.00110**	**.00009**	**-.00434**	**-.00010**
Stddev	.00096	.00675	.00187	.00119	.00026	.00002	.00468	.00018
%RSD	85.359	146.95	261.08	38.171	23.776	27.552	107.75	188.61
#1	.00200	.00533	.00185	.00221	.00102	.00011	-.00726	-.00028
#2	.00010	-.00250	-.00144	.00445	.00088	.00009	-.00682	-.00009
#3	.00128	.01094	.00175	.00266	.00139	.00007	.00105	.00008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00022**	**-.00018**	**-.00051**	**-.01643**	**.15982**	**-.00061**	**.04495**	**.00124**
Stddev	.00036	.00040	.00083	.00861	.03611	.00454	.07370	.00347
%RSD	160.34	226.70	160.61	52.405	22.593	741.19	163.97	279.23
#1	-.00063	-.00063	-.00100	-.00739	.18590	-.00275	-.01744	-.00029
#2	-.00008	.00014	.00044	-.02453	.17495	-.00369	.12627	-.00120
#3	.00004	-.00004	-.00098	-.01736	.11861	.00460	.02602	.00522
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00008**	**.07665**	**-.00064**	**-.00079**	**.00090**	**.00115**	**.00152**	**.00073**
Stddev	.00047	.01511	.00069	.00468	.00238	.00169	.00672	.00106
%RSD	557.29	19.708	108.71	591.75	262.74	147.30	442.92	144.71
#1	.00052	.08806	-.00060	-.00369	-.00167	-.00011	-.00566	.00069
#2	-.00041	.08236	.00004	-.00329	.00302	.00307	.00765	-.00030
#3	.00015	.05952	-.00135	.00461	.00136	.00048	.00255	.00181
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 19:10:50 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00162**	**.00014**	**.00435**	**-.00507**	**-.00053**	**-.00013**	**-.01527**
Stddev	.00076	.00019	.00341	.00383	.00020	.00003	.02412
%RSD	47.154	132.16	78.394	75.465	36.895	21.475	158.01
#1	-.00090	-.00003	.00202	-.00911	-.00043	-.00012	-.03349
#2	-.00154	.00035	.00826	-.00150	-.00076	-.00016	-.02441
#3	-.00242	.00011	.00276	-.00461	-.00041	-.00010	.01209
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6918.4**	**85964.**	**9540.6**
Stddev	2.5	642.	181.6
%RSD	.03629	.74629	1.9030
#1	6921.1	85302.	9742.2
#2	6916.1	86007.	9489.8
#3	6918.1	86583.	9389.9

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611008302 Acquired: 11/7/2016 19:14:39 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00130**	**.01776**	**.00322**	**.00810**	**.00015**	**.00001**	**1.8850**	**-.00016**
Stddev	.00131	.00315	.00285	.00141	.00016	.00003	.0279	.00043
%RSD	100.21	17.723	88.344	17.437	111.76	299.24	1.4820	267.06
#1	.00114	.01912	.00605	.00857	.00003	.00000	1.8756	.00002
#2	.00009	.02000	.00326	.00921	.00008	.00005	1.8631	-.00065
#3	.00269	.01416	.00036	.00651	.00034	-.00002	1.9165	.00015
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00006**	**-.00056**	**.00385**	**.03216**	**13.439**	**-.00023**	**.42577**	**.00096**
Stddev	.00030	.00109	.00009	.00721	.096	.00094	.04927	.00068
%RSD	461.64	193.41	2.2183	22.417	.71683	413.10	11.572	70.904
#1	.00024	-.00073	.00392	.03394	13.396	-.00118	.37679	.00175
#2	-.00035	-.00155	.00386	.02423	13.372	-.00021	.47532	.00050
#3	-.00008	.00060	.00376	.03831	13.550	.00070	.42520	.00065
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00135**	**27.497**	**.00082**	**1.5052**	**.00063**	**-.00092**	**.00432**	**.20145**
Stddev	.00090	.062	.00084	.0006	.00129	.00220	.00453	.00255
%RSD	66.501	.22406	102.72	.03790	206.55	239.60	105.03	1.2679
#1	.00162	27.500	.00123	1.5058	-.00064	-.00342	.00623	.20310
#2	.00208	27.557	.00139	1.5046	.00195	.00074	-.00086	.19851
#3	.00035	27.434	-.00015	1.5051	.00057	-.00008	.00758	.20274
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611008302 Acquired: 11/7/2016 19:14:39 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00081**	**.00155**	**.00391**	**-.00690**	**-.00010**	**.00764**	**.04554**
Stddev	.00054	.00013	.00173	.00210	.00090	.00021	.03224
%RSD	66.703	8.3934	44.349	30.481	937.56	2.6991	70.792
#1	-.00028	.00170	.00243	-.00933	.00083	.00781	.02767
#2	-.00078	.00147	.00349	-.00566	-.00096	.00741	.08275
#3	-.00136	.00148	.00582	-.00572	-.00015	.00771	.02619
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7064.2**	**88396.**	**10127.**
Stddev	18.4	533.	27.
%RSD	.25981	.60332	.26555
#1	7084.0	87784.	10158.
#2	7061.0	88757.	10108.
#3	7047.7	88649.	10116.

Approved: November 08, 2016

Kristi K Buck

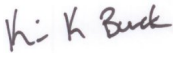
Sample Name: L1611008304 Acquired: 11/7/2016 19:18:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00140**	**.15192**	**.00142**	**.01328**	**.01628**	**-.00003**	**96.181**	**.00015**
Stddev	.00034	.00187	.00311	.00029	.00063	.00003	.063	.00026
%RSD	24.165	1.2313	219.27	2.1642	3.8630	92.060	.06597	170.50
#1	.00165	.15358	.00470	.01355	.01583	-.00005	96.158	.00046
#2	.00154	.14990	-.00149	.01298	.01601	-.00005	96.252	.00003
#3	.00102	.15229	.00105	.01332	.01700	.00000	96.131	-.00003
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00057**	**.00388**	**.01836**	**.36724**	**14.678**	**.00431**	**4.6672**	**.22839**
Stddev	.00019	.00059	.00120	.00895	.126	.00393	.0606	.00284
%RSD	32.904	15.264	6.5407	2.4374	.85661	91.109	1.2982	1.2441
#1	.00038	.00336	.01870	.35949	14.823	.00110	4.6406	.22519
#2	.00076	.00376	.01935	.36520	14.593	.00314	4.7366	.23060
#3	.00057	.00453	.01703	.37704	14.620	.00869	4.6245	.22938
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00217**	**30.556**	**.00413**	**57.399**	**.00412**	**.00013**	**.00236**	**.28953**
Stddev	.00024	.107	.00085	.210	.00214	.00412	.01113	.01317
%RSD	11.026	.35065	20.662	.36524	51.962	3157.1	471.56	4.5501
#1	.00206	30.432	.00353	57.482	.00255	-.00307	.01521	.28331
#2	.00201	30.612	.00375	57.555	.00655	-.00132	-.00436	.28062
#3	.00244	30.623	.00510	57.161	.00324	.00478	-.00377	.30467
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611008304 Acquired: 11/7/2016 19:18:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00006**	**.06794**	**.00104**	**-.00497**	**.00188**	**.11728**	**-.00987**
Stddev	.00114	.00024	.00617	.00229	.00029	.00012	.01822
%RSD	1772.0	.34892	594.28	46.055	15.525	.10509	184.59
#1	-.00038	.06773	.00528	-.00694	.00179	.11740	-.00419
#2	-.00102	.06820	-.00604	-.00246	.00221	.11728	-.03025
#3	.00121	.06790	.00388	-.00551	.00164	.11715	.00483
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6977.7**	**87319.**	**10447.**
Stddev	75.7	736.	28.
%RSD	1.0843	.84268	.26878
#1	6890.4	88162.	10418.
#2	7024.7	86984.	10447.
#3	7017.9	86810.	10475.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611008306 Acquired: 11/7/2016 19:22:11 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00000**	**.00844**	**.00285**	**.00162**	**.00128**	**.00003**	**5.6770**	**-.00019**
Stddev	.00126	.00386	.00161	.00237	.00040	.00004	.0139	.00025
%RSD	113370.	45.757	56.505	146.51	30.928	119.97	.24529	135.24
#1	-.00011	.00438	.00118	.00058	.00164	.00003	5.6892	.00002
#2	.00131	.01207	.00439	.00434	.00135	.00007	5.6801	-.00047
#3	-.00120	.00887	.00297	-.00005	.00085	-.00000	5.6618	-.00011
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00035**	**.00030**	**.00131**	**-.00020**	**1.5147**	**-.00307**	**.33606**	**.03736**
Stddev	.00037	.00073	.00018	.01828	.0764	.00262	.03964	.00307
%RSD	105.53	244.96	13.729	9226.9	5.0469	85.268	11.797	8.2285
#1	-.00072	.00047	.00132	-.00729	1.4927	-.00531	.32525	.03877
#2	-.00036	.00093	.00112	-.01387	1.4516	-.00019	.37998	.03947
#3	.00002	-.00050	.00148	.02056	1.5997	-.00373	.30294	.03383
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00022**	**2.0161**	**.00010**	**.08664**	**.00255**	**-.00149**	**.00008**	**.09299**
Stddev	.00052	.0164	.00029	.00525	.00492	.00292	.00342	.00117
%RSD	233.67	.81525	274.87	6.0578	192.46	195.79	4152.9	1.2578
#1	.00034	2.0112	-.00016	.09210	-.00242	.00186	.00367	.09421
#2	-.00034	2.0026	.00007	.08618	.00268	-.00352	-.00029	.09188
#3	-.00067	2.0344	.00041	.08164	.00740	-.00281	-.00313	.09288
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611008306 Acquired: 11/7/2016 19:22:11 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00105**	**.01060**	**-.00101**	**-.00730**	**.00015**	**.00213**	**.03482**
Stddev	.00098	.00013	.00451	.00300	.00037	.00006	.08088
%RSD	93.155	1.2031	448.44	41.071	237.27	2.8925	232.27
#1	-.00177	.01045	.00146	-.00417	-.00026	.00209	.05574
#2	.00006	.01070	.00173	-.01015	.00041	.00210	-.05447
#3	-.00144	.01064	-.00621	-.00759	.00031	.00220	.10319
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6970.6**	**88541.**	**10028.**
Stddev	31.9	20.	47.
%RSD	.45777	.02227	.46872
#1	6933.8	88532.	10003.
#2	6987.7	88564.	10083.
#3	6990.3	88528.	9999.6

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611008401 Acquired: 11/7/2016 19:25:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00072**	**.09894**	**.00448**	**.54735**	**.03931**	**-.00001**	**60.038**
Stddev	.00051	.00740	.00388	.00534	.00019	.00004	.017
%RSD	70.484	7.4827	86.642	.97581	.47744	775.25	.02865
#1	.00032	.09088	.00112	.54160	.03910	.00000	60.044
#2	.00054	.10543	.00359	.54830	.03945	-.00005	60.019
#3	.00129	.10052	.00872	.55215	.03938	.00003	60.052
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00019**	**.00095**	**.00167**	**.00056**	**.04579**	**100.82**	**.02549**
Stddev	.00035	.00041	.00063	.00169	.02173	.13	.00141
%RSD	187.91	42.968	37.823	303.15	47.456	.12561	5.5418
#1	-.00013	.00049	.00217	-.00031	.03612	100.68	.02460
#2	.00056	.00126	.00188	.00251	.03058	100.93	.02475
#3	.00013	.00110	.00096	-.00053	.07068	100.86	.02712
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**211.20**	**.02014**	**.02613**	F **1151.8**	**.00579**	**1.2089**	**-.00163**
Stddev	.63	.00149	.00048	17.2	.00071	.0095	.00376
%RSD	.30047	7.4223	1.8319	1.4929	12.195	.78236	230.03
#1	211.29	.02106	.02643	1141.2	.00657	1.2092	-.00569
#2	210.52	.01841	.02557	1171.7	.00519	1.2182	-.00093
#3	211.78	.02093	.02638	1142.7	.00561	1.1993	.00172
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

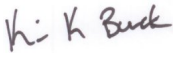
Sample Name: L1611008401 Acquired: 11/7/2016 19:25:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00531**	**-.00902**	**4.0908**	**-.00116**	**.24664**	**-.00164**	**-.00813**
Stddev	.00205	.00254	.0121	.00050	.00059	.00206	.00489
%RSD	38.584	28.168	.29516	42.796	.24002	125.07	60.206
#1	.00553	-.01028	4.1021	-.00156	.24662	-.00297	-.00666
#2	.00316	-.00610	4.0923	-.00060	.24724	.00072	-.01358
#3	.00724	-.01069	4.0781	-.00131	.24606	-.00268	-.00414
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00821**	**.01927**	**-.03160**
Stddev	.00118	.00024	.03800
%RSD	14.357	1.2455	120.28
#1	.00778	.01929	-.03374
#2	.00954	.01951	-.06849
#3	.00730	.01903	.00743
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**5993.4**	**72729.**	**9585.9**
Stddev	5.1	88.	39.1
%RSD	.08503	.12045	.40741
#1	5988.7	72805.	9627.3
#2	5992.8	72633.	9549.7
#3	5998.8	72749.	9580.8

Approved: November 08, 2016



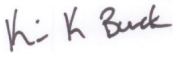
Sample Name: L1611008402 Acquired: 11/7/2016 19:29:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00046**	**.10985**	**.00510**	**.53025**	**.03991**	**-.00004**	**59.400**
Stddev	.00236	.00589	.00232	.00357	.00039	.00003	.146
%RSD	516.96	5.3662	45.471	.67269	.97859	70.436	.24574
#1	.00289	.10983	.00700	.52675	.03966	-.00008	59.325
#2	-.00181	.10397	.00252	.53012	.03971	-.00003	59.568
#3	.00029	.11576	.00577	.53388	.04036	-.00002	59.306
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00005**	**.00096**	**.00115**	**.00155**	**.07230**	**100.17**	**.02557**
Stddev	.00012	.00018	.00079	.00086	.01997	.09	.00207
%RSD	222.58	19.151	68.664	55.799	27.628	.09122	8.1027
#1	.00004	.00089	.00075	.00254	.07398	100.18	.02669
#2	.00017	.00082	.00063	.00107	.09138	100.26	.02683
#3	-.00006	.00117	.00205	.00103	.05154	100.08	.02318
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**205.55**	**.01698**	**.02580**	F **1125.1**	**.00479**	**1.2091**	**.00006**
Stddev	.45	.00097	.00024	14.9	.00060	.0109	.00451
%RSD	.21996	5.7077	.91841	1.3228	12.583	.89984	7114.3
#1	205.16	.01754	.02589	1141.5	.00534	1.1967	.00175
#2	206.04	.01752	.02553	1121.4	.00414	1.2169	.00348
#3	205.43	.01586	.02597	1112.5	.00489	1.2138	-.00505
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016



Sample Name: L1611008402 Acquired: 11/7/2016 19:29:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00099**	**-.00088**	**3.5813**	**-.00054**	**.24190**	**.00050**	**-.00315**
Stddev	.00349	.00121	.0022	.00081	.00076	.00176	.00187
%RSD	351.21	137.24	.06114	149.34	.31541	353.54	59.199
#1	-.00088	-.00155	3.5802	-.00118	.24104	-.00145	-.00464
#2	.00502	.00052	3.5838	.00037	.24248	.00098	-.00376
#3	-.00116	-.00161	3.5799	-.00082	.24219	.00197	-.00106
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00776**	**.02599**	**-.01498**
Stddev	.00125	.00004	.03068
%RSD	16.062	.16604	204.83
#1	.00668	.02597	-.03823
#2	.00913	.02597	-.02650
#3	.00749	.02604	.01979
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6084.2**	**73468.**	**9594.1**
Stddev	7.7	96.	91.7
%RSD	.12724	.13034	.95555
#1	6076.1	73567.	9490.5
#2	6084.9	73460.	9627.2
#3	6091.5	73376.	9664.7

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611008403 Acquired: 11/7/2016 19:33:43 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00027**	**.41133**	**.00400**	**.44284**	**.03737**	**-.00006**	**55.799**
Stddev	.00050	.00330	.00158	.00235	.00037	.00008	.210
%RSD	183.22	.80260	39.365	.53081	.99148	122.31	.37623
#1	-.00085	.41446	.00378	.44482	.03728	-.00016	55.939
#2	.00008	.41164	.00255	.44347	.03706	-.00001	55.901
#3	-.00006	.40788	.00568	.44024	.03778	-.00003	55.558
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00016**	**.00050**	**.00243**	**.00602**	**.22414**	**71.207**	**.02130**
Stddev	.00028	.00002	.00059	.00088	.02683	.126	.00233
%RSD	172.52	4.6001	24.079	14.598	11.972	.17701	10.946
#1	.00023	.00049	.00205	.00553	.25497	71.074	.02362
#2	.00041	.00053	.00214	.00703	.20599	71.324	.01895
#3	-.00015	.00049	.00311	.00549	.21148	71.223	.02133
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**119.88**	**.15413**	**.02301**	F **671.23**	**.00376**	**.77066**	**.00275**
Stddev	.33	.00247	.00058	2.87	.00116	.00519	.00127
%RSD	.27411	1.6039	2.5107	.42783	30.799	.67308	46.101
#1	120.20	.15596	.02351	674.00	.00481	.77513	.00393
#2	119.90	.15511	.02314	668.27	.00252	.77187	.00141
#3	119.55	.15132	.02238	671.43	.00396	.76497	.00290
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

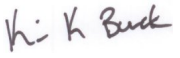
Sample Name: L1611008403 Acquired: 11/7/2016 19:33:43 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00158**	**.00355**	**4.7763**	**-.00019**	**.22864**	**.01922**	**-.00673**
Stddev	.00128	.00355	.0159	.00105	.00024	.00292	.00428
%RSD	81.040	99.952	.33284	555.29	.10508	15.188	63.594
#1	-.00183	.00718	4.7929	.00066	.22890	.02223	-.00375
#2	-.00020	.00008	4.7749	-.00136	.22858	.01904	-.01164
#3	-.00273	.00340	4.7612	.00014	.22843	.01640	-.00481
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00487**	**.14548**	**.08523**
Stddev	.00137	.00079	.04189
%RSD	28.142	.54320	49.149
#1	.00593	.14611	.05508
#2	.00536	.14575	.13306
#3	.00332	.14459	.06755
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6448.3**	**78758.**	**9965.3**
Stddev	36.2	644.	61.9
%RSD	.56098	.81765	.62103
#1	6449.2	78057.	10030.
#2	6411.7	78894.	9907.1
#3	6484.1	79324.	9958.4

Approved: November 08, 2016



Sample Name: CCV Acquired: 11/7/2016 19:37:35 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40744**	**10.374**	**.40355**	**.50100**	**1.0486**	**.05131**	**10.377**
Stddev	.00109	.054	.00145	.00236	.0002	.00018	.017
%RSD	.26696	.51690	.35972	.47175	.02191	.35259	.15921
#1	.40804	10.375	.40401	.50325	1.0487	.05119	10.394
#2	.40809	10.428	.40193	.50122	1.0483	.05152	10.361
#3	.40618	10.320	.40473	.49854	1.0488	.05123	10.376
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05092**	**.20374**	**.51758**	**.51690**	**4.0751**	**51.861**	**1.0271**
Stddev	.00001	.00128	.00267	.00201	.0087	.020	.0027
%RSD	.02105	.62735	.51507	.38823	.21246	.03926	.26417
#1	.05093	.20455	.51737	.51469	4.0656	51.885	1.0287
#2	.05091	.20226	.52034	.51739	4.0825	51.851	1.0287
#3	.05093	.20439	.51502	.51861	4.0772	51.848	1.0240
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.083**	**.51446**	**1.0100**	**51.332**	**.50990**	**10.164**	**.51935**
Stddev	.084	.00353	.0011	.121	.00079	.030	.00229
%RSD	.82857	.68589	.10909	.23625	.15540	.29123	.44122
#1	10.011	.51685	1.0089	51.451	.50899	10.153	.51795
#2	10.063	.51041	1.0100	51.208	.51030	10.142	.52200
#3	10.175	.51612	1.0111	51.337	.51041	10.198	.51812
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 19:37:35 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2286**	**.40186**	**5.0546**	**1.0137**	**1.0376**	**1.0027**	**.52746**
Stddev	.0043	.00625	.0107	.0012	.0014	.0078	.00213
%RSD	.34558	1.5553	.21135	.12154	.13829	.77439	.40340
#1	1.2284	.39510	5.0443	1.0150	1.0374	1.0116	.52871
#2	1.2245	.40305	5.0539	1.0126	1.0363	.99715	.52500
#3	1.2330	.40744	5.0656	1.0135	1.0392	.99946	.52867
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0240**	**1.0403**	F **.08869**
Stddev	.0009	.0029	.03672
%RSD	.09135	.27348	41.399
#1	1.0234	1.0408	.13030
#2	1.0251	1.0373	.07491
#3	1.0235	1.0429	.06086
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6736.1**	**84257.**	**9850.2**
Stddev	8.2	439.	87.3
%RSD	.12100	.52074	.88676
#1	6738.7	84702.	9764.6
#2	6727.0	84246.	9846.8
#3	6742.7	83825.	9939.2

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCB Acquired: 11/7/2016 19:41:06 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00035**	**.00549**	**.00196**	**.00168**	**.00088**	**.00007**	**.01684**
Stddev	.00106	.00242	.00053	.00100	.00024	.00000	.05411
%RSD	302.80	44.026	26.820	59.553	27.051	5.1878	321.38
#1	-.00082	.00791	.00239	.00216	.00080	.00006	-.01137
#2	-.00109	.00549	.00212	.00053	.00069	.00007	-.01734
#3	.00086	.00308	.00137	.00235	.00115	.00007	.07922
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00025**	**.00006**	**-.00036**	**.00028**	**-.01272**	**.15298**	**.00008**
Stddev	.00002	.00027	.00096	.00203	.01555	.02028	.00274
%RSD	8.8186	417.54	265.36	715.94	122.26	13.260	3453.2
#1	-.00026	.00038	.00003	-.00076	-.01866	.14173	-.00289
#2	-.00023	-.00011	-.00145	.00263	-.02443	.14081	.00063
#3	-.00027	-.00007	.00034	-.00102	.00493	.17639	.00250
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.08220**	**.00304**	**.00014**	F **.55623**	**-.00197**	**.00529**	**.00152**
Stddev	.01742	.00177	.00084	.54926	.00083	.00289	.00442
%RSD	21.198	58.065	598.82	98.746	42.124	54.691	290.53
#1	.06790	.00219	.00110	.22120	-.00109	.00862	.00663
#2	.10161	.00507	-.00046	.25738	-.00274	.00339	-.00125
#3	.07709	.00187	-.00022	1.1901	-.00209	.00386	-.00081
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				.50000			
Low Limit				-.50000			

Approved: November 08, 2016
Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 19:41:06 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00613**	**-.00091**	**-.00107**	**-.00067**	**.00046**	**.00395**	**-.00748**
Stddev	.00196	.00778	.00042	.00026	.00019	.00162	.00466
%RSD	32.050	854.30	38.859	37.873	41.901	41.020	62.305
#1	.00714	.00804	-.00091	-.00058	.00029	.00575	-.01022
#2	.00738	-.00478	-.00154	-.00048	.00041	.00260	-.00210
#3	.00387	-.00599	-.00075	-.00096	.00067	.00350	-.01012
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00024**	**-.00028**	**.00139**
Stddev	.00025	.00025	.03878
%RSD	105.69	90.628	2789.4
#1	.00001	-.00051	-.00341
#2	.00019	-.00002	.04235
#3	.00052	-.00030	-.03476
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6940.4**	**86205.**	**9739.3**
Stddev	12.4	162.	151.9
%RSD	.17819	.18738	1.5596
#1	6927.1	86116.	9754.0
#2	6942.7	86108.	9883.2
#3	6951.5	86392.	9580.5

Approved: November 08, 2016

Kristi K Buck

Sample Name: LLCCV Acquired: 11/7/2016 19:44:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01048**	**.18984**	**.01062**	**.07842**	**.00903**	**.00171**	**.43612**	**.00055**
Stddev	.00117	.00538	.00153	.00157	.00031	.00004	.00777	.00027
%RSD	11.198	2.8362	14.446	2.0070	3.4746	2.2310	1.7827	49.821
#1	.01184	.18484	.00923	.07796	.00925	.00175	.42955	.00076
#2	.00984	.19554	.01227	.07714	.00867	.00171	.44470	.00064
#3	.00977	.18914	.01038	.08018	.00916	.00168	.43411	.00024
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00424**	**.00314**	**.00430**	**.08993**	**.96710**	**.08650**	**.48348**	**.00791**
Stddev	.00010	.00027	.00146	.01536	.01447	.00273	.00887	.00140
%RSD	2.4418	8.6713	33.845	17.080	1.4967	3.1578	1.8352	17.685
#1	.00433	.00311	.00377	.07760	.98378	.08510	.49107	.00928
#2	.00412	.00288	.00595	.10714	.95972	.08965	.48565	.00648
#3	.00426	.00343	.00319	.08506	.95780	.08476	.47373	.00798
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00817**	**.58508**	**.01733**	**.82904**	**.01192**	**.09058**	**.01596**	**.83036**
Stddev	.00071	.03958	.00039	.00505	.00467	.00140	.00509	.00545
%RSD	8.6597	6.7654	2.2685	.60885	39.194	1.5461	31.882	.65659
#1	.00741	.62032	.01724	.82416	.01633	.09006	.02023	.82409
#2	.00881	.54225	.01776	.83424	.01239	.08952	.01033	.83300
#3	.00829	.59266	.01699	.82873	.00703	.09217	.01732	.83399
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 19:44:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.42785**	**.04347**	**.02520**	**.17207**	**.00825**	**.01932**	**6.9951**
Stddev	.00083	.00009	.00029	.00327	.00082	.00019	.0962
%RSD	.19427	.20004	1.1351	1.9031	9.9415	.98215	1.3752
#1	.42876	.04351	.02487	.17581	.00916	.01928	6.9957
#2	.42766	.04337	.02540	.16971	.00803	.01915	7.0910
#3	.42713	.04354	.02533	.17068	.00757	.01953	6.8986
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7104.2**	**88225.**	**10071.**
Stddev	12.2	318.	46.
%RSD	.17109	.36032	.45248
#1	7101.9	88015.	10054.
#2	7093.3	88591.	10037.
#3	7117.3	88069.	10123.

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 19:48:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01129**	**.24401**	**.01081**	**.09941**	**.01119**	**.00212**	**.54966**	**.00100**
Stddev	.00054	.00436	.00188	.00094	.00011	.00004	.01268	.00024
%RSD	4.7996	1.7872	17.385	.94950	.94851	2.1100	2.3061	23.600
#1	.01162	.24540	.00976	.09833	.01122	.00208	.54384	.00100
#2	.01067	.24751	.00969	.10006	.01129	.00211	.56420	.00124
#3	.01159	.23913	.01298	.09983	.01108	.00217	.54094	.00076
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00534**	**.00523**	**.00553**	**.09784**	**1.1365**	**.10438**	**.60399**	**.01198**
Stddev	.00012	.00099	.00108	.01708	.0316	.00323	.08789	.00132
%RSD	2.2546	19.011	19.534	17.458	2.7811	3.0975	14.552	11.046
#1	.00548	.00501	.00473	.10675	1.1729	.10758	.54033	.01066
#2	.00526	.00436	.00676	.10863	1.1168	.10445	.56736	.01196
#3	.00529	.00631	.00510	.07815	1.1196	.10111	.70427	.01331
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00971**	**.66750**	**.02087**	**1.0269**	**.01324**	**.11102**	**.02366**	**1.0373**
Stddev	.00006	.01698	.00139	.0006	.00347	.00241	.00305	.0015
%RSD	.63954	2.5436	6.6594	.06179	26.191	2.1745	12.870	.14890
#1	.00977	.68483	.02247	1.0273	.00933	.10826	.02037	1.0365
#2	.00964	.65089	.02022	1.0261	.01447	.11210	.02638	1.0390
#3	.00972	.66677	.01992	1.0272	.01593	.11271	.02423	1.0363
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 19:48:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.53393	.05427	.03206	.21361	.01014	.02200	8.5433
Stddev	.00116	.00020	.00288	.00240	.00012	.00014	.1295
%RSD	.21719	.36444	8.9912	1.1256	1.1855	.61982	1.5160
#1	.53423	.05448	.03220	.21573	.01024	.02195	8.4366
#2	.53492	.05424	.03488	.21410	.01017	.02215	8.5059
#3	.53266	.05409	.02912	.21100	.01001	.02190	8.6874
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	7062.4	86005.	10025.
Stddev	36.2	529.	117.
%RSD	.51254	.61513	1.1666
#1	7020.7	86263.	10130.
#2	7086.0	85397.	10046.
#3	7080.4	86356.	9898.8

Approved: November 08, 2016

Ki K Buck

Sample Name: PBW 83 Acquired: 11/7/2016 19:52:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00086**	**.00920**	**.00159**	**.00040**	**.00047**	**.00004**	**.01889**	**.00008**
Stddev	.00052	.00441	.00552	.00220	.00052	.00001	.00690	.00016
%RSD	59.890	47.985	346.74	547.28	112.39	30.990	36.531	197.80
#1	.00141	.00435	.00715	-.00193	.00099	.00005	.02114	.00007
#2	.00038	.01298	.00151	.00070	.00047	.00003	.01114	-.00007
#3	.00080	.01026	-.00389	.00244	-.00006	.00005	.02438	.00024
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00036**	**.00087**	**.00022**	**-.00915**	**.05329**	**-.00149**	**.04422**	**.00265**
Stddev	.00030	.00037	.00082	.01042	.00814	.00110	.03426	.00052
%RSD	81.158	42.383	364.67	113.82	15.274	73.972	77.477	19.746
#1	-.00047	.00057	-.00030	-.02110	.06123	-.00028	.01041	.00244
#2	-.00003	.00076	-.00020	-.00195	.05366	-.00244	.07891	.00324
#3	-.00059	.00129	.00117	-.00441	.04497	-.00174	.04335	.00226
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00049**	**.11036**	**-.00085**	**-.00592**	**.00358**	**-.00242**	**.00261**	**.00477**
Stddev	.00032	.02793	.00151	.00524	.00368	.00105	.00990	.00187
%RSD	66.517	25.308	178.14	88.508	102.85	43.249	378.92	39.160
#1	.00027	.13639	-.00130	-.00009	.00457	-.00213	-.00832	.00265
#2	.00086	.08086	.00084	-.00743	-.00050	-.00359	.01099	.00615
#3	.00033	.11382	-.00207	-.01022	.00666	-.00156	.00517	.00553
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: PBW 83 Acquired: 11/7/2016 19:52:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00113**	**.00133**	**.00142**	**-.00534**	**.00053**	**.00088**	**.05600**
Stddev	.00105	.00018	.00200	.00231	.00121	.00006	.02606
%RSD	92.583	13.288	140.76	43.307	229.45	6.8945	46.535
#1	-.00020	.00152	.00064	-.00792	-.00085	.00095	.05588
#2	-.00093	.00118	.00369	-.00344	.00141	.00085	.08213
#3	-.00227	.00127	-.00007	-.00466	.00102	.00085	.03000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7052.3**	**88649.**	**9747.8**
Stddev	34.8	69.	249.2
%RSD	.49368	.07832	2.5567
#1	7070.7	88601.	9519.6
#2	7073.9	88728.	10014.
#3	7012.1	88617.	9710.2

Approved: November 08, 2016

Ki K Buck

Sample Name: LCSW 83 Acquired: 11/7/2016 19:56:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19841**	**5.1121**	**.19584**	**.91369**	**.51246**	**.02455**	**5.0542**	**.02416**
Stddev	.00211	.0109	.00169	.00347	.00039	.00006	.0175	.00014
%RSD	1.0625	.21369	.86305	.37985	.07654	.24929	.34661	.57310
#1	.20077	5.0997	.19428	.90988	.51271	.02452	5.0730	.02432
#2	.19671	5.1163	.19560	.91452	.51266	.02462	5.0512	.02411
#3	.19776	5.1203	.19763	.91667	.51201	.02450	5.0384	.02406
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.10069**	**.25116**	**.25380**	**1.9986**	**25.133**	**.50392**	**4.9701**	**.25150**
Stddev	.00052	.00034	.00036	.0157	.027	.00561	.0930	.00113
%RSD	.51443	.13378	.13992	.78661	.10916	1.1140	1.8707	.44992
#1	.10022	.25154	.25339	2.0130	25.143	.50956	4.9704	.25181
#2	.10061	.25090	.25406	1.9818	25.153	.49834	4.8769	.25245
#3	.10125	.25104	.25394	2.0009	25.102	.50387	5.0629	.25025
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50207**	**25.431**	**.25204**	**4.7819**	**.25746**	**.59515**	**.19257**	**2.4804**
Stddev	.00214	.055	.00091	.0067	.00194	.00465	.00483	.0106
%RSD	.42656	.21583	.36209	.14114	.75316	.78100	2.5098	.42547
#1	.50153	25.493	.25303	4.7753	.25614	.60036	.19492	2.4701
#2	.50025	25.411	.25123	4.7816	.25969	.59143	.18701	2.4801
#3	.50443	25.389	.25187	4.7888	.25656	.59367	.19578	2.4912
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LCSW 83 Acquired: 11/7/2016 19:56:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-03

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49932**	**.50760**	**.49342**	**.25872**	**.49856**	**.50352**	**.02663**
Stddev	.00079	.00176	.00764	.00349	.00090	.00106	.02857
%RSD	.15725	.34663	1.5490	1.3478	.18000	.21007	107.29
#1	.50023	.50949	.49533	.25571	.49801	.50305	-.00630
#2	.49883	.50728	.48501	.25792	.49806	.50278	.04134
#3	.49891	.50602	.49993	.26254	.49959	.50474	.04485
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7000.2**	**86624.**	**9884.3**
Stddev	26.0	240.	59.7
%RSD	.37176	.27675	.60368
#1	6972.2	86401.	9861.0
#2	7004.9	86594.	9952.1
#3	7023.7	86877.	9839.8

Approved: November 08, 2016

Ki K Buck

Sample Name: FLTBLK Acquired: 11/7/2016 19:59:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-06

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00133**	**.01143**	**.00283**	**-.00119**	**.00053**	**.00001**	**-.03308**
Stddev	.00122	.00588	.00204	.00223	.00025	.00001	.03046
%RSD	91.585	51.452	71.859	186.57	47.572	139.85	92.076
#1	.00138	.01822	.00154	.00134	.00045	.00001	.00186
#2	.00253	.00819	.00518	-.00285	.00082	.00002	-.05405
#3	.00009	.00788	.00178	-.00207	.00033	-.00000	-.04706
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00002**	**.00020**	**-.00030**	**-.00038**	F **-.02425**	**.09054**	**.00379**
Stddev	.00025	.00010	.00047	.00125	.01850	.06867	.00445
%RSD	1269.5	51.625	158.85	332.31	76.279	75.849	117.56
#1	.00015	.00032	-.00076	.00084	-.02489	.02856	.00622
#2	.00018	.00015	-.00031	-.00032	-.00544	.07870	-.00135
#3	-.00027	.00014	.00018	-.00165	-.04241	.16437	.00649
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass
High Limit					720.00		
Low Limit					-.02000		

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01302**	**.00154**	**.00003**	**.07933**	**-.00147**	**.00450**	**.00169**
Stddev	.04509	.00116	.00021	.00867	.00053	.00324	.00211
%RSD	346.25	75.131	666.13	10.925	36.107	71.955	124.90
#1	.05913	.00031	-.00021	.08617	-.00086	.00132	.00348
#2	-.03098	.00260	.00011	.08224	-.00174	.00779	.00221
#3	.01092	.00170	.00019	.06959	-.00181	.00439	-.00063
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: FLTBLK Acquired: 11/7/2016 19:59:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-06

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00096**	**-.00019**	**-.00500**	**-.00155**	**.00001**	**.00346**	**-.00194**
Stddev	.00486	.00213	.00362	.00064	.00019	.00064	.00201
%RSD	506.89	1113.6	72.371	41.109	2986.5	18.577	103.71
#1	-.00326	-.00151	-.00393	-.00099	-.00014	.00420	-.00128
#2	.00462	.00227	-.00904	-.00224	-.00007	.00305	-.00033
#3	-.00424	-.00133	-.00204	-.00141	.00023	.00312	-.00419
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00038**	**.00018**	**-.02318**
Stddev	.00049	.00019	.04682
%RSD	128.12	108.15	201.99
#1	.00091	.00012	.02911
#2	.00027	.00002	-.03742
#3	-.00004	.00040	-.06123
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7214.8**	**89184.**	**9939.1**
Stddev	18.7	661.	424.6
%RSD	.25977	.74065	4.2719
#1	7234.7	88499.	10255.
#2	7197.4	89235.	10106.
#3	7212.3	89817.	9456.5

Approved: November 08, 2016

Kristi K Buck

Sample Name: FBLK1 Acquired: 11/7/2016 20:03:39 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590201-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00006**	**.02249**	**.00305**	**.00294**	**.00012**	**-.00006**	**-.00867**	**-.00004**
Stddev	.00083	.00263	.00152	.00134	.00048	.00003	.00787	.00006
%RSD	1450.6	11.683	50.013	45.657	417.33	46.049	90.742	145.61
#1	-.00091	.02241	.00297	.00166	-.00038	-.00006	-.00890	-.00006
#2	.00054	.02516	.00461	.00283	.00058	-.00004	-.00069	-.00009
#3	.00054	.01991	.00156	.00433	.00015	-.00009	-.01642	.00002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00008**	**-.00075**	**.00090**	**.00140**	**.03798**	**-.00046**	**.07628**	**.00456**
Stddev	.00041	.00058	.00185	.01951	.04001	.00253	.05138	.00112
%RSD	522.74	77.220	207.10	1396.4	105.35	545.15	67.352	24.651
#1	.00035	-.00086	.00271	-.01650	-.00822	.00238	.10791	.00573
#2	-.00011	-.00128	-.00100	-.00152	.06112	-.00247	.01700	.00447
#3	-.00048	-.00013	.00098	.02220	.06104	-.00131	.10393	.00349
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00027**	**142.90**	**-.00092**	**-.00271**	**.00107**	**.00279**	**.00824**	**.00442**
Stddev	.00079	.37	.00158	.00231	.00298	.00258	.00582	.00072
%RSD	299.10	.25840	171.45	85.181	279.37	92.348	70.648	16.407
#1	-.00117	143.33	-.00274	-.00444	-.00015	.00046	.01382	.00515
#2	.00032	142.70	-.00017	-.00360	-.00111	.00556	.00220	.00441
#3	.00006	142.68	.00014	-.00009	.00447	.00235	.00870	.00370
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: FBLK1 Acquired: 11/7/2016 20:03:39 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590201-01

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00003**	**.00038**	**.00114**	**-.00719**	**-.00029**	**.00269**	**.02276**
Stddev	.00069	.00005	.00390	.00304	.00051	.00009	.03139
%RSD	2039.4	12.293	342.87	42.288	174.83	3.3417	137.95
#1	.00029	.00043	.00211	-.00401	-.00037	.00259	-.01211
#2	-.00083	.00034	.00445	-.01006	.00025	.00277	.04877
#3	.00044	.00036	-.00316	-.00750	-.00077	.00269	.03160
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6872.1**	**85182.**	**10171.**
Stddev	45.0	291.	25.
%RSD	.65546	.34136	.24684
#1	6847.7	85079.	10148.
#2	6844.6	85510.	10169.
#3	6924.1	84957.	10198.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611010901 Acquired: 11/7/2016 20:07:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00024**	**98.926**	**.01659**	**.41715**	**.42363**	**-.00001**	**82.732**
Stddev	.00031	.289	.00059	.00189	.00091	.00007	.035
%RSD	132.80	.29203	3.5657	.45330	.21548	1427.1	.04228
#1	-.00045	98.596	.01595	.41901	.42306	.00007	82.734
#2	.00012	99.046	.01669	.41523	.42315	-.00000	82.765
#3	-.00038	99.136	.01712	.41723	.42468	-.00008	82.695
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00147**	**6.7910**	**.20699**	**.77159**	**8.5924**	**14.118**	**7.7747**
Stddev	.00064	.0245	.00057	.00256	.0727	.108	.0232
%RSD	43.715	.36101	.27580	.33136	.84629	.76799	.29813
#1	.00209	6.7831	.20763	.76969	8.5142	14.018	7.7992
#2	.00081	6.7714	.20682	.77059	8.6049	14.105	7.7531
#3	.00151	6.8185	.20653	.77450	8.6580	14.233	7.7717
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**23.758**	**.36751**	**.03687**	F **776.31**	**50.278**	**96.666**	**.02246**
Stddev	.054	.00079	.00052	3.07	.173	.386	.00118
%RSD	.22620	.21476	1.3987	.39527	.34424	.39891	5.2727
#1	23.696	.36807	.03628	775.36	50.248	96.317	.02109
#2	23.789	.36661	.03720	773.82	50.122	96.599	.02306
#3	23.789	.36785	.03714	779.74	50.464	97.080	.02322
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611010901 Acquired: 11/7/2016 20:07:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.03858**	**.00266**	**4.6467**	**.01038**	**.73951**	**.01662**	**-.00487**
Stddev	.00467	.00403	.0199	.00019	.00077	.00203	.00530
%RSD	12.108	151.77	.42829	1.8381	.10353	12.204	108.76
#1	-.03596	.00730	4.6299	.01016	.73872	.01812	-.01087
#2	-.03581	.00070	4.6414	.01046	.73958	.01431	-.00296
#3	-.04397	-.00003	4.6687	.01052	.74024	.01743	-.00079
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	45.000						
Low Limit	-.02000						

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00748**	**1.2022**	**.02604**
Stddev	.00021	.0025	.05413
%RSD	2.7480	.21004	207.91
#1	.00771	1.2013	.06369
#2	.00735	1.2002	-.03600
#3	.00736	1.2050	.05042
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6376.2**	**78689.**	**10230.**
Stddev	47.5	209.	70.
%RSD	.74551	.26538	.68284
#1	6329.1	78910.	10300.
#2	6424.1	78661.	10228.
#3	6375.3	78496.	10161.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611010902 Acquired: 11/7/2016 20:11:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00019**	**88.185**	**.01525**	**.39175**	**.43661**	**-.00004**	**88.556**
Stddev	.00125	.280	.00267	.00465	.00107	.00004	.122
%RSD	673.21	.31742	17.487	1.1860	.24570	107.66	.13722
#1	-.00094	87.867	.01235	.38714	.43596	-.00006	88.434
#2	.00153	88.393	.01759	.39643	.43785	.00001	88.557
#3	-.00003	88.295	.01580	.39167	.43602	-.00007	88.677
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00074**	**6.3151**	**.18723**	**.71067**	**7.3942**	**13.908**	**8.0895**
Stddev	.00039	.0539	.00081	.00757	.0135	.118	.0270
%RSD	52.488	.85290	.43345	1.0658	.18288	.85202	.33370
#1	.00029	6.3751	.18696	.71890	7.4094	14.016	8.0639
#2	.00093	6.2994	.18659	.70913	7.3894	13.927	8.0869
#3	.00098	6.2708	.18814	.70399	7.3836	13.781	8.1177
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**26.388**	**.36441**	**.02925**	F **815.43**	**46.617**	**89.402**	**.02187**
Stddev	.277	.00271	.00096	10.01	.415	.682	.00192
%RSD	1.0514	.74305	3.2800	1.2275	.89053	.76245	8.7803
#1	26.106	.36129	.03029	825.68	47.079	90.183	.02267
#2	26.397	.36587	.02841	805.68	46.496	89.099	.02327
#3	26.661	.36608	.02905	814.94	46.275	88.925	.01968
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611010902 Acquired: 11/7/2016 20:11:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.03713	.00573	4.8667	.00793	.73557	.01204	.00117
Stddev	.00166	.00497	.0430	.00067	.00099	.00569	.00260
%RSD	4.4582	86.685	.88264	8.3980	.13442	47.250	222.09
#1	-.03522	.00002	4.9160	.00848	.73444	.00737	-.00183
#2	-.03806	.00808	4.8467	.00813	.73596	.01038	.00279
#3	-.03811	.00910	4.8373	.00719	.73630	.01838	.00256
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	45.000						
Low Limit	-.02000						

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	.00777	1.1404	.00582
Stddev	.00042	.0089	.06446
%RSD	5.4191	.77965	1106.7
#1	.00742	1.1502	-.06799
#2	.00824	1.1381	.05106
#3	.00764	1.1329	.03440
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	6475.0	78859.	10131.
Stddev	78.1	272.	51.
%RSD	1.2068	.34473	.50398
#1	6419.9	78561.	10072.
#2	6440.8	79093.	10161.
#3	6564.4	78924.	10159.

Approved: November 08, 2016

Ki K Buck

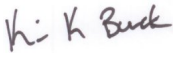
Sample Name: L1611010903 Acquired: 11/7/2016 20:15:00 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00228	273.22	.04253	.96246	1.9604	.00023	170.94
Stddev	.00107	.86	.00098	.00240	.0096	.00001	.98
%RSD	46.792	.31419	2.3074	.24945	.48973	3.8563	.57191
#1	.00346	272.63	.04212	.96469	1.9714	.00024	172.01
#2	.00138	274.21	.04365	.96278	1.9538	.00022	170.72
#3	.00200	272.83	.04183	.95992	1.9559	.00022	170.09
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.01572	18.761	.60914	2.1733	27.689	32.610	10.352
Stddev	.00090	.012	.00227	.0019	.025	.070	.064
%RSD	5.7154	.06636	.37284	.08530	.08987	.21599	.61495
#1	-.01671	18.749	.61053	2.1753	27.685	32.685	10.425
#2	-.01547	18.759	.61036	2.1718	27.716	32.600	10.322
#3	-.01497	18.774	.60652	2.1727	27.666	32.546	10.309
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	4.5000						
Low Limit	-.00050						

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	54.551	1.0229	.09441	F 766.11	F 139.74	F 267.43	.09741
Stddev	.278	.0049	.00096	15.63	.11	.11	.00332
%RSD	.50884	.47386	1.0160	2.0404	.07855	.04129	3.4121
#1	54.819	1.0277	.09551	784.15	139.69	267.35	.10058
#2	54.571	1.0231	.09398	757.71	139.66	267.39	.09769
#3	54.265	1.0180	.09374	756.48	139.87	267.56	.09395
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Fail	Chk Fail	Chk Pass
High Limit				270.00	90.000	180.00	
Low Limit				-.50000	-.02000	-.10000	

Approved: November 08, 2016



Sample Name: L1611010903 Acquired: 11/7/2016 20:15:00 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.12619**	**.01825**	**11.191**	**.03246**	**1.8650**	**.05575**	**-.00709**
Stddev	.00304	.00730	.008	.00123	.0080	.00017	.00814
%RSD	2.4059	40.011	.07445	3.7800	.43119	.30268	114.87
#1	-.12278	.02191	11.182	.03274	1.8743	.05592	-.00779
#2	-.12722	.00984	11.198	.03111	1.8603	.05559	-.01486
#3	-.12858	.02299	11.193	.03352	1.8604	.05573	.00138
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	45.000						
Low Limit	-.02000						

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.02012**	**3.1983**	F **-.08501**
Stddev	.00100	.0025	.02742
%RSD	4.9546	.07735	32.249
#1	.01901	3.1969	-.06455
#2	.02093	3.1968	-.11616
#3	.02043	3.2011	-.07433
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6621.2**	**79727.**	**10625.**
Stddev	50.4	331.	54.
%RSD	.76048	.41544	.51089
#1	6620.5	80101.	10566.
#2	6671.8	79610.	10635.
#3	6571.1	79471.	10673.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611010904 Acquired: 11/7/2016 20:18:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00070**	**203.98**	**.02547**	**.84907**	**.94529**	**.00013**	**195.46**
Stddev	.00145	3.07	.00168	.00111	.00254	.00002	.54
%RSD	206.71	1.5027	6.6082	.13119	.26883	17.194	.27474
#1	.00140	200.63	.02550	.84982	.94297	.00011	194.86
#2	-.00097	204.65	.02714	.84960	.94490	.00016	195.62
#3	.00167	206.65	.02377	.84779	.94801	.00013	195.89
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01571**	**16.432**	**.38919**	**1.4232**	**13.975**	**33.800**	**10.718**
Stddev	.00061	.049	.00325	.0057	.068	.182	.003
%RSD	3.8980	.29670	.83587	.40396	.48868	.53750	.02634
#1	.01504	16.484	.38588	1.4289	13.914	33.626	10.715
#2	.01625	16.426	.39239	1.4232	13.962	33.786	10.720
#3	.01583	16.387	.38931	1.4174	14.049	33.988	10.720
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**65.545**	**.98471**	**.04008**	F **792.76**	**89.001**	F **204.42**	**.05465**
Stddev	.145	.00406	.00052	9.50	.289	.69	.00505
%RSD	.22180	.41209	1.2924	1.1988	.32486	.33861	9.2399
#1	65.385	.98173	.04065	802.47	89.314	205.15	.05355
#2	65.669	.98306	.03995	792.33	88.947	204.35	.06017
#3	65.582	.98933	.03963	783.48	88.743	203.77	.05025
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Fail	Chk Pass
High Limit				270.00		180.00	
Low Limit				-.50000		-.10000	

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611010904 Acquired: 11/7/2016 20:18:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.07694**	**.01155**	**9.6757**	**.01749**	**1.8825**	**.01601**	**-.00038**
Stddev	.00282	.00631	.0249	.00017	.0067	.00403	.00410
%RSD	3.6679	54.602	.25766	.97423	.35860	25.156	1085.1
#1	-.07726	.01505	9.6994	.01731	1.8762	.01978	.00434
#2	-.07398	.01534	9.6781	.01765	1.8817	.01649	-.00306
#3	-.07960	.00427	9.6497	.01750	1.8897	.01177	-.00241
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	45.000						
Low Limit	-.02000						

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.01778**	**2.9331**	F **-.08591**
Stddev	.00084	.0124	.03345
%RSD	4.7480	.42327	38.941
#1	.01866	2.9474	-.10137
#2	.01770	2.9251	-.10883
#3	.01698	2.9268	-.04752
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6447.7**	**77525.**	**10089.**
Stddev	36.4	452.	77.
%RSD	.56519	.58338	.76714
#1	6407.9	77760.	10173.
#2	6479.4	77811.	10021.
#3	6455.7	77003.	10072.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611012001 Acquired: 11/7/2016 20:22:44 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00202**	**.14926**	**.00264**	**.03132**	**.00163**	**.00001**	**40.886**	**.00091**
Stddev	.00132	.00174	.00219	.00213	.00048	.00003	.039	.00011
%RSD	65.660	1.1669	83.004	6.8057	29.091	251.99	.09616	11.858
#1	.00098	.15127	.00124	.02893	.00165	.00002	40.894	.00098
#2	.00351	.14820	.00150	.03302	.00115	.00004	40.843	.00095
#3	.00156	.14830	.00516	.03201	.00210	-.00002	40.920	.00078
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00438**	**.00155**	**.00429**	**.01732**	**.27434**	**.00440**	**.58835**	**.43962**
Stddev	.00330	.00100	.00147	.01201	.02234	.00304	.04077	.00240
%RSD	75.317	64.217	34.147	69.358	8.1444	69.169	6.9304	.54643
#1	.00156	.00045	.00539	.03064	.26334	.00787	.54131	.43987
#2	.00800	.00239	.00487	.01400	.30004	.00314	.61002	.43711
#3	.00357	.00182	.00263	.00731	.25962	.00219	.61370	.44190
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00024**	**131.58**	**.06621**	**.04243**	**.00181**	**.00152**	**-.00069**	**.06696**
Stddev	.00046	.48	.02280	.05407	.00552	.00557	.00713	.00307
%RSD	192.53	.36666	34.442	127.43	305.88	366.11	1032.9	4.5855
#1	.00059	131.22	.04669	.00043	-.00095	-.00419	-.00508	.06613
#2	-.00028	131.41	.09128	.10345	.00816	.00695	-.00452	.07036
#3	.00040	132.13	.06066	.02343	-.00180	.00181	.00753	.06439
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611012001 Acquired: 11/7/2016 20:22:44 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00059**	**.01617**	**.00237**	**-.00181**	**.00016**	**.03549**	**.01115**
Stddev	.00037	.00024	.00109	.00378	.00028	.00059	.03067
%RSD	63.293	1.4683	46.188	208.59	174.78	1.6644	274.97
#1	-.00027	.01644	.00155	.00023	-.00008	.03513	.01190
#2	-.00050	.01598	.00194	-.00618	.00047	.03617	-.01988
#3	-.00099	.01609	.00361	.00051	.00010	.03517	.04144
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6886.3**	**86217.**	**10203.**
Stddev	39.9	150.	57.
%RSD	.57926	.17374	.56144
#1	6914.6	86390.	10225.
#2	6903.6	86142.	10138.
#3	6840.7	86120.	10246.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611014001 Acquired: 11/7/2016 20:26:31 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00170	.04636	.00911	1.7437	.54335	-.00011	3.4385
Stddev	.00052	.00081	.00119	.0106	.00116	.00003	.0124
%RSD	30.606	1.7414	13.032	.60592	.21374	32.323	.36114
#1	.00213	.04632	.00800	1.7371	.54386	-.00008	3.4349
#2	.00112	.04558	.00896	1.7559	.54202	-.00014	3.4283
#3	.00184	.04719	.01036	1.7380	.54417	-.00010	3.4523
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.00007	.03018	-.00006	5.2025	1.4974	5.4739	3.1614
Stddev	.00025	.00011	.00028	.0067	.0142	.0274	.0066
%RSD	378.24	.36875	456.70	.12936	.94831	.49995	.20740
#1	.00016	.03028	-.00024	5.1956	1.5137	5.4431	3.1610
#2	-.00003	.03006	-.00020	5.2090	1.4878	5.4954	3.1550
#3	-.00033	.03020	.00026	5.2028	1.4908	5.4832	3.1681
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.53679	.54800	-.00017	134.95	.09062	F -.98029	.08033
Stddev	.10325	.00379	.00033	.26	.00150	.00651	.00248
%RSD	19.234	.69119	194.38	.19177	1.6506	.66367	3.0857
#1	.47413	.55114	.00011	134.77	.09229	-.97968	.08267
#2	.65596	.54379	-.00053	134.85	.08940	-.98708	.07774
#3	.48028	.54906	-.00009	135.25	.09018	-.97411	.08059
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit						180.00	
Low Limit						-.10000	

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611014001 Acquired: 11/7/2016 20:26:31 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00247**	**.00843**	**1.7454**	**.00008**	**.11436**	**.00390**	**-.00649**
Stddev	.00428	.00294	.0051	.00068	.00046	.00548	.00208
%RSD	172.98	34.927	.29278	835.94	.40213	140.36	32.038
#1	.00227	.01183	1.7408	-.00050	.11460	.00918	-.00889
#2	-.00364	.00662	1.7509	-.00009	.11383	-.00176	-.00528
#3	-.00604	.00684	1.7444	.00083	.11465	.00430	-.00530
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00034**	**4.6741**	**.03528**
Stddev	.00048	.0083	.05604
%RSD	139.16	.17716	158.85
#1	.00013	4.6647	-.02767
#2	.00001	4.6779	.07973
#3	.00089	4.6799	.05377
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7068.5**	**88377.**	**10604.**
Stddev	1.9	363.	20.
%RSD	.02635	.41021	.19298
#1	7068.4	88780.	10581.
#2	7070.4	88077.	10620.
#3	7066.7	88275.	10610.

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 20:30:16 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41230**	**10.490**	**.41517**	**.51063**	**1.0601**	**.05192**	**10.501**
Stddev	.00125	.035	.00159	.00317	.0027	.00016	.016
%RSD	.30317	.33341	.38365	.62063	.25578	.29882	.15407
#1	.41097	10.450	.41701	.50775	1.0576	.05210	10.519
#2	.41248	10.511	.41424	.51402	1.0598	.05184	10.494
#3	.41345	10.510	.41426	.51012	1.0630	.05182	10.489
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05163**	**.20672**	**.52149**	**.52059**	**4.1239**	**52.348**	**1.0361**
Stddev	.00042	.00051	.00224	.00082	.0168	.144	.0022
%RSD	.81205	.24576	.42865	.15750	.40829	.27481	.21248
#1	.05154	.20699	.52145	.52034	4.1170	52.218	1.0340
#2	.05209	.20704	.51927	.51992	4.1431	52.324	1.0359
#3	.05126	.20614	.52374	.52150	4.1116	52.503	1.0384
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.237**	**.51946**	**1.0218**	**52.168**	**.51625**	**10.416**	**.52487**
Stddev	.058	.00235	.0031	.102	.00343	.017	.00309
%RSD	.56872	.45168	.30247	.19483	.66350	.16395	.58952
#1	10.206	.51675	1.0232	52.148	.52010	10.416	.52828
#2	10.200	.52070	1.0182	52.078	.51515	10.398	.52410
#3	10.304	.52092	1.0239	52.279	.51352	10.433	.52224
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016
Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 20:30:16 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2535**	**.41004**	**5.1481**	**1.0330**	**1.0491**	**1.0144**	**.52744**
Stddev	.0024	.00760	.0161	.0029	.0029	.0045	.00310
%RSD	.18839	1.8527	.31211	.27959	.27966	.44290	.58798
#1	1.2542	.40344	5.1659	1.0360	1.0458	1.0195	.52387
#2	1.2555	.40832	5.1347	1.0303	1.0500	1.0110	.52946
#3	1.2509	.41834	5.1436	1.0326	1.0514	1.0126	.52900
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0292**	**1.0601**	F **.09957**
Stddev	.0026	.0019	.04050
%RSD	.25660	.17498	40.672
#1	1.0294	1.0610	.05990
#2	1.0318	1.0580	.09796
#3	1.0265	1.0614	.14085
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6900.5**	**84300.**	**10033.**
Stddev	38.9	472.	99.
%RSD	.56323	.55944	.98490
#1	6918.3	84752.	10037.
#2	6856.0	84337.	10130.
#3	6927.3	83811.	9932.8

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 20:33:46 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00110**	**.00824**	**.00279**	**.00168**	**.00040**	**.00003**	**-.01925**	**.00005**
Stddev	.00167	.00175	.00176	.00192	.00035	.00005	.01570	.00029
%RSD	152.14	21.272	63.202	114.65	86.592	156.80	81.559	550.83
#1	-.00058	.00661	.00184	-.00050	.00075	-.00002	-.01106	.00027
#2	.00276	.00802	.00482	.00315	.00005	.00004	-.00933	-.00027
#3	.00111	.01009	.00170	.00238	.00040	.00008	-.03734	.00016
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00032**	**-.00010**	**-.00110**	**-.00270**	**.13964**	**.00257**	**.06500**	**.00087**
Stddev	.00040	.00050	.00172	.01958	.01740	.00057	.07784	.00068
%RSD	125.77	476.85	155.32	724.21	12.464	22.379	119.75	77.430
#1	.00078	-.00038	-.00133	-.00424	.12154	.00286	-.02007	.00165
#2	.00009	.00047	-.00270	-.02147	.14113	.00293	.13266	.00052
#3	.00008	-.00041	.00071	.01759	.15625	.00191	.08242	.00044
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00005**	**.22213**	**-.00105**	**.00019**	**.00163**	**.00376**	**.00348**	**-.00016**
Stddev	.00041	.00295	.00116	.00682	.00197	.00221	.00639	.00176
%RSD	914.98	1.3276	109.86	3545.4	120.96	58.828	183.82	1089.8
#1	-.00030	.21962	-.00205	.00794	.00351	.00583	.01077	.00037
#2	.00051	.22139	-.00133	-.00249	.00180	.00142	-.00111	-.00212
#3	-.00007	.22538	.00022	-.00488	-.00042	.00404	.00077	.00127
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCB Acquired: 11/7/2016 20:33:46 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00083**	**.00019**	**.00028**	**-.00252**	**.00049**	**-.00008**	**.00859**
Stddev	.00086	.00006	.00201	.00210	.00090	.00018	.03123
%RSD	103.35	29.574	709.57	83.290	184.03	229.15	363.70
#1	-.00072	.00015	.00252	-.00117	-.00029	-.00011	.04190
#2	-.00003	.00026	-.00137	-.00494	.00148	.00012	.00390
#3	-.00174	.00017	-.00030	-.00146	.00029	-.00024	-.02003
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6951.9**	**86675.**	**9843.5**
Stddev	60.2	493.	131.2
%RSD	.86584	.56933	1.3331
#1	6885.2	86980.	9704.5
#2	7002.3	86940.	9965.2
#3	6968.1	86106.	9860.9

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015102 Acquired: 11/7/2016 20:37:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00130**	**.01540**	**.10790**	**.09317**	**.23651**	**-.00003**	**40.661**
Stddev	.00069	.00409	.00246	.00127	.00111	.00001	.042
%RSD	52.595	26.561	2.2790	1.3644	.46957	46.846	.10434
#1	.00058	.01286	.10790	.09172	.23540	-.00001	40.614
#2	.00194	.02012	.11036	.09413	.23762	-.00004	40.696
#3	.00139	.01322	.10544	.09364	.23652	-.00003	40.674
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00067**	**-.00035**	**-.00040**	**.00122**	**15.499**	**1.4497**	**.00784**
Stddev	.00024	.00025	.00112	.00019	.056	.0554	.00399
%RSD	36.607	72.023	278.54	15.187	.36014	3.8179	50.946
#1	.00089	-.00019	.00089	.00101	15.540	1.4269	.01245
#2	.00040	-.00064	-.00105	.00131	15.523	1.5128	.00562
#3	.00071	-.00022	-.00105	.00135	15.436	1.4094	.00545
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**40.345**	**.76270**	**.00067**	**14.987**	**-.00072**	**.07599**	**.00140**
Stddev	.112	.00315	.00041	.030	.00223	.00282	.00077
%RSD	.27734	.41266	61.426	.20287	308.79	3.7070	54.861
#1	40.326	.76085	.00113	15.020	-.00315	.07807	.00072
#2	40.245	.76634	.00033	14.959	-.00025	.07711	.00223
#3	40.466	.76093	.00055	14.981	.00123	.07278	.00125
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015102 Acquired: 11/7/2016 20:37:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00304**	**.00203**	**9.8414**	**.00002**	**.16822**	**.00509**	**-.00414**
Stddev	.00163	.00270	.0158	.00162	.00029	.00350	.00351
%RSD	53.578	133.12	.16029	10511.	.17045	68.861	84.615
#1	.00153	-.00029	9.8355	.00060	.16851	.00247	-.00182
#2	.00283	.00138	9.8294	.00126	.16821	.00906	-.00243
#3	.00477	.00500	9.8593	-.00181	.16794	.00373	-.00818
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00049**	**.00742**	F **-.14213**
Stddev	.00009	.00010	.00863
%RSD	18.227	1.3894	6.0688
#1	.00045	.00745	-.14291
#2	.00043	.00731	-.15033
#3	.00059	.00751	-.13313
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7023.9**	**87928.**	**10121.**
Stddev	26.1	208.	191.
%RSD	.37201	.23623	1.8892
#1	7023.6	88096.	9909.2
#2	6998.0	87994.	10281.
#3	7050.2	87696.	10172.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611015102PS Acquired: 11/7/2016 20:41:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590620-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20415**	**5.1263**	**.30081**	**1.0358**	**.73534**	**.02526**	**41.549**	**.02595**
Stddev	.00219	.0120	.00216	.0022	.00180	.00005	.015	.00008
%RSD	1.0723	.23398	.71811	.21626	.24429	.18783	.03584	.31486
#1	.20591	5.1137	.30048	1.0365	.73365	.02521	41.553	.02593
#2	.20169	5.1376	.29884	1.0333	.73513	.02525	41.562	.02587
#3	.20484	5.1275	.30312	1.0376	.73723	.02531	41.533	.02603
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.10028**	**.25443**	**.25645**	**15.976**	**26.953**	**.51930**	**41.160**	**.93679**
Stddev	.00015	.00094	.00171	.098	.124	.00276	.145	.00105
%RSD	.15357	.36843	.66812	.61481	.45881	.53087	.35272	.11198
#1	.10029	.25540	.25479	15.905	26.812	.51645	41.072	.93694
#2	.10043	.25353	.25821	16.088	27.042	.52196	41.081	.93568
#3	.10012	.25436	.25634	15.934	27.005	.51949	41.328	.93776
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.51094**	**38.986**	**.25291**	**5.0631**	**.25940**	**.61628**	**.19092**	**11.473**
Stddev	.00062	.140	.00049	.0234	.00206	.00217	.01031	.029
%RSD	.12196	.35907	.19539	.46225	.79604	.35241	5.3989	.25342
#1	.51153	38.875	.25255	5.0375	.25727	.61377	.17902	11.442
#2	.51028	38.940	.25270	5.0684	.26140	.61750	.19668	11.477
#3	.51100	39.143	.25347	5.0834	.25953	.61756	.19706	11.500
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015102PS Acquired: 11/7/2016 20:41:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590620-01

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50622**	**.66580**	**.50211**	**.25584**	**.51078**	**.51528**	**-.01884**
Stddev	.00080	.00177	.00715	.00783	.00071	.00108	.02258
%RSD	.15756	.26537	1.4246	3.0622	.13833	.21013	119.88
#1	.50667	.66377	.49468	.25537	.51049	.51480	-.03006
#2	.50530	.66661	.50895	.24826	.51158	.51452	-.03361
#3	.50669	.66701	.50269	.26390	.51026	.51652	.00716
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7084.9**	**87690.**	**10365.**
Stddev	43.2	75.	60.
%RSD	.61005	.08513	.58345
#1	7035.3	87634.	10434.
#2	7105.0	87661.	10341.
#3	7114.5	87775.	10320.

Approved: November 08, 2016

Kristi K Burk

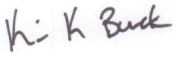
Sample Name: L1611015102SDL Acquired: 11/7/2016 20:44:52 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG590620-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00069**	**.01539**	**.02720**	**.02154**	**.04942**	**-.00002**	**8.6254**	**-.00002**
Stddev	.00099	.00723	.00107	.00146	.00073	.00001	.0278	.00028
%RSD	143.44	46.982	3.9501	6.7856	1.4683	64.535	.32253	1186.0
#1	.00030	.02081	.02733	.02311	.04872	-.00003	8.6450	.00028
#2	.00182	.00718	.02820	.02128	.05017	-.00003	8.5936	-.00006
#3	-.00004	.01818	.02607	.02022	.04937	-.00001	8.6378	-.00029
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00000**	**.00001**	**-.00033**	**3.2556**	**.46880**	**.00241**	**8.6484**	**.16146**
Stddev	.00037	.00067	.00044	.0259	.01420	.00305	.0429	.00137
%RSD	29657.	12288.	131.37	.79470	3.0290	126.37	.49643	.84587
#1	-.00042	.00075	-.00070	3.2309	.46266	.00565	8.5991	.15998
#2	.00015	-.00053	-.00045	3.2825	.48503	-.00041	8.6686	.16175
#3	.00026	-.00020	.00015	3.2536	.45870	.00200	8.6775	.16267
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00061**	**3.2364**	**-.00094**	**.03324**	**-.00003**	**.00224**	**-.00296**	**2.0874**
Stddev	.00033	.0088	.00052	.00312	.00323	.00054	.00697	.0114
%RSD	54.406	.27110	55.489	9.3930	11640.	24.337	234.99	.54494
#1	.00048	3.2464	-.00035	.03510	.00260	.00250	-.00985	2.0979
#2	.00099	3.2326	-.00136	.02964	.00095	.00260	-.00313	2.0753
#3	.00036	3.2302	-.00111	.03498	-.00363	.00161	.00408	2.0891
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016



Sample Name: L1611015102SDL Acquired: 11/7/2016 20:44:52 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG590620-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00100**	**.03531**	**.00606**	**-.00540**	**.00002**	**.00279**	**.00960**
Stddev	.00025	.00022	.00288	.00164	.00044	.00017	.01810
%RSD	25.229	.61224	47.618	30.256	2506.0	6.1335	188.60
#1	-.00071	.03524	.00528	-.00728	.00030	.00294	.01107
#2	-.00114	.03555	.00925	-.00430	-.00049	.00282	.02691
#3	-.00116	.03513	.00364	-.00463	.00025	.00260	-.00919
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7165.7**	**89353.**	**10398.**
Stddev	29.1	450.	156.
%RSD	.40664	.50380	1.4987
#1	7196.2	88906.	10517.
#2	7138.1	89807.	10456.
#3	7162.9	89345.	10222.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015103 Acquired: 11/7/2016 20:48:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00120**	**.02841**	**.19484**	**.09040**	**.55256**	**-.00006**	**44.370**
Stddev	.00154	.00455	.00153	.00234	.00039	.00004	.066
%RSD	128.60	16.021	.78648	2.5849	.07129	62.730	.14975
#1	-.00058	.03325	.19570	.09309	.55299	-.00008	44.432
#2	.00203	.02778	.19307	.08928	.55248	-.00010	44.380
#3	.00214	.02422	.19575	.08884	.55221	-.00002	44.300
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00169**	**.00030**	**.00004**	**.00173**	**27.165**	**1.2559**	**.00095**
Stddev	.00008	.00041	.00043	.00173	.101	.0386	.00335
%RSD	4.8390	134.16	1195.0	99.625	.37143	3.0709	351.20
#1	.00161	-.00017	.00005	-.00012	27.089	1.2129	-.00291
#2	.00178	.00052	-.00040	.00201	27.125	1.2671	.00301
#3	.00168	.00056	.00046	.00330	27.279	1.2875	.00275
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**60.430**	**.26617**	**.00140**	**29.725**	**-.00173**	**.87640**	**.00005**
Stddev	.384	.00246	.00024	.167	.00166	.00835	.00146
%RSD	.63610	.92355	17.368	.56066	95.658	.95306	3059.6
#1	60.686	.26363	.00114	29.825	-.00306	.87903	.00033
#2	60.617	.26853	.00162	29.818	-.00227	.88313	.00135
#3	59.988	.26634	.00144	29.533	.00013	.86705	-.00153
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015103 Acquired: 11/7/2016 20:48:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00202**	**.01223**	**9.0513**	**.00001**	**.34735**	**.00383**	**-.00077**
Stddev	.00655	.00344	.0168	.00060	.00059	.00204	.00210
%RSD	323.79	28.108	.18561	4917.8	.17036	53.361	272.99
#1	-.00552	.01563	9.0706	-.00068	.34670	.00580	.00157
#2	.00530	.01231	9.0433	.00043	.34787	.00396	-.00140
#3	.00629	.00876	9.0400	.00029	.34747	.00172	-.00248
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00185**	**.00206**	F **-.21859**
Stddev	.00029	.00013	.01419
%RSD	15.399	6.5439	6.4918
#1	.00183	.00192	-.21256
#2	.00158	.00219	-.20842
#3	.00215	.00207	-.23480
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6940.9**	**86627.**	**10169.**
Stddev	9.9	698.	37.
%RSD	.14282	.80572	.36604
#1	6942.8	87394.	10139.
#2	6949.8	86457.	10210.
#3	6930.2	86030.	10156.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611015104 Acquired: 11/7/2016 20:52:20 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00128**	**.03236**	**.07791**	**.03848**	**.31663**	**-.00002**	**65.667**
Stddev	.00065	.00668	.00345	.00243	.00025	.00002	.210
%RSD	50.611	20.649	4.4250	6.3073	.08035	97.838	.32002
#1	.00172	.03897	.08035	.03840	.31634	.00000	65.540
#2	.00054	.03251	.07397	.04095	.31677	-.00003	65.551
#3	.00159	.02561	.07941	.03610	.31679	-.00004	65.910
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00087**	**.00019**	**-.00010**	**.00080**	**18.841**	**1.1107**	**.00530**
Stddev	.00049	.00004	.00076	.00260	.059	.0420	.00466
%RSD	55.951	20.358	786.22	323.67	.31316	3.7832	87.961
#1	.00080	.00023	-.00043	.00358	18.800	1.1586	.00069
#2	.00139	.00017	.00077	.00038	18.909	1.0930	.01001
#3	.00042	.00017	-.00063	-.00156	18.814	1.0803	.00519
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**32.099**	**1.8492**	**.00469**	**31.345**	**-.00129**	**.37202**	**.00270**
Stddev	.135	.0092	.00034	.061	.00132	.00918	.00345
%RSD	.41946	.49980	7.2021	.19536	102.00	2.4672	127.96
#1	32.012	1.8414	.00432	31.298	-.00004	.36490	-.00002
#2	32.030	1.8468	.00499	31.323	-.00116	.36877	.00658
#3	32.254	1.8594	.00476	31.414	-.00267	.38238	.00153
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015104 Acquired: 11/7/2016 20:52:20 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00038**	**.01065**	**6.8095**	**-.00051**	**.44971**	**.00234**	**-.00499**
Stddev	.00359	.00646	.0035	.00068	.00041	.00281	.00078
%RSD	953.80	60.622	.05185	132.33	.09174	119.95	15.721
#1	.00043	.01203	6.8090	.00025	.44967	.00453	-.00467
#2	-.00430	.01631	6.8062	-.00073	.44933	.00332	-.00588
#3	.00274	.00362	6.8132	-.00106	.45015	-.00083	-.00441
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00044**	**.00178**	F **-.10057**
Stddev	.00102	.00011	.04121
%RSD	232.11	6.0793	40.977
#1	-.00023	.00166	-.13030
#2	-.00007	.00187	-.11789
#3	.00161	.00179	-.05353
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6975.3**	**87333.**	**10160.**
Stddev	13.3	241.	88.
%RSD	.19054	.27585	.87027
#1	6970.8	87055.	10070.
#2	6990.2	87470.	10247.
#3	6964.8	87474.	10162.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611015105 Acquired: 11/7/2016 20:56:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00235**	**.02379**	**.02229**	**.01119**	**.32766**	**-.00001**	**96.607**	**.00023**
Stddev	.00147	.00257	.00205	.00111	.00124	.00003	.062	.00022
%RSD	62.442	10.791	9.2073	9.8932	.37827	275.08	.06389	93.448
#1	.00071	.02109	.02464	.01183	.32783	.00002	96.550	.00047
#2	.00354	.02620	.02138	.00991	.32881	-.00003	96.599	.00004
#3	.00281	.02408	.02085	.01182	.32635	-.00002	96.673	.00020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00042**	**.00024**	**.00217**	**8.6408**	**.79184**	**.00559**	**20.091**	**5.3385**
Stddev	.00011	.00113	.00033	.0247	.04353	.00351	.083	.0071
%RSD	25.977	461.30	15.357	.28628	5.4975	62.794	.41266	.13285
#1	.00047	.00152	.00190	8.6690	.74271	.00845	20.186	5.3380
#2	.00049	-.00016	.00206	8.6228	.80721	.00167	20.035	5.3316
#3	.00029	-.00062	.00254	8.6306	.82561	.00665	20.051	5.3458
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00437**	**38.187**	**.00059**	**.12006**	**.00491**	**.00422**	**.00382**	**6.0699**
Stddev	.00044	.100	.00078	.00209	.00341	.00689	.00990	.0025
%RSD	9.9715	.26100	131.68	1.7384	69.456	163.02	259.20	.04139
#1	.00447	38.115	-.00020	.12027	.00868	.00485	.00042	6.0690
#2	.00474	38.145	.00062	.11787	.00203	.01078	.01497	6.0727
#3	.00389	38.301	.00135	.12203	.00403	-.00295	-.00393	6.0679
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015105 Acquired: 11/7/2016 20:56:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00044**	**.54279**	**-.00335**	**-.00576**	**.00040**	**.00281**	**-.03100**
Stddev	.00036	.00104	.00218	.00344	.00057	.00019	.02333
%RSD	83.551	.19081	64.974	59.685	140.51	6.8526	75.249
#1	-.00083	.54398	-.00391	-.00512	.00106	.00280	-.05751
#2	-.00038	.54216	-.00095	-.00268	.00004	.00263	-.01359
#3	-.00010	.54222	-.00519	-.00946	.00011	.00301	-.02191
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6843.5**	**85498.**	**9951.8**
Stddev	12.2	171.	49.8
%RSD	.17844	.19978	.49993
#1	6829.5	85410.	9964.1
#2	6848.9	85390.	9994.2
#3	6852.0	85695.	9897.0

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015106 Acquired: 11/7/2016 20:59:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00130**	**.02566**	**.03646**	**.01965**	**.48724**	**.00003**	**84.270**
Stddev	.00078	.00489	.00184	.00239	.00154	.00004	.251
%RSD	60.099	19.050	5.0466	12.152	.31662	141.00	.29784
#1	.00098	.02053	.03554	.01704	.48718	.00005	84.132
#2	.00218	.02621	.03858	.02020	.48572	.00007	84.117
#3	.00072	.03026	.03526	.02172	.48881	-.00002	84.559
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00074**	**-.00012**	**.00088**	**.00271**	**15.359**	**1.1635**	**.00183**
Stddev	.00010	.00037	.00058	.00095	.071	.1165	.00280
%RSD	13.921	311.75	65.793	35.003	.45965	10.011	152.46
#1	.00069	-.00036	.00104	.00366	15.406	1.2489	.00444
#2	.00085	.00030	.00024	.00177	15.278	1.0308	.00219
#3	.00066	-.00030	.00137	.00269	15.394	1.2107	-.00112
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**40.643**	**1.7632**	**.00225**	**18.079**	**-.00123**	**.22880**	**.00244**
Stddev	.118	.0023	.00037	.043	.00050	.00237	.00177
%RSD	.29130	.12982	16.617	.23940	40.488	1.0345	72.785
#1	40.768	1.7658	.00263	18.038	-.00066	.22767	.00281
#2	40.628	1.7617	.00223	18.076	-.00147	.22722	.00051
#3	40.533	1.7620	.00189	18.124	-.00158	.23152	.00399
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611015106 Acquired: 11/7/2016 20:59:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00516**	**.00034**	**6.8203**	**-.00057**	**.62745**	**.00078**	**-.00595**
Stddev	.00444	.00551	.0115	.00086	.00176	.00143	.00222
%RSD	86.148	1641.2	.16790	152.00	.27971	183.89	37.342
#1	.00961	.00616	6.8321	.00010	.62795	-.00052	-.00517
#2	.00072	-.00479	6.8092	-.00154	.62550	.00055	-.00423
#3	.00513	-.00036	6.8197	-.00026	.62891	.00231	-.00846
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00086**	**.00143**	F **-.12416**
Stddev	.00069	.00002	.06024
%RSD	80.547	1.4078	48.520
#1	.00061	.00143	-.05933
#2	.00033	.00142	-.13473
#3	.00164	.00145	-.17843
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6968.5**	**85915.**	**10185.**
Stddev	63.0	626.	209.
%RSD	.90397	.72847	2.0550
#1	6926.9	86608.	10327.
#2	7041.0	85747.	10283.
#3	6937.6	85391.	9944.5

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015107 Acquired: 11/7/2016 21:03:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00058**	**.01768**	**.03663**	**.02309**	**.49510**	**.00001**	**86.633**
Stddev	.00070	.00475	.00095	.00166	.00208	.00001	.355
%RSD	119.98	26.862	2.5829	7.2006	.41973	109.34	.40941
#1	-.00018	.02019	.03729	.02141	.49506	.00001	86.517
#2	.00074	.01221	.03555	.02474	.49719	.00002	87.031
#3	.00119	.02066	.03707	.02312	.49304	.00000	86.350
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00044**	**-.00013**	**-.00003**	**.00006**	**15.456**	**1.1414**	**.00930**
Stddev	.00021	.00013	.00044	.00098	.076	.0795	.00250
%RSD	47.797	99.159	1412.9	1700.6	.49420	6.9682	26.831
#1	.00024	-.00022	-.00010	-.00079	15.502	1.1836	.01217
#2	.00065	.00002	.00044	-.00016	15.498	1.1910	.00768
#3	.00042	-.00019	-.00044	.00113	15.368	1.0497	.00805
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**42.186**	**1.8379**	**.00310**	**18.654**	**-.00023**	**.22585**	**.00618**
Stddev	.181	.0068	.00028	.073	.00116	.00478	.00169
%RSD	.43014	.36797	9.0804	.39252	508.04	2.1170	27.333
#1	41.977	1.8301	.00330	18.646	-.00144	.22071	.00766
#2	42.305	1.8425	.00278	18.731	.00087	.22666	.00653
#3	42.276	1.8409	.00321	18.585	-.00012	.23017	.00434
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015107 Acquired: 11/7/2016 21:03:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00284**	**.00301**	**6.9536**	**-.00040**	**.64631**	**.00140**	**-.00662**
Stddev	.00201	.00659	.0059	.00059	.00156	.00770	.00391
%RSD	70.964	219.27	.08464	146.29	.24106	549.95	58.981
#1	.00329	-.00128	6.9600	.00008	.64774	.00130	-.00248
#2	.00458	-.00030	6.9524	-.00106	.64654	-.00625	-.01023
#3	.00064	.01060	6.9484	-.00023	.64465	.00916	-.00716
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00138**	**.00108**	F **-.11476**
Stddev	.00061	.00002	.01487
%RSD	43.784	1.5924	12.962
#1	.00156	.00109	-.12646
#2	.00071	.00106	-.11979
#3	.00188	.00109	-.09802
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6944.7**	**86144.**	**10211.**
Stddev	4.1	269.	47.
%RSD	.05912	.31273	.45706
#1	6949.3	85859.	10264.
#2	6943.5	86179.	10189.
#3	6941.4	86394.	10179.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015108MS Acquired: 11/7/2016 21:07:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.19846	4.8568	.23105	.94152	.98726	.02457	88.466
Stddev	.00160	.0157	.00060	.00524	.00620	.00007	.478
%RSD	.80792	.32232	.26042	.55644	.62816	.27945	.54011
#1	.19697	4.8563	.23088	.94169	.99415	.02449	88.937
#2	.20015	4.8727	.23172	.94666	.98552	.02461	88.479
#3	.19824	4.8414	.23056	.93619	.98212	.02461	87.981
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.02432	.09669	.24635	.24523	16.901	26.508	.50611
Stddev	.00040	.00083	.00104	.00167	.130	.045	.00365
%RSD	1.6486	.86276	.42280	.68104	.77029	.16971	.72197
#1	.02471	.09573	.24643	.24334	17.051	26.553	.51032
#2	.02391	.09724	.24527	.24584	16.839	26.463	.50373
#3	.02434	.09710	.24735	.24652	16.814	26.507	.50430
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	44.653	2.0151	.49739	43.013	.24160	5.0432	.24938
Stddev	.555	.0169	.00129	.338	.00243	.0096	.00311
%RSD	1.2425	.83679	.25980	.78537	1.0041	.18956	1.2489
#1	45.158	2.0323	.49614	43.387	.23946	5.0333	.25169
#2	44.742	2.0144	.49872	42.923	.24111	5.0523	.25062
#3	44.059	1.9986	.49730	42.730	.24424	5.0441	.24584
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Kristi K Burk

Sample Name: L1611015108MS Acquired: 11/7/2016 21:07:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-04

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.58831**	**.18962**	**9.1143**	**.48605**	**1.1240**	**.48271**	**.24583**
Stddev	.00487	.00161	.0079	.00128	.0070	.00788	.00277
%RSD	.82840	.84861	.08694	.26339	.62584	1.6328	1.1256
#1	.58468	.18872	9.1153	.48459	1.1320	.48866	.24901
#2	.58641	.19148	9.1059	.48699	1.1213	.48570	.24444
#3	.59385	.18867	9.1217	.48656	1.1188	.47377	.24403
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.49685**	**.49159**	F **-.14345**
Stddev	.00073	.00048	.05491
%RSD	.14608	.09675	38.280
#1	.49603	.49213	-.19699
#2	.49742	.49124	-.08726
#3	.49709	.49139	-.14610
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6786.9**	**84511.**	**10012.**
Stddev	43.4	386.	140.
%RSD	.63887	.45639	1.4013
#1	6750.5	84353.	10153.
#2	6775.4	84229.	10011.
#3	6834.9	84950.	9872.1

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015109MSD Acquired: 11/7/2016 21:10:50 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19701**	**4.8264**	**.22994**	**.93444**	**.97636**	**.02448**	**87.990**
Stddev	.00262	.0131	.00324	.00424	.00048	.00010	.200
%RSD	1.3275	.27058	1.4097	.45374	.04891	.39385	.22772
#1	.19479	4.8114	.23115	.93237	.97628	.02453	87.833
#2	.19989	4.8349	.23241	.93165	.97687	.02437	88.215
#3	.19634	4.8330	.22627	.93932	.97592	.02455	87.920
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02441**	**.09578**	**.24629**	**.24580**	**16.894**	**26.381**	**.50380**
Stddev	.00052	.00041	.00113	.00042	.035	.119	.00395
%RSD	2.1129	.43071	.45798	.17284	.20689	.45118	.78321
#1	.02391	.09536	.24671	.24583	16.860	26.404	.50050
#2	.02494	.09581	.24501	.24537	16.930	26.252	.50817
#3	.02439	.09618	.24714	.24621	16.892	26.487	.50273
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**45.148**	**1.9870**	**.49666**	**42.658**	**.24160**	**5.0152**	**.24989**
Stddev	.059	.0053	.00143	.250	.00072	.0046	.00535
%RSD	.13118	.26747	.28786	.58580	.29834	.09194	2.1409
#1	45.167	1.9846	.49520	42.540	.24239	5.0155	.25057
#2	45.195	1.9931	.49806	42.945	.24141	5.0196	.24423
#3	45.081	1.9833	.49671	42.489	.24099	5.0104	.25486
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611015109MSD Acquired: 11/7/2016 21:10:50 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG590360-05

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.58807**	**.18671**	**9.1336**	**.48122**	**1.1144**	**.47410**	**.24700**
Stddev	.00349	.00217	.0265	.00082	.0015	.00275	.00277
%RSD	.59311	1.1604	.29034	.17130	.13065	.58085	1.1225
#1	.58629	.18620	9.1051	.48194	1.1161	.47705	.24553
#2	.59209	.18485	9.1576	.48139	1.1135	.47160	.24527
#3	.58584	.18909	9.1380	.48032	1.1135	.47364	.25020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.49332**	**.48706**	F **-.06114**
Stddev	.00008	.00140	.01584
%RSD	.01665	.28696	25.906
#1	.49339	.48545	-.04306
#2	.49334	.48793	-.07255
#3	.49323	.48780	-.06781
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6787.8**	**84559.**	**9966.0**
Stddev	2.0	375.	27.7
%RSD	.02924	.44321	.27841
#1	6786.4	84725.	9941.5
#2	6786.9	84821.	9960.3
#3	6790.1	84129.	9996.1

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCV Acquired: 11/7/2016 21:14:25 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41273**	**10.415**	**.41471**	**.50469**	**1.0587**	**.05210**	**10.409**
Stddev	.00200	.033	.00160	.00183	.0016	.00014	.016
%RSD	.48406	.31327	.38519	.36194	.15504	.26191	.15514
#1	.41282	10.432	.41297	.50630	1.0575	.05209	10.411
#2	.41069	10.377	.41506	.50271	1.0606	.05224	10.424
#3	.41468	10.436	.41611	.50507	1.0580	.05197	10.392
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05102**	**.20578**	**.52398**	**.52192**	**4.0605**	**52.499**	**1.0330**
Stddev	.00010	.00057	.00144	.00246	.0225	.052	.0019
%RSD	.19344	.27825	.27470	.47044	.55344	.09970	.18531
#1	.05110	.20513	.52232	.51909	4.0471	52.558	1.0348
#2	.05091	.20598	.52470	.52313	4.0480	52.478	1.0309
#3	.05105	.20622	.52491	.52354	4.0865	52.460	1.0333
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.113**	**.51649**	**1.0201**	**52.155**	**.51495**	**10.385**	**.52428**
Stddev	.090	.00079	.0040	.074	.00357	.036	.00531
%RSD	.89334	.15361	.39447	.14236	.69241	.34990	1.0133
#1	10.169	.51719	1.0158	52.123	.51109	10.344	.52333
#2	10.009	.51563	1.0238	52.239	.51811	10.397	.51951
#3	10.161	.51664	1.0206	52.101	.51565	10.413	.53001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 21:14:25 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2487**	**.40491**	**5.1439**	**1.0249**	**1.0487**	**1.0050**	**.52997**
Stddev	.0077	.00322	.0239	.0032	.0006	.0022	.00294
%RSD	.61916	.79495	.46515	.31105	.05978	.21756	.55391
#1	1.2401	.40854	5.1174	1.0214	1.0480	1.0054	.52762
#2	1.2550	.40381	5.1638	1.0277	1.0489	1.0027	.53326
#3	1.2510	.40240	5.1505	1.0255	1.0492	1.0070	.52904
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0339**	**1.0553**	F **.11834**
Stddev	.0012	.0025	.01224
%RSD	.11841	.23630	10.341
#1	1.0350	1.0525	.11302
#2	1.0341	1.0572	.10967
#3	1.0326	1.0561	.13234
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6902.4**	**84821.**	**10124.**
Stddev	55.2	524.	27.
%RSD	.80040	.61788	.26980
#1	6849.8	85209.	10098.
#2	6960.0	85029.	10122.
#3	6897.3	84225.	10153.

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCB Acquired: 11/7/2016 21:17:57 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00101**	**.00938**	**.00289**	**.00340**	**-.00026**	**.00007**	**-.01545**	**-.00034**
Stddev	.00107	.00433	.00222	.00074	.00051	.00005	.00396	.00011
%RSD	105.58	46.197	76.847	21.896	194.58	74.077	25.644	33.436
#1	.00062	.00781	.00101	.00269	-.00056	.00012	-.01231	-.00022
#2	.00019	.00605	.00232	.00334	.00033	.00007	-.01414	-.00045
#3	.00222	.01428	.00534	.00418	-.00055	.00002	-.01990	-.00034
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00012**	**-.00029**	**-.00028**	**-.00456**	**.11560**	**-.00136**	**.08325**	**-.00032**
Stddev	.00042	.00112	.00105	.02189	.03328	.00418	.08778	.00175
%RSD	357.60	388.60	368.34	480.00	28.785	307.64	105.44	541.52
#1	.00035	-.00007	.00050	.00594	.15070	-.00287	.18370	-.00211
#2	-.00024	-.00150	.00012	.01010	.11159	.00337	.02127	.00137
#3	-.00047	.00071	-.00147	-.02972	.08451	-.00458	.04479	-.00023
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00007**	**.09607**	**-.00075**	**.00423**	**-.00036**	**.00250**	**-.00116**	**-.00052**
Stddev	.00031	.02470	.00137	.00334	.00338	.00142	.00583	.00147
%RSD	419.80	25.715	182.64	78.945	929.19	56.804	500.64	282.25
#1	.00016	.09405	.00024	.00540	-.00427	.00405	.00098	-.00219
#2	-.00043	.07244	-.00232	.00046	.00173	.00217	.00329	.00058
#3	.00005	.12172	-.00017	.00684	.00145	.00127	-.00776	.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 21:17:57 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00102**	**.00010**	**-.00036**	**-.00207**	**.00043**	**-.00016**	**.03422**
Stddev	.00008	.00016	.00303	.00172	.00048	.00025	.00927
%RSD	7.8181	155.82	837.49	83.024	110.64	158.61	27.082
#1	-.00103	.00014	.00063	-.00341	.00098	-.00036	.02660
#2	-.00094	-.00007	.00205	-.00013	.00020	-.00024	.03153
#3	-.00110	.00024	-.00377	-.00266	.00012	.00012	.04454
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7009.2**	**85670.**	**10005.**
Stddev	21.3	170.	58.
%RSD	.30382	.19871	.57725
#1	6992.3	85694.	10046.
#2	7033.1	85826.	10031.
#3	7002.1	85489.	9939.4

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015110 Acquired: 11/7/2016 21:21:45 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00216**	**.01960**	**.01572**	**.06273**	**.38485**	**.00007**	**111.30**
Stddev	.00067	.00221	.00112	.00241	.00177	.00005	.43
%RSD	31.105	11.277	7.1412	3.8476	.46008	77.190	.38340
#1	.00142	.02145	.01680	.06383	.38689	.00007	111.79
#2	.00231	.01715	.01581	.06440	.38372	.00012	111.05
#3	.00273	.02019	.01456	.05997	.38395	.00002	111.05
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00023**	**.00111**	**-.00024**	**.00317**	**29.142**	**2.0158**	**.00043**
Stddev	.00044	.00035	.00088	.00100	.148	.0324	.00430
%RSD	190.94	31.417	367.31	31.648	.50859	1.6069	1010.0
#1	-.00025	.00085	.00060	.00202	29.215	2.0341	.00251
#2	.00033	.00151	-.00016	.00383	29.240	2.0349	.00329
#3	.00062	.00097	-.00116	.00368	28.972	1.9784	-.00452
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**27.356**	**1.3553**	**.00166**	**29.783**	**.00032**	**.45786**	**.00617**
Stddev	.207	.0095	.00030	.141	.00109	.00683	.00328
%RSD	.75534	.70296	18.160	.47191	341.56	1.4927	53.194
#1	27.570	1.3633	.00161	29.936	-.00046	.45585	.00462
#2	27.157	1.3448	.00139	29.660	.00156	.46548	.00395
#3	27.341	1.3577	.00199	29.753	-.00014	.45226	.00994
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Sample Name: L1611015110 Acquired: 11/7/2016 21:21:45 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00496**	**.00284**	**6.0085**	**.00029**	**.44207**	**-.00119**	**-.00218**
Stddev	.00160	.00921	.0118	.00080	.00055	.00156	.00303
%RSD	32.165	324.54	.19723	279.41	.12544	130.77	139.05
#1	.00674	-.00672	6.0186	.00101	.44232	-.00269	-.00420
#2	.00450	.00358	5.9955	-.00057	.44245	.00042	-.00365
#3	.00365	.01165	6.0115	.00043	.44143	-.00131	.00131
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00200**	**.00190**	F **-.18313**
Stddev	.00067	.00028	.02584
%RSD	33.500	14.596	14.110
#1	.00171	.00219	-.21247
#2	.00277	.00186	-.17313
#3	.00153	.00164	-.16378
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6859.3**	**85715.**	**10037.**
Stddev	12.3	508.	128.
%RSD	.17923	.59311	1.2721
#1	6871.2	85323.	9916.0
#2	6860.1	85531.	10170.
#3	6846.6	86289.	10025.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611015801 Acquired: 11/7/2016 21:25:29 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00148**	**.02440**	**.00102**	**.01789**	**.03128**	**.00000**	**68.137**	**-.00000**
Stddev	.00131	.00485	.00106	.00084	.00065	.00002	.099	.00012
%RSD	88.426	19.862	103.83	4.6755	2.0684	2639.5	.14467	5616.3
#1	.00108	.02030	.00188	.01873	.03053	-.00002	68.139	-.00011
#2	.00041	.02975	.00133	.01705	.03168	.00002	68.234	.00012
#3	.00293	.02315	-.00016	.01790	.03162	-.00000	68.037	-.00001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00028**	**-.00028**	**.00093**	**.01098**	**.34902**	**.00528**	**1.0933**	**.18299**
Stddev	.00012	.00054	.00061	.01992	.08758	.00210	.0700	.00020
%RSD	43.822	192.68	65.128	181.41	25.093	39.824	6.4036	.10935
#1	.00038	.00027	.00135	.02339	.30735	.00403	1.1712	.18289
#2	.00033	-.00080	.00024	.02155	.44966	.00771	1.0728	.18323
#3	.00014	-.00030	.00122	-.01200	.29006	.00410	1.0358	.18287
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00076**	**142.12**	**-.00028**	**-.00245**	**.00296**	**-.00086**	**.00008**	**.14372**
Stddev	.00030	.24	.00049	.00341	.00231	.00455	.01270	.00351
%RSD	39.675	.16725	172.06	139.04	77.908	529.87	16279.	2.4399
#1	.00101	142.10	.00005	-.00214	.00061	.00150	.00732	.14031
#2	.00085	142.37	-.00006	-.00602	.00305	-.00611	-.01459	.14353
#3	.00043	141.90	-.00084	.00079	.00523	.00203	.00750	.14731
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611015801 Acquired: 11/7/2016 21:25:29 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00014**	**.09531**	**.00005**	**-.00587**	**.00037**	**.00247**	**.02263**
Stddev	.00023	.00009	.00355	.00237	.00077	.00008	.03862
%RSD	161.60	.09535	6912.3	40.322	205.77	3.3382	170.66
#1	.00003	.09540	-.00014	-.00347	-.00040	.00255	.01152
#2	-.00001	.09522	.00370	-.00592	.00037	.00247	-.00922
#3	.00041	.09531	-.00340	-.00820	.00114	.00238	.06559
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6790.7**	**84459.**	**10082.**
Stddev	12.8	252.	26.
%RSD	.18836	.29856	.26235
#1	6793.5	84594.	10090.
#2	6801.8	84168.	10053.
#3	6776.7	84616.	10104.

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611016104 Acquired: 11/7/2016 21:29:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00044**	**.04156**	**.00126**	**.02630**	**.12021**	**.00019**	**3.1603**	**.00002**
Stddev	.00035	.00476	.00197	.00145	.00053	.00004	.0204	.00022
%RSD	79.789	11.445	156.63	5.5158	.43978	21.306	.64589	1097.6
#1	.00008	.03974	.00146	.02704	.12027	.00021	3.1530	-.00017
#2	.00078	.03799	.00313	.02463	.12071	.00014	3.1833	-.00003
#3	.00045	.04696	-.00080	.02723	.11966	.00021	3.1445	.00026
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00350**	**.00021**	**.00122**	**.68943**	**.25486**	**-.00148**	**.37548**	**.25912**
Stddev	.00022	.00092	.00041	.00480	.03563	.00363	.05976	.00303
%RSD	6.3504	435.20	33.487	.69562	13.980	245.11	15.915	1.1678
#1	.00375	-.00014	.00098	.69421	.23311	-.00544	.34498	.26262
#2	.00342	.00126	.00170	.68946	.23550	-.00072	.44434	.25726
#3	.00333	-.00048	.00099	.68462	.29598	.00171	.33714	.25750
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00031**	**136.12**	**.00252**	**-.00384**	**.00073**	**.00403**	**-.00143**	**.21378**
Stddev	.00012	.21	.00056	.01089	.00089	.00333	.00416	.00362
%RSD	38.938	.15460	22.266	283.18	122.73	82.726	290.28	1.6947
#1	-.00045	136.36	.00302	.00809	.00174	.00683	.00336	.21431
#2	-.00024	136.06	.00263	-.01324	.00006	.00491	-.00415	.21711
#3	-.00025	135.95	.00192	-.00638	.00038	.00034	-.00351	.20992
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611016104 Acquired: 11/7/2016 21:29:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00027**	**.01102**	**.00194**	**-.00202**	**.00039**	**.01231**	**.04275**
Stddev	.00095	.00004	.00453	.00557	.00038	.00022	.05392
%RSD	349.49	.32708	233.73	276.26	97.028	1.8075	126.12
#1	-.00101	.01103	.00242	.00412	.00018	.01256	.04778
#2	-.00059	.01098	.00622	-.00340	.00082	.01221	.09398
#3	.00080	.01105	-.00281	-.00677	.00016	.01215	-.01350
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6968.5**	**85509.**	**10330.**
Stddev	35.3	714.	73.
%RSD	.50632	.83515	.70471
#1	6988.4	86227.	10408.
#2	6989.3	85503.	10318.
#3	6927.8	84798.	10264.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611020102 Acquired: 11/7/2016 21:33:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00065	.02137	.02647	.08152	.47562	.00001	76.166
Stddev	.00083	.00526	.00105	.00209	.00063	.00007	.400
%RSD	128.72	24.635	3.9495	2.5663	.13323	806.34	.52573
#1	-.00022	.02672	.02616	.08371	.47586	.00008	75.942
#2	.00145	.01620	.02561	.08130	.47610	-.00005	75.928
#3	.00071	.02119	.02763	.07954	.47490	-.00000	76.628
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00026	.00104	-.00019	.00208	10.829	.79633	.00129
Stddev	.00007	.00036	.00006	.00026	.035	.01039	.00497
%RSD	26.554	34.641	31.559	12.354	.31917	1.3049	386.03
#1	.00018	.00133	-.00013	.00227	10.795	.80802	-.00426
#2	.00031	.00114	-.00019	.00218	10.829	.79283	.00280
#3	.00030	.00063	-.00025	.00179	10.864	.78813	.00532
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	29.585	2.3895	.00801	20.429	-.00134	.14620	.00158
Stddev	.176	.0076	.00059	.088	.00009	.00311	.00299
%RSD	.59594	.31871	7.4274	.42939	6.7092	2.1301	189.74
#1	29.464	2.3839	.00860	20.364	-.00126	.14797	.00193
#2	29.503	2.3865	.00803	20.394	-.00133	.14802	.00437
#3	29.787	2.3982	.00741	20.528	-.00144	.14260	-.00158
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611020102 Acquired: 11/7/2016 21:33:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00282**	**.00273**	**6.1824**	**.00022**	**.37071**	**.00050**	**-.00394**
Stddev	.00202	.00411	.0008	.00104	.00112	.00126	.00652
%RSD	71.827	150.18	.01241	471.31	.30257	250.76	165.45
#1	.00183	.00417	6.1832	.00078	.37000	.00194	-.00517
#2	.00147	-.00190	6.1823	.00087	.37013	-.00005	-.00977
#3	.00515	.00593	6.1817	-.00098	.37201	-.00039	.00311
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00050**	**.00138**	F **-.09390**
Stddev	.00022	.00010	.06563
%RSD	45.099	6.9973	69.892
#1	.00050	.00140	-.11518
#2	.00027	.00127	-.02027
#3	.00072	.00146	-.14625
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7047.3**	**87312.**	**10243.**
Stddev	31.7	204.	211.
%RSD	.45045	.23335	2.0568
#1	7057.7	87456.	10379.
#2	7072.7	87400.	10350.
#3	7011.7	87079.	10000.

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611020103 Acquired: 11/7/2016 21:36:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00136**	**.01473**	**.03170**	**.02413**	**.27819**	**.00001**	**21.172**
Stddev	.00140	.00385	.00395	.00160	.00057	.00003	.039
%RSD	102.49	26.158	12.449	6.6345	.20614	346.74	.18591
#1	-.00006	.01722	.03548	.02366	.27765	.00002	21.192
#2	.00142	.01029	.02761	.02591	.27813	-.00003	21.127
#3	.00273	.01668	.03203	.02281	.27880	.00004	21.198
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00043**	**.00092**	**-.00107**	**.00177**	**28.065**	**.58891**	**.00170**
Stddev	.00026	.00028	.00093	.00126	.151	.13944	.00392
%RSD	60.982	30.210	86.852	70.822	.53669	23.677	230.25
#1	.00055	.00081	-.00169	.00034	28.203	.50211	-.00042
#2	.00013	.00123	-.00000	.00230	27.905	.51487	-.00070
#3	.00062	.00070	-.00150	.00268	28.088	.74975	.00623
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**29.670**	**.86537**	**.00045**	**3.2814**	**-.00031**	**.21739**	**.00702**
Stddev	.279	.00247	.00049	.0041	.00084	.00933	.00304
%RSD	.94034	.28485	109.15	.12551	269.51	4.2930	43.320
#1	29.819	.86307	-.00002	3.2852	.00024	.22695	.00873
#2	29.349	.86797	.00096	3.2820	-.00127	.20830	.00882
#3	29.843	.86507	.00040	3.2770	.00010	.21692	.00351
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611020103 Acquired: 11/7/2016 21:36:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00029**	**-.00550**	**5.1202**	**-.00016**	**.17133**	**.00821**	**-.00667**
Stddev	.00162	.00250	.0063	.00056	.00083	.00195	.00173
%RSD	567.97	45.344	.12312	353.93	.48676	23.808	25.889
#1	-.00044	-.00759	5.1137	.00028	.17115	.01041	-.00866
#2	-.00183	-.00274	5.1263	-.00079	.17061	.00754	-.00581
#3	.00141	-.00618	5.1205	.00003	.17224	.00668	-.00555
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00129**	**.00154**	F **-.30804**
Stddev	.00073	.00017	.00965
%RSD	56.779	10.733	3.1319
#1	.00100	.00154	-.29759
#2	.00213	.00138	-.30992
#3	.00075	.00171	-.31660
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7002.1**	**87734.**	**10092.**
Stddev	45.0	588.	138.
%RSD	.64220	.67041	1.3636
#1	6950.2	88149.	10165.
#2	7026.5	87993.	10177.
#3	7029.5	87061.	9932.9

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611020104 Acquired: 11/7/2016 21:40:31 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00152**	**.01616**	**.03780**	**.04009**	**.22889**	**.00003**	**7.9672**
Stddev	.00039	.00376	.00091	.00151	.00083	.00002	.0238
%RSD	25.691	23.247	2.4014	3.7581	.36387	91.255	.29921
#1	.00136	.01184	.03754	.04177	.22896	.00002	7.9943
#2	.00124	.01871	.03705	.03966	.22968	.00001	7.9577
#3	.00196	.01791	.03881	.03885	.22802	.00005	7.9495
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**-.00038**	**-.00164**	**.00522**	**38.779**	**2.4045**	**-.00189**
Stddev	.00019	.00009	.00044	.00152	.209	.0214	.00524
%RSD	110.20	24.563	26.990	29.027	.53877	.89184	276.47
#1	-.00004	-.00027	-.00197	.00566	38.801	2.3848	-.00159
#2	.00033	-.00044	-.00181	.00647	38.560	2.4274	.00318
#3	.00023	-.00043	-.00114	.00354	38.976	2.4013	-.00728
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**48.891**	**.25433**	**-.00029**	**2.5787**	**-.00034**	**.48783**	**.00169**
Stddev	.056	.00351	.00040	.0419	.00131	.00500	.00288
%RSD	.11540	1.3792	137.63	1.6241	386.01	1.0249	170.88
#1	48.837	.25662	-.00039	2.5439	.00061	.49188	.00341
#2	48.886	.25608	.00015	2.5671	-.00183	.48225	-.00164
#3	48.950	.25029	-.00062	2.6252	.00021	.48937	.00330
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Kim K Buck

Sample Name: L1611020104 Acquired: 11/7/2016 21:40:31 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00276**	**-.00087**	**6.7027**	**-.00094**	**.10216**	**.01225**	**-.00403**
Stddev	.00251	.01159	.0058	.00045	.00021	.00363	.00546
%RSD	90.826	1333.7	.08590	47.895	.20163	29.649	135.32
#1	-.00552	.00993	6.6967	-.00046	.10199	.01065	-.01007
#2	-.00216	-.01311	6.7034	-.00135	.10210	.01641	.00057
#3	-.00061	.00058	6.7081	-.00102	.10239	.00970	-.00261
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00206**	**.00111**	F **-.38276**
Stddev	.00078	.00021	.05425
%RSD	37.566	19.425	14.174
#1	.00120	.00090	-.41809
#2	.00228	.00109	-.32029
#3	.00271	.00133	-.40991
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6936.0**	**87125.**	**9857.7**
Stddev	3.9	379.	157.5
%RSD	.05637	.43514	1.5982
#1	6932.2	86699.	9682.1
#2	6940.0	87424.	9904.1
#3	6935.8	87254.	9986.8

Approved: November 08, 2016

Ki K Buck

Sample Name: L1611020105 Acquired: 11/7/2016 21:44:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00067**	**-.00102**	**.00175**	**.00028**	**.00004**	**.00004**	**-.00954**	**.00010**
Stddev	.00090	.00400	.00389	.00207	.00051	.00005	.00204	.00004
%RSD	133.16	390.31	222.29	751.13	1375.7	129.68	21.375	35.980
#1	.00074	-.00352	.00039	-.00053	-.00049	.00007	-.00789	.00013
#2	.00153	-.00314	.00613	-.00127	.00007	-.00002	-.00890	.00006
#3	-.00025	.00359	-.00128	.00262	.00053	.00008	-.01182	.00011
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00017**	**.00027**	**.00036**	**-.00543**	**.00582**	**-.00088**	**-.01727**	**-.00059**
Stddev	.00014	.00048	.00038	.01733	.05064	.00178	.02728	.00125
%RSD	81.633	178.70	106.64	319.48	870.84	201.49	157.93	211.82
#1	-.00003	-.00023	.00080	.00086	-.04875	.00016	-.03791	.00008
#2	-.00018	.00030	.00009	-.02503	.05131	.00013	-.02755	.00019
#3	-.00030	.00074	.00019	.00789	.01489	-.00293	.01365	-.00204
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00034**	**.03887**	**-.00034**	**.00003**	**.00179**	**-.00068**	**.00085**	**.00328**
Stddev	.00035	.01190	.00179	.00807	.00274	.00280	.00487	.00159
%RSD	101.77	30.602	528.65	25996.	152.95	412.08	570.51	48.427
#1	.00022	.04022	.00079	.00763	.00233	-.00219	.00115	.00166
#2	.00007	.05004	-.00240	.00090	.00422	.00255	-.00416	.00484
#3	.00074	.02636	.00059	-.00844	-.00118	-.00240	.00557	.00334
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Kristi K Buck

Sample Name: L1611020105 Acquired: 11/7/2016 21:44:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00040**	**-.00002**	**.00073**	**-.00344**	**.00037**	**.00122**	**.06271**
Stddev	.00058	.00034	.00197	.00488	.00068	.00013	.06695
%RSD	143.77	1513.3	270.73	141.75	183.69	10.771	106.77
#1	.00021	-.00024	-.00118	-.00464	.00114	.00111	-.00839
#2	-.00048	.00037	.00060	.00192	.00013	.00119	.07196
#3	-.00094	-.00019	.00276	-.00762	-.00016	.00137	.12454
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**7099.9**	**88930.**	**10071.**
Stddev	25.8	154.	45.
%RSD	.36314	.17313	.44652
#1	7073.3	89049.	10020.
#2	7101.5	88985.	10101.
#3	7124.8	88756.	10093.

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCV Acquired: 11/7/2016 21:48:04 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41289**	**10.517**	**.41206**	**.50502**	**1.0634**	**.05191**	**10.524**
Stddev	.00252	.036	.00204	.00258	.0015	.00039	.006
%RSD	.61080	.33943	.49526	.50995	.13820	.74759	.05836
#1	.41561	10.557	.41309	.50654	1.0619	.05231	10.518
#2	.41062	10.487	.41338	.50205	1.0648	.05190	10.530
#3	.41245	10.509	.40971	.50649	1.0635	.05154	10.522
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05092**	**.20601**	**.52286**	**.52042**	**4.0944**	**52.736**	**1.0397**
Stddev	.00008	.00063	.00187	.00121	.0243	.186	.0078
%RSD	.16375	.30708	.35696	.23313	.59377	.35324	.74788
#1	.05091	.20650	.52485	.51920	4.0708	52.707	1.0480
#2	.05084	.20623	.52256	.52162	4.1194	52.566	1.0387
#3	.05100	.20530	.52116	.52046	4.0931	52.935	1.0326
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.175**	**.52012**	**1.0184**	**52.796**	**.51515**	**10.318**	**.52375**
Stddev	.043	.00132	.0027	.128	.00242	.039	.00235
%RSD	.42453	.25372	.26917	.24247	.47069	.37334	.44950
#1	10.165	.51908	1.0215	52.915	.51784	10.357	.52618
#2	10.137	.51968	1.0175	52.814	.51447	10.317	.52359
#3	10.222	.52161	1.0162	52.661	.51313	10.280	.52148
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 21:48:04 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2441**	**.41645**	**5.1222**	**1.0262**	**1.0511**	**1.0117**	**.53061**
Stddev	.0052	.00982	.0181	.0025	.0017	.0065	.00186
%RSD	.42077	2.3569	.35414	.24362	.16510	.64576	.35126
#1	1.2495	.40719	5.1378	1.0291	1.0505	1.0124	.53078
#2	1.2437	.41542	5.1265	1.0252	1.0531	1.0179	.52866
#3	1.2390	.42674	5.1023	1.0244	1.0498	1.0049	.53238
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0296**	**1.0588**	F **.10385**
Stddev	.0036	.0031	.03816
%RSD	.34799	.28835	36.745
#1	1.0336	1.0621	.14194
#2	1.0282	1.0581	.10397
#3	1.0269	1.0562	.06562
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6766.2**	**82106.**	**9920.6**
Stddev	58.0	344.	60.4
%RSD	.85680	.41850	.60914
#1	6831.9	82321.	9944.6
#2	6744.4	82287.	9965.4
#3	6722.2	81710.	9851.9

Approved: November 08, 2016

Kim K Buck

Sample Name: CCB Acquired: 11/7/2016 21:51:34 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00089**	**.00569**	**.00326**	**.00084**	**.00077**	**.00004**	**-.00312**	**-.00023**
Stddev	.00199	.00263	.00178	.00070	.00042	.00004	.02716	.00034
%RSD	223.08	46.170	54.593	83.911	54.794	109.03	870.92	150.88
#1	-.00105	.00592	.00522	.00116	.00078	.00004	-.02839	-.00058
#2	.00117	.00820	.00284	.00003	.00035	.00008	-.00656	-.00020
#3	-.00280	.00296	.00173	.00133	.00119	-.00000	.02560	.00010
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00028**	**-.00032**	**.00053**	**-.00543**	**.06395**	**.00144**	**.01670**	**.00028**
Stddev	.00058	.00091	.00198	.01203	.06081	.00202	.01936	.00240
%RSD	204.07	285.67	370.91	221.44	95.079	140.20	115.91	873.59
#1	.00011	-.00137	.00234	-.01146	.09981	.00063	.02136	-.00003
#2	-.00002	.00016	-.00159	.00842	-.00625	-.00005	-.00456	-.00196
#3	-.00095	.00025	.00085	-.01325	.09831	.00374	.03331	.00282
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00052**	**.07316**	**-.00102**	**-.00085**	**-.00013**	**.00162**	**-.00161**	**.00216**
Stddev	.00047	.04565	.00159	.00632	.00165	.00318	.00796	.00097
%RSD	90.717	62.400	155.79	747.93	1307.0	196.30	495.17	45.020
#1	-.00079	.03955	.00066	-.00777	.00157	-.00070	.00356	.00151
#2	.00002	.12514	-.00249	.00060	-.00172	.00031	-.01078	.00170
#3	-.00079	.05480	-.00123	.00463	-.00023	.00524	.00239	.00328
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 21:51:34 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00124**	**.00008**	**.00154**	**-.00181**	**-.00019**	**-.00014**	**.00027**
Stddev	.00021	.00022	.00408	.00278	.00055	.00018	.06707
%RSD	17.031	272.86	265.45	153.87	293.71	124.61	25007.
#1	-.00111	-.00014	.00248	-.00194	.00010	.00006	.04614
#2	-.00149	.00008	.00507	.00104	.00016	-.00028	.03137
#3	-.00114	.00030	-.00293	-.00451	-.00082	-.00020	-.07671
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6931.9**	**86562.**	**9717.0**
Stddev	14.9	344.	343.8
%RSD	.21560	.39780	3.5379
#1	6932.6	86188.	9985.8
#2	6946.4	86631.	9835.5
#3	6916.5	86867.	9329.6

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 21:55:22 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00942**	**.19424**	**.01143**	**.07708**	**.00882**	**.00170**	**.45296**	**.00065**
Stddev	.00145	.00345	.00196	.00194	.00025	.00005	.01360	.00022
%RSD	15.349	1.7742	17.153	2.5108	2.8503	3.1770	3.0032	33.320
#1	.00786	.19526	.01001	.07684	.00853	.00172	.45842	.00085
#2	.01071	.19040	.01366	.07528	.00900	.00164	.46299	.00042
#3	.00971	.19707	.01060	.07913	.00892	.00175	.43748	.00069
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00407**	**.00384**	**.00452**	**.07308**	**.91172**	**.08624**	**.49703**	**.01140**
Stddev	.00038	.00098	.00151	.00313	.05445	.00293	.06114	.00158
%RSD	9.3941	25.436	33.516	4.2822	5.9721	3.3957	12.302	13.857
#1	.00398	.00378	.00446	.07633	.89696	.08340	.42742	.01094
#2	.00449	.00289	.00303	.07009	.97203	.08925	.54205	.01010
#3	.00374	.00484	.00606	.07281	.86617	.08607	.52163	.01316
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00787**	**.47589**	**.01613**	**.81035**	**.01007**	**.09128**	**.01067**	**.82019**
Stddev	.00077	.02897	.00058	.00996	.00458	.00133	.00120	.00270
%RSD	9.7903	6.0869	3.6072	1.2290	45.475	1.4588	11.227	.32951
#1	.00762	.50356	.01680	.79923	.01250	.08978	.00940	.81707
#2	.00873	.44578	.01586	.81844	.00479	.09232	.01178	.82180
#3	.00725	.47833	.01574	.81339	.01293	.09174	.01083	.82171
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 21:55:22 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.42363**	**.04319**	**.02859**	**.16873**	**.00830**	**.02030**	**6.9093**
Stddev	.00037	.00019	.00162	.00504	.00053	.00014	.0794
%RSD	.08693	.44718	5.6515	2.9899	6.4200	.68250	1.1494
#1	.42322	.04297	.02766	.16306	.00812	.02046	6.8790
#2	.42393	.04330	.03045	.17041	.00890	.02023	6.8494
#3	.42374	.04331	.02764	.17273	.00788	.02020	6.9994
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6977.8**	**87067.**	**9951.1**
Stddev	10.1	292.	67.3
%RSD	.14501	.33501	.67641
#1	6966.2	87393.	10029.
#2	6982.5	86978.	9915.6
#3	6984.8	86830.	9909.0

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 21:59:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01104**	**.23529**	**.00955**	**.09620**	**.01185**	**.00207**	**.57856**	**.00114**
Stddev	.00096	.00312	.00420	.00142	.00041	.00002	.02335	.00028
%RSD	8.6898	1.3254	43.929	1.4789	3.4221	1.1940	4.0367	24.242
#1	.01017	.23860	.01054	.09770	.01160	.00205	.56060	.00088
#2	.01089	.23240	.01317	.09602	.01164	.00207	.57011	.00143
#3	.01207	.23486	.00495	.09488	.01232	.00210	.60496	.00110
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00495**	**.00609**	**.00613**	**.11126**	**1.1459**	**.10983**	**.55339**	**.01158**
Stddev	.00049	.00044	.00137	.01602	.0779	.00227	.02686	.00256
%RSD	9.8199	7.1644	22.318	14.401	6.7965	2.0623	4.8534	22.078
#1	.00527	.00594	.00474	.10568	1.1522	.10827	.57772	.01242
#2	.00439	.00575	.00747	.12932	1.2205	.10879	.55788	.00870
#3	.00520	.00658	.00618	.09877	1.0651	.11243	.52457	.01360
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00985**	**.57440**	**.02135**	**1.0056**	**.01019**	**.11388**	**.01865**	**1.0160**
Stddev	.00014	.00321	.00092	.0041	.00094	.00527	.00534	.0034
%RSD	1.4395	.55877	4.3297	.40803	9.2134	4.6309	28.655	.33410
#1	.00983	.57381	.02193	1.0010	.01102	.10862	.01516	1.0144
#2	.00972	.57786	.02028	1.0070	.01038	.11385	.02480	1.0198
#3	.01000	.57152	.02183	1.0088	.00917	.11917	.01599	1.0136
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: LLCCV Acquired: 11/7/2016 21:59:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.52293	.05362	.03366	.20977	.01043	.02167	8.6306
Stddev	.00038	.00008	.00174	.00741	.00053	.00008	.0243
%RSD	.07318	.15221	5.1675	3.5304	5.0557	.35777	.28096
#1	.52259	.05371	.03419	.21438	.00992	.02165	8.6238
#2	.52334	.05355	.03508	.21370	.01040	.02175	8.6575
#3	.52286	.05360	.03172	.20123	.01097	.02160	8.6105
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	6960.5	87160.	9972.7
Stddev	23.8	236.	29.6
%RSD	.34265	.27069	.29692
#1	6987.2	87394.	9999.2
#2	6941.5	87163.	9940.7
#3	6952.7	86922.	9978.1

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCV Acquired: 11/7/2016 22:02:56 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41417**	**10.469**	**.41136**	**.50201**	**1.0558**	**.05193**	**10.429**
Stddev	.00142	.051	.00093	.00186	.0027	.00012	.026
%RSD	.34339	.48668	.22539	.37006	.25586	.23254	.24858
#1	.41266	10.422	.41080	.50054	1.0588	.05179	10.445
#2	.41437	10.461	.41084	.50139	1.0552	.05203	10.399
#3	.41549	10.523	.41243	.50410	1.0535	.05196	10.442
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05135**	**.20611**	**.52118**	**.52309**	**4.0763**	**52.376**	**1.0305**
Stddev	.00031	.00066	.00140	.00106	.0302	.066	.0066
%RSD	.61078	.32024	.26789	.20359	.74073	.12530	.64553
#1	.05100	.20550	.51971	.52290	4.1077	52.451	1.0367
#2	.05160	.20681	.52135	.52424	4.0475	52.328	1.0235
#3	.05146	.20600	.52249	.52213	4.0735	52.348	1.0314
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.056**	**.50983**	**1.0222**	**52.051**	**.51363**	**10.349**	**.52770**
Stddev	.100	.00456	.0010	.285	.00053	.040	.00427
%RSD	.99540	.89436	.10116	.54713	.10254	.38964	.80872
#1	10.136	.51471	1.0213	52.373	.51306	10.315	.52368
#2	10.087	.50909	1.0221	51.830	.51409	10.339	.53218
#3	9.9439	.50568	1.0233	51.951	.51375	10.394	.52726
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 22:02:56 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2455**	**.40664**	**5.1427**	**1.0236**	**1.0475**	**1.0025**	**.53451**
Stddev	.0081	.00345	.0132	.0035	.0027	.0111	.00124
%RSD	.64771	.84877	.25741	.33796	.26132	1.1042	.23247
#1	1.2526	.40920	5.1384	1.0222	1.0500	1.0098	.53460
#2	1.2367	.40272	5.1322	1.0211	1.0480	.98972	.53571
#3	1.2472	.40801	5.1576	1.0276	1.0446	1.0079	.53323
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0296**	**1.0562**	F **.09700**
Stddev	.0008	.0023	.03465
%RSD	.08010	.21893	35.717
#1	1.0289	1.0541	.13572
#2	1.0295	1.0558	.06894
#3	1.0305	1.0587	.08634
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6840.7**	**84045.**	**9930.1**
Stddev	9.0	327.	31.0
%RSD	.13091	.38908	.31196
#1	6840.0	84383.	9894.3
#2	6832.2	84022.	9949.3
#3	6850.0	83730.	9946.5

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 22:06:26 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00053**	**.00939**	**.00276**	**.00145**	**.00058**	**.00003**	**-.01868**	**.00009**
Stddev	.00125	.00464	.00062	.00048	.00041	.00005	.01369	.00012
%RSD	236.71	49.462	22.596	32.733	71.171	139.70	73.296	123.89
#1	-.00013	.00403	.00325	.00134	.00048	-.00001	-.03392	-.00004
#2	-.00193	.01201	.00297	.00198	.00022	.00008	-.00741	.00015
#3	.00047	.01213	.00206	.00104	.00103	.00002	-.01472	.00017
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00002**	**-.00064**	**.00008**	**.00070**	**.08674**	**.00011**	**-.02922**	**.00178**
Stddev	.00036	.00017	.00161	.01090	.01535	.00644	.02684	.00236
%RSD	1525.8	26.876	2063.9	1568.1	17.699	5677.7	91.862	132.65
#1	-.00014	-.00045	.00017	.01231	.10423	-.00725	-.03124	.00449
#2	.00043	-.00077	.00164	-.00931	.07551	.00293	-.05499	.00055
#3	-.00022	-.00072	-.00158	-.00091	.08047	.00466	-.00143	.00028
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00029**	**.04933**	**.00049**	**-.00125**	**-.00261**	**.00325**	**-.00608**	**-.00220**
Stddev	.00041	.02504	.00105	.00453	.00248	.00450	.00281	.00288
%RSD	143.50	50.751	214.33	362.62	95.172	138.20	46.197	130.73
#1	-.00014	.02044	.00075	-.00179	-.00457	.00360	-.00785	.00063
#2	.00003	.06295	-.00067	-.00548	-.00344	-.00140	-.00284	-.00512
#3	-.00075	.06460	.00138	.00353	.00018	.00757	-.00755	-.00212
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 22:06:26 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00063**	**-.00005**	**-.00049**	**-.00558**	**.00007**	**.00020**	**.01789**
Stddev	.00084	.00022	.00272	.00215	.00060	.00017	.00968
%RSD	131.84	479.22	557.54	38.440	852.35	83.372	54.096
#1	-.00158	-.00012	.00053	-.00351	.00025	.00019	.02803
#2	-.00032	-.00023	.00158	-.00544	-.00059	.00004	.00877
#3	.00000	.00020	-.00358	-.00780	.00056	.00037	.01685
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6830.4**	**86140.**	**10057.**
Stddev	40.2	466.	55.
%RSD	.58802	.54101	.55160
#1	6869.2	86634.	10111.
#2	6833.0	86078.	10060.
#3	6789.0	85708.	10000.

Approved: November 08, 2016

Kristi K Buck

Sample Name: ICSA Acquired: 11/7/2016 22:10:16 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00051**	**248.72**	**-.00064**	**.00100**	**.00007**	**.00001**	**228.40**
Stddev	.00076	2.29	.00656	.00215	.00013	.00005	.09
%RSD	148.69	.91944	1021.1	214.40	174.67	386.18	.04102
#1	-.00011	249.63	-.00429	-.00114	-.00002	.00007	228.41
#2	-.00003	250.41	.00693	.00316	.00002	-.00003	228.49
#3	-.00138	246.12	-.00457	.00099	.00022	-.00000	228.31
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00019**	**-.00081**	**-.00197**	F **.00977**	**97.561**	**.16280**	**.00552**
Stddev	.00024	.00037	.00032	.00072	.325	.05285	.00523
%RSD	126.18	45.577	16.451	7.4057	.33330	32.461	94.713
#1	.00039	-.00090	-.00180	.00952	97.757	.11989	.00813
#2	-.00008	-.00040	-.00234	.00921	97.741	.22183	-.00050
#3	.00026	-.00113	-.00177	.01059	97.186	.14668	.00892
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				.00400			
Low Limit				-.00400			

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**244.43**	**-.00037**	**-.00085**	**.05694**	**-.00423**	**.04571**	**-.00207**
Stddev	.46	.00371	.00050	.01012	.00108	.00859	.00270
%RSD	.18823	994.78	58.531	17.769	25.554	18.797	130.84
#1	244.67	-.00433	-.00094	.04968	-.00450	.04617	-.00496
#2	244.73	.00019	-.00031	.06850	-.00304	.05406	-.00162
#3	243.90	.00303	-.00130	.05264	-.00516	.03690	.00038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: ICSA Acquired: 11/7/2016 22:10:16 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00516**	**-.00134**	**.24303**	**-.00073**	**.00120**	**.00291**	**-.00081**
Stddev	.00249	.00161	.00502	.00147	.00008	.00308	.00064
%RSD	48.256	119.98	2.0649	202.71	6.7514	105.93	78.742
#1	.00597	-.00300	.24773	-.00231	.00116	-.00064	-.00008
#2	.00237	-.00122	.24363	-.00048	.00115	.00489	-.00108
#3	.00715	.00021	.23775	.00061	.00130	.00448	-.00127
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00487**	**-.00643**	F **-.83724**
Stddev	.00061	.00042	.04086
%RSD	12.538	6.4618	4.8806
#1	.00518	-.00678	-.87677
#2	.00526	-.00655	-.83978
#3	.00416	-.00597	-.79516
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02000
Low Limit			-.02000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6417.3**	**77967.**	**9713.3**
Stddev	12.2	43.	17.6
%RSD	.19031	.05550	.18076
#1	6418.7	77919.	9721.7
#2	6404.5	78004.	9693.1
#3	6428.8	77977.	9725.0

Approved: November 08, 2016

Kristi K Buck

Sample Name: ICSAB Acquired: 11/7/2016 22:14:09 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.52356**	**249.00**	**.24340**	**-.01939**	**.25900**	**.26290**	**229.51**
Stddev	.00137	3.04	.00447	.00331	.00088	.00035	.21
%RSD	.26103	1.2208	1.8372	17.088	.34030	.13321	.08997
#1	.52440	249.07	.24077	-.01828	.25954	.26322	229.66
#2	.52431	245.93	.24087	-.02312	.25799	.26253	229.27
#3	.52199	252.01	.24857	-.01678	.25948	.26297	229.60
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.47257**	**.23846**	**.25302**	**.26123**	**97.759**	**5.4790**	**.00356**
Stddev	.00151	.00072	.00160	.00039	.068	.1303	.00386
%RSD	.31868	.30320	.63060	.14857	.06976	2.3779	108.47
#1	.47171	.23894	.25440	.26147	97.773	5.6007	.00734
#2	.47431	.23880	.25127	.26078	97.819	5.3416	-.00039
#3	.47169	.23763	.25338	.26144	97.685	5.4947	.00373
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**244.02**	**.24496**	**-.00099**	**5.3717**	**.47842**	**-.00179**	**.48850**
Stddev	.17	.00309	.00024	.0353	.00266	.00391	.00242
%RSD	.06854	1.2607	24.038	.65797	.55663	217.88	.49556
#1	244.11	.24211	-.00115	5.3588	.47688	-.00427	.49125
#2	244.13	.24824	-.00071	5.3446	.48149	-.00382	.48753
#3	243.83	.24451	-.00110	5.4117	.47688	.00271	.48671
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 08, 2016

Ki K Buck

Sample Name: ICSAB Acquired: 11/7/2016 22:14:09 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50286**	**.24109**	**.00595**	**-.00014**	**.00138**	**.00433**	**.45353**
Stddev	.01007	.00208	.00238	.00071	.00014	.00348	.00229
%RSD	2.0021	.86346	39.933	523.57	10.200	80.407	.50436
#1	.50101	.23919	.00661	.00056	.00123	.00690	.45194
#2	.51373	.24078	.00793	-.00087	.00140	.00572	.45250
#3	.49385	.24331	.00331	-.00010	.00151	.00037	.45615
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.25975**	**.48929**	F **-.84139**
Stddev	.00107	.00126	.00753
%RSD	.41309	.25656	.89439
#1	.26087	.48819	-.84991
#2	.25967	.49065	-.83567
#3	.25873	.48902	-.83857
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02500
Low Limit			-.02500

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6394.8**	**78336.**	**9739.0**
Stddev	17.7	288.	104.7
%RSD	.27603	.36734	1.0755
#1	6412.2	78454.	9755.8
#2	6376.9	78546.	9834.4
#3	6395.4	78008.	9626.9

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 22:17:58 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41231**	**10.430**	**.40631**	**.50347**	**1.0499**	**.05171**	**10.389**
Stddev	.00238	.045	.00175	.00199	.0023	.00005	.040
%RSD	.57772	.43297	.43155	.39487	.21904	.09407	.38599
#1	.41217	10.415	.40677	.50118	1.0486	.05176	10.395
#2	.41000	10.393	.40779	.50442	1.0485	.05170	10.346
#3	.41476	10.480	.40437	.50480	1.0526	.05166	10.425
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05052**	**.20393**	**.51939**	**.51712**	**4.0205**	**52.130**	**1.0324**
Stddev	.00040	.00023	.00196	.00180	.0040	.202	.0030
%RSD	.79529	.11125	.37699	.34884	.10083	.38726	.28718
#1	.05027	.20403	.52143	.51837	4.0180	52.242	1.0356
#2	.05031	.20367	.51752	.51505	4.0184	51.897	1.0317
#3	.05098	.20409	.51924	.51794	4.0252	52.251	1.0298
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.9806**	**.50861**	**1.0137**	**51.939**	**.50948**	**10.212**	**.52336**
Stddev	.0199	.00329	.0010	.096	.00073	.013	.00551
%RSD	.19958	.64590	.09469	.18535	.14342	.13060	1.0526
#1	9.9577	.50613	1.0143	51.900	.50914	10.197	.52628
#2	9.9931	.50736	1.0141	52.049	.51032	10.222	.52680
#3	9.9911	.51233	1.0126	51.869	.50899	10.218	.51700
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 08, 2016

Ki K Buck

Sample Name: CCV Acquired: 11/7/2016 22:17:58 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2341**	**.39945**	**5.0802**	**1.0155**	**1.0430**	**1.0004**	**.52832**
Stddev	.0104	.00306	.0037	.0021	.0023	.0058	.00162
%RSD	.83918	.76485	.07223	.20479	.22332	.57690	.30578
#1	1.2222	.40071	5.0801	1.0141	1.0424	.99648	.52815
#2	1.2394	.39597	5.0839	1.0179	1.0411	.99767	.52679
#3	1.2407	.40167	5.0766	1.0145	1.0456	1.0070	.53001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0257**	**1.0440**	F **.08205**
Stddev	.0017	.0008	.02158
%RSD	.16079	.07702	26.297
#1	1.0261	1.0431	.08823
#2	1.0272	1.0446	.05806
#3	1.0239	1.0444	.09987
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6781.4**	**83572.**	**9833.4**
Stddev	13.8	274.	49.0
%RSD	.20405	.32799	.49810
#1	6770.6	83546.	9816.2
#2	6797.0	83859.	9888.7
#3	6776.7	83313.	9795.4

Approved: November 08, 2016

Kristi K Buck

Sample Name: CCB Acquired: 11/7/2016 22:21:29 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00014**	**.02940**	**.00249**	**.00012**	**.00062**	**.00008**	**-.02989**	**-.00004**
Stddev	.00024	.04083	.00086	.00176	.00061	.00009	.01566	.00031
%RSD	166.04	138.87	34.380	1457.0	99.753	119.09	52.402	774.50
#1	.00011	.07654	.00171	.00033	.00097	.00016	-.04713	.00017
#2	.00039	.00524	.00340	-.00173	-.00009	.00009	-.02597	.00011
#3	-.00008	.00642	.00235	.00177	.00097	-.00002	-.01655	-.00040
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00017**	**-.00139**	**-.00090**	**-.01486**	**.10879**	**.00086**	**.10074**	**.00039**
Stddev	.00037	.00119	.00236	.01007	.06243	.00385	.02414	.00054
%RSD	217.75	85.354	262.09	67.751	57.386	445.16	23.962	138.70
#1	-.00057	-.00171	.00162	-.01046	.05823	.00412	.11502	-.00001
#2	-.00013	-.00008	-.00306	-.02638	.08957	-.00338	.11432	.00100
#3	.00018	-.00238	-.00126	-.00774	.17856	.00185	.07287	.00017
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00023**	**.03124**	**-.00037**	**.00662**	**.00227**	**-.00087**	**.00097**	**-.00027**
Stddev	.00042	.01471	.00155	.00193	.00449	.00403	.00208	.00081
%RSD	185.71	47.087	419.89	29.104	197.57	462.86	214.07	297.97
#1	-.00010	.03610	-.00201	.00654	.00731	.00146	.00004	-.00113
#2	.00071	.04290	-.00017	.00474	.00081	.00145	-.00048	.00047
#3	.00007	.01471	.00107	.00859	-.00131	-.00552	.00336	-.00015
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 08, 2016

Ki K Buck

Sample Name: CCB Acquired: 11/7/2016 22:21:29 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v147) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00055**	**.00023**	**-.00051**	**-.00431**	**.00025**	**.00019**	**.03797**
Stddev	.00043	.00025	.00693	.00444	.00027	.00014	.04771
%RSD	78.785	107.92	1352.0	102.87	106.09	72.892	125.66
#1	-.00098	.00047	.00749	-.00693	.00043	.00012	-.01255
#2	-.00055	-.00003	-.00474	-.00683	-.00005	.00036	.08227
#3	-.00012	.00025	-.00428	.00081	.00038	.00010	.04418
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**6899.8**	**86127.**	**9764.6**
Stddev	15.4	301.	65.7
%RSD	.22310	.34958	.67325
#1	6917.6	85884.	9689.8
#2	6891.2	86033.	9813.1
#3	6890.7	86463.	9791.0

Approved: November 08, 2016

Ki K Buck

2.3.2 Metals ICP-MS Data

2.3.2.1 Summary Data

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110074-02 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: 50WW13FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:41
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 11/11/2016 08:49
Workgroup #: WG590880 | **Analyst:** JYH | **Run Date:** 11/11/2016 10:57
Collect Date: 11/01/2016 08:10 | **Dilution:** 1 | **File ID:** NI.111116.105717
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0997		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #: L16110074-04 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: 50WW14FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:41
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 11/11/2016 08:49
Workgroup #: WG590880 | **Analyst:** JYH | **Run Date:** 11/11/2016 11:06
Collect Date: 11/01/2016 09:15 | **Dilution:** 5 | **File ID:** NI.111116.110634
Sample Tag: 02 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.468		0.0200	0.0100	0.00500

Certificate of Analysis

Sample #: L16110074-06 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: 50WW11FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:41
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 11/11/2016 08:49
Workgroup #: WG590880 | **Analyst:** JYH | **Run Date:** 11/11/2016 11:18
Collect Date: 11/01/2016 10:20 | **Dilution:** 1 | **File ID:** NI.111116.111858
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.104		0.00400	0.00200	0.00100

Certificate of Analysis

Microbac

Lab Report #: L16110074
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Sample #: L16110074-08 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: 50WW06FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:41
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 11/11/2016 08:49
Workgroup #: WG590880 | **Analyst:** JYH | **Run Date:** 11/11/2016 11:22
Collect Date: 11/01/2016 11:20 | **Dilution:** 1 | **File ID:** NI.111116.112203
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.244		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #: L16110074-10 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: 50WW12FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:41
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 11/11/2016 08:49
Workgroup #: WG590880 | **Analyst:** JYH | **Run Date:** 11/11/2016 11:25
Collect Date: 11/01/2016 13:30 | **Dilution:** 1 | **File ID:** NI.111116.112508
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0536		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #: L16110074-12 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: 50WW23FF-110116 | **Prep Method:** 3015 | **Prep Date:** 11/02/2016 12:41
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 11/11/2016 08:49
Workgroup #: WG590880 | **Analyst:** JYH | **Run Date:** 11/11/2016 11:28
Collect Date: 11/01/2016 14:35 | **Dilution:** 1 | **File ID:** NI.111116.112813
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0288		0.00400	0.00200	0.00100

2.3.2.2 QC Summary Data

Example 6020 Calculations
Perkin Elmer NexION 300X

1.0 Initial Calibration (ICAL) Parameters
The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	100
Vi = Initial volume	40
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/L)	0.25

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	200
Vi = Initial volume	0.5
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/kg)	40

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	40
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	50

50 ug/kg = 0.050 mg/kg

Perkin Elmer NexION ICP/MS

STANDARDS KEY

QC Std 1 - ICV
QC Std 2 - ICB
QC Std 3 - LLICV
QC Std 4 - ICSA
QC Std 5 - ICSAB
QC Std 6 - CCV
QC Std 7 - CCB
QC Std 8 - LLCCV

Calibration Solutions

Analyte	Stock Conc. (mg/L)	S1 (mg/L)	S2 (mg/L)	S3 (mg/L)	S4 (mg/L)
Al	10	0	0.00005	0.05	0.1
Sb	10	0	0.00005	0.05	0.1
As	10	0	0.00005	0.05	0.1
Ba	10	0	0.00005	0.05	0.1
Be	10	0	0.00005	0.05	0.1
Ca	1000	0	0.005	5	10
Cd	10	0	0.0005	0.05	0.1
Cr	10	0	0.0005	0.05	0.1
Co	10	0	0.0005	0.05	0.1
Cu	10	0	0.0005	0.05	0.1
Fe	1000	0	0.005	5	10
Pb	10	0	0.00005	0.05	0.1
Mg	1000	0	0.005	5	10
Mn	10	0	0.00005	0.05	0.1
Ni	10	0	0.00005	0.05	0.1
K	1000	0	0.005	5	10
Se	10	0	0.00005	0.05	0.1
Ag	10	0	0.00005	0.05	0.1
Na	1000	0	0.005	5	10
Tl	10	0	0.00005	0.05	0.1
V	10	0	0.00005	0.05	0.1
U	1000	0	0.00005	0.05	0.1
Zn	10	0	0.00005	0.05	0.1

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup: WG590016
Analyst: VC
Spike Analyst: VC
Run Date: 11/02/2016 08:22
Method: 3015
Balance: BAL016
Instrument: MW-3
Instrument Start: 11/02/2016 08:26

SOP: ME407 Revison 19
Spike Solution: STD78216
Spike Witness: ERP
40 & 50 ML. DIGESTION TU: COA18987
HNO3 Lot #: COA19196
MS Filters- fisher-Lot#R: RGT37258

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG590016-02	BLANK	1	20 mL	50 mL	182.922 g	182.908 g		
2	WG590016-03	LCS	1	20 mL	50 mL	182.339 g	182.354 g	.25 mL	
3	L16101375-01	SAMP	1	20 mL	50 mL	181.194 g	181.183 g		11/10/16
4	WG590016-01	REF	1	20 mL	50 mL	184.58 g	184.584 g		
5	L16101375-02	RS01	1	20 mL	50 mL	184.58 g	184.584 g		11/10/16
6	WG590016-04	MS	1	20 mL	50 mL	184.283 g	184.261 g	.25 mL	
7	L16101375-03	MS01	1	20 mL	50 mL	184.283 g	184.261 g	.25 mL	11/10/16
8	WG590016-05	MSD	1	20 mL	50 mL	182.261 g	182.258 g	.25 mL	
9	L16101375-04	SD01	1	20 mL	50 mL	182.261 g	182.258 g	.25 mL	11/10/16
10	L16101571-01	SAMP	1	20 mL	50 mL	180.498 g	180.484 g		11/11/16
11	L16101571-02	SAMP	1	20 mL	50 mL	183.533 g	183.523 g		11/11/16
12	L16101571-03	SAMP	1	20 mL	50 mL	183.234 g	183.204 g		11/11/16
13	L16101571-04	SAMP	1	20 mL	50 mL	181.626 g	181.618 g		11/11/16
14	L16101571-05	SAMP	1	20 mL	50 mL	182.559 g	182.574 g		11/11/16
15	L16101571-06	SAMP	1	20 mL	50 mL	182.477 g	182.469 g		11/11/16
16	L16101571-07	SAMP	1	20 mL	50 mL	183.001 g	182.989 g		11/11/16
17	L16101571-08	SAMP	1	20 mL	50 mL	183.207 g	183.201 g		11/11/16
18	L16110027-01	SAMP	1	20 mL	50 mL	183.817 g	183.805 g		11/11/16
19	L16110027-02	SAMP	1	20 mL	50 mL	182.47 g	182.468 g		11/11/16
20	L16110074-02	SAMP	1	20 mL	50 mL	181.426 g	181.415 g		11/11/16
21	L16110074-04	SAMP	1	20 mL	50 mL	181.392 g	181.36 g		11/11/16
22	L16110074-06	SAMP	1	20 mL	50 mL	183.955 g	183.915 g		11/11/16
23	L16110074-08	SAMP	1	20 mL	50 mL	185.088 g	185.045 g		11/11/16
24	L16110074-10	SAMP	1	20 mL	50 mL	182.948 g	182.912 g		11/11/16
25	L16110074-12	SAMP	1	20 mL	50 mL	182.612 g	182.593 g		11/11/16

L16101571-01	FILTERED DIGESTATE
L16101571-07	FILTERED DIGESTATE

Analyst: Vicki Collins

Reviewer: Erin Potter

MW_DIG - Modified 09/30/2009
PDF ID: 5005197
Report generated: 11/02/2016 13:55

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 111116A.REP
Analyst1: JYH Analyst2: N/A
Method: 200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD78743 ICV Std: STD78745 Post Spike: STD76567
ICSA: STD78569 ICSAB: STD78570 Int. Std: RGT38094
CCV: STD78744 LLCCV: STD78575 Tuning Sol : STD78941
Stannous : Hydroxylamine :

Workgroups: 590881,590880,590947,590943,591380,591386,591392

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	NI.111116.083705	Blank	Blank		1		11/11/16 08:37
2	NI.111116.084011	WG591334-01	Calibration Point		1		11/11/16 08:40
3	NI.111116.084317	WG591334-02	Calibration Point		1		11/11/16 08:43
4	NI.111116.084622	WG591334-03	Calibration Point		1		11/11/16 08:46
5	NI.111116.084927	WG591334-04	Calibration Point		1		11/11/16 08:49
6	NI.111116.085235	WG591334-05	Initial Calibration Verification		1		11/11/16 08:52
7	NI.111116.085542	WG591334-06	Initial Calib Blank		1		11/11/16 08:55
8	NI.111116.090606	WG591334-07	Initial Calib Blank		1		11/11/16 09:06
9	NI.111116.091140	WG591334-08	Low Level Initial Calibration V		1		11/11/16 09:11
10	NI.111116.091456	WG591334-09	Interference Check		1		11/11/16 09:14
11	NI.111116.091817	WG591334-10	Interference Check		1		11/11/16 09:18
12	NI.111116.092126	WG591334-11	CCV		1		11/11/16 09:21
13	NI.111116.092431	WG591334-12	CCB		1		11/11/16 09:24
14	NI.111116.093037	WG590567-02	Method/Prep Blank	20/50	1		11/11/16 09:30
15	NI.111116.093343	WG590567-03	Laboratory Control S	20/50	1		11/11/16 09:33
16	NI.111116.093648	WG590567-06	Filter Blank		1		11/11/16 09:36
17	NI.111116.093953	WG590567-01	Reference Sample		1	L16110098-13	11/11/16 09:39
18	NI.111116.094259	WG590567-04	Matrix Spike	20/50	1	L16110098-13	11/11/16 09:42
19	NI.111116.094604	WG590567-05	Matrix Spike Duplica	20/50	1	L16110098-13	11/11/16 09:46
20	NI.111116.094910	L16110121-01	LL2MW-059-SPLIT	20/50	1		11/11/16 09:49
21	NI.111116.095215	L16110124-01	WBGMW-021-SPLIT	20/50	1		11/11/16 09:52
22	NI.111116.095520	WG590881-03	Post Digestion Spike		1	L16110124-01	11/11/16 09:55
23	NI.111116.095826	WG590881-04	Serial Dilution		5	L16110124-01	11/11/16 09:58
24	NI.111116.100133	WG591334-13	CCV		1		11/11/16 10:01
25	NI.111116.100438	WG591334-14	CCB		1		11/11/16 10:04
26	NI.111116.100823	L16110144-02	50WW08FF-110216	20/50	1		11/11/16 10:08
27	NI.111116.101128	L16110144-04	50WW22FF-110216	20/50	1		11/11/16 10:11
28	NI.111116.101434	L16110144-06	50WW16FF-110216	20/50	1		11/11/16 10:14
29	NI.111116.101812	L16110306-01	LF6MW10116	20/50	1		11/11/16 10:18
30	NI.111116.102117	L16110307-01	LF7MW10316	20/50	1		11/11/16 10:21
31	NI.111116.102424	WG591334-15	CCV		1		11/11/16 10:24
32	NI.111116.102730	WG591334-16	CCB		1		11/11/16 10:27
33	NI.111116.103220	WG591334-17	Low Level Continuing Calibra		1		11/11/16 10:32
34	NI.111116.104151	WG590016-02	Method/Prep Blank	20/50	1		11/11/16 10:41

Page: 1 Approved: November 14, 2016

Maren Berry

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 111116A.REP
Analyst1: JYH Analyst2: N/A
Method: 200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD78743 ICV Std: STD78745 Post Spike: STD76567
ICSA: STD78569 ICSAB: STD78570 Int. Std: RGT38094
CCV: STD78744 LLCCV: STD78575 Tuning Sol : STD78941
Stannous : Hydroxylamine :

Workgroups: 590881,590880,590947,590943,591380,591386,591392

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	NI.111116.104457	WG590016-03	Laboratory Control S	20/50	1		11/11/16 10:44
36	NI.111116.104802	WG590016-01	Reference Sample		1	L16101375-02	11/11/16 10:48
37	NI.111116.105107	WG590016-04	Matrix Spike	20/50	1	L16101375-02	11/11/16 10:51
38	NI.111116.105412	WG590016-05	Matrix Spike Duplica	20/50	1	L16101375-02	11/11/16 10:54
39	NI.111116.105717	L16110074-02	50WW13FF-110116	20/50	1		11/11/16 10:57
40	NI.111116.110023	L16110074-04	50WW14FF-110116	20/50	1		11/11/16 11:00
41	NI.111116.110328	WG590880-03	Post Digestion Spike		1	L16110074-04	11/11/16 11:03
42	NI.111116.110634	L16110074-04	50WW14FF-110116		5		11/11/16 11:06
43	NI.111116.110939	WG590880-04	Serial Dilution		25	L16110074-04	11/11/16 11:09
44	NI.111116.111247	WG591334-18	CCV		1		11/11/16 11:12
45	NI.111116.111552	WG591334-19	CCB		1		11/11/16 11:15
46	NI.111116.111858	L16110074-06	50WW11FF-110116	20/50	1		11/11/16 11:18
47	NI.111116.112203	L16110074-08	50WW06FF-110116	20/50	1		11/11/16 11:22
48	NI.111116.112508	L16110074-10	50WW12FF-110116	20/50	1		11/11/16 11:25
49	NI.111116.112813	L16110074-12	50WW23FF-110116	20/50	1		11/11/16 11:28
50	NI.111116.113120	WG591334-20	CCV		1		11/11/16 11:31
51	NI.111116.113426	WG591334-21	CCB		1		11/11/16 11:34
52	NI.111116.113849	WG591334-22	Low Level Continuing Calibra		1		11/11/16 11:38
53	NI.111116.114623	L16101572-01	GB5-S	20/50	5		11/11/16 11:46
54	NI.111116.114929	L16101572-13	FB-01	20/50	1		11/11/16 11:49
55	NI.111116.115234	L16101572-14	W1A-S	20/50	1		11/11/16 11:52
56	NI.111116.115539	L16110097-02	SW1A-324-14	20/50	1		11/11/16 11:55
57	NI.111116.115845	L16110097-14	SW3A-324-14	20/50	1		11/11/16 11:58
58	NI.111116.120150	L16110097-17	SW3B-324-14	20/50	1		11/11/16 12:01
59	NI.111116.120456	L16110097-20	SW4A-324-14	20/50	1		11/11/16 12:04
60	NI.111116.120801	L16110097-23	SW5A-324-14	20/50	1		11/11/16 12:08
61	NI.111116.121108	WG591334-23	CCV		1		11/11/16 12:11
62	NI.111116.121413	WG591334-24	CCB		1		11/11/16 12:14
63	NI.111116.123731	WG590719-02	Method/Prep Blank	20/50	1		11/11/16 12:37
64	NI.111116.124036	WG590719-03	Laboratory Control S	20/50	1		11/11/16 12:40
65	NI.111116.124341	WG590719-01	Reference Sample		1	L16110370-05	11/11/16 12:43
66	NI.111116.124647	WG590719-04	Matrix Spike	20/50	1	L16110370-05	11/11/16 12:46
67	NI.111116.124952	WG590719-05	Matrix Spike Duplica	20/50	1	L16110370-05	11/11/16 12:49
68	NI.111116.125258	L16110272-01	GW-2	20/50	1		11/11/16 12:52

 Approved: November 14, 2016

Maren Berry

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Instrument Run Log

Instrument: ICP-MS2 Dataset: 111116A.REP
Analyst1: JYH Analyst2: N/A
Method: 200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD78743 ICV Std: STD78745 Post Spike: STD76567
ICSA: STD78569 ICSAB: STD78570 Int. Std: RGT38094
CCV: STD78744 LLCCV: STD78575 Tuning Sol : STD78941
Stannous : Hydroxylamine :

Workgroups: 590881,590880,590947,590943,591380,591386,591392

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
69	NI.111116.125603	L16110272-02	GW-2	20/50	1		11/11/16 12:56
70	NI.111116.125909	WG590943-01	Post Digestion Spike		1	L16110272-02	11/11/16 12:59
71	NI.111116.130214	WG590943-02	Serial Dilution		5	L16110272-02	11/11/16 13:02
72	NI.111116.130520	WG590943-02	Serial Dilution		25	L16110272-02	11/11/16 13:05
73	NI.111116.130827	WG591334-25	CCV		1		11/11/16 13:08
74	NI.111116.131132	WG591334-26	CCB		1		11/11/16 13:11
75	NI.111116.131439	L16110272-03	GW-3	20/50	1		11/11/16 13:14
76	NI.111116.131745	L16110272-04	GW-3	20/50	1		11/11/16 13:17
77	NI.111116.132050	L16110272-05	GW-3D	20/50	1		11/11/16 13:20
78	NI.111116.132356	L16110272-06	SW-1	20/50	1		11/11/16 13:23
79	NI.111116.132701	L16110272-07	SW-DUP	20/50	1		11/11/16 13:27
80	NI.111116.133007	L16110272-08	GW-4	20/50	1		11/11/16 13:30
81	NI.111116.133311	L16110272-09	GW-4	20/50	1		11/11/16 13:33
82	NI.111116.133616	L16110272-13	GW-5	20/50	1		11/11/16 13:36
83	NI.111116.133922	L16110272-14	GW-5	20/50	1		11/11/16 13:39
84	NI.111116.134227	L16110370-02	W20	20/50	1		11/11/16 13:42
85	NI.111116.134534	WG591334-27	CCV		1		11/11/16 13:45
86	NI.111116.134840	WG591334-28	CCB		1		11/11/16 13:48
87	NI.111116.135147	L16110370-04	W20B	20/50	1		11/11/16 13:51
88	NI.111116.135454	WG591334-29	CCV		1		11/11/16 13:54
89	NI.111116.135801	WG591334-30	CCB		1		11/11/16 13:58
90	NI.111116.141356	WG591256-01	Method/Prep Blank	.25/100	1		11/11/16 14:13
91	NI.111116.141701	WG591256-02	Laboratory Control S	.25/100	1		11/11/16 14:17
92	NI.111116.142006	WG591256-03	Laboratory Control S	.25/100	1		11/11/16 14:20
93	NI.111116.142312	L16110536-02	BFB-16-087	.25/100	1		11/11/16 14:23
94	NI.111116.142617	L16110536-04	BFB-16-088	.258/100	1		11/11/16 14:26
95	NI.111116.142923	L16110536-06	BFB-16-089	.252/100	1		11/11/16 14:29
96	NI.111116.143228	L16110536-08	BFB-16-090	.259/100	1		11/11/16 14:32
97	NI.111116.143533	WG591380-01	Post Digestion Spike		1	L16110536-08	11/11/16 14:35
98	NI.111116.143838	WG591380-02	Serial Dilution		5	L16110536-08	11/11/16 14:38
99	NI.111116.144143	WG591380-02	Serial Dilution		25	L16110536-08	11/11/16 14:41
100	NI.111116.144449	WG591334-31	CCV		1		11/11/16 14:44
101	NI.111116.145417	WG591334-32	CCB		1		11/11/16 14:54
102	NI.111116.145724	L16110536-10	BFB-16-091	.25/100	1		11/11/16 14:57

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Maren Berry

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Instrument Run Log

Instrument: ICP-MS2 Dataset: 111116A.REP
Analyst1: JYH Analyst2: N/A
Method: 200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD78743 ICV Std: STD78745 Post Spike: STD76567
ICSA: STD78569 ICSAB: STD78570 Int. Std: RGT38094
CCV: STD78744 LLCCV: STD78575 Tuning Sol : STD78941
Stannous : Hydroxylamine :

Workgroups: 590881,590880,590947,590943,591380,591386,591392

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
103	NI.111116.150030	L16110536-12	BFB-16-092	.251/100	1		11/11/16 15:00
104	NI.111116.150335	L16110536-14	BFB-16-093	.259/100	1		11/11/16 15:03
105	NI.111116.150640	L16110536-16	BFB-16-094	.255/100	1		11/11/16 15:06
106	NI.111116.150946	L16110536-18	BFB-16-095	.257/100	1		11/11/16 15:09
107	NI.111116.151251	L16110536-20	BFB-16-096	.256/100	1		11/11/16 15:12
108	NI.111116.151556	L16110536-22	BFB-16-097	.25/100	1		11/11/16 15:15
109	NI.111116.151903	WG591334-33	CCV		1		11/11/16 15:19
110	NI.111116.152208	WG591334-34	CCB		1		11/11/16 15:22
111	NI.111116.153256	WG591248-01	Method/Prep Blank	10/100	1		11/11/16 15:32
112	NI.111116.153602	WG591248-02	Laboratory Control S	10/100	1		11/11/16 15:36
113	NI.111116.153907	WG591248-03	Laboratory Control S	10/100	1		11/11/16 15:39
114	NI.111116.154212	L16110536-01	BFB-16-087	10.146/100	1		11/11/16 15:42
115	NI.111116.154518	L16110536-03	BFB-16-088	10.03/100	1		11/11/16 15:45
116	NI.111116.154823	L16110536-05	BFB-16-089	10.031/100	1		11/11/16 15:48
117	NI.111116.155128	L16110536-07	BFB-16-090	10.217/100	1		11/11/16 15:51
118	NI.111116.155433	L16110536-09	BFB-16-091	10.111/100	1		11/11/16 15:54
119	NI.111116.160019	WG591386-01	Post Digestion Spike		1	L16110536-09	11/11/16 16:00
120	NI.111116.160402	WG591386-02	Serial Dilution		5	L16110536-09	11/11/16 16:04
121	NI.111116.160710	WG591334-35	CCV		1		11/11/16 16:07
122	NI.111116.161015	WG591334-36	CCB		1		11/11/16 16:10
123	NI.111116.161322	L16110536-11	BFB-16-092	10.084/100	1		11/11/16 16:13
124	NI.111116.161628	L16110536-13	BFB-16-093	10/100	1		11/11/16 16:16
125	NI.111116.161933	L16110536-15	BFB-16-094	10.075/100	1		11/11/16 16:19
126	NI.111116.162238	L16110536-17	BFB-16-095	10.083/100	1		11/11/16 16:22
127	NI.111116.162543	L16110536-19	BFB-16-096	10.046/100	1		11/11/16 16:25
128	NI.111116.162849	L16110536-21	BFB-16-097	10.181/100	1		11/11/16 16:28
129	NI.111116.163156	WG591334-37	CCV		1		11/11/16 16:31
130	NI.111116.163502	WG591334-38	CCB		1		11/11/16 16:35
131	NI.111116.163808	WG591065-02	Method/Prep Blank		50		11/11/16 16:38
132	NI.111116.164114	WG591065-03	Laboratory Control S		50		11/11/16 16:41
133	NI.111116.164419	WG590907-01	Fluid Blank 2		50		11/11/16 16:44
134	NI.111116.164724	WG591065-01	Reference Sample		50	L16110483-13	11/11/16 16:47
135	NI.111116.165029	WG591065-04	Matrix Spike		50	L16110483-13	11/11/16 16:50
136	NI.111116.165334	WG591065-05	Matrix Spike Duplica		50	L16110483-13	11/11/16 16:53

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Maren Berry

Microbac

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 111116A.REP
Analyst1: JYH Analyst2: N/A
Method: 200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD78743 ICV Std: STD78745 Post Spike: STD76567
ICSA: STD78569 ICSAB: STD78570 Int. Std: RGT38094
CCV: STD78744 LLCCV: STD78575 Tuning Sol : STD78941
Stannous : Hydroxylamine :

Workgroups: 590881,590880,590947,590943,591380,591386,591392

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
137	NI.111116.165640	L16110426-01	FCE BAGS/8 BAGS		50		11/11/16 16:56
138	NI.111116.165946	WG591390-01	Post Digestion Spike		50	L16110427-01	11/11/16 16:59
139	NI.111116.170251	WG591390-02	Serial Dilution		250	L16110427-01	11/11/16 17:02
140	NI.111116.170557	L16110427-01	KAISER 8 BAGS		50		11/11/16 17:05
141	NI.111116.170904	WG591334-39	CCV		1		11/11/16 17:09
142	NI.111116.171209	WG591334-40	CCB		1		11/11/16 17:12
143	NI.111116.171517	L16110428-01	AWV 28 BAGS		50		11/11/16 17:15
144	NI.111116.171824	WG591334-41	CCV		1		11/11/16 17:18
145	NI.111116.172129	WG591334-42	CCB		1		11/11/16 17:21
146	NI.111116.172435	WG591282-02	Method/Prep Blank	40/50	50		11/11/16 17:24
147	NI.111116.172741	WG591282-03	Laboratory Control S	40/50	50		11/11/16 17:27
148	NI.111116.173046	WG591135-01	Fluid Blank 1		50		11/11/16 17:30
149	NI.111116.173351	WG591135-02	Fluid Blank 2		50		11/11/16 17:33
150	NI.111116.173657	WG591282-01	Reference Sample		50	L16110545-01	11/11/16 17:36
151	NI.111116.174003	WG591282-04	Matrix Spike	5/50	50	L16110545-01	11/11/16 17:40
152	NI.111116.174308	WG591282-05	Matrix Spike Duplica	5/50	50	L16110545-01	11/11/16 17:43
153	NI.111116.174614	L16110488-01	ALAN 15 BAGS	5/50	50		11/11/16 17:46
154	NI.111116.174919	WG591392-01	Post Digestion Spike		50	L16110488-01	11/11/16 17:49
155	NI.111116.175225	WG591392-02	Serial Dilution		250	L16110488-01	11/11/16 17:52
156	NI.111116.175532	WG591334-43	CCV		1		11/11/16 17:55
157	NI.111116.175838	WG591334-44	CCB		1		11/11/16 17:58

Comments

Seq.	Rerun	Dil.	Reason	Analytes
6				
7			Rerun to verify. JYH	

Page: 5 Approved: November 14, 2016

Maren Berry

Microbac Laboratories Inc.

Data Checklist

Date: 11-NOV-2016
Analyst: JYH
Analyst: NA
Method: 6020/6020A/200.8
Instrument: ICP-MS2
Curve Workgroup: 591334
Runlog ID: 78661
Analytical Workgroups: 590881,590880,590947,590943,591380,591386,591392

STD ID#s on Runlog	X
Calibration/Linearity	X
ICV/CCV	X
ICV RSD < 3% (EPA 200.7 only)	
ICB/CCB	X
ICSA/ICSAB	X
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	X
Client Forms	X
Level X	
Level 3	536
Level 4	121,124,144,306,307,074
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	JYH
Secondary Reviewer	KHR
Comments	

Primary Reviewer:

Secondary Reviewer:
15-NOV-2016

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-15-2016 08:49:23

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6020A AAB#: WG590880

Login Number: L16110074

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
50WW13FF-110116	02	11/01/16					11/02/2016	1.2	180		11/11/16	10.1	180	
50WW14FF-110116	04	11/01/16					11/02/2016	1.1	180		11/11/16	10.1	180	
50WW11FF-110116	06	11/01/16					11/02/2016	1.1	180		11/11/16	10	180	
50WW06FF-110116	08	11/01/16					11/02/2016	1.1	180		11/11/16	10	180	
50WW12FF-110116	10	11/01/16					11/02/2016	1	180		11/11/16	9.9	180	
50WW23FF-110116	12	11/01/16					11/02/2016	.9	180		11/11/16	9.9	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5021796
Report generated 11/14/2016 10:55

METHOD BLANK SUMMARY

Login Number: L16110074
Work Group: WG590880
Blank File ID: NI.111116.104151
Blank Sample ID: WG590016-02
Prep Date: 11/02/16 08:22
Instrument ID: ICP-MS2
Analyzed Date: 11/11/16 10:41
Method: 6020A
Analyst: JYH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590016-03	NI.110916.080313	11/09/16 08:03	01
LCS	WG590016-03	NI.111116.104457	11/11/16 10:44	02
50WW13FF-110116	L16110074-02	NI.111116.105717	11/11/16 10:57	01
50WW14FF-110116	L16110074-04	NI.111116.110634	11/11/16 11:06	DL01
50WW11FF-110116	L16110074-06	NI.111116.111858	11/11/16 11:18	01
50WW06FF-110116	L16110074-08	NI.111116.112203	11/11/16 11:22	01
50WW12FF-110116	L16110074-10	NI.111116.112508	11/11/16 11:25	01
50WW23FF-110116	L16110074-12	NI.111116.112813	11/11/16 11:28	01

Report Name: BLANK_SUMMARY
PDF File ID: 5021797
Report generated 11/14/2016 10:55

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L16110074 Prep Date: 11/02/16 08:22 Sample ID: WG590016-02
Instrument ID: ICP-MS2 Run Date: 11/11/16 10:41 Prep Method: 3015
File ID: NI.111116.104151 Analyst: JYH Method: 6020A
Workgroup (AAB#): WG590880 Matrix: Water Units: mg/L
Contract #: Cal ID: ICP-MS-11-NOV-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Manganese, Dissolved	0.00100	0.00400	0.00100	1	U

DL Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name:BLANK
PDF ID: 5021798
14-NOV-2016 10:55

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number:	L16110074	**Run Date:**	11/11/2016	**Sample ID:**	WG590016-03
Instrument ID:	ICP-MS2	**Run Time:**	10:44	**Prep Method:**	3015
File ID:	NI.111116.104457	**Analyst:**	JYH	**Method:**	6020A
Workgroup (AAB#):	WG590880	**Matrix:**	Water	**Units:**	mg/L
QC Key:	DOD4	**Lot#:**	STD78216	**Cal ID:**	ICP-MS-11-NOV-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Manganese, Dissolved	0.125	0.123	98.1	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 5021799
Report generated: 11/14/2016 10:55

Loginnum:L16110074 Cal ID:ICP-MS2- Worknum:WG590880
Instrument ID:ICP-MS2 Contract #: Method:6020A
Parent ID:WG590016-01 File ID:NI.111116.104802 Dil:1 Matrix:WATER
Sample ID:WG590016-04 MS File ID:NI.111116.105107 Dil:1 Units:mg/L
Sample ID:WG590016-05 MSD File ID:NI.111116.105412 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Manganese	0.461	0.125	0.583	97.7	0.125	0.613	122	5.02	80 - 120	20	*

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 05/26/2011
PDF File ID: 5021800
Report generated 11/14/2016 10:49

Microbac Laboratories Inc.
Serial Dilution Report

Login: L16110074 **Worknum:** WG590880
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG590880-04 **File ID:** NI.111116.110939 **Dil:** 25 **Units:** ug/L
Sample: L16110074-04 **File ID:** NI.111116.110634 **Dil:** 5

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Manganese	187	X	202		8.16	

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 100 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 100 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 5021794
11/14/2016 10:55

Microbac Laboratories Inc.
Serial Dilution Report

Login: L16110074 **Worknum:** WG590880
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG590880-04 **File ID:** NI.111116.110634 **Dil:** 5 **Units:** ug/L
Sample: L16110074-04 **File ID:** NI.111116.110023 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Manganese	241		187		22.30	E

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 100 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 100 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 5021794
11/14/2016 10:55

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L16110074 **Worknum:** WG590880
Instrument ID: ICP-MS2 **Method:** 6020A
Post Spike ID: WG590880-03 **File ID:** NI.111116.110328 **Dil:** 1 **Units:** ug/L
Sample ID: L16110074-04 **File ID:** NI.111116.110023 **Dil:** 1 **Matrix:** Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
MANGANESE	240		241		50	-01.1	75 - 125	N

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 5021795
Report generated: 11/16/2016 08:51

Microbac Laboratories Inc.
Initial Calibration Summary

Login:	**L16110074**	Workgroup (AAB#):	**WG590880**
Analytical Method:	**6020A**	Instrument ID:	**ICP-MS2**
ICAL Worknum:	**WG591334**	Initial Calibration Date:	**11-NOV-2016 08:49**

	WG591334-01		WG591334-02		WG591334-03		WG591334-04			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
MANGANESE	0	2110	.4	2940	50	807000	100	1610000	.999999	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5021803
Report generated: 14-NOV-2016 10:56

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-07
Instrument ID: ICP-MS2 Run Time: 09:06 Method: 6020A
File ID: NI.111116.090606 Analyst: JYH Units: ug/L
Workgroup (AAB#): WG590880 Cal ID: ICP-MS2 - 11-NOV-16
Matrix: WATER

Analytes	MDL	RDL	Concentration	Qualifier
MANGANESE	.4	1.6	.4	U

U = Result is less than 2 x MDL

F = Result is between MDL and 2 x MDL

* = Result is above 2 x MDL

ICB - Modified 07/14/2009
PDF File ID: 5021805
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/11/2016	Sample ID:	WG591334-12
Instrument ID:	ICP-MS2	Run Time:	09:24	Method:	6020A
File ID:	NI.111116.092431	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG590880	Cal ID:	ICP-MS - 11-NOV-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Manganese	0.400	1.60	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5021808
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/11/2016	Sample ID:	WG591334-16
Instrument ID:	ICP-MS2	Run Time:	10:27	Method:	6020A
File ID:	NI.111116.102730	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG590880	Cal ID:	ICP-MS - 11-NOV-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Manganese	0.400	1.60	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5021808
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/11/2016	Sample ID:	WG591334-19
Instrument ID:	ICP-MS2	Run Time:	11:15	Method:	6020A
File ID:	NI.111116.111552	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG590880	Cal ID:	ICP-MS - 11-NOV-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Manganese	0.400	1.60	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5021808
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L16110074	Run Date:	11/11/2016	Sample ID:	WG591334-21
Instrument ID:	ICP-MS2	Run Time:	11:34	Method:	6020A
File ID:	NI.111116.113426	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG590880	Cal ID:	ICP-MS - 11-NOV-16		
Matrix:	WATER	QAPP:	DOD4		

Analytes	MDL	RDL	Concentration	Qualifier
Manganese	0.400	1.60	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5021808
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-05
Instrument ID: ICP-MS2 Run Time: 08:52 Method: 6020A
File ID: NI.111116.085235 Analyst: JYH Units: ug/L
Workgroup (AAB#): WG590880 Cal ID: ICP-MS - 11-NOV-16
QC Key: DOD4

Analyte		Expected	Found	%REC	LIMITS	Q
Manganese		50	49.6	99.3	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 5021804
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-11
Instrument ID: ICP-MS2 Run Time: 09:21 Method: 6020A
File ID: NI.111116.092126 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG590880 Cal ID: ICP-MS - 11-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Manganese		0.0500	0.0514	mg/L	103	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5021807
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-15
Instrument ID: ICP-MS2 Run Time: 10:24 Method: 6020A
File ID: NI.111116.102424 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG590880 Cal ID: ICP-MS - 11-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Manganese		0.0500	0.0522	mg/L	104	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5021807
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-18
Instrument ID: ICP-MS2 Run Time: 11:12 Method: 6020A
File ID: NI.111116.111247 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG590880 Cal ID: ICP-MS - 11-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Manganese		0.0500	0.0507	mg/L	101	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5021807
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-20

Instrument ID: ICP-MS2 Run Time: 11:31 Method: 6020A

File ID: NI.111116.113120 Analyst: JYH QC Key: DOD4

Workgroup (AAB#): WG590880 Cal ID: ICP-MS - 11-NOV-16

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Manganese		0.0500	0.0526	mg/L	105	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5021807

Report generated 11/14/2016 10:56

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-08
Instrument ID: ICP-MS2 Run Time: 09:11 Method: 6020A
File ID: NI.111116.091140 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG590880 Cal ID: ICP-MS - 11-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Manganese		0.500	0.470	ug/L	94.0	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5021809
Report generated 11/14/2016 09:26

Login Number: L16110074 Run Date: 11/11/2016 Sample ID: WG591334-17
Instrument ID: ICP-MS2 Run Time: 10:32 Method: 6020A
File ID: NI.111116.103220 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG590880 Cal ID: ICP-MS - 11-NOV-16
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Manganese		0.500	0.473	ug/L	94.5	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5021809
Report generated 11/14/2016 09:26

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number:	L16110074	**Run Date:**	11/11/2016	**Sample ID:**	WG591334-22
Instrument ID:	ICP-MS2	**Run Time:**	11:38	**Method:**	6020A
File ID:	NI.111116.113849	**Analyst:**	JYH	**QC Key:**	DOD4
Workgroup (AAB#):	WG590880	**Cal ID:**	ICP-MS - 11-NOV-16		
Matrix:	WATER				

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Manganese		0.500	0.505	ug/L	101	70 - 130		

*** Exceeds LIMITS Criteria**

LLCCV - Modified 1/7/2010
PDF File ID: 5021809
Report generated 11/14/2016 09:26

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L16110074 **Workgroup (AAB#):** WG590880
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG591334-09 **File ID:** NI.111116.091456 **Units:** ug/L
Sol. AB : WG591334-10 **File ID:** NI.111116.091817 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Manganese	NS	0.00610	NS	100	97.8	97.8	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5021806
Report generated 11/14/2016 10:56

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L16110074 **Analytical Method:** 6020
Analytical Workgroup: WG590880 **Matrix:** 1
Instrument: ICP-MS2 **Analyst:** JYH
ICAL Date: 09-NOV-2016 07:20

			BISMUTH	GERMANIUM	INDIUM
Sample	Type	Run Date	% Rec	% Rec	% Rec
L16101571-01	SAMP	09-NOV-2016 08:18	103.797	103.334	103.257
WG590016-02	BLANK	09-NOV-2016 08:00	91.364	90.642	88.371
WG590016-03	LCS	09-NOV-2016 08:03	103.387	101.839	103.282
WG590880-01	PSPK	09-NOV-2016 08:21	105.185	104.139	105.127
WG590880-02	SERIAL	09-NOV-2016 08:24	103.062	101.7	101.576
WG590991-05	ICV	09-NOV-2016 07:32	104.36	104.219	106.29
WG590991-06	ICB	09-NOV-2016 07:35	95.327	95.185	92.652
WG590991-08	LLICV	09-NOV-2016 07:44	93.183	92.097	93.086
WG590991-09	ICS	09-NOV-2016 07:47	83.574	85.089	79.543
WG590991-10	ICS	09-NOV-2016 07:51	95.272	96.179	95.133
WG590991-11	CCV	09-NOV-2016 07:54	105.276	103.976	107.902
WG590991-12	CCB	09-NOV-2016 07:57	98.867	96.711	95.853
WG590991-13	CCV	09-NOV-2016 08:30	103.672	106.914	107.958
WG590991-14	CCB	09-NOV-2016 08:33	106.866	99.63	104.374
WG590991-17	LLICV	09-NOV-2016 09:17	103.731	101.412	102.365

Acceptance criteria: 30% - 120% Underlined recoveries are out of range
Acceptance criteria for CCVs and CCBs for method SW846-6020: 80% - 120%

INT_STD_ICPMS - Modified 07/28/2010
PDF File ID: 5021802
Report generated: 11/14/2016 10:55

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L16110074 **Analytical Method:** 6020
Analytical Workgroup: WG590880 **Matrix:** 1
Instrument: ICP-MS2 **Analyst:** JYH
ICAL Date: 11-NOV-2016 08:40

			BISMUTH	GERMANIUM	INDIUM
Sample	Type	Run Date	% Rec	% Rec	% Rec
L16110074-02	SAMP	11-NOV-2016 10:57	99	106.026	103.207
L16110074-04	SAMP	11-NOV-2016 11:00	99.842	104.372	101.23
L16110074-04	SAMP	11-NOV-2016 11:06	99.805	100.813	97.529
L16110074-06	SAMP	11-NOV-2016 11:18	100.551	106.661	104.436
L16110074-08	SAMP	11-NOV-2016 11:22	100.282	107.285	106.009
L16110074-10	SAMP	11-NOV-2016 11:25	94.65	102.25	101.45
L16110074-12	SAMP	11-NOV-2016 11:28	91.484	102.995	98.58
WG590016-02	BLANK	11-NOV-2016 10:41	98.631	100.143	97.557
WG590016-03	LCS	11-NOV-2016 10:44	107.854	109.822	108.977
WG590880-03	PSPK	11-NOV-2016 11:03	100.406	105.961	102.861
WG590880-04	SERIAL	11-NOV-2016 11:06	99.805	100.813	97.529
WG590880-04	SERIAL	11-NOV-2016 11:09	99.862	98.109	96.933
WG591334-05	ICV	11-NOV-2016 08:52	104.459	106.728	106.637
WG591334-07	ICB	11-NOV-2016 09:06	96.765	96.304	94.492
WG591334-08	LLICV	11-NOV-2016 09:11	102.293	104.896	102.19
WG591334-09	ICS	11-NOV-2016 09:14	98.69	99.544	96.785
WG591334-10	ICS	11-NOV-2016 09:18	105.097	109.78	107.032
WG591334-11	CCV	11-NOV-2016 09:21	106.962	109.38	108.619
WG591334-12	CCB	11-NOV-2016 09:24	104.313	103.924	102.412
WG591334-15	CCV	11-NOV-2016 10:24	101.379	102.049	101.757
WG591334-16	CCB	11-NOV-2016 10:27	111.761	107.573	108.597
WG591334-17	LLCCV	11-NOV-2016 10:32	99.571	99.809	99.403
WG591334-18	CCV	11-NOV-2016 11:12	104.868	107.001	106.001
WG591334-19	CCB	11-NOV-2016 11:15	102.84	103.655	103.361
WG591334-20	CCV	11-NOV-2016 11:31	106.7	108.26	108.645
WG591334-21	CCB	11-NOV-2016 11:34	113.488	111.867	110.468
WG591334-22	LLCCV	11-NOV-2016 11:38	101.351	102.746	100.498

Acceptance criteria: 30% - 120% Underlined recoveries are out of range
Acceptance criteria for CCVs and CCBs for method SW846-6020: 80% - 120%

INT_STD_ICPMS - Modified 07/28/2010
PDF File ID: 5021802
Report generated: 11/14/2016 10:55

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L16110074 **Date:** 10/24/2016
Insturment ID: ICP-MS2 **Method:** 6020A

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Antimony	1.00	100.0
Arsenic	1.00	100.0
Barium	1.00	100.0
Cadmium	1.00	100.0
Chromium	1.00	100.0
Cobalt	1.00	100.0
Copper	1.00	100.0
Lead	1.00	100.0
Manganese	1.00	100.0
Nickel	1.00	100.0
Selenium	1.00	100.0
Silver	1.00	100.0
Thallium	1.00	100.0
Uranium	1.00	100.0
Vanadium	1.00	100.0
Zinc	1.00	100.0

Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: 5021801
Report generated: 11/14/2016 10:55

2.3.2.3 Raw Data

MassCal File Name

Mass Calibration File Name Default.tun
MassCal File Path C:\NexIONData\MassCal\Default.tun
Peak Search Window: 1.00

Sample Information

Sample Date/Time: Friday, November 11, 2016 08:17:51

Mass Calibration and Resolution

Analyte	E Mass	Meas Mass	Mass C DAC Val	Res DAC Value	Meas Peak W	Custom Res
Li	7.016	7.025	1311	2025	0.718	
Mg	23.985	24.025	4507	2019	0.706	
Co	58.933	58.975	11692	2021	0.704	
In	114.904	114.925	22859	2027	0.718	
U	238.050	238.075	47450	2043	0.719	

Relative Std. Dev.

Mass	Meas. Intens. RSD
5.525	26.504
5.575	7.686
5.625	3.318
5.675	3.017
5.725	5.130
5.775	3.714
5.825	4.156
5.875	3.145
5.925	3.224
5.975	3.396
6.025	2.551
6.075	2.041
6.125	2.161
6.175	1.767
6.225	2.267
6.275	3.947
6.325	4.023
6.375	53.420
6.425	35.355
6.475	70.711
6.525	46.566
6.575	27.066
6.625	14.617
6.675	6.026
6.725	2.257
6.775	3.105
6.825	4.353

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Approved: November 15, 2016

6.875	3.186
6.925	2.943
6.975	1.832
7.025	1.562
7.075	2.387
7.125	2.425
7.175	1.391
7.225	1.989
7.275	2.550
7.325	2.966
7.375	3.257
7.425	9.743
7.475	56.845
7.525	46.566
7.575	39.123
7.625	50.000
7.675	50.047
7.725	50.619
7.775	71.261
7.825	63.191
7.875	63.888
7.925	29.881
7.975	47.140
8.025	49.793
8.075	52.705
8.125	39.123
8.175	72.436
8.225	55.902
8.275	46.481
8.325	58.685
8.375	29.881
8.425	72.436
8.475	69.722
22.525	91.287
22.575	88.388
22.625	38.540
22.675	19.846
22.725	21.184
22.775	13.847
22.825	17.301
22.875	20.331
22.925	25.362
22.975	22.848
23.025	31.225
23.075	16.053
23.125	15.247
23.175	9.829

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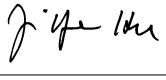
23.225	19.599
23.275	32.179
23.325	11.641
23.375	29.737
23.425	36.891
23.475	14.172
23.525	5.003
23.575	4.329
23.625	3.472
23.675	2.825
23.725	2.805
23.775	2.623
23.825	2.122
23.875	2.111
23.925	1.367
23.975	1.522
24.025	1.101
24.075	1.617
24.125	1.282
24.175	1.175
24.225	1.618
24.275	1.870
24.325	3.635
24.375	33.518
24.425	16.137
24.475	5.198
24.525	3.734
24.575	4.044
24.625	3.044
24.675	2.246
24.725	1.966
24.775	2.053
24.825	1.907
24.875	1.737
24.925	2.040
24.975	2.218
25.025	1.901
25.075	1.503
25.125	2.233
25.175	1.492
25.225	1.725
25.275	4.187
25.325	33.503
25.375	23.958
25.425	11.528
25.475	4.972
57.525	9.536

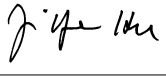
Approved: November 15, 2016



57.575	6.522
57.625	3.292
57.675	3.990
57.725	2.006
57.775	2.263
57.825	2.872
57.875	1.935
57.925	2.728
57.975	2.981
58.025	1.934
58.075	1.667
58.125	3.873
58.175	2.345
58.225	3.436
58.275	3.732
58.325	9.195
58.375	18.708
58.425	34.405
58.475	20.245
58.525	10.733
58.575	7.861
58.625	0.510
58.675	3.397
58.725	2.282
58.775	1.462
58.825	1.826
58.875	2.310
58.925	3.101
58.975	3.833
59.025	3.022
59.075	2.668
59.125	2.048
59.175	3.708
59.225	4.488
59.275	8.879
59.325	28.828
59.375	20.412
59.425	40.825
59.475	31.672
59.525	24.245
59.575	4.571
59.625	7.026
59.675	8.051
59.725	3.730
59.775	2.283
59.825	2.204
59.875	3.158

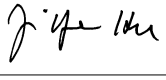
Report Date/Time: Friday, November 11, 2016 08:21:02
Page 4

Approved: November 15, 2016



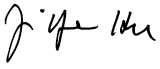
59.925	4.387
59.975	2.686
60.025	2.710
60.075	3.621
60.125	4.320
60.175	2.562
60.225	9.356
60.275	19.019
60.325	30.987
60.375	47.507
60.425	44.605
60.475	60.009
113.525	12.551
113.575	10.061
113.625	2.902
113.675	3.903
113.725	5.917
113.775	3.289
113.825	3.694
113.875	1.654
113.925	2.854
113.975	2.970
114.025	1.528
114.075	1.351
114.125	3.060
114.175	2.837
114.225	3.449
114.275	3.809
114.325	12.936
114.375	34.993
114.425	28.694
114.475	7.915
114.525	2.890
114.575	3.211
114.625	2.108
114.675	2.310
114.725	2.877
114.775	2.759
114.825	1.855
114.875	1.571
114.925	2.416
114.975	2.129
115.025	2.293
115.075	3.133
115.125	3.073
115.175	3.264
115.225	2.847

Approved: November 15, 2016



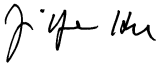
115.275	5.661
115.325	11.490
115.375	21.254
115.425	18.109
115.475	20.012
115.525	8.537
115.575	8.497
115.625	4.387
115.675	3.952
115.725	4.769
115.775	5.678
115.825	4.458
115.875	3.646
115.925	4.723
115.975	3.106
116.025	3.354
116.075	3.463
116.125	6.756
116.175	2.157
116.225	4.467
116.275	9.311
116.325	14.463
116.375	45.799
116.425	26.503
116.475	28.315
236.525	
236.575	20.908
236.625	24.845
236.675	20.074
236.725	15.215
236.775	36.544
236.825	25.489
236.875	29.397
236.925	33.853
236.975	12.570
237.025	26.058
237.075	34.805
237.125	16.424
237.175	42.061
237.225	43.749
237.275	28.004
237.325	38.061
237.375	32.401
237.425	30.492
237.475	30.285
237.525	18.840
237.575	21.368

Approved: November 15, 2016



237.625	3.809
237.675	5.724
237.725	3.315
237.775	4.045
237.825	4.411
237.875	1.335
237.925	1.814
237.975	3.238
238.025	2.135
238.075	1.899
238.125	1.741
238.175	1.605
238.225	1.050
238.275	1.060
238.325	1.302
238.375	2.023
238.425	1.755
238.475	2.701
238.525	6.603
238.575	15.764
238.625	28.427
238.675	16.723
238.725	32.478
238.775	18.456
238.825	17.811
238.875	19.174
238.925	13.280
238.975	22.361
239.025	27.082
239.075	25.246
239.125	53.420
239.175	24.325
239.225	23.055
239.275	21.936
239.325	14.374
239.375	45.291
239.425	31.542
239.475	13.074

Approved: November 15, 2016



SmartTune Wizard - Summary

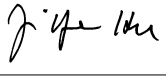
Optimization Summary

SmartTune file: C:\NexIONData\Wizard\SmartTune\ESI SmartTune Fullmicrobac.swz

Start Time: 11/11/2016 8:23:13 AM
End Time: 11/11/2016 8:25:36 AM

Daily Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9.0122): 22616.68
Obtained Intensity (Mg 23.985): 1159070.33
Obtained Intensity (In 114.904): 118161.34
Obtained Intensity (U 238.05): 98531.30
Obtained Intensity (Bkgd 220): 1.20
Obtained Formula (CeO 155.9 / Ce 139.905): 0.018 (=5008.56 / 274198.22)
Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.003 (=948.03 / 274198.22)

Approved: November 15, 2016



SmartTune Wizard - Details

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Optimization Details

SmartTune file: C:\NexIONData\Wizard\SmartTune\ESI SmartTune Fullmicrobac.swz

Optimization Status

Start Time: 11/11/2016 8:23:13 AM

Daily Performance Check
        Optimization Settings:
                Method: C:\NexIONData\Method\ESI Daily Performance.mth.
                Intensity Criterion: Be 9.0122 > 2000
                Intensity Criterion: Mg 23.985 > 15000
                Intensity Criterion: In 114.904 > 40000
                Intensity Criterion: U 238.05 > 30000
                Intensity Criterion: Bkgd 220 <= 5
                Formula Criterion: CeO 155.9 / Ce 139.905 <= 0.025
                Formula Criterion: Ce++ 69.9527 / Ce 139.905 <= 0.03

        Optimization Results:
        Initial Try
                Obtained Intensity (Be 9.0122): 22616.68
                Obtained Intensity (Mg 23.985): 1159070.33
                Obtained Intensity (In 114.904): 118161.34
                Obtained Intensity (U 238.05): 98531.30
                Obtained Intensity (Bkgd 220): 1.20
                Obtained Formula (CeO 155.9 / Ce 139.905): 0.018 (=5008.56 / 274198.22)
                Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.003 (=948.03 / 274198.22)
[Passed]  Optimum value(s): N/A

End Time: 11/11/2016 8:25:36 AM
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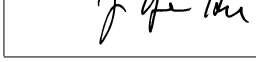
Approved: November 15, 2016



Method 6020 - Summary Report

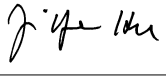
Sample ID: Blank
Sample Date/Time: Friday, November 11, 2016 08:37:05
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	206101.4	22.4				ug/L		Standard
	Be	9	25.0	40.0				ug/L		Standard
	Al	27	1120.0	13.7				ug/L		Standard
	Sc	45	61424.6	15.6				ug/L		Standard
	Ti	47	70.0	6.5				ug/L		Standard
	V	51	3309.0	13.1				ug/L		Standard
	Cr	52	13497.4	11.9				ug/L		Standard
	Cr	53	3162.0	8.5				ug/L		Standard
	Mn	55	2226.5	14.5				ug/L		Standard
	Co	59	1003.0	12.2				ug/L		Standard
	Ni	60	355.3	16.8				ug/L		Standard
	Cu	65	473.0	16.6				ug/L		Standard
	Zn	66	340.7	19.1				ug/L		Standard
>	Ge	72	566981.5	20.6				ug/L		Standard
	As	75	-155.8	79.7				ug/L		Standard
	Se	82	34.9	35.4				ug/L		Standard
	Se-1	77	353.7	7.0				ug/L		Standard
>	Ga	71	43.3	24.0				mg/L		Standard
	Rb	85	48.3	33.3				ug/L		Standard
	Y	89	447701.8	19.2				ug/L		Standard
>	Rh	103	20.0	50.0				ug/L		Standard
	Mo	98	157.6	24.8				ug/L		Standard
	Ag	107	132.7	7.8				ug/L		Standard
	Cd	111	6.8	30.1				mg/L		Standard
	Cd	114	71.9	23.1				ug/L		Standard
>	In	115	1004637.9	21.2				ug/L		Standard
	Sn	118	363.7	24.5				ug/L		Standard
	Sb	123	2463.7	22.7				ug/L		Standard
	Ba	135	38.7	39.6				ug/L		Standard
	Ce	140	195.0	31.5				ug/L		Standard
>	Tb	159	1640193.3	19.5				ug/L		Standard
	Ho	165	25.0	20.0				ug/L		Standard
	Tl	203	324.3	16.7				ug/L		Standard
	Tl	205	698.3	18.0				ug/L		Standard
	Pb	206	599.7	23.5				ug/L		Standard
	Pb	207	541.3	24.1				ug/L		Standard
	Pb	208	1750.0	20.5				ug/L		Standard
	U	238	9.7	31.6				ug/L		Standard
>	Bi	209	811518.2	21.5				ug/L		Standard

Sample ID: Blank
Report Date/Time: Friday, November 11, 2016 08:39:16
Page 1

Approved: November 15, 2016



Na	23	0.0		mg/L	Standard
Mg	24	76.7	24.7	mg/L	Standard
K	39	18.3	41.7	mg/L	Standard
Ca	43	178.3	7.1	mg/L	Standard
Fe	54	29.2	1.1	mg/L	Standard
Fe	57	408.3	9.9	mg/L	Standard
Sc-1	45	61424.6	15.6	mg/L	Standard
Cl	35	0.7	173.2	ug/L	Standard
Kr	83	12.0	44.1	ug/L	Standard
Br	81	1746.8	8.6	ug/L	Standard
P	31	16.7	45.8	ug/L	Standard
S	34	3.3	86.6	ug/L	Standard
Sr	88	370.0	20.3	ug/L	Standard
C	12	46.7	49.5	mg/L	Standard
N	14	0.0		mg/L	Standard
Hg	202	16.7	34.6	mg/L	Standard
Dy	164	9.0	115.9	mg/L	Standard
Ho-1	165	25.0	20.0	mg/L	Standard
Er	166	20.0	50.0	mg/L	Standard
I	127	6022.9	8.1	mg/L	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: Blank
Report Date/Time: Friday, November 11, 2016 08:39:16
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Rb	85
Y	89
Rh	103
Mo	98
Ag	107
Cd	111
Cd	114
In	115
Sn	118
Sb	123
Ba	135
Ce	140
Tb	159
Ho	165
Tl	203
Tl	205
Pb	206
Pb	207
Pb	208
U	238
Bi	209
Na	23
Mg	24
K	39
Ca	43
Fe	54
Fe	57
Sc-1	45
Cl	35
Kr	83
Br	81
P	31
S	34
Sr	88
C	12
N	14
Hg	202
Dy	164
Ho-1	165
Er	166
I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: Blank
Report Date/Time: Friday, November 11, 2016 08:39:16
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Approved: November 15, 2016

Method 6020 - Summary Report

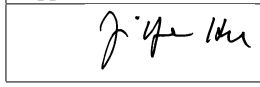
Sample ID: Standard 1
Sample Date/Time: Friday, November 11, 2016 08:40:11
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	206755.0	24.6				ug/L	206101	Standard
	Be	9	36.7	28.4				ug/L	25	Standard
	Al	27	1093.4	2.2				ug/L	1120	Standard
	Sc	45	62202.4	14.1				ug/L	61425	Standard
	Ti	47	66.0	6.9				ug/L	70	Standard
	V	51	3264.2	21.6				ug/L	3309	Standard
	Cr	52	13891.1	14.5				ug/L	13497	Standard
	Cr	53	3037.0	8.1				ug/L	3162	Standard
	Mn	55	2109.1	11.9				ug/L	2226	Standard
	Co	59	829.0	10.2				ug/L	1003	Standard
	Ni	60	334.0	18.3				ug/L	355	Standard
	Cu	65	460.7	20.6				ug/L	473	Standard
	Zn	66	350.0	22.9				ug/L	341	Standard
>	Ge	72	565163.1	21.7				ug/L	566981	Standard
	As	75	-181.0	37.0				ug/L	-156	Standard
	Se	82	30.4	24.2				ug/L	35	Standard
	Se-1	77	366.7	2.9				ug/L	354	Standard
>	Ga	71	51.7	39.1				mg/L	43	Standard
	Rb	85	58.3	26.2				ug/L	48	Standard
	Y	89	447223.5	20.6				ug/L	447702	Standard
>	Rh	103	25.0	34.6				ug/L	20	Standard
	Mo	98	55.5	18.3				ug/L	158	Standard
	Ag	107	149.0	22.1				ug/L	133	Standard
	Cd	111	10.6	10.8				mg/L	7	Standard
	Cd	114	35.5	50.9				ug/L	72	Standard
>	In	115	1003380.1	21.3				ug/L	1004638	Standard
	Sn	118	169.3	4.2				ug/L	364	Standard
	Sb	123	857.4	27.5				ug/L	2464	Standard
	Ba	135	42.0	23.4				ug/L	39	Standard
	Ce	140	108.3	47.1				ug/L	195	Standard
>	Tb	159	1633746.9	20.2				ug/L	1640193	Standard
	Ho	165	18.3	41.7				ug/L	25	Standard
	Tl	203	222.0	26.2				ug/L	324	Standard
	Tl	205	510.0	18.6				ug/L	698	Standard
	Pb	206	596.7	22.1				ug/L	600	Standard
	Pb	207	489.7	21.6				ug/L	541	Standard
	Pb	208	1673.0	17.4				ug/L	1750	Standard
	U	238	6.3	24.1				ug/L	10	Standard
>	Bi	209	797605.2	18.9				ug/L	811518	Standard

Sample ID: Standard 1
Report Date/Time: Friday, November 11, 2016 08:42:22
Page 1

Approved: November 15, 2016



Na	23	0.0		mg/L	0	Standard
Mg	24	38.3	15.1	mg/L	77	Standard
K	39	18.3	31.5	mg/L	18	Standard
Ca	43	126.7	6.0	mg/L	178	Standard
Fe	54	29.5	0.3	mg/L	29	Standard
Fe	57	405.0	6.4	mg/L	408	Standard
Sc-1	45	62202.4	14.1	mg/L	61425	Standard
Cl	35	2.0	100.0	ug/L	1	Standard
Kr	83	7.7	60.2	ug/L	12	Standard
Br	81	1700.1	12.5	ug/L	1747	Standard
P	31	31.7	9.1	ug/L	17	Standard
S	34	1.7	173.2	ug/L	3	Standard
Sr	88	375.0	3.5	ug/L	370	Standard
C	12	46.7	86.6	mg/L	47	Standard
N	14	0.0		mg/L	0	Standard
Hg	202	6.7	86.6	mg/L	17	Standard
Dy	164	21.7	75.6	mg/L	9	Standard
Ho-1	165	18.3	41.7	mg/L	25	Standard
Er	166	33.3	75.5	mg/L	20	Standard
I	127	6351.3	7.3	mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: Standard 1
Report Date/Time: Friday, November 11, 2016 08:42:22
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Rb	85
Y	89
Rh	103
Mo	98
Ag	107
Cd	111
Cd	114
In	115
Sn	118
Sb	123
Ba	135
Ce	140
Tb	159
Ho	165
Tl	203
Tl	205
Pb	206
Pb	207
Pb	208
U	238
Bi	209
Na	23
Mg	24
K	39
Ca	43
Fe	54
Fe	57
Sc-1	45
Cl	35
Kr	83
Br	81
P	31
S	34
Sr	88
C	12
N	14
Hg	202
Dy	164
Ho-1	165
Er	166
I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: Standard 1
Report Date/Time: Friday, November 11, 2016 08:42:22
Page 3

Approved: November 15, 2016

Method 6020 - Summary Report

Sample ID: Standard 2
Sample Date/Time: Friday, November 11, 2016 08:43:17
Number of Replicates: 3
Autosampler Position: 2
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	208218.0	21.2				ug/L	206101	Standard
	Be	9	158.3	20.1				ug/L	25	Standard
	Al	27	8679.2	16.6				ug/L	1120	Standard
	Sc	45	62939.1	15.1				ug/L	61425	Standard
	Ti	47	108.3	16.6				ug/L	70	Standard
	V	51	3931.4	14.3				ug/L	3309	Standard
	Cr	52	14805.0	11.5				ug/L	13497	Standard
	Cr	53	3153.7	8.0				ug/L	3162	Standard
	Mn	55	2939.3	14.8				ug/L	2226	Standard
	Co	59	1397.7	11.5				ug/L	1003	Standard
	Ni	60	463.0	11.2				ug/L	355	Standard
	Cu	65	606.0	19.8				ug/L	473	Standard
	Zn	66	424.3	22.2				ug/L	341	Standard
>	Ge	72	575471.8	18.6				ug/L	566981	Standard
	As	75	-71.8	73.6				ug/L	-156	Standard
	Se	82	37.4	13.2				ug/L	35	Standard
	Se-1	77	390.7	4.7				ug/L	354	Standard
>	Ga	71	51.7	49.7				mg/L	43	Standard
	Rb	85	36.7	20.8				ug/L	48	Standard
	Y	89	441915.6	17.7				ug/L	447702	Standard
>	Rh	103	23.3	65.5				ug/L	20	Standard
	Mo	98	525.1	13.3				ug/L	158	Standard
	Ag	107	673.0	16.7				ug/L	133	Standard
	Cd	111	189.3	15.7				mg/L	7	Standard
	Cd	114	472.9	8.2				ug/L	72	Standard
>	In	115	1009144.4	20.5				ug/L	1004638	Standard
	Sn	118	265.3	9.5				ug/L	364	Standard
	Sb	123	962.1	11.4				ug/L	2464	Standard
	Ba	135	225.7	21.1				ug/L	39	Standard
	Ce	140	90.0	20.0				ug/L	195	Standard
>	Tb	159	1619721.7	17.4				ug/L	1640193	Standard
	Ho	165	13.3	21.7				ug/L	25	Standard
	Tl	203	901.7	16.9				ug/L	324	Standard
	Tl	205	2096.8	18.4				ug/L	698	Standard
	Pb	206	1146.0	25.2				ug/L	600	Standard
	Pb	207	1007.0	24.1				ug/L	541	Standard
	Pb	208	3279.5	18.7				ug/L	1750	Standard
	U	238	627.7	15.9				ug/L	10	Standard
>	Bi	209	798755.3	18.9				ug/L	811518	Standard

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	Na	23	0.0		mg/L	0	Standard
	Mg	24	38.3	7.5	mg/L	77	Standard
	K	39	21.7	35.3	mg/L	18	Standard
	Ca	43	186.7	8.6	mg/L	178	Standard
	Fe	54	34.4	44.0	mg/L	29	Standard
	Fe	57	341.7	11.8	mg/L	408	Standard
>	**Sc-1**	45	62939.1	15.1	mg/L	61425	Standard
	Cl	35	0.0		ug/L	1	Standard
	Kr	83	9.3	32.7	ug/L	12	Standard
	Br	81	1756.8	14.9	ug/L	1747	Standard
	P	31	21.7	66.6	ug/L	17	Standard
	S	34	8.3	124.9	ug/L	3	Standard
	Sr	88	376.7	9.0	ug/L	370	Standard
	C	12	43.3	13.3	mg/L	47	Standard
	N	14	0.0		mg/L	0	Standard
	Hg	202	6.7	173.2	mg/L	17	Standard
	Dy	164	15.9	40.0	mg/L	9	Standard
	Ho-1	165	13.3	21.7	mg/L	25	Standard
	Er	166	16.7	91.7	mg/L	20	Standard
	I	127	6114.6	6.3	mg/L	6023	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72			
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85
Y	89
Rh	103
Mo	98
Ag	107
Cd	111
Cd	114
In	115
Sn	118
Sb	123
Ba	135
Ce	140
Tb	159
Ho	165
Tl	203
Tl	205
Pb	206
Pb	207
Pb	208
U	238
Bi	209
Na	23
Mg	24
K	39
Ca	43
Fe	54
Fe	57
Sc-1	45
Cl	35
Kr	83
Br	81
P	31
S	34
Sr	88
C	12
N	14
Hg	202
Dy	164
Ho-1	165
Er	166
I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Standard 3
Sample Date/Time: Friday, November 11, 2016 08:46:22
Number of Replicates: 3
Autosampler Position: 3
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	200130.5	17.3				ug/L	206101	Standard
	Be	9	118251.4	14.9	**50.0000**	1.361	2.7	ug/L	25	Standard
	Al	27	9710590.1	13.1	**50.0000**	2.300	4.6	ug/L	1120	Standard
	Sc	45	62467.8	10.7				ug/L	61425	Standard
	Ti	47	46569.7	16.2	**100.0000**	1.403	1.4	ug/L	70	Standard
	V	51	548592.5	16.6	**50.0000**	0.481	1.0	ug/L	3309	Standard
	Cr	52	508666.9	16.9	**50.0000**	0.554	1.1	ug/L	13497	Standard
	Cr	53	65438.3	15.6	**50.0000**	0.242	0.5	ug/L	3162	Standard
	Mn	55	807453.5	17.4	**50.0000**	0.760	1.5	ug/L	2226	Standard
	Co	59	637785.6	17.7	**50.0000**	0.912	1.8	ug/L	1003	Standard
	Ni	60	136789.8	18.4	**50.0000**	1.287	2.6	ug/L	355	Standard
	Cu	65	124455.4	18.7	**50.0000**	1.447	2.9	ug/L	473	Standard
	Zn	66	63571.2	16.7	**50.0000**	0.404	0.8	ug/L	341	Standard
>	Ge	72	584348.6	16.0				ug/L	566981	Standard
	As	75	64146.0	16.7	**50.0000**	0.764	1.5	ug/L	-156	Standard
	Se	82	5304.0	17.7	**50.0000**	0.954	1.9	ug/L	35	Standard
	Se-1	77	4601.4	17.0	**50.0000**	0.864	1.7	ug/L	354	Standard
>	Ga	71	111.7	17.0				mg/L	43	Standard
	Rb	85	711.7	27.1				ug/L	48	Standard
	Y	89	445845.1	15.4				ug/L	447702	Standard
>	Rh	103	51.7	68.0				ug/L	20	Standard
	Mo	98	485837.0	16.0	**100.0000**	0.177	0.2	ug/L	158	Standard
	Ag	107	548991.0	16.3	**50.0000**	0.425	0.9	ug/L	133	Standard
	Cd	111	170219.5	17.2	**50.0000**	0.702	1.4	mg/L	7	Standard
	Cd	114	460487.4	16.8	**50.0000**	0.471	0.9	ug/L	72	Standard
>	In	115	1005492.9	16.0				ug/L	1004638	Standard
	Sn	118	105347.0	17.0	**50.0000**	0.575	1.1	ug/L	364	Standard
	Sb	123	453032.0	17.0	**50.0000**	0.572	1.1	ug/L	2464	Standard
	Ba	135	190499.4	14.6	**50.0000**	0.729	1.5	ug/L	39	Standard
	Ce	140	238.3	8.5				ug/L	195	Standard
>	Tb	159	1645910.1	14.3				ug/L	1640193	Standard
	Ho	165	48.3	62.4				ug/L	25	Standard
	Tl	203	737366.1	15.5	**50.0000**	0.638	1.3	ug/L	324	Standard
	Tl	205	1716395.9	15.2	**50.0000**	0.706	1.4	ug/L	698	Standard
	Pb	206	576400.1	15.7	**50.0000**	0.775	1.6	ug/L	600	Standard
	Pb	207	513994.8	15.6	**50.0000**	0.845	1.7	ug/L	541	Standard
	Pb	208	1689166.2	15.3	**50.0000**	0.539	1.1	ug/L	1750	Standard
	U	238	665827.2	10.8	**50.0000**	1.793	3.6	ug/L	10	Standard
>	Bi	209	813278.6	14.3				ug/L	811518	Standard

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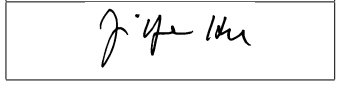

	Na	23	33.3	8.7	**5.0000**	0.903	18.1	mg/L	0	Standard
	Mg	24	261.7	15.9	**5.0000**	0.333	6.7	mg/L	77	Standard
	K	39	890.0	12.3	**5.0000**	0.516	10.3	mg/L	18	Standard
	Ca	43	143.3	14.1	**5.0000**	0.814	16.3	mg/L	178	Standard
	Fe	54	395.1	19.3	**5.0000**	0.499	10.0	mg/L	29	Standard
	Fe	57	461.7	6.5	**5.0000**	3.214	64.3	mg/L	408	Standard
>	**Sc-1**	45	62467.8	10.7				mg/L	61425	Standard
	Cl	35	1.3	173.2				ug/L	1	Standard
	Kr	83	8.7	37.1				ug/L	12	Standard
	Br	81	1650.1	14.7				ug/L	1747	Standard
	P	31	21.7	35.3				ug/L	17	Standard
	S	34	1.7	173.2				ug/L	3	Standard
	Sr	88	398.3	2.6				ug/L	370	Standard
	C	12	60.0	76.4				mg/L	47	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	0.0					mg/L	17	Standard
	Dy	164	21.7	69.8				mg/L	9	Standard
	Ho-1	165	48.3	62.4				mg/L	25	Standard
	Er	166	33.3	34.6				mg/L	20	Standard
	I	127	4682.4	13.3				mg/L	6023	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72			
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85
Y	89
Rh	103
Mo	98
Ag	107
Cd	111
Cd	114
In	115
Sn	118
Sb	123
Ba	135
Ce	140
Tb	159
Ho	165
Tl	203
Tl	205
Pb	206
Pb	207
Pb	208
U	238
Bi	209
Na	23
Mg	24
K	39
Ca	43
Fe	54
Fe	57
Sc-1	45
Cl	35
Kr	83
Br	81
P	31
S	34
Sr	88
C	12
N	14
Hg	202
Dy	164
Ho-1	165
Er	166
I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Standard 4
Sample Date/Time: Friday, November 11, 2016 08:49:27
Number of Replicates: 3
Autosampler Position: 4
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	213583.0	14.2				ug/L	206101	Standard
	Be	9	231314.0	15.7	**95.4260**	1.473	1.5	ug/L	25	Standard
	Al	27	19609281.9	13.9	**96.9834**	2.610	2.7	ug/L	1120	Standard
	Sc	45	62993.4	11.1				ug/L	61425	Standard
	Ti	47	93926.9	14.5	**200.7245**	3.695	1.8	ug/L	70	Standard
	V	51	1100269.4	14.4	**100.2340**	0.691	0.7	ug/L	3309	Standard
	Cr	52	1010781.3	15.0	**100.3332**	1.791	1.8	ug/L	13497	Standard
	Cr	53	127490.1	14.7	**99.7834**	1.848	1.9	ug/L	3162	Standard
	Mn	55	1609885.1	15.4	**99.8451**	1.875	1.9	ug/L	2226	Standard
	Co	59	1259297.8	15.4	**99.3392**	1.203	1.2	ug/L	1003	Standard
	Ni	60	270821.8	15.7	**99.5332**	1.459	1.5	ug/L	355	Standard
	Cu	65	245546.5	15.4	**99.4190**	1.326	1.3	ug/L	473	Standard
	Zn	66	126470.1	14.0	**99.8444**	0.402	0.4	ug/L	341	Standard
>	Ge	72	585393.7	14.3				ug/L	566981	Standard
	As	75	127184.9	14.0	**99.4743**	0.716	0.7	ug/L	-156	Standard
	Se	82	10650.7	15.8	**100.2921**	1.609	1.6	ug/L	35	Standard
	Se-1	77	8709.5	15.3	**99.3578**	1.770	1.8	ug/L	354	Standard
>	Ga	71	131.7	19.5				mg/L	43	Standard
	Rb	85	1320.1	12.9				ug/L	48	Standard
	Y	89	465636.1	13.5				ug/L	447702	Standard
>	Rh	103	103.3	35.7				ug/L	20	Standard
	Mo	98	982710.4	14.1	**198.9086**	2.020	1.0	ug/L	158	Standard
	Ag	107	1035609.5	13.5	**96.0306**	1.775	1.8	ug/L	133	Standard
	Cd	111	337384.2	15.1	**98.4606**	0.454	0.5	mg/L	7	Standard
	Cd	114	904207.4	14.6	**97.9965**	0.471	0.5	ug/L	72	Standard
>	In	115	1029105.1	15.0				ug/L	1004638	Standard
	Sn	118	208161.1	16.0	**98.2798**	1.107	1.1	ug/L	364	Standard
	Sb	123	901825.6	14.9	**98.7041**	0.818	0.8	ug/L	2464	Standard
	Ba	135	381761.3	14.0	**98.9219**	1.209	1.2	ug/L	39	Standard
	Ce	140	403.3	11.2				ug/L	195	Standard
>	Tb	159	1655269.7	12.2				ug/L	1640193	Standard
	Ho	165	110.0	4.5				ug/L	25	Standard
	Tl	203	1464681.7	13.4	**99.7064**	1.775	1.8	ug/L	324	Standard
	Tl	205	4428145.9	12.9	**112.7239**	1.994	1.8	ug/L	698	Standard
	Pb	206	1139194.9	13.2	**99.4982**	1.566	1.6	ug/L	600	Standard
	Pb	207	1011778.1	13.5	**99.2776**	1.839	1.9	ug/L	541	Standard
	Pb	208	3332917.1	11.9	**99.4446**	0.420	0.4	ug/L	1750	Standard
	U	238	1335092.5	8.8	**100.1352**	3.567	3.6	ug/L	10	Standard
>	Bi	209	812444.9	11.8				ug/L	811518	Standard

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⌈	**Na**	23	66.7	45.2	**9.8072**	4.009	40.9	mg/L	0	Standard
|	**Mg**	24	506.7	10.3	**10.2404**	1.095	10.7	mg/L	77	Standard
|	**K**	39	1931.8	6.1	**10.4365**	0.583	5.6	mg/L	18	Standard
|	**Ca**	43	191.7	23.4	**-1.0365**	13.992	1349.9	mg/L	178	Standard
|	**Fe**	54	846.9	10.6	**10.5856**	0.439	4.2	mg/L	29	Standard
|	**Fe**	57	606.7	10.4	**10.1562**	1.358	13.4	mg/L	408	Standard
⌊>	**Sc-1**	45	62993.4	11.1				mg/L	61425	Standard
	Cl	35	0.7	173.2				ug/L	1	Standard
	Kr	83	9.3	32.7				ug/L	12	Standard
	Br	81	1603.4	15.9				ug/L	1747	Standard
	P	31	30.0	44.1				ug/L	17	Standard
	S	34	3.3	86.6				ug/L	3	Standard
	Sr	88	360.0	22.4				ug/L	370	Standard
	C	12	73.3	34.3				mg/L	47	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	6.7	86.6				mg/L	17	Standard
	Dy	164	27.8	72.1				mg/L	9	Standard
	Ho-1	165	110.0	4.5				mg/L	25	Standard
	Er	166	46.7	49.5				mg/L	20	Standard
	I	127	8889.3	8.4				mg/L	6023	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72			
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
|>	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Corr. Coef.	Ca	43	Correlation coefficient < 0.998

Sample ID: Standard 4
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Method 6020 - Summary Report

Sample ID: QC Std 1
Sample Date/Time: Friday, November 11, 2016 08:52:35
Number of Replicates: 3
Autosampler Position: 201
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	221298.4	17.5				ug/L	206101	Standard
	Be	9	119039.4	15.0	**47.5973**	1.333	2.8	ug/L	25	Standard
	Al	27	10015442.3	11.3	**48.1621**	3.154	6.5	ug/L	1120	Standard
	Sc	45	64918.4	11.7				ug/L	61425	Standard
	Ti	47	47946.1	12.1	**99.2998**	2.774	2.8	ug/L	70	Standard
	V	51	563412.3	12.8	**49.5744**	0.976	2.0	ug/L	3309	Standard
	Cr	52	517872.6	13.0	**49.0909**	1.055	2.1	ug/L	13497	Standard
	Cr	53	66580.9	13.0	**49.2308**	0.749	1.5	ug/L	3162	Standard
	Mn	55	826898.7	13.6	**49.6426**	1.004	2.0	ug/L	2226	Standard
	Co	59	654449.2	14.0	**49.9904**	0.834	1.7	ug/L	1003	Standard
	Ni	60	141164.9	13.9	**50.2188**	0.598	1.2	ug/L	355	Standard
	Cu	65	127317.9	13.3	**49.8747**	0.547	1.1	ug/L	473	Standard
	Zn	66	65689.2	13.8	**50.0335**	0.589	1.2	ug/L	341	Standard
>	Ge	72	605125.7	14.2				ug/L	566981	Standard
	As	75	65142.8	12.8	**49.4015**	0.838	1.7	ug/L	-156	Standard
	Se	82	5480.0	14.0	**49.8662**	1.345	2.7	ug/L	35	Standard
	Se-1	77	4577.4	15.7	**48.1315**	1.036	2.2	ug/L	354	Standard
>	Ga	71	105.0	14.3				mg/L	43	Standard
	Rb	85	780.0	10.9				ug/L	48	Standard
	Y	89	470932.8	13.5				ug/L	447702	Standard
>	Rh	103	63.3	27.7				ug/L	20	Standard
	Mo	98	495536.1	13.0	**96.2923**	1.507	1.6	ug/L	158	Standard
	Ag	107	559846.4	13.6	**49.7774**	0.939	1.9	ug/L	133	Standard
	Cd	111	175996.5	15.3	**49.2552**	1.442	2.9	mg/L	7	Standard
	Cd	114	471254.8	13.4	**49.0475**	1.159	2.4	ug/L	72	Standard
>	In	115	1071318.3	13.3				ug/L	1004638	Standard
	Sn	118	108227.5	13.9	**49.1013**	1.858	3.8	ug/L	364	Standard
	Sb	123	484060.3	14.2	**50.8446**	1.951	3.8	ug/L	2464	Standard
	Ba	135	195697.5	14.0	**48.6344**	1.077	2.2	ug/L	39	Standard
	Ce	140	248.3	4.2				ug/L	195	Standard
>	Tb	159	1715837.1	12.7				ug/L	1640193	Standard
	Ho	165	60.0	58.3				ug/L	25	Standard
	Tl	203	752803.9	13.4	**49.1141**	1.033	2.1	ug/L	324	Standard
	Tl	205	1992034.1	27.2	**48.2022**	8.568	17.8	ug/L	698	Standard
	Pb	206	595183.4	12.6	**49.8217**	0.579	1.2	ug/L	600	Standard
	Pb	207	523753.7	12.4	**49.2829**	0.827	1.7	ug/L	541	Standard
	Pb	208	1729132.8	12.4	**49.4039**	0.544	1.1	ug/L	1750	Standard
	U	238	683859.6	8.4	**49.1716**	1.751	3.6	ug/L	10	Standard
>	Bi	209	847701.2	11.8				ug/L	811518	Standard

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⌈	**Na**	23	15.0	33.3	**2.1450**	0.482	22.5	mg/L	0	Standard
|	**Mg**	24	265.0	28.6	**4.6992**	1.205	25.6	mg/L	77	Standard
|	**K**	39	911.7	10.2	**4.7066**	0.152	3.2	mg/L	18	Standard
|	**Ca**	43	173.3	13.0	**5.0969**	3.670	72.0	mg/L	178	Standard
|	**Fe**	54	423.7	8.8	**4.9174**	0.177	3.6	mg/L	29	Standard
|	**Fe**	57	501.7	8.4	**5.8065**	3.880	66.8	mg/L	408	Standard
⌊>	**Sc-1**	45	64918.4	11.7				mg/L	61425	Standard
	Cl	35	0.0					ug/L	1	Standard
	Kr	83	13.3	22.9				ug/L	12	Standard
	Br	81	1690.1	17.6				ug/L	1747	Standard
	P	31	40.0	12.5				ug/L	17	Standard
	S	34	5.0	100.0				ug/L	3	Standard
	Sr	88	371.7	26.2				ug/L	370	Standard
	C	12	56.7	27.0				mg/L	47	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	86.6				mg/L	17	Standard
	Dy	164	35.4	44.7				mg/L	9	Standard
	Ho-1	165	60.0	58.3				mg/L	25	Standard
	Er	166	26.7	94.4				mg/L	20	Standard
	I	127	5706.1	14.3				mg/L	6023	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9	95.195		
⌊	Al	27	96.324		
⌈	Sc	45			
|	Ti	47	99.300		
|	V	51	99.149		
|	Cr	52	98.182		
|	Cr	53			
|	Mn	55	99.285		
|	Co	59	99.981		
|	Ni	60	100.438		
|	Cu	65	99.749		
|	Zn	66	100.067		
|>	Ge	72		106.728	
|	As	75	98.803		
|	Se	82	99.732		
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	96.292		
Ag	107	99.555		
Cd	111	98.510		
Cd	114			
In	115			106.637
Sn	118	98.203		
Sb	123	101.689		
Ba	135	97.269		
Ce	140			
Tb	159			
Ho	165			
Tl	203	98.228		
Tl	205			
Pb	206	99.643		
Pb	207	98.566		
Pb	208	98.808		
U	238	98.343		
Bi	209			104.459
Na	23	42.899		
Mg	24	93.984		
K	39	94.131		
Ca	43	101.938		
Fe	54	98.348		
Fe	57	116.131		
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 1	Na	23	
QC Std 1	Mg	24	
QC Std 1	Ca	43	

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QC Std 1	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 2
Sample Date/Time: Friday, November 11, 2016 08:55:42
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	207759.5	13.3				ug/L	206101	Standard
	Be	9	45.0	19.2	**0.0001**	0.002	1684.2	ug/L	25	Standard
	Al	27	1638.4	33.7	**0.0139**	0.002	13.0	ug/L	1120	Standard
	Sc	45	62362.4	11.0				ug/L	61425	Standard
	Ti	47	66.0	9.2	**-0.0011**	0.025	2367.1	ug/L	70	Standard
	V	51	2920.4	4.5	**-0.0439**	0.031	71.4	ug/L	3309	Standard
	Cr	52	11980.4	9.1	**-0.2504**	0.079	31.7	ug/L	13497	Standard
	Cr	53	2823.6	6.5	**-0.2508**	0.187	74.6	ug/L	3162	Standard
	Mn	55	2264.5	12.5	**0.0063**	0.003	54.3	ug/L	2226	Standard
	Co	59	848.7	13.6	**0.0048**	0.004	80.1	ug/L	1003	Standard
	Ni	60	352.7	5.8	**0.0077**	0.015	188.9	ug/L	355	Standard
	Cu	65	558.0	23.7	**0.0278**	0.021	74.9	ug/L	473	Standard
	Zn	66	395.7	20.4	**0.0255**	0.019	72.7	ug/L	341	Standard
>	Ge	72	577331.5	14.6				ug/L	566981	Standard
	As	75	-136.5	35.0	**-0.0018**	0.025	1372.2	ug/L	-156	Standard
	Se	82	30.0	23.1	**-0.0257**	0.111	430.7	ug/L	35	Standard
	Se-1	77	352.3	10.5	**-0.5214**	0.233	44.7	ug/L	354	Standard
>	Ga	71	53.3	43.3				mg/L	43	Standard
	Rb	85	45.0	29.4				ug/L	48	Standard
	Y	89	450553.8	15.5				ug/L	447702	Standard
>	Rh	103	25.0	20.0				ug/L	20	Standard
	Mo	98	328.4	19.7	**0.0590**	0.022	36.9	ug/L	158	Standard
	Ag	107	212.0	19.6	**0.0057**	0.001	21.4	ug/L	133	Standard
	Cd	111	18.2	38.9	**-0.0015**	0.001	83.8	mg/L	7	Standard
	Cd	114	88.7	14.0	**0.0067**	0.003	42.6	ug/L	72	Standard
>	In	115	1029576.1	15.0				ug/L	1004638	Standard
	Sn	118	421.7	15.8	**0.1246**	0.056	44.6	ug/L	364	Standard
	Sb	123	8722.5	31.1	**0.9348**	0.427	45.6	ug/L	2464	Standard
	Ba	135	62.0	22.6	**0.0064**	0.001	19.8	ug/L	39	Standard
	Ce	140	71.7	52.8				ug/L	195	Standard
>	Tb	159	1635402.7	14.1				ug/L	1640193	Standard
	Ho	165	21.7	35.3				ug/L	25	Standard
	Tl	203	171.7	10.8	**-0.0010**	0.000	28.9	ug/L	324	Standard
	Tl	205	461.7	13.8	**0.0074**	0.001	10.4	ug/L	698	Standard
	Pb	206	713.0	16.5	**0.0108**	0.003	23.1	ug/L	600	Standard
	Pb	207	541.7	13.3	**0.0031**	0.002	58.3	ug/L	541	Standard
	Pb	208	1946.7	18.1	**0.0081**	0.003	40.2	ug/L	1750	Standard
	U	238	90.0	4.4	**0.0089**	0.001	13.5	ug/L	10	Standard
>	Bi	209	815358.0	13.2				ug/L	811518	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	0	Standard
	Mg	24	43.3	63.5	**0.1300**	0.695	534.8	mg/L	77	Standard
	K	39	15.0	33.3	**-0.0302**	0.026	86.8	mg/L	18	Standard
	Ca	43	141.7	8.9	**10.6474**	2.785	26.2	mg/L	178	Standard
	Fe	54	29.5	60.2	**-0.0680**	0.202	297.0	mg/L	29	Standard
	Fe	57	418.3	15.8	**3.2877**	4.074	123.9	mg/L	408	Standard
>	**Sc-1**	45	62362.4	11.0				mg/L	61425	Standard
	Cl	35	0.0					ug/L	1	Standard
	Kr	83	10.3	39.1				ug/L	12	Standard
	Br	81	1800.1	5.5				ug/L	1747	Standard
	P	31	21.7	48.0				ug/L	17	Standard
	S	34	3.3	86.6				ug/L	3	Standard
	Sr	88	383.3	4.9				ug/L	370	Standard
	C	12	46.7	44.6				mg/L	47	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	13.3	114.6				mg/L	17	Standard
	Dy	164	15.1	106.6				mg/L	9	Standard
	Ho-1	165	21.7	35.3				mg/L	25	Standard
	Er	166	33.3	91.7				mg/L	20	Standard
	I	127	5981.2	7.9				mg/L	6023	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		101.825	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
|>	In	115	102.482
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	100.473
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 2	Sb	123	
QC Std 2	Mg	24	
QC Std 2	Ca	43	

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QC Std 2	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Friday, November 11, 2016 09:06:06
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	196221.1	16.9				ug/L	206101	Standard
	Be	9	20.0	43.3	**-0.0093**	0.006	63.8	ug/L	25	Standard
	Al	27	2351.9	9.4	**0.0185**	0.001	5.5	ug/L	1120	Standard
	Sc	45	56942.8	11.7				ug/L	61425	Standard
	Ti	47	56.0	4.7	**-0.0156**	0.024	153.8	ug/L	70	Standard
	V	51	2712.8	6.7	**-0.0486**	0.032	65.1	ug/L	3309	Standard
	Cr	52	10630.1	6.3	**-0.3213**	0.114	35.4	ug/L	13497	Standard
	Cr	53	2321.8	3.4	**-0.5424**	0.257	47.3	ug/L	3162	Standard
	Mn	55	1393.7	8.7	**-0.0432**	0.007	15.9	ug/L	2226	Standard
	Co	59	439.0	3.1	**-0.0256**	0.005	20.0	ug/L	1003	Standard
	Ni	60	338.7	10.3	**0.0095**	0.014	142.1	ug/L	355	Standard
	Cu	65	365.0	20.3	**-0.0419**	0.008	20.0	ug/L	473	Standard
	Zn	66	359.0	15.9	**0.0144**	0.004	28.6	ug/L	341	Standard
>	Ge	72	546024.4	15.6				ug/L	566981	Standard
	As	75	-133.1	24.8	**-0.0094**	0.036	381.1	ug/L	-156	Standard
	Se	82	30.3	10.8	**-0.0144**	0.027	190.1	ug/L	35	Standard
	Se-1	77	349.0	1.3	**-0.2679**	0.668	249.5	ug/L	354	Standard
>	Ga	71	46.7	48.3				mg/L	43	Standard
	Rb	85	41.7	59.2				ug/L	48	Standard
	Y	89	427913.3	16.2				ug/L	447702	Standard
>	Rh	103	33.3	17.3				ug/L	20	Standard
	Mo	98	35.7	42.0	**-0.0013**	0.005	370.3	ug/L	158	Standard
	Ag	107	140.3	4.1	**0.0004**	0.002	505.3	ug/L	133	Standard
	Cd	111	9.6	49.2	**-0.0036**	0.002	43.5	mg/L	7	Standard
	Cd	114	40.3	58.2	**0.0017**	0.003	168.8	ug/L	72	Standard
>	In	115	949305.0	15.8				ug/L	1004638	Standard
	Sn	118	174.7	19.8	**0.0122**	0.031	255.7	ug/L	364	Standard
	Sb	123	590.5	80.8	**0.0153**	0.071	460.2	ug/L	2464	Standard
	Ba	135	27.3	7.6	**-0.0017**	0.002	94.2	ug/L	39	Standard
	Ce	140	51.7	47.7				ug/L	195	Standard
>	Tb	159	1558789.6	16.3				ug/L	1640193	Standard
	Ho	165	20.0	66.1				ug/L	25	Standard
	Tl	203	72.7	8.3	**-0.0075**	0.000	4.7	ug/L	324	Standard
	Tl	205	151.7	27.6	**-0.0003**	0.001	398.4	ug/L	698	Standard
	Pb	206	552.0	16.2	**-0.0012**	0.001	49.6	ug/L	600	Standard
	Pb	207	477.3	14.6	**-0.0014**	0.001	40.8	ug/L	541	Standard
	Pb	208	1570.7	16.3	**-0.0012**	0.001	59.2	ug/L	1750	Standard
	U	238	2.3	24.7	**0.0022**	0.000	1.0	ug/L	10	Standard
>	Bi	209	785269.1	15.0				ug/L	811518	Standard

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	Na	23	6.7	114.6	**1.1920**	1.461	122.6	mg/L	0	Standard
	Mg	24	36.7	34.3	**0.0191**	0.200	1046.9	mg/L	77	Standard
	K	39	20.0	66.1	**0.0153**	0.098	641.2	mg/L	18	Standard
	Ca	43	121.7	30.3	**13.0982**	6.212	47.4	mg/L	178	Standard
	Fe	54	31.0	45.9	**-0.0075**	0.171	2279.6	mg/L	29	Standard
	Fe	57	410.0	9.5	**4.5166**	3.755	83.1	mg/L	408	Standard
>	**Sc-1**	45	56942.8	11.7				mg/L	61425	Standard
	Cl	35	0.7	173.2				ug/L	1	Standard
	Kr	83	8.3	54.1				ug/L	12	Standard
	Br	81	1523.4	7.6				ug/L	1747	Standard
	P	31	28.3	40.8				ug/L	17	Standard
	S	34	6.7	43.3				ug/L	3	Standard
	Sr	88	371.7	2.8				ug/L	370	Standard
	C	12	56.7	10.2				mg/L	47	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	17	Standard
	Dy	164	18.9	50.5				mg/L	9	Standard
	Ho-1	165	20.0	66.1				mg/L	25	Standard
	Er	166	23.3	65.5				mg/L	20	Standard
	I	127	16283.9	17.9				mg/L	6023	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		96.304	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	94.492
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	96.765
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 3
Sample Date/Time: Friday, November 11, 2016 09:11:40
Number of Replicates: 3
Autosampler Position: 202
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	216694.8	16.6				ug/L	206101	Standard
	Be	9	485.0	14.5	**0.1791**	0.004	2.4	ug/L	25	Standard
	Al	27	933.4	11.9	**0.0103**	0.000	3.3	ug/L	1120	Standard
	Sc	45	61778.3	10.6				ug/L	61425	Standard
	Ti	47	64.3	18.1	**-0.0105**	0.020	194.9	ug/L	70	Standard
	V	51	7390.5	11.9	**0.3483**	0.015	4.4	ug/L	3309	Standard
	Cr	52	21149.9	10.7	**0.6222**	0.078	12.5	ug/L	13497	Standard
	Cr	53	3627.1	8.3	**0.3127**	0.154	49.3	ug/L	3162	Standard
	Mn	55	9933.0	15.1	**0.4702**	0.022	4.7	ug/L	2226	Standard
	Co	59	5622.7	14.0	**0.3739**	0.016	4.4	ug/L	1003	Standard
	Ni	60	4624.1	16.0	**1.5480**	0.071	4.6	ug/L	355	Standard
	Cu	65	2487.2	15.8	**0.7924**	0.026	3.2	ug/L	473	Standard
	Zn	66	8163.6	14.9	**6.0609**	0.138	2.3	ug/L	341	Standard
>	Ge	72	594739.3	13.5				ug/L	566981	Standard
	As	75	401.4	16.1	**0.4126**	0.020	4.9	ug/L	-156	Standard
	Se	82	60.9	16.6	**0.2436**	0.052	21.3	ug/L	35	Standard
	Se-1	77	354.3	3.4	**-0.6023**	0.434	72.1	ug/L	354	Standard
>	Ga	71	43.3	46.6				mg/L	43	Standard
	Rb	85	58.3	32.5				ug/L	48	Standard
	Y	89	456378.2	13.1				ug/L	447702	Standard
>	Rh	103	28.3	44.4				ug/L	20	Standard
	Mo	98	60.3	31.2	**0.0032**	0.006	185.0	ug/L	158	Standard
	Ag	107	4092.2	12.4	**0.3669**	0.013	3.5	ug/L	133	Standard
	Cd	111	830.9	17.4	**0.2357**	0.007	2.9	mg/L	7	Standard
	Cd	114	2276.7	15.5	**0.2439**	0.002	1.0	ug/L	72	Standard
>	In	115	1026641.0	14.8				ug/L	1004638	Standard
	Sn	118	191.0	10.2	**0.0128**	0.024	185.6	ug/L	364	Standard
	Sb	123	4600.3	6.5	**0.4473**	0.045	10.1	ug/L	2464	Standard
	Ba	135	2831.3	15.8	**0.7245**	0.007	1.0	ug/L	39	Standard
	Ce	140	41.7	6.9				ug/L	195	Standard
>	Tb	159	1632899.8	14.0				ug/L	1640193	Standard
	Ho	165	18.3	83.3				ug/L	25	Standard
	Tl	203	1242.1	13.8	**0.0702**	0.001	0.8	ug/L	324	Standard
	Tl	205	2905.3	11.6	**0.0683**	0.002	3.0	ug/L	698	Standard
	Pb	206	3006.3	16.1	**0.2058**	0.011	5.2	ug/L	600	Standard
	Pb	207	2454.2	15.2	**0.1859**	0.006	3.3	ug/L	541	Standard
	Pb	208	8312.2	14.1	**0.1933**	0.001	0.4	ug/L	1750	Standard
	U	238	5059.2	7.9	**0.3749**	0.025	6.7	ug/L	10	Standard
>	Bi	209	830127.4	14.3				ug/L	811518	Standard

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	Na	23	1.7	173.2	**0.2925**	0.498	170.2	mg/L	0	Standard
	Mg	24	65.0	55.5	**0.5769**	0.750	129.9	mg/L	77	Standard
	K	39	13.3	78.1	**-0.0415**	0.050	120.1	mg/L	18	Standard
	Ca	43	131.7	23.2	**12.7441**	5.824	45.7	mg/L	178	Standard
	Fe	54	46.1	27.2	**0.1625**	0.105	64.5	mg/L	29	Standard
	Fe	57	385.0	9.8	**1.9082**	0.493	25.9	mg/L	408	Standard
>	**Sc-1**	45	61778.3	10.6				mg/L	61425	Standard
	Cl	35	0.0					ug/L	1	Standard
	Kr	83	8.3	38.6				ug/L	12	Standard
	Br	81	1803.4	6.7				ug/L	1747	Standard
	P	31	30.0	44.1				ug/L	17	Standard
	S	34	0.0					ug/L	3	Standard
	Sr	88	370.0	8.1				ug/L	370	Standard
	C	12	40.0	43.3				mg/L	47	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	17	Standard
	Dy	164	12.7	118.3				mg/L	9	Standard
	Ho-1	165	18.3	83.3				mg/L	25	Standard
	Er	166	13.3	43.3				mg/L	20	Standard
	I	127	4218.9	6.9				mg/L	6023	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	89.539		
	Al	27	1.026		
	Sc	45			
	Ti	47			
	V	51	87.079		
	Cr	52	77.780		
	Cr	53			
	Mn	55	94.048		
	Co	59	93.465		
	Ni	60	96.748		
	Cu	65	99.052		
	Zn	66	96.975		
>	Ge	72		104.896	
	As	75	103.161		
	Se	82	60.900		
	Se-1	77			
>	Ga	71			

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