

**LONGHORN ARMY
AMMUNITION PLANT
KARNACK, TEXAS**

**ADMINISTRATIVE
RECORD**

Volume 36

2018

Bate Stamp Numbers

00890790 – 00892289

Prepared for

**Department of the Army
Longhorn Army Ammunition Plant**

1976 – 2018

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

VOLUME 36

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: 00890790 – 00892289

[	Rb	85		
[	Y	89		
>	Rh	103		
[	Mo	98		
[	Ag	107	91.726	
[Cd	111	98.223	
[Cd	114		
>	In	115		102.190
[Sn	118		
[Sb	123	111.817	
[Ba	135	96.595	
[Ce	140		
>	Tb	159		
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[Pb	206		
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[Pb	208	96.653	
[U	238	93.714	
>	Bi	209		102.293
[Na	23		
[Mg	24		
[K	39		
[Ca	43		
[Fe	54		
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>	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 3	Al	27	
QC Std 3	Se	82	

Sample ID: QC Std 3

Report Date/Time: Friday, November 11, 2016 09:13:51

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Method 6020 - Summary Report

Sample ID: QC Std 4

Sample Date/Time: Friday, November 11, 2016 09:14:56

Number of Replicates: 3

Autosampler Position: 203

Sample Description:

Method File: C:\NexlONData\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	196633.5	11.4				ug/L	206101	Standard
|	Be	9	16.7	62.4	-0.0118	0.004	34.6	ug/L	25	Standard
|	Al	27	8150702.5	7.6	43.9132	1.833	4.2	ug/L	1120	Standard
|	Sc	45	61625.6	7.9				ug/L	61425	Standard
|	Ti	47	8100.2	8.1	17.8298	0.192	1.1	ug/L	70	Standard
|	V	51	2317.4	25.2	-0.0998	0.038	37.8	ug/L	3309	Standard
|	Cr	52	10542.0	7.5	-0.3789	0.025	6.7	ug/L	13497	Standard
|	Cr	53	4725.7	1.8	1.3845	0.285	20.6	ug/L	3162	Standard
|	Mn	55	2213.8	7.6	0.0061	0.001	24.4	ug/L	2226	Standard
|	Co	59	574.0	4.5	-0.0162	0.002	12.5	ug/L	1003	Standard
|	Ni	60	1099.0	10.7	0.2942	0.011	3.6	ug/L	355	Standard
|	Cu	65	607.3	12.8	0.0553	0.012	21.3	ug/L	473	Standard
|	Zn	66	805.4	11.7	0.3698	0.027	7.4	ug/L	341	Standard
>	Ge	72	564395.3	8.5				ug/L	566981	Standard
|	As	75	-106.8	84.1	0.0148	0.075	505.9	ug/L	-156	Standard
|	Se	82	26.2	26.7	-0.0689	0.053	77.1	ug/L	35	Standard
|	Se-1	77	545.3	3.1	1.9853	0.555	28.0	ug/L	354	Standard
>	Ga	71	113.3	6.7				mg/L	43	Standard
|	Rb	85	808.4	3.6				ug/L	48	Standard
|	Y	89	441596.1	7.5				ug/L	447702	Standard
>	Rh	103	26.7	47.2				ug/L	20	Standard
|	Mo	98	345820.8	13.6	73.8039	3.806	5.2	ug/L	158	Standard
|	Ag	107	202.7	8.7	0.0060	0.001	23.9	ug/L	133	Standard
|	Cd	111	-73.8	6.8	-0.0295	0.001	3.7	mg/L	7	Standard
|	Cd	114	682.0	10.9	0.0749	0.002	2.3	ug/L	72	Standard
>	In	115	972336.7	8.7				ug/L	1004638	Standard
|	Sn	118	111.0	15.2	-0.0238	0.013	54.3	ug/L	364	Standard
|	Sb	123	1791.9	36.8	0.1505	0.092	61.3	ug/L	2464	Standard
|	Ba	135	58.0	6.9	0.0064	0.001	15.2	ug/L	39	Standard
|	Ce	140	105.0	4.8				ug/L	195	Standard
>	Tb	159	1598253.6	5.8				ug/L	1640193	Standard
|	Ho	165	16.7	75.5				ug/L	25	Standard
|	Tl	203	1697.8	26.4	0.1037	0.023	21.8	ug/L	324	Standard
|	Tl	205	4005.6	27.8	0.0981	0.021	21.6	ug/L	698	Standard
|	Pb	206	1807.1	21.3	0.1082	0.023	21.2	ug/L	600	Standard
|	Pb	207	1565.1	21.6	0.1052	0.023	22.0	ug/L	541	Standard
|	Pb	208	5140.3	21.5	0.1051	0.022	21.4	ug/L	1750	Standard
	U	238	4.0	50.0	0.0023	0.000	5.9	ug/L	10	Standard
>	Bi	209	800887.3	8.1				ug/L	811518	Standard

Sample ID: QC Std 4

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Na	23	88.3	22.9	13.7360	4.299	31.3	mg/L	0	Standard
Mg	24	518.3	11.6	10.6835	0.603	5.6	mg/L	77	Standard
K	39	731.7	10.5	3.9636	0.404	10.2	mg/L	18	Standard
Ca	43	163.3	6.4	5.3062	3.506	66.1	mg/L	178	Standard
Fe	54	380.7	9.4	4.6156	0.089	1.9	mg/L	29	Standard
Fe	57	498.3	19.5	6.3956	3.442	53.8	mg/L	408	Standard
Sc-1	45	61625.6	7.9				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	7.7	7.5				ug/L	12	Standard
Br	81	1533.4	20.0				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	365.0	22.0				ug/L	370	Standard
C	12	106.7	10.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	34.6				mg/L	17	Standard
Dy	164	19.0	91.0				mg/L	9	Standard
Ho-1	165	16.7	75.5				mg/L	25	Standard
Er	166	20.0	0.0				mg/L	20	Standard
I	127	4627.4	4.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27	0.878		
Sc	45			
Ti	47	17.830		
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72		99.544	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 4

Report Date/Time: Friday, November 11, 2016 09:17:07

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	73.804	
[Ag	107		
[Cd	111		
[Cd	114		
>	In	115		96.785
[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		98.690
[	Na	23	109.888	
[	Mg	24	213.670	
[	K	39	79.273	
[	Ca	43	35.374	
[	Fe	54	36.925	
[	Fe	57	51.165	
>	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

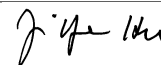
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 4	Al	27	
QC Std 4	Ti	47	
QC Std 4	Mo	98	

Sample ID: QC Std 4

Report Date/Time: Friday, November 11, 2016 09:17:07

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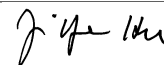
QC Std 4	Tl	203
QC Std 4	Mg	24
QC Std 4	K	39
QC Std 4	Ca	43
QC Std 4	Fe	54
QC Std 4	Fe	57

Sample ID: QC Std 4

Report Date/Time: Friday, November 11, 2016 09:17:07

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Method 6020 - Summary Report

Sample ID: QC Std 5

Sample Date/Time: Friday, November 11, 2016 09:18:17

Number of Replicates: 3

Autosampler Position: 204

Sample Description:

Method File: C:\NexlONData\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	219815.3	10.8				ug/L	206101	Standard
|	Be	9	243991.8	11.3	97.9241	2.414	2.5	ug/L	25	Standard
|	Al	27	9646021.0	7.1	46.4736	1.833	3.9	ug/L	1120	Standard
|	Sc	45	65721.2	7.9				ug/L	61425	Standard
|	Ti	47	50816.7	10.2	102.2411	2.132	2.1	ug/L	70	Standard
|	V	51	1143020.3	9.6	98.1418	2.718	2.8	ug/L	3309	Standard
|	Cr	52	1048860.1	9.7	98.1567	2.658	2.7	ug/L	13497	Standard
|	Cr	53	135870.9	10.4	100.2061	1.755	1.8	ug/L	3162	Standard
|	Mn	55	1671347.2	9.8	97.7819	2.297	2.3	ug/L	2226	Standard
|	Co	59	1322306.6	10.5	98.3462	1.661	1.7	ug/L	1003	Standard
|	Ni	60	285254.1	12.1	98.7265	0.995	1.0	ug/L	355	Standard
|	Cu	65	261097.5	12.0	99.5468	0.338	0.3	ug/L	473	Standard
|	Zn	66	136723.1	10.7	101.6011	1.541	1.5	ug/L	341	Standard
>	Ge	72	622433.1	12.0				ug/L	566981	Standard
|	As	75	137357.1	10.6	101.1381	1.820	1.8	ug/L	-156	Standard
|	Se	82	11399.1	11.6	101.1467	0.800	0.8	ug/L	35	Standard
|	Se-1	77	9520.3	10.8	102.5123	1.676	1.6	ug/L	354	Standard
>	Ga	71	220.0	17.2				mg/L	43	Standard
|	Rb	85	1036.7	12.7				ug/L	48	Standard
|	Y	89	485118.7	10.7				ug/L	447702	Standard
>	Rh	103	98.3	24.0				ug/L	20	Standard
|	Mo	98	480421.8	9.8	93.0109	1.320	1.4	ug/L	158	Standard
|	Ag	107	1022546.8	11.1	90.5435	0.854	0.9	ug/L	133	Standard
|	Cd	111	358354.8	11.1	100.0360	0.954	1.0	mg/L	7	Standard
|	Cd	114	928254.8	10.0	96.2587	0.685	0.7	ug/L	72	Standard
>	In	115	1075282.7	10.3				ug/L	1004638	Standard
|	Sn	118	275.0	9.8	0.0447	0.010	23.3	ug/L	364	Standard
|	Sb	123	954830.2	11.9	99.8811	1.748	1.7	ug/L	2464	Standard
|	Ba	135	393057.1	10.2	97.3756	0.467	0.5	ug/L	39	Standard
|	Ce	140	148.3	21.4				ug/L	195	Standard
>	Tb	159	1708088.1	10.7				ug/L	1640193	Standard
|	Ho	165	101.7	41.0				ug/L	25	Standard
|	Tl	203	1524803.8	9.9	99.0011	1.508	1.5	ug/L	324	Standard
|	Tl	205	4549831.3	9.8	110.4118	1.963	1.8	ug/L	698	Standard
|	Pb	206	1196106.1	9.7	99.6309	1.483	1.5	ug/L	600	Standard
|	Pb	207	1064546.1	9.3	99.6709	1.091	1.1	ug/L	541	Standard
|	Pb	208	3504414.2	9.1	99.6541	1.266	1.3	ug/L	1750	Standard
|	U	238	1370831.2	5.4	97.9832	4.650	4.7	ug/L	10	Standard
>	Bi	209	852885.2	9.7				ug/L	811518	Standard

Sample ID: QC Std 5

Report Date/Time: Friday, November 11, 2016 09:20:28

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Na	23	71.7	22.4	10.2968	2.185	21.2	mg/L	0	Standard
Mg	24	555.0	9.5	10.8436	1.947	18.0	mg/L	77	Standard
K	39	841.7	12.0	4.2775	0.417	9.8	mg/L	18	Standard
Ca	43	168.3	14.0	6.2813	8.185	130.3	mg/L	178	Standard
Fe	54	1040.0	22.0	12.4228	1.907	15.4	mg/L	29	Standard
Fe	57	623.3	9.2	9.7720	1.256	12.8	mg/L	408	Standard
Sc-1	45	65721.2	7.9				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	9.3	50.6				ug/L	12	Standard
Br	81	1690.1	13.5				ug/L	1747	Standard
P	31	21.7	48.0				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	386.7	10.0				ug/L	370	Standard
C	12	123.3	24.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	173.2				mg/L	17	Standard
Dy	164	5.7	209.6				mg/L	9	Standard
Ho-1	165	101.7	41.0				mg/L	25	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	5230.9	11.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	97.924		
Al	27	0.929		
Sc	45			
Ti	47	102.241		
V	51	98.142		
Cr	52	98.157		
Cr	53			
Mn	55	97.782		
Co	59	98.346		
Ni	60	98.726		
Cu	65	99.547		
Zn	66	101.601		
Ge	72		109.780	
As	75	101.138		
Se	82	101.147		
Se-1	77			
Ga	71			

Sample ID: QC Std 5

Report Date/Time: Friday, November 11, 2016 09:20:28

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	93.011	
[Ag	107	90.543	
[Cd	111	100.036	
[Cd	114		
>	In	115		107.032
[Sn	118		
[	Sb	123	99.881	
[	Ba	135	97.376	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	99.001	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	99.654	
[	U	238	97.983	
>	Bi	209		105.097
[	Na	23	82.375	
[	Mg	24	216.872	
[K	39	85.550	
[Ca	43	41.875	
[Fe	54	99.382	
[Fe	57	78.176	
>	Sc-1	45		
[Cl	35		
[Kr	83		
[Br	81		
[P	31		
[S	34		
[Sr	88		
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[Hg	202		
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QC Out of Limits

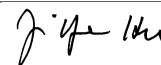
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Na	23	
QC Std 5	Mg	24	

Sample ID: QC Std 5

Report Date/Time: Friday, November 11, 2016 09:20:28

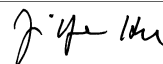
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QC Std 5	Ca	43
QC Std 5	Fe	57

Sample ID: QC Std 5
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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 09:21:26

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	222526.8	16.2				ug/L	206101	Standard
|	Be	9	122731.6	12.1	48.8835	2.206	4.5	ug/L	25	Standard
|	Al	27	10578064.1	11.1	50.4952	2.812	5.6	ug/L	1120	Standard
|	Sc	45	64439.3	9.7				ug/L	61425	Standard
|	Ti	47	50188.7	11.4	101.4200	2.555	2.5	ug/L	70	Standard
|	V	51	592046.0	12.5	50.8207	0.678	1.3	ug/L	3309	Standard
|	Cr	52	548685.2	12.2	50.8022	0.833	1.6	ug/L	13497	Standard
|	Cr	53	69840.6	12.5	50.4499	0.943	1.9	ug/L	3162	Standard
|	Mn	55	877307.2	13.0	51.3882	0.406	0.8	ug/L	2226	Standard
|	Co	59	693766.2	13.8	51.6812	0.087	0.2	ug/L	1003	Standard
|	Ni	60	148051.2	14.1	51.3572	0.512	1.0	ug/L	355	Standard
|	Cu	65	133145.0	14.0	50.8369	0.538	1.1	ug/L	473	Standard
|	Zn	66	68303.6	13.9	50.7315	0.107	0.2	ug/L	341	Standard
>	Ge	72	620165.2	13.7				ug/L	566981	Standard
|	As	75	68588.0	12.5	50.7353	0.746	1.5	ug/L	-156	Standard
|	Se	82	5695.6	13.9	50.5473	1.020	2.0	ug/L	35	Standard
|	Se-1	77	4877.5	13.9	50.3005	0.556	1.1	ug/L	354	Standard
>	Ga	71	108.3	9.6				mg/L	43	Standard
|	Rb	85	770.0	17.7				ug/L	48	Standard
|	Y	89	479170.1	12.7				ug/L	447702	Standard
>	Rh	103	75.0	72.1				ug/L	20	Standard
|	Mo	98	525689.3	12.0	100.5046	2.807	2.8	ug/L	158	Standard
|	Ag	107	599022.1	11.9	52.4297	1.454	2.8	ug/L	133	Standard
|	Cd	111	184191.7	13.2	50.7683	1.197	2.4	mg/L	7	Standard
|	Cd	114	492282.6	13.8	50.3402	1.202	2.4	ug/L	72	Standard
>	In	115	1091223.2	14.4				ug/L	1004638	Standard
|	Sn	118	112534.0	13.4	50.1985	1.551	3.1	ug/L	364	Standard
|	Sb	123	499265.5	12.5	51.6017	1.171	2.3	ug/L	2464	Standard
|	Ba	135	199467.8	12.2	48.8059	1.395	2.9	ug/L	39	Standard
|	Ce	140	235.0	15.3				ug/L	195	Standard
>	Tb	159	1717241.0	11.6				ug/L	1640193	Standard
|	Ho	165	68.3	30.5				ug/L	25	Standard
|	Tl	203	788515.9	12.4	50.2822	0.415	0.8	ug/L	324	Standard
|	Tl	205	2046470.8	24.6	48.3879	6.959	14.4	ug/L	698	Standard
|	Pb	206	618734.6	11.2	50.6427	0.404	0.8	ug/L	600	Standard
|	Pb	207	549779.2	12.0	50.5385	0.371	0.7	ug/L	541	Standard
|	Pb	208	1811564.9	11.8	50.5757	0.129	0.3	ug/L	1750	Standard
|	U	238	708930.9	8.6	49.7766	1.701	3.4	ug/L	10	Standard
>	Bi	209	868016.7	11.9				ug/L	811518	Standard

Sample ID: QC Std 6

Report Date/Time: Friday, November 11, 2016 09:23:37

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Na	23	46.7	40.6	6.9658	3.203	46.0	mg/L	0	Standard
Mg	24	296.7	4.2	5.5091	0.630	11.4	mg/L	77	Standard
K	39	1023.4	13.9	5.3130	0.249	4.7	mg/L	18	Standard
Ca	43	133.3	14.2	13.1434	7.358	56.0	mg/L	178	Standard
Fe	54	430.3	15.2	5.0141	0.387	7.7	mg/L	29	Standard
Fe	57	515.0	22.4	6.0503	2.933	48.5	mg/L	408	Standard
Sc-1	45	64439.3	9.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	10.7	35.5				ug/L	12	Standard
Br	81	1996.8	24.9				ug/L	1747	Standard
P	31	31.7	24.1				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	331.7	2.3				ug/L	370	Standard
C	12	76.7	7.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	28.6	32.5				mg/L	9	Standard
Ho-1	165	68.3	30.5				mg/L	25	Standard
Er	166	30.0	57.7				mg/L	20	Standard
I	127	4489.0	8.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	97.767		
Al	27	100.990		
Sc	45			
Ti	47	101.420		
V	51	101.641		
Cr	52	101.604		
Cr	53			
Mn	55	102.776		
Co	59	103.362		
Ni	60	102.714		
Cu	65	101.674		
Zn	66	101.463		
Ge	72		109.380	
As	75	101.471		
Se	82	101.095		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.505	
[Ag	107	104.859	
[Cd	111	101.537	
[Cd	114		
>	In	115		108.619
[Sn	118	100.397	
[	Sb	123	103.203	
[	Ba	135	97.612	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.564	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	101.151	
[	U	238	99.553	
>	Bi	209		106.962
[	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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Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 09:24:31

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	213015.8	7.5				ug/L	206101	Standard
|	Be	9	38.3	66.9	-0.0034	0.010	299.1	ug/L	25	Standard
|	Al	27	2590.2	5.6	0.0186	0.001	5.0	ug/L	1120	Standard
|	Sc	45	63262.1	6.3				ug/L	61425	Standard
|	Ti	47	53.7	15.1	-0.0319	0.019	60.1	ug/L	70	Standard
|	V	51	2723.7	4.6	-0.0698	0.009	12.7	ug/L	3309	Standard
|	Cr	52	10521.7	3.5	-0.4263	0.039	9.2	ug/L	13497	Standard
|	Cr	53	2421.9	5.7	-0.6307	0.156	24.8	ug/L	3162	Standard
|	Mn	55	1662.8	10.1	-0.0340	0.008	23.1	ug/L	2226	Standard
|	Co	59	515.0	10.5	-0.0229	0.004	16.0	ug/L	1003	Standard
|	Ni	60	368.3	5.3	0.0098	0.010	98.1	ug/L	355	Standard
|	Cu	65	435.3	10.1	-0.0243	0.012	49.6	ug/L	473	Standard
|	Zn	66	383.3	10.1	0.0109	0.013	121.0	ug/L	341	Standard
>	Ge	72	589230.5	7.2				ug/L	566981	Standard
|	As	75	-150.8	61.6	-0.0098	0.065	665.6	ug/L	-156	Standard
|	Se	82	26.8	20.8	-0.0702	0.060	86.1	ug/L	35	Standard
|	Se-1	77	347.3	7.2	-0.6853	0.041	5.9	ug/L	354	Standard
>	Ga	71	36.7	28.4				mg/L	43	Standard
|	Rb	85	50.0	43.6				ug/L	48	Standard
|	Y	89	454246.1	6.3				ug/L	447702	Standard
>	Rh	103	35.0	37.8				ug/L	20	Standard
|	Mo	98	103.7	9.7	0.0115	0.003	27.4	ug/L	158	Standard
|	Ag	107	192.7	16.4	0.0039	0.002	45.2	ug/L	133	Standard
|	Cd	111	15.2	56.0	-0.0024	0.002	92.6	mg/L	7	Standard
|	Cd	114	58.8	50.8	0.0033	0.004	110.8	ug/L	72	Standard
>	In	115	1028867.8	6.5				ug/L	1004638	Standard
|	Sn	118	170.0	14.7	0.0003	0.010	3282.6	ug/L	364	Standard
|	Sb	123	822.6	28.5	0.0293	0.032	109.3	ug/L	2464	Standard
|	Ba	135	42.7	14.1	0.0016	0.002	140.9	ug/L	39	Standard
|	Ce	140	45.0	29.4				ug/L	195	Standard
>	Tb	159	1620431.0	6.0				ug/L	1640193	Standard
|	Ho	165	13.3	78.1				ug/L	25	Standard
|	Tl	203	188.3	14.8	-0.0004	0.002	523.6	ug/L	324	Standard
|	Tl	205	406.7	13.5	0.0056	0.001	22.4	ug/L	698	Standard
|	Pb	206	602.0	11.0	-0.0007	0.003	428.3	ug/L	600	Standard
|	Pb	207	531.7	3.6	0.0002	0.003	1224.5	ug/L	541	Standard
|	Pb	208	1831.4	6.7	0.0028	0.001	30.0	ug/L	1750	Standard
	U	238	17.7	48.8	0.0033	0.001	20.8	ug/L	10	Standard
>	Bi	209	846522.8	5.1				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2395	0.406	169.6	mg/L	0	Standard
Mg	24	53.3	35.5	0.3264	0.493	151.1	mg/L	77	Standard
K	39	25.0	0.0	0.0234	0.009	37.0	mg/L	18	Standard
Ca	43	156.7	12.9	7.6168	6.661	87.5	mg/L	178	Standard
Fe	54	22.8	77.0	-0.1363	0.247	180.9	mg/L	29	Standard
Fe	57	368.3	19.9	0.8192	1.950	238.0	mg/L	408	Standard
Sc-1	45	63262.1	6.3				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	10.0	36.1				ug/L	12	Standard
Br	81	1703.4	5.1				ug/L	1747	Standard
P	31	30.0	16.7				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	360.0	12.3				ug/L	370	Standard
C	12	43.3	58.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	12.2	100.2				mg/L	9	Standard
Ho-1	165	13.3	78.1				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	14710.7	21.6				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		103.924	
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	102.412
[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	104.313
[	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: PBW 87 WG590567-02

Sample Date/Time: Friday, November 11, 2016 09:30:37

Number of Replicates: 3

Autosampler Position: 219

Sample Description: 1

Method File: C:\NexlONData\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	191539.2	21.3				ug/L	206101	Standard
|	Be	9	28.3	20.4	-0.0055	0.003	60.0	ug/L	25	Standard
|	Al	27	2633.6	18.3	0.0203	0.001	3.7	ug/L	1120	Standard
|	Sc	45	55866.1	15.4				ug/L	61425	Standard
|	Ti	47	45.0	19.8	-0.0355	0.043	121.8	ug/L	70	Standard
|	V	51	2623.2	12.7	-0.0525	0.016	30.8	ug/L	3309	Standard
|	Cr	52	10523.7	11.8	-0.3075	0.091	29.7	ug/L	13497	Standard
|	Cr	53	2328.5	5.2	-0.4712	0.392	83.2	ug/L	3162	Standard
|	Mn	55	1442.7	14.4	-0.0378	0.006	16.7	ug/L	2226	Standard
|	Co	59	431.0	3.2	-0.0250	0.008	34.0	ug/L	1003	Standard
|	Ni	60	342.0	11.7	0.0142	0.012	84.5	ug/L	355	Standard
|	Cu	65	376.7	18.7	-0.0322	0.001	4.4	ug/L	473	Standard
|	Zn	66	381.0	32.6	0.0366	0.053	145.4	ug/L	341	Standard
>	Ge	72	533670.7	18.7				ug/L	566981	Standard
|	As	75	-118.6	28.6	0.0034	0.019	572.5	ug/L	-156	Standard
|	Se	82	23.7	33.9	-0.0644	0.133	207.0	ug/L	35	Standard
|	Se-1	77	357.3	4.3	-0.0364	0.702	1927.0	ug/L	354	Standard
>	Ga	71	41.7	38.6				mg/L	43	Standard
|	Rb	85	45.0	38.5				ug/L	48	Standard
|	Y	89	416329.5	18.6				ug/L	447702	Standard
>	Rh	103	41.7	48.5				ug/L	20	Standard
|	Mo	98	60.6	39.2	0.0049	0.008	169.4	ug/L	158	Standard
|	Ag	107	149.0	2.9	0.0016	0.003	181.0	ug/L	133	Standard
|	Cd	111	6.3	40.0	-0.0046	0.001	19.3	mg/L	7	Standard
|	Cd	114	54.0	27.6	0.0036	0.003	92.4	ug/L	72	Standard
>	In	115	943261.1	20.0				ug/L	1004638	Standard
|	Sn	118	160.7	13.9	0.0043	0.014	334.7	ug/L	364	Standard
|	Sb	123	651.3	73.9	0.0262	0.079	301.7	ug/L	2464	Standard
|	Ba	135	31.0	38.7	-0.0010	0.002	174.5	ug/L	39	Standard
|	Ce	140	58.3	47.2				ug/L	195	Standard
>	Tb	159	1499033.9	17.3				ug/L	1640193	Standard
|	Ho	165	18.3	31.5				ug/L	25	Standard
|	Tl	203	77.0	25.3	-0.0072	0.001	16.1	ug/L	324	Standard
|	Tl	205	213.3	43.9	0.0014	0.002	178.7	ug/L	698	Standard
|	Pb	206	589.0	20.5	0.0027	0.004	158.6	ug/L	600	Standard
|	Pb	207	477.0	24.3	-0.0013	0.005	374.9	ug/L	541	Standard
|	Pb	208	1624.7	18.4	0.0012	0.003	289.6	ug/L	1750	Standard
	U	238	31.7	132.2	0.0045	0.003	72.1	ug/L	10	Standard
>	Bi	209	775743.9	17.7				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2822	0.480	170.1	mg/L	0	Standard
Mg	24	41.7	50.0	0.1416	0.353	249.3	mg/L	77	Standard
K	39	20.0	43.3	0.0070	0.041	587.0	mg/L	18	Standard
Ca	43	131.7	33.2	9.6900	8.361	86.3	mg/L	178	Standard
Fe	54	14.1	36.5	-0.2398	0.045	18.6	mg/L	29	Standard
Fe	57	376.7	6.1	3.4152	3.052	89.4	mg/L	408	Standard
Sc-1	45	55866.1	15.4				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	9.0	22.2				ug/L	12	Standard
Br	81	1633.4	5.9				ug/L	1747	Standard
P	31	25.0	40.0				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	378.3	15.8				ug/L	370	Standard
C	12	36.7	31.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	22.1	23.7				mg/L	9	Standard
Ho-1	165	18.3	31.5				mg/L	25	Standard
Er	166	26.7	43.3				mg/L	20	Standard
I	127	15498.2	21.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		92.934	
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		94.125	
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	93.891
[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	95.592
[	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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Sample ID: PBW 87 WG590567-02

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Method 6020 - Summary Report

Sample ID: LCSW 87 WG590567-03

Sample Date/Time: Friday, November 11, 2016 09:33:43

Number of Replicates: 3

Autosampler Position: 220

Sample Description: 1

Method File: C:\NexlONData\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	219682.1	20.3				ug/L	206101	Standard
|	Be	9	119573.4	19.4	48.0702	0.640	1.3	ug/L	25	Standard
|	Al	27	15219.5	17.8	0.0791	0.002	3.0	ug/L	1120	Standard
|	Sc	45	62128.8	14.2				ug/L	61425	Standard
|	Ti	47	67.0	12.8	-0.0036	0.020	551.6	ug/L	70	Standard
|	V	51	555233.7	17.7	49.6235	1.194	2.4	ug/L	3309	Standard
|	Cr	52	525396.6	18.4	50.5962	0.796	1.6	ug/L	13497	Standard
|	Cr	53	66044.8	17.4	49.6626	1.320	2.7	ug/L	3162	Standard
|	Mn	55	810352.0	19.1	49.3568	0.408	0.8	ug/L	2226	Standard
|	Co	59	643396.4	19.9	49.8300	0.083	0.2	ug/L	1003	Standard
|	Ni	60	140071.0	19.3	50.5645	0.275	0.5	ug/L	355	Standard
|	Cu	65	127866.8	19.8	50.7784	0.358	0.7	ug/L	473	Standard
|	Zn	66	65152.3	19.6	50.3416	0.442	0.9	ug/L	341	Standard
>	Ge	72	596504.3	19.8				ug/L	566981	Standard
|	As	75	64302.7	19.1	49.4412	0.443	0.9	ug/L	-156	Standard
|	Se	82	5465.2	20.6	50.3631	0.442	0.9	ug/L	35	Standard
|	Se-1	77	4562.7	19.8	48.8001	0.092	0.2	ug/L	354	Standard
>	Ga	71	56.7	51.7				mg/L	43	Standard
|	Rb	85	100.0	8.7				ug/L	48	Standard
|	Y	89	464164.1	18.8				ug/L	447702	Standard
>	Rh	103	56.7	27.0				ug/L	20	Standard
|	Mo	98	129.9	23.6	0.0174	0.012	67.8	ug/L	158	Standard
|	Ag	107	542518.6	18.3	48.4913	1.359	2.8	ug/L	133	Standard
|	Cd	111	178937.4	20.4	50.2642	0.711	1.4	mg/L	7	Standard
|	Cd	114	463976.9	19.9	48.4212	0.598	1.2	ug/L	72	Standard
>	In	115	1069843.3	21.0				ug/L	1004638	Standard
|	Sn	118	261.7	6.8	0.0417	0.020	48.0	ug/L	364	Standard
|	Sb	123	458845.4	20.2	48.3208	0.450	0.9	ug/L	2464	Standard
|	Ba	135	192398.9	18.5	48.0675	1.234	2.6	ug/L	39	Standard
|	Ce	140	190.0	20.9				ug/L	195	Standard
>	Tb	159	1679921.5	18.7				ug/L	1640193	Standard
|	Ho	165	60.0	66.1				ug/L	25	Standard
|	Tl	203	787513.3	18.2	51.2887	0.801	1.6	ug/L	324	Standard
|	Tl	205	2030702.1	32.9	48.6082	7.227	14.9	ug/L	698	Standard
|	Pb	206	607078.9	18.7	50.6657	0.594	1.2	ug/L	600	Standard
|	Pb	207	521724.2	18.6	48.9394	0.201	0.4	ug/L	541	Standard
|	Pb	208	1741279.2	17.3	49.6912	0.579	1.2	ug/L	1750	Standard
	U	238	655835.4	12.5	47.2241	2.799	5.9	ug/L	10	Standard
>	Bi	209	850277.8	18.3				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	36.7	28.4	-0.0473	0.162	341.7	mg/L	77	Standard
K	39	21.7	35.3	0.0050	0.026	520.8	mg/L	18	Standard
Ca	43	153.3	15.4	6.9894	10.943	156.6	mg/L	178	Standard
Fe	54	30.5	9.9	-0.0308	0.096	310.9	mg/L	29	Standard
Fe	57	418.3	7.2	3.4236	3.522	102.9	mg/L	408	Standard
Sc-1	45	62128.8	14.2				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	9.3	22.3				ug/L	12	Standard
Br	81	1906.8	24.2				ug/L	1747	Standard
P	31	36.7	28.4				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	335.0	6.5				ug/L	370	Standard
C	12	80.0	33.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	22.5	23.2				mg/L	9	Standard
Ho-1	165	60.0	66.1				mg/L	25	Standard
Er	166	16.7	69.3				mg/L	20	Standard
I	127	3803.8	11.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.589	
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		105.207	
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	106.490
[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	104.776
[	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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Sample ID: LCSW 87 WG590567-03

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Method 6020 - Summary Report

Sample ID: F BLANK WG590567-06

Sample Date/Time: Friday, November 11, 2016 09:36:48

Number of Replicates: 3

Autosampler Position: 221

Sample Description: 1

Method File: C:\NexlONData\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	198113.7	22.2				ug/L	206101	Standard
|	Be	9	31.7	24.1	-0.0048	0.000	7.2	ug/L	25	Standard
|	Al	27	2561.9	9.7	0.0196	0.002	9.2	ug/L	1120	Standard
|	Sc	45	58381.0	16.7				ug/L	61425	Standard
|	Ti	47	50.3	11.6	-0.0266	0.035	131.9	ug/L	70	Standard
|	V	51	2701.5	14.4	-0.0509	0.017	32.6	ug/L	3309	Standard
|	Cr	52	10977.3	8.3	-0.2789	0.121	43.5	ug/L	13497	Standard
|	Cr	53	2200.2	5.9	-0.6372	0.283	44.5	ug/L	3162	Standard
|	Mn	55	1873.5	14.8	-0.0111	0.005	44.4	ug/L	2226	Standard
|	Co	59	680.3	5.1	-0.0047	0.008	165.4	ug/L	1003	Standard
|	Ni	60	353.7	11.5	0.0163	0.018	111.5	ug/L	355	Standard
|	Cu	65	403.3	23.7	-0.0252	0.011	44.0	ug/L	473	Standard
|	Zn	66	356.0	15.9	0.0134	0.013	96.4	ug/L	341	Standard
>	Ge	72	545352.3	18.7				ug/L	566981	Standard
|	As	75	-148.1	49.4	-0.0155	0.045	289.5	ug/L	-156	Standard
|	Se	82	26.3	41.6	-0.0394	0.166	420.6	ug/L	35	Standard
|	Se-1	77	340.3	9.6	-0.3808	0.570	149.7	ug/L	354	Standard
>	Ga	71	51.7	39.1				mg/L	43	Standard
|	Rb	85	46.7	30.9				ug/L	48	Standard
|	Y	89	423755.0	18.8				ug/L	447702	Standard
>	Rh	103	33.3	60.6				ug/L	20	Standard
|	Mo	98	51.3	38.6	0.0024	0.007	274.0	ug/L	158	Standard
|	Ag	107	183.0	27.0	0.0043	0.001	31.8	ug/L	133	Standard
|	Cd	111	9.9	10.1	-0.0035	0.001	23.1	mg/L	7	Standard
|	Cd	114	36.5	59.3	0.0009	0.002	178.5	ug/L	72	Standard
>	In	115	949344.0	19.9				ug/L	1004638	Standard
|	Sn	118	131.3	5.7	-0.0115	0.009	80.4	ug/L	364	Standard
|	Sb	123	1233.2	59.8	0.0990	0.119	120.6	ug/L	2464	Standard
|	Ba	135	39.0	37.2	0.0012	0.002	187.6	ug/L	39	Standard
|	Ce	140	55.0	36.4				ug/L	195	Standard
>	Tb	159	1548529.6	20.2				ug/L	1640193	Standard
|	Ho	165	15.0	66.7				ug/L	25	Standard
|	Tl	203	131.3	7.8	-0.0032	0.001	44.7	ug/L	324	Standard
|	Tl	205	373.3	5.6	0.0057	0.001	24.8	ug/L	698	Standard
|	Pb	206	593.0	23.7	0.0024	0.002	85.8	ug/L	600	Standard
|	Pb	207	489.3	19.9	-0.0001	0.001	951.1	ug/L	541	Standard
|	Pb	208	1661.0	18.7	0.0020	0.001	62.4	ug/L	1750	Standard
	U	238	26.3	32.7	0.0041	0.000	8.8	ug/L	10	Standard
>	Bi	209	782662.2	19.8				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	33.3	17.3	-0.0651	0.045	68.9	mg/L	77	Standard
K	39	15.0	57.7	-0.0278	0.034	123.7	mg/L	18	Standard
Ca	43	143.3	14.5	7.7717	6.350	81.7	mg/L	178	Standard
Fe	54	29.3	72.9	0.0004	0.38	107577.1	mg/L	29	Standard
Fe	57	431.7	8.5	4.9717	2.931	58.9	mg/L	408	Standard
Sc-1	45	58381.0	16.7				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	9.3	44.6				ug/L	12	Standard
Br	81	1683.4	5.7				ug/L	1747	Standard
P	31	23.3	44.6				ug/L	17	Standard
S	34	6.7	86.6				ug/L	3	Standard
Sr	88	418.3	8.0				ug/L	370	Standard
C	12	60.0	50.0				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	26.2	79.9				mg/L	9	Standard
Ho-1	165	15.0	66.7				mg/L	25	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	16208.8	16.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		96.124	
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		96.185	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: F BLANK WG590567-06

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	94.496
[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	96.444
[	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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Sample ID: F BLANK WG590567-06

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Method 6020 - Summary Report

Sample ID: L1611009813 WG590567-01

Sample Date/Time: Friday, November 11, 2016 09:39:53

Number of Replicates: 3

Autosampler Position: 222

Sample Description: 1

Method File: C:\NexlONData\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	230712.9	17.8				ug/L	206101	Standard
|	Be	9	58.3	32.5	0.0031	0.004	120.0	ug/L	25	Standard
|	Al	27	782276.7	12.8	3.6083	0.192	5.3	ug/L	1120	Standard
|	Sc	45	66348.0	11.8				ug/L	61425	Standard
|	Ti	47	394.0	27.6	0.6425	0.105	16.4	ug/L	70	Standard
|	V	51	4325.2	9.0	0.0597	0.029	48.5	ug/L	3309	Standard
|	Cr	52	21565.8	11.0	0.5873	0.107	18.3	ug/L	13497	Standard
|	Cr	53	3492.1	10.7	0.1050	0.207	197.0	ug/L	3162	Standard
|	Mn	55	71091.7	15.6	4.0493	0.046	1.1	ug/L	2226	Standard
|	Co	59	1613.8	16.2	0.0574	0.005	8.6	ug/L	1003	Standard
|	Ni	60	1166.7	13.6	0.2826	0.010	3.5	ug/L	355	Standard
|	Cu	65	882.0	14.1	0.1398	0.008	5.9	ug/L	473	Standard
|	Zn	66	1892.5	14.1	1.1305	0.034	3.0	ug/L	341	Standard
>	Ge	72	618404.9	15.8				ug/L	566981	Standard
|	As	75	-82.4	54.6	0.0405	0.037	90.8	ug/L	-156	Standard
|	Se	82	29.4	32.2	-0.0519	0.115	221.6	ug/L	35	Standard
|	Se-1	77	326.7	2.0	-1.0438	0.679	65.1	ug/L	354	Standard
>	Ga	71	106.7	16.5				mg/L	43	Standard
|	Rb	85	3985.5	12.5				ug/L	48	Standard
|	Y	89	485221.0	16.6				ug/L	447702	Standard
>	Rh	103	40.0	25.0				ug/L	20	Standard
|	Mo	98	151.5	10.9	0.0203	0.009	43.2	ug/L	158	Standard
|	Ag	107	197.0	11.5	0.0034	0.001	30.1	ug/L	133	Standard
|	Cd	111	33.5	7.6	0.0026	0.001	43.5	mg/L	7	Standard
|	Cd	114	107.8	9.2	0.0080	0.001	17.7	ug/L	72	Standard
>	In	115	1091017.5	16.8				ug/L	1004638	Standard
|	Sn	118	266.7	6.2	0.0405	0.015	38.1	ug/L	364	Standard
|	Sb	123	3250.5	33.9	0.2915	0.166	57.0	ug/L	2464	Standard
|	Ba	135	16410.0	15.7	4.0036	0.071	1.8	ug/L	39	Standard
|	Ce	140	4664.1	18.0				ug/L	195	Standard
>	Tb	159	1711008.4	14.7				ug/L	1640193	Standard
|	Ho	165	130.0	27.7				ug/L	25	Standard
|	Tl	203	291.0	10.1	0.0062	0.003	45.1	ug/L	324	Standard
|	Tl	205	640.0	9.0	0.0111	0.002	15.7	ug/L	698	Standard
|	Pb	206	1035.0	16.2	0.0339	0.004	10.5	ug/L	600	Standard
|	Pb	207	852.4	12.9	0.0289	0.001	3.8	ug/L	541	Standard
|	Pb	208	2973.4	12.7	0.0340	0.001	4.0	ug/L	1750	Standard
	U	238	78.3	45.1	0.0079	0.004	44.7	ug/L	10	Standard
>	Bi	209	864126.8	14.2				ug/L	811518	Standard

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Na	23	6.7	86.6	1.0090	0.879	87.1	mg/L	0	Standard
Mg	24	103.3	42.3	1.2346	0.691	55.9	mg/L	77	Standard
K	39	66.7	26.3	0.2304	0.072	31.4	mg/L	18	Standard
Ca	43	136.7	22.4	12.9248	10.450	80.9	mg/L	178	Standard
Fe	54	49.1	0.7	0.1703	0.076	44.4	mg/L	29	Standard
Fe	57	400.0	7.8	1.4964	1.556	104.0	mg/L	408	Standard
Sc-1	45	66348.0	11.8				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.3	12.4				ug/L	12	Standard
Br	81	2536.9	6.8				ug/L	1747	Standard
P	31	36.7	7.9				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	386.7	20.9				ug/L	370	Standard
C	12	93.3	80.4				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	86.6				mg/L	17	Standard
Dy	164	190.4	36.7				mg/L	9	Standard
Ho-1	165	130.0	27.7				mg/L	25	Standard
Er	166	130.0	20.4				mg/L	20	Standard
I	127	23436.5	5.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
> Li	6		111.941	
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		109.070	
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	108.598
[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	106.483
[	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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Sample ID: L1611009813 WG590567-01

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Method 6020 - Summary Report

Sample ID: L1611009814S WG590567-04

Sample Date/Time: Friday, November 11, 2016 09:42:59

Number of Replicates: 3

Autosampler Position: 223

Sample Description: 1

Method File: C:\NexlONData\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	227161.7	20.1				ug/L	206101	Standard
|	Be	9	120302.0	17.5	46.8844	1.442	3.1	ug/L	25	Standard
|	Al	27	765425.9	14.6	3.5905	0.200	5.6	ug/L	1120	Standard
|	Sc	45	64817.0	14.7				ug/L	61425	Standard
|	Ti	47	367.3	25.1	0.6186	0.157	25.4	ug/L	70	Standard
|	V	51	564648.3	17.2	49.8718	1.206	2.4	ug/L	3309	Standard
|	Cr	52	527800.0	17.3	50.2489	1.198	2.4	ug/L	13497	Standard
|	Cr	53	68621.8	18.1	50.9667	1.645	3.2	ug/L	3162	Standard
|	Mn	55	885016.8	17.8	53.3338	1.175	2.2	ug/L	2226	Standard
|	Co	59	649751.6	17.9	49.8252	1.191	2.4	ug/L	1003	Standard
|	Ni	60	141874.6	18.4	50.6378	0.846	1.7	ug/L	355	Standard
|	Cu	65	129269.4	18.7	50.7622	0.741	1.5	ug/L	473	Standard
|	Zn	66	65550.0	17.5	50.1441	0.925	1.8	ug/L	341	Standard
>	Ge	72	603288.6	19.0				ug/L	566981	Standard
|	As	75	65282.6	16.6	49.7326	1.275	2.6	ug/L	-156	Standard
|	Se	82	5324.2	16.6	48.7017	1.281	2.6	ug/L	35	Standard
|	Se-1	77	4593.7	17.5	48.6492	1.062	2.2	ug/L	354	Standard
>	Ga	71	118.3	30.6				mg/L	43	Standard
|	Rb	85	3840.5	17.3				ug/L	48	Standard
|	Y	89	474405.4	16.8				ug/L	447702	Standard
>	Rh	103	65.0	38.5				ug/L	20	Standard
|	Mo	98	123.4	12.2	0.0152	0.008	50.4	ug/L	158	Standard
|	Ag	107	542316.8	16.0	48.0817	1.816	3.8	ug/L	133	Standard
|	Cd	111	177367.7	18.7	49.3973	0.965	2.0	mg/L	7	Standard
|	Cd	114	457855.7	18.9	47.3300	0.327	0.7	ug/L	72	Standard
>	In	115	1079160.3	19.4				ug/L	1004638	Standard
|	Sn	118	239.3	12.4	0.0289	0.008	28.0	ug/L	364	Standard
|	Sb	123	453504.8	18.0	47.3785	0.670	1.4	ug/L	2464	Standard
|	Ba	135	205696.7	15.9	50.9961	1.773	3.5	ug/L	39	Standard
|	Ce	140	4607.4	15.2				ug/L	195	Standard
>	Tb	159	1682840.9	16.3				ug/L	1640193	Standard
|	Ho	165	151.7	19.3				ug/L	25	Standard
|	Tl	203	776589.3	16.2	50.2456	1.140	2.3	ug/L	324	Standard
|	Tl	205	2040582.3	31.4	48.6245	7.727	15.9	ug/L	698	Standard
|	Pb	206	605741.0	16.5	50.2416	0.881	1.8	ug/L	600	Standard
|	Pb	207	513691.6	15.5	47.9267	0.882	1.8	ug/L	541	Standard
|	Pb	208	1719052.6	15.2	48.7243	0.754	1.5	ug/L	1750	Standard
	U	238	664057.0	11.0	47.4238	2.286	4.8	ug/L	10	Standard
>	Bi	209	855193.8	15.5				ug/L	811518	Standard

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Na	23	10.0	50.0	1.5320	0.963	62.9	mg/L	0	Standard
Mg	24	93.3	3.1	1.1517	0.246	21.3	mg/L	77	Standard
K	39	65.0	33.5	0.2326	0.107	46.2	mg/L	18	Standard
Ca	43	135.0	19.6	13.5046	3.152	23.3	mg/L	178	Standard
Fe	54	40.7	28.3	0.0835	0.183	218.7	mg/L	29	Standard
Fe	57	393.3	7.8	1.7767	2.949	166.0	mg/L	408	Standard
Sc-1	45	64817.0	14.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.0	33.1				ug/L	12	Standard
Br	81	2070.1	7.6				ug/L	1747	Standard
P	31	25.0	72.1				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	335.0	3.9				ug/L	370	Standard
C	12	86.7	29.0				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	20.0	0.0				mg/L	17	Standard
Dy	164	185.5	23.6				mg/L	9	Standard
Ho-1	165	151.7	19.3				mg/L	25	Standard
Er	166	163.3	51.0				mg/L	20	Standard
I	127	25424.7	3.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		110.218	
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		106.404	
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	107.418
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
[Tl	205	
[Pb	206	
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[Pb	208	
[U	238	
>	Bi	209	105.382
[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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Sample ID: L1611009814S WG590567-04

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Method 6020 - Summary Report

Sample ID: L1611009815SD WG590567-05

Sample Date/Time: Friday, November 11, 2016 09:46:04

Number of Replicates: 3

Autosampler Position: 224

Sample Description: 1

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	224007.0	21.8				ug/L	206101	Standard
|	Be	9	121848.2	16.3	48.4084	2.900	6.0	ug/L	25	Standard
|	Al	27	739801.7	17.1	3.5199	0.186	5.3	ug/L	1120	Standard
|	Sc	45	65526.3	13.1				ug/L	61425	Standard
|	Ti	47	370.3	36.2	0.5995	0.136	22.7	ug/L	70	Standard
|	V	51	564448.2	15.7	49.3465	1.711	3.5	ug/L	3309	Standard
|	Cr	52	533313.6	16.1	50.2487	1.555	3.1	ug/L	13497	Standard
|	Cr	53	66295.8	16.8	48.6229	1.173	2.4	ug/L	3162	Standard
|	Mn	55	882516.1	18.2	52.5220	0.464	0.9	ug/L	2226	Standard
|	Co	59	655667.6	18.2	49.6598	0.564	1.1	ug/L	1003	Standard
|	Ni	60	141923.3	18.3	50.0474	0.738	1.5	ug/L	355	Standard
|	Cu	65	129547.7	18.3	50.2831	0.560	1.1	ug/L	473	Standard
|	Zn	66	65637.4	18.5	49.5434	0.758	1.5	ug/L	341	Standard
>	Ge	72	610675.1	19.0				ug/L	566981	Standard
|	As	75	64810.9	16.9	48.7647	1.067	2.2	ug/L	-156	Standard
|	Se	82	5381.6	18.7	48.5082	0.186	0.4	ug/L	35	Standard
|	Se-1	77	4506.4	17.9	46.9794	1.134	2.4	ug/L	354	Standard
>	Ga	71	120.0	12.5				mg/L	43	Standard
|	Rb	85	3592.1	17.7				ug/L	48	Standard
|	Y	89	477926.0	18.4				ug/L	447702	Standard
>	Rh	103	48.3	23.9				ug/L	20	Standard
|	Mo	98	113.4	10.9	0.0129	0.003	24.0	ug/L	158	Standard
|	Ag	107	546602.4	16.3	49.0239	1.465	3.0	ug/L	133	Standard
|	Cd	111	176436.2	18.9	49.7241	0.943	1.9	mg/L	7	Standard
|	Cd	114	455674.5	20.4	47.5781	1.142	2.4	ug/L	72	Standard
>	In	115	1065022.3	18.6				ug/L	1004638	Standard
|	Sn	118	240.0	7.3	0.0312	0.013	41.9	ug/L	364	Standard
|	Sb	123	456538.3	17.8	48.2865	0.428	0.9	ug/L	2464	Standard
|	Ba	135	204784.2	16.4	51.3509	1.186	2.3	ug/L	39	Standard
|	Ce	140	4652.4	21.7				ug/L	195	Standard
>	Tb	159	1678282.4	15.8				ug/L	1640193	Standard
|	Ho	165	155.0	34.1				ug/L	25	Standard
|	Tl	203	771054.9	16.7	50.4143	0.621	1.2	ug/L	324	Standard
|	Tl	205	2022749.7	31.1	48.7233	7.302	15.0	ug/L	698	Standard
|	Pb	206	598163.1	16.6	50.1539	1.143	2.3	ug/L	600	Standard
|	Pb	207	507437.6	16.1	47.8372	0.596	1.2	ug/L	541	Standard
|	Pb	208	1726193.4	16.5	49.3993	0.619	1.3	ug/L	1750	Standard
	U	238	663909.5	12.0	47.8989	2.170	4.5	ug/L	10	Standard
>	Bi	209	846568.5	16.4				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2162	0.366	169.2	mg/L	0	Standard
Mg	24	86.7	28.5	0.9465	0.288	30.5	mg/L	77	Standard
K	39	50.0	55.7	0.1479	0.134	90.9	mg/L	18	Standard
Ca	43	130.0	3.8	14.5860	2.614	17.9	mg/L	178	Standard
Fe	54	30.2	41.3	-0.0691	0.142	205.3	mg/L	29	Standard
Fe	57	385.0	5.7	1.1303	1.209	107.0	mg/L	408	Standard
Sc-1	45	65526.3	13.1				mg/L	61425	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	10.3	53.3				ug/L	12	Standard
Br	81	2413.5	9.1				ug/L	1747	Standard
P	31	21.7	70.5				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	346.7	6.0				ug/L	370	Standard
C	12	100.0	36.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	187.3	24.4				mg/L	9	Standard
Ho-1	165	155.0	34.1				mg/L	25	Standard
Er	166	126.7	60.3				mg/L	20	Standard
I	127	24052.5	7.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		108.688	
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		107.706	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611009815SD WG590567-05

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	106.011
[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	104.319
[	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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Sample ID: L1611009815SD WG590567-05

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Method 6020 - Summary Report

Sample ID: L1611012101

Sample Date/Time: Friday, November 11, 2016 09:49:10

Number of Replicates: 3

Autosampler Position: 225

Sample Description: 1

Method File: C:\NexlONData\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	224231.9	18.4				ug/L	206101	Standard
|	Be	9	66.7	11.5	0.0076	0.002	32.7	ug/L	25	Standard
|	Al	27	8233003.1	13.5	39.0258	2.031	5.2	ug/L	1120	Standard
|	Sc	45	66950.8	12.5				ug/L	61425	Standard
|	Ti	47	280.0	23.2	0.4328	0.054	12.4	ug/L	70	Standard
|	V	51	3619.5	14.9	0.0048	0.006	131.3	ug/L	3309	Standard
|	Cr	52	20156.5	10.8	0.5062	0.096	18.9	ug/L	13497	Standard
|	Cr	53	3492.1	10.5	0.1774	0.160	90.5	ug/L	3162	Standard
|	Mn	55	637298.6	15.4	38.4534	0.873	2.3	ug/L	2226	Standard
|	Co	59	4241.9	18.7	0.2621	0.016	6.0	ug/L	1003	Standard
|	Ni	60	5443.0	17.1	1.8245	0.053	2.9	ug/L	355	Standard
|	Cu	65	879.4	15.3	0.1478	0.000	0.2	ug/L	473	Standard
|	Zn	66	2407.2	16.7	1.5621	0.028	1.8	ug/L	341	Standard
>	Ge	72	601242.1	15.3				ug/L	566981	Standard
|	As	75	29.2	139.9	0.1260	0.030	23.7	ug/L	-156	Standard
|	Se	82	46.4	25.0	0.1065	0.098	91.8	ug/L	35	Standard
|	Se-1	77	351.3	8.4	-0.6201	1.024	165.1	ug/L	354	Standard
>	Ga	71	60.0	30.0				mg/L	43	Standard
|	Rb	85	1355.1	10.0				ug/L	48	Standard
|	Y	89	474334.3	13.7				ug/L	447702	Standard
>	Rh	103	28.3	44.4				ug/L	20	Standard
|	Mo	98	102.3	15.5	0.0107	0.005	45.4	ug/L	158	Standard
|	Ag	107	248.7	13.8	0.0083	0.001	7.6	ug/L	133	Standard
|	Cd	111	16.9	11.8	-0.0020	0.001	27.2	mg/L	7	Standard
|	Cd	114	60.0	16.9	0.0031	0.001	19.4	ug/L	72	Standard
>	In	115	1071866.3	14.8				ug/L	1004638	Standard
|	Sn	118	247.3	6.5	0.0338	0.017	51.6	ug/L	364	Standard
|	Sb	123	8526.9	30.3	0.8698	0.381	43.8	ug/L	2464	Standard
|	Ba	135	8099.9	13.2	2.0069	0.054	2.7	ug/L	39	Standard
|	Ce	140	2975.3	12.8				ug/L	195	Standard
>	Tb	159	1676211.4	14.0				ug/L	1640193	Standard
|	Ho	165	108.3	35.3				ug/L	25	Standard
|	Tl	203	491.0	0.5	0.0201	0.005	24.8	ug/L	324	Standard
|	Tl	205	1208.4	12.3	0.0255	0.003	10.8	ug/L	698	Standard
|	Pb	206	959.0	15.3	0.0298	0.003	8.8	ug/L	600	Standard
|	Pb	207	751.0	12.8	0.0214	0.002	7.4	ug/L	541	Standard
|	Pb	208	2756.1	9.5	0.0303	0.004	14.0	ug/L	1750	Standard
	U	238	272.3	11.9	0.0222	0.005	24.0	ug/L	10	Standard
>	Bi	209	841084.5	14.2				ug/L	811518	Standard

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Na	23	61.7	12.4	8.7324	1.079	12.4	mg/L	0	Standard
Mg	24	101.7	15.0	1.2837	0.580	45.2	mg/L	77	Standard
K	39	78.3	51.2	0.3107	0.266	85.5	mg/L	18	Standard
Ca	43	153.3	18.0	9.6668	10.360	107.2	mg/L	178	Standard
Fe	54	25.7	46.2	-0.1263	0.140	110.8	mg/L	29	Standard
Fe	57	441.7	9.4	3.0260	3.140	103.8	mg/L	408	Standard
Sc-1	45	66950.8	12.5				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	7.0	51.5				ug/L	12	Standard
Br	81	3133.7	11.0				ug/L	1747	Standard
P	31	25.0	87.2				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	346.7	12.1				ug/L	370	Standard
C	12	60.0	28.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	43.3				mg/L	17	Standard
Dy	164	105.5	52.1				mg/L	9	Standard
Ho-1	165	108.3	35.3				mg/L	25	Standard
Er	166	93.3	44.6				mg/L	20	Standard
I	127	88331.0	7.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		108.797	
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		106.043	
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	106.692
[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	103.643
[	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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Sample ID: L1611012101

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Method 6020 - Summary Report

Sample ID: L1611012401

Sample Date/Time: Friday, November 11, 2016 09:52:15

Number of Replicates: 3

Autosampler Position: 226

Sample Description: 1

Method File: C:\NexlONData\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	231682.4	11.8				ug/L	206101	Standard
|	Be	9	43.3	13.3	-0.0024	0.000	9.7	ug/L	25	Standard
|	Al	27	15065065.5	8.6	68.8390	2.305	3.3	ug/L	1120	Standard
|	Sc	45	66812.7	8.8				ug/L	61425	Standard
|	Ti	47	233.3	19.8	0.3282	0.068	20.7	ug/L	70	Standard
|	V	51	3884.9	1.7	0.0234	0.032	135.7	ug/L	3309	Standard
|	Cr	52	21576.4	7.1	0.5981	0.091	15.2	ug/L	13497	Standard
|	Cr	53	3365.4	11.3	0.0085	0.009	102.7	ug/L	3162	Standard
|	Mn	55	1529987.1	10.6	90.6148	2.135	2.4	ug/L	2226	Standard
|	Co	59	2264.5	9.3	0.1077	0.010	9.7	ug/L	1003	Standard
|	Ni	60	3065.6	11.6	0.9520	0.049	5.2	ug/L	355	Standard
|	Cu	65	1183.7	11.9	0.2585	0.022	8.7	ug/L	473	Standard
|	Zn	66	4494.7	8.7	3.1080	0.098	3.2	ug/L	341	Standard
>	Ge	72	614179.0	11.7				ug/L	566981	Standard
|	As	75	2780.7	6.9	2.1817	0.097	4.4	ug/L	-156	Standard
|	Se	82	41.0	16.3	0.0533	0.096	179.3	ug/L	35	Standard
|	Se-1	77	352.7	9.2	-0.7837	0.173	22.0	ug/L	354	Standard
>	Ga	71	71.7	24.5				mg/L	43	Standard
|	Rb	85	6614.8	13.8				ug/L	48	Standard
|	Y	89	469134.2	10.1				ug/L	447702	Standard
>	Rh	103	73.3	25.8				ug/L	20	Standard
|	Mo	98	1199.0	6.0	0.2257	0.008	3.4	ug/L	158	Standard
|	Ag	107	175.7	10.8	0.0019	0.000	16.2	ug/L	133	Standard
|	Cd	111	18.8	39.5	-0.0015	0.002	109.5	mg/L	7	Standard
|	Cd	114	105.7	37.4	0.0077	0.003	40.9	ug/L	72	Standard
>	In	115	1062880.3	9.4				ug/L	1004638	Standard
|	Sn	118	284.0	6.9	0.0502	0.005	9.0	ug/L	364	Standard
|	Sb	123	2798.5	42.5	0.2435	0.148	60.9	ug/L	2464	Standard
|	Ba	135	84511.3	9.0	21.1812	0.532	2.5	ug/L	39	Standard
|	Ce	140	601.7	8.5				ug/L	195	Standard
>	Tb	159	1679019.7	11.4				ug/L	1640193	Standard
|	Ho	165	45.0	22.2				ug/L	25	Standard
|	Tl	203	841.7	1.8	0.0423	0.005	13.0	ug/L	324	Standard
|	Tl	205	1830.1	4.7	0.0402	0.002	4.8	ug/L	698	Standard
|	Pb	206	824.7	12.7	0.0175	0.003	14.7	ug/L	600	Standard
|	Pb	207	681.3	11.1	0.0138	0.002	12.0	ug/L	541	Standard
|	Pb	208	2281.7	9.0	0.0153	0.002	10.7	ug/L	1750	Standard
	U	238	978.0	4.0	0.0720	0.005	6.9	ug/L	10	Standard
>	Bi	209	852319.1	8.8				ug/L	811518	Standard

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Na	23	145.0	24.1	20.4391	4.743	23.2	mg/L	0	Standard
Mg	24	123.3	35.0	1.6502	0.663	40.2	mg/L	77	Standard
K	39	85.0	17.6	0.3259	0.091	27.8	mg/L	18	Standard
Ca	43	223.3	8.5	-4.6342	6.981	150.6	mg/L	178	Standard
Fe	54	54.1	36.8	0.2250	0.265	117.8	mg/L	29	Standard
Fe	57	563.3	11.2	7.3377	3.160	43.1	mg/L	408	Standard
Sc-1	45	66812.7	8.8				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	7.3	7.9				ug/L	12	Standard
Br	81	2993.6	6.2				ug/L	1747	Standard
P	31	38.3	19.9				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	423.3	4.5				ug/L	370	Standard
C	12	86.7	17.6				mg/L	47	Standard
N	14	6.7	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	48.6	76.2				mg/L	9	Standard
Ho-1	165	45.0	22.2				mg/L	25	Standard
Er	166	30.0	66.7				mg/L	20	Standard
I	127	28887.6	6.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		112.412	
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		108.324	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611012401

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	105.797
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
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[U	238	
>	Bi	209	105.028
[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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Sample ID: L1611012401

Report Date/Time: Monday, November 14, 2016 08:36:04

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Method 6020 - Summary Report

Sample ID: L1611012401PS WG590881-03

Sample Date/Time: Friday, November 11, 2016 09:55:20

Number of Replicates: 3

Autosampler Position: 227

Sample Description: 1

Method File: C:\NexlONData\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	226832.0	15.0				ug/L	206101	Standard
|	Be	9	123441.7	18.2	47.8829	2.080	4.3	ug/L	25	Standard
|	Al	27	14505777.6	13.3	67.6959	2.462	3.6	ug/L	1120	Standard
|	Sc	45	65050.7	12.3				ug/L	61425	Standard
|	Ti	47	227.3	22.0	0.3229	0.025	7.9	ug/L	70	Standard
|	V	51	577743.1	14.9	51.0411	0.970	1.9	ug/L	3309	Standard
|	Cr	52	540210.1	15.5	51.4465	0.743	1.4	ug/L	13497	Standard
|	Cr	53	68525.1	14.7	50.9801	1.216	2.4	ug/L	3162	Standard
|	Mn	55	2811916.7	27.6	167.4177	21.741	13.0	ug/L	2226	Standard
|	Co	59	659788.3	16.3	50.5759	0.531	1.1	ug/L	1003	Standard
|	Ni	60	142566.1	16.1	50.8994	0.314	0.6	ug/L	355	Standard
|	Cu	65	126562.3	15.4	49.7734	0.759	1.5	ug/L	473	Standard
|	Zn	66	68829.7	16.1	52.6288	0.595	1.1	ug/L	341	Standard
>	Ge	72	603125.0	16.7				ug/L	566981	Standard
|	As	75	69127.8	16.6	52.5285	0.822	1.6	ug/L	-156	Standard
|	Se	82	5529.6	17.2	50.4317	0.346	0.7	ug/L	35	Standard
|	Se-1	77	4618.4	15.5	48.9270	0.754	1.5	ug/L	354	Standard
>	Ga	71	80.0	22.5				mg/L	43	Standard
|	Rb	85	6401.4	16.4				ug/L	48	Standard
|	Y	89	468603.1	14.0				ug/L	447702	Standard
>	Rh	103	85.0	10.2				ug/L	20	Standard
|	Mo	98	1190.9	16.5	0.2254	0.001	0.6	ug/L	158	Standard
|	Ag	107	551248.0	15.1	49.8694	0.867	1.7	ug/L	133	Standard
|	Cd	111	175437.5	17.1	49.9259	0.582	1.2	mg/L	7	Standard
|	Cd	114	457436.7	18.9	48.2343	1.295	2.7	ug/L	72	Standard
>	In	115	1055009.5	16.7				ug/L	1004638	Standard
|	Sn	118	278.0	15.1	0.0487	0.009	18.9	ug/L	364	Standard
|	Sb	123	463543.8	16.7	49.4610	0.720	1.5	ug/L	2464	Standard
|	Ba	135	272058.1	15.8	68.7641	0.837	1.2	ug/L	39	Standard
|	Ce	140	740.0	19.7				ug/L	195	Standard
>	Tb	159	1641465.1	14.8				ug/L	1640193	Standard
|	Ho	165	81.7	49.9				ug/L	25	Standard
|	Tl	203	752069.4	14.4	49.7240	0.631	1.3	ug/L	324	Standard
|	Tl	205	1975136.9	29.2	48.2297	7.858	16.3	ug/L	698	Standard
|	Pb	206	587898.9	15.9	49.7706	1.341	2.7	ug/L	600	Standard
|	Pb	207	515802.0	15.0	49.1212	1.036	2.1	ug/L	541	Standard
|	Pb	208	1722712.2	13.8	49.8655	0.320	0.6	ug/L	1750	Standard
	U	238	690043.4	10.0	50.2738	1.672	3.3	ug/L	10	Standard
>	Bi	209	836742.8	13.3				ug/L	811518	Standard

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Na	23	146.7	31.7	20.9784	4.263	20.3	mg/L	0	Standard
Mg	24	121.7	9.5	1.7637	0.572	32.4	mg/L	77	Standard
K	39	75.0	24.0	0.2788	0.052	18.7	mg/L	18	Standard
Ca	43	195.0	18.5	-0.1095	11.479	10482.5	mg/L	178	Standard
Fe	54	49.2	30.2	0.1686	0.119	70.5	mg/L	29	Standard
Fe	57	555.0	13.1	7.5275	2.285	30.4	mg/L	408	Standard
Sc-1	45	65050.7	12.3				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	14.7	27.6				ug/L	12	Standard
Br	81	2987.0	7.3				ug/L	1747	Standard
P	31	43.3	26.6				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	371.7	18.9				ug/L	370	Standard
C	12	113.3	28.4				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	58.9	72.8				mg/L	9	Standard
Ho-1	165	81.7	49.9				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	26197.7	5.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		110.058	
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		106.375	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611012401PS WG590881-03

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	105.014
[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	103.108
[	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
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611012401PS WG590881-03

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Method 6020 - Summary Report

Sample ID: L1611012401SDL WG590881-04

Sample Date/Time: Friday, November 11, 2016 09:58:26

Number of Replicates: 3

Autosampler Position: 228

Sample Description: 5

Method File: C:\NexlONData\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	204793.6	14.5				ug/L	206101	Standard
|	Be	9	38.3	71.8	-0.0033	0.010	297.9	ug/L	25	Standard
|	Al	27	2568989.2	24.5	13.1462	1.900	14.5	ug/L	1120	Standard
|	Sc	45	59902.6	11.6				ug/L	61425	Standard
|	Ti	47	73.3	16.3	0.0206	0.018	87.5	ug/L	70	Standard
|	V	51	3531.2	10.9	0.0262	0.014	53.1	ug/L	3309	Standard
|	Cr	52	13607.1	9.6	-0.0191	0.075	393.4	ug/L	13497	Standard
|	Cr	53	2101.8	5.9	-0.7553	0.239	31.7	ug/L	3162	Standard
|	Mn	55	277355.1	15.0	18.1543	0.120	0.7	ug/L	2226	Standard
|	Co	59	773.4	11.7	0.0017	0.003	193.5	ug/L	1003	Standard
|	Ni	60	846.7	14.2	0.2059	0.012	5.9	ug/L	355	Standard
|	Cu	65	695.0	12.9	0.1001	0.012	12.3	ug/L	473	Standard
|	Zn	66	2618.2	11.7	1.9151	0.079	4.1	ug/L	341	Standard
>	Ge	72	551571.2	14.4				ug/L	566981	Standard
|	As	75	382.2	35.1	0.4188	0.083	19.7	ug/L	-156	Standard
|	Se	82	26.3	16.5	-0.0598	0.016	27.4	ug/L	35	Standard
|	Se-1	77	350.7	10.1	-0.3182	0.583	183.1	ug/L	354	Standard
>	Ga	71	41.7	18.3				mg/L	43	Standard
|	Rb	85	1300.1	17.8				ug/L	48	Standard
|	Y	89	422514.7	14.8				ug/L	447702	Standard
>	Rh	103	20.0	43.3				ug/L	20	Standard
|	Mo	98	268.3	2.7	0.0496	0.008	15.9	ug/L	158	Standard
|	Ag	107	207.0	13.9	0.0068	0.002	29.4	ug/L	133	Standard
|	Cd	111	11.0	68.8	-0.0034	0.002	53.1	mg/L	7	Standard
|	Cd	114	60.5	33.5	0.0038	0.002	47.5	ug/L	72	Standard
>	In	115	955894.1	15.2				ug/L	1004638	Standard
|	Sn	118	105.3	7.0	-0.0257	0.008	32.9	ug/L	364	Standard
|	Sb	123	3318.7	29.2	0.3462	0.169	48.7	ug/L	2464	Standard
|	Ba	135	15471.0	13.5	4.3088	0.083	1.9	ug/L	39	Standard
|	Ce	140	150.0	25.2				ug/L	195	Standard
>	Tb	159	1517206.5	13.1				ug/L	1640193	Standard
|	Ho	165	16.7	34.6				ug/L	25	Standard
|	Tl	203	306.3	5.4	0.0088	0.002	24.9	ug/L	324	Standard
|	Tl	205	776.7	14.8	0.0159	0.003	18.7	ug/L	698	Standard
|	Pb	206	628.3	13.8	0.0049	0.000	4.9	ug/L	600	Standard
|	Pb	207	504.3	10.9	0.0007	0.001	214.1	ug/L	541	Standard
|	Pb	208	1724.4	12.5	0.0029	0.001	22.5	ug/L	1750	Standard
	U	238	208.7	10.3	0.0181	0.002	9.8	ug/L	10	Standard
>	Bi	209	796621.7	13.5				ug/L	811518	Standard

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Na	23	23.3	24.7	3.7118	1.009	27.2	mg/L	0	Standard
Mg	24	48.3	6.0	0.2679	0.145	54.2	mg/L	77	Standard
K	39	36.7	43.8	0.1057	0.119	112.4	mg/L	18	Standard
Ca	43	135.0	23.1	10.3572	10.698	103.3	mg/L	178	Standard
Fe	54	29.0	17.0	-0.0388	0.097	249.6	mg/L	29	Standard
Fe	57	450.0	9.9	5.1775	3.115	60.2	mg/L	408	Standard
Sc-1	45	59902.6	11.6				mg/L	61425	Standard
Cl	35	2.7	114.6				ug/L	1	Standard
Kr	83	8.0	33.1				ug/L	12	Standard
Br	81	1740.1	23.9				ug/L	1747	Standard
P	31	31.7	48.2				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	378.3	8.0				ug/L	370	Standard
C	12	66.7	17.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	12.4	46.8				mg/L	9	Standard
Ho-1	165	16.7	34.6				mg/L	25	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	9909.9	7.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.365	
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		97.282	
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	95.148
[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	98.164
[	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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Sample ID: L1611012401SDL WG590881-04

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 10:01:33

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	227050.9	18.7				ug/L	206101	Standard
|	Be	9	119650.7	16.5	46.6392	1.287	2.8	ug/L	25	Standard
|	Al	27	9983476.4	12.9	46.8034	2.963	6.3	ug/L	1120	Standard
|	Sc	45	62269.1	12.9				ug/L	61425	Standard
|	Ti	47	46497.9	14.5	97.1195	2.507	2.6	ug/L	70	Standard
|	V	51	552393.4	14.4	49.0556	1.306	2.7	ug/L	3309	Standard
|	Cr	52	512800.2	14.8	49.0481	1.122	2.3	ug/L	13497	Standard
|	Cr	53	65190.0	13.4	48.6963	1.859	3.8	ug/L	3162	Standard
|	Mn	55	812347.4	16.4	49.1477	0.309	0.6	ug/L	2226	Standard
|	Co	59	643393.9	17.3	49.4965	0.269	0.5	ug/L	1003	Standard
|	Ni	60	137418.5	17.2	49.2413	0.381	0.8	ug/L	355	Standard
|	Cu	65	124989.2	18.1	49.2444	0.612	1.2	ug/L	473	Standard
|	Zn	66	64399.0	16.3	49.4552	0.418	0.8	ug/L	341	Standard
>	Ge	72	600339.3	17.0				ug/L	566981	Standard
|	As	75	63649.5	15.9	48.6507	0.796	1.6	ug/L	-156	Standard
|	Se	82	5331.3	17.6	48.8369	0.722	1.5	ug/L	35	Standard
|	Se-1	77	4481.7	16.0	47.5626	0.497	1.0	ug/L	354	Standard
>	Ga	71	83.3	19.3				mg/L	43	Standard
|	Rb	85	678.3	12.6				ug/L	48	Standard
|	Y	89	470974.9	15.8				ug/L	447702	Standard
>	Rh	103	45.0	38.5				ug/L	20	Standard
|	Mo	98	491481.8	14.4	98.6605	2.942	3.0	ug/L	158	Standard
|	Ag	107	556985.2	14.9	51.1598	1.358	2.7	ug/L	133	Standard
|	Cd	111	170795.5	16.8	49.3438	0.374	0.8	mg/L	7	Standard
|	Cd	114	453060.0	15.5	48.6799	1.430	2.9	ug/L	72	Standard
>	In	115	1040198.8	17.4				ug/L	1004638	Standard
|	Sn	118	105228.3	16.0	49.2444	0.687	1.4	ug/L	364	Standard
|	Sb	123	456499.9	16.8	49.4287	0.475	1.0	ug/L	2464	Standard
|	Ba	135	187021.8	15.0	48.0389	1.638	3.4	ug/L	39	Standard
|	Ce	140	210.0	25.1				ug/L	195	Standard
>	Tb	159	1655818.5	13.3				ug/L	1640193	Standard
|	Ho	165	51.7	31.1				ug/L	25	Standard
|	Tl	203	741248.2	14.3	49.4723	0.815	1.6	ug/L	324	Standard
|	Tl	205	1929262.1	30.2	47.5226	8.221	17.3	ug/L	698	Standard
|	Pb	206	579623.1	13.6	49.6363	0.781	1.6	ug/L	600	Standard
|	Pb	207	511817.0	13.5	49.2554	0.623	1.3	ug/L	541	Standard
|	Pb	208	1692665.3	14.1	49.4348	0.394	0.8	ug/L	1750	Standard
	U	238	669586.2	10.0	49.2398	1.864	3.8	ug/L	10	Standard
>	Bi	209	829418.1	13.7				ug/L	811518	Standard

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Na	23	40.0	43.3	6.1528	2.896	47.1	mg/L	0	Standard
Mg	24	245.0	10.2	4.6340	1.029	22.2	mg/L	77	Standard
K	39	798.4	6.4	4.3062	0.310	7.2	mg/L	18	Standard
Ca	43	138.3	18.5	10.6380	9.779	91.9	mg/L	178	Standard
Fe	54	399.9	13.7	4.8186	0.280	5.8	mg/L	29	Standard
Fe	57	578.3	11.5	9.5017	3.427	36.1	mg/L	408	Standard
Sc-1	45	62269.1	12.9				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.7	61.6				ug/L	12	Standard
Br	81	1746.8	19.6				ug/L	1747	Standard
P	31	23.3	32.7				ug/L	17	Standard
S	34	8.3	124.9				ug/L	3	Standard
Sr	88	338.3	14.2				ug/L	370	Standard
C	12	80.0	33.1				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	27.9	33.7				mg/L	9	Standard
Ho-1	165	51.7	31.1				mg/L	25	Standard
Er	166	43.3	81.0				mg/L	20	Standard
I	127	4163.9	14.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	93.278		
Al	27	93.607		
Sc	45			
Ti	47	97.119		
V	51	98.111		
Cr	52	98.096		
Cr	53			
Mn	55	98.295		
Co	59	98.993		
Ni	60	98.483		
Cu	65	98.489		
Zn	66	98.910		
Ge	72		105.883	
As	75	97.301		
Se	82	97.674		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	98.661	
[Ag	107	102.320	
[Cd	111	98.688	
[Cd	114		
>	In	115		103.540
[Sn	118	98.489	
[	Sb	123	98.857	
[	Ba	135	96.078	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	98.945	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	98.870	
[	U	238	98.480	
>	Bi	209		102.206
[	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

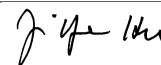
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 10:04:38

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	231759.6	4.3				ug/L	206101	Standard
|	Be	9	55.0	18.2	0.0020	0.004	183.7	ug/L	25	Standard
|	Al	27	2733.6	8.5	0.0181	0.001	3.1	ug/L	1120	Standard
|	Sc	45	64353.2	3.9				ug/L	61425	Standard
|	Ti	47	59.0	12.2	-0.0291	0.013	43.6	ug/L	70	Standard
|	V	51	2783.1	2.3	-0.0809	0.007	9.2	ug/L	3309	Standard
|	Cr	52	11368.3	2.3	-0.4165	0.016	3.7	ug/L	13497	Standard
|	Cr	53	2026.8	1.8	-1.0536	0.081	7.7	ug/L	3162	Standard
|	Mn	55	1858.4	6.1	-0.0294	0.006	19.0	ug/L	2226	Standard
|	Co	59	581.0	12.2	-0.0208	0.004	19.8	ug/L	1003	Standard
|	Ni	60	369.0	2.5	0.0011	0.002	219.3	ug/L	355	Standard
|	Cu	65	480.0	9.2	-0.0188	0.015	79.2	ug/L	473	Standard
|	Zn	66	393.3	8.8	-0.0009	0.023	2670.7	ug/L	341	Standard
>	Ge	72	629890.7	3.7				ug/L	566981	Standard
|	As	75	-113.3	35.1	0.0223	0.027	120.8	ug/L	-156	Standard
|	Se	82	26.8	6.3	-0.0871	0.024	27.1	ug/L	35	Standard
|	Se-1	77	338.7	8.0	-1.0484	0.264	25.2	ug/L	354	Standard
>	Ga	71	40.0	33.1				mg/L	43	Standard
|	Rb	85	45.0	29.4				ug/L	48	Standard
|	Y	89	480481.6	3.3				ug/L	447702	Standard
>	Rh	103	30.0	44.1				ug/L	20	Standard
|	Mo	98	81.6	69.1	0.0057	0.010	181.1	ug/L	158	Standard
|	Ag	107	217.0	42.8	0.0047	0.008	163.1	ug/L	133	Standard
|	Cd	111	23.9	75.8	-0.0003	0.005	1768.2	mg/L	7	Standard
|	Cd	114	107.2	71.0	0.0076	0.008	99.2	ug/L	72	Standard
>	In	115	1107761.8	4.6				ug/L	1004638	Standard
|	Sn	118	165.3	8.8	-0.0074	0.007	92.0	ug/L	364	Standard
|	Sb	123	606.7	26.9	-0.0005	0.016	2967.8	ug/L	2464	Standard
|	Ba	135	61.7	56.4	0.0052	0.008	155.3	ug/L	39	Standard
|	Ce	140	28.3	66.8				ug/L	195	Standard
>	Tb	159	1748273.1	3.9				ug/L	1640193	Standard
|	Ho	165	20.0	43.3				ug/L	25	Standard
|	Tl	203	90.0	60.6	-0.0072	0.003	46.0	ug/L	324	Standard
|	Tl	205	186.7	52.6	-0.0001	0.002	2588.4	ug/L	698	Standard
|	Pb	206	664.0	9.9	0.0013	0.006	452.6	ug/L	600	Standard
|	Pb	207	551.0	8.0	-0.0012	0.004	302.8	ug/L	541	Standard
|	Pb	208	1901.4	8.2	0.0015	0.004	249.1	ug/L	1750	Standard
	U	238	29.0	85.8	0.0040	0.002	41.4	ug/L	10	Standard
>	Bi	209	901688.8	3.9				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	41.7	30.2	0.0335	0.234	699.3	mg/L	77	Standard
K	39	16.7	34.6	-0.0234	0.031	133.6	mg/L	18	Standard
Ca	43	151.7	12.5	9.6453	3.003	31.1	mg/L	178	Standard
Fe	54	23.8	37.2	-0.1361	0.121	88.7	mg/L	29	Standard
Fe	57	383.3	4.9	1.2564	1.241	98.8	mg/L	408	Standard
Sc-1	45	64353.2	3.9				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.7	35.3				ug/L	12	Standard
Br	81	1696.8	2.7				ug/L	1747	Standard
P	31	35.0	49.5				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	405.0	6.9				ug/L	370	Standard
C	12	60.0	60.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	21.4	29.1				mg/L	9	Standard
Ho-1	165	20.0	43.3				mg/L	25	Standard
Er	166	40.0	43.3				mg/L	20	Standard
I	127	14520.4	16.5				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		111.095	
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	110.265
[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	111.111
[	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: L1611014402

Sample Date/Time: Friday, November 11, 2016 10:08:23

Number of Replicates: 3

Autosampler Position: 240

Sample Description: 1

Method File: C:\NexlONData\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	249410.6	17.9				ug/L	206101	Standard
|	Be	9	85.0	21.2	0.0111	0.002	14.3	ug/L	25	Standard
|	Al	27	44525074.0	11.0	190.1296	13.928	7.3	ug/L	1120	Standard
|	Sc	45	66595.2	9.4				ug/L	61425	Standard
|	Ti	47	558.7	20.1	1.0033	0.082	8.2	ug/L	70	Standard
|	V	51	9508.1	9.6	0.5324	0.126	23.7	ug/L	3309	Standard
|	Cr	52	22498.8	10.3	0.7192	0.107	14.9	ug/L	13497	Standard
|	Cr	53	17438.4	5.2	11.0928	1.344	12.1	ug/L	3162	Standard
|	Mn	55	263310.2	14.4	15.6832	0.106	0.7	ug/L	2226	Standard
|	Co	59	3233.0	13.6	0.1837	0.003	1.6	ug/L	1003	Standard
|	Ni	60	4693.1	21.9	1.5335	0.131	8.5	ug/L	355	Standard
|	Cu	65	1483.4	16.9	0.3807	0.021	5.6	ug/L	473	Standard
|	Zn	66	3020.6	14.3	2.0202	0.015	0.8	ug/L	341	Standard
>	Ge	72	605829.5	14.4				ug/L	566981	Standard
|	As	75	1006.6	15.6	0.8631	0.010	1.1	ug/L	-156	Standard
|	Se	82	484.6	16.0	4.1022	0.137	3.3	ug/L	35	Standard
|	Se-1	77	1157.7	1.3	8.7771	2.085	23.8	ug/L	354	Standard
>	Ga	71	78.3	30.2				mg/L	43	Standard
|	Rb	85	3227.0	18.8				ug/L	48	Standard
|	Y	89	463954.0	13.2				ug/L	447702	Standard
>	Rh	103	348.3	33.1				ug/L	20	Standard
|	Mo	98	800.0	8.4	0.1533	0.013	8.4	ug/L	158	Standard
|	Ag	107	262.0	16.6	0.0104	0.002	23.6	ug/L	133	Standard
|	Cd	111	200.3	13.1	0.0519	0.003	6.4	mg/L	7	Standard
|	Cd	114	584.1	10.1	0.0604	0.005	7.5	ug/L	72	Standard
>	In	115	1029723.8	15.0				ug/L	1004638	Standard
|	Sn	118	343.0	7.6	0.0834	0.013	16.1	ug/L	364	Standard
|	Sb	123	4430.6	23.6	0.4379	0.168	38.3	ug/L	2464	Standard
|	Ba	135	45867.9	14.2	11.8693	0.208	1.7	ug/L	39	Standard
|	Ce	140	573.3	12.2				ug/L	195	Standard
>	Tb	159	1646735.2	12.3				ug/L	1640193	Standard
|	Ho	165	58.3	13.1				ug/L	25	Standard
|	Tl	203	5567.2	46.3	0.3647	0.137	37.6	ug/L	324	Standard
|	Tl	205	13430.2	48.7	0.3352	0.132	39.3	ug/L	698	Standard
|	Pb	206	2692.2	24.5	0.1865	0.033	17.6	ug/L	600	Standard
|	Pb	207	2292.5	22.9	0.1778	0.028	15.8	ug/L	541	Standard
|	Pb	208	7804.5	23.4	0.1858	0.030	16.3	ug/L	1750	Standard
	U	238	107781.9	7.9	8.2394	0.323	3.9	ug/L	10	Standard
>	Bi	209	797692.0	11.6				ug/L	811518	Standard

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Na	23	203.3	18.1	28.6544	2.882	10.1	mg/L	0	Standard
Mg	24	5841.1	5.5	119.9346	6.113	5.1	mg/L	77	Standard
K	39	78.3	9.8	0.2911	0.026	9.0	mg/L	18	Standard
Ca	43	188.3	8.1	2.6811	5.217	194.6	mg/L	178	Standard
Fe	54	33.5	39.4	-0.0362	0.139	382.7	mg/L	29	Standard
Fe	57	626.7	3.0	9.7259	2.378	24.5	mg/L	408	Standard
Sc-1	45	66595.2	9.4				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	9.7	51.0				ug/L	12	Standard
Br	81	59186.1	9.9				ug/L	1747	Standard
P	31	23.3	32.7				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	373.3	12.4				ug/L	370	Standard
C	12	146.7	27.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	69.3				mg/L	17	Standard
Dy	164	41.4	76.9				mg/L	9	Standard
Ho-1	165	58.3	13.1				mg/L	25	Standard
Er	166	40.0	43.3				mg/L	20	Standard
I	127	953699.7	6.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		121.014	
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		106.852	
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	102.497
[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	98.296
[	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
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611014402

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Method 6020 - Summary Report

Sample ID: L1611014404

Sample Date/Time: Friday, November 11, 2016 10:11:28

Number of Replicates: 3

Autosampler Position: 241

Sample Description: 1

Method File: C:\NexlONData\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	248778.7	17.3				ug/L	206101	Standard
|	Be	9	103.3	17.0	0.0177	0.001	3.6	ug/L	25	Standard
|	Al	27	88450249.1	12.7	377.4590	17.522	4.6	ug/L	1120	Standard
|	Sc	45	68408.4	10.1				ug/L	61425	Standard
|	Ti	47	480.3	22.9	0.8854	0.078	8.8	ug/L	70	Standard
|	V	51	4480.9	12.0	0.1016	0.062	61.1	ug/L	3309	Standard
|	Cr	52	27504.9	13.3	1.3306	0.067	5.0	ug/L	13497	Standard
|	Cr	53	33782.8	9.5	25.0686	1.745	7.0	ug/L	3162	Standard
|	Mn	55	26955.3	15.1	1.5601	0.008	0.5	ug/L	2226	Standard
|	Co	59	2981.3	15.7	0.1750	0.003	1.5	ug/L	1003	Standard
|	Ni	60	9828.0	22.8	3.5126	0.264	7.5	ug/L	355	Standard
|	Cu	65	2287.8	16.9	0.7393	0.016	2.1	ug/L	473	Standard
|	Zn	66	14618.5	14.1	11.4368	0.173	1.5	ug/L	341	Standard
>	Ge	72	578455.8	15.6				ug/L	566981	Standard
|	As	75	1841.2	16.5	1.5583	0.018	1.2	ug/L	-156	Standard
|	Se	82	777.9	19.1	7.0989	0.287	4.0	ug/L	35	Standard
|	Se-1	77	2253.5	7.7	22.7271	2.400	10.6	ug/L	354	Standard
>	Ga	71	88.3	3.3				mg/L	43	Standard
|	Rb	85	4324.0	14.2				ug/L	48	Standard
|	Y	89	459421.3	14.8				ug/L	447702	Standard
>	Rh	103	756.7	8.4				ug/L	20	Standard
|	Mo	98	417.1	10.7	0.0794	0.006	7.9	ug/L	158	Standard
|	Ag	107	191.0	3.8	0.0049	0.002	46.3	ug/L	133	Standard
|	Cd	111	249.1	14.8	0.0697	0.005	6.8	mg/L	7	Standard
|	Cd	114	675.2	17.7	0.0734	0.004	5.3	ug/L	72	Standard
>	In	115	981189.6	15.5				ug/L	1004638	Standard
|	Sn	118	302.7	10.8	0.0708	0.007	10.3	ug/L	364	Standard
|	Sb	123	1736.1	27.6	0.1462	0.087	59.3	ug/L	2464	Standard
|	Ba	135	44363.0	13.5	12.0615	0.289	2.4	ug/L	39	Standard
|	Ce	140	990.0	15.2				ug/L	195	Standard
>	Tb	159	1564750.3	13.2				ug/L	1640193	Standard
|	Ho	165	85.0	36.7				ug/L	25	Standard
|	Tl	203	2586.2	27.5	0.1760	0.030	16.9	ug/L	324	Standard
|	Tl	205	6259.7	27.0	0.1664	0.026	15.6	ug/L	698	Standard
|	Pb	206	2213.2	19.0	0.1576	0.016	10.0	ug/L	600	Standard
|	Pb	207	1897.5	19.5	0.1509	0.015	10.1	ug/L	541	Standard
|	Pb	208	6504.2	18.6	0.1597	0.014	8.7	ug/L	1750	Standard
	U	238	50695.8	9.2	4.1207	0.116	2.8	ug/L	10	Standard
>	Bi	209	749791.2	12.0				ug/L	811518	Standard

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Na	23	586.7	8.1	80.9287	1.882	2.3	mg/L	0	Standard
Mg	24	9498.0	7.7	190.1572	6.767	3.6	mg/L	77	Standard
K	39	216.7	17.9	0.9722	0.146	15.0	mg/L	18	Standard
Ca	43	418.3	18.5	-44.2623	20.216	45.7	mg/L	178	Standard
Fe	54	35.4	60.1	-0.0219	0.247	1127.4	mg/L	29	Standard
Fe	57	960.0	1.9	20.9844	3.182	15.2	mg/L	408	Standard
Sc-1	45	68408.4	10.1				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.0	25.0				ug/L	12	Standard
Br	81	126422.4	10.5				ug/L	1747	Standard
P	31	23.3	12.4				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	445.0	7.4				ug/L	370	Standard
C	12	183.3	12.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	66.6	39.5				mg/L	9	Standard
Ho-1	165	85.0	36.7				mg/L	25	Standard
Er	166	70.0	37.8				mg/L	20	Standard
I	127	1028792.1	8.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		120.707	
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		102.024	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611014404

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	97.666
[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	92.394
[	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
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611014404

Report Date/Time: Monday, November 14, 2016 08:36:25

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Method 6020 - Summary Report

Sample ID: L1611014406

Sample Date/Time: Friday, November 11, 2016 10:14:34

Number of Replicates: 3

Autosampler Position: 242

Sample Description: 1

Method File: C:\NexlONData\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	238328.4	14.4				ug/L	206101	Standard
|	Be	9	303.3	17.8	0.0931	0.005	5.8	ug/L	25	Standard
|	Al	27	2223078.1	27.4	9.7460	1.263	13.0	ug/L	1120	Standard
|	Sc	45	72673.7	11.3				ug/L	61425	Standard
|	Ti	47	14156.0	13.8	28.5630	0.428	1.5	ug/L	70	Standard
|	V	51	43814.0	14.7	3.4759	0.027	0.8	ug/L	3309	Standard
|	Cr	52	49947.6	13.9	3.2919	0.076	2.3	ug/L	13497	Standard
|	Cr	53	8779.2	13.5	4.1196	0.123	3.0	ug/L	3162	Standard
|	Mn	55	380723.4	14.9	22.2821	0.171	0.8	ug/L	2226	Standard
|	Co	59	17193.2	15.4	1.2229	0.005	0.4	ug/L	1003	Standard
|	Ni	60	9560.7	15.6	3.2091	0.013	0.4	ug/L	355	Standard
|	Cu	65	4142.2	17.3	1.3896	0.032	2.3	ug/L	473	Standard
|	Zn	66	34580.7	15.2	25.6228	0.207	0.8	ug/L	341	Standard
>	Ge	72	618338.0	15.3				ug/L	566981	Standard
|	As	75	1258.4	13.7	1.0377	0.059	5.6	ug/L	-156	Standard
|	Se	82	57.5	15.7	0.1978	0.101	51.0	ug/L	35	Standard
|	Se-1	77	436.0	8.3	0.1609	0.352	218.9	ug/L	354	Standard
>	Ga	71	2275.2	15.2				mg/L	43	Standard
|	Rb	85	22548.7	14.0				ug/L	48	Standard
|	Y	89	512932.0	13.1				ug/L	447702	Standard
>	Rh	103	65.0	13.3				ug/L	20	Standard
|	Mo	98	2115.9	13.9	0.3992	0.017	4.3	ug/L	158	Standard
|	Ag	107	222.3	18.4	0.0057	0.001	13.2	ug/L	133	Standard
|	Cd	111	212.9	14.7	0.0526	0.002	4.5	mg/L	7	Standard
|	Cd	114	647.6	7.8	0.0644	0.008	11.9	ug/L	72	Standard
>	In	115	1078353.8	14.6				ug/L	1004638	Standard
|	Sn	118	339.0	13.7	0.0732	0.009	12.6	ug/L	364	Standard
|	Sb	123	1726.1	14.2	0.1233	0.051	41.6	ug/L	2464	Standard
|	Ba	135	129084.6	13.3	31.9179	0.424	1.3	ug/L	39	Standard
|	Ce	140	155436.0	13.4				ug/L	195	Standard
>	Tb	159	1664777.4	13.6				ug/L	1640193	Standard
|	Ho	165	2540.2	11.9				ug/L	25	Standard
|	Tl	203	1483.1	26.6	0.0816	0.013	16.0	ug/L	324	Standard
|	Tl	205	3503.8	21.4	0.0792	0.007	9.1	ug/L	698	Standard
|	Pb	206	20135.2	14.3	1.6082	0.027	1.7	ug/L	600	Standard
|	Pb	207	15998.9	13.3	1.4327	0.009	0.6	ug/L	541	Standard
|	Pb	208	56062.5	13.7	1.5276	0.019	1.2	ug/L	1750	Standard
	U	238	2820.6	8.6	0.2018	0.008	4.1	ug/L	10	Standard
>	Bi	209	861445.5	12.7				ug/L	811518	Standard

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Na	23	11.7	49.5	1.5356	0.797	51.9	mg/L	0	Standard
Mg	24	950.0	9.4	17.1293	0.573	3.3	mg/L	77	Standard
K	39	55.0		0.1492	0.030	19.9	mg/L	18	Standard
Ca	43	148.3	15.2	13.4360	7.676	57.1	mg/L	178	Standard
Fe	54	199.2	22.3	1.8453	0.717	38.9	mg/L	29	Standard
Fe	57	513.3	4.1	4.0438	2.009	49.7	mg/L	408	Standard
Sc-1	45	72673.7	11.3				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	10.3	40.3				ug/L	12	Standard
Br	81	5217.6	14.5				ug/L	1747	Standard
P	31	21.7	13.3				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	391.7	19.2				ug/L	370	Standard
C	12	103.3	40.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	73.3	47.9				mg/L	17	Standard
Dy	164	3987.2	12.2				mg/L	9	Standard
Ho-1	165	2540.2	11.9				mg/L	25	Standard
Er	166	2156.8	9.0				mg/L	20	Standard
I	127	178698.9	6.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		115.636	
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		109.058	
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	107.338
[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	106.152
[	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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Sample ID: L1611014406

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Method 6020 - Summary Report

Sample ID: L1611030601

Sample Date/Time: Friday, November 11, 2016 10:18:12

Number of Replicates: 3

Autosampler Position: 230

Sample Description: 1

Method File: C:\NexlONData\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	248201.4	13.7				ug/L	206101	Standard
|	Be	9	35.0	24.7	-0.0061	0.004	73.9	ug/L	25	Standard
|	Al	27	27961781.0	9.1	119.5076	6.335	5.3	ug/L	1120	Standard
|	Sc	45	68723.7	12.2				ug/L	61425	Standard
|	Ti	47	382.0	45.5	0.5851	0.233	39.9	ug/L	70	Standard
|	V	51	5234.0	5.2	0.1265	0.041	32.8	ug/L	3309	Standard
|	Cr	52	23581.8	8.8	0.7164	0.125	17.5	ug/L	13497	Standard
|	Cr	53	3838.8	7.5	0.2864	0.200	69.7	ug/L	3162	Standard
|	Mn	55	14446.6	13.0	0.6904	0.012	1.7	ug/L	2226	Standard
|	Co	59	1585.8	11.3	0.0523	0.005	9.6	ug/L	1003	Standard
|	Ni	60	3354.7	15.4	1.0103	0.023	2.3	ug/L	355	Standard
|	Cu	65	1977.1	13.6	0.5393	0.016	3.0	ug/L	473	Standard
|	Zn	66	2726.9	14.8	1.6948	0.046	2.7	ug/L	341	Standard
>	Ge	72	636449.0	14.3				ug/L	566981	Standard
|	As	75	90.7	97.2	0.1694	0.062	36.8	ug/L	-156	Standard
|	Se	82	93.1	25.4	0.4891	0.188	38.4	ug/L	35	Standard
|	Se-1	77	419.3	2.3	-0.1238	0.790	637.7	ug/L	354	Standard
>	Ga	71	101.7	10.2				mg/L	43	Standard
|	Rb	85	5002.5	13.1				ug/L	48	Standard
|	Y	89	498446.2	14.8				ug/L	447702	Standard
>	Rh	103	936.7	13.7				ug/L	20	Standard
|	Mo	98	84896.9	12.3	15.9791	0.434	2.7	ug/L	158	Standard
|	Ag	107	183.3	16.4	0.0019	0.000	19.9	ug/L	133	Standard
|	Cd	111	9.1	154.9	-0.0046	0.003	73.1	mg/L	7	Standard
|	Cd	114	242.3	25.4	0.0210	0.004	19.0	ug/L	72	Standard
>	In	115	1107705.2	14.7				ug/L	1004638	Standard
|	Sn	118	349.3	6.9	0.0746	0.013	17.2	ug/L	364	Standard
|	Sb	123	3365.6	8.5	0.2851	0.055	19.2	ug/L	2464	Standard
|	Ba	135	52881.9	13.4	12.7254	0.338	2.7	ug/L	39	Standard
|	Ce	140	3432.1	5.3				ug/L	195	Standard
>	Tb	159	1710236.8	13.6				ug/L	1640193	Standard
|	Ho	165	71.7	46.5				ug/L	25	Standard
|	Tl	203	958.0	12.6	0.0489	0.001	1.3	ug/L	324	Standard
|	Tl	205	2271.8	11.8	0.0503	0.001	2.9	ug/L	698	Standard
|	Pb	206	1301.4	14.9	0.0560	0.003	4.6	ug/L	600	Standard
|	Pb	207	1106.4	14.0	0.0524	0.002	4.5	ug/L	541	Standard
|	Pb	208	3772.5	14.3	0.0564	0.001	2.3	ug/L	1750	Standard
	U	238	13420.3	8.1	0.9527	0.056	5.9	ug/L	10	Standard
>	Bi	209	862223.4	13.4				ug/L	811518	Standard

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Na	23	120.0	25.0	16.4456	3.410	20.7	mg/L	0	Standard
Mg	24	948.4	9.4	18.1432	0.574	3.2	mg/L	77	Standard
K	39	150.0	18.6	0.6355	0.101	15.9	mg/L	18	Standard
Ca	43	161.7	4.7	9.3978	3.224	34.3	mg/L	178	Standard
Fe	54	30.9	24.8	-0.0674	0.110	163.4	mg/L	29	Standard
Fe	57	558.3	14.1	6.6102	3.266	49.4	mg/L	408	Standard
Sc-1	45	68723.7	12.2				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.3	103.3				ug/L	12	Standard
Br	81	4480.7	7.4				ug/L	1747	Standard
P	31	30.0	76.4				ug/L	17	Standard
S	34	5.0	0.0				ug/L	3	Standard
Sr	88	356.7	10.1				ug/L	370	Standard
C	12	60.0	44.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	133.3	98.0				mg/L	9	Standard
Ho-1	165	71.7	46.5				mg/L	25	Standard
Er	166	70.0	74.2				mg/L	20	Standard
I	127	25528.3	9.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		120.427	
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		112.252	
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	110.259
[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	106.248
[	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

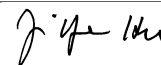
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611030601

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Method 6020 - Summary Report

Sample ID: L1611030701

Sample Date/Time: Friday, November 11, 2016 10:21:17

Number of Replicates: 3

Autosampler Position: 231

Sample Description: 1

Method File: C:\NexlONData\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	229295.0	18.3				ug/L	206101	Standard
|	Be	9	55.0	54.5	0.0013	0.008	624.8	ug/L	25	Standard
|	Al	27	42700863.5	11.0	198.5009	15.396	7.8	ug/L	1120	Standard
|	Sc	45	67082.6	10.8				ug/L	61425	Standard
|	Ti	47	807.7	23.1	1.5106	0.173	11.5	ug/L	70	Standard
|	V	51	8070.8	16.1	0.3942	0.024	6.2	ug/L	3309	Standard
|	Cr	52	24633.2	12.1	0.9218	0.046	5.0	ug/L	13497	Standard
|	Cr	53	4092.2	9.3	0.6221	0.167	26.8	ug/L	3162	Standard
|	Mn	55	117429.4	13.0	6.9260	0.191	2.8	ug/L	2226	Standard
|	Co	59	3929.5	13.7	0.2369	0.011	4.7	ug/L	1003	Standard
|	Ni	60	9175.8	18.8	3.1294	0.241	7.7	ug/L	355	Standard
|	Cu	65	2627.2	13.5	0.8318	0.027	3.3	ug/L	473	Standard
|	Zn	66	2997.0	13.6	2.0030	0.034	1.7	ug/L	341	Standard
>	Ge	72	605042.4	12.7				ug/L	566981	Standard
|	As	75	292.5	13.7	0.3251	0.009	2.8	ug/L	-156	Standard
|	Se	82	84.2	17.7	0.4442	0.052	11.6	ug/L	35	Standard
|	Se-1	77	401.0	4.8	-0.1394	0.394	282.8	ug/L	354	Standard
>	Ga	71	245.0	15.9				mg/L	43	Standard
|	Rb	85	9709.8	11.4				ug/L	48	Standard
|	Y	89	488001.2	11.0				ug/L	447702	Standard
>	Rh	103	1385.1	22.8				ug/L	20	Standard
|	Mo	98	124799.4	12.3	24.6769	0.273	1.1	ug/L	158	Standard
|	Ag	107	177.7	18.7	0.0022	0.002	77.8	ug/L	133	Standard
|	Cd	111	-4.7	258.2	-0.0080	0.003	40.5	mg/L	7	Standard
|	Cd	114	320.9	18.6	0.0306	0.002	6.5	ug/L	72	Standard
>	In	115	1052840.5	13.0				ug/L	1004638	Standard
|	Sn	118	341.0	11.7	0.0780	0.012	15.1	ug/L	364	Standard
|	Sb	123	1843.2	6.8	0.1382	0.035	25.4	ug/L	2464	Standard
|	Ba	135	45013.1	11.9	11.3914	0.134	1.2	ug/L	39	Standard
|	Ce	140	11039.1	14.5				ug/L	195	Standard
>	Tb	159	1620497.7	11.6				ug/L	1640193	Standard
|	Ho	165	225.0	13.9				ug/L	25	Standard
|	Tl	203	1595.8	6.6	0.0986	0.008	7.8	ug/L	324	Standard
|	Tl	205	3842.2	10.3	0.0956	0.007	7.2	ug/L	698	Standard
|	Pb	206	2376.9	25.4	0.1588	0.033	21.0	ug/L	600	Standard
|	Pb	207	1807.1	13.6	0.1307	0.007	5.3	ug/L	541	Standard
|	Pb	208	6387.9	10.8	0.1447	0.003	1.8	ug/L	1750	Standard
	U	238	18921.2	8.3	1.4468	0.025	1.7	ug/L	10	Standard
>	Bi	209	796825.7	9.8				ug/L	811518	Standard

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Na	23	366.7	19.9	51.1642	4.883	9.5	mg/L	0	Standard
Mg	24	2136.8	7.4	43.0862	3.677	8.5	mg/L	77	Standard
K	39	170.0	10.2	0.7568	0.042	5.5	mg/L	18	Standard
Ca	43	313.3	12.2	-23.8849	14.716	61.6	mg/L	178	Standard
Fe	54	79.2	27.5	0.5283	0.263	49.7	mg/L	29	Standard
Fe	57	698.3	4.5	12.1949	2.816	23.1	mg/L	408	Standard
Sc-1	45	67082.6	10.8				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.7	59.2				ug/L	12	Standard
Br	81	8138.9	2.9				ug/L	1747	Standard
P	31	35.0	51.5				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	431.7	5.8				ug/L	370	Standard
C	12	86.7	24.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	308.9	8.1				mg/L	9	Standard
Ho-1	165	225.0	13.9				mg/L	25	Standard
Er	166	370.0	108.2				mg/L	20	Standard
I	127	147004.6	5.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		111.254	
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		106.713	
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	104.798
[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	98.190
[	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
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611030701

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 10:24:24

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	216341.6	21.0				ug/L	206101	Standard
|	Be	9	122976.8	17.2	50.4832	2.752	5.5	ug/L	25	Standard
|	Al	27	10584944.2	14.4	52.2362	4.223	8.1	ug/L	1120	Standard
|	Sc	45	63017.7	14.7				ug/L	61425	Standard
|	Ti	47	49125.8	15.7	106.4401	2.403	2.3	ug/L	70	Standard
|	V	51	582120.2	15.8	53.6404	1.128	2.1	ug/L	3309	Standard
|	Cr	52	535433.7	16.0	53.2506	1.224	2.3	ug/L	13497	Standard
|	Cr	53	67171.0	15.6	52.1751	1.595	3.1	ug/L	3162	Standard
|	Mn	55	829081.6	15.4	52.1686	1.286	2.5	ug/L	2226	Standard
|	Co	59	650670.7	17.1	52.0049	0.558	1.1	ug/L	1003	Standard
|	Ni	60	139908.3	17.0	52.0855	0.567	1.1	ug/L	355	Standard
|	Cu	65	125112.8	16.6	51.2907	0.757	1.5	ug/L	473	Standard
|	Zn	66	64483.8	15.6	51.4945	1.395	2.7	ug/L	341	Standard
>	Ge	72	578598.9	17.7				ug/L	566981	Standard
|	As	75	64025.9	14.5	50.9122	1.885	3.7	ug/L	-156	Standard
|	Se	82	5383.1	14.1	51.4504	2.194	4.3	ug/L	35	Standard
|	Se-1	77	4581.4	14.5	50.9109	1.975	3.9	ug/L	354	Standard
>	Ga	71	85.0	27.0				mg/L	43	Standard
|	Rb	85	713.4	19.6				ug/L	48	Standard
|	Y	89	461271.8	17.1				ug/L	447702	Standard
>	Rh	103	53.3	32.9				ug/L	20	Standard
|	Mo	98	518163.6	15.2	105.7650	2.750	2.6	ug/L	158	Standard
|	Ag	107	592317.2	16.2	55.2794	1.214	2.2	ug/L	133	Standard
|	Cd	111	174089.1	16.9	51.1784	0.522	1.0	mg/L	7	Standard
|	Cd	114	471290.3	19.0	51.2983	0.838	1.6	ug/L	72	Standard
>	In	115	1022286.3	17.5				ug/L	1004638	Standard
|	Sn	118	105466.0	16.8	50.1821	1.166	2.3	ug/L	364	Standard
|	Sb	123	452633.8	18.6	49.7641	0.709	1.4	ug/L	2464	Standard
|	Ba	135	184460.9	14.7	48.2204	1.434	3.0	ug/L	39	Standard
|	Ce	140	163.3	11.6				ug/L	195	Standard
>	Tb	159	1575452.2	14.9				ug/L	1640193	Standard
|	Ho	165	58.3	55.1				ug/L	25	Standard
|	Tl	203	749278.6	15.3	50.4623	0.816	1.6	ug/L	324	Standard
|	Tl	205	1962473.5	28.1	48.8485	6.826	14.0	ug/L	698	Standard
|	Pb	206	585867.7	14.3	50.6480	0.869	1.7	ug/L	600	Standard
|	Pb	207	524739.5	15.2	50.9274	0.477	0.9	ug/L	541	Standard
|	Pb	208	1742459.1	14.7	51.3879	0.872	1.7	ug/L	1750	Standard
	U	238	694676.0	10.2	51.6335	2.972	5.8	ug/L	10	Standard
>	Bi	209	822713.0	15.7				ug/L	811518	Standard

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Na	23	46.7	6.2	7.1318	1.542	21.6	mg/L	0	Standard
Mg	24	310.0	14.3	5.9198	0.419	7.1	mg/L	77	Standard
K	39	901.7	6.6	4.8629	0.829	17.0	mg/L	18	Standard
Ca	43	148.3	3.9	9.1382	4.947	54.1	mg/L	178	Standard
Fe	54	403.3	16.0	4.8639	1.041	21.4	mg/L	29	Standard
Fe	57	530.0	7.4	7.3255	1.670	22.8	mg/L	408	Standard
Sc-1	45	63017.7	14.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.3	67.3				ug/L	12	Standard
Br	81	2043.5	20.9				ug/L	1747	Standard
P	31	25.0	20.0				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	383.3	4.0				ug/L	370	Standard
C	12	86.7	58.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	52.2	66.9				mg/L	9	Standard
Ho-1	165	58.3	55.1				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	8235.9	47.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	100.966		
Al	27	104.472		
Sc	45			
Ti	47	106.440		
V	51	107.281		
Cr	52	106.501		
Cr	53			
Mn	55	104.337		
Co	59	104.010		
Ni	60	104.171		
Cu	65	102.581		
Zn	66	102.989		
Ge	72		102.049	
As	75	101.824		
Se	82	102.901		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	105.765	
[Ag	107	110.559	
[Cd	111	102.357	
[Cd	114		
>	In	115		101.757
[Sn	118	100.364	
[	Sb	123	99.528	
[	Ba	135	96.441	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.925	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	102.776	
[	U	238	103.267	
>	Bi	209		101.379
[	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

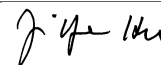
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 6	Ag	107	

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 10:27:30

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	222374.0	2.5				ug/L	206101	Standard
|	Be	9	41.7	34.6	-0.0023	0.006	265.4	ug/L	25	Standard
|	Al	27	3993.9	22.5	0.0247	0.005	18.6	ug/L	1120	Standard
|	Sc	45	65498.0	2.0				ug/L	61425	Standard
|	Ti	47	47.3	23.3	-0.0493	0.022	44.5	ug/L	70	Standard
|	V	51	2805.3	6.3	-0.0715	0.014	19.8	ug/L	3309	Standard
|	Cr	52	11391.3	1.6	-0.3798	0.016	4.1	ug/L	13497	Standard
|	Cr	53	2153.5	4.5	-0.9086	0.065	7.2	ug/L	3162	Standard
|	Mn	55	1768.4	5.2	-0.0312	0.006	18.6	ug/L	2226	Standard
|	Co	59	543.3	5.5	-0.0221	0.003	11.3	ug/L	1003	Standard
|	Ni	60	418.0	5.1	0.0225	0.008	33.4	ug/L	355	Standard
|	Cu	65	462.7	1.7	-0.0196	0.003	15.0	ug/L	473	Standard
|	Zn	66	425.3	8.7	0.0329	0.028	86.1	ug/L	341	Standard
>	Ge	72	609918.9	0.7				ug/L	566981	Standard
|	As	75	-135.7	43.0	0.0027	0.043	1583.2	ug/L	-156	Standard
|	Se	82	22.9	57.5	-0.1154	0.121	104.6	ug/L	35	Standard
|	Se-1	77	351.3	3.2	-0.7789	0.157	20.2	ug/L	354	Standard
>	Ga	71	50.0	55.7				mg/L	43	Standard
|	Rb	85	61.7	47.5				ug/L	48	Standard
|	Y	89	488217.9	0.7				ug/L	447702	Standard
>	Rh	103	28.3	27.0				ug/L	20	Standard
|	Mo	98	85.5	26.6	0.0068	0.005	66.6	ug/L	158	Standard
|	Ag	107	205.0	5.5	0.0040	0.001	27.3	ug/L	133	Standard
|	Cd	111	18.9	19.0	-0.0015	0.001	67.5	mg/L	7	Standard
|	Cd	114	52.2	28.6	0.0021	0.001	69.4	ug/L	72	Standard
>	In	115	1091009.6	1.0				ug/L	1004638	Standard
|	Sn	118	166.7	9.6	-0.0058	0.007	116.7	ug/L	364	Standard
|	Sb	123	338.2	34.9	-0.0271	0.013	46.5	ug/L	2464	Standard
|	Ba	135	52.0	25.1	0.0032	0.003	98.4	ug/L	39	Standard
|	Ce	140	38.3	39.8				ug/L	195	Standard
>	Tb	159	1690686.7	1.9				ug/L	1640193	Standard
|	Ho	165	10.0	50.0				ug/L	25	Standard
|	Tl	203	100.7	39.1	-0.0065	0.003	38.7	ug/L	324	Standard
|	Tl	205	268.3	42.6	0.0018	0.003	152.5	ug/L	698	Standard
|	Pb	206	713.4	4.4	0.0048	0.002	50.0	ug/L	600	Standard
|	Pb	207	565.0	5.3	-0.0002	0.004	1794.4	ug/L	541	Standard
|	Pb	208	1948.4	4.6	0.0025	0.003	126.1	ug/L	1750	Standard
	U	238	52.7	33.8	0.0056	0.001	22.4	ug/L	10	Standard
>	Bi	209	906961.3	2.3				ug/L	811518	Standard

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Na	23	5.0	100.0	0.7302	0.735	100.7	mg/L	0	Standard
Mg	24	58.3	48.7	0.3660	0.570	155.7	mg/L	77	Standard
K	39	13.3	57.3	-0.0421	0.041	98.0	mg/L	18	Standard
Ca	43	113.3	14.2	18.3744	3.444	18.7	mg/L	178	Standard
Fe	54	42.9	33.5	0.0940	0.179	189.9	mg/L	29	Standard
Fe	57	450.0	4.8	3.4447	0.941	27.3	mg/L	408	Standard
Sc-1	45	65498.0	2.0				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	8.3	30.2				ug/L	12	Standard
Br	81	1796.8	8.6				ug/L	1747	Standard
P	31	26.7	47.2				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	395.0	12.2				ug/L	370	Standard
C	12	60.0	72.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	16.2	71.3				mg/L	9	Standard
Ho-1	165	10.0	50.0				mg/L	25	Standard
Er	166	10.0					mg/L	20	Standard
I	127	14131.6	9.0				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		107.573	
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	108.597
[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	111.761
[	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 8

Sample Date/Time: Friday, November 11, 2016 10:32:20

Number of Replicates: 3

Autosampler Position: 202

Sample Description:

Method File: C:\NexlONData\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	211241.0	21.7				ug/L	206101	Standard
|	Be	9	480.0	14.1	0.1838	0.015	8.2	ug/L	25	Standard
|	Al	27	1190.0	5.7	0.0118	0.001	8.2	ug/L	1120	Standard
|	Sc	45	58861.6	18.2				ug/L	61425	Standard
|	Ti	47	47.0	8.5	-0.0388	0.028	72.7	ug/L	70	Standard
|	V	51	7273.0	18.8	0.3718	0.015	4.1	ug/L	3309	Standard
|	Cr	52	20693.0	15.6	0.6907	0.109	15.9	ug/L	13497	Standard
|	Cr	53	3088.7	13.4	0.0283	0.269	950.4	ug/L	3162	Standard
|	Mn	55	9474.7	20.7	0.4725	0.017	3.6	ug/L	2226	Standard
|	Co	59	5429.0	18.5	0.3818	0.011	2.8	ug/L	1003	Standard
|	Ni	60	4415.3	21.4	1.5561	0.012	0.8	ug/L	355	Standard
|	Cu	65	2336.5	20.6	0.7821	0.015	1.9	ug/L	473	Standard
|	Zn	66	7770.0	19.6	6.0839	0.159	2.6	ug/L	341	Standard
>	Ge	72	565900.5	20.7				ug/L	566981	Standard
|	As	75	323.1	30.1	0.3632	0.051	14.1	ug/L	-156	Standard
|	Se	82	63.3	16.8	0.3001	0.036	12.0	ug/L	35	Standard
|	Se-1	77	364.7	3.4	-0.1936	0.778	401.5	ug/L	354	Standard
>	Ga	71	45.0	57.7				mg/L	43	Standard
|	Rb	85	41.7	13.9				ug/L	48	Standard
|	Y	89	442673.9	18.0				ug/L	447702	Standard
>	Rh	103	21.7	26.6				ug/L	20	Standard
|	Mo	98	78.1	38.5	0.0079	0.009	114.5	ug/L	158	Standard
|	Ag	107	4139.9	21.1	0.3803	0.007	1.9	ug/L	133	Standard
|	Cd	111	774.9	18.1	0.2268	0.003	1.5	mg/L	7	Standard
|	Cd	114	2043.9	23.3	0.2240	0.009	3.8	ug/L	72	Standard
>	In	115	998639.9	19.5				ug/L	1004638	Standard
|	Sn	118	171.3	0.7	0.0056	0.017	300.9	ug/L	364	Standard
|	Sb	123	5159.3	2.3	0.5330	0.100	18.7	ug/L	2464	Standard
|	Ba	135	2545.2	16.0	0.6725	0.028	4.2	ug/L	39	Standard
|	Ce	140	35.0	51.5				ug/L	195	Standard
>	Tb	159	1549067.5	17.1				ug/L	1640193	Standard
|	Ho	165	20.0	50.0				ug/L	25	Standard
|	Tl	203	1112.4	16.2	0.0638	0.002	2.5	ug/L	324	Standard
|	Tl	205	2581.9	12.4	0.0623	0.005	7.9	ug/L	698	Standard
|	Pb	206	2839.6	17.8	0.1988	0.002	1.2	ug/L	600	Standard
|	Pb	207	2315.2	19.7	0.1784	0.005	2.6	ug/L	541	Standard
|	Pb	208	7912.5	19.4	0.1876	0.003	1.8	ug/L	1750	Standard
	U	238	5009.8	13.7	0.3810	0.020	5.4	ug/L	10	Standard
>	Bi	209	808034.0	18.4				ug/L	811518	Standard

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Na	23	3.3	86.6	0.4977	0.431	86.6	mg/L	0	Standard
Mg	24	55.0	15.7	0.4857	0.456	94.0	mg/L	77	Standard
K	39	18.3	78.7	0.0064	0.113	1751.8	mg/L	18	Standard
Ca	43	113.3	24.3	14.3018	12.093	84.6	mg/L	178	Standard
Fe	54	37.3	34.0	0.0661	0.093	141.3	mg/L	29	Standard
Fe	57	411.7	17.0	4.2836	4.922	114.9	mg/L	408	Standard
Sc-1	45	58861.6	18.2				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	10.3	11.2				ug/L	12	Standard
Br	81	1733.4	17.4				ug/L	1747	Standard
P	31	28.3	53.9				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	381.7	10.5				ug/L	370	Standard
C	12	73.3	75.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	12.1	50.2				mg/L	9	Standard
Ho-1	165	20.0	50.0				mg/L	25	Standard
Er	166	26.7	21.7				mg/L	20	Standard
I	127	3745.5	3.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	91.905		
Al	27			
Sc	45			
Ti	47			
V	51	92.953		
Cr	52	86.335		
Cr	53			
Mn	55	94.492		
Co	59	95.449		
Ni	60	97.257		
Cu	65	97.757		
Zn	66	97.343		
Ge	72		99.809	
As	75	90.794		
Se	82	75.023		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98		
	Ag	107	95.076	
	Cd	111	94.492	
	Cd	114		
>	In	115		99.403
	Sn	118		
	Sb	123	133.256	
[	Ba	135	89.666	
[	Ce	140		
>	Tb	159		
[	Ho	165		
	Tl	203	79.688	
	Tl	205		
	Pb	206		
	Pb	207		
	Pb	208	93.822	
	U	238	95.260	
>	Bi	209		99.571
[	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 8	Sb	123	

Sample ID: QC Std 8

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Method 6020 - Summary Report

Sample ID: PBW 82 WG590016-02

Sample Date/Time: Friday, November 11, 2016 10:41:51

Number of Replicates: 3

Autosampler Position: 205

Sample Description: 1

Method File: C:\NexlONData\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	204909.6	18.2				ug/L	206101	Standard
|	Be	9	35.0	14.3	-0.0032	0.005	155.8	ug/L	25	Standard
|	Al	27	7076.7	12.2	0.0424	0.003	6.2	ug/L	1120	Standard
|	Sc	45	57970.3	13.4				ug/L	61425	Standard
|	Ti	47	52.0	13.5	-0.0304	0.014	46.5	ug/L	70	Standard
|	V	51	3224.0	9.2	-0.0096	0.031	328.3	ug/L	3309	Standard
|	Cr	52	14282.4	11.0	0.0192	0.129	672.0	ug/L	13497	Standard
|	Cr	53	2215.2	3.6	-0.6938	0.310	44.7	ug/L	3162	Standard
|	Mn	55	3274.4	16.0	0.0741	0.008	10.5	ug/L	2226	Standard
|	Co	59	507.3	4.5	-0.0207	0.010	48.8	ug/L	1003	Standard
|	Ni	60	472.3	10.1	0.0564	0.018	32.6	ug/L	355	Standard
|	Cu	65	462.0	15.6	-0.0054	0.011	196.7	ug/L	473	Standard
|	Zn	66	874.4	15.3	0.4281	0.048	11.2	ug/L	341	Standard
>	Ge	72	567793.1	19.6				ug/L	566981	Standard
|	As	75	-106.8	21.2	0.0149	0.029	193.4	ug/L	-156	Standard
|	Se	82	32.6	20.8	0.0107	0.133	1241.7	ug/L	35	Standard
|	Se-1	77	349.0	11.3	-0.4481	0.567	126.5	ug/L	354	Standard
>	Ga	71	41.7	18.3				mg/L	43	Standard
|	Rb	85	75.0	29.1				ug/L	48	Standard
|	Y	89	429388.8	16.7				ug/L	447702	Standard
>	Rh	103	20.0	66.1				ug/L	20	Standard
|	Mo	98	84.6	27.3	0.0094	0.008	88.9	ug/L	158	Standard
|	Ag	107	160.7	8.6	0.0020	0.002	101.3	ug/L	133	Standard
|	Cd	111	16.9	31.5	-0.0016	0.001	60.6	mg/L	7	Standard
|	Cd	114	59.6	16.5	0.0038	0.002	50.9	ug/L	72	Standard
>	In	115	980098.5	18.2				ug/L	1004638	Standard
|	Sn	118	202.3	4.6	0.0232	0.023	98.9	ug/L	364	Standard
|	Sb	123	1720.1	27.5	0.1464	0.088	60.4	ug/L	2464	Standard
|	Ba	135	63.3	10.2	0.0079	0.002	20.8	ug/L	39	Standard
|	Ce	140	91.7	32.9				ug/L	195	Standard
>	Tb	159	1538332.0	17.8				ug/L	1640193	Standard
|	Ho	165	8.3	34.6				ug/L	25	Standard
|	Tl	203	48.3	5.2	-0.0093	0.001	8.7	ug/L	324	Standard
|	Tl	205	115.0	11.5	-0.0014	0.000	28.0	ug/L	698	Standard
|	Pb	206	646.7	20.5	0.0062	0.002	27.3	ug/L	600	Standard
|	Pb	207	540.3	15.7	0.0041	0.003	62.0	ug/L	541	Standard
|	Pb	208	1798.7	19.3	0.0049	0.001	24.4	ug/L	1750	Standard
	U	238	15.3	3.8	0.0032	0.000	6.7	ug/L	10	Standard
>	Bi	209	800406.5	18.7				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	36.7	34.3	0.0152	0.267	1755.3	mg/L	77	Standard
K	39	16.7	45.8	-0.0118	0.047	398.3	mg/L	18	Standard
Ca	43	125.0	14.4	11.8505	7.550	63.7	mg/L	178	Standard
Fe	54	25.7	78.3	-0.0803	0.266	330.8	mg/L	29	Standard
Fe	57	431.7	6.4	5.0804	3.077	60.6	mg/L	408	Standard
Sc-1	45	57970.3	13.4				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.0	70.0				ug/L	12	Standard
Br	81	1596.8	19.7				ug/L	1747	Standard
P	31	31.7	24.1				ug/L	17	Standard
S	34	6.7	43.3				ug/L	3	Standard
Sr	88	426.7	5.4				ug/L	370	Standard
C	12	73.3	15.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	12.4	40.1				mg/L	9	Standard
Ho-1	165	8.3	34.6				mg/L	25	Standard
Er	166	20.0	100.0				mg/L	20	Standard
I	127	4268.9	5.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.422	
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		100.143	
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	97.557
[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	98.631
[	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: LCSW 82 WG590016-03

Sample Date/Time: Friday, November 11, 2016 10:44:57

Number of Replicates: 3

Autosampler Position: 206

Sample Description: 1

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	237007.6	21.3				ug/L	206101	Standard
|	Be	9	125650.8	18.7	46.9424	1.499	3.2	ug/L	25	Standard
|	Al	27	18771.8	15.8	0.0900	0.005	5.6	ug/L	1120	Standard
|	Sc	45	63577.2	16.4				ug/L	61425	Standard
|	Ti	47	69.7	26.0	-0.0074	0.015	201.6	ug/L	70	Standard
|	V	51	572445.7	17.0	49.0332	1.264	2.6	ug/L	3309	Standard
|	Cr	52	540318.7	16.9	49.8975	1.401	2.8	ug/L	13497	Standard
|	Cr	53	68356.2	15.0	49.3650	2.491	5.0	ug/L	3162	Standard
|	Mn	55	839257.0	17.5	49.0447	1.077	2.2	ug/L	2226	Standard
|	Co	59	662726.8	18.6	49.2308	0.475	1.0	ug/L	1003	Standard
|	Ni	60	144932.2	18.1	50.1724	0.745	1.5	ug/L	355	Standard
|	Cu	65	130935.8	19.5	49.8052	0.341	0.7	ug/L	473	Standard
|	Zn	66	66818.7	18.6	49.4864	0.689	1.4	ug/L	341	Standard
>	Ge	72	622667.7	19.5				ug/L	566981	Standard
|	As	75	65407.4	16.7	48.3145	1.393	2.9	ug/L	-156	Standard
|	Se	82	5478.9	18.8	48.4501	0.464	1.0	ug/L	35	Standard
|	Se-1	77	4711.1	18.6	48.2805	0.519	1.1	ug/L	354	Standard
>	Ga	71	73.3	14.2				mg/L	43	Standard
|	Rb	85	100.0	47.7				ug/L	48	Standard
|	Y	89	479699.2	18.4				ug/L	447702	Standard
>	Rh	103	51.7	20.1				ug/L	20	Standard
|	Mo	98	136.1	1.2	0.0169	0.005	28.1	ug/L	158	Standard
|	Ag	107	557862.8	17.1	48.5722	0.290	0.6	ug/L	133	Standard
|	Cd	111	181742.3	17.3	49.8794	0.236	0.5	mg/L	7	Standard
|	Cd	114	472354.4	18.9	48.0338	0.810	1.7	ug/L	72	Standard
>	In	115	1094823.4	17.7				ug/L	1004638	Standard
|	Sn	118	307.7	10.4	0.0580	0.011	19.6	ug/L	364	Standard
|	Sb	123	458714.8	19.0	47.0847	0.903	1.9	ug/L	2464	Standard
|	Ba	135	190041.1	17.3	46.2631	0.668	1.4	ug/L	39	Standard
|	Ce	140	326.7	17.9				ug/L	195	Standard
>	Tb	159	1685365.8	16.6				ug/L	1640193	Standard
|	Ho	165	63.3	16.4				ug/L	25	Standard
|	Tl	203	788666.7	17.0	49.8931	0.103	0.2	ug/L	324	Standard
|	Tl	205	2066446.8	32.1	48.1478	7.737	16.1	ug/L	698	Standard
|	Pb	206	617744.8	17.5	50.0922	0.585	1.2	ug/L	600	Standard
|	Pb	207	526924.7	17.6	47.9953	0.427	0.9	ug/L	541	Standard
|	Pb	208	1767573.4	15.9	48.9969	0.574	1.2	ug/L	1750	Standard
	U	238	664341.5	11.6	46.4252	2.566	5.5	ug/L	10	Standard
>	Bi	209	875256.1	16.9				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	58.3	26.2	0.4413	0.403	91.3	mg/L	77	Standard
K	39	15.0	100.0	-0.0391	0.070	178.6	mg/L	18	Standard
Ca	43	108.3	19.2	18.8213	1.332	7.1	mg/L	178	Standard
Fe	54	48.9	51.6	0.1627	0.235	144.6	mg/L	29	Standard
Fe	57	375.0	19.2	1.5374	4.449	289.4	mg/L	408	Standard
Sc-1	45	63577.2	16.4				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.0	12.5				ug/L	12	Standard
Br	81	1813.4	20.7				ug/L	1747	Standard
P	31	25.0	20.0				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	371.7	13.5				ug/L	370	Standard
C	12	90.0	38.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	32.2	32.8				mg/L	9	Standard
Ho-1	165	63.3	16.4				mg/L	25	Standard
Er	166	23.3	89.2				mg/L	20	Standard
I	127	3502.1	9.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		114.996	
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		109.822	
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	108.977
[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	107.854
[	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: L1610137502 WG590016-01

Sample Date/Time: Friday, November 11, 2016 10:48:02

Number of Replicates: 3

Autosampler Position: 207

Sample Description: 1

Method File: C:\NexlONData\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	246286.1	15.3				ug/L	206101	Standard
|	Be	9	71.7	42.6	0.0066	0.009	134.1	ug/L	25	Standard
|	Al	27	70195904.0	11.0	302.4481	15.159	5.0	ug/L	1120	Standard
|	Sc	45	67283.4	10.3				ug/L	61425	Standard
|	Ti	47	326.3	12.7	0.5281	0.015	2.9	ug/L	70	Standard
|	V	51	4405.8	8.6	0.0742	0.042	56.5	ug/L	3309	Standard
|	Cr	52	22786.9	10.3	0.7422	0.086	11.6	ug/L	13497	Standard
|	Cr	53	11154.1	5.6	6.1498	0.836	13.6	ug/L	3162	Standard
|	Mn	55	3072384.4	13.7	184.2112	0.927	0.5	ug/L	2226	Standard
|	Co	59	10512.7	17.6	0.7355	0.031	4.2	ug/L	1003	Standard
|	Ni	60	13764.1	18.8	4.7452	0.243	5.1	ug/L	355	Standard
|	Cu	65	3616.8	12.8	1.2191	0.024	2.0	ug/L	473	Standard
|	Zn	66	17808.6	13.8	13.3133	0.167	1.3	ug/L	341	Standard
>	Ge	72	606778.1	14.0				ug/L	566981	Standard
|	As	75	391.7	12.9	0.4003	0.022	5.5	ug/L	-156	Standard
|	Se	82	153.8	9.5	1.0866	0.071	6.6	ug/L	35	Standard
|	Se-1	77	816.0	7.2	4.6746	0.729	15.6	ug/L	354	Standard
>	Ga	71	63.3	4.6				mg/L	43	Standard
|	Rb	85	37741.0	15.0				ug/L	48	Standard
|	Y	89	467831.3	12.1				ug/L	447702	Standard
>	Rh	103	526.7	16.6				ug/L	20	Standard
|	Mo	98	9709.1	12.2	1.9279	0.046	2.4	ug/L	158	Standard
|	Ag	107	291.0	15.9	0.0128	0.004	31.6	ug/L	133	Standard
|	Cd	111	156.8	10.8	0.0385	0.003	7.3	mg/L	7	Standard
|	Cd	114	460.9	17.1	0.0460	0.004	9.1	ug/L	72	Standard
>	In	115	1045142.8	14.3				ug/L	1004638	Standard
|	Sn	118	278.0	11.6	0.0497	0.005	9.3	ug/L	364	Standard
|	Sb	123	8250.2	25.1	0.8590	0.337	39.3	ug/L	2464	Standard
|	Ba	135	461774.7	14.4	117.6880	0.199	0.2	ug/L	39	Standard
|	Ce	140	2095.1	15.6				ug/L	195	Standard
>	Tb	159	1674441.6	12.8				ug/L	1640193	Standard
|	Ho	165	96.7	28.5				ug/L	25	Standard
|	Tl	203	6612.4	52.3	0.4198	0.179	42.5	ug/L	324	Standard
|	Tl	205	15753.1	54.2	0.3798	0.167	43.9	ug/L	698	Standard
|	Pb	206	5599.7	16.7	0.4310	0.022	5.0	ug/L	600	Standard
|	Pb	207	4782.4	16.4	0.4132	0.025	6.1	ug/L	541	Standard
|	Pb	208	16173.1	16.9	0.4258	0.026	6.1	ug/L	1750	Standard
	U	238	18881.1	7.8	1.4029	0.068	4.8	ug/L	10	Standard
>	Bi	209	822492.0	12.4				ug/L	811518	Standard

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Na	23	415.0	7.3	58.2587	2.233	3.8	mg/L	0	Standard
Mg	24	1985.1	8.5	39.7161	0.861	2.2	mg/L	77	Standard
K	39	1213.4	17.5	6.0432	0.558	9.2	mg/L	18	Standard
Ca	43	281.7	13.8	-16.5153	9.389	56.9	mg/L	178	Standard
Fe	54	50.4	23.7	0.1721	0.129	75.1	mg/L	29	Standard
Fe	57	758.4	3.7	14.2862	3.012	21.1	mg/L	408	Standard
Sc-1	45	67283.4	10.3				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.3	18.3				ug/L	12	Standard
Br	81	23715.3	9.7				ug/L	1747	Standard
P	31	16.7	69.3				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	445.0	12.5				ug/L	370	Standard
C	12	113.3	13.5				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	91.4	26.4				mg/L	9	Standard
Ho-1	165	96.7	28.5				mg/L	25	Standard
Er	166	110.0	24.1				mg/L	20	Standard
I	127	405504.7	8.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		119.498	
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		107.019	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1610137502 WG590016-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	104.032
[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	101.352
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1610137502 WG590016-01

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Method 6020 - Summary Report

Sample ID: L1610137503S WG590016-04

Sample Date/Time: Friday, November 11, 2016 10:51:07

Number of Replicates: 3

Autosampler Position: 208

Sample Description: 1

Method File: C:\NexlONData\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	240529.8	14.8				ug/L	206101	Standard
|	Be	9	127617.0	15.4	46.7805	0.372	0.8	ug/L	25	Standard
|	Al	27	68710734.2	12.1	302.4693	8.528	2.8	ug/L	1120	Standard
|	Sc	45	66774.6	10.6				ug/L	61425	Standard
|	Ti	47	323.7	28.2	0.5152	0.086	16.7	ug/L	70	Standard
|	V	51	578032.7	13.7	50.8961	1.039	2.0	ug/L	3309	Standard
|	Cr	52	532226.9	13.5	50.5362	1.029	2.0	ug/L	13497	Standard
|	Cr	53	75744.3	12.8	56.4572	1.619	2.9	ug/L	3162	Standard
|	Mn	55	3869715.1	13.8	233.0843	4.324	1.9	ug/L	2226	Standard
|	Co	59	642799.5	15.2	49.1008	0.617	1.3	ug/L	1003	Standard
|	Ni	60	148529.9	15.9	52.8119	0.633	1.2	ug/L	355	Standard
|	Cu	65	123149.0	16.2	48.1682	0.457	0.9	ug/L	473	Standard
|	Zn	66	84235.7	15.7	64.2113	0.323	0.5	ug/L	341	Standard
>	Ge	72	604804.7	15.2				ug/L	566981	Standard
|	As	75	66621.4	15.1	50.4781	0.332	0.7	ug/L	-156	Standard
|	Se	82	5586.1	16.9	50.7471	0.831	1.6	ug/L	35	Standard
|	Se-1	77	5033.5	13.2	53.6725	2.317	4.3	ug/L	354	Standard
>	Ga	71	113.3	6.7				mg/L	43	Standard
|	Rb	85	35517.1	13.6				ug/L	48	Standard
|	Y	89	471897.0	12.2				ug/L	447702	Standard
>	Rh	103	576.7	23.9				ug/L	20	Standard
|	Mo	98	9007.8	13.3	1.7962	0.043	2.4	ug/L	158	Standard
|	Ag	107	512400.6	13.6	46.9930	0.600	1.3	ug/L	133	Standard
|	Cd	111	172423.6	16.7	49.7007	0.970	2.0	mg/L	7	Standard
|	Cd	114	444514.5	17.4	47.5313	1.276	2.7	ug/L	72	Standard
>	In	115	1039970.5	14.8				ug/L	1004638	Standard
|	Sn	118	272.7	17.0	0.0472	0.004	9.5	ug/L	364	Standard
|	Sb	123	466785.9	14.0	50.5590	0.450	0.9	ug/L	2464	Standard
|	Ba	135	594702.3	13.8	152.4853	1.940	1.3	ug/L	39	Standard
|	Ce	140	2020.1	15.3				ug/L	195	Standard
>	Tb	159	1624461.1	11.9				ug/L	1640193	Standard
|	Ho	165	143.3	8.8				ug/L	25	Standard
|	Tl	203	741198.1	13.5	51.1474	0.984	1.9	ug/L	324	Standard
|	Tl	205	1732305.3	13.8	44.6659	0.929	2.1	ug/L	698	Standard
|	Pb	206	577215.9	12.9	51.1016	0.664	1.3	ug/L	600	Standard
|	Pb	207	484373.0	12.5	48.2008	0.348	0.7	ug/L	541	Standard
|	Pb	208	1662608.3	12.4	50.2467	0.408	0.8	ug/L	1750	Standard
	U	238	689546.5	8.7	52.4272	1.627	3.1	ug/L	10	Standard
>	Bi	209	801380.2	11.7				ug/L	811518	Standard

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Na	23	351.7	21.7	49.2638	5.625	11.4	mg/L	0	Standard
Mg	24	1901.8	9.3	38.3326	2.259	5.9	mg/L	77	Standard
K	39	1150.0	2.6	5.8435	0.792	13.6	mg/L	18	Standard
Ca	43	318.3	17.3	-25.5189	17.889	70.1	mg/L	178	Standard
Fe	54	51.6	25.7	0.1840	0.106	57.6	mg/L	29	Standard
Fe	57	748.4	14.8	13.8849	1.759	12.7	mg/L	408	Standard
Sc-1	45	66774.6	10.6				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.0	26.5				ug/L	12	Standard
Br	81	23568.4	8.5				ug/L	1747	Standard
P	31	38.3	30.1				ug/L	17	Standard
S	34	5.0	0.0				ug/L	3	Standard
Sr	88	408.3	5.5				ug/L	370	Standard
C	12	96.7	21.5				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	110.8	29.2				mg/L	9	Standard
Ho-1	165	143.3	8.8				mg/L	25	Standard
Er	166	123.3	33.8				mg/L	20	Standard
I	127	466338.2	5.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		116.705	
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		106.671	
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	103.517
[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	98.751
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1610137504SD WG590016-05

Sample Date/Time: Friday, November 11, 2016 10:54:12

Number of Replicates: 3

Autosampler Position: 209

Sample Description: 1

Method File: C:\NexlONData\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	247687.1	14.8				ug/L	206101	Standard
|	Be	9	132856.4	14.5	47.3378	0.208	0.4	ug/L	25	Standard
|	Al	27	70894936.3	10.6	303.5824	13.425	4.4	ug/L	1120	Standard
|	Sc	45	68076.9	9.8				ug/L	61425	Standard
|	Ti	47	298.0	17.7	0.4625	0.041	8.8	ug/L	70	Standard
|	V	51	605289.7	12.0	52.7907	1.708	3.2	ug/L	3309	Standard
|	Cr	52	555795.1	11.6	52.3234	1.730	3.3	ug/L	13497	Standard
|	Cr	53	78402.6	12.1	57.8750	1.691	2.9	ug/L	3162	Standard
|	Mn	55	4111031.1	12.6	245.0950	5.954	2.4	ug/L	2226	Standard
|	Co	59	663950.6	13.3	50.2394	0.742	1.5	ug/L	1003	Standard
|	Ni	60	154817.8	14.5	54.5079	0.818	1.5	ug/L	355	Standard
|	Cu	65	126255.2	13.9	48.9369	0.357	0.7	ug/L	473	Standard
|	Zn	66	88238.0	13.6	66.6497	0.368	0.6	ug/L	341	Standard
>	Ge	72	611043.6	14.1				ug/L	566981	Standard
|	As	75	67873.4	13.2	50.9334	0.645	1.3	ug/L	-156	Standard
|	Se	82	5715.7	14.1	51.4816	0.612	1.2	ug/L	35	Standard
|	Se-1	77	5210.9	10.9	55.1361	1.955	3.5	ug/L	354	Standard
>	Ga	71	98.3	25.6				mg/L	43	Standard
|	Rb	85	36865.3	12.4				ug/L	48	Standard
|	Y	89	474986.7	11.1				ug/L	447702	Standard
>	Rh	103	570.0	33.4				ug/L	20	Standard
|	Mo	98	9485.7	12.1	1.8712	0.023	1.2	ug/L	158	Standard
|	Ag	107	494893.7	12.7	44.8906	0.342	0.8	ug/L	133	Standard
|	Cd	111	177707.3	15.0	50.7173	0.877	1.7	mg/L	7	Standard
|	Cd	114	452381.5	14.1	47.9613	0.921	1.9	ug/L	72	Standard
>	In	115	1050681.9	13.3				ug/L	1004638	Standard
|	Sn	118	302.7	15.6	0.0602	0.013	22.3	ug/L	364	Standard
|	Sb	123	478499.2	11.8	51.3237	0.822	1.6	ug/L	2464	Standard
|	Ba	135	617687.8	12.9	156.6687	1.288	0.8	ug/L	39	Standard
|	Ce	140	2153.5	12.1				ug/L	195	Standard
>	Tb	159	1655719.6	12.8				ug/L	1640193	Standard
|	Ho	165	110.0	31.8				ug/L	25	Standard
|	Tl	203	766299.5	12.0	51.5047	0.332	0.6	ug/L	324	Standard
|	Tl	205	1987114.7	26.4	49.4261	7.472	15.1	ug/L	698	Standard
|	Pb	206	593312.4	11.3	51.1632	0.617	1.2	ug/L	600	Standard
|	Pb	207	502557.3	12.5	48.6518	0.839	1.7	ug/L	541	Standard
|	Pb	208	1718052.4	11.0	50.5680	0.502	1.0	ug/L	1750	Standard
	U	238	705846.5	7.0	52.2773	2.424	4.6	ug/L	10	Standard
>	Bi	209	823539.1	11.5				ug/L	811518	Standard

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Na	23	381.7	21.8	52.4661	6.573	12.5	mg/L	0	Standard
Mg	24	1986.8	8.0	39.4496	4.549	11.5	mg/L	77	Standard
K	39	1248.4	16.2	6.1508	0.602	9.8	mg/L	18	Standard
Ca	43	348.3	10.8	-30.1834	14.981	49.6	mg/L	178	Standard
Fe	54	50.3	32.0	0.1768	0.233	131.7	mg/L	29	Standard
Fe	57	830.0	9.5	16.3755	2.030	12.4	mg/L	408	Standard
Sc-1	45	68076.9	9.8				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	11.7	44.0				ug/L	12	Standard
Br	81	23491.6	8.1				ug/L	1747	Standard
P	31	36.7	77.5				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	361.7	13.9				ug/L	370	Standard
C	12	86.7	26.6				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	149.8	2.9				mg/L	9	Standard
Ho-1	165	110.0	31.8				mg/L	25	Standard
Er	166	73.3	55.1				mg/L	20	Standard
I	127	446550.4	6.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		120.177	
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		107.771	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1610137504SD WG590016-05

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	104.583
[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	101.481
[	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
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

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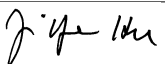
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Method 6020 - Summary Report

Sample ID: L1611007402

Sample Date/Time: Friday, November 11, 2016 10:57:17

Number of Replicates: 3

Autosampler Position: 210

Sample Description: 1

Method File: C:\NexlONData\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	246666.2	14.6				ug/L	206101	Standard
|	Be	9	88.3	61.1	0.0115	0.014	126.1	ug/L	25	Standard
|	Al	27	49184275.9	10.6	211.4016	9.010	4.3	ug/L	1120	Standard
|	Sc	45	69999.3	11.0				ug/L	61425	Standard
|	Ti	47	623.0	17.4	1.1482	0.053	4.6	ug/L	70	Standard
|	V	51	5128.7	31.9	0.1354	0.098	72.2	ug/L	3309	Standard
|	Cr	52	21771.2	13.9	0.6579	0.043	6.6	ug/L	13497	Standard
|	Cr	53	20303.6	7.7	13.4275	1.166	8.7	ug/L	3162	Standard
|	Mn	55	659971.5	13.7	39.8721	0.861	2.2	ug/L	2226	Standard
|	Co	59	13464.7	15.5	0.9722	0.010	1.0	ug/L	1003	Standard
|	Ni	60	8847.0	20.5	3.0312	0.185	6.1	ug/L	355	Standard
|	Cu	65	1468.4	18.5	0.3787	0.021	5.7	ug/L	473	Standard
|	Zn	66	3588.1	15.0	2.4752	0.013	0.5	ug/L	341	Standard
>	Ge	72	601150.6	15.0				ug/L	566981	Standard
|	As	75	1010.8	14.4	0.8811	0.130	14.7	ug/L	-156	Standard
|	Se	82	321.8	11.4	2.6538	0.193	7.3	ug/L	35	Standard
|	Se-1	77	1145.4	2.7	8.7130	1.767	20.3	ug/L	354	Standard
>	Ga	71	80.0	22.5				mg/L	43	Standard
|	Rb	85	3495.4	9.7				ug/L	48	Standard
|	Y	89	478412.9	15.2				ug/L	447702	Standard
>	Rh	103	388.3	16.4				ug/L	20	Standard
|	Mo	98	522.8	11.9	0.0957	0.005	5.5	ug/L	158	Standard
|	Ag	107	257.3	17.7	0.0097	0.001	13.7	ug/L	133	Standard
|	Cd	111	664.0	17.0	0.1851	0.006	3.1	mg/L	7	Standard
|	Cd	114	1859.3	15.2	0.1965	0.003	1.3	ug/L	72	Standard
>	In	115	1036860.2	14.2				ug/L	1004638	Standard
|	Sn	118	339.3	20.6	0.0783	0.011	14.3	ug/L	364	Standard
|	Sb	123	1900.7	12.4	0.1497	0.055	36.9	ug/L	2464	Standard
|	Ba	135	48690.4	13.8	12.5062	0.127	1.0	ug/L	39	Standard
|	Ce	140	1025.0	12.9				ug/L	195	Standard
>	Tb	159	1627520.7	12.4				ug/L	1640193	Standard
|	Ho	165	58.3	17.8				ug/L	25	Standard
|	Tl	203	1911.1	26.1	0.1177	0.019	16.5	ug/L	324	Standard
|	Tl	205	4665.7	23.0	0.1148	0.014	12.3	ug/L	698	Standard
|	Pb	206	1751.4	17.1	0.1031	0.009	8.9	ug/L	600	Standard
|	Pb	207	1520.4	13.9	0.1008	0.004	4.2	ug/L	541	Standard
|	Pb	208	5419.1	24.9	0.1125	0.023	20.3	ug/L	1750	Standard
	U	238	37892.9	8.7	2.8742	0.080	2.8	ug/L	10	Standard
>	Bi	209	803405.3	11.2				ug/L	811518	Standard

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Na	23	266.7	6.0	36.3304	6.009	16.5	mg/L	0	Standard
Mg	24	5372.6	7.1	104.9096	6.267	6.0	mg/L	77	Standard
K	39	110.0	29.8	0.4239	0.147	34.7	mg/L	18	Standard
Ca	43	230.0	10.9	-3.4828	0.675	19.4	mg/L	178	Standard
Fe	54	45.5	51.5	0.0816	0.258	316.4	mg/L	29	Standard
Fe	57	690.0	10.1	10.6826	0.375	3.5	mg/L	408	Standard
Sc-1	45	69999.3	11.0				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	11.7	32.5				ug/L	12	Standard
Br	81	48775.3	7.3				ug/L	1747	Standard
P	31	50.0	17.3				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	408.3	9.5				ug/L	370	Standard
C	12	66.7	31.2				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	23.3	65.5				mg/L	17	Standard
Dy	164	53.5	17.5				mg/L	9	Standard
Ho-1	165	58.3	17.8				mg/L	25	Standard
Er	166	66.7	70.9				mg/L	20	Standard
I	127	2764592.9	4.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		119.682	
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		106.026	
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	103.207
[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	99.000
[	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
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611007402

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Method 6020 - Summary Report

Sample ID: L1611007404

Sample Date/Time: Friday, November 11, 2016 11:00:23

Number of Replicates: 3

Autosampler Position: 211

Sample Description: 1

Method File: C:\NexlONData\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	246055.5	13.0				ug/L	206101	Standard
|	Be	9	68.3	42.9	0.0050	0.008	165.5	ug/L	25	Standard
|	Al	27	51587205.4	9.4	222.0946	8.789	4.0	ug/L	1120	Standard
|	Sc	45	69624.0	10.0				ug/L	61425	Standard
|	Ti	47	949.7	14.8	1.8580	0.086	4.6	ug/L	70	Standard
|	V	51	4357.2	10.1	0.0770	0.012	15.2	ug/L	3309	Standard
|	Cr	52	21930.3	10.9	0.7060	0.016	2.3	ug/L	13497	Standard
|	Cr	53	24177.7	7.2	16.7066	0.863	5.2	ug/L	3162	Standard
|	Mn	55	3915609.5	11.7	240.6680	0.414	0.2	ug/L	2226	Standard
|	Co	59	21053.1	12.6	1.5810	0.019	1.2	ug/L	1003	Standard
|	Ni	60	7528.2	17.1	2.6068	0.162	6.2	ug/L	355	Standard
|	Cu	65	1342.1	8.6	0.3405	0.018	5.4	ug/L	473	Standard
|	Zn	66	4251.9	12.0	3.0375	0.052	1.7	ug/L	341	Standard
>	Ge	72	591771.1	11.5				ug/L	566981	Standard
|	As	75	2092.8	18.9	1.7133	0.168	9.8	ug/L	-156	Standard
|	Se	82	425.0	19.9	3.6278	0.357	9.8	ug/L	35	Standard
|	Se-1	77	1361.4	10.5	11.3223	0.279	2.5	ug/L	354	Standard
>	Ga	71	130.0	27.7				mg/L	43	Standard
|	Rb	85	6446.4	11.0				ug/L	48	Standard
|	Y	89	470755.6	9.8				ug/L	447702	Standard
>	Rh	103	581.7	18.2				ug/L	20	Standard
|	Mo	98	2615.4	7.5	0.5271	0.020	3.8	ug/L	158	Standard
|	Ag	107	178.3	10.9	0.0028	0.001	20.3	ug/L	133	Standard
|	Cd	111	186.0	14.1	0.0481	0.003	5.5	mg/L	7	Standard
|	Cd	114	471.1	28.0	0.0478	0.009	19.6	ug/L	72	Standard
>	In	115	1016993.3	11.1				ug/L	1004638	Standard
|	Sn	118	269.0	9.8	0.0488	0.004	8.2	ug/L	364	Standard
|	Sb	123	1035.1	24.0	0.0556	0.041	73.4	ug/L	2464	Standard
|	Ba	135	71984.8	10.4	18.8578	0.173	0.9	ug/L	39	Standard
|	Ce	140	9971.6	11.6				ug/L	195	Standard
>	Tb	159	1588985.3	8.6				ug/L	1640193	Standard
|	Ho	165	145.0	3.4				ug/L	25	Standard
|	Tl	203	1449.1	16.3	0.0860	0.008	9.4	ug/L	324	Standard
|	Tl	205	3613.8	14.3	0.0877	0.005	5.4	ug/L	698	Standard
|	Pb	206	2175.5	11.9	0.1397	0.013	9.3	ug/L	600	Standard
|	Pb	207	1741.4	13.0	0.1213	0.006	5.1	ug/L	541	Standard
|	Pb	208	6248.5	11.5	0.1373	0.006	4.1	ug/L	1750	Standard
	U	238	2955.0	6.5	0.2242	0.008	3.4	ug/L	10	Standard
>	Bi	209	810233.2	9.7				ug/L	811518	Standard

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Na	23	246.7	8.4	33.5174	2.977	8.9	mg/L	0	Standard
Mg	24	5034.2	3.9	98.8644	6.432	6.5	mg/L	77	Standard
K	39	148.3	17.3	0.6229	0.148	23.7	mg/L	18	Standard
Ca	43	243.3	24.5	-7.6098	17.875	234.9	mg/L	178	Standard
Fe	54	204.0	13.0	1.9575	0.170	8.7	mg/L	29	Standard
Fe	57	755.0	7.0	13.2561	3.413	25.7	mg/L	408	Standard
Sc-1	45	69624.0	10.0				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	7.0	28.6				ug/L	12	Standard
Br	81	66860.9	6.3				ug/L	1747	Standard
P	31	40.0	33.1				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	388.3	8.8				ug/L	370	Standard
C	12	80.0	54.5				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	26.7	57.3				mg/L	17	Standard
Dy	164	203.5	17.4				mg/L	9	Standard
Ho-1	165	145.0	3.4				mg/L	25	Standard
Er	166	136.7	11.2				mg/L	20	Standard
I	127	1161003.3	3.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		119.386	
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		104.372	
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	101.230
[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	99.842
[	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

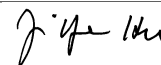
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611007404

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Method 6020 - Summary Report

Sample ID: L1611007404PS WG590880-03

Sample Date/Time: Friday, November 11, 2016 11:03:28

Number of Replicates: 3

Autosampler Position: 212

Sample Description: 1

Method File: C:\NexlONData\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	249005.8	12.7				ug/L	206101	Standard
|	Be	9	68.3	23.5	0.0051	0.003	59.9	ug/L	25	Standard
|	Al	27	52067444.9	9.1	221.4955	8.216	3.7	ug/L	1120	Standard
|	Sc	45	71047.1	9.0				ug/L	61425	Standard
|	Ti	47	951.4	13.2	1.8349	0.022	1.2	ug/L	70	Standard
|	V	51	3779.5	7.6	0.0205	0.019	93.0	ug/L	3309	Standard
|	Cr	52	21837.2	9.9	0.6668	0.048	7.1	ug/L	13497	Standard
|	Cr	53	24688.5	7.2	16.8365	1.151	6.8	ug/L	3162	Standard
|	Mn	55	3962645.7	11.2	240.0980	2.313	1.0	ug/L	2226	Standard
|	Co	59	21262.1	12.6	1.5732	0.009	0.5	ug/L	1003	Standard
|	Ni	60	7655.3	16.3	2.6138	0.119	4.6	ug/L	355	Standard
|	Cu	65	1387.1	13.1	0.3485	0.009	2.5	ug/L	473	Standard
|	Zn	66	4656.1	9.9	3.3073	0.087	2.6	ug/L	341	Standard
>	Ge	72	600780.6	12.1				ug/L	566981	Standard
|	As	75	2142.1	11.8	1.7349	0.029	1.7	ug/L	-156	Standard
|	Se	82	428.2	15.1	3.6219	0.357	9.9	ug/L	35	Standard
|	Se-1	77	1332.7	7.7	10.8148	1.321	12.2	ug/L	354	Standard
>	Ga	71	165.0	24.8				mg/L	43	Standard
|	Rb	85	6744.9	14.3				ug/L	48	Standard
|	Y	89	480829.5	10.1				ug/L	447702	Standard
>	Rh	103	573.3	23.7				ug/L	20	Standard
|	Mo	98	2710.0	10.8	0.5363	0.009	1.8	ug/L	158	Standard
|	Ag	107	172.0	15.7	0.0019	0.001	38.9	ug/L	133	Standard
|	Cd	111	185.2	18.7	0.0468	0.005	10.2	mg/L	7	Standard
|	Cd	114	512.8	13.7	0.0521	0.003	4.8	ug/L	72	Standard
>	In	115	1033382.3	11.0				ug/L	1004638	Standard
|	Sn	118	268.0	9.9	0.0462	0.002	4.5	ug/L	364	Standard
|	Sb	123	785.5	28.2	0.0261	0.034	130.4	ug/L	2464	Standard
|	Ba	135	72439.8	11.1	18.6625	0.084	0.5	ug/L	39	Standard
|	Ce	140	9966.6	6.7				ug/L	195	Standard
>	Tb	159	1610237.7	9.5				ug/L	1640193	Standard
|	Ho	165	133.3	42.1				ug/L	25	Standard
|	Tl	203	1331.1	14.0	0.0776	0.005	6.4	ug/L	324	Standard
|	Tl	205	3107.0	8.2	0.0747	0.004	5.8	ug/L	698	Standard
|	Pb	206	2245.5	12.4	0.1444	0.007	4.7	ug/L	600	Standard
|	Pb	207	1860.4	11.6	0.1321	0.005	3.6	ug/L	541	Standard
|	Pb	208	6564.2	12.5	0.1454	0.006	4.2	ug/L	1750	Standard
	U	238	2996.6	4.7	0.2263	0.011	4.8	ug/L	10	Standard
>	Bi	209	814814.2	9.4				ug/L	811518	Standard

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Na	23	300.0	7.3	39.8613	1.937	4.9	mg/L	0	Standard
Mg	24	5135.9	1.6	98.8949	8.071	8.2	mg/L	77	Standard
K	39	143.3	33.9	0.5882	0.275	46.8	mg/L	18	Standard
Ca	43	266.7	27.1	-11.1024	19.449	175.2	mg/L	178	Standard
Fe	54	228.5	26.8	2.1709	0.485	22.3	mg/L	29	Standard
Fe	57	821.7	12.3	14.7691	1.858	12.6	mg/L	408	Standard
Sc-1	45	71047.1	9.0				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	7.7	27.2				ug/L	12	Standard
Br	81	68974.0	8.2				ug/L	1747	Standard
P	31	40.0	37.5				ug/L	17	Standard
S	34	11.7	99.0				ug/L	3	Standard
Sr	88	430.0	4.7				ug/L	370	Standard
C	12	100.0	36.1				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	16.7	91.7				mg/L	17	Standard
Dy	164	125.7	38.6				mg/L	9	Standard
Ho-1	165	133.3	42.1				mg/L	25	Standard
Er	166	160.0	45.1				mg/L	20	Standard
I	127	1157135.1	3.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		120.817	
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		105.961	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611007404PS WG590880-03

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	102.861
[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	100.406
[	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
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611007404PS WG590880-03

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Method 6020 - Summary Report

Sample ID: L1611007404SDL WG590880-04

Sample Date/Time: Friday, November 11, 2016 11:06:34

Number of Replicates: 3

Autosampler Position: 213

Sample Description: 5

Method File: C:\NexlONData\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	217501.8	16.2				ug/L	206101	Standard
|	Be	9	31.7	18.2	-0.0056	0.004	73.8	ug/L	25	Standard
|	Al	27	9846510.3	12.8	47.9855	2.037	4.2	ug/L	1120	Standard
|	Sc	45	63450.6	12.5				ug/L	61425	Standard
|	Ti	47	211.3	10.4	0.3181	0.016	5.1	ug/L	70	Standard
|	V	51	3261.0	3.5	-0.0090	0.035	390.4	ug/L	3309	Standard
|	Cr	52	13964.8	8.6	-0.0331	0.077	233.0	ug/L	13497	Standard
|	Cr	53	8203.9	7.5	4.2220	0.487	11.5	ug/L	3162	Standard
|	Mn	55	589313.4	13.0	37.4144	0.333	0.9	ug/L	2226	Standard
|	Co	59	4431.3	15.2	0.2947	0.006	2.0	ug/L	1003	Standard
|	Ni	60	1788.1	13.9	0.5494	0.004	0.7	ug/L	355	Standard
|	Cu	65	765.0	12.3	0.1189	0.017	14.1	ug/L	473	Standard
|	Zn	66	2483.9	13.5	1.7237	0.007	0.4	ug/L	341	Standard
>	Ge	72	571590.0	13.7				ug/L	566981	Standard
|	As	75	312.2	5.6	0.3565	0.029	8.1	ug/L	-156	Standard
|	Se	82	103.2	18.3	0.6724	0.050	7.5	ug/L	35	Standard
|	Se-1	77	574.0	5.8	2.2899	0.796	34.7	ug/L	354	Standard
>	Ga	71	71.7	31.5				mg/L	43	Standard
|	Rb	85	1223.4	14.5				ug/L	48	Standard
|	Y	89	446309.5	15.9				ug/L	447702	Standard
>	Rh	103	150.0	12.0				ug/L	20	Standard
|	Mo	98	513.0	8.6	0.1001	0.007	6.9	ug/L	158	Standard
|	Ag	107	140.3	14.2	-0.0002	0.001	239.5	ug/L	133	Standard
|	Cd	111	39.0	9.6	0.0053	0.001	18.2	mg/L	7	Standard
|	Cd	114	140.7	21.0	0.0127	0.001	8.1	ug/L	72	Standard
>	In	115	979810.9	14.7				ug/L	1004638	Standard
|	Sn	118	158.7	10.8	-0.0009	0.005	548.5	ug/L	364	Standard
|	Sb	123	457.1	15.5	-0.0080	0.016	199.1	ug/L	2464	Standard
|	Ba	135	14000.9	12.5	3.8052	0.084	2.2	ug/L	39	Standard
|	Ce	140	1991.8	7.5				ug/L	195	Standard
>	Tb	159	1524391.3	13.2				ug/L	1640193	Standard
|	Ho	165	46.7	6.2				ug/L	25	Standard
|	Tl	203	1163.4	8.8	0.0673	0.004	6.4	ug/L	324	Standard
|	Tl	205	2725.2	9.6	0.0657	0.005	8.1	ug/L	698	Standard
|	Pb	206	1588.1	13.1	0.0883	0.004	5.1	ug/L	600	Standard
|	Pb	207	1373.1	11.9	0.0856	0.003	3.8	ug/L	541	Standard
|	Pb	208	4580.3	11.6	0.0879	0.003	3.8	ug/L	1750	Standard
	U	238	576.7	11.1	0.0455	0.002	3.7	ug/L	10	Standard
>	Bi	209	809938.4	14.0				ug/L	811518	Standard

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Na	23	46.7	37.6	7.1735	3.530	49.2	mg/L	0	Standard
Mg	24	985.0	14.1	20.4363	0.386	1.9	mg/L	77	Standard
K	39	45.0	22.2	0.1287	0.024	19.0	mg/L	18	Standard
Ca	43	151.7	26.6	8.1488	13.364	164.0	mg/L	178	Standard
Fe	54	60.8	13.0	0.3582	0.203	56.6	mg/L	29	Standard
Fe	57	545.0	11.5	7.6172	0.280	3.7	mg/L	408	Standard
Sc-1	45	63450.6	12.5				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	6.7	34.6				ug/L	12	Standard
Br	81	14346.8	7.9				ug/L	1747	Standard
P	31	33.3	43.3				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	401.7	15.0				ug/L	370	Standard
C	12	76.7	60.2				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	68.1	64.1				mg/L	9	Standard
Ho-1	165	46.7	6.2				mg/L	25	Standard
Er	166	40.0	25.0				mg/L	20	Standard
I	127	256173.1	7.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		105.531	
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		100.813	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611007404SDL WG590880-04

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	97.529
[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	99.805
[	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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Sample ID: L1611007404SDL WG590880-04

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Method 6020 - Summary Report

Sample ID: L1611007404SDL WG590880-04

Sample Date/Time: Friday, November 11, 2016 11:09:39

Number of Replicates: 3

Autosampler Position: 214

Sample Description: 25

Method File: C:\NexlONData\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	211750.0	14.6				ug/L	206101	Standard
|	Be	9	31.7	92.5	-0.0059	0.012	204.8	ug/L	25	Standard
|	Al	27	1576712.4	11.6	7.8928	0.250	3.2	ug/L	1120	Standard
|	Sc	45	60100.4	13.3				ug/L	61425	Standard
|	Ti	47	83.3	13.6	0.0417	0.007	17.1	ug/L	70	Standard
|	V	51	3763.6	13.0	0.0455	0.018	39.5	ug/L	3309	Standard
|	Cr	52	13433.3	7.8	-0.0458	0.108	235.9	ug/L	13497	Standard
|	Cr	53	3675.4	6.7	0.5663	0.283	49.9	ug/L	3162	Standard
|	Mn	55	125739.9	14.9	8.0932	0.119	1.5	ug/L	2226	Standard
|	Co	59	1284.7	10.7	0.0440	0.006	12.9	ug/L	1003	Standard
|	Ni	60	678.7	6.7	0.1405	0.029	20.5	ug/L	355	Standard
|	Cu	65	460.0	12.3	-0.0027	0.009	325.7	ug/L	473	Standard
|	Zn	66	1621.8	14.6	1.0616	0.046	4.3	ug/L	341	Standard
>	Ge	72	556260.9	15.3				ug/L	566981	Standard
|	As	75	-35.4	340.9	0.0714	0.096	134.4	ug/L	-156	Standard
|	Se	82	40.5	12.7	0.0809	0.013	16.4	ug/L	35	Standard
|	Se-1	77	414.3	2.2	0.4765	0.715	150.0	ug/L	354	Standard
>	Ga	71	46.7	12.4				mg/L	43	Standard
|	Rb	85	310.0	15.4				ug/L	48	Standard
|	Y	89	428367.6	14.5				ug/L	447702	Standard
>	Rh	103	53.3	30.1				ug/L	20	Standard
|	Mo	98	129.5	2.7	0.0184	0.003	17.9	ug/L	158	Standard
|	Ag	107	146.7	8.5	0.0006	0.001	230.0	ug/L	133	Standard
|	Cd	111	12.8	7.8	-0.0027	0.001	18.9	mg/L	7	Standard
|	Cd	114	52.7	16.6	0.0030	0.002	58.3	ug/L	72	Standard
>	In	115	973822.1	14.2				ug/L	1004638	Standard
|	Sn	118	84.7	6.8	-0.0375	0.004	10.0	ug/L	364	Standard
|	Sb	123	468.7	14.7	-0.0064	0.015	240.9	ug/L	2464	Standard
|	Ba	135	2992.6	10.7	0.8118	0.030	3.7	ug/L	39	Standard
|	Ce	140	421.7	13.5				ug/L	195	Standard
>	Tb	159	1497903.5	12.4				ug/L	1640193	Standard
|	Ho	165	18.3	31.5				ug/L	25	Standard
|	Tl	203	1295.7	2.9	0.0768	0.010	13.6	ug/L	324	Standard
|	Tl	205	3032.0	7.0	0.0735	0.005	6.9	ug/L	698	Standard
|	Pb	206	954.4	11.3	0.0327	0.002	7.3	ug/L	600	Standard
|	Pb	207	820.4	7.3	0.0313	0.005	17.2	ug/L	541	Standard
|	Pb	208	2878.1	8.0	0.0369	0.005	12.3	ug/L	1750	Standard
	U	238	121.0	9.5	0.0112	0.001	6.5	ug/L	10	Standard
>	Bi	209	810396.4	13.1				ug/L	811518	Standard

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Na	23	11.7	24.7	1.8943	0.726	38.3	mg/L	0	Standard
Mg	24	253.3	18.7	4.9286	0.706	14.3	mg/L	77	Standard
K	39	11.7	24.7	-0.0452	0.017	38.3	mg/L	18	Standard
Ca	43	150.0	18.6	7.5153	5.393	71.8	mg/L	178	Standard
Fe	54	32.3	83.6	0.0034	0.365	10829.1	mg/L	29	Standard
Fe	57	445.0	10.3	5.0721	4.182	82.4	mg/L	408	Standard
Sc-1	45	60100.4	13.3				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.3	6.9				ug/L	12	Standard
Br	81	4430.7	11.9				ug/L	1747	Standard
P	31	26.7	10.8				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	410.0	4.9				ug/L	370	Standard
C	12	53.3	75.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	12.2	34.9				mg/L	9	Standard
Ho-1	165	18.3	31.5				mg/L	25	Standard
Er	166	23.3	137.8				mg/L	20	Standard
I	127	60905.7	4.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.741	
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		98.109	
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	96.933
[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	99.862
[	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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Sample ID: L1611007404SDL WG590880-04

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 11:12:47

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	226560.2	18.8				ug/L	206101	Standard
|	Be	9	127316.8	16.1	49.7665	1.715	3.4	ug/L	25	Standard
|	Al	27	10499195.4	11.7	49.3937	3.630	7.3	ug/L	1120	Standard
|	Sc	45	63790.1	11.0				ug/L	61425	Standard
|	Ti	47	48680.8	14.1	100.5088	1.907	1.9	ug/L	70	Standard
|	V	51	577290.6	14.1	50.6867	0.934	1.8	ug/L	3309	Standard
|	Cr	52	531853.6	14.7	50.3114	0.586	1.2	ug/L	13497	Standard
|	Cr	53	68260.7	15.0	50.3838	0.578	1.1	ug/L	3162	Standard
|	Mn	55	846322.9	14.8	50.6919	0.559	1.1	ug/L	2226	Standard
|	Co	59	664623.3	14.7	50.6734	0.545	1.1	ug/L	1003	Standard
|	Ni	60	142537.3	14.8	50.6141	0.618	1.2	ug/L	355	Standard
|	Cu	65	128762.5	14.9	50.3142	0.468	0.9	ug/L	473	Standard
|	Zn	66	66060.2	15.1	50.2073	0.684	1.4	ug/L	341	Standard
[>	Ge	72	606676.1	15.8				ug/L	566981	Standard
|	As	75	66095.6	15.2	49.9466	0.274	0.5	ug/L	-156	Standard
|	Se	82	5616.3	15.5	50.9639	0.144	0.3	ug/L	35	Standard
|	Se-1	77	4727.1	15.0	49.8460	0.563	1.1	ug/L	354	Standard
[>	Ga	71	81.7	7.1				mg/L	43	Standard
|	Rb	85	718.4	13.0				ug/L	48	Standard
|	Y	89	472980.4	15.0				ug/L	447702	Standard
[>	Rh	103	78.3	19.5				ug/L	20	Standard
|	Mo	98	515208.4	13.7	100.8176	1.439	1.4	ug/L	158	Standard
|	Ag	107	588444.2	13.8	52.7099	0.751	1.4	ug/L	133	Standard
|	Cd	111	178107.7	15.6	50.2057	0.370	0.7	mg/L	7	Standard
|	Cd	114	474332.4	13.4	49.7413	1.008	2.0	ug/L	72	Standard
[>	In	115	1064929.1	15.1				ug/L	1004638	Standard
|	Sn	118	109226.4	15.7	49.8324	1.010	2.0	ug/L	364	Standard
|	Sb	123	463192.9	15.3	48.9447	0.467	1.0	ug/L	2464	Standard
|	Ba	135	185870.3	13.6	46.5620	0.863	1.9	ug/L	39	Standard
|	Ce	140	213.3	24.8				ug/L	195	Standard
[>	Tb	159	1624422.6	12.8				ug/L	1640193	Standard
|	Ho	165	46.7	22.3				ug/L	25	Standard
|	Tl	203	769736.8	14.0	50.0794	0.084	0.2	ug/L	324	Standard
|	Tl	205	2042483.3	28.7	49.0956	7.718	15.7	ug/L	698	Standard
|	Pb	206	602226.7	13.3	50.2793	0.380	0.8	ug/L	600	Standard
|	Pb	207	532665.6	13.8	49.9613	0.834	1.7	ug/L	541	Standard
|	Pb	208	1772816.0	13.2	50.5200	0.862	1.7	ug/L	1750	Standard
	U	238	695174.3	8.7	49.9015	2.699	5.4	ug/L	10	Standard
[>	Bi	209	851021.8	13.9				ug/L	811518	Standard

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Na	23	43.3	35.3	6.2946	1.527	24.3	mg/L	0	Standard
Mg	24	285.0	15.8	5.2993	0.887	16.7	mg/L	77	Standard
K	39	850.0	2.1	4.4969	0.601	13.4	mg/L	18	Standard
Ca	43	111.7	25.5	18.2197	5.172	28.4	mg/L	178	Standard
Fe	54	422.0	13.6	4.9703	0.200	4.0	mg/L	29	Standard
Fe	57	488.3	15.7	5.6903	5.005	88.0	mg/L	408	Standard
Sc-1	45	63790.1	11.0				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.7	31.6				ug/L	12	Standard
Br	81	2020.1	25.3				ug/L	1747	Standard
P	31	25.0	60.0				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	440.0	8.0				ug/L	370	Standard
C	12	100.0	10.0				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	48.9	53.6				mg/L	9	Standard
Ho-1	165	46.7	22.3				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	6764.9	23.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.533		
Al	27	98.787		
Sc	45			
Ti	47	100.509		
V	51	101.373		
Cr	52	100.623		
Cr	53			
Mn	55	101.384		
Co	59	101.347		
Ni	60	101.228		
Cu	65	100.628		
Zn	66	100.415		
Ge	72		107.001	
As	75	99.893		
Se	82	101.928		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.818	
[Ag	107	105.420	
[Cd	111	100.411	
[Cd	114		
>	In	115		106.001
[Sn	118	99.665	
[	Sb	123	97.889	
[	Ba	135	93.124	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.159	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	101.040	
[	U	238	99.803	
>	Bi	209		104.868
[	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 7

Sample Date/Time: Friday, November 11, 2016 11:15:52

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	218037.8	18.5				ug/L	206101	Standard
|	Be	9	63.3	9.1	0.0073	0.005	68.2	ug/L	25	Standard
|	Al	27	1773.4	7.5	0.0145	0.002	15.0	ug/L	1120	Standard
|	Sc	45	60064.0	15.5				ug/L	61425	Standard
|	Ti	47	52.3	17.8	-0.0314	0.030	96.4	ug/L	70	Standard
|	V	51	3042.4	7.0	-0.0350	0.039	112.8	ug/L	3309	Standard
|	Cr	52	13035.6	9.3	-0.1516	0.154	101.3	ug/L	13497	Standard
|	Cr	53	2216.8	2.7	-0.7484	0.340	45.4	ug/L	3162	Standard
|	Mn	55	2682.2	12.7	0.0312	0.014	44.2	ug/L	2226	Standard
|	Co	59	794.7	11.8	-0.0000	0.006	38883.9	ug/L	1003	Standard
|	Ni	60	391.7	9.4	0.0210	0.019	92.3	ug/L	355	Standard
|	Cu	65	480.7	15.4	-0.0040	0.012	288.0	ug/L	473	Standard
|	Zn	66	401.3	13.3	0.0295	0.024	81.5	ug/L	341	Standard
>	Ge	72	587703.9	20.9				ug/L	566981	Standard
|	As	75	-84.0	39.4	0.0401	0.019	48.5	ug/L	-156	Standard
|	Se	82	32.4	8.5	-0.0058	0.092	1607.4	ug/L	35	Standard
|	Se-1	77	347.7	2.3	-0.5526	0.869	157.2	ug/L	354	Standard
>	Ga	71	38.3	19.9				mg/L	43	Standard
|	Rb	85	41.7	30.2				ug/L	48	Standard
|	Y	89	458851.5	18.7				ug/L	447702	Standard
>	Rh	103	33.3	31.2				ug/L	20	Standard
|	Mo	98	260.0	18.1	0.0445	0.017	38.9	ug/L	158	Standard
|	Ag	107	187.7	14.9	0.0034	0.001	24.5	ug/L	133	Standard
|	Cd	111	26.3	14.2	0.0012	0.002	212.3	mg/L	7	Standard
|	Cd	114	154.7	9.8	0.0139	0.004	30.2	ug/L	72	Standard
>	In	115	1038404.9	17.4				ug/L	1004638	Standard
|	Sn	118	320.7	10.8	0.0751	0.042	56.4	ug/L	364	Standard
|	Sb	123	7001.8	26.4	0.7345	0.319	43.4	ug/L	2464	Standard
|	Ba	135	62.0	32.7	0.0070	0.007	106.2	ug/L	39	Standard
|	Ce	140	36.7	47.9				ug/L	195	Standard
>	Tb	159	1576340.1	15.9				ug/L	1640193	Standard
|	Ho	165	11.7	24.7				ug/L	25	Standard
|	Tl	203	165.7	21.3	-0.0012	0.004	350.8	ug/L	324	Standard
|	Tl	205	396.7	31.7	0.0060	0.005	84.1	ug/L	698	Standard
|	Pb	206	734.7	16.1	0.0116	0.003	24.1	ug/L	600	Standard
|	Pb	207	568.7	13.2	0.0047	0.003	72.1	ug/L	541	Standard
|	Pb	208	2000.1	13.7	0.0088	0.002	24.0	ug/L	1750	Standard
	U	238	72.7	34.2	0.0076	0.003	35.2	ug/L	10	Standard
>	Bi	209	834564.3	17.1				ug/L	811518	Standard

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Na	23	3.3	86.6	0.5756	0.500	86.8	mg/L	0	Standard
Mg	24	50.0	52.0	0.3186	0.660	207.3	mg/L	77	Standard
K	39	21.7	13.3	0.0119	0.011	90.0	mg/L	18	Standard
Ca	43	123.3	39.8	13.4902	11.641	86.3	mg/L	178	Standard
Fe	54	45.7	33.1	0.2039	0.261	128.0	mg/L	29	Standard
Fe	57	438.3	8.9	4.9174	4.318	87.8	mg/L	408	Standard
Sc-1	45	60064.0	15.5				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.3	66.1				ug/L	12	Standard
Br	81	1846.8	12.0				ug/L	1747	Standard
P	31	30.0	28.9				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	383.3	4.0				ug/L	370	Standard
C	12	63.3	45.6				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	15.7	134.7				mg/L	9	Standard
Ho-1	165	11.7	24.7				mg/L	25	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	5927.8	9.2				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		103.655	
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	103.361
[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	102.840
[	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 7	Sb	123	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: L1611007406

Sample Date/Time: Friday, November 11, 2016 11:18:58

Number of Replicates: 3

Autosampler Position: 215

Sample Description: 1

Method File: C:\NexlONData\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	251546.4	15.0				ug/L	206101	Standard
|	Be	9	76.7	10.0	0.0084	0.005	59.8	ug/L	25	Standard
|	Al	27	51102112.3	8.4	216.0932	16.092	7.4	ug/L	1120	Standard
|	Sc	45	69513.7	11.0				ug/L	61425	Standard
|	Ti	47	1389.4	13.1	2.7324	0.049	1.8	ug/L	70	Standard
|	V	51	6269.2	0.7	0.2446	0.081	33.2	ug/L	3309	Standard
|	Cr	52	24822.5	10.0	0.9489	0.099	10.5	ug/L	13497	Standard
|	Cr	53	22228.0	7.9	14.8092	1.079	7.3	ug/L	3162	Standard
|	Mn	55	690223.0	12.6	41.4537	0.787	1.9	ug/L	2226	Standard
|	Co	59	7717.3	13.3	0.5273	0.012	2.2	ug/L	1003	Standard
|	Ni	60	8796.6	16.9	3.0035	0.120	4.0	ug/L	355	Standard
|	Cu	65	1647.4	14.0	0.4476	0.011	2.4	ug/L	473	Standard
|	Zn	66	3720.5	12.3	2.5654	0.103	4.0	ug/L	341	Standard
>	Ge	72	604745.3	13.6				ug/L	566981	Standard
|	As	75	928.3	6.0	0.8129	0.082	10.1	ug/L	-156	Standard
|	Se	82	356.6	12.1	2.9483	0.116	3.9	ug/L	35	Standard
|	Se-1	77	1180.0	4.4	8.9913	1.504	16.7	ug/L	354	Standard
>	Ga	71	148.3	19.8				mg/L	43	Standard
|	Rb	85	4335.6	13.9				ug/L	48	Standard
|	Y	89	483927.5	11.9				ug/L	447702	Standard
>	Rh	103	435.0	19.6				ug/L	20	Standard
|	Mo	98	768.4	8.0	0.1443	0.017	11.8	ug/L	158	Standard
|	Ag	107	226.7	8.7	0.0069	0.002	23.7	ug/L	133	Standard
|	Cd	111	586.4	14.4	0.1612	0.004	2.3	mg/L	7	Standard
|	Cd	114	1548.2	12.3	0.1618	0.007	4.3	ug/L	72	Standard
>	In	115	1049201.2	14.7				ug/L	1004638	Standard
|	Sn	118	379.0	4.4	0.0985	0.030	30.1	ug/L	364	Standard
|	Sb	123	2876.7	21.9	0.2581	0.115	44.5	ug/L	2464	Standard
|	Ba	135	48755.0	11.5	12.4142	0.533	4.3	ug/L	39	Standard
|	Ce	140	8278.9	10.5				ug/L	195	Standard
>	Tb	159	1616766.7	11.9				ug/L	1640193	Standard
|	Ho	165	186.7	14.8				ug/L	25	Standard
|	Tl	203	2342.2	36.3	0.1434	0.038	26.7	ug/L	324	Standard
|	Tl	205	5902.9	39.5	0.1422	0.041	28.7	ug/L	698	Standard
|	Pb	206	2710.9	17.6	0.1840	0.013	7.1	ug/L	600	Standard
|	Pb	207	2222.2	19.0	0.1663	0.015	9.0	ug/L	541	Standard
|	Pb	208	7769.8	15.9	0.1807	0.009	5.2	ug/L	1750	Standard
	U	238	36233.7	6.7	2.7135	0.154	5.7	ug/L	10	Standard
>	Bi	209	815986.2	12.3				ug/L	811518	Standard

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Na	23	260.0	13.5	35.2554	2.800	7.9	mg/L	0	Standard
Mg	24	5245.9	5.4	103.2557	6.845	6.6	mg/L	77	Standard
K	39	151.7	1.9	0.6409	0.080	12.4	mg/L	18	Standard
Ca	43	271.7	5.9	-12.5611	5.270	42.0	mg/L	178	Standard
Fe	54	29.0	18.5	-0.1023	0.030	29.8	mg/L	29	Standard
Fe	57	715.0	6.1	11.7999	1.302	11.0	mg/L	408	Standard
Sc-1	45	69513.7	11.0				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.0	12.5				ug/L	12	Standard
Br	81	52380.7	7.7				ug/L	1747	Standard
P	31	33.3	37.7				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	420.0	14.6				ug/L	370	Standard
C	12	93.3	55.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	240.4	26.6				mg/L	9	Standard
Ho-1	165	186.7	14.8				mg/L	25	Standard
Er	166	200.0	35.0				mg/L	20	Standard
I	127	1483753.1	3.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		122.050	
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		106.661	
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	104.436
[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	100.551
[	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
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	

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Method 6020 - Summary Report

Sample ID: L1611007408

Sample Date/Time: Friday, November 11, 2016 11:22:03

Number of Replicates: 3

Autosampler Position: 216

Sample Description: 1

Method File: C:\NexlONData\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	242126.8	13.4				ug/L	206101	Standard
|	Be	9	46.7	6.2	-0.0018	0.002	110.0	ug/L	25	Standard
|	Al	27	15058577.5	9.5	65.9280	2.850	4.3	ug/L	1120	Standard
|	Sc	45	70693.8	9.0				ug/L	61425	Standard
|	Ti	47	525.7	11.1	0.9374	0.042	4.5	ug/L	70	Standard
|	V	51	18427.8	9.9	1.3091	0.113	8.7	ug/L	3309	Standard
|	Cr	52	42317.1	10.3	2.6316	0.141	5.4	ug/L	13497	Standard
|	Cr	53	17997.4	7.3	11.4048	0.763	6.7	ug/L	3162	Standard
|	Mn	55	1629040.7	11.5	97.4281	2.154	2.2	ug/L	2226	Standard
|	Co	59	4306.6	13.2	0.2640	0.003	1.0	ug/L	1003	Standard
|	Ni	60	12267.4	17.0	4.2083	0.207	4.9	ug/L	355	Standard
|	Cu	65	1620.1	15.9	0.4315	0.030	7.0	ug/L	473	Standard
|	Zn	66	4782.1	12.0	3.3542	0.041	1.2	ug/L	341	Standard
>	Ge	72	608284.6	12.5				ug/L	566981	Standard
|	As	75	700.0	13.8	0.6298	0.009	1.4	ug/L	-156	Standard
|	Se	82	283.9	10.8	2.2653	0.055	2.4	ug/L	35	Standard
|	Se-1	77	893.0	7.8	5.5376	0.968	17.5	ug/L	354	Standard
>	Ga	71	103.3	12.2				mg/L	43	Standard
|	Rb	85	22462.0	17.0				ug/L	48	Standard
|	Y	89	493045.0	12.2				ug/L	447702	Standard
>	Rh	103	1826.8	26.8				ug/L	20	Standard
|	Mo	98	13647.2	11.9	2.6614	0.054	2.0	ug/L	158	Standard
|	Ag	107	205.7	5.6	0.0047	0.002	44.8	ug/L	133	Standard
|	Cd	111	1233.4	15.0	0.3407	0.006	1.8	mg/L	7	Standard
|	Cd	114	3303.8	13.2	0.3437	0.031	9.1	ug/L	72	Standard
>	In	115	1065003.7	13.5				ug/L	1004638	Standard
|	Sn	118	308.3	3.1	0.0626	0.020	32.3	ug/L	364	Standard
|	Sb	123	1876.3	18.5	0.1422	0.065	45.4	ug/L	2464	Standard
|	Ba	135	472410.1	11.8	118.3512	2.213	1.9	ug/L	39	Standard
|	Ce	140	3610.4	15.5				ug/L	195	Standard
>	Tb	159	1606186.1	11.0				ug/L	1640193	Standard
|	Ho	165	285.0	16.1				ug/L	25	Standard
|	Tl	203	1800.8	14.0	0.1097	0.007	6.8	ug/L	324	Standard
|	Tl	205	4292.3	12.0	0.1048	0.004	3.8	ug/L	698	Standard
|	Pb	206	1392.7	10.1	0.0706	0.001	1.6	ug/L	600	Standard
|	Pb	207	1246.7	12.3	0.0722	0.002	2.4	ug/L	541	Standard
|	Pb	208	4069.5	10.7	0.0717	0.002	2.3	ug/L	1750	Standard
	U	238	4785.8	7.3	0.3605	0.014	4.0	ug/L	10	Standard
>	Bi	209	813805.2	11.0				ug/L	811518	Standard

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Na	23	430.0	9.2	57.9299	10.611	18.3	mg/L	0	Standard
Mg	24	1758.4	5.4	33.3834	1.315	3.9	mg/L	77	Standard
K	39	161.7	38.7	0.6585	0.257	39.0	mg/L	18	Standard
Ca	43	371.7	9.0	-31.8089	11.502	36.2	mg/L	178	Standard
Fe	54	47.0	33.1	0.1009	0.156	154.7	mg/L	29	Standard
Fe	57	906.7	6.4	18.0024	3.201	17.8	mg/L	408	Standard
Sc-1	45	70693.8	9.0				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	11.3	35.7				ug/L	12	Standard
Br	81	40925.5	8.7				ug/L	1747	Standard
P	31	35.0	51.5				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	405.0	7.5				ug/L	370	Standard
C	12	146.7	79.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	375.8	27.2				mg/L	9	Standard
Ho-1	165	285.0	16.1				mg/L	25	Standard
Er	166	296.7	13.6				mg/L	20	Standard
I	127	397407.7	8.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		117.479	
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		107.285	
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	106.009
[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	100.282
[	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
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1611007410

Sample Date/Time: Friday, November 11, 2016 11:25:08

Number of Replicates: 3

Autosampler Position: 217

Sample Description: 1

Method File: C:\NexlONData\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	247618.8	14.7				ug/L	206101	Standard
|	Be	9	68.3	29.6	0.0051	0.004	71.4	ug/L	25	Standard
|	Al	27	104543010.0	9.0	448.4862	28.791	6.4	ug/L	1120	Standard
|	Sc	45	72474.1	10.0				ug/L	61425	Standard
|	Ti	47	785.4	10.6	1.5544	0.072	4.7	ug/L	70	Standard
|	V	51	4443.9	33.7	0.0894	0.121	135.6	ug/L	3309	Standard
|	Cr	52	24361.7	9.7	1.0060	0.110	10.9	ug/L	13497	Standard
|	Cr	53	51325.5	8.4	39.2473	2.400	6.1	ug/L	3162	Standard
|	Mn	55	343271.7	12.0	21.4429	0.804	3.7	ug/L	2226	Standard
|	Co	59	6458.7	12.4	0.4526	0.022	4.9	ug/L	1003	Standard
|	Ni	60	16063.0	15.2	5.8425	0.277	4.7	ug/L	355	Standard
|	Cu	65	2305.8	14.4	0.7447	0.016	2.1	ug/L	473	Standard
|	Zn	66	4298.6	12.2	3.1500	0.157	5.0	ug/L	341	Standard
>	Ge	72	579738.0	13.3				ug/L	566981	Standard
|	As	75	1839.4	13.3	1.5579	0.125	8.0	ug/L	-156	Standard
|	Se	82	804.8	14.8	7.3547	0.117	1.6	ug/L	35	Standard
|	Se-1	77	3202.3	4.8	34.2063	3.547	10.4	ug/L	354	Standard
>	Ga	71	105.0	43.6				mg/L	43	Standard
|	Rb	85	4193.9	12.0				ug/L	48	Standard
|	Y	89	469392.6	11.9				ug/L	447702	Standard
>	Rh	103	736.7	6.5				ug/L	20	Standard
|	Mo	98	398.9	4.4	0.0725	0.007	10.2	ug/L	158	Standard
|	Ag	107	323.7	10.1	0.0164	0.001	5.1	ug/L	133	Standard
|	Cd	111	546.2	13.3	0.1541	0.002	1.1	mg/L	7	Standard
|	Cd	114	1476.7	8.2	0.1590	0.008	4.8	ug/L	72	Standard
>	In	115	1019206.7	12.5				ug/L	1004638	Standard
|	Sn	118	498.0	11.0	0.1581	0.008	4.9	ug/L	364	Standard
|	Sb	123	1212.8	18.5	0.0755	0.042	55.7	ug/L	2464	Standard
|	Ba	135	43062.0	11.4	11.2562	0.191	1.7	ug/L	39	Standard
|	Ce	140	1961.8	14.6				ug/L	195	Standard
>	Tb	159	1577047.7	11.5				ug/L	1640193	Standard
|	Ho	165	80.0	10.8				ug/L	25	Standard
|	Tl	203	1056.7	12.7	0.0634	0.002	3.1	ug/L	324	Standard
|	Tl	205	2383.5	15.5	0.0597	0.004	6.3	ug/L	698	Standard
|	Pb	206	1421.4	14.8	0.0800	0.006	7.7	ug/L	600	Standard
|	Pb	207	1214.7	14.1	0.0760	0.004	5.6	ug/L	541	Standard
|	Pb	208	4203.6	14.4	0.0828	0.005	6.5	ug/L	1750	Standard
	U	238	54879.9	7.1	4.3570	0.175	4.0	ug/L	10	Standard
>	Bi	209	768101.0	10.9				ug/L	811518	Standard

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Na	23	576.7	10.3	75.0964	4.951	6.6	mg/L	0	Standard
Mg	24	10195.1	4.7	193.0413	10.952	5.7	mg/L	77	Standard
K	39	151.7	3.8	0.6111	0.097	15.8	mg/L	18	Standard
Ca	43	435.0	5.0	-42.2058	9.117	21.6	mg/L	178	Standard
Fe	54	40.3	40.1	0.0116	0.169	1465.6	mg/L	29	Standard
Fe	57	1038.4	10.2	21.5292	2.019	9.4	mg/L	408	Standard
Sc-1	45	72474.1	10.0				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	11.0	24.1				ug/L	12	Standard
Br	81	129642.7	10.2				ug/L	1747	Standard
P	31	31.7	32.9				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	403.3	4.7				ug/L	370	Standard
C	12	80.0	33.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	20.0	86.6				mg/L	17	Standard
Dy	164	105.7	24.1				mg/L	9	Standard
Ho-1	165	80.0	10.8				mg/L	25	Standard
Er	166	90.0	29.4				mg/L	20	Standard
I	127	779235.0	2.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		120.144	
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		102.250	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611007410

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	101.450
[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	94.650
[	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
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611007410

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Method 6020 - Summary Report

Sample ID: L1611007412

Sample Date/Time: Friday, November 11, 2016 11:28:13

Number of Replicates: 3

Autosampler Position: 218

Sample Description: 1

Method File: C:\NexlONData\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	270957.7	13.0				ug/L	206101	Standard
|	Be	9	98.3	21.2	0.0131	0.006	46.1	ug/L	25	Standard
|	Al	27	139810915.4	8.8	546.9941	30.221	5.5	ug/L	1120	Standard
|	Sc	45	74217.0	7.6				ug/L	61425	Standard
|	Ti	47	677.3	8.8	1.3074	0.052	4.0	ug/L	70	Standard
|	V	51	7418.8	11.4	0.3715	0.146	39.2	ug/L	3309	Standard
|	Cr	52	35058.0	8.2	2.0645	0.067	3.3	ug/L	13497	Standard
|	Cr	53	61343.1	10.4	46.8125	1.038	2.2	ug/L	3162	Standard
|	Mn	55	187130.8	9.6	11.5285	0.156	1.4	ug/L	2226	Standard
|	Co	59	4751.8	12.0	0.3125	0.009	2.9	ug/L	1003	Standard
|	Ni	60	23215.0	13.9	8.4267	0.366	4.3	ug/L	355	Standard
|	Cu	65	1999.8	12.9	0.6127	0.027	4.5	ug/L	473	Standard
|	Zn	66	4355.3	10.2	3.1647	0.071	2.2	ug/L	341	Standard
>	Ge	72	583960.2	9.8				ug/L	566981	Standard
|	As	75	3108.2	18.5	2.5239	0.217	8.6	ug/L	-156	Standard
|	Se	82	1417.1	14.8	13.0721	0.725	5.5	ug/L	35	Standard
|	Se-1	77	5830.5	4.4	65.4601	4.933	7.5	ug/L	354	Standard
>	Ga	71	238.3	20.4				mg/L	43	Standard
|	Rb	85	10665.4	9.9				ug/L	48	Standard
|	Y	89	463247.2	10.6				ug/L	447702	Standard
>	Rh	103	1128.4	15.8				ug/L	20	Standard
|	Mo	98	340.2	15.0	0.0617	0.005	8.0	ug/L	158	Standard
|	Ag	107	195.3	7.8	0.0050	0.002	35.7	ug/L	133	Standard
|	Cd	111	809.9	12.5	0.2385	0.008	3.5	mg/L	7	Standard
|	Cd	114	2150.6	11.2	0.2387	0.003	1.3	ug/L	72	Standard
>	In	115	990367.7	9.9				ug/L	1004638	Standard
|	Sn	118	232.0	8.2	0.0343	0.009	25.4	ug/L	364	Standard
|	Sb	123	1214.0	16.1	0.0784	0.036	45.4	ug/L	2464	Standard
|	Ba	135	348119.0	8.5	93.7148	1.324	1.4	ug/L	39	Standard
|	Ce	140	693.3	9.8				ug/L	195	Standard
>	Tb	159	1559651.9	7.9				ug/L	1640193	Standard
|	Ho	165	51.7	43.6				ug/L	25	Standard
|	Tl	203	771.7	13.6	0.0447	0.003	6.8	ug/L	324	Standard
|	Tl	205	1898.5	15.8	0.0483	0.004	8.1	ug/L	698	Standard
|	Pb	206	1198.4	10.6	0.0634	0.003	4.1	ug/L	600	Standard
|	Pb	207	934.7	11.0	0.0504	0.003	5.3	ug/L	541	Standard
|	Pb	208	3395.1	11.8	0.0611	0.004	6.2	ug/L	1750	Standard
	U	238	21354.1	7.0	1.7517	0.033	1.9	ug/L	10	Standard
>	Bi	209	742411.7	8.4				ug/L	811518	Standard

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Na	23	856.7	6.6	108.8327	1.386	1.3	mg/L	0	Standard
Mg	24	9889.9	3.5	182.6970	12.282	6.7	mg/L	77	Standard
K	39	315.0	25.4	1.3547	0.410	30.2	mg/L	18	Standard
Ca	43	618.3	8.6	-75.3637	19.385	25.7	mg/L	178	Standard
Fe	54	53.8	16.6	0.1593	0.148	92.7	mg/L	29	Standard
Fe	57	1311.7	5.3	29.8712	5.633	18.9	mg/L	408	Standard
Sc-1	45	74217.0	7.6				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.3	49.7				ug/L	12	Standard
Br	81	197458.4	6.4				ug/L	1747	Standard
P	31	60.0	28.9				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	396.7	7.6				ug/L	370	Standard
C	12	56.7	71.3				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	80.9	16.3				mg/L	9	Standard
Ho-1	165	51.7	43.6				mg/L	25	Standard
Er	166	50.0	69.3				mg/L	20	Standard
I	127	516836.2	1.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		131.468	
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		102.995	
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	98.580
[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	91.484
[	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
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611007412

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 11:31:20

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	235080.2	14.2				ug/L	206101	Standard
|	Be	9	132696.5	14.5	49.7878	0.214	0.4	ug/L	25	Standard
|	Al	27	10786283.3	11.2	48.5923	1.632	3.4	ug/L	1120	Standard
|	Sc	45	66111.2	7.7				ug/L	61425	Standard
|	Ti	47	51804.3	12.0	105.5615	0.490	0.5	ug/L	70	Standard
|	V	51	610393.4	11.6	52.9183	0.920	1.7	ug/L	3309	Standard
|	Cr	52	560619.9	12.0	52.4296	0.606	1.2	ug/L	13497	Standard
|	Cr	53	73929.7	11.2	54.1180	1.312	2.4	ug/L	3162	Standard
|	Mn	55	889248.8	12.0	52.6064	0.161	0.3	ug/L	2226	Standard
|	Co	59	693799.0	13.3	52.1862	0.555	1.1	ug/L	1003	Standard
|	Ni	60	148774.7	12.8	52.1407	0.403	0.8	ug/L	355	Standard
|	Cu	65	133145.0	13.4	51.3345	0.578	1.1	ug/L	473	Standard
|	Zn	66	69204.7	12.7	51.9326	0.415	0.8	ug/L	341	Standard
>	Ge	72	613812.6	12.3				ug/L	566981	Standard
|	As	75	68274.4	12.6	50.9524	0.318	0.6	ug/L	-156	Standard
|	Se	82	5759.8	11.6	51.6809	0.427	0.8	ug/L	35	Standard
|	Se-1	77	4933.5	15.1	51.3953	1.682	3.3	ug/L	354	Standard
>	Ga	71	108.3	23.2				mg/L	43	Standard
|	Rb	85	668.3	10.2				ug/L	48	Standard
|	Y	89	475516.1	9.5				ug/L	447702	Standard
>	Rh	103	83.3	19.3				ug/L	20	Standard
|	Mo	98	534233.4	11.4	101.8701	0.308	0.3	ug/L	158	Standard
|	Ag	107	611046.1	11.7	53.3297	0.428	0.8	ug/L	133	Standard
|	Cd	111	186101.3	14.2	51.1062	1.391	2.7	mg/L	7	Standard
|	Cd	114	496161.0	14.5	50.5599	1.519	3.0	ug/L	72	Standard
>	In	115	1091487.8	11.6				ug/L	1004638	Standard
|	Sn	118	111185.3	13.4	49.4432	1.083	2.2	ug/L	364	Standard
|	Sb	123	481338.4	13.4	49.5648	0.999	2.0	ug/L	2464	Standard
|	Ba	135	193207.4	11.3	47.1578	0.377	0.8	ug/L	39	Standard
|	Ce	140	233.3	15.5				ug/L	195	Standard
>	Tb	159	1684653.7	9.1				ug/L	1640193	Standard
|	Ho	165	66.7	15.6				ug/L	25	Standard
|	Tl	203	789824.4	11.4	50.4771	0.576	1.1	ug/L	324	Standard
|	Tl	205	2065611.0	25.6	48.9028	7.558	15.5	ug/L	698	Standard
|	Pb	206	616998.0	11.5	50.5615	0.657	1.3	ug/L	600	Standard
|	Pb	207	547660.8	11.0	50.4499	0.327	0.6	ug/L	541	Standard
|	Pb	208	1826421.8	11.8	51.0627	0.754	1.5	ug/L	1750	Standard
	U	238	725768.8	7.4	51.0521	1.565	3.1	ug/L	10	Standard
>	Bi	209	865886.7	10.4				ug/L	811518	Standard

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Na	23	33.3	22.9	4.7195	0.758	16.1	mg/L	0	Standard
Mg	24	300.0	7.3	5.3877	0.293	5.4	mg/L	77	Standard
K	39	881.7	5.1	4.4805	0.516	11.5	mg/L	18	Standard
Ca	43	130.0	30.5	14.6181	10.564	72.3	mg/L	178	Standard
Fe	54	420.1	12.5	4.7520	0.255	5.4	mg/L	29	Standard
Fe	57	568.3	7.3	7.7160	2.391	31.0	mg/L	408	Standard
Sc-1	45	66111.2	7.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.7	23.9				ug/L	12	Standard
Br	81	2937.0	38.9				ug/L	1747	Standard
P	31	26.7	21.7				ug/L	17	Standard
S	34	5.0	0.0				ug/L	3	Standard
Sr	88	411.7	10.1				ug/L	370	Standard
C	12	76.7	79.7				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	42.5	14.2				mg/L	9	Standard
Ho-1	165	66.7	15.6				mg/L	25	Standard
Er	166	16.7	34.6				mg/L	20	Standard
I	127	15377.8	56.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.576		
Al	27	97.185		
Sc	45			
Ti	47	105.561		
V	51	105.837		
Cr	52	104.859		
Cr	53			
Mn	55	105.213		
Co	59	104.372		
Ni	60	104.281		
Cu	65	102.669		
Zn	66	103.865		
Ge	72		108.260	
As	75	101.905		
Se	82	103.362		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	101.870	
[Ag	107	106.659	
[Cd	111	102.212	
[Cd	114		
>	In	115		108.645
[Sn	118	98.886	
[	Sb	123	99.130	
[	Ba	135	94.316	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.954	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	102.125	
[	U	238	102.104	
>	Bi	209		106.700
[	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 7

Sample Date/Time: Friday, November 11, 2016 11:34:26

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	236749.3	2.3				ug/L	206101	Standard
|	Be	9	23.3	24.7	-0.0103	0.002	19.0	ug/L	25	Standard
|	Al	27	4740.7	8.3	0.0269	0.002	8.3	ug/L	1120	Standard
|	Sc	45	66504.0	1.2				ug/L	61425	Standard
|	Ti	47	46.3	17.4	-0.0543	0.020	36.9	ug/L	70	Standard
|	V	51	3140.4	7.8	-0.0523	0.023	43.7	ug/L	3309	Standard
|	Cr	52	11671.2	3.2	-0.3952	0.036	9.0	ug/L	13497	Standard
|	Cr	53	2875.3	7.4	-0.4323	0.209	48.5	ug/L	3162	Standard
|	Mn	55	2058.5	2.0	-0.0185	0.004	23.2	ug/L	2226	Standard
|	Co	59	574.0	7.7	-0.0213	0.005	24.6	ug/L	1003	Standard
|	Ni	60	513.0	3.8	0.0495	0.014	28.0	ug/L	355	Standard
|	Cu	65	488.7	5.6	-0.0168	0.007	44.0	ug/L	473	Standard
|	Zn	66	404.7	4.2	0.0057	0.016	279.1	ug/L	341	Standard
>	Ge	72	634266.1	4.6				ug/L	566981	Standard
|	As	75	-100.5	66.1	0.0331	0.045	136.3	ug/L	-156	Standard
|	Se	82	32.5	14.6	-0.0378	0.056	147.3	ug/L	35	Standard
|	Se-1	77	385.7	4.7	-0.5439	0.387	71.2	ug/L	354	Standard
>	Ga	71	53.3	19.5				mg/L	43	Standard
|	Rb	85	41.7	27.7				ug/L	48	Standard
|	Y	89	488193.5	2.5				ug/L	447702	Standard
>	Rh	103	50.0	43.6				ug/L	20	Standard
|	Mo	98	66.5	36.0	0.0030	0.005	155.7	ug/L	158	Standard
|	Ag	107	176.3	1.3	0.0013	0.000	6.3	ug/L	133	Standard
|	Cd	111	12.2	36.6	-0.0034	0.001	36.4	mg/L	7	Standard
|	Cd	114	69.1	47.5	0.0038	0.003	88.0	ug/L	72	Standard
>	In	115	1109799.5	1.5				ug/L	1004638	Standard
|	Sn	118	158.3	14.5	-0.0107	0.009	88.1	ug/L	364	Standard
|	Sb	123	367.6	39.8	-0.0247	0.015	61.2	ug/L	2464	Standard
|	Ba	135	44.0	24.6	0.0011	0.003	250.0	ug/L	39	Standard
|	Ce	140	30.0	33.3				ug/L	195	Standard
>	Tb	159	1726193.1	1.7				ug/L	1640193	Standard
|	Ho	165	25.0	20.0				ug/L	25	Standard
|	Tl	203	515.3	9.7	0.0183	0.003	19.0	ug/L	324	Standard
|	Tl	205	1291.7	12.5	0.0247	0.004	15.9	ug/L	698	Standard
|	Pb	206	647.3	4.5	-0.0012	0.002	138.3	ug/L	600	Standard
|	Pb	207	561.7	5.7	-0.0013	0.003	244.5	ug/L	541	Standard
|	Pb	208	1938.7	1.3	0.0014	0.000	8.3	ug/L	1750	Standard
	U	238	20.7	43.4	0.0034	0.001	18.0	ug/L	10	Standard
>	Bi	209	920975.2	1.5				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2396	0.406	169.6	mg/L	0	Standard
Mg	24	55.0	41.7	0.2889	0.484	167.6	mg/L	77	Standard
K	39	6.7	86.6	-0.0782	0.030	37.7	mg/L	18	Standard
Ca	43	123.3	14.2	16.6589	3.429	20.6	mg/L	178	Standard
Fe	54	24.4	34.2	-0.1407	0.107	76.2	mg/L	29	Standard
Fe	57	411.7	11.0	1.7790	1.477	83.0	mg/L	408	Standard
Sc-1	45	66504.0	1.2				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.7	6.7				ug/L	12	Standard
Br	81	2283.5	1.3				ug/L	1747	Standard
P	31	30.0	16.7				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	420.0	8.2				ug/L	370	Standard
C	12	46.7	32.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	18.9	111.0				mg/L	9	Standard
Ho-1	165	25.0	20.0				mg/L	25	Standard
Er	166	23.3	89.2				mg/L	20	Standard
I	127	16417.3	7.7				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		111.867	
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	110.468
[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	113.488
[	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 8

Sample Date/Time: Friday, November 11, 2016 11:38:49

Number of Replicates: 3

Autosampler Position: 202

Sample Description:

Method File: C:\NexlONData\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	223687.3	18.4				ug/L	206101	Standard
|	Be	9	526.7	30.7	0.1859	0.026	13.8	ug/L	25	Standard
|	Al	27	3033.8	75.6	0.0192	0.008	41.4	ug/L	1120	Standard
|	Sc	45	58828.8	14.0				ug/L	61425	Standard
|	Ti	47	45.7	13.4	-0.0453	0.026	57.9	ug/L	70	Standard
|	V	51	7398.6	13.7	0.3647	0.034	9.4	ug/L	3309	Standard
|	Cr	52	20970.3	12.3	0.6534	0.110	16.8	ug/L	13497	Standard
|	Cr	53	3617.1	5.3	0.3890	0.339	87.1	ug/L	3162	Standard
|	Mn	55	10278.6	17.2	0.5052	0.016	3.1	ug/L	2226	Standard
|	Co	59	5534.7	15.6	0.3768	0.006	1.6	ug/L	1003	Standard
|	Ni	60	4739.8	17.5	1.6285	0.020	1.3	ug/L	355	Standard
|	Cu	65	2473.5	17.6	0.8088	0.026	3.2	ug/L	473	Standard
|	Zn	66	8199.9	19.0	6.2165	0.177	2.9	ug/L	341	Standard
>	Ge	72	582549.1	17.0				ug/L	566981	Standard
|	As	75	316.0	39.6	0.3459	0.057	16.4	ug/L	-156	Standard
|	Se	82	67.4	30.6	0.3101	0.135	43.5	ug/L	35	Standard
|	Se-1	77	388.7	4.5	-0.0621	0.741	1192.3	ug/L	354	Standard
>	Ga	71	48.3	15.8				mg/L	43	Standard
|	Rb	85	38.3	37.7				ug/L	48	Standard
|	Y	89	448251.7	18.2				ug/L	447702	Standard
>	Rh	103	45.0	40.1				ug/L	20	Standard
|	Mo	98	73.1	29.0	0.0062	0.006	104.5	ug/L	158	Standard
|	Ag	107	4218.3	16.3	0.3845	0.002	0.6	ug/L	133	Standard
|	Cd	111	849.3	19.0	0.2453	0.005	2.1	mg/L	7	Standard
|	Cd	114	2120.3	17.7	0.2309	0.016	7.0	ug/L	72	Standard
>	In	115	1009642.3	16.9				ug/L	1004638	Standard
|	Sn	118	182.7	5.3	0.0102	0.020	195.6	ug/L	364	Standard
|	Sb	123	5321.1	3.7	0.5423	0.094	17.3	ug/L	2464	Standard
|	Ba	135	2642.2	16.7	0.6877	0.012	1.8	ug/L	39	Standard
|	Ce	140	31.7	50.8				ug/L	195	Standard
>	Tb	159	1556497.6	15.0				ug/L	1640193	Standard
|	Ho	165	10.0	86.6				ug/L	25	Standard
|	Tl	203	1368.7	21.1	0.0790	0.004	4.8	ug/L	324	Standard
|	Tl	205	3125.3	17.8	0.0742	0.001	1.1	ug/L	698	Standard
|	Pb	206	2933.6	16.5	0.2025	0.005	2.6	ug/L	600	Standard
|	Pb	207	2466.9	17.2	0.1895	0.002	0.8	ug/L	541	Standard
|	Pb	208	8288.9	17.0	0.1949	0.002	1.2	ug/L	1750	Standard
	U	238	5110.9	12.9	0.3816	0.016	4.2	ug/L	10	Standard
>	Bi	209	822482.1	17.1				ug/L	811518	Standard

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Na	23	1.7	173.2	0.3130	0.534	170.4	mg/L	0	Standard
Mg	24	51.7	40.3	0.3609	0.486	134.8	mg/L	77	Standard
K	39	20.0	50.0	0.0084	0.064	767.0	mg/L	18	Standard
Ca	43	98.3	12.8	18.7854	5.552	29.6	mg/L	178	Standard
Fe	54	44.2	0.7	0.1818	0.082	45.3	mg/L	29	Standard
Fe	57	480.0	9.5	6.9311	4.422	63.8	mg/L	408	Standard
Sc-1	45	58828.8	14.0				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.0	72.6				ug/L	12	Standard
Br	81	2000.1	19.3				ug/L	1747	Standard
P	31	20.0	50.0				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	391.7	7.8				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	173.2				mg/L	17	Standard
Dy	164	5.5	94.1				mg/L	9	Standard
Ho-1	165	10.0	86.6				mg/L	25	Standard
Er	166	23.3	49.5				mg/L	20	Standard
I	127	4430.6	4.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
> Li	6			
Be	9	92.934		
Al	27			
Sc	45			
Ti	47			
V	51	91.170		
Cr	52	81.680		
Cr	53			
Mn	55	101.045		
Co	59	94.207		
Ni	60	101.779		
Cu	65	101.096		
Zn	66	99.464		
> Ge	72		102.746	
As	75	86.487		
Se	82	77.525		
Se-1	77			
> Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98		
	Ag	107	96.121	
	Cd	111	102.227	
	Cd	114		
>	In	115		100.498
	Sn	118		
	Sb	123	135.566	
[	Ba	135	91.695	
[	Ce	140		
>	Tb	159		
[	Ho	165		
	Tl	203	98.806	
	Tl	205		
	Pb	206		
	Pb	207		
	Pb	208	97.450	
	U	238	95.390	
>	Bi	209		101.351
[	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

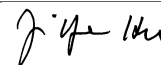
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 8	Sb	123	

Sample ID: QC Std 8

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Method 6020 - Summary Report

Sample ID: L1610157201

Sample Date/Time: Friday, November 11, 2016 11:46:23

Number of Replicates: 3

Autosampler Position: 232

Sample Description: 5

Method File: C:\NexlONData\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	216043.0	15.3				ug/L	206101	Standard
|	Be	9	48.3	21.5	0.0013	0.006	454.5	ug/L	25	Standard
|	Al	27	504482.6	9.7	2.4854	0.141	5.7	ug/L	1120	Standard
|	Sc	45	58724.7	12.2				ug/L	61425	Standard
|	Ti	47	114.3	10.2	0.1062	0.049	45.8	ug/L	70	Standard
|	V	51	4007.1	12.4	0.0576	0.046	80.3	ug/L	3309	Standard
|	Cr	52	12027.1	5.6	-0.2390	0.095	39.9	ug/L	13497	Standard
|	Cr	53	3705.5	2.9	0.4895	0.314	64.2	ug/L	3162	Standard
|	Mn	55	205017.7	11.8	12.8585	0.175	1.4	ug/L	2226	Standard
|	Co	59	10339.9	11.3	0.7700	0.015	1.9	ug/L	1003	Standard
|	Ni	60	1603.1	12.3	0.4766	0.005	1.0	ug/L	355	Standard
|	Cu	65	889.7	14.0	0.1676	0.005	3.1	ug/L	473	Standard
|	Zn	66	2921.6	12.7	2.0654	0.019	0.9	ug/L	341	Standard
>	Ge	72	574855.8	13.0				ug/L	566981	Standard
|	As	75	4143.5	12.9	3.4003	0.009	0.3	ug/L	-156	Standard
|	Se	82	99.3	12.9	0.6330	0.023	3.6	ug/L	35	Standard
|	Se-1	77	419.3	7.6	0.3367	0.585	173.8	ug/L	354	Standard
>	Ga	71	60.0	22.0				mg/L	43	Standard
|	Rb	85	5847.8	12.8				ug/L	48	Standard
|	Y	89	445252.3	12.9				ug/L	447702	Standard
>	Rh	103	63.3	16.4				ug/L	20	Standard
|	Mo	98	976419.5	12.9	204.7720	2.849	1.4	ug/L	158	Standard
|	Ag	107	182.3	3.7	0.0038	0.002	57.2	ug/L	133	Standard
|	Cd	111	-106.9	60.9	-0.0414	0.025	59.7	mg/L	7	Standard
|	Cd	114	1998.6	24.8	0.2188	0.024	11.1	ug/L	72	Standard
>	In	115	993534.9	14.2				ug/L	1004638	Standard
|	Sn	118	183.3	11.4	0.0116	0.021	178.0	ug/L	364	Standard
|	Sb	123	1844.9	23.8	0.1544	0.077	49.9	ug/L	2464	Standard
|	Ba	135	12555.6	13.7	3.3584	0.052	1.6	ug/L	39	Standard
|	Ce	140	25212.9	13.7				ug/L	195	Standard
>	Tb	159	1591259.3	10.5				ug/L	1640193	Standard
|	Ho	165	1206.7	18.6				ug/L	25	Standard
|	Tl	203	1898.1	3.9	0.1164	0.012	10.3	ug/L	324	Standard
|	Tl	205	4374.0	6.8	0.1066	0.008	7.4	ug/L	698	Standard
|	Pb	206	1006.0	6.4	0.0365	0.005	14.9	ug/L	600	Standard
|	Pb	207	872.0	8.1	0.0352	0.004	10.6	ug/L	541	Standard
|	Pb	208	2974.8	8.8	0.0386	0.003	8.5	ug/L	1750	Standard
	U	238	2025.5	6.8	0.1528	0.009	5.6	ug/L	10	Standard
>	Bi	209	820270.9	12.3				ug/L	811518	Standard

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Na	23	28.3	10.2	4.5975	0.762	16.6	mg/L	0	Standard
Mg	24	490.0	12.4	10.6076	0.143	1.3	mg/L	77	Standard
K	39	593.3	19.8	3.3305	0.277	8.3	mg/L	18	Standard
Ca	43	140.0	27.9	9.5362	5.496	57.6	mg/L	178	Standard
Fe	54	50.8	20.9	0.2823	0.208	73.8	mg/L	29	Standard
Fe	57	500.0	12.2	7.4562	1.467	19.7	mg/L	408	Standard
Sc-1	45	58724.7	12.2				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.3	22.3				ug/L	12	Standard
Br	81	14200.0	3.5				ug/L	1747	Standard
P	31	23.3	12.4				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	458.3	4.4				ug/L	370	Standard
C	12	53.3	65.8				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	1156.1	1.4				mg/L	9	Standard
Ho-1	165	1206.7	18.6				mg/L	25	Standard
Er	166	1473.4	6.9				mg/L	20	Standard
I	127	723536.0	5.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		104.824	
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		101.389	
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	98.895
[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	101.079
[	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
Mo 98 Upper, S, EEE	Mo	98	

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Method 6020 - Summary Report

Sample ID: L1610157213

Sample Date/Time: Friday, November 11, 2016 11:49:29

Number of Replicates: 3

Autosampler Position: 233

Sample Description: 1

Method File: C:\NexlONData\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	228744.9	21.3				ug/L	206101	Standard
|	Be	9	35.0	24.7	-0.0050	0.004	82.1	ug/L	25	Standard
|	Al	27	23336.6	15.2	0.1145	0.008	7.4	ug/L	1120	Standard
|	Sc	45	60100.7	14.6				ug/L	61425	Standard
|	Ti	47	55.0	6.3	-0.0311	0.018	57.0	ug/L	70	Standard
|	V	51	3981.6	11.1	0.0362	0.033	90.8	ug/L	3309	Standard
|	Cr	52	21355.2	10.5	0.6115	0.197	32.2	ug/L	13497	Standard
|	Cr	53	3405.4	8.2	0.1000	0.317	317.2	ug/L	3162	Standard
|	Mn	55	5725.8	15.2	0.2072	0.017	8.0	ug/L	2226	Standard
|	Co	59	736.7	13.9	-0.0070	0.003	48.5	ug/L	1003	Standard
|	Ni	60	816.4	11.5	0.1668	0.025	14.8	ug/L	355	Standard
|	Cu	65	1168.7	15.3	0.2589	0.024	9.4	ug/L	473	Standard
|	Zn	66	3005.0	18.4	1.9987	0.042	2.1	ug/L	341	Standard
>	Ge	72	609606.1	19.9				ug/L	566981	Standard
|	As	75	-177.3	14.8	-0.0308	0.023	74.6	ug/L	-156	Standard
|	Se	82	28.4	43.4	-0.0678	0.083	122.3	ug/L	35	Standard
|	Se-1	77	360.3	1.6	-0.5693	0.797	140.1	ug/L	354	Standard
>	Ga	71	56.7	39.8				mg/L	43	Standard
|	Rb	85	173.3	27.7				ug/L	48	Standard
|	Y	89	458673.9	18.3				ug/L	447702	Standard
>	Rh	103	36.7	20.8				ug/L	20	Standard
|	Mo	98	2373.2	20.6	0.4789	0.159	33.3	ug/L	158	Standard
|	Ag	107	158.7	8.2	0.0008	0.002	311.3	ug/L	133	Standard
|	Cd	111	17.3	16.9	-0.0016	0.001	83.9	mg/L	7	Standard
|	Cd	114	216.4	24.5	0.0196	0.003	13.3	ug/L	72	Standard
>	In	115	1051043.6	18.5				ug/L	1004638	Standard
|	Sn	118	1314.1	19.7	0.5275	0.010	1.9	ug/L	364	Standard
|	Sb	123	1083.5	22.8	0.0597	0.046	76.4	ug/L	2464	Standard
|	Ba	135	696.7	22.6	0.1662	0.009	5.6	ug/L	39	Standard
|	Ce	140	101.7	36.9				ug/L	195	Standard
>	Tb	159	1621588.2	16.5				ug/L	1640193	Standard
|	Ho	165	15.0	33.3				ug/L	25	Standard
|	Tl	203	398.7	32.3	0.0129	0.004	31.7	ug/L	324	Standard
|	Tl	205	921.7	33.1	0.0177	0.004	21.0	ug/L	698	Standard
|	Pb	206	646.3	16.6	0.0030	0.001	25.6	ug/L	600	Standard
|	Pb	207	600.3	17.7	0.0065	0.001	14.3	ug/L	541	Standard
|	Pb	208	1925.7	16.6	0.0055	0.000	4.8	ug/L	1750	Standard
	U	238	17.7	29.0	0.0033	0.000	11.4	ug/L	10	Standard
>	Bi	209	847464.1	16.3				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	71.7	22.4	0.7777	0.144	18.5	mg/L	77	Standard
K	39	15.0	33.3	-0.0270	0.024	88.8	mg/L	18	Standard
Ca	43	93.3	6.2	20.4422	4.536	22.2	mg/L	178	Standard
Fe	54	34.3	43.7	0.0529	0.277	523.9	mg/L	29	Standard
Fe	57	456.7	13.1	5.6297	4.569	81.2	mg/L	408	Standard
Sc-1	45	60100.7	14.6				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	7.7	19.9				ug/L	12	Standard
Br	81	2036.8	20.1				ug/L	1747	Standard
P	31	28.3	62.0				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	370.0	14.3				ug/L	370	Standard
C	12	80.0	76.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	22.7	24.2				mg/L	9	Standard
Ho-1	165	15.0	33.3				mg/L	25	Standard
Er	166	13.3	43.3				mg/L	20	Standard
I	127	19174.3	52.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		110.987	
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		107.518	
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	104.619
[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	104.429
[	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: L1610157214

Sample Date/Time: Friday, November 11, 2016 11:52:34

Number of Replicates: 3

Autosampler Position: 234

Sample Description: 1

Method File: C:\NexlONData\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	244598.6	16.1				ug/L	206101	Standard
|	Be	9	333.3	10.2	0.1024	0.012	11.8	ug/L	25	Standard
|	Al	27	4867960.4	10.0	21.1647	1.341	6.3	ug/L	1120	Standard
|	Sc	45	69193.5	9.1				ug/L	61425	Standard
|	Ti	47	925.4	16.6	1.7560	0.095	5.4	ug/L	70	Standard
|	V	51	8102.8	10.5	0.3988	0.056	14.1	ug/L	3309	Standard
|	Cr	52	22458.5	12.1	0.7012	0.034	4.9	ug/L	13497	Standard
|	Cr	53	21218.3	12.8	13.8554	0.295	2.1	ug/L	3162	Standard
|	Mn	55	910171.8	12.7	54.3990	0.456	0.8	ug/L	2226	Standard
|	Co	59	38499.8	14.0	2.8654	0.045	1.6	ug/L	1003	Standard
|	Ni	60	6335.0	14.9	2.1204	0.058	2.7	ug/L	355	Standard
|	Cu	65	2272.2	15.3	0.6873	0.019	2.8	ug/L	473	Standard
|	Zn	66	23325.9	14.8	17.4687	0.293	1.7	ug/L	341	Standard
[>	Ge	72	607734.3	13.2				ug/L	566981	Standard
|	As	75	1232.0	25.6	1.0208	0.118	11.6	ug/L	-156	Standard
|	Se	82	336.7	19.4	2.7273	0.216	7.9	ug/L	35	Standard
|	Se-1	77	955.7	12.0	6.2538	1.084	17.3	ug/L	354	Standard
[>	Ga	71	95.0	9.1				mg/L	43	Standard
|	Rb	85	15663.2	14.2				ug/L	48	Standard
|	Y	89	482071.5	12.9				ug/L	447702	Standard
[>	Rh	103	65.0	26.6				ug/L	20	Standard
|	Mo	98	2767.2	7.3	0.5415	0.042	7.7	ug/L	158	Standard
|	Ag	107	180.7	15.3	0.0025	0.002	76.0	ug/L	133	Standard
|	Cd	111	285.1	15.3	0.0746	0.005	6.8	mg/L	7	Standard
|	Cd	114	1290.3	20.5	0.1327	0.008	5.7	ug/L	72	Standard
[>	In	115	1052908.5	15.0				ug/L	1004638	Standard
|	Sn	118	4714.4	16.2	2.0968	0.057	2.7	ug/L	364	Standard
|	Sb	123	1279.0	10.6	0.0782	0.034	43.7	ug/L	2464	Standard
|	Ba	135	81134.9	14.1	20.5347	0.395	1.9	ug/L	39	Standard
|	Ce	140	60941.9	12.3				ug/L	195	Standard
[>	Tb	159	1674919.4	12.5				ug/L	1640193	Standard
|	Ho	165	2156.8	11.9				ug/L	25	Standard
|	Tl	203	2241.5	27.0	0.1358	0.022	16.6	ug/L	324	Standard
|	Tl	205	5229.3	28.2	0.1250	0.021	16.8	ug/L	698	Standard
|	Pb	206	3223.3	12.9	0.2259	0.008	3.5	ug/L	600	Standard
|	Pb	207	2645.6	12.9	0.2055	0.005	2.2	ug/L	541	Standard
|	Pb	208	8954.4	12.3	0.2131	0.005	2.2	ug/L	1750	Standard
	U	238	1870.4	9.4	0.1399	0.004	2.7	ug/L	10	Standard
[>	Bi	209	826311.7	11.8				ug/L	811518	Standard

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Na	23	63.3	43.5	8.6617	3.695	42.7	mg/L	0	Standard
Mg	24	3088.6	8.6	60.5023	2.456	4.1	mg/L	77	Standard
K	39	81.7	46.4	0.2863	0.155	54.2	mg/L	18	Standard
Ca	43	180.0	9.6	6.0998	2.187	35.9	mg/L	178	Standard
Fe	54	34.3	51.4	-0.0432	0.173	399.6	mg/L	29	Standard
Fe	57	498.3	9.0	4.3186	1.940	44.9	mg/L	408	Standard
Sc-1	45	69193.5	9.1				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	11.7	34.6				ug/L	12	Standard
Br	81	50116.6	9.9				ug/L	1747	Standard
P	31	48.3	21.5				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	408.3	11.6				ug/L	370	Standard
C	12	73.3	7.9				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	66.7	8.7				mg/L	17	Standard
Dy	164	2792.2	13.1				mg/L	9	Standard
Ho-1	165	2156.8	11.9				mg/L	25	Standard
Er	166	2326.8	4.8				mg/L	20	Standard
I	127	7293757.4	7.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		118.679	
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		107.188	
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	104.805
[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	101.823
[	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: L1611009702

Sample Date/Time: Friday, November 11, 2016 11:55:39

Number of Replicates: 3

Autosampler Position: 235

Sample Description: 1

Method File: C:\NexlONData\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	233753.7	19.1				ug/L	206101	Standard
|	Be	9	41.7	34.6	-0.0034	0.004	108.3	ug/L	25	Standard
|	Al	27	593743.5	14.6	2.7035	0.123	4.6	ug/L	1120	Standard
|	Sc	45	64208.8	12.4				ug/L	61425	Standard
|	Ti	47	311.0	17.5	0.4794	0.015	3.0	ug/L	70	Standard
|	V	51	4419.0	11.0	0.0653	0.028	42.9	ug/L	3309	Standard
|	Cr	52	22101.0	12.9	0.6244	0.111	17.7	ug/L	13497	Standard
|	Cr	53	3473.7	12.1	0.0724	0.172	236.9	ug/L	3162	Standard
|	Mn	55	65651.2	16.6	3.7050	0.065	1.8	ug/L	2226	Standard
|	Co	59	1397.7	12.4	0.0411	0.006	14.4	ug/L	1003	Standard
|	Ni	60	1493.1	14.6	0.3937	0.019	4.8	ug/L	355	Standard
|	Cu	65	748.4	19.9	0.0849	0.010	11.8	ug/L	473	Standard
|	Zn	66	3140.0	15.5	2.0520	0.060	2.9	ug/L	341	Standard
>	Ge	72	622999.6	18.0				ug/L	566981	Standard
|	As	75	-63.6	24.2	0.0574	0.009	15.8	ug/L	-156	Standard
|	Se	82	29.6	17.6	-0.0588	0.033	56.2	ug/L	35	Standard
|	Se-1	77	377.7	9.9	-0.4491	1.108	246.8	ug/L	354	Standard
>	Ga	71	116.7	28.5				mg/L	43	Standard
|	Rb	85	3808.8	15.9				ug/L	48	Standard
|	Y	89	479583.1	17.4				ug/L	447702	Standard
>	Rh	103	45.0	29.4				ug/L	20	Standard
|	Mo	98	224.0	25.8	0.0356	0.018	49.6	ug/L	158	Standard
|	Ag	107	157.0	13.7	0.0000	0.000	858.9	ug/L	133	Standard
|	Cd	111	32.4	21.2	0.0025	0.002	98.3	mg/L	7	Standard
|	Cd	114	106.3	22.3	0.0080	0.003	37.7	ug/L	72	Standard
>	In	115	1078090.0	16.6				ug/L	1004638	Standard
|	Sn	118	262.0	1.3	0.0403	0.019	47.9	ug/L	364	Standard
|	Sb	123	590.1	15.6	0.0018	0.020	1107.0	ug/L	2464	Standard
|	Ba	135	12550.0	16.0	3.0941	0.038	1.2	ug/L	39	Standard
|	Ce	140	7933.8	16.5				ug/L	195	Standard
>	Tb	159	1647412.1	15.4				ug/L	1640193	Standard
|	Ho	165	163.3	9.8				ug/L	25	Standard
|	Tl	203	432.3	44.2	0.0144	0.008	55.2	ug/L	324	Standard
|	Tl	205	1116.7	51.5	0.0216	0.010	44.2	ug/L	698	Standard
|	Pb	206	1296.1	14.5	0.0559	0.001	2.0	ug/L	600	Standard
|	Pb	207	1065.0	17.8	0.0485	0.002	4.9	ug/L	541	Standard
|	Pb	208	3637.2	18.4	0.0525	0.003	6.1	ug/L	1750	Standard
	U	238	69.0	10.9	0.0069	0.000	3.9	ug/L	10	Standard
>	Bi	209	861287.4	15.6				ug/L	811518	Standard

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Na	23	5.0	100.0	0.6844	0.660	96.4	mg/L	0	Standard
Mg	24	90.0	29.4	1.0471	0.362	34.6	mg/L	77	Standard
K	39	26.7	21.7	0.0289	0.017	59.3	mg/L	18	Standard
Ca	43	103.3	21.8	19.5757	7.489	38.3	mg/L	178	Standard
Fe	54	53.8	39.8	0.2736	0.379	138.7	mg/L	29	Standard
Fe	57	508.3	6.7	6.2730	3.670	58.5	mg/L	408	Standard
Sc-1	45	64208.8	12.4				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	9.3	40.6				ug/L	12	Standard
Br	81	2786.9	22.1				ug/L	1747	Standard
P	31	56.7	27.0				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	416.7	7.0				ug/L	370	Standard
C	12	93.3	32.7				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	16.7	91.7				mg/L	17	Standard
Dy	164	269.8	17.6				mg/L	9	Standard
Ho-1	165	163.3	9.8				mg/L	25	Standard
Er	166	143.3	26.4				mg/L	20	Standard
I	127	121159.1	64.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		113.417	
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		109.880	
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	107.311
[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	106.133
[	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: L1611009714

Sample Date/Time: Friday, November 11, 2016 11:58:45

Number of Replicates: 3

Autosampler Position: 236

Sample Description: 1

Method File: C:\NexlONData\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	230907.5	21.8				ug/L	206101	Standard
|	Be	9	30.0	28.9	-0.0075	0.002	26.5	ug/L	25	Standard
|	Al	27	750524.1	17.7	3.4583	0.149	4.3	ug/L	1120	Standard
|	Sc	45	63121.5	15.0				ug/L	61425	Standard
|	Ti	47	298.3	29.5	0.4585	0.075	16.3	ug/L	70	Standard
|	V	51	4382.4	14.8	0.0687	0.022	32.3	ug/L	3309	Standard
|	Cr	52	21063.2	14.5	0.5648	0.098	17.4	ug/L	13497	Standard
|	Cr	53	3245.3	6.6	-0.0300	0.327	1091.8	ug/L	3162	Standard
|	Mn	55	70372.8	16.9	4.0671	0.094	2.3	ug/L	2226	Standard
|	Co	59	1079.4	6.2	0.0203	0.017	83.9	ug/L	1003	Standard
|	Ni	60	1245.1	17.0	0.3154	0.008	2.5	ug/L	355	Standard
|	Cu	65	832.7	15.5	0.1257	0.015	11.6	ug/L	473	Standard
|	Zn	66	2613.2	20.2	1.6895	0.061	3.6	ug/L	341	Standard
>	Ge	72	610730.7	18.6				ug/L	566981	Standard
|	As	75	-72.5	75.5	0.0509	0.039	76.5	ug/L	-156	Standard
|	Se	82	34.0	28.5	-0.0138	0.070	508.0	ug/L	35	Standard
|	Se-1	77	373.3	4.2	-0.4144	0.986	238.0	ug/L	354	Standard
>	Ga	71	75.0	6.7				mg/L	43	Standard
|	Rb	85	3660.5	17.3				ug/L	48	Standard
|	Y	89	471458.9	18.7				ug/L	447702	Standard
>	Rh	103	35.0	37.8				ug/L	20	Standard
|	Mo	98	188.7	26.0	0.0295	0.016	55.1	ug/L	158	Standard
|	Ag	107	174.3	10.9	0.0020	0.001	62.5	ug/L	133	Standard
|	Cd	111	21.4	32.7	-0.0003	0.003	965.0	mg/L	7	Standard
|	Cd	114	96.5	25.0	0.0071	0.003	36.0	ug/L	72	Standard
>	In	115	1057246.4	18.2				ug/L	1004638	Standard
|	Sn	118	315.7	14.8	0.0660	0.009	12.9	ug/L	364	Standard
|	Sb	123	559.2	12.6	-0.0003	0.018	7264.1	ug/L	2464	Standard
|	Ba	135	14994.6	18.6	3.7683	0.070	1.9	ug/L	39	Standard
|	Ce	140	4454.0	22.9				ug/L	195	Standard
>	Tb	159	1631039.4	16.2				ug/L	1640193	Standard
|	Ho	165	125.0	34.2				ug/L	25	Standard
|	Tl	203	196.7	11.2	0.0002	0.001	543.1	ug/L	324	Standard
|	Tl	205	503.3	17.4	0.0079	0.000	3.8	ug/L	698	Standard
|	Pb	206	992.0	17.4	0.0316	0.000	0.3	ug/L	600	Standard
|	Pb	207	850.0	15.8	0.0299	0.003	9.5	ug/L	541	Standard
|	Pb	208	2850.8	17.1	0.0316	0.000	0.8	ug/L	1750	Standard
	U	238	50.3	7.0	0.0057	0.000	6.6	ug/L	10	Standard
>	Bi	209	851787.4	17.4				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	83.3	18.3	0.9726	0.284	29.2	mg/L	77	Standard
K	39	48.3	15.8	0.1498	0.006	4.0	mg/L	18	Standard
Ca	43	118.3	34.4	15.0283	13.855	92.2	mg/L	178	Standard
Fe	54	40.7	60.7	0.1246	0.429	344.2	mg/L	29	Standard
Fe	57	448.3	3.2	4.2590	2.613	61.4	mg/L	408	Standard
Sc-1	45	63121.5	15.0				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.7	22.9				ug/L	12	Standard
Br	81	2493.5	17.7				ug/L	1747	Standard
P	31	30.0	66.7				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	378.3	5.3				ug/L	370	Standard
C	12	90.0	19.2				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	43.3				mg/L	17	Standard
Dy	164	183.9	38.5				mg/L	9	Standard
Ho-1	165	125.0	34.2				mg/L	25	Standard
Er	166	126.7	22.8				mg/L	20	Standard
I	127	36491.4	17.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		112.036	
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		107.716	
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	105.237
[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	104.962
[	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: L1611009717

Sample Date/Time: Friday, November 11, 2016 12:01:50

Number of Replicates: 3

Autosampler Position: 237

Sample Description: 1

Method File: C:\NexlONData\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	236717.7	19.9				ug/L	206101	Standard
|	Be	9	38.3	19.9	-0.0046	0.001	14.9	ug/L	25	Standard
|	Al	27	750504.7	13.7	3.3818	0.217	6.4	ug/L	1120	Standard
|	Sc	45	63967.7	12.1				ug/L	61425	Standard
|	Ti	47	314.3	21.2	0.4947	0.102	20.7	ug/L	70	Standard
|	V	51	4080.7	8.8	0.0408	0.029	71.2	ug/L	3309	Standard
|	Cr	52	21285.7	11.8	0.5724	0.103	18.0	ug/L	13497	Standard
|	Cr	53	3412.1	12.7	0.0559	0.205	367.6	ug/L	3162	Standard
|	Mn	55	68968.6	14.8	3.9545	0.100	2.5	ug/L	2226	Standard
|	Co	59	1027.4	10.3	0.0145	0.005	36.2	ug/L	1003	Standard
|	Ni	60	1244.7	15.0	0.3122	0.017	5.3	ug/L	355	Standard
|	Cu	65	866.7	19.7	0.1340	0.010	7.3	ug/L	473	Standard
|	Zn	66	2309.2	18.4	1.4467	0.028	1.9	ug/L	341	Standard
>	Ge	72	614908.3	16.8				ug/L	566981	Standard
|	As	75	-98.9	30.5	0.0318	0.013	41.5	ug/L	-156	Standard
|	Se	82	25.4	27.0	-0.0899	0.079	87.7	ug/L	35	Standard
|	Se-1	77	347.0	3.0	-0.7787	0.763	98.0	ug/L	354	Standard
>	Ga	71	71.7	35.8				mg/L	43	Standard
|	Rb	85	3635.4	19.2				ug/L	48	Standard
|	Y	89	464998.0	14.9				ug/L	447702	Standard
>	Rh	103	20.0	66.1				ug/L	20	Standard
|	Mo	98	149.7	20.1	0.0208	0.010	49.8	ug/L	158	Standard
|	Ag	107	170.0	12.2	0.0014	0.001	61.4	ug/L	133	Standard
|	Cd	111	19.5	19.6	-0.0012	0.000	25.6	mg/L	7	Standard
|	Cd	114	60.8	28.3	0.0031	0.001	23.6	ug/L	72	Standard
>	In	115	1067699.3	16.9				ug/L	1004638	Standard
|	Sn	118	220.0	7.2	0.0213	0.010	48.4	ug/L	364	Standard
|	Sb	123	475.9	17.5	-0.0100	0.016	164.0	ug/L	2464	Standard
|	Ba	135	14930.1	14.1	3.7270	0.126	3.4	ug/L	39	Standard
|	Ce	140	4427.3	13.0				ug/L	195	Standard
>	Tb	159	1639432.0	14.7				ug/L	1640193	Standard
|	Ho	165	98.3	28.9				ug/L	25	Standard
|	Tl	203	249.0	6.6	0.0036	0.002	45.7	ug/L	324	Standard
|	Tl	205	613.3	18.0	0.0107	0.003	27.8	ug/L	698	Standard
|	Pb	206	966.7	16.0	0.0294	0.002	5.1	ug/L	600	Standard
|	Pb	207	798.7	12.5	0.0250	0.003	13.0	ug/L	541	Standard
|	Pb	208	2813.8	13.6	0.0306	0.003	9.5	ug/L	1750	Standard
	U	238	44.0	3.9	0.0052	0.000	8.0	ug/L	10	Standard
>	Bi	209	853985.4	16.7				ug/L	811518	Standard

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Na	23	3.3	86.6	0.5287	0.457	86.5	mg/L	0	Standard
Mg	24	100.0	47.7	1.3012	0.994	76.4	mg/L	77	Standard
K	39	53.3	37.9	0.1782	0.115	64.6	mg/L	18	Standard
Ca	43	96.7	24.4	21.0887	6.908	32.8	mg/L	178	Standard
Fe	54	35.9	53.1	0.0039	0.215	5457.2	mg/L	29	Standard
Fe	57	428.3	13.9	3.3401	4.091	122.5	mg/L	408	Standard
Sc-1	45	63967.7	12.1				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	11.7	35.7				ug/L	12	Standard
Br	81	2576.9	12.6				ug/L	1747	Standard
P	31	40.0	21.7				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	411.7	13.7				ug/L	370	Standard
C	12	83.3	6.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	180.1	21.4				mg/L	9	Standard
Ho-1	165	98.3	28.9				mg/L	25	Standard
Er	166	136.7	33.0				mg/L	20	Standard
I	127	30054.8	5.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		114.855	
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		108.453	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611009717

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	106.277
[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	105.233
[	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

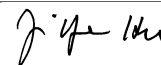
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611009717

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Method 6020 - Summary Report

Sample ID: L1611009720

Sample Date/Time: Friday, November 11, 2016 12:04:56

Number of Replicates: 3

Autosampler Position: 238

Sample Description: 1

Method File: C:\NexlONData\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	231539.2	17.9				ug/L	206101	Standard
|	Be	9	21.7	53.3	-0.0105	0.004	42.2	ug/L	25	Standard
|	Al	27	20647.6	14.2	0.1003	0.004	3.6	ug/L	1120	Standard
|	Sc	45	62428.6	15.2				ug/L	61425	Standard
|	Ti	47	71.7	14.3	0.0024	0.007	307.3	ug/L	70	Standard
|	V	51	3306.8	7.7	-0.0210	0.041	194.6	ug/L	3309	Standard
|	Cr	52	20177.6	12.3	0.4953	0.106	21.4	ug/L	13497	Standard
|	Cr	53	2796.9	9.4	-0.3771	0.184	48.8	ug/L	3162	Standard
|	Mn	55	3935.8	12.7	0.1010	0.012	11.7	ug/L	2226	Standard
|	Co	59	595.7	4.5	-0.0172	0.006	35.6	ug/L	1003	Standard
|	Ni	60	718.7	10.6	0.1326	0.019	14.1	ug/L	355	Standard
|	Cu	65	726.7	17.0	0.0854	0.006	7.2	ug/L	473	Standard
|	Zn	66	2280.2	18.4	1.4524	0.044	3.0	ug/L	341	Standard
>	Ge	72	606019.2	17.7				ug/L	566981	Standard
|	As	75	-99.8	42.4	0.0302	0.021	68.6	ug/L	-156	Standard
|	Se	82	22.1	25.5	-0.1163	0.065	55.6	ug/L	35	Standard
|	Se-1	77	354.3	3.4	-0.6440	0.638	99.1	ug/L	354	Standard
>	Ga	71	61.7	46.8				mg/L	43	Standard
|	Rb	85	118.3	31.1				ug/L	48	Standard
|	Y	89	452366.5	15.6				ug/L	447702	Standard
>	Rh	103	35.0	37.8				ug/L	20	Standard
|	Mo	98	75.2	40.4	0.0062	0.008	135.4	ug/L	158	Standard
|	Ag	107	201.3	11.1	0.0044	0.002	37.4	ug/L	133	Standard
|	Cd	111	17.2	9.1	-0.0018	0.001	40.5	mg/L	7	Standard
|	Cd	114	80.7	20.8	0.0053	0.000	5.7	ug/L	72	Standard
>	In	115	1056514.5	17.3				ug/L	1004638	Standard
|	Sn	118	223.0	13.4	0.0232	0.006	25.3	ug/L	364	Standard
|	Sb	123	430.1	9.0	-0.0149	0.012	78.4	ug/L	2464	Standard
|	Ba	135	1731.4	19.2	0.4263	0.011	2.6	ug/L	39	Standard
|	Ce	140	156.7	16.4				ug/L	195	Standard
>	Tb	159	1631198.1	16.6				ug/L	1640193	Standard
|	Ho	165	25.0	0.0				ug/L	25	Standard
|	Tl	203	69.3	14.7	-0.0081	0.000	2.9	ug/L	324	Standard
|	Tl	205	173.3	27.7	-0.0001	0.001	493.4	ug/L	698	Standard
|	Pb	206	665.7	22.8	0.0054	0.005	95.4	ug/L	600	Standard
|	Pb	207	567.7	16.0	0.0044	0.001	33.4	ug/L	541	Standard
|	Pb	208	1944.0	14.0	0.0071	0.001	10.8	ug/L	1750	Standard
	U	238	6.3	18.2	0.0025	0.000	4.7	ug/L	10	Standard
>	Bi	209	832163.3	15.1				ug/L	811518	Standard

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Na	23	3.3	86.6	0.5533	0.479	86.6	mg/L	0	Standard
Mg	24	78.3	32.1	0.8695	0.439	50.5	mg/L	77	Standard
K	39	13.3	78.1	-0.0322	0.072	223.9	mg/L	18	Standard
Ca	43	130.0	17.6	12.4585	9.622	77.2	mg/L	178	Standard
Fe	54	29.2	78.6	-0.0713	0.249	349.3	mg/L	29	Standard
Fe	57	386.7	9.4	2.0548	3.000	146.0	mg/L	408	Standard
Sc-1	45	62428.6	15.2				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	12.3	36.6				ug/L	12	Standard
Br	81	1920.1	17.4				ug/L	1747	Standard
P	31	43.3	13.3				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	378.3	16.7				ug/L	370	Standard
C	12	106.7	30.1				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	15.2	101.4				mg/L	9	Standard
Ho-1	165	25.0	0.0				mg/L	25	Standard
Er	166	30.0	33.3				mg/L	20	Standard
I	127	8185.6	11.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		112.342	
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		106.885	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611009720

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	105.164
[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	102.544
[	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: L1611009723

Sample Date/Time: Friday, November 11, 2016 12:08:01

Number of Replicates: 3

Autosampler Position: 239

Sample Description: 1

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	231162.7	23.0				ug/L	206101	Standard
|	Be	9	26.7	21.7	-0.0087	0.001	14.2	ug/L	25	Standard
|	Al	27	19749.7	13.9	0.0972	0.009	9.1	ug/L	1120	Standard
|	Sc	45	60651.4	15.4				ug/L	61425	Standard
|	Ti	47	76.3	15.6	0.0175	0.022	125.4	ug/L	70	Standard
|	V	51	3512.1	16.7	0.0026	0.012	469.4	ug/L	3309	Standard
|	Cr	52	20560.8	13.7	0.5941	0.147	24.7	ug/L	13497	Standard
|	Cr	53	2970.3	10.2	-0.1669	0.262	157.3	ug/L	3162	Standard
|	Mn	55	4180.6	13.8	0.1235	0.018	14.3	ug/L	2226	Standard
|	Co	59	599.7	10.9	-0.0157	0.005	34.9	ug/L	1003	Standard
|	Ni	60	727.7	16.2	0.1426	0.018	12.9	ug/L	355	Standard
|	Cu	65	613.3	20.9	0.0469	0.008	17.9	ug/L	473	Standard
|	Zn	66	2236.8	18.1	1.4719	0.045	3.1	ug/L	341	Standard
[>	Ge	72	590092.3	20.5				ug/L	566981	Standard
|	As	75	-174.9	30.9	-0.0293	0.017	59.7	ug/L	-156	Standard
|	Se	82	22.5	23.5	-0.1041	0.083	79.8	ug/L	35	Standard
|	Se-1	77	345.3	8.8	-0.6258	0.700	111.8	ug/L	354	Standard
[>	Ga	71	56.7	28.4				mg/L	43	Standard
|	Rb	85	140.0	21.4				ug/L	48	Standard
|	Y	89	452517.4	18.0				ug/L	447702	Standard
[>	Rh	103	45.0	29.4				ug/L	20	Standard
|	Mo	98	70.1	23.1	0.0053	0.005	100.6	ug/L	158	Standard
|	Ag	107	213.3	8.0	0.0062	0.002	32.5	ug/L	133	Standard
|	Cd	111	20.6	19.7	-0.0006	0.001	168.1	mg/L	7	Standard
|	Cd	114	69.2	29.8	0.0046	0.003	63.0	ug/L	72	Standard
[>	In	115	1022940.7	17.5				ug/L	1004638	Standard
|	Sn	118	214.7	17.2	0.0221	0.002	10.6	ug/L	364	Standard
|	Sb	123	433.2	4.4	-0.0132	0.010	76.6	ug/L	2464	Standard
|	Ba	135	1635.8	18.6	0.4161	0.008	1.9	ug/L	39	Standard
|	Ce	140	78.3	32.8				ug/L	195	Standard
[>	Tb	159	1593356.0	16.4				ug/L	1640193	Standard
|	Ho	165	33.3	22.9				ug/L	25	Standard
|	Tl	203	165.7	4.6	-0.0015	0.001	89.3	ug/L	324	Standard
|	Tl	205	365.0	14.3	0.0048	0.001	14.2	ug/L	698	Standard
|	Pb	206	625.3	19.8	0.0022	0.003	128.8	ug/L	600	Standard
|	Pb	207	550.7	22.5	0.0027	0.003	128.7	ug/L	541	Standard
|	Pb	208	1845.4	15.8	0.0044	0.000	8.3	ug/L	1750	Standard
	U	238	6.7	22.9	0.0025	0.000	6.7	ug/L	10	Standard
[>	Bi	209	829414.3	16.2				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	106.7	11.8	1.6217	0.624	38.5	mg/L	77	Standard
K	39	11.7	65.5	-0.0482	0.035	71.6	mg/L	18	Standard
Ca	43	106.7	25.8	18.2469	2.625	14.4	mg/L	178	Standard
Fe	54	42.9	26.8	0.1321	0.105	79.6	mg/L	29	Standard
Fe	57	413.3	5.5	3.5255	2.383	67.6	mg/L	408	Standard
Sc-1	45	60651.4	15.4				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.0	28.6				ug/L	12	Standard
Br	81	1793.4	15.7				ug/L	1747	Standard
P	31	31.7	63.8				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	430.0	10.3				ug/L	370	Standard
C	12	66.7	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	21.6	28.8				mg/L	9	Standard
Ho-1	165	33.3	22.9				mg/L	25	Standard
Er	166	36.7	83.3				mg/L	20	Standard
I	127	7545.2	7.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		112.160	
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		104.076	
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	101.822
[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	102.205
[	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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Sample ID: L1611009723

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 12:11:08

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	230958.3	13.7				ug/L	206101	Standard
|	Be	9	124159.7	11.9	47.5038	1.335	2.8	ug/L	25	Standard
|	Al	27	10207073.9	9.7	46.8359	1.864	4.0	ug/L	1120	Standard
|	Sc	45	61749.5	8.7				ug/L	61425	Standard
|	Ti	47	48132.2	10.4	99.7962	1.233	1.2	ug/L	70	Standard
|	V	51	575073.3	10.5	50.7021	0.640	1.3	ug/L	3309	Standard
|	Cr	52	532026.2	10.9	50.5605	0.428	0.8	ug/L	13497	Standard
|	Cr	53	67352.4	11.8	49.8901	0.080	0.2	ug/L	3162	Standard
|	Mn	55	835178.9	10.5	50.2708	0.710	1.4	ug/L	2226	Standard
|	Co	59	662915.0	11.6	50.7435	0.287	0.6	ug/L	1003	Standard
|	Ni	60	142638.7	11.8	50.8441	0.357	0.7	ug/L	355	Standard
|	Cu	65	129878.0	12.2	50.9445	0.417	0.8	ug/L	473	Standard
|	Zn	66	67412.3	11.4	51.4659	0.286	0.6	ug/L	341	Standard
>	Ge	72	603592.0	11.6				ug/L	566981	Standard
|	As	75	65379.7	12.3	49.6073	0.342	0.7	ug/L	-156	Standard
|	Se	82	5468.3	13.0	49.8010	0.667	1.3	ug/L	35	Standard
|	Se-1	77	4646.4	11.9	49.1387	1.713	3.5	ug/L	354	Standard
>	Ga	71	96.7	26.5				mg/L	43	Standard
|	Rb	85	716.7	5.3				ug/L	48	Standard
|	Y	89	458738.7	11.7				ug/L	447702	Standard
>	Rh	103	63.3	16.4				ug/L	20	Standard
|	Mo	98	504964.2	12.2	101.1901	0.802	0.8	ug/L	158	Standard
|	Ag	107	567712.9	12.2	52.0794	0.127	0.2	ug/L	133	Standard
|	Cd	111	178549.8	13.2	51.5976	0.369	0.7	mg/L	7	Standard
|	Cd	114	471788.1	14.0	50.5721	1.118	2.2	ug/L	72	Standard
>	In	115	1038627.7	12.4				ug/L	1004638	Standard
|	Sn	118	106670.0	13.0	49.8935	0.726	1.5	ug/L	364	Standard
|	Sb	123	454001.2	13.5	49.1527	0.925	1.9	ug/L	2464	Standard
|	Ba	135	186650.7	11.6	47.8956	0.434	0.9	ug/L	39	Standard
|	Ce	140	226.7	34.3				ug/L	195	Standard
>	Tb	159	1621830.4	10.0				ug/L	1640193	Standard
|	Ho	165	38.3	30.1				ug/L	25	Standard
|	Tl	203	756777.0	11.9	50.9712	0.917	1.8	ug/L	324	Standard
|	Tl	205	1745728.6	12.2	43.9367	0.922	2.1	ug/L	698	Standard
|	Pb	206	586933.0	11.2	50.7148	0.575	1.1	ug/L	600	Standard
|	Pb	207	515652.0	10.9	50.0830	0.576	1.1	ug/L	541	Standard
|	Pb	208	1732115.9	11.3	51.0726	0.601	1.2	ug/L	1750	Standard
	U	238	692717.6	7.6	51.3557	1.282	2.5	ug/L	10	Standard
>	Bi	209	821182.2	10.1				ug/L	811518	Standard

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Na	23	31.7	50.8	4.7493	2.027	42.7	mg/L	0	Standard
Mg	24	276.7	13.8	5.2856	0.381	7.2	mg/L	77	Standard
K	39	770.0	22.0	4.1297	0.635	15.4	mg/L	18	Standard
Ca	43	118.3	20.0	15.6886	5.478	34.9	mg/L	178	Standard
Fe	54	471.8	24.1	5.7664	0.962	16.7	mg/L	29	Standard
Fe	57	546.7	12.4	8.4961	4.497	52.9	mg/L	408	Standard
Sc-1	45	61749.5	8.7				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	12.3	26.1				ug/L	12	Standard
Br	81	1976.8	7.1				ug/L	1747	Standard
P	31	23.3	44.6				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	430.0	14.1				ug/L	370	Standard
C	12	60.0	72.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	22.2	49.5				mg/L	9	Standard
Ho-1	165	38.3	30.1				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	4737.4	4.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	95.008		
Al	27	93.672		
Sc	45			
Ti	47	99.796		
V	51	101.404		
Cr	52	101.121		
Cr	53			
Mn	55	100.542		
Co	59	101.487		
Ni	60	101.688		
Cu	65	101.889		
Zn	66	102.932		
Ge	72		106.457	
As	75	99.215		
Se	82	99.602		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	101.190	
[Ag	107	104.159	
[Cd	111	103.195	
[Cd	114		
>	In	115		103.383
[Sn	118	99.787	
[	Sb	123	98.305	
[	Ba	135	95.791	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	101.942	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	102.145	
[	U	238	102.711	
>	Bi	209		101.191
[	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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Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 12:14:13

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	237449.8	5.5				ug/L	206101	Standard
|	Be	9	36.7	61.5	-0.0050	0.009	186.8	ug/L	25	Standard
|	Al	27	3073.7	19.0	0.0194	0.003	14.0	ug/L	1120	Standard
|	Sc	45	63692.1	4.4				ug/L	61425	Standard
|	Ti	47	46.3	6.9	-0.0543	0.006	11.3	ug/L	70	Standard
|	V	51	3057.9	7.8	-0.0583	0.010	16.4	ug/L	3309	Standard
|	Cr	52	11910.4	7.2	-0.3686	0.022	6.0	ug/L	13497	Standard
|	Cr	53	1786.8	4.1	-1.2354	0.062	5.0	ug/L	3162	Standard
|	Mn	55	1942.8	15.4	-0.0249	0.013	53.5	ug/L	2226	Standard
|	Co	59	585.7	18.7	-0.0206	0.006	27.9	ug/L	1003	Standard
|	Ni	60	431.3	5.9	0.0221	0.004	15.9	ug/L	355	Standard
|	Cu	65	461.7	11.7	-0.0263	0.012	47.2	ug/L	473	Standard
|	Zn	66	397.0	7.5	0.0012	0.010	847.4	ug/L	341	Standard
>	Ge	72	631239.5	6.6				ug/L	566981	Standard
|	As	75	-135.2	54.8	0.0065	0.051	785.9	ug/L	-156	Standard
|	Se	82	26.0	18.4	-0.0932	0.057	61.1	ug/L	35	Standard
|	Se-1	77	341.3	3.6	-1.0179	0.242	23.8	ug/L	354	Standard
>	Ga	71	45.0	19.2				mg/L	43	Standard
|	Rb	85	56.7	5.1				ug/L	48	Standard
|	Y	89	467664.3	7.1				ug/L	447702	Standard
>	Rh	103	31.7	24.1				ug/L	20	Standard
|	Mo	98	76.1	71.8	0.0050	0.010	199.5	ug/L	158	Standard
|	Ag	107	179.0	19.1	0.0019	0.002	123.2	ug/L	133	Standard
|	Cd	111	14.9	54.5	-0.0026	0.002	81.7	mg/L	7	Standard
|	Cd	114	63.9	37.9	0.0034	0.002	67.5	ug/L	72	Standard
>	In	115	1077573.3	5.0				ug/L	1004638	Standard
|	Sn	118	163.7	9.4	-0.0063	0.004	57.3	ug/L	364	Standard
|	Sb	123	851.6	104.6	0.0249	0.088	353.9	ug/L	2464	Standard
|	Ba	135	42.0	29.7	0.0008	0.003	331.3	ug/L	39	Standard
|	Ce	140	30.0	33.3				ug/L	195	Standard
>	Tb	159	1682087.3	5.3				ug/L	1640193	Standard
|	Ho	165	15.0	100.0				ug/L	25	Standard
|	Tl	203	48.7	51.3	-0.0097	0.001	15.2	ug/L	324	Standard
|	Tl	205	131.7	41.8	-0.0013	0.001	93.8	ug/L	698	Standard
|	Pb	206	663.0	5.4	0.0024	0.001	57.2	ug/L	600	Standard
|	Pb	207	563.0	5.0	0.0011	0.001	86.5	ug/L	541	Standard
|	Pb	208	1867.0	7.1	0.0019	0.002	98.3	ug/L	1750	Standard
	U	238	26.7	64.6	0.0039	0.001	29.8	ug/L	10	Standard
>	Bi	209	879008.4	4.0				ug/L	811518	Standard

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Na	23	3.3	173.2	0.5214	0.894	171.5	mg/L	0	Standard
Mg	24	45.0	29.4	0.1227	0.289	235.9	mg/L	77	Standard
K	39	20.0	25.0	-0.0054	0.022	411.8	mg/L	18	Standard
Ca	43	101.7	27.1	20.1656	6.384	31.7	mg/L	178	Standard
Fe	54	19.2	79.8	-0.1979	0.188	95.0	mg/L	29	Standard
Fe	57	461.7	11.9	4.4305	2.849	64.3	mg/L	408	Standard
Sc-1	45	63692.1	4.4				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.7	53.3				ug/L	12	Standard
Br	81	1816.8	7.5				ug/L	1747	Standard
P	31	23.3	65.5				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	386.7	5.2				ug/L	370	Standard
C	12	36.7	31.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	18.4	146.7				mg/L	9	Standard
Ho-1	165	15.0	100.0				mg/L	25	Standard
Er	166	33.3	34.6				mg/L	20	Standard
I	127	14440.8	34.5				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		111.333	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	107.260
[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	108.317
[	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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Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: PBW 76 WG590719-02

Sample Date/Time: Friday, November 11, 2016 12:37:31

Number of Replicates: 3

Autosampler Position: 301

Sample Description: 1

Method File: C:\NexlONData\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	220308.3	21.5				ug/L	206101	Standard
|	Be	9	13.3	21.7	-0.0135	0.001	6.8	ug/L	25	Standard
|	Al	27	24369.9	16.7	0.1232	0.005	4.3	ug/L	1120	Standard
|	Sc	45	55028.1	15.9				ug/L	61425	Standard
|	Ti	47	77.0	14.8	0.0213	0.023	110.2	ug/L	70	Standard
|	V	51	3555.1	14.0	0.0122	0.030	246.1	ug/L	3309	Standard
|	Cr	52	19418.9	12.8	0.5076	0.195	38.3	ug/L	13497	Standard
|	Cr	53	3405.4	9.9	0.2265	0.391	172.5	ug/L	3162	Standard
|	Mn	55	4188.9	15.5	0.1268	0.019	14.7	ug/L	2226	Standard
|	Co	59	686.3	13.4	-0.0083	0.005	60.6	ug/L	1003	Standard
|	Ni	60	646.0	15.4	0.1157	0.018	15.3	ug/L	355	Standard
|	Cu	65	521.7	22.8	0.0122	0.001	9.8	ug/L	473	Standard
|	Zn	66	1687.8	19.4	1.0539	0.044	4.2	ug/L	341	Standard
>	Ge	72	584666.8	22.8				ug/L	566981	Standard
|	As	75	-189.9	10.8	-0.0518	0.051	98.5	ug/L	-156	Standard
|	Se	82	23.7	33.7	-0.1028	0.030	29.3	ug/L	35	Standard
|	Se-1	77	367.7	6.2	-0.2411	1.113	461.6	ug/L	354	Standard
>	Ga	71	66.7	11.5				mg/L	43	Standard
|	Rb	85	145.0	28.2				ug/L	48	Standard
|	Y	89	434883.2	24.7				ug/L	447702	Standard
>	Rh	103	26.7	10.8				ug/L	20	Standard
|	Mo	98	155.1	13.4	0.0235	0.005	19.2	ug/L	158	Standard
|	Ag	107	222.7	21.9	0.0075	0.002	22.5	ug/L	133	Standard
|	Cd	111	19.8	26.1	-0.0007	0.001	67.5	mg/L	7	Standard
|	Cd	114	53.1	32.0	0.0030	0.003	86.7	ug/L	72	Standard
>	In	115	994931.6	23.8				ug/L	1004638	Standard
|	Sn	118	255.7	20.8	0.0456	0.004	8.7	ug/L	364	Standard
|	Sb	123	957.2	3.6	0.0508	0.028	54.9	ug/L	2464	Standard
|	Ba	135	338.3	26.0	0.0808	0.009	11.0	ug/L	39	Standard
|	Ce	140	150.0	35.1				ug/L	195	Standard
>	Tb	159	1586984.9	20.3				ug/L	1640193	Standard
|	Ho	165	28.3	56.7				ug/L	25	Standard
|	Tl	203	971.4	7.8	0.0560	0.009	16.7	ug/L	324	Standard
|	Tl	205	2401.9	14.8	0.0589	0.010	16.9	ug/L	698	Standard
|	Pb	206	859.0	21.7	0.0253	0.001	4.0	ug/L	600	Standard
|	Pb	207	761.0	20.7	0.0262	0.002	6.2	ug/L	541	Standard
|	Pb	208	2584.1	21.0	0.0290	0.001	4.1	ug/L	1750	Standard
	U	238	15.0		0.0032	0.000	7.6	ug/L	10	Standard
>	Bi	209	799259.5	22.3				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	46.7	40.6	0.2899	0.363	125.1	mg/L	77	Standard
K	39	13.3	21.7	-0.0262	0.029	111.4	mg/L	18	Standard
Ca	43	65.0	23.1	25.4174	6.475	25.5	mg/L	178	Standard
Fe	54	27.7	56.3	-0.0473	0.163	343.7	mg/L	29	Standard
Fe	57	421.7	6.8	5.6736	3.173	55.9	mg/L	408	Standard
Sc-1	45	55028.1	15.9				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	10.3	14.8				ug/L	12	Standard
Br	81	2173.5	19.9				ug/L	1747	Standard
P	31	25.0	34.6				ug/L	17	Standard
S	34	8.3	124.9				ug/L	3	Standard
Sr	88	385.0	14.6				ug/L	370	Standard
C	12	43.3	26.6				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	12.1	131.5				mg/L	9	Standard
Ho-1	165	28.3	56.7				mg/L	25	Standard
Er	166	26.7	57.3				mg/L	20	Standard
I	127	4127.2	11.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.893	
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		103.119	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: PBW 76 WG590719-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	99.034
[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	98.489
[Na	23	
[Mg	24	
[K	39	
[Ca	43	
[Fe	54	
[Fe	57	
>	Sc-1	45	
[Cl	35	
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[S	34	
[Sr	88	
[C	12	
[N	14	
[Hg	202	
[Dy	164	
[Ho-1	165	
[Er	166	
[I	127	

QC Out of Limits

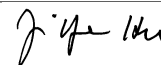
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: PBW 76 WG590719-02

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Method 6020 - Summary Report

Sample ID: LCSW 76 WG590719-03

Sample Date/Time: Friday, November 11, 2016 12:40:36

Number of Replicates: 3

Autosampler Position: 302

Sample Description: 1

Method File: C:\NexlONData\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	220497.7	21.8				ug/L	206101	Standard
|	Be	9	118920.9	20.3	47.6854	2.538	5.3	ug/L	25	Standard
|	Al	27	15528.1	15.5	0.0807	0.004	5.5	ug/L	1120	Standard
|	Sc	45	58493.1	16.7				ug/L	61425	Standard
|	Ti	47	48.7	5.9	-0.0415	0.023	55.1	ug/L	70	Standard
|	V	51	534616.2	18.7	47.5806	1.686	3.5	ug/L	3309	Standard
|	Cr	52	504700.1	19.1	48.3568	1.552	3.2	ug/L	13497	Standard
|	Cr	53	63249.9	18.9	47.2122	1.766	3.7	ug/L	3162	Standard
|	Mn	55	782366.1	19.9	47.4588	1.184	2.5	ug/L	2226	Standard
|	Co	59	631085.2	20.7	48.6747	0.859	1.8	ug/L	1003	Standard
|	Ni	60	138945.3	21.0	49.8939	0.655	1.3	ug/L	355	Standard
|	Cu	65	125340.1	21.7	49.4834	0.237	0.5	ug/L	473	Standard
|	Zn	66	63948.9	20.0	49.2332	1.088	2.2	ug/L	341	Standard
[>	Ge	72	600257.3	22.2				ug/L	566981	Standard
|	As	75	63723.3	20.4	48.7802	0.945	1.9	ug/L	-156	Standard
|	Se	82	5267.8	22.6	48.2532	0.220	0.5	ug/L	35	Standard
|	Se-1	77	4423.7	20.3	46.9784	0.957	2.0	ug/L	354	Standard
[>	Ga	71	66.7	28.4				mg/L	43	Standard
|	Rb	85	101.7	43.0				ug/L	48	Standard
|	Y	89	443194.0	21.3				ug/L	447702	Standard
[>	Rh	103	51.7	34.0				ug/L	20	Standard
|	Mo	98	65.9	20.3	0.0044	0.005	108.4	ug/L	158	Standard
|	Ag	107	503591.2	19.8	47.1789	1.085	2.3	ug/L	133	Standard
|	Cd	111	171156.3	22.3	50.3638	0.697	1.4	mg/L	7	Standard
|	Cd	114	434740.7	23.2	47.4234	0.667	1.4	ug/L	72	Standard
[>	In	115	1020254.6	22.2				ug/L	1004638	Standard
|	Sn	118	209.0	12.2	0.0211	0.010	47.3	ug/L	364	Standard
|	Sb	123	449388.8	20.0	49.7242	1.051	2.1	ug/L	2464	Standard
|	Ba	135	180070.2	20.3	47.1373	0.883	1.9	ug/L	39	Standard
|	Ce	140	166.7	28.4				ug/L	195	Standard
[>	Tb	159	1601185.7	18.6				ug/L	1640193	Standard
|	Ho	165	36.7	31.5				ug/L	25	Standard
|	Tl	203	741027.6	19.0	50.3341	0.360	0.7	ug/L	324	Standard
|	Tl	205	1937830.4	34.9	48.2959	7.493	15.5	ug/L	698	Standard
|	Pb	206	578251.4	19.9	50.3051	0.241	0.5	ug/L	600	Standard
|	Pb	207	491765.2	20.8	48.0270	0.694	1.4	ug/L	541	Standard
|	Pb	208	1654062.2	19.9	49.1106	0.400	0.8	ug/L	1750	Standard
	U	238	630218.0	13.9	47.3032	2.694	5.7	ug/L	10	Standard
[>	Bi	209	815788.5	19.5				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2754	0.468	170.1	mg/L	0	Standard
Mg	24	55.0	47.2	0.5279	0.875	165.8	mg/L	77	Standard
K	39	18.3	31.5	-0.0061	0.018	299.2	mg/L	18	Standard
Ca	43	95.0	9.1	19.2422	5.667	29.4	mg/L	178	Standard
Fe	54	48.4	37.6	0.2369	0.243	102.6	mg/L	29	Standard
Fe	57	415.0	11.0	4.4364	4.216	95.0	mg/L	408	Standard
Sc-1	45	58493.1	16.7				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	6.7	22.9				ug/L	12	Standard
Br	81	1850.1	12.7				ug/L	1747	Standard
P	31	30.0	16.7				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	381.7	9.2				ug/L	370	Standard
C	12	80.0	111.1				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0					mg/L	17	Standard
Dy	164	15.9	45.1				mg/L	9	Standard
Ho-1	165	36.7	31.5				mg/L	25	Standard
Er	166	16.7	173.2				mg/L	20	Standard
I	127	2845.3	11.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.985	
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		105.869	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: LCSW 76 WG590719-03

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	101.554
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
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[U	238	
>	Bi	209	100.526
[Na	23	
[Mg	24	
[K	39	
[Ca	43	
[Fe	54	
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>	Sc-1	45	
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[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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Sample ID: LCSW 76 WG590719-03

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Method 6020 - Summary Report

Sample ID: L1611037005 WG590719-01

Sample Date/Time: Friday, November 11, 2016 12:43:41

Number of Replicates: 3

Autosampler Position: 303

Sample Description: 1

Method File: C:\NexlONData\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	229889.8	16.4				ug/L	206101	Standard
|	Be	9	43.3	46.6	-0.0018	0.009	494.0	ug/L	25	Standard
|	Al	27	149359551.7	9.7	691.4604	50.272	7.3	ug/L	1120	Standard
|	Sc	45	63873.4	8.8				ug/L	61425	Standard
|	Ti	47	184.0	7.8	0.2435	0.031	12.8	ug/L	70	Standard
|	V	51	4034.0	1.9	0.0505	0.055	110.0	ug/L	3309	Standard
|	Cr	52	29553.3	9.1	1.4642	0.188	12.8	ug/L	13497	Standard
|	Cr	53	8227.3	11.9	3.9476	0.244	6.2	ug/L	3162	Standard
|	Mn	55	854219.9	13.4	52.1568	1.138	2.2	ug/L	2226	Standard
|	Co	59	3995.5	23.7	0.2442	0.025	10.3	ug/L	1003	Standard
|	Ni	60	13942.6	20.0	4.8984	0.227	4.6	ug/L	355	Standard
|	Cu	65	2604.9	15.0	0.8399	0.027	3.2	ug/L	473	Standard
|	Zn	66	3946.9	12.6	2.7879	0.101	3.6	ug/L	341	Standard
>	Ge	72	595886.7	15.5				ug/L	566981	Standard
|	As	75	154.0	54.1	0.2177	0.048	22.2	ug/L	-156	Standard
|	Se	82	123.5	14.9	0.8282	0.121	14.6	ug/L	35	Standard
|	Se-1	77	669.3	1.9	3.1681	1.086	34.3	ug/L	354	Standard
>	Ga	71	85.0	35.8				mg/L	43	Standard
|	Rb	85	4677.4	13.5				ug/L	48	Standard
|	Y	89	469457.7	13.3				ug/L	447702	Standard
>	Rh	103	201.7	33.7				ug/L	20	Standard
|	Mo	98	1022.3	13.9	0.2011	0.003	1.4	ug/L	158	Standard
|	Ag	107	5785.4	11.6	0.5332	0.018	3.4	ug/L	133	Standard
|	Cd	111	69.7	22.8	0.0141	0.004	29.3	mg/L	7	Standard
|	Cd	114	184.0	30.4	0.0169	0.003	19.7	ug/L	72	Standard
>	In	115	1011004.0	14.9				ug/L	1004638	Standard
|	Sn	118	224.3	9.3	0.0285	0.007	25.1	ug/L	364	Standard
|	Sb	123	852.2	13.7	0.0356	0.027	76.3	ug/L	2464	Standard
|	Ba	135	16281.2	12.5	4.2910	0.108	2.5	ug/L	39	Standard
|	Ce	140	18499.8	13.4				ug/L	195	Standard
>	Tb	159	1595894.3	13.7				ug/L	1640193	Standard
|	Ho	165	40.0	65.0				ug/L	25	Standard
|	Tl	203	6798.6	61.4	0.4460	0.224	50.2	ug/L	324	Standard
|	Tl	205	15918.7	59.6	0.3977	0.189	47.5	ug/L	698	Standard
|	Pb	206	2224.8	18.2	0.1486	0.010	6.8	ug/L	600	Standard
|	Pb	207	1829.8	19.6	0.1344	0.012	8.7	ug/L	541	Standard
|	Pb	208	6433.9	19.3	0.1473	0.012	8.1	ug/L	1750	Standard
	U	238	33477.8	8.0	2.5958	0.136	5.2	ug/L	10	Standard
>	Bi	209	788117.1	13.2				ug/L	811518	Standard

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Na	23	535.0	20.1	78.3990	9.084	11.6	mg/L	0	Standard
Mg	24	3945.5	13.5	83.7475	4.963	5.9	mg/L	77	Standard
K	39	248.3	21.7	1.2221	0.280	22.9	mg/L	18	Standard
Ca	43	366.7	2.8	-38.3780	7.415	19.3	mg/L	178	Standard
Fe	54	32.1	45.4	-0.0342	0.161	469.4	mg/L	29	Standard
Fe	57	901.7	5.2	21.2191	4.293	20.2	mg/L	408	Standard
Sc-1	45	63873.4	8.8				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	7.0	24.7				ug/L	12	Standard
Br	81	12762.1	7.2				ug/L	1747	Standard
P	31	28.3	20.4				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	450.0	6.8				ug/L	370	Standard
C	12	170.0	73.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	64.4	19.0				mg/L	9	Standard
Ho-1	165	40.0	65.0				mg/L	25	Standard
Er	166	46.7	32.7				mg/L	20	Standard
I	127	23154.4	7.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		111.542	
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		105.098	
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	100.634
[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	97.116
[	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
Al 27 Upper, S, EEE	Al	27	

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Method 6020 - Summary Report

Sample ID: L1611037005S WG590719-04

Sample Date/Time: Friday, November 11, 2016 12:46:47

Number of Replicates: 3

Autosampler Position: 304

Sample Description: 1

Method File: C:\NexlONData\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	223838.3	18.5				ug/L	206101	Standard
|	Be	9	121807.8	14.5	48.2456	1.922	4.0	ug/L	25	Standard
|	Al	27	157929274.8	12.1	751.0147	49.239	6.6	ug/L	1120	Standard
|	Sc	45	64719.7	13.8				ug/L	61425	Standard
|	Ti	47	189.0	13.9	0.2655	0.026	9.8	ug/L	70	Standard
|	V	51	586634.1	13.8	54.2422	1.943	3.6	ug/L	3309	Standard
|	Cr	52	543036.1	14.2	54.1956	1.708	3.2	ug/L	13497	Standard
|	Cr	53	72617.8	14.9	56.7064	1.398	2.5	ug/L	3162	Standard
|	Mn	55	1679794.9	16.1	105.8715	1.650	1.6	ug/L	2226	Standard
|	Co	59	634527.6	15.7	50.8522	0.833	1.6	ug/L	1003	Standard
|	Ni	60	147616.8	17.7	54.9842	0.281	0.5	ug/L	355	Standard
|	Cu	65	120057.5	17.6	49.2120	0.256	0.5	ug/L	473	Standard
|	Zn	66	64612.9	16.1	51.6159	0.556	1.1	ug/L	341	Standard
>	Ge	72	577478.4	17.2				ug/L	566981	Standard
|	As	75	65989.1	16.9	52.3717	0.259	0.5	ug/L	-156	Standard
|	Se	82	5727.9	19.0	54.5045	0.949	1.7	ug/L	35	Standard
|	Se-1	77	5071.2	17.5	56.7157	0.163	0.3	ug/L	354	Standard
>	Ga	71	90.0	24.2				mg/L	43	Standard
|	Rb	85	4817.4	15.7				ug/L	48	Standard
|	Y	89	455162.6	14.1				ug/L	447702	Standard
>	Rh	103	243.3	12.0				ug/L	20	Standard
|	Mo	98	1004.6	12.7	0.2012	0.009	4.4	ug/L	158	Standard
|	Ag	107	518913.1	15.2	49.6847	0.734	1.5	ug/L	133	Standard
|	Cd	111	168199.2	17.3	50.6550	0.365	0.7	mg/L	7	Standard
|	Cd	114	433267.9	16.5	48.4836	0.687	1.4	ug/L	72	Standard
>	In	115	996531.6	16.7				ug/L	1004638	Standard
|	Sn	118	429.0	18.5	0.1290	0.006	4.6	ug/L	364	Standard
|	Sb	123	456027.1	15.1	51.5917	0.790	1.5	ug/L	2464	Standard
|	Ba	135	190349.2	14.4	51.0017	1.144	2.2	ug/L	39	Standard
|	Ce	140	458.3	6.6				ug/L	195	Standard
>	Tb	159	1542499.1	15.4				ug/L	1640193	Standard
|	Ho	165	61.7	40.8				ug/L	25	Standard
|	Tl	203	717912.4	15.4	52.0386	0.667	1.3	ug/L	324	Standard
|	Tl	205	1709397.9	14.3	46.3533	0.405	0.9	ug/L	698	Standard
|	Pb	206	552677.1	14.2	51.4287	0.542	1.1	ug/L	600	Standard
|	Pb	207	475080.8	14.7	49.6479	0.137	0.3	ug/L	541	Standard
|	Pb	208	1611162.3	13.6	51.1865	0.658	1.3	ug/L	1750	Standard
	U	238	695507.6	9.1	55.6777	3.271	5.9	ug/L	10	Standard
>	Bi	209	763707.3	14.9				ug/L	811518	Standard

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Na	23	550.0	22.6	79.3967	7.610	9.6	mg/L	0	Standard
Mg	24	3982.2	6.0	84.3050	7.415	8.8	mg/L	77	Standard
K	39	278.3	27.9	1.4203	0.652	45.9	mg/L	18	Standard
Ca	43	411.7	19.0	-48.2054	22.102	45.9	mg/L	178	Standard
Fe	54	36.8	53.9	0.0068	0.192	2842.7	mg/L	29	Standard
Fe	57	863.4	4.6	19.3857	3.186	16.4	mg/L	408	Standard
Sc-1	45	64719.7	13.8				mg/L	61425	Standard
Cl	35	2.7	86.6				ug/L	1	Standard
Kr	83	8.3	45.4				ug/L	12	Standard
Br	81	13686.2	7.6				ug/L	1747	Standard
P	31	45.0	19.2				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	433.3	2.4				ug/L	370	Standard
C	12	170.0	50.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	114.6				mg/L	17	Standard
Dy	164	43.3	44.1				mg/L	9	Standard
Ho-1	165	61.7	40.8				mg/L	25	Standard
Er	166	70.0	51.5				mg/L	20	Standard
I	127	28733.9	5.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		108.606	
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		101.851	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611037005S WG590719-04

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	99.193
[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	94.108
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611037005S WG590719-04

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Method 6020 - Summary Report

Sample ID: L1611037005SD WG590719-05

Sample Date/Time: Friday, November 11, 2016 12:49:52

Number of Replicates: 3

Autosampler Position: 305

Sample Description: 1

Method File: C:\NexlONData\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	216616.0	20.0				ug/L	206101	Standard
|	Be	9	116631.4	20.6	47.4592	0.450	0.9	ug/L	25	Standard
|	Al	27	162900405.2	14.5	799.5989	43.854	5.5	ug/L	1120	Standard
|	Sc	45	62751.6	14.9				ug/L	61425	Standard
|	Ti	47	204.3	18.2	0.3094	0.025	8.2	ug/L	70	Standard
|	V	51	573515.8	16.6	54.4213	1.697	3.1	ug/L	3309	Standard
|	Cr	52	528036.2	17.3	54.0610	1.214	2.2	ug/L	13497	Standard
|	Cr	53	69195.6	21.1	55.1473	1.110	2.0	ug/L	3162	Standard
|	Mn	55	1667671.6	18.2	107.9302	2.144	2.0	ug/L	2226	Standard
|	Co	59	613864.4	19.5	50.4171	0.500	1.0	ug/L	1003	Standard
|	Ni	60	143775.1	19.4	55.0114	0.666	1.2	ug/L	355	Standard
|	Cu	65	115110.7	19.0	48.4837	0.210	0.4	ug/L	473	Standard
|	Zn	66	63903.1	18.3	52.4201	0.607	1.2	ug/L	341	Standard
>	Ge	72	562511.4	19.5				ug/L	566981	Standard
|	As	75	63960.2	18.2	52.1712	0.699	1.3	ug/L	-156	Standard
|	Se	82	5566.5	20.3	54.4241	0.669	1.2	ug/L	35	Standard
|	Se-1	77	4994.2	18.3	57.5132	0.927	1.6	ug/L	354	Standard
>	Ga	71	101.7	23.2				mg/L	43	Standard
|	Rb	85	5187.6	17.9				ug/L	48	Standard
|	Y	89	465396.2	17.2				ug/L	447702	Standard
>	Rh	103	211.7	28.2				ug/L	20	Standard
|	Mo	98	1208.5	15.6	0.2487	0.015	5.9	ug/L	158	Standard
|	Ag	107	508258.9	16.7	49.5956	0.367	0.7	ug/L	133	Standard
|	Cd	111	162775.8	18.7	49.9638	0.734	1.5	mg/L	7	Standard
|	Cd	114	418611.6	18.8	47.6879	0.751	1.6	ug/L	72	Standard
>	In	115	976932.4	17.3				ug/L	1004638	Standard
|	Sn	118	313.7	13.5	0.0776	0.019	24.9	ug/L	364	Standard
|	Sb	123	439201.2	15.9	50.6736	0.692	1.4	ug/L	2464	Standard
|	Ba	135	184121.2	16.3	50.2595	0.779	1.5	ug/L	39	Standard
|	Ce	140	3187.0	14.1				ug/L	195	Standard
>	Tb	159	1530576.6	14.4				ug/L	1640193	Standard
|	Ho	165	101.7	36.9				ug/L	25	Standard
|	Tl	203	701322.0	16.0	51.0881	0.706	1.4	ug/L	324	Standard
|	Tl	205	1646678.5	14.8	44.8858	0.305	0.7	ug/L	698	Standard
|	Pb	206	537869.4	16.3	50.2280	0.651	1.3	ug/L	600	Standard
|	Pb	207	460488.5	15.0	48.3826	0.505	1.0	ug/L	541	Standard
|	Pb	208	1565717.2	15.0	49.9598	0.832	1.7	ug/L	1750	Standard
	U	238	683329.7	10.1	54.9625	2.933	5.3	ug/L	10	Standard
>	Bi	209	759653.4	15.3				ug/L	811518	Standard

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Na	23	530.0	25.3	78.9465	9.224	11.7	mg/L	0	Standard
Mg	24	4268.9	8.8	93.1260	5.878	6.3	mg/L	77	Standard
K	39	238.3	36.1	1.1719	0.312	26.7	mg/L	18	Standard
Ca	43	381.7	3.0	-44.0275	12.779	29.0	mg/L	178	Standard
Fe	54	40.1	71.3	0.0564	0.333	590.0	mg/L	29	Standard
Fe	57	956.7	7.9	24.1813	5.789	23.9	mg/L	408	Standard
Sc-1	45	62751.6	14.9				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	10.3	5.6				ug/L	12	Standard
Br	81	12715.4	11.0				ug/L	1747	Standard
P	31	41.7	36.7				ug/L	17	Standard
S	34	6.7	43.3				ug/L	3	Standard
Sr	88	440.0	4.1				ug/L	370	Standard
C	12	213.3	34.6				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	110.0	31.9				mg/L	9	Standard
Ho-1	165	101.7	36.9				mg/L	25	Standard
Er	166	70.0	24.7				mg/L	20	Standard
I	127	27379.9	9.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		105.102	
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		99.212	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611037005SD WG590719-05

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	97.242
[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	93.609
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611037005SD WG590719-05

Report Date/Time: Friday, November 11, 2016 12:52:03

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Method 6020 - Summary Report

Sample ID: L1611027201

Sample Date/Time: Friday, November 11, 2016 12:52:58

Number of Replicates: 3

Autosampler Position: 306

Sample Description: 1

Method File: C:\NexlONData\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	154441.7	21.4				ug/L	206101	Standard
|	Be	9	3468.7	22.0	1.9613	0.058	3.0	ug/L	25	Standard
|	Al	27	1069556812.6	19.0	7335.5268	195.012	2.7	ug/L	1120	Standard
|	Sc	45	103738.1	13.4				ug/L	61425	Standard
|	Ti	47	458075.4	14.8	1278.8247	50.994	4.0	ug/L	70	Standard
|	V	51	1120355.5	15.7	133.1932	4.437	3.3	ug/L	3309	Standard
|	Cr	52	556275.2	16.1	71.5981	2.155	3.0	ug/L	13497	Standard
|	Cr	53	67979.9	16.4	68.5716	2.356	3.4	ug/L	3162	Standard
|	Mn	55	97387325.4	18.1	7874.7683	266.175	3.4	ug/L	2226	Standard
|	Co	59	553726.7	18.4	56.8270	1.607	2.8	ug/L	1003	Standard
|	Ni	60	367490.6	19.6	175.6981	6.225	3.5	ug/L	355	Standard
|	Cu	65	324260.9	16.4	171.3967	4.517	2.6	ug/L	473	Standard
|	Zn	66	544248.3	15.9	561.2234	12.398	2.2	ug/L	341	Standard
>	Ge	72	449595.9	17.0				ug/L	566981	Standard
|	As	75	119636.5	15.2	122.0018	2.894	2.4	ug/L	-156	Standard
|	Se	82	390.4	15.5	4.4943	0.121	2.7	ug/L	35	Standard
|	Se-1	77	878.0	12.3	8.9456	0.865	9.7	ug/L	354	Standard
>	Ga	71	50869.0	19.4				mg/L	43	Standard
|	Rb	85	580077.3	16.7				ug/L	48	Standard
|	Y	89	1541221.4	17.1				ug/L	447702	Standard
>	Rh	103	921.7	22.7				ug/L	20	Standard
|	Mo	98	106953.3	19.9	34.7784	1.067	3.1	ug/L	158	Standard
|	Ag	107	2828.9	21.6	0.4066	0.017	4.1	ug/L	133	Standard
|	Cd	111	6217.7	16.9	2.9224	0.032	1.1	mg/L	7	Standard
|	Cd	114	16507.0	18.6	2.8776	0.024	0.8	ug/L	72	Standard
>	In	115	638424.2	18.1				ug/L	1004638	Standard
|	Sn	118	764.7	18.0	0.5030	0.007	1.3	ug/L	364	Standard
|	Sb	123	13913.2	14.1	2.4051	0.109	4.5	ug/L	2464	Standard
|	Ba	135	2160596.8	29.7	889.9778	99.698	11.2	ug/L	39	Standard
|	Ce	140	5920712.5	12.9				ug/L	195	Standard
>	Tb	159	1103754.7	12.6				ug/L	1640193	Standard
|	Ho	165	101609.0	11.0				ug/L	25	Standard
|	Tl	203	26600.0	15.0	3.0192	0.019	0.6	ug/L	324	Standard
|	Tl	205	63551.7	15.2	2.7022	0.004	0.1	ug/L	698	Standard
|	Pb	206	1498438.6	15.4	219.0474	2.045	0.9	ug/L	600	Standard
|	Pb	207	1212910.7	15.1	199.3100	1.616	0.8	ug/L	541	Standard
|	Pb	208	4811320.2	21.4	238.6817	19.872	8.3	ug/L	1750	Standard
	U	238	139467.3	11.7	17.5048	0.663	3.8	ug/L	10	Standard
>	Bi	209	486060.5	15.3				ug/L	811518	Standard

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Na	23	5005.8	16.2	453.7114	15.478	3.4	mg/L	0	Standard
Mg	24	678.3	2.6	8.2159	0.970	11.8	mg/L	77	Standard
K	39	1671.8	12.9	5.4192	0.329	6.1	mg/L	18	Standard
Ca	43	5337.6	4.9	-691.3669	124.533	18.0	mg/L	178	Standard
Fe	54	4911.5	5.8	38.6115	2.950	7.6	mg/L	29	Standard
Fe	57	8414.0	10.3	183.6621	6.085	3.3	mg/L	408	Standard
Sc-1	45	103738.1	13.4				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	6.0	33.3				ug/L	12	Standard
Br	81	5541.0	12.6				ug/L	1747	Standard
P	31	58.3	34.6				ug/L	17	Standard
S	34	8.3	69.3				ug/L	3	Standard
Sr	88	521.7	12.5				ug/L	370	Standard
C	12	1030.0	32.1				mg/L	47	Standard
N	14	6.7	173.2				mg/L	0	Standard
Hg	202	260.0	35.3				mg/L	17	Standard
Dy	164	153444.6	14.3				mg/L	9	Standard
Ho-1	165	101609.0	11.0				mg/L	25	Standard
Er	166	90258.1	13.9				mg/L	20	Standard
I	127	216087.5	5.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		74.935	
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		79.296	
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	63.548
[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	59.895
[	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

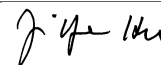
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

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Mn 55 Upper, S, EEE	Mn	55
Ni 60 Upper, S, EEE	Ni	60
Cu 65 Upper, S, EEE	Cu	65
Zn 66 Upper, S, EEE	Zn	66
As 75 Upper, S, EEE	As	75
Ba 135 Upper, S, EEE	Ba	135
Pb 206 Upper, S, EEE	Pb	206
Pb 207 Upper, S, EEE	Pb	207
Pb 208 Upper, S, EEE	Pb	208

Sample ID: L1611027201

Report Date/Time: Friday, November 11, 2016 12:55:09

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Method 6020 - Summary Report

Sample ID: L1611027202

Sample Date/Time: Friday, November 11, 2016 12:56:03

Number of Replicates: 3

Autosampler Position: 307

Sample Description: 1

Method File: C:\NexlONData\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	204431.4	18.2				ug/L	206101	Standard
|	Be	9	51.7	31.1	0.0031	0.003	102.7	ug/L	25	Standard
|	Al	27	54728405.5	13.3	284.4900	15.519	5.5	ug/L	1120	Standard
|	Sc	45	60587.9	15.9				ug/L	61425	Standard
|	Ti	47	3452.7	18.3	7.6490	0.045	0.6	ug/L	70	Standard
|	V	51	10781.7	13.6	0.7286	0.048	6.6	ug/L	3309	Standard
|	Cr	52	23290.5	13.9	1.0089	0.100	9.9	ug/L	13497	Standard
|	Cr	53	3395.4	6.1	0.3519	0.342	97.1	ug/L	3162	Standard
|	Mn	55	1291224.1	17.8	84.6399	0.837	1.0	ug/L	2226	Standard
|	Co	59	7803.1	20.0	0.5861	0.014	2.5	ug/L	1003	Standard
|	Ni	60	7291.1	22.5	2.6956	0.141	5.2	ug/L	355	Standard
|	Cu	65	3001.6	18.9	1.0859	0.013	1.2	ug/L	473	Standard
|	Zn	66	19173.0	16.9	15.7530	0.200	1.3	ug/L	341	Standard
>	Ge	72	554405.8	18.0				ug/L	566981	Standard
|	As	75	13720.1	17.3	11.4280	0.071	0.6	ug/L	-156	Standard
|	Se	82	69.8	16.6	0.3756	0.055	14.7	ug/L	35	Standard
|	Se-1	77	394.0	4.6	0.2463	0.688	279.5	ug/L	354	Standard
>	Ga	71	371.7	21.5				mg/L	43	Standard
|	Rb	85	6062.9	14.9				ug/L	48	Standard
|	Y	89	423879.5	14.9				ug/L	447702	Standard
>	Rh	103	313.3	22.0				ug/L	20	Standard
|	Mo	98	32458.4	15.6	7.2821	0.181	2.5	ug/L	158	Standard
|	Ag	107	190.0	11.1	0.0058	0.002	28.1	ug/L	133	Standard
|	Cd	111	57.8	20.5	0.0119	0.002	12.8	mg/L	7	Standard
|	Cd	114	230.3	3.3	0.0250	0.005	19.2	ug/L	72	Standard
>	In	115	928762.3	17.8				ug/L	1004638	Standard
|	Sn	118	238.3	20.0	0.0445	0.003	6.3	ug/L	364	Standard
|	Sb	123	805.4	2.1	0.0379	0.019	49.6	ug/L	2464	Standard
|	Ba	135	535614.8	16.4	153.8784	2.213	1.4	ug/L	39	Standard
|	Ce	140	27816.1	18.4				ug/L	195	Standard
>	Tb	159	1524152.4	14.9				ug/L	1640193	Standard
|	Ho	165	668.3	12.9				ug/L	25	Standard
|	Tl	203	1974.5	9.7	0.1383	0.007	5.2	ug/L	324	Standard
|	Tl	205	4800.8	11.3	0.1326	0.005	4.0	ug/L	698	Standard
|	Pb	206	10056.7	15.0	0.9306	0.010	1.1	ug/L	600	Standard
|	Pb	207	8209.9	15.2	0.8504	0.011	1.2	ug/L	541	Standard
|	Pb	208	28584.3	13.8	0.9037	0.008	0.9	ug/L	1750	Standard
	U	238	6060.2	10.1	0.5102	0.020	3.9	ug/L	10	Standard
>	Bi	209	727467.4	14.1				ug/L	811518	Standard

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Na	23	231.7	10.9	36.3933	4.576	12.6	mg/L	0	Standard
Mg	24	638.3	4.3	13.8567	2.291	16.5	mg/L	77	Standard
K	39	578.3	9.2	3.2012	0.480	15.0	mg/L	18	Standard
Ca	43	261.7	24.2	-20.5797	25.014	121.5	mg/L	178	Standard
Fe	54	297.1	14.2	3.5862	0.253	7.1	mg/L	29	Standard
Fe	57	700.0	11.3	14.9942	2.963	19.8	mg/L	408	Standard
Sc-1	45	60587.9	15.9				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	7.7	54.3				ug/L	12	Standard
Br	81	8452.4	2.3				ug/L	1747	Standard
P	31	21.7	13.3				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	450.0	14.2				ug/L	370	Standard
C	12	103.3	40.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	1015.6	21.6				mg/L	9	Standard
Ho-1	165	668.3	12.9				mg/L	25	Standard
Er	166	650.0	29.7				mg/L	20	Standard
I	127	334686.6	4.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.190	
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		97.782	
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	92.447
[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	89.643
[	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
Al 27 Upper, S, EEE	Al	27	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1611027202

Report Date/Time: Friday, November 11, 2016 12:58:14

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Method 6020 - Summary Report

Sample ID: L1611027202PS WG590943-01

Sample Date/Time: Friday, November 11, 2016 12:59:09

Number of Replicates: 3

Autosampler Position: 308

Sample Description: 1

Method File: C:\NexlONData\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	207995.5	18.2				ug/L	206101	Standard
|	Be	9	117199.1	15.9	49.8548	1.228	2.5	ug/L	25	Standard
|	Al	27	53982045.5	12.6	275.9354	15.539	5.6	ug/L	1120	Standard
|	Sc	45	60630.7	12.8				ug/L	61425	Standard
|	Ti	47	3407.4	13.2	7.5921	0.295	3.9	ug/L	70	Standard
|	V	51	558838.5	14.4	53.8338	1.101	2.0	ug/L	3309	Standard
|	Cr	52	509842.7	15.3	52.9582	0.940	1.8	ug/L	13497	Standard
|	Cr	53	64778.6	15.0	52.5632	0.734	1.4	ug/L	3162	Standard
|	Mn	55	2466279.4	26.7	160.5307	23.051	14.4	ug/L	2226	Standard
|	Co	59	617400.7	15.6	51.6010	1.003	1.9	ug/L	1003	Standard
|	Ni	60	136324.9	17.0	52.9908	1.145	2.2	ug/L	355	Standard
|	Cu	65	121165.8	16.4	51.8736	1.228	2.4	ug/L	473	Standard
|	Zn	66	79298.7	15.6	66.1735	0.774	1.2	ug/L	341	Standard
>	Ge	72	552989.5	16.0				ug/L	566981	Standard
|	As	75	75429.2	15.4	62.5037	1.384	2.2	ug/L	-156	Standard
|	Se	82	5025.9	16.7	49.9722	0.720	1.4	ug/L	35	Standard
|	Se-1	77	4332.6	16.2	50.0826	0.445	0.9	ug/L	354	Standard
>	Ga	71	358.3	20.4				mg/L	43	Standard
|	Rb	85	6266.3	18.1				ug/L	48	Standard
|	Y	89	421331.7	15.5				ug/L	447702	Standard
>	Rh	103	338.3	24.7				ug/L	20	Standard
|	Mo	98	32915.1	15.6	7.3223	0.108	1.5	ug/L	158	Standard
|	Ag	107	443866.3	15.2	45.2674	0.363	0.8	ug/L	133	Standard
|	Cd	111	162535.5	17.6	52.1330	0.992	1.9	mg/L	7	Standard
|	Cd	114	414921.3	18.5	49.3647	1.590	3.2	ug/L	72	Standard
>	In	115	934718.2	15.9				ug/L	1004638	Standard
|	Sn	118	225.0	13.9	0.0376	0.010	25.6	ug/L	364	Standard
|	Sb	123	430705.9	17.5	51.7825	1.032	2.0	ug/L	2464	Standard
|	Ba	135	709499.5	15.0	202.4255	3.944	1.9	ug/L	39	Standard
|	Ce	140	27497.0	16.0				ug/L	195	Standard
>	Tb	159	1525595.0	13.2				ug/L	1640193	Standard
|	Ho	165	656.7	11.1				ug/L	25	Standard
|	Tl	203	685464.6	14.8	51.8181	0.791	1.5	ug/L	324	Standard
|	Tl	205	1596698.4	15.8	45.0750	1.146	2.5	ug/L	698	Standard
|	Pb	206	534622.3	14.3	51.8503	0.526	1.0	ug/L	600	Standard
|	Pb	207	471797.4	15.3	51.3739	1.037	2.0	ug/L	541	Standard
|	Pb	208	1566553.9	13.4	51.8884	0.220	0.4	ug/L	1750	Standard
|	U	238	660813.4	9.0	55.1132	2.330	4.2	ug/L	10	Standard
>	Bi	209	731516.2	13.3				ug/L	811518	Standard

Sample ID: L1611027202PS WG590943-01

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Na	23	223.3	10.6	34.7881	1.188	3.4	mg/L	0	Standard
Mg	24	628.3	8.8	13.5733	2.651	19.5	mg/L	77	Standard
K	39	520.0	18.7	2.8219	0.327	11.6	mg/L	18	Standard
Ca	43	281.7	11.8	-23.8651	15.932	66.8	mg/L	178	Standard
Fe	54	300.4	9.9	3.6540	0.604	16.5	mg/L	29	Standard
Fe	57	756.7	9.0	17.4252	5.668	32.5	mg/L	408	Standard
Sc-1	45	60630.7	12.8				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	11.3	20.4				ug/L	12	Standard
Br	81	8312.3	8.0				ug/L	1747	Standard
P	31	26.7	10.8				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	441.7	9.2				ug/L	370	Standard
C	12	113.3	5.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	86.6				mg/L	17	Standard
Dy	164	1171.5	19.3				mg/L	9	Standard
Ho-1	165	656.7	11.1				mg/L	25	Standard
Er	166	526.7	21.6				mg/L	20	Standard
I	127	339068.8	5.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.919	
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		97.532	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611027202PS WG590943-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	93.040
[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	90.142
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1611027202PS WG590943-01

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Method 6020 - Summary Report

Sample ID: L1611027202SDL WG590943-02

Sample Date/Time: Friday, November 11, 2016 13:02:14

Number of Replicates: 3

Autosampler Position: 309

Sample Description: 5

Method File: C:\NexlONData\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	187208.6	15.2				ug/L	206101	Standard
|	Be	9	40.0	76.0	-0.0011	0.011	1031.8	ug/L	25	Standard
|	Al	27	10252947.2	13.0	57.9635	1.523	2.6	ug/L	1120	Standard
|	Sc	45	53578.9	12.6				ug/L	61425	Standard
|	Ti	47	667.7	16.3	1.4589	0.032	2.2	ug/L	70	Standard
|	V	51	4855.2	11.0	0.1841	0.026	14.2	ug/L	3309	Standard
|	Cr	52	14450.9	8.9	0.1680	0.112	66.5	ug/L	13497	Standard
|	Cr	53	1783.4	8.3	-0.9456	0.111	11.8	ug/L	3162	Standard
|	Mn	55	243490.8	15.3	16.9006	0.446	2.6	ug/L	2226	Standard
|	Co	59	1856.1	15.3	0.1019	0.010	10.0	ug/L	1003	Standard
|	Ni	60	1649.8	17.8	0.5581	0.046	8.2	ug/L	355	Standard
|	Cu	65	1033.7	21.7	0.2695	0.034	12.8	ug/L	473	Standard
|	Zn	66	4743.1	13.4	3.9416	0.090	2.3	ug/L	341	Standard
>	Ge	72	519939.4	14.4				ug/L	566981	Standard
|	As	75	2643.7	14.5	2.4306	0.085	3.5	ug/L	-156	Standard
|	Se	82	35.8	33.0	0.0554	0.109	197.1	ug/L	35	Standard
|	Se-1	77	349.3	4.7	-0.0441	0.716	1625.8	ug/L	354	Standard
>	Ga	71	88.3	17.3				mg/L	43	Standard
|	Rb	85	1213.4	15.1				ug/L	48	Standard
|	Y	89	381708.5	13.6				ug/L	447702	Standard
>	Rh	103	81.7	31.4				ug/L	20	Standard
|	Mo	98	5968.4	14.5	1.4264	0.030	2.1	ug/L	158	Standard
|	Ag	107	205.7	17.1	0.0088	0.002	24.4	ug/L	133	Standard
|	Cd	111	25.3	55.4	0.0017	0.003	198.6	mg/L	7	Standard
|	Cd	114	77.7	27.7	0.0067	0.002	30.1	ug/L	72	Standard
>	In	115	865966.5	15.4				ug/L	1004638	Standard
|	Sn	118	85.3	12.5	-0.0319	0.004	11.2	ug/L	364	Standard
|	Sb	123	2631.7	29.8	0.2960	0.152	51.5	ug/L	2464	Standard
|	Ba	135	101591.2	15.6	31.2377	0.197	0.6	ug/L	39	Standard
|	Ce	140	5459.3	17.9				ug/L	195	Standard
>	Tb	159	1412866.3	15.2				ug/L	1640193	Standard
|	Ho	165	143.3	10.1				ug/L	25	Standard
|	Tl	203	1132.4	6.7	0.0767	0.007	8.7	ug/L	324	Standard
|	Tl	205	2705.2	1.1	0.0759	0.012	15.2	ug/L	698	Standard
|	Pb	206	2475.9	15.3	0.1976	0.005	2.5	ug/L	600	Standard
|	Pb	207	1967.5	15.2	0.1721	0.003	1.9	ug/L	541	Standard
|	Pb	208	6967.6	14.6	0.1894	0.004	2.1	ug/L	1750	Standard
	U	238	1208.4	9.7	0.1064	0.006	5.8	ug/L	10	Standard
>	Bi	209	706692.7	13.8				ug/L	811518	Standard

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Na	23	41.7	38.6	7.6319	3.862	50.6	mg/L	0	Standard
Mg	24	178.3	11.3	3.7959	1.027	27.0	mg/L	77	Standard
K	39	101.7	22.7	0.5446	0.176	32.3	mg/L	18	Standard
Ca	43	123.3	51.3	8.6821	21.382	246.3	mg/L	178	Standard
Fe	54	69.3	55.1	0.6095	0.530	86.9	mg/L	29	Standard
Fe	57	506.7	0.6	9.9481	3.007	30.2	mg/L	408	Standard
Sc-1	45	53578.9	12.6				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	9.7	6.0				ug/L	12	Standard
Br	81	2790.3	10.4				ug/L	1747	Standard
P	31	28.3	36.7				ug/L	17	Standard
S	34	8.3	34.6				ug/L	3	Standard
Sr	88	445.0	10.3				ug/L	370	Standard
C	12	76.7	64.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	261.4	24.9				mg/L	9	Standard
Ho-1	165	143.3	10.1				mg/L	25	Standard
Er	166	110.0	18.2				mg/L	20	Standard
I	127	78673.4	9.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		90.833	
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		91.703	
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	86.197
[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	87.083
[	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: L1611027202SDL WG590943-02

Sample Date/Time: Friday, November 11, 2016 13:05:20

Number of Replicates: 3

Autosampler Position: 310

Sample Description: 25

Method File: C:\NexlONData\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	185271.9	22.5				ug/L	206101	Standard
|	Be	9	35.0	28.6	-0.0020	0.005	230.0	ug/L	25	Standard
|	Al	27	1568290.0	14.7	9.0581	0.816	9.0	ug/L	1120	Standard
|	Sc	45	52497.1	14.9				ug/L	61425	Standard
|	Ti	47	165.3	16.2	0.2678	0.042	15.7	ug/L	70	Standard
|	V	51	4073.1	7.6	0.1215	0.048	39.2	ug/L	3309	Standard
|	Cr	52	13272.8	9.4	0.0924	0.141	153.0	ug/L	13497	Standard
|	Cr	53	1500.1	5.8	-1.1434	0.194	17.0	ug/L	3162	Standard
|	Mn	55	49969.9	17.5	3.4838	0.053	1.5	ug/L	2226	Standard
|	Co	59	717.7	9.0	0.0034	0.007	191.6	ug/L	1003	Standard
|	Ni	60	519.7	18.2	0.0977	0.006	6.4	ug/L	355	Standard
|	Cu	65	486.0	21.1	0.0293	0.012	40.3	ug/L	473	Standard
|	Zn	66	1738.1	15.6	1.3176	0.076	5.7	ug/L	341	Standard
>	Ge	72	502892.5	18.3				ug/L	566981	Standard
|	As	75	471.2	21.9	0.5326	0.045	8.5	ug/L	-156	Standard
|	Se	82	27.4	27.9	-0.0085	0.135	1594.5	ug/L	35	Standard
|	Se-1	77	320.3	7.7	-0.2371	0.971	409.5	ug/L	354	Standard
>	Ga	71	51.7	59.1				mg/L	43	Standard
|	Rb	85	268.3	14.9				ug/L	48	Standard
|	Y	89	366931.8	16.2				ug/L	447702	Standard
>	Rh	103	48.3	46.6				ug/L	20	Standard
|	Mo	98	1120.0	18.9	0.2653	0.004	1.4	ug/L	158	Standard
|	Ag	107	198.7	14.6	0.0090	0.005	58.4	ug/L	133	Standard
|	Cd	111	13.2	14.1	-0.0020	0.001	28.0	mg/L	7	Standard
|	Cd	114	43.2	52.1	0.0023	0.002	97.5	ug/L	72	Standard
>	In	115	847540.4	18.6				ug/L	1004638	Standard
|	Sn	118	66.3	21.9	-0.0422	0.002	5.6	ug/L	364	Standard
|	Sb	123	720.4	31.6	0.0394	0.046	117.1	ug/L	2464	Standard
|	Ba	135	20366.6	16.2	6.4108	0.158	2.5	ug/L	39	Standard
|	Ce	140	1106.7	17.5				ug/L	195	Standard
>	Tb	159	1390937.0	17.2				ug/L	1640193	Standard
|	Ho	165	35.0	28.6				ug/L	25	Standard
|	Tl	203	399.7	1.0	0.0197	0.005	25.2	ug/L	324	Standard
|	Tl	205	931.7	8.6	0.0241	0.006	26.6	ug/L	698	Standard
|	Pb	206	874.4	15.3	0.0385	0.001	2.2	ug/L	600	Standard
|	Pb	207	702.3	11.2	0.0313	0.004	12.8	ug/L	541	Standard
|	Pb	208	2455.4	15.9	0.0363	0.001	4.0	ug/L	1750	Standard
	U	238	231.7	16.7	0.0224	0.002	9.0	ug/L	10	Standard
>	Bi	209	693737.6	16.3				ug/L	811518	Standard

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Na	23	15.0	33.3	2.6483	0.519	19.6	mg/L	0	Standard
Mg	24	68.3	11.2	0.9446	0.091	9.6	mg/L	77	Standard
K	39	30.0	60.1	0.0826	0.111	134.6	mg/L	18	Standard
Ca	43	118.3	9.8	10.5701	5.748	54.4	mg/L	178	Standard
Fe	54	29.5	0.7	0.0247	0.067	270.7	mg/L	29	Standard
Fe	57	498.3	17.1	10.2035	5.500	53.9	mg/L	408	Standard
Sc-1	45	52497.1	14.9				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	1630.1	26.6				ug/L	1747	Standard
P	31	31.7	18.2				ug/L	17	Standard
S	34	6.7	43.3				ug/L	3	Standard
Sr	88	458.3	6.9				ug/L	370	Standard
C	12	70.0	14.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	49.5	48.9				mg/L	9	Standard
Ho-1	165	35.0	28.6				mg/L	25	Standard
Er	166	80.0	25.0				mg/L	20	Standard
I	127	21230.0	9.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		89.894	
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		88.696	
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	84.363
[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	85.486
[	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

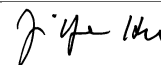
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611027202SDL WG590943-02

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 13:08:27

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	208631.1	20.9				ug/L	206101	Standard
|	Be	9	113364.1	18.9	48.0805	1.042	2.2	ug/L	25	Standard
|	Al	27	9406358.9	14.3	48.0771	3.309	6.9	ug/L	1120	Standard
|	Sc	45	57555.7	14.8				ug/L	61425	Standard
|	Ti	47	44911.3	16.0	99.7742	3.004	3.0	ug/L	70	Standard
|	V	51	536648.1	16.7	50.6541	1.300	2.6	ug/L	3309	Standard
|	Cr	52	495085.4	17.2	50.3468	1.168	2.3	ug/L	13497	Standard
|	Cr	53	62172.8	16.2	49.3622	1.458	3.0	ug/L	3162	Standard
|	Mn	55	781844.3	17.8	50.3048	0.643	1.3	ug/L	2226	Standard
|	Co	59	617894.0	18.0	50.5912	0.621	1.2	ug/L	1003	Standard
|	Ni	60	133821.9	17.7	51.0548	0.704	1.4	ug/L	355	Standard
|	Cu	65	123520.6	18.4	51.8252	0.383	0.7	ug/L	473	Standard
|	Zn	66	63434.5	17.4	51.8413	0.807	1.6	ug/L	341	Standard
>	Ge	72	564901.7	18.9				ug/L	566981	Standard
|	As	75	61723.0	17.5	50.1595	0.774	1.5	ug/L	-156	Standard
|	Se	82	5214.0	19.2	50.7718	0.301	0.6	ug/L	35	Standard
|	Se-1	77	4345.0	17.4	49.2060	0.917	1.9	ug/L	354	Standard
>	Ga	71	113.3	26.6				mg/L	43	Standard
|	Rb	85	605.0	36.4				ug/L	48	Standard
|	Y	89	419326.1	19.5				ug/L	447702	Standard
>	Rh	103	48.3	29.9				ug/L	20	Standard
|	Mo	98	451906.5	16.5	98.5448	3.178	3.2	ug/L	158	Standard
|	Ag	107	504248.3	16.6	50.3279	1.524	3.0	ug/L	133	Standard
|	Cd	111	164395.6	18.2	51.6141	0.756	1.5	mg/L	7	Standard
|	Cd	114	434490.2	19.8	50.5147	0.503	1.0	ug/L	72	Standard
>	In	115	957847.1	19.1				ug/L	1004638	Standard
|	Sn	118	99276.8	19.7	50.3355	0.322	0.6	ug/L	364	Standard
|	Sb	123	432963.7	18.8	50.9160	0.962	1.9	ug/L	2464	Standard
|	Ba	135	176875.0	17.7	49.2877	1.111	2.3	ug/L	39	Standard
|	Ce	140	220.0	29.0				ug/L	195	Standard
>	Tb	159	1552511.0	17.7				ug/L	1640193	Standard
|	Ho	165	51.7	53.3				ug/L	25	Standard
|	Tl	203	694893.0	17.2	50.2160	0.340	0.7	ug/L	324	Standard
|	Tl	205	1618218.1	17.1	43.7141	0.241	0.6	ug/L	698	Standard
|	Pb	206	540967.9	17.7	50.1039	0.535	1.1	ug/L	600	Standard
|	Pb	207	480756.3	18.2	50.0126	0.702	1.4	ug/L	541	Standard
|	Pb	208	1590896.8	16.4	50.3595	0.552	1.1	ug/L	1750	Standard
	U	238	650583.1	11.1	51.9781	3.203	6.2	ug/L	10	Standard
>	Bi	209	766135.9	17.0				ug/L	811518	Standard

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Na	23	30.0	33.3	4.8841	1.384	28.3	mg/L	0	Standard
Mg	24	283.3	14.3	5.9137	0.066	1.1	mg/L	77	Standard
K	39	866.7	6.2	5.1523	1.069	20.8	mg/L	18	Standard
Ca	43	140.0	27.9	7.7668	12.410	159.8	mg/L	178	Standard
Fe	54	403.4	28.5	5.2206	0.812	15.5	mg/L	29	Standard
Fe	57	523.3	9.9	9.1357	4.009	43.9	mg/L	408	Standard
Sc-1	45	57555.7	14.8				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.7	29.0				ug/L	12	Standard
Br	81	1726.8	11.7				ug/L	1747	Standard
P	31	41.7	30.2				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	376.7	4.7				ug/L	370	Standard
C	12	53.3	54.1				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	35.5	32.9				mg/L	9	Standard
Ho-1	165	51.7	53.3				mg/L	25	Standard
Er	166	23.3	24.7				mg/L	20	Standard
I	127	3922.2	25.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	96.161		
Al	27	96.154		
Sc	45			
Ti	47	99.774		
V	51	101.308		
Cr	52	100.694		
Cr	53			
Mn	55	100.610		
Co	59	101.182		
Ni	60	102.110		
Cu	65	103.650		
Zn	66	103.683		
Ge	72		99.633	
As	75	100.319		
Se	82	101.544		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	98.545	
[Ag	107	100.656	
[Cd	111	103.228	
[Cd	114		
>	In	115		95.343
[Sn	118	100.671	
[	Sb	123	101.832	
[	Ba	135	98.575	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.432	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	100.719	
[	U	238	103.956	
>	Bi	209		94.408
[	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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Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 13:11:32

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	184424.8	23.1				ug/L	206101	Standard
|	Be	9	60.0	36.3	0.0095	0.005	54.4	ug/L	25	Standard
|	Al	27	9102.8	13.4	0.0586	0.005	9.0	ug/L	1120	Standard
|	Sc	45	52245.7	20.4				ug/L	61425	Standard
|	Ti	47	39.0	22.8	-0.0485	0.015	30.7	ug/L	70	Standard
|	V	51	2714.5	6.8	-0.0218	0.047	214.5	ug/L	3309	Standard
|	Cr	52	10288.5	11.8	-0.2553	0.136	53.1	ug/L	13497	Standard
|	Cr	53	1460.1	4.1	-1.1614	0.295	25.4	ug/L	3162	Standard
|	Mn	55	2344.2	16.4	0.0344	0.011	33.1	ug/L	2226	Standard
|	Co	59	576.7	13.6	-0.0095	0.007	71.9	ug/L	1003	Standard
|	Ni	60	266.3	8.1	-0.0086	0.018	207.0	ug/L	355	Standard
|	Cu	65	397.0	17.3	-0.0105	0.020	191.3	ug/L	473	Standard
|	Zn	66	307.7	19.7	-0.0052	0.019	361.6	ug/L	341	Standard
>	Ge	72	503596.1	23.2				ug/L	566981	Standard
|	As	75	-140.6	13.9	-0.0298	0.046	154.3	ug/L	-156	Standard
|	Se	82	29.1	18.5	0.0138	0.128	931.2	ug/L	35	Standard
|	Se-1	77	314.7	2.7	-0.2663	1.109	416.2	ug/L	354	Standard
>	Ga	71	31.7	18.2				mg/L	43	Standard
|	Rb	85	56.7	13.5				ug/L	48	Standard
|	Y	89	366391.6	23.3				ug/L	447702	Standard
>	Rh	103	40.0	57.3				ug/L	20	Standard
|	Mo	98	86.7	40.7	0.0119	0.008	65.8	ug/L	158	Standard
|	Ag	107	161.3	35.0	0.0040	0.002	55.6	ug/L	133	Standard
|	Cd	111	14.9	54.8	-0.0017	0.002	98.6	mg/L	7	Standard
|	Cd	114	52.7	72.6	0.0033	0.003	102.3	ug/L	72	Standard
>	In	115	845313.1	22.7				ug/L	1004638	Standard
|	Sn	118	146.3	14.7	0.0055	0.011	205.3	ug/L	364	Standard
|	Sb	123	876.9	56.1	0.0677	0.097	143.1	ug/L	2464	Standard
|	Ba	135	38.3	51.3	0.0022	0.003	158.8	ug/L	39	Standard
|	Ce	140	33.3	31.2				ug/L	195	Standard
>	Tb	159	1390776.3	20.6				ug/L	1640193	Standard
|	Ho	165	18.3	31.5				ug/L	25	Standard
|	Tl	203	60.3	75.9	-0.0081	0.003	33.2	ug/L	324	Standard
|	Tl	205	110.0	39.4	-0.0012	0.001	54.6	ug/L	698	Standard
|	Pb	206	536.7	25.7	0.0033	0.003	79.8	ug/L	600	Standard
|	Pb	207	427.3	34.8	-0.0019	0.006	338.1	ug/L	541	Standard
|	Pb	208	1507.7	21.9	0.0029	0.000	8.6	ug/L	1750	Standard
	U	238	19.0	86.6	0.0036	0.001	28.5	ug/L	10	Standard
>	Bi	209	696027.1	21.4				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	41.7	6.9	0.2665	0.162	60.9	mg/L	77	Standard
K	39	18.3	63.0	0.0202	0.093	459.5	mg/L	18	Standard
Ca	43	120.0	25.3	8.5159	14.040	164.9	mg/L	178	Standard
Fe	54	30.9	38.5	0.0332	0.094	283.0	mg/L	29	Standard
Fe	57	433.3	13.8	7.7396	6.341	81.9	mg/L	408	Standard
Sc-1	45	52245.7	20.4				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	5.3	60.3				ug/L	12	Standard
Br	81	1413.4	14.7				ug/L	1747	Standard
P	31	40.0	12.5				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	390.0	1.3				ug/L	370	Standard
C	12	40.0	50.0				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	15.2	70.4				mg/L	9	Standard
Ho-1	165	18.3	31.5				mg/L	25	Standard
Er	166	30.0	66.7				mg/L	20	Standard
I	127	14879.1	13.6				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		88.821	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	84.141
[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	85.769
[	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

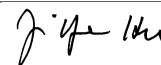
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: L1611027203

Sample Date/Time: Friday, November 11, 2016 13:14:39

Number of Replicates: 3

Autosampler Position: 311

Sample Description: 1

Method File: C:\NexlONData\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	202976.8	20.7				ug/L	206101	Standard
|	Be	9	65.0	27.7	0.0094	0.006	66.6	ug/L	25	Standard
|	Al	27	87681565.2	15.8	459.2055	22.092	4.8	ug/L	1120	Standard
|	Sc	45	59028.4	15.9				ug/L	61425	Standard
|	Ti	47	3430.1	10.2	7.8648	1.401	17.8	ug/L	70	Standard
|	V	51	10962.5	14.4	0.7637	0.063	8.3	ug/L	3309	Standard
|	Cr	52	42467.7	15.8	3.1278	0.189	6.1	ug/L	13497	Standard
|	Cr	53	6022.9	4.7	2.7218	0.847	31.1	ug/L	3162	Standard
|	Mn	55	2693765.2	29.7	176.9814	23.873	13.5	ug/L	2226	Standard
|	Co	59	5592.4	19.7	0.4100	0.010	2.4	ug/L	1003	Standard
|	Ni	60	17994.4	22.4	6.9529	0.182	2.6	ug/L	355	Standard
|	Cu	65	6504.4	20.4	2.6282	0.029	1.1	ug/L	473	Standard
|	Zn	66	79264.2	18.0	67.0733	1.342	2.0	ug/L	341	Standard
>	Ge	72	546532.8	19.9				ug/L	566981	Standard
|	As	75	537.8	22.9	0.5523	0.016	2.8	ug/L	-156	Standard
|	Se	82	82.5	17.2	0.5157	0.037	7.2	ug/L	35	Standard
|	Se-1	77	406.7	4.9	0.5265	0.979	186.0	ug/L	354	Standard
>	Ga	71	615.0	25.7				mg/L	43	Standard
|	Rb	85	24525.2	16.9				ug/L	48	Standard
|	Y	89	406023.4	18.7				ug/L	447702	Standard
>	Rh	103	243.3	22.2				ug/L	20	Standard
|	Mo	98	1347.4	15.4	0.2966	0.014	4.8	ug/L	158	Standard
|	Ag	107	236.3	11.4	0.0108	0.002	19.4	ug/L	133	Standard
|	Cd	111	349.9	15.8	0.1080	0.007	6.3	mg/L	7	Standard
|	Cd	114	1042.9	29.8	0.1215	0.012	9.7	ug/L	72	Standard
>	In	115	921473.6	20.1				ug/L	1004638	Standard
|	Sn	118	1197.7	18.1	0.5543	0.013	2.3	ug/L	364	Standard
|	Sb	123	3681.3	19.5	0.4110	0.171	41.5	ug/L	2464	Standard
|	Ba	135	442669.9	17.9	128.3563	3.214	2.5	ug/L	39	Standard
|	Ce	140	22153.2	18.2				ug/L	195	Standard
>	Tb	159	1526734.7	18.5				ug/L	1640193	Standard
|	Ho	165	496.7	25.0				ug/L	25	Standard
|	Tl	203	2922.6	18.9	0.2155	0.004	1.7	ug/L	324	Standard
|	Tl	205	6761.5	19.6	0.1928	0.005	2.5	ug/L	698	Standard
|	Pb	206	207278.8	17.1	20.7601	0.121	0.6	ug/L	600	Standard
|	Pb	207	165934.4	17.4	18.6669	0.223	1.2	ug/L	541	Standard
|	Pb	208	582683.4	17.1	19.9144	0.169	0.8	ug/L	1750	Standard
	U	238	1442.7	11.4	0.1268	0.009	7.5	ug/L	10	Standard
>	Bi	209	708247.6	17.4				ug/L	811518	Standard

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Na	23	285.0	24.4	45.2735	5.415	12.0	mg/L	0	Standard
Mg	24	995.0	9.5	22.4615	1.562	7.0	mg/L	77	Standard
K	39	1615.1	7.1	9.3938	1.338	14.2	mg/L	18	Standard
Ca	43	311.7	17.7	-33.8054	24.886	73.6	mg/L	178	Standard
Fe	54	220.6	26.4	2.5943	0.515	19.8	mg/L	29	Standard
Fe	57	808.4	3.8	20.4333	4.535	22.2	mg/L	408	Standard
Sc-1	45	59028.4	15.9				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.7	17.3				ug/L	12	Standard
Br	81	9172.8	6.2				ug/L	1747	Standard
P	31	36.7	28.4				ug/L	17	Standard
S	34	8.3	91.7				ug/L	3	Standard
Sr	88	425.0	7.3				ug/L	370	Standard
C	12	160.0	43.8				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	33.3	91.7				mg/L	17	Standard
Dy	164	718.0	9.8				mg/L	9	Standard
Ho-1	165	496.7	25.0				mg/L	25	Standard
Er	166	530.0	31.2				mg/L	20	Standard
I	127	215602.8	5.5				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.484	
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		96.393	
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	91.722
[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	87.274
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1611027204

Sample Date/Time: Friday, November 11, 2016 13:17:45

Number of Replicates: 3

Autosampler Position: 312

Sample Description: 1

Method File: C:\NexlONData\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	210050.1	18.0				ug/L	206101	Standard
|	Be	9	36.7	75.1	-0.0045	0.009	197.1	ug/L	25	Standard
|	Al	27	89424521.0	13.1	452.0831	21.067	4.7	ug/L	1120	Standard
|	Sc	45	58187.7	12.7				ug/L	61425	Standard
|	Ti	47	543.7	10.9	1.1137	0.205	18.5	ug/L	70	Standard
|	V	51	5732.1	14.7	0.2441	0.032	12.9	ug/L	3309	Standard
|	Cr	52	24179.2	14.0	1.1320	0.103	9.1	ug/L	13497	Standard
|	Cr	53	3772.1	8.5	0.7013	0.295	42.1	ug/L	3162	Standard
|	Mn	55	2225959.0	32.7	145.1937	20.608	14.2	ug/L	2226	Standard
|	Co	59	2764.3	19.0	0.1696	0.003	1.5	ug/L	1003	Standard
|	Ni	60	6123.3	27.6	2.2566	0.230	10.2	ug/L	355	Standard
|	Cu	65	1659.4	18.4	0.5191	0.008	1.5	ug/L	473	Standard
|	Zn	66	5048.9	16.0	3.9853	0.093	2.3	ug/L	341	Standard
>	Ge	72	548317.2	17.9				ug/L	566981	Standard
|	As	75	46.8	159.5	0.1432	0.065	45.5	ug/L	-156	Standard
|	Se	82	70.6	26.0	0.3828	0.080	20.8	ug/L	35	Standard
|	Se-1	77	407.3	5.7	0.5289	1.189	224.7	ug/L	354	Standard
>	Ga	71	108.3	17.5				mg/L	43	Standard
|	Rb	85	20731.2	18.9				ug/L	48	Standard
|	Y	89	400279.0	16.8				ug/L	447702	Standard
>	Rh	103	241.7	14.7				ug/L	20	Standard
|	Mo	98	422.7	13.2	0.0880	0.005	6.1	ug/L	158	Standard
|	Ag	107	175.3	8.0	0.0048	0.002	39.2	ug/L	133	Standard
|	Cd	111	31.8	24.2	0.0038	0.002	41.4	mg/L	7	Standard
|	Cd	114	113.7	32.7	0.0106	0.002	18.9	ug/L	72	Standard
>	In	115	907409.7	18.3				ug/L	1004638	Standard
|	Sn	118	296.3	8.8	0.0807	0.015	18.6	ug/L	364	Standard
|	Sb	123	1537.0	30.4	0.1399	0.092	65.7	ug/L	2464	Standard
|	Ba	135	421117.3	15.4	124.0572	3.855	3.1	ug/L	39	Standard
|	Ce	140	1085.0	9.7				ug/L	195	Standard
>	Tb	159	1486370.3	16.8				ug/L	1640193	Standard
|	Ho	165	45.0	57.7				ug/L	25	Standard
|	Tl	203	2168.8	10.3	0.1559	0.011	6.8	ug/L	324	Standard
|	Tl	205	5197.6	13.4	0.1462	0.005	3.5	ug/L	698	Standard
|	Pb	206	7546.6	15.8	0.6975	0.008	1.1	ug/L	600	Standard
|	Pb	207	6145.6	15.9	0.6349	0.006	0.9	ug/L	541	Standard
|	Pb	208	21413.6	14.7	0.6761	0.014	2.1	ug/L	1750	Standard
	U	238	1177.4	10.2	0.1025	0.006	6.1	ug/L	10	Standard
>	Bi	209	717292.6	16.7				ug/L	811518	Standard

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Na	23	286.7	13.1	46.4385	1.798	3.9	mg/L	0	Standard
Mg	24	971.7	6.7	22.2706	2.647	11.9	mg/L	77	Standard
K	39	1506.7	8.7	8.7964	0.581	6.6	mg/L	18	Standard
Ca	43	240.0	34.8	-17.1151	24.791	144.8	mg/L	178	Standard
Fe	54	177.4	19.8	2.0608	0.437	21.2	mg/L	29	Standard
Fe	57	763.4	13.0	18.6022	2.513	13.5	mg/L	408	Standard
Sc-1	45	58187.7	12.7				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.0					ug/L	12	Standard
Br	81	7431.8	10.9				ug/L	1747	Standard
P	31	21.7	35.3				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	428.3	7.6				ug/L	370	Standard
C	12	130.0	7.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	43.3				mg/L	17	Standard
Dy	164	56.6	61.2				mg/L	9	Standard
Ho-1	165	45.0	57.7				mg/L	25	Standard
Er	166	70.0	14.3				mg/L	20	Standard
I	127	224468.1	2.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.916	
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		96.708	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611027204

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	90.322
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
[Tl	205	
[Pb	206	
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[Pb	208	
[U	238	
>	Bi	209	88.389
[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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1611027204

Report Date/Time: Friday, November 11, 2016 13:19:56

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Method 6020 - Summary Report

Sample ID: L1611027205

Sample Date/Time: Friday, November 11, 2016 13:20:50

Number of Replicates: 3

Autosampler Position: 313

Sample Description: 1

Method File: C:\NexlONData\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	207090.8	18.5				ug/L	206101	Standard
|	Be	9	36.7	41.7	-0.0024	0.008	334.3	ug/L	25	Standard
|	Al	27	91307498.9	13.9	468.2413	21.938	4.7	ug/L	1120	Standard
|	Sc	45	58514.0	13.0				ug/L	61425	Standard
|	Ti	47	542.7	20.8	1.0926	0.083	7.6	ug/L	70	Standard
|	V	51	5852.2	15.9	0.2564	0.019	7.5	ug/L	3309	Standard
|	Cr	52	23236.3	13.2	1.0386	0.087	8.4	ug/L	13497	Standard
|	Cr	53	3770.5	8.2	0.7089	0.283	39.9	ug/L	3162	Standard
|	Mn	55	2243122.2	32.9	146.9006	23.645	16.1	ug/L	2226	Standard
|	Co	59	2626.2	18.7	0.1586	0.005	2.8	ug/L	1003	Standard
|	Ni	60	6093.3	25.7	2.2580	0.213	9.4	ug/L	355	Standard
|	Cu	65	1431.7	21.2	0.4203	0.035	8.4	ug/L	473	Standard
|	Zn	66	4008.2	15.0	3.1172	0.058	1.9	ug/L	341	Standard
>	Ge	72	546068.8	16.7				ug/L	566981	Standard
|	As	75	92.4	36.2	0.1843	0.033	18.2	ug/L	-156	Standard
|	Se	82	76.0	9.9	0.4699	0.206	43.9	ug/L	35	Standard
|	Se-1	77	413.7	6.6	0.5560	0.599	107.7	ug/L	354	Standard
>	Ga	71	96.7	21.5				mg/L	43	Standard
|	Rb	85	21247.0	20.9				ug/L	48	Standard
|	Y	89	406736.2	16.4				ug/L	447702	Standard
>	Rh	103	238.3	26.2				ug/L	20	Standard
|	Mo	98	455.5	16.7	0.0961	0.006	6.2	ug/L	158	Standard
|	Ag	107	165.7	13.0	0.0038	0.001	23.2	ug/L	133	Standard
|	Cd	111	20.4	39.0	0.0001	0.002	3170.4	mg/L	7	Standard
|	Cd	114	76.8	59.3	0.0059	0.004	65.0	ug/L	72	Standard
>	In	115	898677.4	17.6				ug/L	1004638	Standard
|	Sn	118	242.0	14.6	0.0515	0.007	14.3	ug/L	364	Standard
|	Sb	123	971.9	26.5	0.0658	0.052	78.5	ug/L	2464	Standard
|	Ba	135	440183.9	17.2	130.5223	1.178	0.9	ug/L	39	Standard
|	Ce	140	1068.4	14.8				ug/L	195	Standard
>	Tb	159	1478502.0	14.6				ug/L	1640193	Standard
|	Ho	165	50.0	40.0				ug/L	25	Standard
|	Tl	203	1981.5	11.5	0.1441	0.006	4.2	ug/L	324	Standard
|	Tl	205	4649.1	12.3	0.1331	0.007	5.3	ug/L	698	Standard
|	Pb	206	6808.2	16.6	0.6366	0.009	1.3	ug/L	600	Standard
|	Pb	207	5447.0	15.1	0.5693	0.004	0.8	ug/L	541	Standard
|	Pb	208	19326.9	15.7	0.6173	0.005	0.8	ug/L	1750	Standard
	U	238	1178.7	11.2	0.1044	0.005	4.5	ug/L	10	Standard
>	Bi	209	702712.4	15.3				ug/L	811518	Standard

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Na	23	310.0	21.7	49.7924	8.193	16.5	mg/L	0	Standard
Mg	24	1083.4	15.7	24.7566	4.403	17.8	mg/L	77	Standard
K	39	1598.4	20.1	9.2311	1.398	15.1	mg/L	18	Standard
Ca	43	296.7	4.2	-29.1027	6.410	22.0	mg/L	178	Standard
Fe	54	175.6	18.3	2.0102	0.257	12.8	mg/L	29	Standard
Fe	57	810.0	0.0	20.6984	4.429	21.4	mg/L	408	Standard
Sc-1	45	58514.0	13.0				mg/L	61425	Standard
Cl	35	2.7	114.6				ug/L	1	Standard
Kr	83	8.0	45.1				ug/L	12	Standard
Br	81	9176.1	5.5				ug/L	1747	Standard
P	31	21.7	35.3				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	416.7	17.2				ug/L	370	Standard
C	12	93.3	30.9				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	26.7	94.4				mg/L	17	Standard
Dy	164	39.2	90.5				mg/L	9	Standard
Ho-1	165	50.0	40.0				mg/L	25	Standard
Er	166	86.7	24.0				mg/L	20	Standard
I	127	218046.8	6.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.480	
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		96.312	
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	89.453
[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	86.592
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1611027205

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Method 6020 - Summary Report

Sample ID: L1611027206

Sample Date/Time: Friday, November 11, 2016 13:23:56

Number of Replicates: 3

Autosampler Position: 314

Sample Description: 1

Method File: C:\NexlONData\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	205239.9	20.8				ug/L	206101	Standard
|	Be	9	476.7	26.8	0.1843	0.015	8.2	ug/L	25	Standard
|	Al	27	46238384.5	14.1	240.0550	15.559	6.5	ug/L	1120	Standard
|	Sc	45	63437.6	14.1				ug/L	61425	Standard
|	Ti	47	27344.4	16.6	62.1504	1.394	2.2	ug/L	70	Standard
|	V	51	92667.7	16.8	8.7016	0.170	1.9	ug/L	3309	Standard
|	Cr	52	70095.1	16.8	6.0424	0.150	2.5	ug/L	13497	Standard
|	Cr	53	9683.1	13.3	5.7491	0.429	7.5	ug/L	3162	Standard
|	Mn	55	4375427.0	17.7	289.2289	5.649	2.0	ug/L	2226	Standard
|	Co	59	34734.6	17.7	2.8563	0.023	0.8	ug/L	1003	Standard
|	Ni	60	28735.6	20.0	11.1050	0.250	2.2	ug/L	355	Standard
|	Cu	65	28134.3	18.0	11.9521	0.072	0.6	ug/L	473	Standard
|	Zn	66	76252.3	17.4	63.9278	0.770	1.2	ug/L	341	Standard
[>	Ge	72	550870.7	18.5				ug/L	566981	Standard
|	As	75	7042.8	17.1	5.9601	0.084	1.4	ug/L	-156	Standard
|	Se	82	106.4	16.0	0.7499	0.039	5.3	ug/L	35	Standard
|	Se-1	77	448.0	7.1	0.9644	0.662	68.7	ug/L	354	Standard
[>	Ga	71	5939.5	17.5				mg/L	43	Standard
|	Rb	85	100140.0	19.7				ug/L	48	Standard
|	Y	89	478277.7	17.6				ug/L	447702	Standard
[>	Rh	103	165.0	34.4				ug/L	20	Standard
|	Mo	98	18795.0	16.6	4.2149	0.057	1.3	ug/L	158	Standard
|	Ag	107	494.7	14.8	0.0371	0.002	5.2	ug/L	133	Standard
|	Cd	111	564.4	18.4	0.1764	0.014	7.7	mg/L	7	Standard
|	Cd	114	1606.9	17.2	0.1904	0.011	5.8	ug/L	72	Standard
[>	In	115	927285.4	17.8				ug/L	1004638	Standard
|	Sn	118	616.0	20.8	0.2425	0.016	6.4	ug/L	364	Standard
|	Sb	123	3694.7	10.1	0.3912	0.037	9.6	ug/L	2464	Standard
|	Ba	135	890177.8	16.3	256.1784	4.040	1.6	ug/L	39	Standard
|	Ce	140	332508.1	17.1				ug/L	195	Standard
[>	Tb	159	1507280.9	15.0				ug/L	1640193	Standard
|	Ho	165	7428.5	18.6				ug/L	25	Standard
|	Tl	203	4966.8	12.3	0.3680	0.010	2.6	ug/L	324	Standard
|	Tl	205	11816.3	15.5	0.3330	0.003	0.9	ug/L	698	Standard
|	Pb	206	162990.2	14.8	15.9406	0.006	0.0	ug/L	600	Standard
|	Pb	207	130619.5	16.3	14.3294	0.219	1.5	ug/L	541	Standard
|	Pb	208	454014.9	15.7	15.1374	0.146	1.0	ug/L	1750	Standard
	U	238	8051.8	9.0	0.6814	0.040	5.8	ug/L	10	Standard
[>	Bi	209	724473.0	14.8				ug/L	811518	Standard

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Na	23	385.0	6.0	58.0466	9.427	16.2	mg/L	0	Standard
Mg	24	561.7	15.2	11.2971	0.165	1.5	mg/L	77	Standard
K	39	1100.0	7.3	5.8676	0.415	7.1	mg/L	18	Standard
Ca	43	306.7	10.9	-26.1494	11.733	44.9	mg/L	178	Standard
Fe	54	835.7	14.1	10.3528	0.131	1.3	mg/L	29	Standard
Fe	57	911.7	9.2	21.8015	2.822	12.9	mg/L	408	Standard
Sc-1	45	63437.6	14.1				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	14.0	14.3				ug/L	12	Standard
Br	81	11264.2	7.4				ug/L	1747	Standard
P	31	38.3	19.9				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	403.3	9.6				ug/L	370	Standard
C	12	136.7	36.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	50.0	52.9				mg/L	17	Standard
Dy	164	11384.2	13.9				mg/L	9	Standard
Ho-1	165	7428.5	18.6				mg/L	25	Standard
Er	166	6618.2	23.1				mg/L	20	Standard
I	127	250706.4	4.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.582	
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		97.158	
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	92.300
[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	89.274
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1611027206

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Method 6020 - Summary Report

Sample ID: L1611027207

Sample Date/Time: Friday, November 11, 2016 13:27:01

Number of Replicates: 3

Autosampler Position: 315

Sample Description: 1

Method File: C:\NexlONData\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	206485.4	21.2				ug/L	206101	Standard
|	Be	9	283.3	24.5	0.1040	0.028	26.8	ug/L	25	Standard
|	Al	27	41609743.0	17.0	214.2757	11.217	5.2	ug/L	1120	Standard
|	Sc	45	61963.3	14.8				ug/L	61425	Standard
|	Ti	47	15494.4	16.1	34.6817	1.535	4.4	ug/L	70	Standard
|	V	51	55399.2	17.3	4.9949	0.144	2.9	ug/L	3309	Standard
|	Cr	52	47645.1	16.5	3.5625	0.186	5.2	ug/L	13497	Standard
|	Cr	53	6381.4	14.0	2.8328	0.307	10.8	ug/L	3162	Standard
|	Mn	55	3692530.5	17.5	240.6569	6.086	2.5	ug/L	2226	Standard
|	Co	59	21992.3	18.4	1.7574	0.034	2.0	ug/L	1003	Standard
|	Ni	60	18429.3	22.9	6.9469	0.270	3.9	ug/L	355	Standard
|	Cu	65	15662.3	19.7	6.4533	0.057	0.9	ug/L	473	Standard
|	Zn	66	50987.6	18.7	41.9718	0.524	1.2	ug/L	341	Standard
>	Ge	72	559625.8	19.6				ug/L	566981	Standard
|	As	75	4693.8	20.9	3.9342	0.076	1.9	ug/L	-156	Standard
|	Se	82	129.1	19.2	0.9584	0.109	11.4	ug/L	35	Standard
|	Se-1	77	404.0	2.4	0.3601	0.907	251.9	ug/L	354	Standard
>	Ga	71	3275.4	23.0				mg/L	43	Standard
|	Rb	85	62277.8	20.1				ug/L	48	Standard
|	Y	89	450134.0	16.9				ug/L	447702	Standard
>	Rh	103	138.3	8.3				ug/L	20	Standard
|	Mo	98	14090.7	17.0	3.1401	0.095	3.0	ug/L	158	Standard
|	Ag	107	338.0	11.6	0.0210	0.003	14.1	ug/L	133	Standard
|	Cd	111	332.8	24.2	0.0996	0.008	8.1	mg/L	7	Standard
|	Cd	114	871.7	24.4	0.1003	0.006	5.9	ug/L	72	Standard
>	In	115	934600.7	19.9				ug/L	1004638	Standard
|	Sn	118	496.3	17.9	0.1794	0.013	7.3	ug/L	364	Standard
|	Sb	123	2586.1	8.3	0.2546	0.037	14.4	ug/L	2464	Standard
|	Ba	135	785451.3	17.0	224.7441	6.581	2.9	ug/L	39	Standard
|	Ce	140	176268.5	16.1				ug/L	195	Standard
>	Tb	159	1501547.8	17.0				ug/L	1640193	Standard
|	Ho	165	4007.2	14.9				ug/L	25	Standard
|	Tl	203	3374.7	16.0	0.2419	0.004	1.8	ug/L	324	Standard
|	Tl	205	8048.8	15.2	0.2227	0.008	3.7	ug/L	698	Standard
|	Pb	206	88687.0	16.8	8.5251	0.101	1.2	ug/L	600	Standard
|	Pb	207	70386.5	17.8	7.5904	0.035	0.5	ug/L	541	Standard
|	Pb	208	247187.8	16.5	8.1108	0.094	1.2	ug/L	1750	Standard
	U	238	5197.6	12.2	0.4342	0.023	5.2	ug/L	10	Standard
>	Bi	209	735571.4	17.5				ug/L	811518	Standard

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Na	23	358.3	25.0	53.9709	6.880	12.7	mg/L	0	Standard
Mg	24	578.3	12.4	12.0004	0.535	4.5	mg/L	77	Standard
K	39	1021.7	10.3	5.5776	0.575	10.3	mg/L	18	Standard
Ca	43	308.3	9.9	-27.5781	3.854	14.0	mg/L	178	Standard
Fe	54	597.3	17.0	7.4513	0.473	6.4	mg/L	29	Standard
Fe	57	918.4	5.5	23.1187	4.665	20.2	mg/L	408	Standard
Sc-1	45	61963.3	14.8				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.7	17.6				ug/L	12	Standard
Br	81	12481.8	4.1				ug/L	1747	Standard
P	31	45.0	11.1				ug/L	17	Standard
S	34	8.3	34.6				ug/L	3	Standard
Sr	88	395.0	3.3				ug/L	370	Standard
C	12	120.0	58.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	50.0	20.0				mg/L	17	Standard
Dy	164	6000.5	16.8				mg/L	9	Standard
Ho-1	165	4007.2	14.9				mg/L	25	Standard
Er	166	3633.8	10.7				mg/L	20	Standard
I	127	234660.8	8.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.186	
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		98.703	
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	93.029
[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	90.641
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1611027207

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Method 6020 - Summary Report

Sample ID: L1611027208

Sample Date/Time: Friday, November 11, 2016 13:30:07

Number of Replicates: 3

Autosampler Position: 316

Sample Description: 1

Method File: C:\NexlONData\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	199967.0	19.0				ug/L	206101	Standard
|	Be	9	170.0	19.3	0.0568	0.013	23.4	ug/L	25	Standard
|	Al	27	29526898.2	14.4	156.8174	7.177	4.6	ug/L	1120	Standard
|	Sc	45	59078.1	14.1				ug/L	61425	Standard
|	Ti	47	6848.6	17.8	15.2698	0.381	2.5	ug/L	70	Standard
|	V	51	28773.0	16.6	2.4538	0.055	2.3	ug/L	3309	Standard
|	Cr	52	37963.4	17.2	2.5485	0.061	2.4	ug/L	13497	Standard
|	Cr	53	5234.3	15.5	1.8697	0.234	12.5	ug/L	3162	Standard
|	Mn	55	2563977.9	28.9	165.5247	24.291	14.7	ug/L	2226	Standard
|	Co	59	13104.8	18.0	1.0263	0.006	0.6	ug/L	1003	Standard
|	Ni	60	15837.5	22.1	5.9846	0.279	4.7	ug/L	355	Standard
|	Cu	65	9376.7	20.8	3.7945	0.108	2.9	ug/L	473	Standard
|	Zn	66	61737.0	18.3	51.1063	0.832	1.6	ug/L	341	Standard
>	Ge	72	556342.8	18.0				ug/L	566981	Standard
|	As	75	1819.5	24.7	1.5915	0.136	8.6	ug/L	-156	Standard
|	Se	82	140.3	16.7	1.0771	0.069	6.4	ug/L	35	Standard
|	Se-1	77	402.0	5.7	0.3459	0.846	244.6	ug/L	354	Standard
>	Ga	71	1578.4	17.5				mg/L	43	Standard
|	Rb	85	42398.0	22.9				ug/L	48	Standard
|	Y	89	426249.7	18.2				ug/L	447702	Standard
>	Rh	103	110.0	19.8				ug/L	20	Standard
|	Mo	98	6437.1	20.3	1.4365	0.034	2.4	ug/L	158	Standard
|	Ag	107	236.7	14.4	0.0107	0.002	18.6	ug/L	133	Standard
|	Cd	111	416.0	17.3	0.1287	0.007	5.6	mg/L	7	Standard
|	Cd	114	1091.5	22.8	0.1279	0.007	5.6	ug/L	72	Standard
>	In	115	923881.3	18.0				ug/L	1004638	Standard
|	Sn	118	628.7	20.3	0.2502	0.008	3.2	ug/L	364	Standard
|	Sb	123	1543.0	7.7	0.1284	0.019	15.0	ug/L	2464	Standard
|	Ba	135	202610.8	18.4	58.3879	0.286	0.5	ug/L	39	Standard
|	Ce	140	76149.8	17.6				ug/L	195	Standard
>	Tb	159	1491215.4	16.2				ug/L	1640193	Standard
|	Ho	165	1586.8	15.5				ug/L	25	Standard
|	Tl	203	2139.8	11.6	0.1500	0.008	5.6	ug/L	324	Standard
|	Tl	205	4965.8	13.0	0.1366	0.005	3.9	ug/L	698	Standard
|	Pb	206	58833.4	17.8	5.6522	0.057	1.0	ug/L	600	Standard
|	Pb	207	47411.0	18.3	5.1115	0.075	1.5	ug/L	541	Standard
|	Pb	208	164215.7	16.9	5.3878	0.008	0.1	ug/L	1750	Standard
	U	238	4208.3	11.5	0.3533	0.018	5.2	ug/L	10	Standard
>	Bi	209	732491.3	16.8				ug/L	811518	Standard

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Na	23	216.7	29.0	34.4875	9.062	26.3	mg/L	0	Standard
Mg	24	488.3	6.0	10.6571	1.864	17.5	mg/L	77	Standard
K	39	1301.7	24.8	7.3635	0.962	13.1	mg/L	18	Standard
Ca	43	271.7	15.0	-22.8402	14.528	63.6	mg/L	178	Standard
Fe	54	1017.4	34.2	13.4314	3.418	25.4	mg/L	29	Standard
Fe	57	835.0	8.5	21.4189	5.020	23.4	mg/L	408	Standard
Sc-1	45	59078.1	14.1				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	8.0	21.7				ug/L	12	Standard
Br	81	18631.5	6.5				ug/L	1747	Standard
P	31	15.0	57.7				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	435.0	2.3				ug/L	370	Standard
C	12	126.7	32.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	26.7	43.3				mg/L	17	Standard
Dy	164	2407.7	20.2				mg/L	9	Standard
Ho-1	165	1586.8	15.5				mg/L	25	Standard
Er	166	1443.4	11.3				mg/L	20	Standard
I	127	114317.0	11.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		97.024	
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		98.124	
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	91.962
[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	90.262
[	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

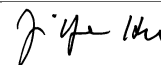
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1611027209

Sample Date/Time: Friday, November 11, 2016 13:33:11

Number of Replicates: 3

Autosampler Position: 317

Sample Description: 1

Method File: C:\NexlONData\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	209154.9	20.5				ug/L	206101	Standard
|	Be	9	31.7	39.7	-0.0057	0.004	67.9	ug/L	25	Standard
|	Al	27	27336355.2	14.0	139.1999	8.699	6.2	ug/L	1120	Standard
|	Sc	45	59151.6	13.4				ug/L	61425	Standard
|	Ti	47	808.4	28.0	1.6095	0.159	9.9	ug/L	70	Standard
|	V	51	5625.9	12.9	0.2142	0.034	15.7	ug/L	3309	Standard
|	Cr	52	21147.6	14.7	0.7173	0.099	13.8	ug/L	13497	Standard
|	Cr	53	2937.0	9.9	-0.1134	0.312	275.4	ug/L	3162	Standard
|	Mn	55	1918686.2	32.8	120.3309	16.444	13.7	ug/L	2226	Standard
|	Co	59	5234.6	19.6	0.3607	0.003	0.8	ug/L	1003	Standard
|	Ni	60	9053.1	22.0	3.2842	0.128	3.9	ug/L	355	Standard
|	Cu	65	1706.1	22.5	0.5078	0.028	5.4	ug/L	473	Standard
|	Zn	66	8477.8	17.5	6.6074	0.108	1.6	ug/L	341	Standard
[>	Ge	72	570623.0	19.1				ug/L	566981	Standard
|	As	75	655.7	19.0	0.6296	0.014	2.3	ug/L	-156	Standard
|	Se	82	105.1	14.1	0.7056	0.107	15.2	ug/L	35	Standard
|	Se-1	77	379.0	5.8	-0.0813	0.632	777.5	ug/L	354	Standard
[>	Ga	71	185.0	30.5				mg/L	43	Standard
|	Rb	85	21619.2	21.1				ug/L	48	Standard
|	Y	89	427339.9	20.1				ug/L	447702	Standard
[>	Rh	103	128.3	2.2				ug/L	20	Standard
|	Mo	98	4561.8	17.6	0.9888	0.025	2.6	ug/L	158	Standard
|	Ag	107	154.3	3.3	0.0019	0.003	146.7	ug/L	133	Standard
|	Cd	111	64.4	19.8	0.0136	0.002	12.2	mg/L	7	Standard
|	Cd	114	182.8	25.4	0.0180	0.001	7.1	ug/L	72	Standard
[>	In	115	953129.1	19.4				ug/L	1004638	Standard
|	Sn	118	267.0	17.2	0.0568	0.006	11.3	ug/L	364	Standard
|	Sb	123	819.6	2.0	0.0372	0.018	49.2	ug/L	2464	Standard
|	Ba	135	183389.8	17.5	51.3817	1.100	2.1	ug/L	39	Standard
|	Ce	140	6479.7	18.3				ug/L	195	Standard
[>	Tb	159	1506097.4	16.0				ug/L	1640193	Standard
|	Ho	165	145.0	36.5				ug/L	25	Standard
|	Tl	203	1780.8	10.4	0.1193	0.009	7.4	ug/L	324	Standard
|	Tl	205	4108.9	11.6	0.1093	0.006	5.6	ug/L	698	Standard
|	Pb	206	6161.3	19.4	0.5288	0.015	2.8	ug/L	600	Standard
|	Pb	207	4982.5	15.1	0.4796	0.010	2.1	ug/L	541	Standard
|	Pb	208	17266.2	16.3	0.5070	0.004	0.9	ug/L	1750	Standard
	U	238	2532.5	8.0	0.2085	0.018	8.9	ug/L	10	Standard
[>	Bi	209	753009.5	17.0				ug/L	811518	Standard

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Na	23	261.7	20.6	41.4673	4.654	11.2	mg/L	0	Standard
Mg	24	530.0	2.5	11.6272	1.963	16.9	mg/L	77	Standard
K	39	1081.7	7.1	6.2023	0.663	10.7	mg/L	18	Standard
Ca	43	228.3	17.7	-12.1831	11.610	95.3	mg/L	178	Standard
Fe	54	840.9	21.5	11.1349	1.398	12.6	mg/L	29	Standard
Fe	57	873.4	2.6	22.8895	3.871	16.9	mg/L	408	Standard
Sc-1	45	59151.6	13.4				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	7.3	47.9				ug/L	12	Standard
Br	81	13896.4	6.5				ug/L	1747	Standard
P	31	26.7	10.8				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	348.3	3.0				ug/L	370	Standard
C	12	96.7	67.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	217.6	42.2				mg/L	9	Standard
Ho-1	165	145.0	36.5				mg/L	25	Standard
Er	166	190.0	27.9				mg/L	20	Standard
I	127	112713.8	9.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.482	
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		100.642	
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	94.873
[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	92.790
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611027209

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Method 6020 - Summary Report

Sample ID: L1611027213

Sample Date/Time: Friday, November 11, 2016 13:36:16

Number of Replicates: 3

Autosampler Position: 318

Sample Description: 1

Method File: C:\NexlONData\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	208756.4	19.2				ug/L	206101	Standard
|	Be	9	181.7	17.7	0.0582	0.007	12.8	ug/L	25	Standard
|	Al	27	195873747.9	13.8	997.5369	52.933	5.3	ug/L	1120	Standard
|	Sc	45	61634.9	13.1				ug/L	61425	Standard
|	Ti	47	10590.8	15.2	24.3264	0.650	2.7	ug/L	70	Standard
|	V	51	40299.4	15.5	3.6600	0.109	3.0	ug/L	3309	Standard
|	Cr	52	52889.5	15.1	4.2785	0.189	4.4	ug/L	13497	Standard
|	Cr	53	7336.8	12.4	3.8188	0.363	9.5	ug/L	3162	Standard
|	Mn	55	6678443.8	16.3	447.8412	9.700	2.2	ug/L	2226	Standard
|	Co	59	18976.8	19.2	1.5491	0.034	2.2	ug/L	1003	Standard
|	Ni	60	20093.8	24.0	7.7910	0.512	6.6	ug/L	355	Standard
|	Cu	65	16043.7	19.5	6.8049	0.107	1.6	ug/L	473	Standard
|	Zn	66	39041.2	16.9	33.0277	0.359	1.1	ug/L	341	Standard
>	Ge	72	543600.3	18.0				ug/L	566981	Standard
|	As	75	5513.3	18.0	4.7411	0.069	1.5	ug/L	-156	Standard
|	Se	82	124.5	27.0	0.9331	0.121	13.0	ug/L	35	Standard
|	Se-1	77	453.0	4.2	1.1293	0.921	81.6	ug/L	354	Standard
>	Ga	71	1790.1	13.0				mg/L	43	Standard
|	Rb	85	44976.6	18.9				ug/L	48	Standard
|	Y	89	447367.5	17.0				ug/L	447702	Standard
>	Rh	103	350.0	30.7				ug/L	20	Standard
|	Mo	98	14034.6	16.4	3.1848	0.048	1.5	ug/L	158	Standard
|	Ag	107	285.0	9.9	0.0161	0.002	14.4	ug/L	133	Standard
|	Cd	111	330.9	9.0	0.1029	0.009	9.1	mg/L	7	Standard
|	Cd	114	933.8	23.0	0.1099	0.007	5.9	ug/L	72	Standard
>	In	115	915572.6	17.6				ug/L	1004638	Standard
|	Sn	118	542.7	15.5	0.2091	0.007	3.2	ug/L	364	Standard
|	Sb	123	2112.0	10.6	0.2000	0.019	9.4	ug/L	2464	Standard
|	Ba	135	627334.6	16.8	182.7028	2.214	1.2	ug/L	39	Standard
|	Ce	140	134776.0	16.6				ug/L	195	Standard
>	Tb	159	1457396.9	15.3				ug/L	1640193	Standard
|	Ho	165	3328.7	15.6				ug/L	25	Standard
|	Tl	203	2589.6	9.6	0.1915	0.013	6.6	ug/L	324	Standard
|	Tl	205	6391.4	14.5	0.1831	0.008	4.1	ug/L	698	Standard
|	Pb	206	58412.0	16.2	5.8205	0.147	2.5	ug/L	600	Standard
|	Pb	207	47043.6	16.6	5.2601	0.078	1.5	ug/L	541	Standard
|	Pb	208	165668.1	15.3	5.6366	0.036	0.6	ug/L	1750	Standard
	U	238	11778.3	9.1	1.0215	0.063	6.2	ug/L	10	Standard
>	Bi	209	706670.4	15.2				ug/L	811518	Standard

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Na	23	645.0	27.0	97.5627	17.494	17.9	mg/L	0	Standard
Mg	24	913.4	15.0	19.4699	1.019	5.2	mg/L	77	Standard
K	39	2248.5	16.9	12.3436	0.535	4.3	mg/L	18	Standard
Ca	43	520.0	3.8	-77.6155	20.266	26.1	mg/L	178	Standard
Fe	54	654.0	24.8	8.1756	1.062	13.0	mg/L	29	Standard
Fe	57	1208.4	4.4	34.8071	6.480	18.6	mg/L	408	Standard
Sc-1	45	61634.9	13.1				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	9.0	29.4				ug/L	12	Standard
Br	81	10623.7	7.0				ug/L	1747	Standard
P	31	36.7	39.4				ug/L	17	Standard
S	34	5.0	173.2				ug/L	3	Standard
Sr	88	396.7	12.8				ug/L	370	Standard
C	12	160.0	10.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	91.7				mg/L	17	Standard
Dy	164	4949.0	16.5				mg/L	9	Standard
Ho-1	165	3328.7	15.6				mg/L	25	Standard
Er	166	3240.4	18.7				mg/L	20	Standard
I	127	419069.7	5.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.288	
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		95.876	
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	91.135
[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	87.080
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1611027213

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Method 6020 - Summary Report

Sample ID: L1611027214

Sample Date/Time: Friday, November 11, 2016 13:39:22

Number of Replicates: 3

Autosampler Position: 319

Sample Description: 1

Method File: C:\NexlONData\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	210736.7	19.9				ug/L	206101	Standard
|	Be	9	31.7	18.2	-0.0050	0.005	95.9	ug/L	25	Standard
|	Al	27	188275779.9	13.9	951.1179	58.169	6.1	ug/L	1120	Standard
|	Sc	45	60663.0	14.8				ug/L	61425	Standard
|	Ti	47	453.0	18.8	0.8999	0.020	2.3	ug/L	70	Standard
|	V	51	8350.4	12.4	0.5133	0.061	11.9	ug/L	3309	Standard
|	Cr	52	23004.7	13.2	1.0396	0.162	15.6	ug/L	13497	Standard
|	Cr	53	3807.1	10.2	0.7707	0.335	43.4	ug/L	3162	Standard
|	Mn	55	5541103.0	16.9	372.6263	10.056	2.7	ug/L	2226	Standard
|	Co	59	3609.8	18.7	0.2446	0.003	1.1	ug/L	1003	Standard
|	Ni	60	10208.9	26.3	3.8952	0.273	7.0	ug/L	355	Standard
|	Cu	65	2346.5	19.8	0.8275	0.002	0.2	ug/L	473	Standard
|	Zn	66	6401.4	19.1	5.1771	0.055	1.1	ug/L	341	Standard
>	Ge	72	542932.4	19.6				ug/L	566981	Standard
|	As	75	2137.2	21.5	1.9017	0.075	3.9	ug/L	-156	Standard
|	Se	82	115.6	12.9	0.8679	0.108	12.5	ug/L	35	Standard
|	Se-1	77	409.7	9.3	0.5437	0.556	102.2	ug/L	354	Standard
>	Ga	71	88.3	25.5				mg/L	43	Standard
|	Rb	85	25346.6	16.5				ug/L	48	Standard
|	Y	89	418217.3	15.4				ug/L	447702	Standard
>	Rh	103	431.7	27.4				ug/L	20	Standard
|	Mo	98	7295.0	16.0	1.6545	0.029	1.8	ug/L	158	Standard
|	Ag	107	178.7	14.8	0.0048	0.001	15.6	ug/L	133	Standard
|	Cd	111	14.9	13.9	-0.0017	0.001	68.6	mg/L	7	Standard
|	Cd	114	74.0	17.0	0.0059	0.001	9.3	ug/L	72	Standard
>	In	115	913489.7	17.1				ug/L	1004638	Standard
|	Sn	118	222.7	15.8	0.0389	0.010	26.3	ug/L	364	Standard
|	Sb	123	640.5	0.4	0.0185	0.014	74.3	ug/L	2464	Standard
|	Ba	135	578320.7	16.1	168.8613	2.550	1.5	ug/L	39	Standard
|	Ce	140	2613.6	16.8				ug/L	195	Standard
>	Tb	159	1463823.2	14.8				ug/L	1640193	Standard
|	Ho	165	183.3	18.2				ug/L	25	Standard
|	Tl	203	1595.4	12.2	0.1134	0.005	4.3	ug/L	324	Standard
|	Tl	205	3637.1	6.6	0.1037	0.011	10.3	ug/L	698	Standard
|	Pb	206	1073.0	13.2	0.0576	0.004	7.6	ug/L	600	Standard
|	Pb	207	907.0	16.2	0.0529	0.003	4.9	ug/L	541	Standard
|	Pb	208	3175.8	17.2	0.0597	0.002	2.8	ug/L	1750	Standard
	U	238	8536.8	11.3	0.7430	0.036	4.8	ug/L	10	Standard
>	Bi	209	703817.2	16.1				ug/L	811518	Standard

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Na	23	576.7	20.2	89.7400	12.701	14.2	mg/L	0	Standard
Mg	24	910.0	4.5	19.9699	2.242	11.2	mg/L	77	Standard
K	39	2045.1	10.3	11.4961	0.641	5.6	mg/L	18	Standard
Ca	43	436.7	13.4	-60.2003	21.101	35.1	mg/L	178	Standard
Fe	54	402.3	13.3	5.0216	0.572	11.4	mg/L	29	Standard
Fe	57	1201.7	14.4	35.2719	8.383	23.8	mg/L	408	Standard
Sc-1	45	60663.0	14.8				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.3	34.3				ug/L	12	Standard
Br	81	12224.9	0.9				ug/L	1747	Standard
P	31	30.0	33.3				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	455.0	2.9				ug/L	370	Standard
C	12	203.3	49.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	180.9	21.5				mg/L	9	Standard
Ho-1	165	183.3	18.2				mg/L	25	Standard
Er	166	190.0	13.9				mg/L	20	Standard
I	127	421464.6	5.5				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.249	
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		95.758	
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	90.927
[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	86.728
[	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
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1611037002

Sample Date/Time: Friday, November 11, 2016 13:42:27

Number of Replicates: 3

Autosampler Position: 320

Sample Description: 1

Method File: C:\NexlONData\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	217589.1	20.1				ug/L	206101	Standard
|	Be	9	50.0	20.0	0.0025	0.008	338.9	ug/L	25	Standard
|	Al	27	37149723.0	15.4	181.4546	8.724	4.8	ug/L	1120	Standard
|	Sc	45	61123.0	14.2				ug/L	61425	Standard
|	Ti	47	1707.8	20.4	3.6746	0.339	9.2	ug/L	70	Standard
|	V	51	7684.0	13.9	0.4218	0.021	5.0	ug/L	3309	Standard
|	Cr	52	50529.3	14.8	3.8752	0.121	3.1	ug/L	13497	Standard
|	Cr	53	7897.1	9.2	4.1447	0.515	12.4	ug/L	3162	Standard
|	Mn	55	36782.0	18.7	2.2582	0.057	2.5	ug/L	2226	Standard
|	Co	59	3436.7	20.1	0.2207	0.012	5.6	ug/L	1003	Standard
|	Ni	60	10011.8	22.5	3.7218	0.229	6.2	ug/L	355	Standard
|	Cu	65	3063.0	16.7	1.1060	0.031	2.8	ug/L	473	Standard
|	Zn	66	2830.3	17.4	2.0591	0.032	1.6	ug/L	341	Standard
>	Ge	72	557855.0	16.7				ug/L	566981	Standard
|	As	75	63.0	112.6	0.1572	0.058	36.6	ug/L	-156	Standard
|	Se	82	113.7	15.2	0.8075	0.018	2.2	ug/L	35	Standard
|	Se-1	77	529.7	3.2	1.9412	0.928	47.8	ug/L	354	Standard
>	Ga	71	295.0	6.1				mg/L	43	Standard
|	Rb	85	22675.6	17.9				ug/L	48	Standard
|	Y	89	423266.8	17.1				ug/L	447702	Standard
>	Rh	103	353.3	32.8				ug/L	20	Standard
|	Mo	98	4003.2	18.7	0.8793	0.040	4.5	ug/L	158	Standard
|	Ag	107	789.0	16.5	0.0665	0.002	3.7	ug/L	133	Standard
|	Cd	111	20.5	26.8	-0.0002	0.001	491.0	mg/L	7	Standard
|	Cd	114	84.2	26.8	0.0069	0.002	31.1	ug/L	72	Standard
>	In	115	934421.1	15.1				ug/L	1004638	Standard
|	Sn	118	216.3	10.4	0.0331	0.005	16.5	ug/L	364	Standard
|	Sb	123	399.7	15.4	-0.0124	0.015	119.4	ug/L	2464	Standard
|	Ba	135	35031.2	16.6	9.9677	0.305	3.1	ug/L	39	Standard
|	Ce	140	9743.2	14.5				ug/L	195	Standard
>	Tb	159	1491617.5	14.0				ug/L	1640193	Standard
|	Ho	165	230.0	24.7				ug/L	25	Standard
|	Tl	203	1829.8	12.7	0.1263	0.004	2.9	ug/L	324	Standard
|	Tl	205	4223.9	10.6	0.1158	0.005	4.6	ug/L	698	Standard
|	Pb	206	1724.8	15.4	0.1165	0.002	1.8	ug/L	600	Standard
|	Pb	207	1440.1	16.3	0.1072	0.003	3.0	ug/L	541	Standard
|	Pb	208	4967.7	12.8	0.1156	0.003	2.7	ug/L	1750	Standard
	U	238	59539.0	10.9	4.9727	0.163	3.3	ug/L	10	Standard
>	Bi	209	730260.4	14.2				ug/L	811518	Standard

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Na	23	336.7	6.0	52.3101	4.302	8.2	mg/L	0	Standard
Mg	24	1128.4	3.6	24.7848	3.147	12.7	mg/L	77	Standard
K	39	223.3	9.3	1.1528	0.187	16.2	mg/L	18	Standard
Ca	43	275.0	8.3	-20.8900	4.100	19.6	mg/L	178	Standard
Fe	54	44.2	11.5	0.1512	0.016	10.6	mg/L	29	Standard
Fe	57	750.0	16.0	16.6828	4.615	27.7	mg/L	408	Standard
Sc-1	45	61123.0	14.2				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	11.7	21.6				ug/L	12	Standard
Br	81	5040.8	5.1				ug/L	1747	Standard
P	31	46.7	71.3				ug/L	17	Standard
S	34	6.7	43.3				ug/L	3	Standard
Sr	88	461.7	15.8				ug/L	370	Standard
C	12	73.3	51.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	419.1	25.6				mg/L	9	Standard
Ho-1	165	230.0	24.7				mg/L	25	Standard
Er	166	226.7	21.8				mg/L	20	Standard
I	127	52731.4	28.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		105.574	
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		98.390	
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	93.011
[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	89.987
[	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

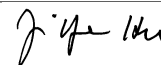
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1611037002

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 13:45:34

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	215281.2	23.0				ug/L	206101	Standard
|	Be	9	116454.5	20.2	47.9477	1.857	3.9	ug/L	25	Standard
|	Al	27	9654159.6	15.8	47.8858	3.571	7.5	ug/L	1120	Standard
|	Sc	45	58902.7	15.3				ug/L	61425	Standard
|	Ti	47	45417.5	16.4	99.5858	2.348	2.4	ug/L	70	Standard
|	V	51	548231.6	17.2	51.0754	0.908	1.8	ug/L	3309	Standard
|	Cr	52	503950.5	16.9	50.6417	1.190	2.3	ug/L	13497	Standard
|	Cr	53	63026.4	16.1	49.4170	1.190	2.4	ug/L	3162	Standard
|	Mn	55	801438.2	17.6	50.9534	0.466	0.9	ug/L	2226	Standard
|	Co	59	627651.0	18.2	50.7569	0.089	0.2	ug/L	1003	Standard
|	Ni	60	135109.0	18.6	50.8599	0.591	1.2	ug/L	355	Standard
|	Cu	65	123314.1	18.3	51.1102	0.473	0.9	ug/L	473	Standard
|	Zn	66	63252.2	18.0	51.0151	0.439	0.9	ug/L	341	Standard
>	Ge	72	571289.8	18.1				ug/L	566981	Standard
|	As	75	61496.7	17.9	49.3383	0.230	0.5	ug/L	-156	Standard
|	Se	82	5197.2	18.6	50.0373	0.446	0.9	ug/L	35	Standard
|	Se-1	77	4397.3	20.3	48.9985	1.121	2.3	ug/L	354	Standard
>	Ga	71	95.0	29.3				mg/L	43	Standard
|	Rb	85	590.0	13.6				ug/L	48	Standard
|	Y	89	436087.2	18.3				ug/L	447702	Standard
>	Rh	103	51.7	11.2				ug/L	20	Standard
|	Mo	98	471337.4	17.7	101.1089	0.925	0.9	ug/L	158	Standard
|	Ag	107	523936.1	16.8	51.5053	0.953	1.9	ug/L	133	Standard
|	Cd	111	165837.0	18.5	51.2892	0.057	0.1	mg/L	7	Standard
|	Cd	114	435320.1	19.9	49.8945	0.627	1.3	ug/L	72	Standard
>	In	115	971167.1	18.6				ug/L	1004638	Standard
|	Sn	118	98115.3	19.1	49.0684	0.265	0.5	ug/L	364	Standard
|	Sb	123	428569.0	18.9	49.6432	0.802	1.6	ug/L	2464	Standard
|	Ba	135	172399.1	17.7	47.3263	0.451	1.0	ug/L	39	Standard
|	Ce	140	171.7	10.2				ug/L	195	Standard
>	Tb	159	1525128.4	16.3				ug/L	1640193	Standard
|	Ho	165	71.7	31.5				ug/L	25	Standard
|	Tl	203	692007.8	16.6	50.1754	0.184	0.4	ug/L	324	Standard
|	Tl	205	1620089.0	15.7	43.9503	0.453	1.0	ug/L	698	Standard
|	Pb	206	534312.9	16.8	49.6627	0.294	0.6	ug/L	600	Standard
|	Pb	207	478601.8	17.3	49.9679	0.509	1.0	ug/L	541	Standard
|	Pb	208	1586476.4	16.6	50.3390	0.092	0.2	ug/L	1750	Standard
	U	238	652290.9	11.0	52.2204	2.725	5.2	ug/L	10	Standard
>	Bi	209	763612.6	16.5				ug/L	811518	Standard

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Na	23	30.0	16.7	4.9058	1.329	27.1	mg/L	0	Standard
Mg	24	246.7	16.3	4.9479	1.000	20.2	mg/L	77	Standard
K	39	815.0	21.6	4.5989	0.327	7.1	mg/L	18	Standard
Ca	43	111.7	20.7	15.1411	8.987	59.4	mg/L	178	Standard
Fe	54	362.3	12.2	4.6152	0.218	4.7	mg/L	29	Standard
Fe	57	551.7	14.7	9.5074	0.902	9.5	mg/L	408	Standard
Sc-1	45	58902.7	15.3				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	7.3	20.8				ug/L	12	Standard
Br	81	1820.1	21.2				ug/L	1747	Standard
P	31	40.0	25.0				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	405.0	8.1				ug/L	370	Standard
C	12	66.7	69.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	44.9	11.9				mg/L	9	Standard
Ho-1	165	71.7	31.5				mg/L	25	Standard
Er	166	36.7	103.3				mg/L	20	Standard
I	127	5199.3	28.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	95.895		
Al	27	95.772		
Sc	45			
Ti	47	99.586		
V	51	102.151		
Cr	52	101.283		
Cr	53			
Mn	55	101.907		
Co	59	101.514		
Ni	60	101.720		
Cu	65	102.220		
Zn	66	102.030		
Ge	72		100.760	
As	75	98.677		
Se	82	100.075		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	101.109	
[Ag	107	103.011	
[Cd	111	102.578	
[Cd	114		
>	In	115		96.668
[Sn	118	98.137	
[	Sb	123	99.286	
[	Ba	135	94.653	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.351	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	100.678	
[	U	238	104.441	
>	Bi	209		94.097
[	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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Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 13:48:40

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	185504.8	27.1				ug/L	206101	Standard
|	Be	9	31.7	45.6	-0.0042	0.005	123.2	ug/L	25	Standard
|	Al	27	14693.9	60.8	0.0916	0.054	58.7	ug/L	1120	Standard
|	Sc	45	51493.3	21.1				ug/L	61425	Standard
|	Ti	47	43.7	20.8	-0.0313	0.043	138.1	ug/L	70	Standard
|	V	51	2591.6	12.8	-0.0376	0.041	109.7	ug/L	3309	Standard
|	Cr	52	10421.3	11.4	-0.2396	0.179	74.6	ug/L	13497	Standard
|	Cr	53	1498.4	5.4	-1.1304	0.295	26.1	ug/L	3162	Standard
|	Mn	55	2261.5	15.7	0.0284	0.020	70.1	ug/L	2226	Standard
|	Co	59	551.0	12.4	-0.0119	0.008	65.1	ug/L	1003	Standard
|	Ni	60	344.0	7.8	0.0255	0.027	106.0	ug/L	355	Standard
|	Cu	65	408.0	24.0	-0.0082	0.014	164.6	ug/L	473	Standard
|	Zn	66	317.3	29.7	-0.0025	0.015	575.4	ug/L	341	Standard
>	Ge	72	507699.7	26.1				ug/L	566981	Standard
|	As	75	-151.5	4.5	-0.0374	0.031	81.7	ug/L	-156	Standard
|	Se	82	20.9	15.9	-0.0907	0.037	40.5	ug/L	35	Standard
|	Se-1	77	323.0	1.1	-0.1612	1.145	710.7	ug/L	354	Standard
>	Ga	71	41.7	25.0				mg/L	43	Standard
|	Rb	85	30.0	33.3				ug/L	48	Standard
|	Y	89	372384.6	26.6				ug/L	447702	Standard
>	Rh	103	43.3	6.7				ug/L	20	Standard
|	Mo	98	77.1	22.5	0.0106	0.010	91.6	ug/L	158	Standard
|	Ag	107	149.3	25.4	0.0026	0.001	23.9	ug/L	133	Standard
|	Cd	111	14.2	38.7	-0.0017	0.002	96.0	mg/L	7	Standard
|	Cd	114	46.0	1.2	0.0030	0.002	54.3	ug/L	72	Standard
>	In	115	864847.7	26.1				ug/L	1004638	Standard
|	Sn	118	150.3	13.9	0.0072	0.019	262.5	ug/L	364	Standard
|	Sb	123	913.9	46.7	0.0724	0.095	130.8	ug/L	2464	Standard
|	Ba	135	77.7	84.8	0.0148	0.021	141.0	ug/L	39	Standard
|	Ce	140	21.7	87.4				ug/L	195	Standard
>	Tb	159	1384659.9	24.9				ug/L	1640193	Standard
|	Ho	165	10.0	50.0				ug/L	25	Standard
|	Tl	203	101.7	65.9	-0.0043	0.006	130.0	ug/L	324	Standard
|	Tl	205	261.7	88.0	0.0033	0.007	214.7	ug/L	698	Standard
|	Pb	206	569.0	24.7	0.0067	0.007	105.6	ug/L	600	Standard
|	Pb	207	476.3	29.8	0.0039	0.009	215.5	ug/L	541	Standard
|	Pb	208	1550.7	26.3	0.0040	0.007	166.3	ug/L	1750	Standard
	U	238	65.7	86.7	0.0075	0.005	67.8	ug/L	10	Standard
>	Bi	209	701912.4	25.6				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2547	0.432	169.8	mg/L	0	Standard
Mg	24	58.3	17.8	0.7818	0.610	78.0	mg/L	77	Standard
K	39	11.7	107.9	-0.0374	0.087	232.2	mg/L	18	Standard
Ca	43	110.0	15.7	12.3521	3.262	26.4	mg/L	178	Standard
Fe	54	29.1	51.1	0.0011	0.146	13092.2	mg/L	29	Standard
Fe	57	475.0	18.3	10.1802	7.686	75.5	mg/L	408	Standard
Sc-1	45	51493.3	21.1				mg/L	61425	Standard
Cl	35	2.0	0.0				ug/L	1	Standard
Kr	83	10.0					ug/L	12	Standard
Br	81	1643.4	21.6				ug/L	1747	Standard
P	31	25.0	72.1				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	388.3	14.6				ug/L	370	Standard
C	12	36.7	56.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	9.5	100.0				mg/L	9	Standard
Ho-1	165	10.0	50.0				mg/L	25	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	15094.2	5.3				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		89.544	
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	86.086
[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	86.494
[	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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Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: L1611037004

Sample Date/Time: Friday, November 11, 2016 13:51:47

Number of Replicates: 3

Autosampler Position: 321

Sample Description: 1

Method File: C:\NexlONData\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	219538.9	19.2				ug/L	206101	Standard
|	Be	9	33.3	60.6	-0.0058	0.006	109.7	ug/L	25	Standard
|	Al	27	736897.2	14.0	3.5736	0.185	5.2	ug/L	1120	Standard
|	Sc	45	60229.4	14.1				ug/L	61425	Standard
|	Ti	47	151.7	7.8	0.1953	0.037	19.0	ug/L	70	Standard
|	V	51	1557.9	18.5	-0.1683	0.025	14.6	ug/L	3309	Standard
|	Cr	52	20413.5	12.2	0.6722	0.117	17.4	ug/L	13497	Standard
|	Cr	53	32999.3	6.8	25.6540	5.671	22.1	ug/L	3162	Standard
|	Mn	55	193664.4	16.3	12.4068	0.260	2.1	ug/L	2226	Standard
|	Co	59	3207.0	14.4	0.2012	0.008	4.2	ug/L	1003	Standard
|	Ni	60	103961.3	16.6	39.7679	0.787	2.0	ug/L	355	Standard
|	Cu	65	918.0	21.0	0.1864	0.022	12.0	ug/L	473	Standard
|	Zn	66	2237.2	13.8	1.5598	0.069	4.4	ug/L	341	Standard
>	Ge	72	562643.2	17.5				ug/L	566981	Standard
|	As	75	1640.0	25.8	1.4237	0.120	8.4	ug/L	-156	Standard
|	Se	82	444.8	26.3	4.0106	0.380	9.5	ug/L	35	Standard
|	Se-1	77	1863.1	4.6	18.8699	4.157	22.0	ug/L	354	Standard
>	Ga	71	110.0	12.0				mg/L	43	Standard
|	Rb	85	40142.6	18.0				ug/L	48	Standard
|	Y	89	422816.8	16.4				ug/L	447702	Standard
>	Rh	103	251.7	25.9				ug/L	20	Standard
|	Mo	98	88487.9	16.1	19.6784	0.375	1.9	ug/L	158	Standard
|	Ag	107	167.3	13.2	0.0032	0.001	29.2	ug/L	133	Standard
|	Cd	111	-0.8	1374.2	-0.0074	0.004	52.2	mg/L	7	Standard
|	Cd	114	228.6	21.1	0.0243	0.006	25.2	ug/L	72	Standard
>	In	115	937184.3	17.6				ug/L	1004638	Standard
|	Sn	118	238.3	10.2	0.0459	0.022	47.7	ug/L	364	Standard
|	Sb	123	2900.1	22.5	0.3024	0.135	44.8	ug/L	2464	Standard
|	Ba	135	46397.5	16.0	13.2043	0.220	1.7	ug/L	39	Standard
|	Ce	140	140.0	7.1				ug/L	195	Standard
>	Tb	159	1513226.8	16.1				ug/L	1640193	Standard
|	Ho	165	15.0	88.2				ug/L	25	Standard
|	Tl	203	2714.6	52.2	0.1912	0.077	40.1	ug/L	324	Standard
|	Tl	205	6219.9	54.5	0.1699	0.069	40.8	ug/L	698	Standard
|	Pb	206	2063.1	22.7	0.1536	0.015	10.0	ug/L	600	Standard
|	Pb	207	1786.1	21.9	0.1494	0.013	9.0	ug/L	541	Standard
|	Pb	208	5866.5	23.9	0.1488	0.018	11.8	ug/L	1750	Standard
	U	238	308.7	11.0	0.0286	0.003	9.2	ug/L	10	Standard
>	Bi	209	710843.3	15.1				ug/L	811518	Standard

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Na	23	13.3	43.3	2.1970	1.257	57.2	mg/L	0	Standard
Mg	24	9829.9	6.1	224.9723	18.310	8.1	mg/L	77	Standard
K	39	170.0	39.8	0.9047	0.536	59.3	mg/L	18	Standard
Ca	43	116.7	28.5	14.3919	11.525	80.1	mg/L	178	Standard
Fe	54	32.6	18.5	0.0147	0.148	1011.5	mg/L	29	Standard
Fe	57	506.7	4.7	7.5076	3.608	48.1	mg/L	408	Standard
Sc-1	45	60229.4	14.1				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	8.7	24.0				ug/L	12	Standard
Br	81	75224.7	11.8				ug/L	1747	Standard
P	31	40.0	45.1				ug/L	17	Standard
S	34	8.3	69.3				ug/L	3	Standard
Sr	88	383.3	16.3				ug/L	370	Standard
C	12	66.7	31.2				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0					mg/L	17	Standard
Dy	164	12.1	47.8				mg/L	9	Standard
Ho-1	165	15.0	88.2				mg/L	25	Standard
Er	166	26.7	94.4				mg/L	20	Standard
I	127	841482.4	3.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.520	
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		99.235	
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	93.286
[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	87.594
[	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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Sample ID: L1611037004

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 13:54:54

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	211542.0	19.6				ug/L	206101	Standard
|	Be	9	119175.8	18.5	49.7739	2.018	4.1	ug/L	25	Standard
|	Al	27	9550499.4	13.2	48.0733	3.126	6.5	ug/L	1120	Standard
|	Sc	45	58495.8	13.6				ug/L	61425	Standard
|	Ti	47	46116.2	15.3	99.9934	3.229	3.2	ug/L	70	Standard
|	V	51	549824.1	15.8	50.6715	1.288	2.5	ug/L	3309	Standard
|	Cr	52	508423.4	15.4	50.5430	1.565	3.1	ug/L	13497	Standard
|	Cr	53	64907.6	15.6	50.3363	1.576	3.1	ug/L	3162	Standard
|	Mn	55	806057.8	15.8	50.7124	1.540	3.0	ug/L	2226	Standard
|	Co	59	646695.9	17.5	51.6802	0.925	1.8	ug/L	1003	Standard
|	Ni	60	138730.1	17.1	51.6606	0.754	1.5	ug/L	355	Standard
|	Cu	65	127433.9	17.3	52.2199	0.510	1.0	ug/L	473	Standard
|	Zn	66	64838.9	16.4	51.7445	1.044	2.0	ug/L	341	Standard
>	Ge	72	578711.6	18.3				ug/L	566981	Standard
|	As	75	63716.5	18.3	50.4416	0.466	0.9	ug/L	-156	Standard
|	Se	82	5223.1	19.0	49.6164	0.553	1.1	ug/L	35	Standard
|	Se-1	77	4475.3	17.6	49.4305	0.566	1.1	ug/L	354	Standard
>	Ga	71	98.3	28.0				mg/L	43	Standard
|	Rb	85	626.7	14.4				ug/L	48	Standard
|	Y	89	422739.9	15.6				ug/L	447702	Standard
>	Rh	103	65.0	15.4				ug/L	20	Standard
|	Mo	98	466343.4	16.3	99.1043	1.506	1.5	ug/L	158	Standard
|	Ag	107	518927.2	16.8	50.4542	0.868	1.7	ug/L	133	Standard
|	Cd	111	169125.3	18.8	51.7270	1.240	2.4	mg/L	7	Standard
|	Cd	114	439785.1	18.9	49.9311	1.150	2.3	ug/L	72	Standard
>	In	115	979576.8	16.7				ug/L	1004638	Standard
|	Sn	118	103221.5	18.2	51.1224	1.427	2.8	ug/L	364	Standard
|	Sb	123	440493.3	18.7	50.4981	1.004	2.0	ug/L	2464	Standard
|	Ba	135	177965.5	16.4	48.4009	0.187	0.4	ug/L	39	Standard
|	Ce	140	178.3	22.8				ug/L	195	Standard
>	Tb	159	1556783.6	15.9				ug/L	1640193	Standard
|	Ho	165	53.3	32.9				ug/L	25	Standard
|	Tl	203	698458.5	16.5	50.4510	1.007	2.0	ug/L	324	Standard
|	Tl	205	1631159.4	16.0	44.0627	0.216	0.5	ug/L	698	Standard
|	Pb	206	547419.4	17.8	50.6398	1.447	2.9	ug/L	600	Standard
|	Pb	207	481716.5	17.1	50.1135	0.944	1.9	ug/L	541	Standard
|	Pb	208	1617524.0	17.1	51.0971	1.154	2.3	ug/L	1750	Standard
	U	238	660591.4	11.8	52.6358	2.115	4.0	ug/L	10	Standard
>	Bi	209	765863.9	15.7				ug/L	811518	Standard

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Na	23	23.3	12.4	3.7714	0.227	6.0	mg/L	0	Standard
Mg	24	268.3	12.1	5.4579	0.095	1.7	mg/L	77	Standard
K	39	828.4	26.9	4.6803	0.653	13.9	mg/L	18	Standard
Ca	43	113.3	5.1	15.2271	2.814	18.5	mg/L	178	Standard
Fe	54	422.2	19.1	5.4469	0.374	6.9	mg/L	29	Standard
Fe	57	551.7	8.9	9.9266	3.933	39.6	mg/L	408	Standard
Sc-1	45	58495.8	13.6				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.0	33.1				ug/L	12	Standard
Br	81	2260.2	28.8				ug/L	1747	Standard
P	31	38.3	27.2				ug/L	17	Standard
S	34	6.7	86.6				ug/L	3	Standard
Sr	88	418.3	13.2				ug/L	370	Standard
C	12	53.3	92.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	22.2	25.1				mg/L	9	Standard
Ho-1	165	53.3	32.9				mg/L	25	Standard
Er	166	23.3	89.2				mg/L	20	Standard
I	127	18938.7	66.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.548		
Al	27	96.147		
Sc	45			
Ti	47	99.993		
V	51	101.343		
Cr	52	101.086		
Cr	53			
Mn	55	101.425		
Co	59	103.360		
Ni	60	103.321		
Cu	65	104.440		
Zn	66	103.489		
Ge	72		102.069	
As	75	100.883		
Se	82	99.233		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	99.104	
[Ag	107	100.908	
[Cd	111	103.454	
[Cd	114		
>	In	115		97.505
[Sn	118	102.245	
[	Sb	123	100.996	
[	Ba	135	96.802	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.902	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	102.194	
[	U	238	105.272	
>	Bi	209		94.374
[	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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Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 13:58:01

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	189993.8	24.5				ug/L	206101	Standard
|	Be	9	35.0	0.0	-0.0020	0.004	197.5	ug/L	25	Standard
|	Al	27	5234.2	8.4	0.0355	0.005	13.0	ug/L	1120	Standard
|	Sc	45	52716.8	17.8				ug/L	61425	Standard
|	Ti	47	39.0	25.3	-0.0499	0.033	66.8	ug/L	70	Standard
|	V	51	2640.4	11.2	-0.0455	0.035	77.9	ug/L	3309	Standard
|	Cr	52	10474.3	11.5	-0.2922	0.150	51.4	ug/L	13497	Standard
|	Cr	53	1820.1	8.0	-0.9005	0.372	41.3	ug/L	3162	Standard
|	Mn	55	2256.5	14.8	0.0205	0.015	75.5	ug/L	2226	Standard
|	Co	59	597.7	10.0	-0.0097	0.011	108.0	ug/L	1003	Standard
|	Ni	60	350.3	13.0	0.0197	0.016	80.6	ug/L	355	Standard
|	Cu	65	398.7	22.8	-0.0208	0.004	18.8	ug/L	473	Standard
|	Zn	66	321.7	20.8	-0.0076	0.010	129.0	ug/L	341	Standard
>	Ge	72	530226.2	24.0				ug/L	566981	Standard
|	As	75	-143.3	17.1	-0.0223	0.025	113.9	ug/L	-156	Standard
|	Se	82	23.2	15.0	-0.0777	0.022	28.6	ug/L	35	Standard
|	Se-1	77	332.3	5.6	-0.2463	1.182	479.7	ug/L	354	Standard
>	Ga	71	55.0	41.7				mg/L	43	Standard
|	Rb	85	45.0	48.4				ug/L	48	Standard
|	Y	89	387656.3	24.9				ug/L	447702	Standard
>	Rh	103	41.7	27.7				ug/L	20	Standard
|	Mo	98	65.8	32.8	0.0073	0.009	129.1	ug/L	158	Standard
|	Ag	107	157.7	16.8	0.0034	0.001	44.4	ug/L	133	Standard
|	Cd	111	9.9	10.3	-0.0033	0.000	13.9	mg/L	7	Standard
|	Cd	114	51.9	52.0	0.0031	0.002	64.0	ug/L	72	Standard
>	In	115	881965.3	23.6				ug/L	1004638	Standard
|	Sn	118	178.3	15.7	0.0203	0.017	82.8	ug/L	364	Standard
|	Sb	123	1035.8	43.3	0.0836	0.096	114.9	ug/L	2464	Standard
|	Ba	135	28.0	29.2	-0.0011	0.001	45.6	ug/L	39	Standard
|	Ce	140	26.7	21.7				ug/L	195	Standard
>	Tb	159	1424934.0	22.3				ug/L	1640193	Standard
|	Ho	165	13.3	43.3				ug/L	25	Standard
|	Tl	203	174.7	26.7	0.0008	0.001	68.2	ug/L	324	Standard
|	Tl	205	381.7	26.9	0.0067	0.001	20.6	ug/L	698	Standard
|	Pb	206	505.7	22.6	-0.0008	0.002	221.7	ug/L	600	Standard
|	Pb	207	442.3	27.6	-0.0009	0.003	298.6	ug/L	541	Standard
|	Pb	208	1495.4	22.8	0.0012	0.001	54.0	ug/L	1750	Standard
	U	238	12.0	102.4	0.0032	0.001	43.4	ug/L	10	Standard
>	Bi	209	713678.1	22.7				ug/L	811518	Standard

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Na	23	1.7	173.2	0.3682	0.629	170.9	mg/L	0	Standard
Mg	24	53.3	21.7	0.5358	0.152	28.3	mg/L	77	Standard
K	39	16.7	34.6	-0.0059	0.025	429.1	mg/L	18	Standard
Ca	43	105.0	12.6	13.6980	8.489	62.0	mg/L	178	Standard
Fe	54	36.1	92.4	0.0765	0.403	526.2	mg/L	29	Standard
Fe	57	418.3	8.0	6.4452	4.082	63.3	mg/L	408	Standard
Sc-1	45	52716.8	17.8				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.0	55.7				ug/L	12	Standard
Br	81	1623.4	3.2				ug/L	1747	Standard
P	31	23.3	32.7				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	360.0	13.2				ug/L	370	Standard
C	12	50.0	72.1				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	12.7	46.6				mg/L	9	Standard
Ho-1	165	13.3	43.3				mg/L	25	Standard
Er	166	13.3	43.3				mg/L	20	Standard
I	127	35572.8	31.5				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		93.517	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	87.789
[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	87.944
[	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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Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: PBS M2 WG591256-01

Sample Date/Time: Friday, November 11, 2016 14:13:56

Number of Replicates: 3

Autosampler Position: 205

Sample Description: 1

Method File: C:\NexlONData\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	213242.6	22.4				ug/L	206101	Standard
|	Be	9	30.0	16.7	-0.0063	0.002	35.3	ug/L	25	Standard
|	Al	27	11687.9	6.9	0.0650	0.010	15.6	ug/L	1120	Standard
|	Sc	45	54299.0	17.3				ug/L	61425	Standard
|	Ti	47	107.7	63.5	0.0721	0.092	126.9	ug/L	70	Standard
|	V	51	3327.6	7.3	-0.0034	0.055	1597.2	ug/L	3309	Standard
|	Cr	52	16886.5	12.2	0.2581	0.186	72.2	ug/L	13497	Standard
|	Cr	53	1933.5	11.6	-0.9790	0.188	19.3	ug/L	3162	Standard
|	Mn	55	3740.8	12.6	0.1008	0.025	24.8	ug/L	2226	Standard
|	Co	59	659.0	6.4	-0.0096	0.010	99.3	ug/L	1003	Standard
|	Ni	60	564.7	15.6	0.0862	0.016	18.1	ug/L	355	Standard
|	Cu	65	567.3	17.7	0.0335	0.014	41.8	ug/L	473	Standard
|	Zn	66	2512.9	21.0	1.7149	0.046	2.7	ug/L	341	Standard
>	Ge	72	582136.8	22.7				ug/L	566981	Standard
|	As	75	-144.1	31.2	-0.0166	0.053	321.6	ug/L	-156	Standard
|	Se	82	25.2	35.3	-0.0879	0.048	54.0	ug/L	35	Standard
|	Se-1	77	341.3	6.8	-0.5380	1.120	208.1	ug/L	354	Standard
>	Ga	71	70.0	31.1				mg/L	43	Standard
|	Rb	85	88.3	22.9				ug/L	48	Standard
|	Y	89	420173.8	21.6				ug/L	447702	Standard
>	Rh	103	15.0	57.7				ug/L	20	Standard
|	Mo	98	138.8	21.2	0.0222	0.011	49.0	ug/L	158	Standard
|	Ag	107	136.3	17.3	-0.0001	0.001	773.0	ug/L	133	Standard
|	Cd	111	11.8	22.5	-0.0030	0.000	10.9	mg/L	7	Standard
|	Cd	114	56.6	31.2	0.0039	0.004	93.7	ug/L	72	Standard
>	In	115	953386.3	21.9				ug/L	1004638	Standard
|	Sn	118	314.3	9.1	0.0878	0.051	57.7	ug/L	364	Standard
|	Sb	123	3040.6	22.0	0.3180	0.144	45.4	ug/L	2464	Standard
|	Ba	135	291.3	33.2	0.0706	0.009	12.8	ug/L	39	Standard
|	Ce	140	211.7	38.8				ug/L	195	Standard
>	Tb	159	1555820.8	21.0				ug/L	1640193	Standard
|	Ho	165	33.3	17.3				ug/L	25	Standard
|	Tl	203	31.7	26.9	-0.0104	0.001	5.6	ug/L	324	Standard
|	Tl	205	61.7	20.4	-0.0026	0.001	25.9	ug/L	698	Standard
|	Pb	206	700.0	20.2	0.0145	0.000	1.9	ug/L	600	Standard
|	Pb	207	610.7	25.0	0.0139	0.004	26.3	ug/L	541	Standard
|	Pb	208	2053.4	16.8	0.0164	0.003	16.5	ug/L	1750	Standard
	U	238	17.7	34.1	0.0035	0.001	21.8	ug/L	10	Standard
>	Bi	209	758197.9	20.6				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	55.0	65.6	0.5235	0.873	166.8	mg/L	77	Standard
K	39	20.0	100.0	0.0261	0.156	597.2	mg/L	18	Standard
Ca	43	78.3	20.5	22.4918	1.440	6.4	mg/L	178	Standard
Fe	54	25.8	68.6	-0.0352	0.274	777.8	mg/L	29	Standard
Fe	57	483.3	0.6	8.8140	4.017	45.6	mg/L	408	Standard
Sc-1	45	54299.0	17.3				mg/L	61425	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	8.7	24.0				ug/L	12	Standard
Br	81	1733.4	18.5				ug/L	1747	Standard
P	31	21.7	74.2				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	393.3	15.9				ug/L	370	Standard
C	12	53.3	28.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0					mg/L	17	Standard
Dy	164	5.7	202.4				mg/L	9	Standard
Ho-1	165	33.3	17.3				mg/L	25	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	16427.3	7.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		103.465	
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		102.673	
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	94.899
[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	93.430
[	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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Sample ID: PBS M2 WG591256-01

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Method 6020 - Summary Report

Sample ID: LCSS M2 WG591256-02

Sample Date/Time: Friday, November 11, 2016 14:17:01

Number of Replicates: 3

Autosampler Position: 206

Sample Description: 1

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	215855.6	20.5				ug/L	206101	Standard
|	Be	9	57883.8	21.5	23.6202	0.375	1.6	ug/L	25	Standard
|	Al	27	10595.4	12.7	0.0581	0.005	8.6	ug/L	1120	Standard
|	Sc	45	55368.2	18.2				ug/L	61425	Standard
|	Ti	47	57.3	8.8	-0.0207	0.016	75.6	ug/L	70	Standard
|	V	51	263211.1	18.4	23.9970	0.680	2.8	ug/L	3309	Standard
|	Cr	52	254701.9	18.5	24.4603	0.678	2.8	ug/L	13497	Standard
|	Cr	53	31922.8	20.0	23.2852	0.306	1.3	ug/L	3162	Standard
|	Mn	55	387027.5	19.6	24.1451	0.418	1.7	ug/L	2226	Standard
|	Co	59	309486.8	20.3	24.5887	0.234	1.0	ug/L	1003	Standard
|	Ni	60	68579.1	21.1	25.3190	0.232	0.9	ug/L	355	Standard
|	Cu	65	63645.6	21.7	25.8036	0.171	0.7	ug/L	473	Standard
|	Zn	66	33151.3	20.9	26.1330	0.077	0.3	ug/L	341	Standard
[>	Ge	72	581445.8	21.1				ug/L	566981	Standard
|	As	75	31542.2	20.5	24.9374	0.409	1.6	ug/L	-156	Standard
|	Se	82	2586.2	20.2	24.3505	0.532	2.2	ug/L	35	Standard
|	Se-1	77	2386.5	20.0	24.0006	0.468	2.0	ug/L	354	Standard
[>	Ga	71	80.0	27.2				mg/L	43	Standard
|	Rb	85	61.7	44.7				ug/L	48	Standard
|	Y	89	414251.6	22.3				ug/L	447702	Standard
[>	Rh	103	56.7	43.5				ug/L	20	Standard
|	Mo	98	61.6	5.4	0.0042	0.003	61.7	ug/L	158	Standard
|	Ag	107	230695.0	20.3	22.9606	0.220	1.0	ug/L	133	Standard
|	Cd	111	82379.7	21.3	25.8236	0.268	1.0	mg/L	7	Standard
|	Cd	114	209572.3	22.6	24.3430	0.436	1.8	ug/L	72	Standard
[>	In	115	958063.8	21.3				ug/L	1004638	Standard
|	Sn	118	211.0	11.1	0.0288	0.013	43.9	ug/L	364	Standard
|	Sb	123	218144.4	20.9	25.6133	0.192	0.8	ug/L	2464	Standard
|	Ba	135	87964.9	20.7	24.4721	0.252	1.0	ug/L	39	Standard
|	Ce	140	175.0	34.3				ug/L	195	Standard
[>	Tb	159	1563275.1	19.0				ug/L	1640193	Standard
|	Ho	165	35.0	14.3				ug/L	25	Standard
|	Tl	203	353755.3	19.8	25.6734	0.138	0.5	ug/L	324	Standard
|	Tl	205	817442.7	19.8	22.1752	0.146	0.7	ug/L	698	Standard
|	Pb	206	274737.0	21.8	25.4825	0.358	1.4	ug/L	600	Standard
|	Pb	207	232609.5	20.7	24.2791	0.105	0.4	ug/L	541	Standard
|	Pb	208	792405.6	20.8	25.1183	0.240	1.0	ug/L	1750	Standard
	U	238	309144.7	15.2	24.7932	1.317	5.3	ug/L	10	Standard
[>	Bi	209	763353.3	20.4				ug/L	811518	Standard

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Na	23	1.7	173.2	0.3541	0.605	170.8	mg/L	0	Standard
Mg	24	51.7	24.4	0.4715	0.415	88.0	mg/L	77	Standard
K	39	18.3	103.3	-0.0091	0.094	1028.9	mg/L	18	Standard
Ca	43	86.7	14.5	19.7762	7.651	38.7	mg/L	178	Standard
Fe	54	36.3	8.9	0.1130	0.146	129.5	mg/L	29	Standard
Fe	57	431.7	11.1	5.8480	1.395	23.9	mg/L	408	Standard
Sc-1	45	55368.2	18.2				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	8.7	56.9				ug/L	12	Standard
Br	81	1840.1	22.6				ug/L	1747	Standard
P	31	25.0	34.6				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	386.7	8.6				ug/L	370	Standard
C	12	40.0	25.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	18.2	96.5				mg/L	9	Standard
Ho-1	165	35.0	14.3				mg/L	25	Standard
Er	166	36.7	15.7				mg/L	20	Standard
I	127	13921.4	10.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		104.733	
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		102.551	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: LCSS M2 WG591256-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	95.364
[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	94.065
[	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

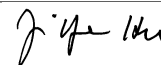
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: LCSS M2 WG591256-02

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Method 6020 - Summary Report

Sample ID: LCSS M2 WG591256-03

Sample Date/Time: Friday, November 11, 2016 14:20:06

Number of Replicates: 3

Autosampler Position: 207

Sample Description: 1

Method File: C:\NexlONData\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	209484.0	23.9				ug/L	206101	Standard
|	Be	9	54983.8	19.8	23.2985	1.002	4.3	ug/L	25	Standard
|	Al	27	10191.8	15.8	0.0577	0.004	7.6	ug/L	1120	Standard
|	Sc	45	53959.4	17.0				ug/L	61425	Standard
|	Ti	47	59.7	29.3	-0.0156	0.012	78.0	ug/L	70	Standard
|	V	51	253986.4	18.9	23.7737	0.691	2.9	ug/L	3309	Standard
|	Cr	52	244426.1	18.9	24.0903	0.518	2.1	ug/L	13497	Standard
|	Cr	53	29946.8	16.9	22.4653	0.930	4.1	ug/L	3162	Standard
|	Mn	55	369032.0	19.9	23.6406	0.368	1.6	ug/L	2226	Standard
|	Co	59	295929.2	19.9	24.1730	0.243	1.0	ug/L	1003	Standard
|	Ni	60	64853.8	20.6	24.6153	0.347	1.4	ug/L	355	Standard
|	Cu	65	59752.5	21.5	24.8975	0.297	1.2	ug/L	473	Standard
|	Zn	66	32339.8	20.5	26.2160	0.281	1.1	ug/L	341	Standard
>	Ge	72	565286.8	20.6				ug/L	566981	Standard
|	As	75	29864.7	21.8	24.2166	0.325	1.3	ug/L	-156	Standard
|	Se	82	2482.1	20.8	23.9859	0.095	0.4	ug/L	35	Standard
|	Se-1	77	2238.8	20.7	22.9538	0.726	3.2	ug/L	354	Standard
>	Ga	71	55.0	18.2				mg/L	43	Standard
|	Rb	85	53.3	28.6				ug/L	48	Standard
|	Y	89	402168.7	19.3				ug/L	447702	Standard
>	Rh	103	40.0	50.0				ug/L	20	Standard
|	Mo	98	74.3	3.0	0.0077	0.004	55.8	ug/L	158	Standard
|	Ag	107	223217.0	21.3	22.8772	0.545	2.4	ug/L	133	Standard
|	Cd	111	79489.1	22.4	25.6446	0.462	1.8	mg/L	7	Standard
|	Cd	114	201888.7	21.9	24.1883	0.138	0.6	ug/L	72	Standard
>	In	115	930945.4	22.2				ug/L	1004638	Standard
|	Sn	118	174.0	19.3	0.0113	0.003	26.9	ug/L	364	Standard
|	Sb	123	205579.9	21.8	24.8510	0.538	2.2	ug/L	2464	Standard
|	Ba	135	83901.7	20.4	24.0785	0.689	2.9	ug/L	39	Standard
|	Ce	140	128.3	55.4				ug/L	195	Standard
>	Tb	159	1527073.1	20.4				ug/L	1640193	Standard
|	Ho	165	30.0	44.1				ug/L	25	Standard
|	Tl	203	340217.1	19.9	25.6238	0.213	0.8	ug/L	324	Standard
|	Tl	205	801709.0	20.8	22.5451	0.455	2.0	ug/L	698	Standard
|	Pb	206	262963.0	20.6	25.3537	0.425	1.7	ug/L	600	Standard
|	Pb	207	224639.2	21.9	24.3036	0.671	2.8	ug/L	541	Standard
|	Pb	208	760477.0	19.8	25.0449	0.500	2.0	ug/L	1750	Standard
	U	238	301512.7	14.7	25.0986	1.114	4.4	ug/L	10	Standard
>	Bi	209	734256.7	19.1				ug/L	811518	Standard

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Na	23	1.7	173.2	0.3572	0.610	170.8	mg/L	0	Standard
Mg	24	46.7	27.0	0.3997	0.551	137.8	mg/L	77	Standard
K	39	18.3	41.7	0.0095	0.058	612.3	mg/L	18	Standard
Ca	43	100.0	18.0	16.0487	6.652	41.4	mg/L	178	Standard
Fe	54	43.4	39.9	0.2586	0.403	155.8	mg/L	29	Standard
Fe	57	480.0	5.5	8.6785	3.185	36.7	mg/L	408	Standard
Sc-1	45	53959.4	17.0				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	6.7	22.9				ug/L	12	Standard
Br	81	1663.4	10.9				ug/L	1747	Standard
P	31	46.7	6.2				ug/L	17	Standard
S	34	11.7	65.5				ug/L	3	Standard
Sr	88	350.0	10.3				ug/L	370	Standard
C	12	43.3	13.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	12.2	86.8				mg/L	9	Standard
Ho-1	165	30.0	44.1				mg/L	25	Standard
Er	166	23.3	107.9				mg/L	20	Standard
I	127	14999.1	8.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.641	
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		99.701	
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	92.665
[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	90.479
[	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

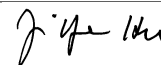
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: LCSS M2 WG591256-03

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Method 6020 - Summary Report

Sample ID: L1611053602

Sample Date/Time: Friday, November 11, 2016 14:23:12

Number of Replicates: 3

Autosampler Position: 208

Sample Description: 1

Method File: C:\NexlONData\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	220521.6	17.9				ug/L	206101	Standard
|	Be	9	921.7	13.6	0.3518	0.016	4.5	ug/L	25	Standard
|	Al	27	918939.5	13.1	4.4310	0.213	4.8	ug/L	1120	Standard
|	Sc	45	67095.8	9.5				ug/L	61425	Standard
|	Ti	47	5189.6	15.9	10.7091	0.264	2.5	ug/L	70	Standard
|	V	51	66727.2	13.2	5.6635	0.170	3.0	ug/L	3309	Standard
|	Cr	52	98599.7	12.4	8.2742	0.357	4.3	ug/L	13497	Standard
|	Cr	53	12443.5	10.8	7.2593	0.514	7.1	ug/L	3162	Standard
|	Mn	55	4244534.6	14.0	258.4687	5.929	2.3	ug/L	2226	Standard
|	Co	59	101403.2	14.9	7.7814	0.101	1.3	ug/L	1003	Standard
|	Ni	60	106820.5	15.5	38.3847	0.469	1.2	ug/L	355	Standard
|	Cu	65	20067.6	17.8	7.7550	0.143	1.8	ug/L	473	Standard
|	Zn	66	32757.9	15.0	25.0899	0.428	1.7	ug/L	341	Standard
>	Ge	72	598655.9	16.0				ug/L	566981	Standard
|	As	75	2415.1	15.0	1.9512	0.036	1.8	ug/L	-156	Standard
|	Se	82	100.2	8.5	0.6126	0.102	16.7	ug/L	35	Standard
|	Se-1	77	453.0	6.5	0.5433	0.547	100.6	ug/L	354	Standard
>	Ga	71	3375.4	22.7				mg/L	43	Standard
|	Rb	85	37336.9	17.9				ug/L	48	Standard
|	Y	89	1404774.5	17.1				ug/L	447702	Standard
>	Rh	103	65.0	53.8				ug/L	20	Standard
|	Mo	98	2550.3	16.6	0.5249	0.006	1.2	ug/L	158	Standard
|	Ag	107	627.3	19.2	0.0462	0.002	4.9	ug/L	133	Standard
|	Cd	111	1484.8	18.3	0.4417	0.014	3.3	mg/L	7	Standard
|	Cd	114	3888.7	19.0	0.4322	0.015	3.5	ug/L	72	Standard
>	In	115	992069.9	15.7				ug/L	1004638	Standard
|	Sn	118	255.0	16.2	0.0451	0.006	12.4	ug/L	364	Standard
|	Sb	123	3683.9	22.3	0.3724	0.155	41.6	ug/L	2464	Standard
|	Ba	135	200276.2	16.8	53.7139	0.975	1.8	ug/L	39	Standard
|	Ce	140	995517.7	17.1				ug/L	195	Standard
>	Tb	159	1681089.0	14.1				ug/L	1640193	Standard
|	Ho	165	86990.0	16.2				ug/L	25	Standard
|	Tl	203	1977.8	18.1	0.1274	0.005	3.6	ug/L	324	Standard
|	Tl	205	4804.1	17.8	0.1229	0.007	5.5	ug/L	698	Standard
|	Pb	206	33589.8	15.7	3.0108	0.020	0.7	ug/L	600	Standard
|	Pb	207	23989.3	16.6	2.4049	0.044	1.8	ug/L	541	Standard
|	Pb	208	87132.6	15.0	2.6625	0.024	0.9	ug/L	1750	Standard
	U	238	38982.8	10.4	3.0565	0.144	4.7	ug/L	10	Standard
>	Bi	209	779245.1	15.0				ug/L	811518	Standard

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Na	23	58.3	27.6	8.2418	2.369	28.7	mg/L	0	Standard
Mg	24	71.7	29.0	0.6533	0.584	89.5	mg/L	77	Standard
K	39	86.7	12.0	0.3361	0.094	27.9	mg/L	18	Standard
Ca	43	161.7	15.9	8.2798	8.843	106.8	mg/L	178	Standard
Fe	54	130.2	15.4	1.1658	0.338	29.0	mg/L	29	Standard
Fe	57	485.0	8.1	4.3358	0.874	20.2	mg/L	408	Standard
Sc-1	45	67095.8	9.5				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.3	22.3				ug/L	12	Standard
Br	81	1980.1	7.1				ug/L	1747	Standard
P	31	30.0	28.9				ug/L	17	Standard
S	34	8.3	69.3				ug/L	3	Standard
Sr	88	396.7	9.3				ug/L	370	Standard
C	12	30.0	57.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	206.7	7.4				mg/L	17	Standard
Dy	164	120281.1	16.9				mg/L	9	Standard
Ho-1	165	86990.0	16.2				mg/L	25	Standard
Er	166	80120.3	13.1				mg/L	20	Standard
I	127	34943.8	9.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.997	
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		105.586	
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	98.749
[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	96.023
[	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
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611053602

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Method 6020 - Summary Report

Sample ID: L1611053604

Sample Date/Time: Friday, November 11, 2016 14:26:17

Number of Replicates: 3

Autosampler Position: 209

Sample Description: 1

Method File: C:\NexlONData\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	213521.6	20.0				ug/L	206101	Standard
|	Be	9	961.7	11.7	0.3831	0.034	8.8	ug/L	25	Standard
|	Al	27	812075.6	13.1	4.0598	0.285	7.0	ug/L	1120	Standard
|	Sc	45	68232.8	10.9				ug/L	61425	Standard
|	Ti	47	4994.8	20.1	10.4370	0.412	4.0	ug/L	70	Standard
|	V	51	129427.4	14.2	11.4724	0.310	2.7	ug/L	3309	Standard
|	Cr	52	211415.0	14.5	19.7519	0.459	2.3	ug/L	13497	Standard
|	Cr	53	26622.0	13.7	18.7539	0.627	3.3	ug/L	3162	Standard
|	Mn	55	3111797.2	14.3	192.6792	4.573	2.4	ug/L	2226	Standard
|	Co	59	54246.0	16.4	4.1992	0.032	0.8	ug/L	1003	Standard
|	Ni	60	152374.5	16.9	55.6742	0.401	0.7	ug/L	355	Standard
|	Cu	65	35261.1	16.7	14.0368	0.121	0.9	ug/L	473	Standard
|	Zn	66	142700.0	16.8	111.9664	0.350	0.3	ug/L	341	Standard
>	Ge	72	588911.1	16.6				ug/L	566981	Standard
|	As	75	5353.7	18.4	4.2521	0.103	2.4	ug/L	-156	Standard
|	Se	82	113.5	22.5	0.7371	0.092	12.5	ug/L	35	Standard
|	Se-1	77	468.3	15.2	0.7659	0.088	11.5	ug/L	354	Standard
>	Ga	71	4632.4	22.6				mg/L	43	Standard
|	Rb	85	41690.3	18.9				ug/L	48	Standard
|	Y	89	1581038.1	17.9				ug/L	447702	Standard
>	Rh	103	45.0	11.1				ug/L	20	Standard
|	Mo	98	1969.4	16.5	0.4079	0.018	4.3	ug/L	158	Standard
|	Ag	107	731.4	21.4	0.0567	0.005	8.8	ug/L	133	Standard
|	Cd	111	1743.2	16.0	0.5268	0.008	1.6	mg/L	7	Standard
|	Cd	114	4531.4	18.5	0.5100	0.005	1.1	ug/L	72	Standard
>	In	115	983174.3	17.5				ug/L	1004638	Standard
|	Sn	118	223.3	7.3	0.0319	0.013	41.0	ug/L	364	Standard
|	Sb	123	1328.0	22.9	0.0972	0.061	62.4	ug/L	2464	Standard
|	Ba	135	137295.3	17.4	37.1959	0.117	0.3	ug/L	39	Standard
|	Ce	140	1072257.8	17.1				ug/L	195	Standard
>	Tb	159	1665122.6	14.7				ug/L	1640193	Standard
|	Ho	165	103611.9	17.6				ug/L	25	Standard
|	Tl	203	2294.2	14.2	0.1517	0.004	2.7	ug/L	324	Standard
|	Tl	205	5362.6	17.7	0.1387	0.005	3.3	ug/L	698	Standard
|	Pb	206	51106.5	17.5	4.6326	0.091	2.0	ug/L	600	Standard
|	Pb	207	36457.3	17.2	3.7054	0.066	1.8	ug/L	541	Standard
|	Pb	208	131833.0	14.9	4.0842	0.030	0.7	ug/L	1750	Standard
	U	238	53799.0	9.8	4.2511	0.241	5.7	ug/L	10	Standard
>	Bi	209	774068.3	15.5				ug/L	811518	Standard

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Na	23	35.0	37.8	4.8210	1.676	34.8	mg/L	0	Standard
Mg	24	73.3	28.4	0.6530	0.536	82.1	mg/L	77	Standard
K	39	96.7	16.6	0.3766	0.090	23.9	mg/L	18	Standard
Ca	43	125.0	18.3	17.0641	2.230	13.1	mg/L	178	Standard
Fe	54	561.3	26.7	6.2598	1.284	20.5	mg/L	29	Standard
Fe	57	671.7	14.2	10.6121	1.911	18.0	mg/L	408	Standard
Sc-1	45	68232.8	10.9				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.3	39.1				ug/L	12	Standard
Br	81	1666.8	18.3				ug/L	1747	Standard
P	31	21.7	66.6				ug/L	17	Standard
S	34	8.3	34.6				ug/L	3	Standard
Sr	88	408.3	13.1				ug/L	370	Standard
C	12	46.7	32.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	313.3	46.5				mg/L	17	Standard
Dy	164	149290.9	19.2				mg/L	9	Standard
Ho-1	165	103611.9	17.6				mg/L	25	Standard
Er	166	96636.2	16.7				mg/L	20	Standard
I	127	28979.6	10.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		103.600	
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		103.868	
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	97.864
[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	95.385
[Na	23	
[Mg	24	
[K	39	
[Ca	43	
[Fe	54	
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>	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
Mn 55 Upper, S, EEE	Mn	55	
Zn 66 Upper, S, EEE	Zn	66	

Sample ID: L1611053604

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Method 6020 - Summary Report

Sample ID: L1611053606

Sample Date/Time: Friday, November 11, 2016 14:29:23

Number of Replicates: 3

Autosampler Position: 210

Sample Description: 1

Method File: C:\NexlONData\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	219682.0	19.0				ug/L	206101	Standard
|	Be	9	1711.8	15.3	0.6736	0.056	8.2	ug/L	25	Standard
|	Al	27	2140216.6	26.8	10.2193	1.019	10.0	ug/L	1120	Standard
|	Sc	45	71465.0	12.8				ug/L	61425	Standard
|	Ti	47	5417.0	18.7	10.9385	0.121	1.1	ug/L	70	Standard
|	V	51	160409.2	14.3	13.7849	0.555	4.0	ug/L	3309	Standard
|	Cr	52	314954.0	13.6	29.0815	1.326	4.6	ug/L	13497	Standard
|	Cr	53	39291.4	12.8	27.8422	1.609	5.8	ug/L	3162	Standard
|	Mn	55	5073625.4	14.4	303.2638	10.466	3.5	ug/L	2226	Standard
|	Co	59	99760.1	16.3	7.5008	0.108	1.4	ug/L	1003	Standard
|	Ni	60	292916.3	16.4	103.4295	1.432	1.4	ug/L	355	Standard
|	Cu	65	77127.0	15.7	29.8790	0.676	2.3	ug/L	473	Standard
|	Zn	66	318886.0	15.8	242.0326	5.079	2.1	ug/L	341	Standard
>	Ge	72	611133.1	17.6				ug/L	566981	Standard
|	As	75	7931.7	17.3	6.0407	0.098	1.6	ug/L	-156	Standard
|	Se	82	347.7	18.9	2.8257	0.225	8.0	ug/L	35	Standard
|	Se-1	77	651.7	8.8	2.7436	0.764	27.8	ug/L	354	Standard
>	Ga	71	9154.5	17.4				mg/L	43	Standard
|	Rb	85	103286.4	17.6				ug/L	48	Standard
|	Y	89	1453295.2	18.0				ug/L	447702	Standard
>	Rh	103	48.3	21.5				ug/L	20	Standard
|	Mo	98	3797.7	16.7	0.7759	0.008	1.0	ug/L	158	Standard
|	Ag	107	1305.7	19.3	0.1096	0.006	5.8	ug/L	133	Standard
|	Cd	111	3294.5	17.9	0.9751	0.009	1.0	mg/L	7	Standard
|	Cd	114	8621.3	18.7	0.9496	0.013	1.3	ug/L	72	Standard
>	In	115	1007401.9	17.7				ug/L	1004638	Standard
|	Sn	118	293.0	17.0	0.0616	0.001	1.8	ug/L	364	Standard
|	Sb	123	887.1	19.6	0.0412	0.035	86.1	ug/L	2464	Standard
|	Ba	135	208158.0	16.4	55.1232	0.754	1.4	ug/L	39	Standard
|	Ce	140	1336529.9	16.0				ug/L	195	Standard
>	Tb	159	1672244.9	16.2				ug/L	1640193	Standard
|	Ho	165	92493.6	14.3				ug/L	25	Standard
|	Tl	203	4271.9	16.2	0.2877	0.005	1.7	ug/L	324	Standard
|	Tl	205	9988.3	16.0	0.2581	0.004	1.4	ug/L	698	Standard
|	Pb	206	73333.3	15.7	6.5705	0.083	1.3	ug/L	600	Standard
|	Pb	207	54591.6	14.6	5.4973	0.141	2.6	ug/L	541	Standard
|	Pb	208	196485.9	15.0	6.0098	0.091	1.5	ug/L	1750	Standard
	U	238	48193.5	10.9	3.7433	0.202	5.4	ug/L	10	Standard
>	Bi	209	787145.4	15.6				ug/L	811518	Standard

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Na	23	46.7	34.4	6.4243	3.137	48.8	mg/L	0	Standard
Mg	24	51.7	14.8	0.1496	0.150	100.6	mg/L	77	Standard
K	39	163.3	20.8	0.6649	0.068	10.2	mg/L	18	Standard
Ca	43	126.7	2.3	17.4435	4.032	23.1	mg/L	178	Standard
Fe	54	1263.4	18.8	13.9646	0.923	6.6	mg/L	29	Standard
Fe	57	710.0	6.1	11.0027	1.727	15.7	mg/L	408	Standard
Sc-1	45	71465.0	12.8				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.7	39.2				ug/L	12	Standard
Br	81	2083.5	15.6				ug/L	1747	Standard
P	31	31.7	24.1				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	450.0	12.4				ug/L	370	Standard
C	12	56.7	66.8				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	800.0	12.1				mg/L	17	Standard
Dy	164	126489.1	16.5				mg/L	9	Standard
Ho-1	165	92493.6	14.3				mg/L	25	Standard
Er	166	87372.3	16.4				mg/L	20	Standard
I	127	31531.2	7.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.589	
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		107.787	
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	100.275
[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	96.997
[	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
Mn 55 Upper, S, EEE	Mn	55	
Ni 60 Upper, S, EEE	Ni	60	
Zn 66 Upper, S, EEE	Zn	66	

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Method 6020 - Summary Report

Sample ID: L1611053608

Sample Date/Time: Friday, November 11, 2016 14:32:28

Number of Replicates: 3

Autosampler Position: 211

Sample Description: 1

Method File: C:\NexlONData\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	221632.8	19.1				ug/L	206101	Standard
|	Be	9	978.4	19.3	0.3707	0.025	6.7	ug/L	25	Standard
|	Al	27	741751.5	12.9	3.5683	0.229	6.4	ug/L	1120	Standard
|	Sc	45	68034.1	12.9				ug/L	61425	Standard
|	Ti	47	3864.5	18.6	7.7680	0.152	2.0	ug/L	70	Standard
|	V	51	81784.7	15.1	6.8685	0.155	2.3	ug/L	3309	Standard
|	Cr	52	168416.9	14.8	14.8457	0.400	2.7	ug/L	13497	Standard
|	Cr	53	20971.4	14.1	13.6435	0.500	3.7	ug/L	3162	Standard
|	Mn	55	3860349.8	15.2	230.5778	4.718	2.0	ug/L	2226	Standard
|	Co	59	79149.7	16.1	5.9427	0.076	1.3	ug/L	1003	Standard
|	Ni	60	163696.1	15.9	57.8136	0.952	1.6	ug/L	355	Standard
|	Cu	65	39000.3	16.2	15.0102	0.180	1.2	ug/L	473	Standard
|	Zn	66	131684.8	15.5	99.8658	1.754	1.8	ug/L	341	Standard
>	Ge	72	610344.4	17.1				ug/L	566981	Standard
|	As	75	3470.0	14.9	2.7109	0.065	2.4	ug/L	-156	Standard
|	Se	82	156.3	12.4	1.1028	0.075	6.8	ug/L	35	Standard
|	Se-1	77	477.7	9.7	0.7168	0.425	59.3	ug/L	354	Standard
>	Ga	71	3652.1	17.7				mg/L	43	Standard
|	Rb	85	48162.8	16.6				ug/L	48	Standard
|	Y	89	1336885.6	17.7				ug/L	447702	Standard
>	Rh	103	86.7	35.3				ug/L	20	Standard
|	Mo	98	1225.3	16.1	0.2409	0.004	1.6	ug/L	158	Standard
|	Ag	107	1150.0	19.9	0.0933	0.003	3.0	ug/L	133	Standard
|	Cd	111	1772.2	15.6	0.5166	0.012	2.4	mg/L	7	Standard
|	Cd	114	4430.2	20.0	0.4801	0.017	3.6	ug/L	72	Standard
>	In	115	1019451.0	17.4				ug/L	1004638	Standard
|	Sn	118	327.7	13.5	0.0771	0.007	9.2	ug/L	364	Standard
|	Sb	123	728.8	24.0	0.0223	0.033	148.9	ug/L	2464	Standard
|	Ba	135	198884.8	17.1	51.9763	0.147	0.3	ug/L	39	Standard
|	Ce	140	1033135.7	16.7				ug/L	195	Standard
>	Tb	159	1691981.9	15.7				ug/L	1640193	Standard
|	Ho	165	85931.3	17.6				ug/L	25	Standard
|	Tl	203	2161.5	15.9	0.1382	0.006	4.2	ug/L	324	Standard
|	Tl	205	5100.9	22.0	0.1279	0.009	6.7	ug/L	698	Standard
|	Pb	206	42014.5	16.3	3.7106	0.033	0.9	ug/L	600	Standard
|	Pb	207	29751.7	16.8	2.9421	0.032	1.1	ug/L	541	Standard
|	Pb	208	108098.0	16.1	3.2543	0.023	0.7	ug/L	1750	Standard
	U	238	52270.6	9.8	4.0325	0.248	6.2	ug/L	10	Standard
>	Bi	209	793386.8	15.8				ug/L	811518	Standard

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Na	23	50.0	70.0	6.7095	3.950	58.9	mg/L	0	Standard
Mg	24	53.3	35.5	0.2097	0.250	119.0	mg/L	77	Standard
K	39	123.3	10.2	0.5102	0.017	3.3	mg/L	18	Standard
Ca	43	126.7	14.9	15.9335	7.066	44.3	mg/L	178	Standard
Fe	54	391.7	24.4	4.2304	0.555	13.1	mg/L	29	Standard
Fe	57	591.7	5.1	8.0324	2.142	26.7	mg/L	408	Standard
Sc-1	45	68034.1	12.9				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	9.3	24.7				ug/L	12	Standard
Br	81	1986.8	10.6				ug/L	1747	Standard
P	31	35.0	51.5				ug/L	17	Standard
S	34	6.7	43.3				ug/L	3	Standard
Sr	88	360.0	3.7				ug/L	370	Standard
C	12	63.3	24.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	520.0	10.0				mg/L	17	Standard
Dy	164	117695.1	16.1				mg/L	9	Standard
Ho-1	165	85931.3	17.6				mg/L	25	Standard
Er	166	77753.3	18.1				mg/L	20	Standard
I	127	28916.1	11.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		107.536	
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		107.648	
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	101.474
[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	97.766
[	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
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611053608

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Method 6020 - Summary Report

Sample ID: L1611053608PS WG591380-01

Sample Date/Time: Friday, November 11, 2016 14:35:33

Number of Replicates: 3

Autosampler Position: 212

Sample Description: 1

Method File: C:\NexlONData\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	218472.0	17.0				ug/L	206101	Standard
|	Be	9	121947.4	17.8	49.2100	0.793	1.6	ug/L	25	Standard
|	Al	27	742150.7	14.2	3.6049	0.108	3.0	ug/L	1120	Standard
|	Sc	45	67289.2	13.4				ug/L	61425	Standard
|	Ti	47	3824.5	18.2	7.7638	0.178	2.3	ug/L	70	Standard
|	V	51	633285.7	14.5	55.8732	1.616	2.9	ug/L	3309	Standard
|	Cr	52	668596.8	14.3	63.9653	2.057	3.2	ug/L	13497	Standard
|	Cr	53	83335.3	15.0	62.3681	1.524	2.4	ug/L	3162	Standard
|	Mn	55	4888007.3	14.7	294.8647	8.075	2.7	ug/L	2226	Standard
|	Co	59	730717.2	15.9	55.9014	0.782	1.4	ug/L	1003	Standard
|	Ni	60	303821.0	15.6	108.4403	2.364	2.2	ug/L	355	Standard
|	Cu	65	168960.0	16.7	66.2678	1.187	1.8	ug/L	473	Standard
|	Zn	66	198255.1	16.3	151.7334	1.800	1.2	ug/L	341	Standard
>	Ge	72	604975.2	17.2				ug/L	566981	Standard
|	As	75	70037.7	16.6	53.0885	0.713	1.3	ug/L	-156	Standard
|	Se	82	5587.5	18.6	50.7559	0.849	1.7	ug/L	35	Standard
|	Se-1	77	4911.5	16.1	52.1846	1.432	2.7	ug/L	354	Standard
>	Ga	71	3712.1	22.8				mg/L	43	Standard
|	Rb	85	48074.1	15.9				ug/L	48	Standard
|	Y	89	1347148.7	15.8				ug/L	447702	Standard
>	Rh	103	93.3	30.9				ug/L	20	Standard
|	Mo	98	1259.6	16.0	0.2506	0.001	0.5	ug/L	158	Standard
|	Ag	107	506083.0	15.5	47.8632	0.806	1.7	ug/L	133	Standard
|	Cd	111	177218.5	17.0	52.7546	0.378	0.7	mg/L	7	Standard
|	Cd	114	449112.0	16.8	49.6351	0.563	1.1	ug/L	72	Standard
>	In	115	1008094.1	16.3				ug/L	1004638	Standard
|	Sn	118	246.3	9.4	0.0398	0.009	21.6	ug/L	364	Standard
|	Sb	123	452940.9	17.4	50.5083	0.573	1.1	ug/L	2464	Standard
|	Ba	135	379763.3	16.2	100.3629	0.677	0.7	ug/L	39	Standard
|	Ce	140	1013831.3	16.5				ug/L	195	Standard
>	Tb	159	1655261.2	14.9				ug/L	1640193	Standard
|	Ho	165	85871.9	16.3				ug/L	25	Standard
|	Tl	203	721217.9	15.5	50.7561	0.136	0.3	ug/L	324	Standard
|	Tl	205	1673286.6	14.8	44.0529	0.729	1.7	ug/L	698	Standard
|	Pb	206	600698.3	16.6	54.1490	0.694	1.3	ug/L	600	Standard
|	Pb	207	525764.1	15.9	53.2967	0.355	0.7	ug/L	541	Standard
|	Pb	208	1747967.4	15.2	53.8571	0.643	1.2	ug/L	1750	Standard
	U	238	723716.8	10.6	56.2000	2.863	5.1	ug/L	10	Standard
>	Bi	209	786819.9	15.4				ug/L	811518	Standard

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Na	23	51.7	22.3	7.3065	1.700	23.3	mg/L	0	Standard
Mg	24	70.0	21.4	0.6245	0.513	82.1	mg/L	77	Standard
K	39	115.0	30.1	0.4779	0.177	37.0	mg/L	18	Standard
Ca	43	113.3	11.1	18.9764	0.552	2.9	mg/L	178	Standard
Fe	54	370.7	22.2	4.0368	0.405	10.0	mg/L	29	Standard
Fe	57	601.7	8.5	8.8660	4.851	54.7	mg/L	408	Standard
Sc-1	45	67289.2	13.4				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	10.7	56.5				ug/L	12	Standard
Br	81	1926.8	13.5				ug/L	1747	Standard
P	31	33.3	17.3				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	388.3	14.8				ug/L	370	Standard
C	12	86.7	54.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	530.0	21.0				mg/L	17	Standard
Dy	164	118635.8	15.5				mg/L	9	Standard
Ho-1	165	85871.9	16.3				mg/L	25	Standard
Er	166	77745.3	15.0				mg/L	20	Standard
I	127	28039.4	8.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.002	
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		106.701	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611053608PS WG591380-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	100.344
[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	96.957
[	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
Mn 55 Upper, S, EEE	Mn	55	
Ni 60 Upper, S, EEE	Ni	60	
Zn 66 Upper, S, EEE	Zn	66	

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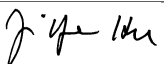
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Method 6020 - Summary Report

Sample ID: L1611053608SDL WG591380-02

Sample Date/Time: Friday, November 11, 2016 14:38:38

Number of Replicates: 3

Autosampler Position: 213

Sample Description: 5

Method File: C:\NexlONData\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	184745.9	20.1				ug/L	206101	Standard
|	Be	9	220.0	29.5	0.0854	0.014	16.4	ug/L	25	Standard
|	Al	27	136861.4	16.5	0.7921	0.034	4.3	ug/L	1120	Standard
|	Sc	45	55503.4	16.9				ug/L	61425	Standard
|	Ti	47	697.0	19.9	1.4675	0.026	1.8	ug/L	70	Standard
|	V	51	16385.3	15.4	1.3132	0.065	4.9	ug/L	3309	Standard
|	Cr	52	36466.2	15.3	2.5214	0.164	6.5	ug/L	13497	Standard
|	Cr	53	4580.7	16.5	1.4323	0.181	12.7	ug/L	3162	Standard
|	Mn	55	538348.3	18.1	36.1817	0.458	1.3	ug/L	2226	Standard
|	Co	59	14608.2	18.4	1.1887	0.012	1.0	ug/L	1003	Standard
|	Ni	60	30194.1	19.3	11.9278	0.023	0.2	ug/L	355	Standard
|	Cu	65	7367.8	18.8	3.0450	0.046	1.5	ug/L	473	Standard
|	Zn	66	26844.0	18.5	22.7516	0.235	1.0	ug/L	341	Standard
>	Ge	72	540370.4	19.3				ug/L	566981	Standard
|	As	75	467.4	12.6	0.5045	0.047	9.4	ug/L	-156	Standard
|	Se	82	42.3	5.6	0.1244	0.112	89.8	ug/L	35	Standard
|	Se-1	77	338.0	5.3	-0.3448	0.689	199.8	ug/L	354	Standard
>	Ga	71	743.4	32.1				mg/L	43	Standard
|	Rb	85	8397.4	21.5				ug/L	48	Standard
|	Y	89	549186.6	18.1				ug/L	447702	Standard
>	Rh	103	21.7	26.6				ug/L	20	Standard
|	Mo	98	219.9	9.5	0.0424	0.006	14.3	ug/L	158	Standard
|	Ag	107	312.7	25.6	0.0193	0.002	12.4	ug/L	133	Standard
|	Cd	111	342.4	20.6	0.1083	0.002	1.8	mg/L	7	Standard
|	Cd	114	811.9	23.6	0.0977	0.010	9.8	ug/L	72	Standard
>	In	115	893236.6	19.7				ug/L	1004638	Standard
|	Sn	118	116.7	22.8	-0.0168	0.002	14.7	ug/L	364	Standard
|	Sb	123	2597.3	27.2	0.2853	0.150	52.6	ug/L	2464	Standard
|	Ba	135	35710.9	17.8	10.6670	0.210	2.0	ug/L	39	Standard
|	Ce	140	186454.6	18.6				ug/L	195	Standard
>	Tb	159	1458764.8	16.9				ug/L	1640193	Standard
|	Ho	165	15589.9	17.9				ug/L	25	Standard
|	Tl	203	427.0	19.2	0.0198	0.001	4.4	ug/L	324	Standard
|	Tl	205	1038.4	19.6	0.0253	0.004	13.9	ug/L	698	Standard
|	Pb	206	7990.8	18.2	0.7295	0.017	2.4	ug/L	600	Standard
|	Pb	207	5712.8	18.8	0.5767	0.017	2.9	ug/L	541	Standard
|	Pb	208	21104.7	19.2	0.6531	0.012	1.8	ug/L	1750	Standard
	U	238	9801.2	13.8	0.8252	0.035	4.2	ug/L	10	Standard
>	Bi	209	727319.7	18.0				ug/L	811518	Standard

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Na	23	5.0	100.0	0.8109	0.848	104.5	mg/L	0	Standard
Mg	24	28.3	66.8	-0.0821	0.633	771.3	mg/L	77	Standard
K	39	20.0	50.0	0.0092	0.057	614.7	mg/L	18	Standard
Ca	43	128.3	33.1	8.7043	14.531	166.9	mg/L	178	Standard
Fe	54	104.2	29.3	1.0875	0.269	24.7	mg/L	29	Standard
Fe	57	501.7	7.5	9.1841	4.551	49.6	mg/L	408	Standard
Sc-1	45	55503.4	16.9				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	11.0	48.1				ug/L	12	Standard
Br	81	1366.7	23.1				ug/L	1747	Standard
P	31	33.3	22.9				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	378.3	10.7				ug/L	370	Standard
C	12	43.3	58.1				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	86.7	29.0				mg/L	17	Standard
Dy	164	21533.1	17.3				mg/L	9	Standard
Ho-1	165	15589.9	17.9				mg/L	25	Standard
Er	166	14130.1	20.5				mg/L	20	Standard
I	127	9376.2	8.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		89.638	
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		95.307	
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	88.911
[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	89.625
[	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: L1611053608SDL WG591380-02

Sample Date/Time: Friday, November 11, 2016 14:41:43

Number of Replicates: 3

Autosampler Position: 214

Sample Description: 25

Method File: C:\NexlONData\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	184075.3	18.1				ug/L	206101	Standard
|	Be	9	58.3	13.1	0.0096	0.006	62.4	ug/L	25	Standard
|	Al	27	31835.4	12.1	0.1897	0.011	6.0	ug/L	1120	Standard
|	Sc	45	52893.7	16.0				ug/L	61425	Standard
|	Ti	47	181.0	16.3	0.2830	0.045	16.0	ug/L	70	Standard
|	V	51	5523.6	8.5	0.2453	0.054	21.9	ug/L	3309	Standard
|	Cr	52	14652.5	9.7	0.1620	0.130	80.5	ug/L	13497	Standard
|	Cr	53	1926.8	8.0	-0.8398	0.202	24.1	ug/L	3162	Standard
|	Mn	55	121845.1	13.7	8.2541	0.324	3.9	ug/L	2226	Standard
|	Co	59	3524.4	10.9	0.2462	0.021	8.4	ug/L	1003	Standard
|	Ni	60	7061.3	12.8	2.7600	0.149	5.4	ug/L	355	Standard
|	Cu	65	1924.5	14.2	0.6653	0.029	4.4	ug/L	473	Standard
|	Zn	66	7279.8	14.6	6.0853	0.215	3.5	ug/L	341	Standard
>	Ge	72	530881.4	17.5				ug/L	566981	Standard
|	As	75	-17.4	168.8	0.0865	0.031	35.5	ug/L	-156	Standard
|	Se	82	19.3	59.1	-0.1311	0.101	76.9	ug/L	35	Standard
|	Se-1	77	314.0	9.0	-0.6150	0.567	92.2	ug/L	354	Standard
>	Ga	71	168.3	22.3				mg/L	43	Standard
|	Rb	85	1865.1	23.0				ug/L	48	Standard
|	Y	89	412188.2	16.3				ug/L	447702	Standard
>	Rh	103	35.0	75.6				ug/L	20	Standard
|	Mo	98	68.8	18.4	0.0066	0.001	16.9	ug/L	158	Standard
|	Ag	107	166.7	14.7	0.0042	0.002	45.4	ug/L	133	Standard
|	Cd	111	81.2	20.9	0.0207	0.001	3.9	mg/L	7	Standard
|	Cd	114	199.4	7.7	0.0226	0.006	27.4	ug/L	72	Standard
>	In	115	887068.5	18.1				ug/L	1004638	Standard
|	Sn	118	83.0	9.4	-0.0340	0.005	13.3	ug/L	364	Standard
|	Sb	123	939.3	26.1	0.0636	0.053	82.7	ug/L	2464	Standard
|	Ba	135	7995.5	15.1	2.4004	0.079	3.3	ug/L	39	Standard
|	Ce	140	42478.5	13.0				ug/L	195	Standard
>	Tb	159	1415591.8	16.3				ug/L	1640193	Standard
|	Ho	165	3437.1	15.9				ug/L	25	Standard
|	Tl	203	110.3	10.1	-0.0041	0.001	34.5	ug/L	324	Standard
|	Tl	205	308.3	16.6	0.0045	0.000	9.4	ug/L	698	Standard
|	Pb	206	2137.5	15.6	0.1598	0.003	2.0	ug/L	600	Standard
|	Pb	207	1538.1	11.6	0.1214	0.010	8.3	ug/L	541	Standard
|	Pb	208	5678.7	13.3	0.1422	0.007	5.1	ug/L	1750	Standard
	U	238	2152.8	12.1	0.1845	0.009	5.0	ug/L	10	Standard
>	Bi	209	721343.0	17.0				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2609	0.443	169.9	mg/L	0	Standard
Mg	24	55.0	15.7	0.5830	0.125	21.4	mg/L	77	Standard
K	39	16.7	45.8	-0.0077	0.032	412.9	mg/L	18	Standard
Ca	43	93.3	21.7	17.7305	5.090	28.7	mg/L	178	Standard
Fe	54	35.8	28.8	0.1046	0.088	84.5	mg/L	29	Standard
Fe	57	473.3	5.4	8.9278	4.326	48.5	mg/L	408	Standard
Sc-1	45	52893.7	16.0				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.7	31.2				ug/L	12	Standard
Br	81	1473.4	5.3				ug/L	1747	Standard
P	31	26.7	10.8				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	416.7	23.5				ug/L	370	Standard
C	12	73.3	41.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	23.3	65.5				mg/L	17	Standard
Dy	164	5044.4	13.8				mg/L	9	Standard
Ho-1	165	3437.1	15.9				mg/L	25	Standard
Er	166	2850.3	23.2				mg/L	20	Standard
I	127	6783.2	6.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		89.313	
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		93.633	
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	88.297
[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	88.888
[	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 6

Sample Date/Time: Friday, November 11, 2016 14:44:49

Number of Replicates: 3

Autosampler Position: 101

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	219253.9	16.7				ug/L	206101	Standard
|	Be	9	121895.1	16.2	49.0761	0.464	0.9	ug/L	25	Standard
|	Al	27	9505819.1	12.9	45.9896	1.898	4.1	ug/L	1120	Standard
|	Sc	45	58326.1	10.0				ug/L	61425	Standard
|	Ti	47	46461.0	13.6	97.6952	3.863	4.0	ug/L	70	Standard
|	V	51	558319.4	13.9	49.9018	1.731	3.5	ug/L	3309	Standard
|	Cr	52	513430.8	14.4	49.4252	1.583	3.2	ug/L	13497	Standard
|	Cr	53	64391.8	14.4	48.2976	1.584	3.3	ug/L	3162	Standard
|	Mn	55	817983.5	15.4	49.8281	1.126	2.3	ug/L	2226	Standard
|	Co	59	660302.9	16.1	51.1587	1.175	2.3	ug/L	1003	Standard
|	Ni	60	141366.5	16.2	51.0051	0.896	1.8	ug/L	355	Standard
|	Cu	65	130978.0	16.7	51.9895	1.036	2.0	ug/L	473	Standard
|	Zn	66	67628.1	15.7	52.2777	0.955	1.8	ug/L	341	Standard
>	Ge	72	596758.1	16.8				ug/L	566981	Standard
|	As	75	66328.2	17.0	50.9077	0.475	0.9	ug/L	-156	Standard
|	Se	82	5514.4	19.0	50.7215	1.401	2.8	ug/L	35	Standard
|	Se-1	77	4702.4	19.6	50.2373	1.628	3.2	ug/L	354	Standard
>	Ga	71	106.7	31.9				mg/L	43	Standard
|	Rb	85	670.0	14.3				ug/L	48	Standard
|	Y	89	437770.5	17.3				ug/L	447702	Standard
>	Rh	103	51.7	14.8				ug/L	20	Standard
|	Mo	98	475822.1	16.6	99.0083	0.927	0.9	ug/L	158	Standard
|	Ag	107	532414.2	16.4	50.7231	0.729	1.4	ug/L	133	Standard
|	Cd	111	176341.5	17.6	52.8949	1.030	1.9	mg/L	7	Standard
|	Cd	114	463586.2	17.8	51.6070	0.620	1.2	ug/L	72	Standard
>	In	115	1000237.9	16.8				ug/L	1004638	Standard
|	Sn	118	104870.8	18.4	50.8676	0.821	1.6	ug/L	364	Standard
|	Sb	123	454726.3	17.5	51.1210	0.873	1.7	ug/L	2464	Standard
|	Ba	135	184865.9	16.4	49.2438	0.523	1.1	ug/L	39	Standard
|	Ce	140	220.0	15.9				ug/L	195	Standard
>	Tb	159	1599333.6	15.8				ug/L	1640193	Standard
|	Ho	165	50.0	10.0				ug/L	25	Standard
|	Tl	203	712034.1	16.0	50.4281	0.528	1.0	ug/L	324	Standard
|	Tl	205	1695333.2	15.6	44.8936	0.482	1.1	ug/L	698	Standard
|	Pb	206	558596.3	15.5	50.7529	0.414	0.8	ug/L	600	Standard
|	Pb	207	498035.6	15.7	50.8413	0.639	1.3	ug/L	541	Standard
|	Pb	208	1658345.2	15.6	51.4155	0.417	0.8	ug/L	1750	Standard
	U	238	669072.9	9.9	52.3393	2.757	5.3	ug/L	10	Standard
>	Bi	209	781044.4	15.0				ug/L	811518	Standard

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Na	23	26.7	96.2	4.0795	3.696	90.6	mg/L	0	Standard
Mg	24	256.7	9.8	5.1939	0.016	0.3	mg/L	77	Standard
K	39	918.4	9.5	5.3035	0.546	10.3	mg/L	18	Standard
Ca	43	125.0	10.6	12.5870	0.668	5.3	mg/L	178	Standard
Fe	54	579.9	26.8	7.6145	1.383	18.2	mg/L	29	Standard
Fe	57	598.3	15.0	11.8414	4.859	41.0	mg/L	408	Standard
Sc-1	45	58326.1	10.0				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	5.7	27.0				ug/L	12	Standard
Br	81	1696.8	25.7				ug/L	1747	Standard
P	31	26.7	43.3				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	396.7	12.9				ug/L	370	Standard
C	12	60.0	72.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	52.2	12.3				mg/L	9	Standard
Ho-1	165	50.0	10.0				mg/L	25	Standard
Er	166	23.3	99.0				mg/L	20	Standard
I	127	3453.7	3.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
> Li	6			
Be	9	98.152		
Al	27	91.979		
Sc	45			
Ti	47	97.695		
V	51	99.804		
Cr	52	98.850		
Cr	53			
Mn	55	99.656		
Co	59	102.317		
Ni	60	102.010		
Cu	65	103.979		
Zn	66	104.555		
> Ge	72		105.252	
As	75	101.815		
Se	82	101.443		
Se-1	77			
> Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	99.008	
[Ag	107	101.446	
[Cd	111	105.790	
[Cd	114		
>	In	115		99.562
[Sn	118	101.735	
[	Sb	123	102.242	
[	Ba	135	98.488	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.856	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	102.831	
[	U	238	104.679	
>	Bi	209		96.245
[	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

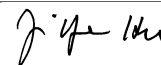
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 14:54:17

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	201206.2	22.9				ug/L	206101	Standard
|	Be	9	16.7	45.8	-0.0119	0.002	14.3	ug/L	25	Standard
|	Al	27	2421.9	11.5	0.0186	0.002	8.3	ug/L	1120	Standard
|	Sc	45	53213.1	15.3				ug/L	61425	Standard
|	Ti	47	127.7	118.3	0.1397	0.337	241.1	ug/L	70	Standard
|	V	51	3136.8	5.1	-0.0128	0.060	466.9	ug/L	3309	Standard
|	Cr	52	12751.7	9.4	-0.1285	0.182	141.7	ug/L	13497	Standard
|	Cr	53	1493.4	8.9	-1.3023	0.198	15.2	ug/L	3162	Standard
|	Mn	55	3903.9	30.2	0.1167	0.072	61.8	ug/L	2226	Standard
|	Co	59	815.4	7.1	0.0047	0.011	227.8	ug/L	1003	Standard
|	Ni	60	372.7	8.5	0.0205	0.029	142.4	ug/L	355	Standard
|	Cu	65	424.7	21.2	-0.0217	0.003	13.7	ug/L	473	Standard
|	Zn	66	372.0	12.8	0.0181	0.031	172.3	ug/L	341	Standard
>	Ge	72	567584.4	22.7				ug/L	566981	Standard
|	As	75	-105.3	45.0	0.0178	0.039	219.4	ug/L	-156	Standard
|	Se	82	34.8	23.8	0.0169	0.047	278.1	ug/L	35	Standard
|	Se-1	77	313.7	3.1	-0.8102	0.911	112.4	ug/L	354	Standard
>	Ga	71	46.7	37.6				mg/L	43	Standard
|	Rb	85	58.3	4.9				ug/L	48	Standard
|	Y	89	410444.4	23.0				ug/L	447702	Standard
>	Rh	103	35.0	24.7				ug/L	20	Standard
|	Mo	98	165.8	22.2	0.0290	0.014	47.8	ug/L	158	Standard
|	Ag	107	157.3	5.3	0.0025	0.003	112.4	ug/L	133	Standard
|	Cd	111	13.8	28.8	-0.0020	0.002	118.7	mg/L	7	Standard
|	Cd	114	93.6	21.2	0.0086	0.005	53.5	ug/L	72	Standard
>	In	115	941398.1	21.8				ug/L	1004638	Standard
|	Sn	118	364.7	5.4	0.1149	0.044	38.7	ug/L	364	Standard
|	Sb	123	5448.8	19.7	0.6247	0.244	39.1	ug/L	2464	Standard
|	Ba	135	44.7	13.7	0.0033	0.001	33.0	ug/L	39	Standard
|	Ce	140	35.0	51.5				ug/L	195	Standard
>	Tb	159	1504131.0	21.9				ug/L	1640193	Standard
|	Ho	165	23.3	53.9				ug/L	25	Standard
|	Tl	203	36.0	7.3	-0.0099	0.001	6.2	ug/L	324	Standard
|	Tl	205	83.3	34.6	-0.0019	0.001	64.7	ug/L	698	Standard
|	Pb	206	565.3	18.9	0.0031	0.001	38.8	ug/L	600	Standard
|	Pb	207	471.0	20.3	0.0007	0.000	64.9	ug/L	541	Standard
|	Pb	208	1588.0	21.7	0.0022	0.000	16.4	ug/L	1750	Standard
	U	238	14.3	16.1	0.0033	0.000	14.0	ug/L	10	Standard
>	Bi	209	742766.3	21.1				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	40.0	54.5	0.2181	0.660	302.4	mg/L	77	Standard
K	39	8.3	124.9	-0.0642	0.058	90.5	mg/L	18	Standard
Ca	43	96.7	21.5	16.7164	6.616	39.6	mg/L	178	Standard
Fe	54	29.1	30.5	0.0019	0.086	4622.8	mg/L	29	Standard
Fe	57	435.0	11.9	7.1138	5.171	72.7	mg/L	408	Standard
Sc-1	45	53213.1	15.3				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	12.3	9.4				ug/L	12	Standard
Br	81	1733.4	10.3				ug/L	1747	Standard
P	31	33.3	22.9				ug/L	17	Standard
S	34	5.0	0.0				ug/L	3	Standard
Sr	88	373.3	7.4				ug/L	370	Standard
C	12	46.7	32.7				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	19.2	53.3				mg/L	9	Standard
Ho-1	165	23.3	53.9				mg/L	25	Standard
Er	166	16.7	34.6				mg/L	20	Standard
I	127	3823.8	6.9				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		100.106	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	93.705
[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	91.528
[	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 7	Sb	123	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: L1611053610

Sample Date/Time: Friday, November 11, 2016 14:57:24

Number of Replicates: 3

Autosampler Position: 215

Sample Description: 1

Method File: C:\NexlONData\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	218941.6	18.3				ug/L	206101	Standard
|	Be	9	1480.1	16.4	0.5791	0.016	2.8	ug/L	25	Standard
|	Al	27	1452468.4	13.0	7.0576	0.383	5.4	ug/L	1120	Standard
|	Sc	45	71960.1	10.7				ug/L	61425	Standard
|	Ti	47	5254.9	19.4	10.6838	0.456	4.3	ug/L	70	Standard
|	V	51	122458.5	13.4	10.5422	0.464	4.4	ug/L	3309	Standard
|	Cr	52	227185.6	13.3	20.7391	0.921	4.4	ug/L	13497	Standard
|	Cr	53	28680.8	13.2	19.7870	0.882	4.5	ug/L	3162	Standard
|	Mn	55	6087767.1	15.3	366.2847	9.336	2.5	ug/L	2226	Standard
|	Co	59	121715.9	16.7	9.2331	0.149	1.6	ug/L	1003	Standard
|	Ni	60	256373.3	16.9	91.1544	1.924	2.1	ug/L	355	Standard
|	Cu	65	51494.5	17.8	19.9898	0.261	1.3	ug/L	473	Standard
|	Zn	66	177372.0	16.8	135.3873	1.041	0.8	ug/L	341	Standard
[>	Ge	72	605905.7	17.1				ug/L	566981	Standard
|	As	75	5414.8	19.1	4.1813	0.081	1.9	ug/L	-156	Standard
|	Se	82	136.6	17.8	0.9237	0.011	1.2	ug/L	35	Standard
|	Se-1	77	516.3	15.1	1.1690	0.133	11.4	ug/L	354	Standard
[>	Ga	71	6706.5	20.3				mg/L	43	Standard
|	Rb	85	62069.8	18.5				ug/L	48	Standard
|	Y	89	1957852.2	32.5				ug/L	447702	Standard
[>	Rh	103	73.3	27.6				ug/L	20	Standard
|	Mo	98	1481.0	17.0	0.2953	0.004	1.5	ug/L	158	Standard
|	Ag	107	975.7	20.8	0.0778	0.005	6.2	ug/L	133	Standard
|	Cd	111	2756.7	17.0	0.8124	0.005	0.7	mg/L	7	Standard
|	Cd	114	7107.5	19.4	0.7789	0.027	3.5	ug/L	72	Standard
[>	In	115	1010480.6	16.6				ug/L	1004638	Standard
|	Sn	118	342.7	10.2	0.0862	0.011	13.3	ug/L	364	Standard
|	Sb	123	1603.8	23.8	0.1238	0.067	53.9	ug/L	2464	Standard
|	Ba	135	194694.5	16.2	51.3393	0.301	0.6	ug/L	39	Standard
|	Ce	140	1564246.9	15.9				ug/L	195	Standard
[>	Tb	159	1677102.2	14.1				ug/L	1640193	Standard
|	Ho	165	122127.4	16.5				ug/L	25	Standard
|	Tl	203	3310.4	17.1	0.2191	0.007	3.3	ug/L	324	Standard
|	Tl	205	7935.5	18.8	0.2030	0.009	4.3	ug/L	698	Standard
|	Pb	206	70453.2	16.1	6.2863	0.104	1.7	ug/L	600	Standard
|	Pb	207	51702.6	16.0	5.1767	0.082	1.6	ug/L	541	Standard
|	Pb	208	184555.6	16.0	5.6164	0.079	1.4	ug/L	1750	Standard
	U	238	51396.7	10.7	3.9771	0.161	4.1	ug/L	10	Standard
[>	Bi	209	788992.9	14.7				ug/L	811518	Standard

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Na	23	78.3	42.5	10.0435	3.260	32.5	mg/L	0	Standard
Mg	24	56.7	5.1	0.2439	0.175	71.7	mg/L	77	Standard
K	39	160.0	13.6	0.6608	0.170	25.7	mg/L	18	Standard
Ca	43	121.7	29.7	18.3641	8.893	48.4	mg/L	178	Standard
Fe	54	559.8	29.9	5.8559	1.251	21.4	mg/L	29	Standard
Fe	57	556.7	12.2	5.5406	1.377	24.9	mg/L	408	Standard
Sc-1	45	71960.1	10.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.7	36.3				ug/L	12	Standard
Br	81	1830.1	14.1				ug/L	1747	Standard
P	31	25.0	0.0				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	385.0	13.7				ug/L	370	Standard
C	12	26.7	78.1				mg/L	47	Standard
N	14	6.7	173.2				mg/L	0	Standard
Hg	202	630.0	21.8				mg/L	17	Standard
Dy	164	170967.5	18.8				mg/L	9	Standard
Ho-1	165	122127.4	16.5				mg/L	25	Standard
Er	166	114277.7	17.2				mg/L	20	Standard
I	127	26984.1	8.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		106.230	
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		106.865	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611053610

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	100.582
[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	97.224
[	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
Mn 55 Upper, S, EEE	Mn	55	
Zn 66 Upper, S, EEE	Zn	66	

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Method 6020 - Summary Report

Sample ID: L1611053612

Sample Date/Time: Friday, November 11, 2016 15:00:30

Number of Replicates: 3

Autosampler Position: 216

Sample Description: 1

Method File: C:\NexlONData\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	216990.0	16.9				ug/L	206101	Standard
|	Be	9	590.0	13.3	0.2228	0.023	10.2	ug/L	25	Standard
|	Al	27	542179.1	13.9	2.6537	0.088	3.3	ug/L	1120	Standard
|	Sc	45	65660.1	12.6				ug/L	61425	Standard
|	Ti	47	3787.5	22.3	7.5653	0.635	8.4	ug/L	70	Standard
|	V	51	50818.8	14.9	4.1417	0.101	2.4	ug/L	3309	Standard
|	Cr	52	115099.0	15.4	9.6525	0.231	2.4	ug/L	13497	Standard
|	Cr	53	14447.0	14.3	8.5800	0.339	4.0	ug/L	3162	Standard
|	Mn	55	2825498.1	27.7	165.9006	21.469	12.9	ug/L	2226	Standard
|	Co	59	49948.7	16.8	3.7185	0.060	1.6	ug/L	1003	Standard
|	Ni	60	108088.4	16.0	38.0679	0.603	1.6	ug/L	355	Standard
|	Cu	65	23596.0	17.1	8.9776	0.020	0.2	ug/L	473	Standard
|	Zn	66	54154.2	17.3	40.7520	0.482	1.2	ug/L	341	Standard
>	Ge	72	611314.6	17.0				ug/L	566981	Standard
|	As	75	2558.0	23.4	2.0053	0.140	7.0	ug/L	-156	Standard
|	Se	82	90.9	13.6	0.5037	0.038	7.5	ug/L	35	Standard
|	Se-1	77	436.7	7.6	0.2489	0.533	213.9	ug/L	354	Standard
>	Ga	71	2140.2	21.8				mg/L	43	Standard
|	Rb	85	23118.0	17.3				ug/L	48	Standard
|	Y	89	1140752.5	17.7				ug/L	447702	Standard
>	Rh	103	40.0	69.6				ug/L	20	Standard
|	Mo	98	843.3	18.9	0.1619	0.004	2.6	ug/L	158	Standard
|	Ag	107	744.7	16.7	0.0556	0.000	0.2	ug/L	133	Standard
|	Cd	111	992.3	14.4	0.2860	0.008	2.8	mg/L	7	Standard
|	Cd	114	2590.6	17.6	0.2802	0.022	7.9	ug/L	72	Standard
>	In	115	1020844.4	16.6				ug/L	1004638	Standard
|	Sn	118	235.3	13.7	0.0325	0.004	10.8	ug/L	364	Standard
|	Sb	123	1119.9	23.0	0.0669	0.048	72.5	ug/L	2464	Standard
|	Ba	135	80299.7	17.9	20.9159	0.305	1.5	ug/L	39	Standard
|	Ce	140	706552.2	15.8				ug/L	195	Standard
>	Tb	159	1678271.2	16.0				ug/L	1640193	Standard
|	Ho	165	65046.7	16.1				ug/L	25	Standard
|	Tl	203	1428.4	15.4	0.0859	0.001	1.7	ug/L	324	Standard
|	Tl	205	3422.1	16.4	0.0838	0.003	3.9	ug/L	698	Standard
|	Pb	206	23875.4	15.9	2.0615	0.019	0.9	ug/L	600	Standard
|	Pb	207	16991.0	17.5	1.6364	0.029	1.8	ug/L	541	Standard
|	Pb	208	61575.5	16.5	1.8086	0.017	0.9	ug/L	1750	Standard
	U	238	27857.5	11.1	2.1210	0.106	5.0	ug/L	10	Standard
>	Bi	209	803295.0	15.9				ug/L	811518	Standard

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Na	23	21.7	26.6	3.1758	1.065	33.5	mg/L	0	Standard
Mg	24	55.0	27.3	0.2918	0.228	78.0	mg/L	77	Standard
K	39	78.3	32.1	0.3110	0.191	61.4	mg/L	18	Standard
Ca	43	100.0	18.0	20.7583	6.559	31.6	mg/L	178	Standard
Fe	54	167.0	27.3	1.6150	0.326	20.2	mg/L	29	Standard
Fe	57	498.3	8.4	5.2763	1.446	27.4	mg/L	408	Standard
Sc-1	45	65660.1	12.6				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.7	10.8				ug/L	12	Standard
Br	81	1910.1	19.9				ug/L	1747	Standard
P	31	26.7	10.8				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	433.3	20.4				ug/L	370	Standard
C	12	60.0					mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	260.0	37.1				mg/L	17	Standard
Dy	164	97516.9	16.7				mg/L	9	Standard
Ho-1	165	65046.7	16.1				mg/L	25	Standard
Er	166	59298.4	18.3				mg/L	20	Standard
I	127	22652.0	9.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		105.283	
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		107.819	
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	101.613
[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	98.987
[	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
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611053612

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Method 6020 - Summary Report

Sample ID: L1611053614

Sample Date/Time: Friday, November 11, 2016 15:03:35

Number of Replicates: 3

Autosampler Position: 217

Sample Description: 1

Method File: C:\NexlONData\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	222619.7	20.8				ug/L	206101	Standard
|	Be	9	1023.4	11.7	0.3936	0.056	14.2	ug/L	25	Standard
|	Al	27	1042527.3	12.5	5.0098	0.426	8.5	ug/L	1120	Standard
|	Sc	45	71374.2	11.5				ug/L	61425	Standard
|	Ti	47	5875.2	16.8	11.8846	0.108	0.9	ug/L	70	Standard
|	V	51	114011.0	12.4	9.7126	0.555	5.7	ug/L	3309	Standard
|	Cr	52	311234.7	13.1	28.6894	1.481	5.2	ug/L	13497	Standard
|	Cr	53	39989.9	12.5	28.3433	1.701	6.0	ug/L	3162	Standard
|	Mn	55	5347047.7	13.5	319.4129	13.757	4.3	ug/L	2226	Standard
|	Co	59	112881.7	15.2	8.4931	0.220	2.6	ug/L	1003	Standard
|	Ni	60	195709.6	15.3	69.0386	1.704	2.5	ug/L	355	Standard
|	Cu	65	42723.5	15.8	16.4339	0.323	2.0	ug/L	473	Standard
|	Zn	66	137898.8	14.5	104.4924	3.349	3.2	ug/L	341	Standard
>	Ge	72	612079.5	17.6				ug/L	566981	Standard
|	As	75	4286.0	16.8	3.3094	0.031	0.9	ug/L	-156	Standard
|	Se	82	227.7	19.5	1.7331	0.047	2.7	ug/L	35	Standard
|	Se-1	77	584.3	8.8	1.9527	0.698	35.7	ug/L	354	Standard
>	Ga	71	4252.3	24.0				mg/L	43	Standard
|	Rb	85	52288.3	16.0				ug/L	48	Standard
|	Y	89	1707193.6	17.0				ug/L	447702	Standard
>	Rh	103	63.3	4.6				ug/L	20	Standard
|	Mo	98	4668.6	16.0	0.9378	0.010	1.1	ug/L	158	Standard
|	Ag	107	2354.2	13.8	0.2054	0.005	2.6	ug/L	133	Standard
|	Cd	111	2217.8	16.6	0.6425	0.015	2.3	mg/L	7	Standard
|	Cd	114	5567.2	15.4	0.6026	0.026	4.3	ug/L	72	Standard
>	In	115	1025230.7	15.8				ug/L	1004638	Standard
|	Sn	118	265.7	13.1	0.0464	0.004	9.6	ug/L	364	Standard
|	Sb	123	955.1	17.6	0.0465	0.034	73.3	ug/L	2464	Standard
|	Ba	135	175964.5	14.9	45.7529	0.956	2.1	ug/L	39	Standard
|	Ce	140	1095627.0	13.8				ug/L	195	Standard
>	Tb	159	1703309.3	15.4				ug/L	1640193	Standard
|	Ho	165	109680.5	13.8				ug/L	25	Standard
|	Tl	203	2715.2	17.1	0.1746	0.003	1.4	ug/L	324	Standard
|	Tl	205	6459.7	16.3	0.1623	0.003	1.9	ug/L	698	Standard
|	Pb	206	45615.1	14.2	3.9992	0.075	1.9	ug/L	600	Standard
|	Pb	207	32294.9	15.5	3.1681	0.013	0.4	ug/L	541	Standard
|	Pb	208	117488.2	14.6	3.5088	0.050	1.4	ug/L	1750	Standard
	U	238	55074.6	10.2	4.2020	0.243	5.8	ug/L	10	Standard
>	Bi	209	801923.5	15.9				ug/L	811518	Standard

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Na	23	66.7	42.6	8.5865	2.915	33.9	mg/L	0	Standard
Mg	24	43.3	17.6	-0.0028	0.206	7402.6	mg/L	77	Standard
K	39	101.7	44.1	0.3849	0.242	62.9	mg/L	18	Standard
Ca	43	123.3	9.4	18.1484	4.173	23.0	mg/L	178	Standard
Fe	54	593.1	20.9	6.3147	0.674	10.7	mg/L	29	Standard
Fe	57	590.0	9.6	7.1401	4.375	61.3	mg/L	408	Standard
Sc-1	45	71374.2	11.5				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.3	34.3				ug/L	12	Standard
Br	81	2036.8	16.1				ug/L	1747	Standard
P	31	20.0	43.3				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	381.7	16.5				ug/L	370	Standard
C	12	60.0	33.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	416.7	5.0				mg/L	17	Standard
Dy	164	152872.3	16.4				mg/L	9	Standard
Ho-1	165	109680.5	13.8				mg/L	25	Standard
Er	166	97991.0	15.7				mg/L	20	Standard
I	127	26411.4	7.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		108.015	
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		107.954	
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	102.050
[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	98.818
[	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
Mn 55 Upper, S, EEE	Mn	55	
Zn 66 Upper, S, EEE	Zn	66	

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Method 6020 - Summary Report

Sample ID: L1611053616

Sample Date/Time: Friday, November 11, 2016 15:06:40

Number of Replicates: 3

Autosampler Position: 218

Sample Description: 1

Method File: C:\NexlONData\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	214680.6	17.0				ug/L	206101	Standard
|	Be	9	971.7	21.4	0.3796	0.033	8.8	ug/L	25	Standard
|	Al	27	673943.6	12.2	3.3393	0.164	4.9	ug/L	1120	Standard
|	Sc	45	67509.7	11.4				ug/L	61425	Standard
|	Ti	47	3896.8	19.7	8.0283	0.234	2.9	ug/L	70	Standard
|	V	51	93209.2	14.2	8.0895	0.241	3.0	ug/L	3309	Standard
|	Cr	52	182136.6	14.2	16.6371	0.577	3.5	ug/L	13497	Standard
|	Cr	53	23022.7	15.1	15.6616	0.508	3.2	ug/L	3162	Standard
|	Mn	55	4063932.4	14.7	249.0910	5.842	2.3	ug/L	2226	Standard
|	Co	59	107420.7	16.1	8.2961	0.076	0.9	ug/L	1003	Standard
|	Ni	60	159857.6	15.8	57.9073	0.746	1.3	ug/L	355	Standard
|	Cu	65	40083.0	17.7	15.8040	0.107	0.7	ug/L	473	Standard
|	Zn	66	99422.3	16.5	77.1654	0.650	0.8	ug/L	341	Standard
>	Ge	72	595075.2	17.0				ug/L	566981	Standard
|	As	75	4181.8	17.6	3.3155	0.020	0.6	ug/L	-156	Standard
|	Se	82	132.7	20.0	0.9137	0.142	15.5	ug/L	35	Standard
|	Se-1	77	481.3	4.6	0.9333	0.714	76.5	ug/L	354	Standard
>	Ga	71	3130.3	21.3				mg/L	43	Standard
|	Rb	85	46370.7	17.9				ug/L	48	Standard
|	Y	89	1304137.5	17.9				ug/L	447702	Standard
>	Rh	103	51.7	34.0				ug/L	20	Standard
|	Mo	98	1352.9	13.2	0.2709	0.011	3.9	ug/L	158	Standard
|	Ag	107	941.4	19.5	0.0748	0.004	5.2	ug/L	133	Standard
|	Cd	111	1637.0	19.3	0.4798	0.012	2.4	mg/L	7	Standard
|	Cd	114	4291.4	23.1	0.4683	0.045	9.6	ug/L	72	Standard
>	In	115	1008074.3	17.0				ug/L	1004638	Standard
|	Sn	118	220.7	12.9	0.0269	0.004	15.8	ug/L	364	Standard
|	Sb	123	826.8	17.6	0.0339	0.031	92.0	ug/L	2464	Standard
|	Ba	135	169640.7	17.0	44.8149	0.275	0.6	ug/L	39	Standard
|	Ce	140	944946.3	16.1				ug/L	195	Standard
>	Tb	159	1648022.5	15.6				ug/L	1640193	Standard
|	Ho	165	78946.6	15.2				ug/L	25	Standard
|	Tl	203	2419.9	18.0	0.1570	0.003	1.6	ug/L	324	Standard
|	Tl	205	5364.3	16.7	0.1364	0.003	1.9	ug/L	698	Standard
|	Pb	206	38725.0	16.7	3.4391	0.057	1.6	ug/L	600	Standard
|	Pb	207	27939.5	16.6	2.7800	0.033	1.2	ug/L	541	Standard
|	Pb	208	101728.6	16.3	3.0806	0.018	0.6	ug/L	1750	Standard
	U	238	42226.2	10.7	3.2782	0.190	5.8	ug/L	10	Standard
>	Bi	209	788367.8	16.5				ug/L	811518	Standard

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Na	23	61.7	40.0	8.4750	2.513	29.7	mg/L	0	Standard
Mg	24	46.7	27.0	0.0884	0.146	165.6	mg/L	77	Standard
K	39	110.0	19.8	0.4430	0.065	14.7	mg/L	18	Standard
Ca	43	101.7	7.5	21.2657	3.791	17.8	mg/L	178	Standard
Fe	54	373.3	22.2	4.0512	0.511	12.6	mg/L	29	Standard
Fe	57	593.3	12.9	8.2760	3.895	47.1	mg/L	408	Standard
Sc-1	45	67509.7	11.4				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.3	66.1				ug/L	12	Standard
Br	81	1806.8	16.3				ug/L	1747	Standard
P	31	31.7	36.5				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	408.3	5.5				ug/L	370	Standard
C	12	56.7	36.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	293.3	9.8				mg/L	17	Standard
Dy	164	109449.5	15.6				mg/L	9	Standard
Ho-1	165	78946.6	15.2				mg/L	25	Standard
Er	166	70615.2	20.0				mg/L	20	Standard
I	127	25302.9	9.5				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		104.163	
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		104.955	
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	100.342
[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	97.147
[	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
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1611053618

Sample Date/Time: Friday, November 11, 2016 15:09:46

Number of Replicates: 3

Autosampler Position: 219

Sample Description: 1

Method File: C:\NexlONData\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	217239.5	20.6				ug/L	206101	Standard
|	Be	9	1165.0	13.8	0.4604	0.051	11.2	ug/L	25	Standard
|	Al	27	1026846.3	14.7	5.0447	0.370	7.3	ug/L	1120	Standard
|	Sc	45	70566.0	13.8				ug/L	61425	Standard
|	Ti	47	5224.9	19.1	10.6161	0.155	1.5	ug/L	70	Standard
|	V	51	135811.9	16.2	11.6833	0.371	3.2	ug/L	3309	Standard
|	Cr	52	202113.4	15.8	18.2281	0.704	3.9	ug/L	13497	Standard
|	Cr	53	25206.4	17.3	16.9796	0.456	2.7	ug/L	3162	Standard
|	Mn	55	4419347.5	16.7	265.3793	7.088	2.7	ug/L	2226	Standard
|	Co	59	94270.5	18.3	7.1204	0.095	1.3	ug/L	1003	Standard
|	Ni	60	220400.8	18.6	78.1522	0.682	0.9	ug/L	355	Standard
|	Cu	65	46091.4	19.3	17.8254	0.030	0.2	ug/L	473	Standard
|	Zn	66	126507.5	17.4	96.3784	2.038	2.1	ug/L	341	Standard
>	Ge	72	607879.5	19.2				ug/L	566981	Standard
|	As	75	6568.3	19.2	5.0449	0.008	0.2	ug/L	-156	Standard
|	Se	82	139.3	12.3	0.9577	0.092	9.6	ug/L	35	Standard
|	Se-1	77	496.7	5.9	1.0148	0.822	81.0	ug/L	354	Standard
>	Ga	71	5044.2	17.4				mg/L	43	Standard
|	Rb	85	71883.3	20.7				ug/L	48	Standard
|	Y	89	1411614.8	17.7				ug/L	447702	Standard
>	Rh	103	75.0	26.7				ug/L	20	Standard
|	Mo	98	1356.2	21.9	0.2700	0.012	4.3	ug/L	158	Standard
|	Ag	107	1106.7	20.6	0.0909	0.005	6.0	ug/L	133	Standard
|	Cd	111	2216.1	19.0	0.6547	0.004	0.6	mg/L	7	Standard
|	Cd	114	5736.0	18.7	0.6325	0.018	2.9	ug/L	72	Standard
>	In	115	1005732.1	18.5				ug/L	1004638	Standard
|	Sn	118	251.0	18.0	0.0415	0.007	16.2	ug/L	364	Standard
|	Sb	123	754.1	9.2	0.0254	0.024	94.0	ug/L	2464	Standard
|	Ba	135	213237.9	19.1	56.4553	1.413	2.5	ug/L	39	Standard
|	Ce	140	1452747.7	18.6				ug/L	195	Standard
>	Tb	159	1675816.0	16.4				ug/L	1640193	Standard
|	Ho	165	91449.5	18.2				ug/L	25	Standard
|	Tl	203	3274.4	18.1	0.2160	0.002	0.8	ug/L	324	Standard
|	Tl	205	7933.8	19.5	0.2024	0.003	1.6	ug/L	698	Standard
|	Pb	206	56649.7	18.2	5.0264	0.027	0.5	ug/L	600	Standard
|	Pb	207	41370.0	18.7	4.1151	0.035	0.9	ug/L	541	Standard
|	Pb	208	147908.3	17.4	4.4793	0.032	0.7	ug/L	1750	Standard
	U	238	52686.8	12.7	4.0676	0.222	5.4	ug/L	10	Standard
>	Bi	209	792799.9	18.0				ug/L	811518	Standard

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Na	23	61.7	38.3	8.0530	2.260	28.1	mg/L	0	Standard
Mg	24	55.0	15.7	0.2198	0.079	35.8	mg/L	77	Standard
K	39	158.3	9.6	0.6633	0.098	14.8	mg/L	18	Standard
Ca	43	110.0	24.1	20.6549	5.174	25.1	mg/L	178	Standard
Fe	54	427.9	30.4	4.4806	0.962	21.5	mg/L	29	Standard
Fe	57	630.0	8.1	8.5407	1.420	16.6	mg/L	408	Standard
Sc-1	45	70566.0	13.8				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	15.0	17.6				ug/L	12	Standard
Br	81	1713.4	25.2				ug/L	1747	Standard
P	31	15.0	120.2				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	365.0	13.5				ug/L	370	Standard
C	12	46.7	75.3				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	460.0	19.6				mg/L	17	Standard
Dy	164	129993.2	20.4				mg/L	9	Standard
Ho-1	165	91449.5	18.2				mg/L	25	Standard
Er	166	83425.0	19.8				mg/L	20	Standard
I	127	25581.7	10.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		105.404	
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		107.213	
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	100.109
[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	97.693
[	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
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611053618

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Method 6020 - Summary Report

Sample ID: L1611053620

Sample Date/Time: Friday, November 11, 2016 15:12:51

Number of Replicates: 3

Autosampler Position: 220

Sample Description: 1

Method File: C:\NexlONData\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	222669.3	18.1				ug/L	206101	Standard
|	Be	9	1120.0	20.8	0.4235	0.018	4.2	ug/L	25	Standard
|	Al	27	806148.3	11.9	3.8578	0.246	6.4	ug/L	1120	Standard
|	Sc	45	71948.6	11.6				ug/L	61425	Standard
|	Ti	47	5587.1	19.5	11.2717	0.264	2.3	ug/L	70	Standard
|	V	51	132939.7	13.1	11.3753	0.497	4.4	ug/L	3309	Standard
|	Cr	52	325095.3	14.2	30.0145	1.015	3.4	ug/L	13497	Standard
|	Cr	53	41057.9	14.0	29.1354	1.068	3.7	ug/L	3162	Standard
|	Mn	55	3234458.6	14.9	192.9930	4.686	2.4	ug/L	2226	Standard
|	Co	59	69146.9	16.4	5.1748	0.052	1.0	ug/L	1003	Standard
|	Ni	60	183336.3	16.5	64.6306	0.605	0.9	ug/L	355	Standard
|	Cu	65	49526.0	17.0	19.0721	0.079	0.4	ug/L	473	Standard
|	Zn	66	176359.7	15.7	133.6403	2.160	1.6	ug/L	341	Standard
>	Ge	72	611249.7	17.3				ug/L	566981	Standard
|	As	75	6350.1	17.4	4.8535	0.007	0.1	ug/L	-156	Standard
|	Se	82	167.0	16.9	1.2035	0.242	20.1	ug/L	35	Standard
|	Se-1	77	544.3	11.1	1.4769	0.524	35.5	ug/L	354	Standard
>	Ga	71	4462.3	23.7				mg/L	43	Standard
|	Rb	85	52282.3	19.6				ug/L	48	Standard
|	Y	89	1653750.1	18.0				ug/L	447702	Standard
>	Rh	103	83.3	36.7				ug/L	20	Standard
|	Mo	98	7741.8	15.7	1.5613	0.041	2.6	ug/L	158	Standard
|	Ag	107	871.7	20.1	0.0667	0.002	2.4	ug/L	133	Standard
|	Cd	111	1819.1	17.2	0.5251	0.012	2.2	mg/L	7	Standard
|	Cd	114	4812.8	20.8	0.5168	0.015	3.0	ug/L	72	Standard
>	In	115	1028964.0	18.2				ug/L	1004638	Standard
|	Sn	118	296.3	27.9	0.0584	0.014	23.5	ug/L	364	Standard
|	Sb	123	684.6	9.0	0.0154	0.020	132.3	ug/L	2464	Standard
|	Ba	135	208531.2	17.2	54.0644	1.118	2.1	ug/L	39	Standard
|	Ce	140	1187125.6	17.1				ug/L	195	Standard
>	Tb	159	1924595.9	31.4				ug/L	1640193	Standard
|	Ho	165	110008.8	16.9				ug/L	25	Standard
|	Tl	203	1820.1	15.0	0.1129	0.001	1.2	ug/L	324	Standard
|	Tl	205	4370.6	16.4	0.1082	0.002	2.2	ug/L	698	Standard
|	Pb	206	53135.3	16.4	4.6490	0.109	2.3	ug/L	600	Standard
|	Pb	207	37891.5	16.7	3.7156	0.101	2.7	ug/L	541	Standard
|	Pb	208	137723.7	15.6	4.1105	0.051	1.2	ug/L	1750	Standard
	U	238	63268.4	10.4	4.8147	0.197	4.1	ug/L	10	Standard
>	Bi	209	802194.2	14.5				ug/L	811518	Standard

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Na	23	56.7	13.5	7.4181	0.229	3.1	mg/L	0	Standard
Mg	24	58.3	13.1	0.2785	0.243	87.3	mg/L	77	Standard
K	39	120.0	8.3	0.4606	0.019	4.2	mg/L	18	Standard
Ca	43	121.7	23.4	18.4349	7.352	39.9	mg/L	178	Standard
Fe	54	702.7	27.7	7.4661	1.292	17.3	mg/L	29	Standard
Fe	57	660.0	6.1	9.1084	1.257	13.8	mg/L	408	Standard
Sc-1	45	71948.6	11.6				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	8.0	33.1				ug/L	12	Standard
Br	81	1813.4	19.6				ug/L	1747	Standard
P	31	30.0	16.7				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	391.7	5.2				ug/L	370	Standard
C	12	56.7	53.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	426.7	29.5				mg/L	17	Standard
Dy	164	161229.0	19.1				mg/L	9	Standard
Ho-1	165	110008.8	16.9				mg/L	25	Standard
Er	166	99093.3	18.0				mg/L	20	Standard
I	127	26272.9	9.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		108.039	
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		107.808	
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	102.421
[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	98.851
[	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
Mn 55 Upper, S, EEE	Mn	55	
Zn 66 Upper, S, EEE	Zn	66	

Sample ID: L1611053620

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Method 6020 - Summary Report

Sample ID: L1611053622

Sample Date/Time: Friday, November 11, 2016 15:15:56

Number of Replicates: 3

Autosampler Position: 221

Sample Description: 1

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	215939.6	16.8				ug/L	206101	Standard
|	Be	9	771.7	23.2	0.2941	0.024	8.2	ug/L	25	Standard
|	Al	27	690024.8	13.3	3.3937	0.123	3.6	ug/L	1120	Standard
|	Sc	45	69117.0	11.3				ug/L	61425	Standard
|	Ti	47	5080.9	20.4	10.1545	0.755	7.4	ug/L	70	Standard
|	V	51	74159.0	14.1	6.1529	0.274	4.5	ug/L	3309	Standard
|	Cr	52	123052.3	14.2	10.3584	0.489	4.7	ug/L	13497	Standard
|	Cr	53	15601.4	10.5	9.4522	1.007	10.7	ug/L	3162	Standard
|	Mn	55	4107064.8	14.2	243.6382	11.747	4.8	ug/L	2226	Standard
|	Co	59	87258.2	15.6	6.5082	0.248	3.8	ug/L	1003	Standard
|	Ni	60	148737.7	16.2	52.0641	1.555	3.0	ug/L	355	Standard
|	Cu	65	26092.5	15.6	9.8985	0.275	2.8	ug/L	473	Standard
|	Zn	66	83050.7	14.9	62.4043	2.078	3.3	ug/L	341	Standard
>	Ge	72	616258.4	18.2				ug/L	566981	Standard
|	As	75	3012.1	12.5	2.3551	0.132	5.6	ug/L	-156	Standard
|	Se	82	92.1	9.7	0.5135	0.077	15.0	ug/L	35	Standard
|	Se-1	77	449.3	4.1	0.3860	0.777	201.3	ug/L	354	Standard
>	Ga	71	3160.3	17.4				mg/L	43	Standard
|	Rb	85	36997.8	18.1				ug/L	48	Standard
|	Y	89	1312564.5	16.4				ug/L	447702	Standard
>	Rh	103	45.0	19.2				ug/L	20	Standard
|	Mo	98	975.6	16.0	0.1892	0.007	3.6	ug/L	158	Standard
|	Ag	107	646.0	16.3	0.0463	0.002	3.5	ug/L	133	Standard
|	Cd	111	1142.8	15.3	0.3293	0.009	2.7	mg/L	7	Standard
|	Cd	114	2842.6	21.0	0.3050	0.014	4.5	ug/L	72	Standard
>	In	115	1023267.5	16.8				ug/L	1004638	Standard
|	Sn	118	225.7	9.1	0.0284	0.011	39.3	ug/L	364	Standard
|	Sb	123	574.4	6.3	0.0028	0.015	520.2	ug/L	2464	Standard
|	Ba	135	158002.6	15.3	41.2001	0.722	1.8	ug/L	39	Standard
|	Ce	140	962761.8	15.3				ug/L	195	Standard
>	Tb	159	1702097.0	13.1				ug/L	1640193	Standard
|	Ho	165	79009.7	13.8				ug/L	25	Standard
|	Tl	203	1812.4	14.3	0.1122	0.003	2.5	ug/L	324	Standard
|	Tl	205	4295.6	18.0	0.1058	0.005	4.4	ug/L	698	Standard
|	Pb	206	36606.8	14.6	3.1828	0.018	0.6	ug/L	600	Standard
|	Pb	207	25728.2	15.7	2.5013	0.033	1.3	ug/L	541	Standard
|	Pb	208	94063.6	15.1	2.7848	0.006	0.2	ug/L	1750	Standard
	U	238	44976.5	10.5	3.4141	0.165	4.8	ug/L	10	Standard
>	Bi	209	804798.1	14.9				ug/L	811518	Standard

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Na	23	46.7	89.9	6.0724	4.928	81.2	mg/L	0	Standard
Mg	24	45.0	57.7	0.0135	0.456	3371.1	mg/L	77	Standard
K	39	81.7	39.8	0.3051	0.209	68.6	mg/L	18	Standard
Ca	43	98.3	20.5	22.2822	5.961	26.8	mg/L	178	Standard
Fe	54	278.7	26.0	2.8482	0.709	24.9	mg/L	29	Standard
Fe	57	546.7	9.6	6.2661	4.153	66.3	mg/L	408	Standard
Sc-1	45	69117.0	11.3				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.7	6.7				ug/L	12	Standard
Br	81	1890.1	15.6				ug/L	1747	Standard
P	31	33.3	31.2				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	343.3	26.5				ug/L	370	Standard
C	12	56.7	44.4				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	323.3	20.6				mg/L	17	Standard
Dy	164	113004.4	16.8				mg/L	9	Standard
Ho-1	165	79009.7	13.8				mg/L	25	Standard
Er	166	71664.5	13.5				mg/L	20	Standard
I	127	23575.1	7.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		104.773	
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		108.691	
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	101.854
[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	99.172
[	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
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1611053622

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 15:19:03

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	215849.4	15.6				ug/L	206101	Standard
|	Be	9	118853.7	17.5	48.4882	0.934	1.9	ug/L	25	Standard
|	Al	27	9555255.0	14.2	46.8157	0.780	1.7	ug/L	1120	Standard
|	Sc	45	59628.0	10.8				ug/L	61425	Standard
|	Ti	47	46309.6	14.4	97.1977	3.166	3.3	ug/L	70	Standard
|	V	51	554455.6	13.9	49.5114	1.717	3.5	ug/L	3309	Standard
|	Cr	52	510512.3	14.6	49.0780	1.387	2.8	ug/L	13497	Standard
|	Cr	53	63315.5	14.6	47.4043	1.487	3.1	ug/L	3162	Standard
|	Mn	55	812433.7	14.9	49.4761	1.270	2.6	ug/L	2226	Standard
|	Co	59	647132.7	16.4	50.0786	0.465	0.9	ug/L	1003	Standard
|	Ni	60	139791.2	16.1	50.3989	0.748	1.5	ug/L	355	Standard
|	Cu	65	129342.7	17.1	51.2637	0.549	1.1	ug/L	473	Standard
|	Zn	66	66612.6	16.9	51.3732	0.192	0.4	ug/L	341	Standard
>	Ge	72	597668.4	17.3				ug/L	566981	Standard
|	As	75	64864.0	17.6	49.7149	0.319	0.6	ug/L	-156	Standard
|	Se	82	5409.6	19.3	49.6860	1.087	2.2	ug/L	35	Standard
|	Se-1	77	4560.0	19.0	48.5579	0.888	1.8	ug/L	354	Standard
>	Ga	71	110.0	28.4				mg/L	43	Standard
|	Rb	85	653.3	18.9				ug/L	48	Standard
|	Y	89	436765.2	17.6				ug/L	447702	Standard
>	Rh	103	58.3	4.9				ug/L	20	Standard
|	Mo	98	478543.4	16.8	100.0586	1.324	1.3	ug/L	158	Standard
|	Ag	107	525829.2	16.6	50.3404	0.598	1.2	ug/L	133	Standard
|	Cd	111	172473.5	17.9	51.9820	0.712	1.4	mg/L	7	Standard
|	Cd	114	457616.6	17.6	51.2121	0.441	0.9	ug/L	72	Standard
>	In	115	995414.2	17.0				ug/L	1004638	Standard
|	Sn	118	103461.2	18.3	50.4440	0.642	1.3	ug/L	364	Standard
|	Sb	123	440978.9	17.1	49.8496	0.776	1.6	ug/L	2464	Standard
|	Ba	135	180630.1	16.8	48.3435	0.283	0.6	ug/L	39	Standard
|	Ce	140	190.0	5.3				ug/L	195	Standard
>	Tb	159	1580742.3	12.4				ug/L	1640193	Standard
|	Ho	165	68.3	69.5				ug/L	25	Standard
|	Tl	203	704296.7	16.5	50.7649	1.135	2.2	ug/L	324	Standard
|	Tl	205	1630593.2	16.5	43.9283	1.093	2.5	ug/L	698	Standard
|	Pb	206	547963.7	17.1	50.6198	1.459	2.9	ug/L	600	Standard
|	Pb	207	482135.3	16.2	50.0932	1.009	2.0	ug/L	541	Standard
|	Pb	208	1617109.6	15.6	51.0488	0.719	1.4	ug/L	1750	Standard
	U	238	667267.2	10.8	53.0809	1.926	3.6	ug/L	10	Standard
>	Bi	209	766710.3	14.3				ug/L	811518	Standard

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Na	23	30.0	0.0	4.7834	0.524	11.0	mg/L	0	Standard
Mg	24	286.7	20.1	5.7076	0.618	10.8	mg/L	77	Standard
K	39	818.4	22.9	4.5506	0.574	12.6	mg/L	18	Standard
Ca	43	128.3	26.5	11.8225	10.117	85.6	mg/L	178	Standard
Fe	54	513.4	15.6	6.5980	0.507	7.7	mg/L	29	Standard
Fe	57	593.3	4.2	11.0472	2.275	20.6	mg/L	408	Standard
Sc-1	45	59628.0	10.8				mg/L	61425	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	10.0	10.0				ug/L	12	Standard
Br	81	1730.1	16.8				ug/L	1747	Standard
P	31	38.3	15.1				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	356.7	3.2				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	16.7	34.6				mg/L	17	Standard
Dy	164	35.7	27.7				mg/L	9	Standard
Ho-1	165	68.3	69.5				mg/L	25	Standard
Er	166	20.0	173.2				mg/L	20	Standard
I	127	4182.3	15.5				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	96.976		
Al	27	93.631		
Sc	45			
Ti	47	97.198		
V	51	99.023		
Cr	52	98.156		
Cr	53			
Mn	55	98.952		
Co	59	100.157		
Ni	60	100.798		
Cu	65	102.527		
Zn	66	102.746		
Ge	72		105.412	
As	75	99.430		
Se	82	99.372		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.059	
[Ag	107	100.681	
[Cd	111	103.964	
[Cd	114		
>	In	115		99.082
[Sn	118	100.888	
[	Sb	123	99.699	
[	Ba	135	96.687	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	101.530	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	102.098	
[	U	238	106.162	
>	Bi	209		94.479
[	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 7

Sample Date/Time: Friday, November 11, 2016 15:22:08

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	207387.6	23.9				ug/L	206101	Standard
|	Be	9	43.3	54.5	0.0014	0.015	1088.1	ug/L	25	Standard
|	Al	27	2053.5	14.8	0.0163	0.001	6.1	ug/L	1120	Standard
|	Sc	45	56120.8	17.4				ug/L	61425	Standard
|	Ti	47	46.0	19.0	-0.0436	0.015	34.0	ug/L	70	Standard
|	V	51	2821.7	8.8	-0.0456	0.037	82.2	ug/L	3309	Standard
|	Cr	52	12187.9	10.3	-0.1900	0.153	80.5	ug/L	13497	Standard
|	Cr	53	1380.1	13.8	-1.4076	0.117	8.3	ug/L	3162	Standard
|	Mn	55	4290.0	17.1	0.1409	0.016	11.0	ug/L	2226	Standard
|	Co	59	787.4	14.0	0.0017	0.005	319.4	ug/L	1003	Standard
|	Ni	60	348.3	8.6	0.0102	0.021	204.9	ug/L	355	Standard
|	Cu	65	455.3	23.6	-0.0092	0.004	41.2	ug/L	473	Standard
|	Zn	66	322.0	19.9	-0.0259	0.009	33.3	ug/L	341	Standard
>	Ge	72	566769.0	22.4				ug/L	566981	Standard
|	As	75	-64.4	122.0	0.0570	0.066	116.3	ug/L	-156	Standard
|	Se	82	29.6	18.6	-0.0249	0.090	359.5	ug/L	35	Standard
|	Se-1	77	318.7	9.1	-0.7564	0.921	121.8	ug/L	354	Standard
>	Ga	71	61.7	20.4				mg/L	43	Standard
|	Rb	85	26.7	43.3				ug/L	48	Standard
|	Y	89	416702.0	20.5				ug/L	447702	Standard
>	Rh	103	28.3	27.0				ug/L	20	Standard
|	Mo	98	241.5	7.8	0.0460	0.015	32.2	ug/L	158	Standard
|	Ag	107	180.7	33.9	0.0041	0.002	53.7	ug/L	133	Standard
|	Cd	111	20.0	66.6	-0.0005	0.003	621.8	mg/L	7	Standard
|	Cd	114	100.6	44.9	0.0084	0.003	32.6	ug/L	72	Standard
>	In	115	940294.6	21.8				ug/L	1004638	Standard
|	Sn	118	288.3	8.4	0.0727	0.025	35.0	ug/L	364	Standard
|	Sb	123	5654.3	20.2	0.6555	0.276	42.1	ug/L	2464	Standard
|	Ba	135	61.3	74.8	0.0067	0.009	131.7	ug/L	39	Standard
|	Ce	140	128.3	119.2				ug/L	195	Standard
>	Tb	159	1487207.0	19.4				ug/L	1640193	Standard
|	Ho	165	16.7	45.8				ug/L	25	Standard
|	Tl	203	65.3	63.4	-0.0080	0.002	25.6	ug/L	324	Standard
|	Tl	205	156.7	71.8	-0.0002	0.002	1029.5	ug/L	698	Standard
|	Pb	206	582.7	26.0	0.0042	0.003	78.5	ug/L	600	Standard
|	Pb	207	462.0	25.5	-0.0006	0.003	464.3	ug/L	541	Standard
|	Pb	208	1633.7	22.5	0.0036	0.001	36.0	ug/L	1750	Standard
	U	238	43.3	16.4	0.0056	0.000	2.5	ug/L	10	Standard
>	Bi	209	742186.4	20.2				ug/L	811518	Standard

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Na	23	3.3	173.2	0.4812	0.825	171.4	mg/L	0	Standard
Mg	24	56.7	13.5	0.5442	0.075	13.8	mg/L	77	Standard
K	39	13.3	57.3	-0.0333	0.043	128.2	mg/L	18	Standard
Ca	43	116.7	20.3	12.9562	7.702	59.4	mg/L	178	Standard
Fe	54	37.2	53.3	0.0807	0.240	297.2	mg/L	29	Standard
Fe	57	493.3	5.1	8.6170	4.763	55.3	mg/L	408	Standard
Sc-1	45	56120.8	17.4				mg/L	61425	Standard
Cl	35	2.0	173.2				ug/L	1	Standard
Kr	83	7.3	34.3				ug/L	12	Standard
Br	81	1610.1	17.9				ug/L	1747	Standard
P	31	73.3	114.2				ug/L	17	Standard
S	34	5.0	173.2				ug/L	3	Standard
Sr	88	405.0	4.9				ug/L	370	Standard
C	12	33.3	75.5				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	21.9	24.7				mg/L	9	Standard
Ho-1	165	16.7	45.8				mg/L	25	Standard
Er	166	30.0	57.7				mg/L	20	Standard
I	127	5275.9	9.8				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		99.963	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	93.595
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
[Tl	205	
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[U	238	
>	Bi	209	91.457
[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 7	Sb	123	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: PBS M5 WG591248-01

Sample Date/Time: Friday, November 11, 2016 15:32:56

Number of Replicates: 3

Autosampler Position: 222

Sample Description: 1

Method File: C:\NexlONData\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	180652.1	23.3				ug/L	206101	Standard
|	Be	9	16.7	45.8	-0.0104	0.004	40.4	ug/L	25	Standard
|	Al	27	2215.2	9.8	0.0191	0.003	17.8	ug/L	1120	Standard
|	Sc	45	48622.8	17.7				ug/L	61425	Standard
|	Ti	47	42.7	7.2	-0.0379	0.026	68.4	ug/L	70	Standard
|	V	51	2765.8	9.2	-0.0217	0.041	187.7	ug/L	3309	Standard
|	Cr	52	9697.8	7.3	-0.3354	0.171	51.0	ug/L	13497	Standard
|	Cr	53	1035.0	6.1	-1.5917	0.159	10.0	ug/L	3162	Standard
|	Mn	55	1795.8	15.0	-0.0065	0.020	311.0	ug/L	2226	Standard
|	Co	59	382.0	1.4	-0.0276	0.008	27.7	ug/L	1003	Standard
|	Ni	60	320.0	12.5	0.0120	0.015	127.6	ug/L	355	Standard
|	Cu	65	422.7	27.7	-0.0049	0.014	278.2	ug/L	473	Standard
|	Zn	66	733.0	38.7	0.3703	0.162	43.8	ug/L	341	Standard
>	Ge	72	510201.7	21.8				ug/L	566981	Standard
|	As	75	-155.0	14.1	-0.0419	0.050	118.4	ug/L	-156	Standard
|	Se	82	23.0	15.5	-0.0644	0.071	110.9	ug/L	35	Standard
|	Se-1	77	316.0	5.6	-0.3218	1.064	330.6	ug/L	354	Standard
>	Ga	71	48.3	26.0				mg/L	43	Standard
|	Rb	85	71.7	16.1				ug/L	48	Standard
|	Y	89	363712.9	22.4				ug/L	447702	Standard
>	Rh	103	30.0	92.8				ug/L	20	Standard
|	Mo	98	576.2	27.2	0.1459	0.063	43.2	ug/L	158	Standard
|	Ag	107	126.3	15.0	0.0010	0.001	125.1	ug/L	133	Standard
|	Cd	111	10.9	24.2	-0.0027	0.000	3.2	mg/L	7	Standard
|	Cd	114	33.5	39.3	0.0015	0.002	140.7	ug/L	72	Standard
>	In	115	817853.7	22.5				ug/L	1004638	Standard
|	Sn	118	54.3	22.1	-0.0478	0.000	0.5	ug/L	364	Standard
|	Sb	123	1834.7	24.2	0.2064	0.108	52.2	ug/L	2464	Standard
|	Ba	135	98.3	43.3	0.0230	0.014	59.0	ug/L	39	Standard
|	Ce	140	58.3	27.6				ug/L	195	Standard
>	Tb	159	1372587.9	20.2				ug/L	1640193	Standard
|	Ho	165	13.3	57.3				ug/L	25	Standard
|	Tl	203	34.3	38.0	-0.0097	0.002	18.1	ug/L	324	Standard
|	Tl	205	76.7	52.7	-0.0018	0.002	105.9	ug/L	698	Standard
|	Pb	206	527.0	20.1	0.0038	0.002	40.6	ug/L	600	Standard
|	Pb	207	461.3	21.2	0.0039	0.001	22.5	ug/L	541	Standard
|	Pb	208	1542.7	20.8	0.0052	0.002	39.8	ug/L	1750	Standard
	U	238	5.3	108.3	0.0026	0.001	26.8	ug/L	10	Standard
>	Bi	209	683958.7	21.8				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	48.3	26.0	0.5652	0.493	87.3	mg/L	77	Standard
K	39	8.3	91.7	-0.0576	0.052	90.7	mg/L	18	Standard
Ca	43	110.0	20.8	9.4284	12.525	132.8	mg/L	178	Standard
Fe	54	29.2	60.9	0.0450	0.283	628.8	mg/L	29	Standard
Fe	57	480.0	1.0	11.2188	4.426	39.4	mg/L	408	Standard
Sc-1	45	48622.8	17.7				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	8.3	6.9				ug/L	12	Standard
Br	81	1596.8	19.5				ug/L	1747	Standard
P	31	23.3	32.7				ug/L	17	Standard
S	34	8.3	69.3				ug/L	3	Standard
Sr	88	381.7	0.8				ug/L	370	Standard
C	12	13.3	86.6				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	113.3	35.7				mg/L	17	Standard
Dy	164	22.5	28.9				mg/L	9	Standard
Ho-1	165	13.3	57.3				mg/L	25	Standard
Er	166	16.7	124.9				mg/L	20	Standard
I	127	9027.7	5.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		87.652	
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		89.986	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: PBS M5 WG591248-01

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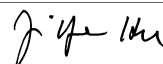
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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	81.408
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
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[Na	23	
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[K	39	
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[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: LCSS M5 WG591248-02

Sample Date/Time: Friday, November 11, 2016 15:36:02

Number of Replicates: 3

Autosampler Position: 223

Sample Description: 1

Method File: C:\NexlONData\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	189790.7	21.0				ug/L	206101	Standard
|	Be	9	50829.3	20.9	23.6171	0.480	2.0	ug/L	25	Standard
|	Al	27	3210.3	16.1	0.0237	0.001	3.6	ug/L	1120	Standard
|	Sc	45	50512.5	18.0				ug/L	61425	Standard
|	Ti	47	45.3	7.7	-0.0340	0.033	97.6	ug/L	70	Standard
|	V	51	225192.0	18.6	22.6242	0.672	3.0	ug/L	3309	Standard
|	Cr	52	212464.5	18.7	22.3872	0.697	3.1	ug/L	13497	Standard
|	Cr	53	26368.4	17.6	21.0769	1.006	4.8	ug/L	3162	Standard
|	Mn	55	328406.0	19.5	22.5926	0.468	2.1	ug/L	2226	Standard
|	Co	59	263221.9	20.1	23.0720	0.353	1.5	ug/L	1003	Standard
|	Ni	60	58277.0	20.7	23.7358	0.155	0.7	ug/L	355	Standard
|	Cu	65	55121.7	21.2	24.6599	0.045	0.2	ug/L	473	Standard
|	Zn	66	32601.7	20.4	28.4047	0.584	2.1	ug/L	341	Standard
>	Ge	72	527332.0	21.3				ug/L	566981	Standard
|	As	75	28057.7	19.5	24.5011	0.541	2.2	ug/L	-156	Standard
|	Se	82	2500.4	21.2	25.9423	0.099	0.4	ug/L	35	Standard
|	Se-1	77	2325.5	20.0	26.1492	0.492	1.9	ug/L	354	Standard
>	Ga	71	46.7	34.4				mg/L	43	Standard
|	Rb	85	53.3	14.3				ug/L	48	Standard
|	Y	89	372543.6	19.6				ug/L	447702	Standard
>	Rh	103	31.7	18.2				ug/L	20	Standard
|	Mo	98	51.6	9.5	0.0031	0.002	74.8	ug/L	158	Standard
|	Ag	107	203651.7	19.7	22.3964	0.253	1.1	ug/L	133	Standard
|	Cd	111	74675.7	20.7	25.8547	0.170	0.7	mg/L	7	Standard
|	Cd	114	189834.3	23.5	24.3055	0.689	2.8	ug/L	72	Standard
>	In	115	867251.5	20.7				ug/L	1004638	Standard
|	Sn	118	88.3	8.6	-0.0285	0.015	52.8	ug/L	364	Standard
|	Sb	123	167767.4	24.8	21.6154	0.881	4.1	ug/L	2464	Standard
|	Ba	135	75598.3	20.3	23.2267	0.127	0.5	ug/L	39	Standard
|	Ce	140	73.3	43.8				ug/L	195	Standard
>	Tb	159	1392864.5	19.9				ug/L	1640193	Standard
|	Ho	165	20.0	75.0				ug/L	25	Standard
|	Tl	203	308715.8	20.0	24.2014	0.170	0.7	ug/L	324	Standard
|	Tl	205	729891.8	20.4	21.3854	0.253	1.2	ug/L	698	Standard
|	Pb	206	238719.6	20.4	23.9677	0.191	0.8	ug/L	600	Standard
|	Pb	207	204142.4	20.5	23.0290	0.202	0.9	ug/L	541	Standard
|	Pb	208	690747.1	19.8	23.6852	0.080	0.3	ug/L	1750	Standard
	U	238	273949.1	15.7	23.7135	0.925	3.9	ug/L	10	Standard
>	Bi	209	705712.3	19.6				ug/L	811518	Standard

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Na	23	1.7	173.2	0.3204	0.546	170.5	mg/L	0	Standard
Mg	24	43.3	56.9	0.2783	0.555	199.3	mg/L	77	Standard
K	39	15.0	33.3	-0.0043	0.054	1259.4	mg/L	18	Standard
Ca	43	116.7	28.5	8.5763	15.661	182.6	mg/L	178	Standard
Fe	54	27.7	15.3	0.0253	0.153	606.2	mg/L	29	Standard
Fe	57	436.7	5.8	8.1349	3.655	44.9	mg/L	408	Standard
Sc-1	45	50512.5	18.0				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	9.3	6.2				ug/L	12	Standard
Br	81	2023.5	3.2				ug/L	1747	Standard
P	31	25.0	0.0				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	390.0	15.6				ug/L	370	Standard
C	12	36.7	31.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	20.0	50.0				mg/L	17	Standard
Dy	164	22.2	53.4				mg/L	9	Standard
Ho-1	165	20.0	75.0				mg/L	25	Standard
Er	166	23.3	89.2				mg/L	20	Standard
I	127	18037.4	4.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		92.086	
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		93.007	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: LCSS M5 WG591248-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	86.325
[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	86.962
[	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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Sample ID: LCSS M5 WG591248-02

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Method 6020 - Summary Report

Sample ID: LCSS DP WG591248-03

Sample Date/Time: Friday, November 11, 2016 15:39:07

Number of Replicates: 3

Autosampler Position: 224

Sample Description: 1

Method File: C:\NexlONData\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	186129.9	23.2				ug/L	206101	Standard
|	Be	9	49297.9	22.9	23.3711	0.164	0.7	ug/L	25	Standard
|	Al	27	5559.4	14.5	0.0377	0.003	8.3	ug/L	1120	Standard
|	Sc	45	51096.5	19.4				ug/L	61425	Standard
|	Ti	47	43.0	4.7	-0.0413	0.024	57.7	ug/L	70	Standard
|	V	51	223484.2	21.3	22.3063	0.560	2.5	ug/L	3309	Standard
|	Cr	52	210834.7	20.1	22.1026	0.849	3.8	ug/L	13497	Standard
|	Cr	53	26213.3	20.8	20.7698	0.701	3.4	ug/L	3162	Standard
|	Mn	55	327075.6	22.3	22.3476	0.270	1.2	ug/L	2226	Standard
|	Co	59	261945.6	23.2	22.7897	0.083	0.4	ug/L	1003	Standard
|	Ni	60	58324.9	22.8	23.6197	0.194	0.8	ug/L	355	Standard
|	Cu	65	54008.6	23.4	24.0106	0.034	0.1	ug/L	473	Standard
|	Zn	66	33225.0	20.1	28.8912	1.028	3.6	ug/L	341	Standard
>	Ge	72	530421.0	23.4				ug/L	566981	Standard
|	As	75	28194.0	21.1	24.5092	0.789	3.2	ug/L	-156	Standard
|	Se	82	2517.7	22.0	26.0218	0.412	1.6	ug/L	35	Standard
|	Se-1	77	2237.5	21.9	24.8299	0.628	2.5	ug/L	354	Standard
>	Ga	71	51.7	24.4				mg/L	43	Standard
|	Rb	85	55.0	32.8				ug/L	48	Standard
|	Y	89	375619.6	23.5				ug/L	447702	Standard
>	Rh	103	46.7	24.7				ug/L	20	Standard
|	Mo	98	80.0	23.9	0.0095	0.003	28.1	ug/L	158	Standard
|	Ag	107	200752.7	22.2	21.9065	0.237	1.1	ug/L	133	Standard
|	Cd	111	74367.3	22.3	25.5809	0.212	0.8	mg/L	7	Standard
|	Cd	114	186173.0	22.1	23.7763	0.283	1.2	ug/L	72	Standard
>	In	115	873834.7	23.0				ug/L	1004638	Standard
|	Sn	118	81.0	16.6	-0.0345	0.004	10.5	ug/L	364	Standard
|	Sb	123	172597.5	25.2	22.1204	0.488	2.2	ug/L	2464	Standard
|	Ba	135	74380.5	22.3	22.6950	0.296	1.3	ug/L	39	Standard
|	Ce	140	78.3	7.4				ug/L	195	Standard
>	Tb	159	1389838.1	20.9				ug/L	1640193	Standard
|	Ho	165	16.7	62.4				ug/L	25	Standard
|	Tl	203	305529.4	22.1	24.1230	0.237	1.0	ug/L	324	Standard
|	Tl	205	721833.8	21.3	21.3297	0.478	2.2	ug/L	698	Standard
|	Pb	206	236065.4	22.8	23.8581	0.240	1.0	ug/L	600	Standard
|	Pb	207	199492.8	22.1	22.6818	0.052	0.2	ug/L	541	Standard
|	Pb	208	678679.9	21.2	23.4622	0.237	1.0	ug/L	1750	Standard
	U	238	272328.2	17.7	23.7618	1.057	4.4	ug/L	10	Standard
>	Bi	209	701125.9	22.2				ug/L	811518	Standard

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Na	23	3.3	173.2	0.6171	1.060	171.8	mg/L	0	Standard
Mg	24	26.7	92.5	-0.1349	0.656	486.1	mg/L	77	Standard
K	39	21.7	48.0	0.0357	0.073	204.9	mg/L	18	Standard
Ca	43	90.0	16.7	17.0775	7.267	42.6	mg/L	178	Standard
Fe	54	18.2	99.7	-0.1104	0.383	346.8	mg/L	29	Standard
Fe	57	506.7	5.4	11.4774	5.494	47.9	mg/L	408	Standard
Sc-1	45	51096.5	19.4				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.3	30.2				ug/L	12	Standard
Br	81	1926.8	11.9				ug/L	1747	Standard
P	31	23.3	24.7				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	376.7	7.3				ug/L	370	Standard
C	12	56.7	36.7				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	9.4	7.8				mg/L	9	Standard
Ho-1	165	16.7	62.4				mg/L	25	Standard
Er	166	13.3	114.6				mg/L	20	Standard
I	127	14855.6	6.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		90.310	
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		93.552	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: LCSS DP WG591248-03

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	86.980
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
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[U	238	
>	Bi	209	86.397
[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

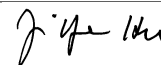
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: LCSS DP WG591248-03

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Method 6020 - Summary Report

Sample ID: L1611053601

Sample Date/Time: Friday, November 11, 2016 15:42:12

Number of Replicates: 3

Autosampler Position: 225

Sample Description: 1

Method File: C:\NexlONData\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	200967.8	14.7				ug/L	206101	Standard
|	Be	9	21.7	58.1	-0.0098	0.004	42.6	ug/L	25	Standard
|	Al	27	309573.6	5.6	1.6485	0.172	10.4	ug/L	1120	Standard
|	Sc	45	56435.8	11.2				ug/L	61425	Standard
|	Ti	47	271.0	17.9	0.4602	0.038	8.2	ug/L	70	Standard
|	V	51	18496.9	22.1	1.4437	0.145	10.0	ug/L	3309	Standard
|	Cr	52	10807.9	6.2	-0.3290	0.095	28.9	ug/L	13497	Standard
|	Cr	53	1261.7	2.5	-1.4898	0.160	10.8	ug/L	3162	Standard
|	Mn	55	9051.1	18.2	0.4535	0.053	11.6	ug/L	2226	Standard
|	Co	59	588.7	6.6	-0.0142	0.004	27.2	ug/L	1003	Standard
|	Ni	60	627.7	16.5	0.1169	0.008	6.9	ug/L	355	Standard
|	Cu	65	371.0	18.1	-0.0424	0.008	19.4	ug/L	473	Standard
|	Zn	66	547.3	31.5	0.1573	0.079	50.3	ug/L	341	Standard
>	Ge	72	557562.5	14.2				ug/L	566981	Standard
|	As	75	59.2	43.3	0.1514	0.015	10.2	ug/L	-156	Standard
|	Se	82	50.9	13.7	0.1831	0.026	14.0	ug/L	35	Standard
|	Se-1	77	298.0	15.0	-1.0724	0.178	16.6	ug/L	354	Standard
>	Ga	71	66.7	24.1				mg/L	43	Standard
|	Rb	85	1553.4	10.5				ug/L	48	Standard
|	Y	89	398379.9	16.1				ug/L	447702	Standard
>	Rh	103	41.7	6.9				ug/L	20	Standard
|	Mo	98	434.3	37.9	0.0936	0.047	50.5	ug/L	158	Standard
|	Ag	107	155.3	6.1	0.0025	0.002	68.1	ug/L	133	Standard
|	Cd	111	20.8	3.8	0.0002	0.001	353.4	mg/L	7	Standard
|	Cd	114	69.9	28.7	0.0053	0.002	37.8	ug/L	72	Standard
>	In	115	909295.0	12.8				ug/L	1004638	Standard
|	Sn	118	64.7	12.5	-0.0455	0.000	1.0	ug/L	364	Standard
|	Sb	123	13964.6	4.6	1.6840	0.189	11.2	ug/L	2464	Standard
|	Ba	135	5096.5	13.2	1.4916	0.192	12.9	ug/L	39	Standard
|	Ce	140	31.7	32.9				ug/L	195	Standard
>	Tb	159	1499919.2	12.5				ug/L	1640193	Standard
|	Ho	165	15.0	66.7				ug/L	25	Standard
|	Tl	203	342.7	10.8	0.0127	0.001	10.7	ug/L	324	Standard
|	Tl	205	808.4	21.7	0.0180	0.004	23.2	ug/L	698	Standard
|	Pb	206	519.3	20.4	-0.0023	0.004	165.9	ug/L	600	Standard
|	Pb	207	413.0	13.3	-0.0060	0.001	13.7	ug/L	541	Standard
|	Pb	208	1489.0	16.3	-0.0016	0.002	137.2	ug/L	1750	Standard
	U	238	11.3	18.4	0.0030	0.000	8.5	ug/L	10	Standard
>	Bi	209	750040.6	13.1				ug/L	811518	Standard

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Na	23	5.0	100.0	0.8205	0.760	92.6	mg/L	0	Standard
Mg	24	71.7	17.6	0.9246	0.487	52.6	mg/L	77	Standard
K	39	58.3	26.2	0.2380	0.053	22.4	mg/L	18	Standard
Ca	43	106.7	18.9	16.1728	3.895	24.1	mg/L	178	Standard
Fe	54	30.9	10.3	0.0104	0.066	628.2	mg/L	29	Standard
Fe	57	490.0	3.5	8.0081	2.628	32.8	mg/L	408	Standard
Sc-1	45	56435.8	11.2				mg/L	61425	Standard
Cl	35	3.3	34.6				ug/L	1	Standard
Kr	83	10.0	55.7				ug/L	12	Standard
Br	81	1600.1	16.6				ug/L	1747	Standard
P	31	46.7	34.4				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	400.0	7.5				ug/L	370	Standard
C	12	80.0	66.1				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	60.0	16.7				mg/L	17	Standard
Dy	164	15.1	141.7				mg/L	9	Standard
Ho-1	165	15.0	66.7				mg/L	25	Standard
Er	166	33.3	34.6				mg/L	20	Standard
I	127	15100.9	5.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		97.509	
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		98.339	
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	90.510
[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	92.424
[	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: L1611053603

Sample Date/Time: Friday, November 11, 2016 15:45:18

Number of Replicates: 3

Autosampler Position: 226

Sample Description: 1

Method File: C:\NexlONData\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	206777.2	16.7				ug/L	206101	Standard
|	Be	9	25.0	52.9	-0.0086	0.005	55.3	ug/L	25	Standard
|	Al	27	234726.7	8.0	1.2178	0.127	10.5	ug/L	1120	Standard
|	Sc	45	56387.7	13.9				ug/L	61425	Standard
|	Ti	47	96.0	21.5	0.0631	0.011	18.1	ug/L	70	Standard
|	V	51	3344.8	5.9	-0.0001	0.038	38268.9	ug/L	3309	Standard
|	Cr	52	10922.9	7.3	-0.3414	0.108	31.5	ug/L	13497	Standard
|	Cr	53	1090.0	8.4	-1.6616	0.095	5.7	ug/L	3162	Standard
|	Mn	55	7095.7	14.1	0.3172	0.026	8.2	ug/L	2226	Standard
|	Co	59	561.0	5.7	-0.0173	0.006	36.5	ug/L	1003	Standard
|	Ni	60	612.3	11.3	0.1075	0.017	15.6	ug/L	355	Standard
|	Cu	65	347.3	10.0	-0.0543	0.010	17.6	ug/L	473	Standard
|	Zn	66	860.4	14.3	0.4100	0.027	6.7	ug/L	341	Standard
>	Ge	72	571013.6	16.4				ug/L	566981	Standard
|	As	75	-144.6	22.0	-0.0113	0.012	104.3	ug/L	-156	Standard
|	Se	82	27.7	21.5	-0.0497	0.070	140.0	ug/L	35	Standard
|	Se-1	77	294.0	6.7	-1.1316	0.762	67.3	ug/L	354	Standard
>	Ga	71	56.7	22.2				mg/L	43	Standard
|	Rb	85	1758.4	5.7				ug/L	48	Standard
|	Y	89	401785.7	16.1				ug/L	447702	Standard
>	Rh	103	35.0	24.7				ug/L	20	Standard
|	Mo	98	156.3	42.5	0.0273	0.021	77.5	ug/L	158	Standard
|	Ag	107	158.7	19.2	0.0021	0.000	13.7	ug/L	133	Standard
|	Cd	111	18.5	16.7	-0.0008	0.001	129.3	mg/L	7	Standard
|	Cd	114	61.4	20.4	0.0043	0.003	60.6	ug/L	72	Standard
>	In	115	947072.6	17.5				ug/L	1004638	Standard
|	Sn	118	71.7	2.9	-0.0424	0.008	18.6	ug/L	364	Standard
|	Sb	123	2558.3	15.4	0.2536	0.097	38.3	ug/L	2464	Standard
|	Ba	135	4019.9	8.7	1.1357	0.141	12.4	ug/L	39	Standard
|	Ce	140	30.0	16.7				ug/L	195	Standard
>	Tb	159	1547974.8	13.9				ug/L	1640193	Standard
|	Ho	165	15.0	66.7				ug/L	25	Standard
|	Tl	203	149.3	2.2	-0.0017	0.002	93.0	ug/L	324	Standard
|	Tl	205	303.3	9.1	0.0039	0.001	23.6	ug/L	698	Standard
|	Pb	206	507.7	15.5	-0.0039	0.002	38.8	ug/L	600	Standard
|	Pb	207	441.3	25.1	-0.0044	0.005	112.5	ug/L	541	Standard
|	Pb	208	1480.0	15.3	-0.0026	0.001	32.4	ug/L	1750	Standard
	U	238	6.7	31.2	0.0026	0.000	4.7	ug/L	10	Standard
>	Bi	209	764354.8	15.2				ug/L	811518	Standard

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Na	23	3.3	86.6	0.6065	0.526	86.7	mg/L	0	Standard
Mg	24	60.0	22.0	0.6517	0.471	72.3	mg/L	77	Standard
K	39	56.7	5.1	0.2363	0.049	20.8	mg/L	18	Standard
Ca	43	103.3	26.6	16.7352	6.935	41.4	mg/L	178	Standard
Fe	54	25.9	11.9	-0.0616	0.058	94.8	mg/L	29	Standard
Fe	57	448.3	7.2	6.4370	4.208	65.4	mg/L	408	Standard
Sc-1	45	56387.7	13.9				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	7.0	24.7				ug/L	12	Standard
Br	81	1606.8	9.9				ug/L	1747	Standard
P	31	21.7	13.3				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	363.3	6.9				ug/L	370	Standard
C	12	63.3	50.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	12.4	93.3				mg/L	9	Standard
Ho-1	165	15.0	66.7				mg/L	25	Standard
Er	166	20.0	0.0				mg/L	20	Standard
I	127	12620.3	2.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.328	
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		100.711	
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	94.270
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
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[U	238	
>	Bi	209	94.188
[Na	23	
[Mg	24	
[K	39	
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[Fe	54	
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[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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Sample ID: L1611053603

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Method 6020 - Summary Report

Sample ID: L1611053605

Sample Date/Time: Friday, November 11, 2016 15:48:23

Number of Replicates: 3

Autosampler Position: 227

Sample Description: 1

Method File: C:\NexlONData\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	198263.4	15.9				ug/L	206101	Standard
|	Be	9	23.3	53.9	-0.0090	0.004	46.8	ug/L	25	Standard
|	Al	27	216902.0	8.4	1.1717	0.110	9.4	ug/L	1120	Standard
|	Sc	45	53403.0	10.8				ug/L	61425	Standard
|	Ti	47	206.0	35.3	0.3125	0.099	31.6	ug/L	70	Standard
|	V	51	12773.0	36.4	0.8971	0.274	30.5	ug/L	3309	Standard
|	Cr	52	11238.5	8.3	-0.2707	0.077	28.4	ug/L	13497	Standard
|	Cr	53	1333.4	7.3	-1.4223	0.085	6.0	ug/L	3162	Standard
|	Mn	55	19297.7	11.3	1.1445	0.096	8.4	ug/L	2226	Standard
|	Co	59	623.0	11.0	-0.0106	0.007	61.5	ug/L	1003	Standard
|	Ni	60	749.7	17.9	0.1678	0.021	12.5	ug/L	355	Standard
|	Cu	65	351.0	17.1	-0.0488	0.006	11.8	ug/L	473	Standard
|	Zn	66	816.4	18.0	0.3976	0.081	20.4	ug/L	341	Standard
>	Ge	72	550916.8	14.5				ug/L	566981	Standard
|	As	75	-94.0	81.3	0.0238	0.069	289.1	ug/L	-156	Standard
|	Se	82	43.7	9.1	0.1242	0.089	71.9	ug/L	35	Standard
|	Se-1	77	313.3	10.6	-0.8121	0.258	31.8	ug/L	354	Standard
>	Ga	71	75.0	13.3				mg/L	43	Standard
|	Rb	85	3102.0	12.8				ug/L	48	Standard
|	Y	89	395043.3	13.4				ug/L	447702	Standard
>	Rh	103	26.7	88.6				ug/L	20	Standard
|	Mo	98	287.7	9.2	0.0577	0.014	23.8	ug/L	158	Standard
|	Ag	107	139.3	15.3	0.0008	0.001	102.9	ug/L	133	Standard
|	Cd	111	13.3	38.0	-0.0024	0.001	43.0	mg/L	7	Standard
|	Cd	114	51.8	14.4	0.0032	0.000	5.7	ug/L	72	Standard
>	In	115	906897.6	14.5				ug/L	1004638	Standard
|	Sn	118	58.3	14.6	-0.0488	0.002	3.4	ug/L	364	Standard
|	Sb	123	2194.4	11.4	0.2157	0.058	26.9	ug/L	2464	Standard
|	Ba	135	2663.6	12.1	0.7776	0.083	10.7	ug/L	39	Standard
|	Ce	140	168.3	101.6				ug/L	195	Standard
>	Tb	159	1480719.8	13.7				ug/L	1640193	Standard
|	Ho	165	23.3	24.7				ug/L	25	Standard
|	Tl	203	211.7	8.1	0.0036	0.004	98.2	ug/L	324	Standard
|	Tl	205	501.7	19.4	0.0101	0.004	38.3	ug/L	698	Standard
|	Pb	206	487.0	14.3	-0.0039	0.002	50.9	ug/L	600	Standard
|	Pb	207	413.7	12.5	-0.0049	0.001	19.8	ug/L	541	Standard
|	Pb	208	1504.7	12.1	0.0003	0.001	526.7	ug/L	1750	Standard
	U	238	8.0	21.7	0.0027	0.000	7.0	ug/L	10	Standard
>	Bi	209	733420.2	14.5				ug/L	811518	Standard

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Na	23	11.7	65.5	2.1634	1.639	75.8	mg/L	0	Standard
Mg	24	65.0	40.0	0.7868	0.537	68.3	mg/L	77	Standard
K	39	91.7	35.1	0.4899	0.243	49.6	mg/L	18	Standard
Ca	43	96.7	26.0	16.5821	9.487	57.2	mg/L	178	Standard
Fe	54	26.1	59.3	-0.0291	0.276	948.1	mg/L	29	Standard
Fe	57	443.3	14.5	6.9562	2.595	37.3	mg/L	408	Standard
Sc-1	45	53403.0	10.8				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.0	33.1				ug/L	12	Standard
Br	81	1623.4	4.1				ug/L	1747	Standard
P	31	15.0	88.2				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	413.3	5.5				ug/L	370	Standard
C	12	76.7	41.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	22.2	93.9				mg/L	9	Standard
Ho-1	165	23.3	24.7				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	13182.4	2.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		96.197	
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		97.167	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611053605

Report Date/Time: Friday, November 11, 2016 15:50:34

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	90.271
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
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[Pb	206	
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[U	238	
>	Bi	209	90.376
[Na	23	
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[K	39	
[Ca	43	
[Fe	54	
[Fe	57	
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[S	34	
[Sr	88	
[C	12	
[N	14	
[Hg	202	
[Dy	164	
[Ho-1	165	
[Er	166	
[I	127	

QC Out of Limits

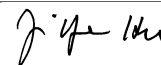
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611053605

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Method 6020 - Summary Report

Sample ID: L1611053607

Sample Date/Time: Friday, November 11, 2016 15:51:28

Number of Replicates: 3

Autosampler Position: 228

Sample Description: 1

Method File: C:\NexlONData\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	198181.7	20.5				ug/L	206101	Standard
|	Be	9	218.3	29.0	0.0775	0.010	12.8	ug/L	25	Standard
|	Al	27	1085676.8	16.4	5.8238	0.254	4.4	ug/L	1120	Standard
|	Sc	45	54879.6	17.7				ug/L	61425	Standard
|	Ti	47	32464.0	20.0	76.1536	2.709	3.6	ug/L	70	Standard
|	V	51	66505.3	26.6	6.2951	0.360	5.7	ug/L	3309	Standard
|	Cr	52	264794.0	20.4	27.8275	0.865	3.1	ug/L	13497	Standard
|	Cr	53	33412.8	19.8	26.9300	0.977	3.6	ug/L	3162	Standard
|	Mn	55	453853.3	18.6	30.9615	1.348	4.4	ug/L	2226	Standard
|	Co	59	6060.6	19.7	0.4633	0.011	2.4	ug/L	1003	Standard
|	Ni	60	16656.4	22.1	6.5976	0.068	1.0	ug/L	355	Standard
|	Cu	65	2953.6	22.0	1.1142	0.036	3.2	ug/L	473	Standard
|	Zn	66	24744.9	22.4	21.1526	0.352	1.7	ug/L	341	Standard
>	Ge	72	534025.9	21.7				ug/L	566981	Standard
|	As	75	1739.0	17.5	1.6033	0.076	4.8	ug/L	-156	Standard
|	Se	82	49.0	20.9	0.1914	0.094	48.9	ug/L	35	Standard
|	Se-1	77	321.0	2.2	-0.4680	0.940	200.8	ug/L	354	Standard
>	Ga	71	3802.2	23.5				mg/L	43	Standard
|	Rb	85	43357.5	23.1				ug/L	48	Standard
|	Y	89	399980.8	20.3				ug/L	447702	Standard
>	Rh	103	35.0	51.5				ug/L	20	Standard
|	Mo	98	570.7	15.4	0.1270	0.011	8.8	ug/L	158	Standard
|	Ag	107	345.0	16.1	0.0239	0.003	11.5	ug/L	133	Standard
|	Cd	111	126.9	15.6	0.0372	0.004	10.6	mg/L	7	Standard
|	Cd	114	306.2	25.4	0.0357	0.005	13.3	ug/L	72	Standard
>	In	115	877781.1	21.2				ug/L	1004638	Standard
|	Sn	118	265.3	25.6	0.0666	0.012	17.9	ug/L	364	Standard
|	Sb	123	2357.6	7.4	0.2483	0.057	22.8	ug/L	2464	Standard
|	Ba	135	41818.9	20.7	12.6930	0.170	1.3	ug/L	39	Standard
|	Ce	140	82015.2	24.5				ug/L	195	Standard
>	Tb	159	1440423.8	20.1				ug/L	1640193	Standard
|	Ho	165	2110.2	22.6				ug/L	25	Standard
|	Tl	203	661.7	21.4	0.0384	0.003	7.2	ug/L	324	Standard
|	Tl	205	1571.8	18.3	0.0411	0.000	0.5	ug/L	698	Standard
|	Pb	206	3975.9	20.7	0.3423	0.016	4.6	ug/L	600	Standard
|	Pb	207	3080.3	23.7	0.2912	0.021	7.3	ug/L	541	Standard
|	Pb	208	10937.9	21.5	0.3194	0.014	4.5	ug/L	1750	Standard
	U	238	2377.5	17.3	0.2041	0.005	2.2	ug/L	10	Standard
>	Bi	209	716306.1	18.7				ug/L	811518	Standard

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Na	23	13.3	57.3	2.1804	0.993	45.5	mg/L	0	Standard
Mg	24	91.7	37.1	1.5847	1.348	85.1	mg/L	77	Standard
K	39	228.3	9.9	1.3272	0.119	9.0	mg/L	18	Standard
Ca	43	98.3	29.8	16.1417	11.768	72.9	mg/L	178	Standard
Fe	54	137.9	36.6	1.5685	0.406	25.9	mg/L	29	Standard
Fe	57	455.0	2.9	7.3468	4.091	55.7	mg/L	408	Standard
Sc-1	45	54879.6	17.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.0	57.7				ug/L	12	Standard
Br	81	1910.1	17.0				ug/L	1747	Standard
P	31	28.3	36.7				ug/L	17	Standard
S	34	10.0	86.6				ug/L	3	Standard
Sr	88	395.0	25.4				ug/L	370	Standard
C	12	113.3	48.6				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	40.0	25.0				mg/L	17	Standard
Dy	164	2675.3	22.9				mg/L	9	Standard
Ho-1	165	2110.2	22.6				mg/L	25	Standard
Er	166	2330.2	25.3				mg/L	20	Standard
I	127	18591.5	13.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		96.157	
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		94.188	
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	87.373
[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	88.267
[	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: L1611053609

Sample Date/Time: Friday, November 11, 2016 15:54:33

Number of Replicates: 3

Autosampler Position: 229

Sample Description: 1

Method File: C:\NexlONData\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	169879.5	39.5				ug/L	206101	Standard
|	Be	9	15.0	66.7	-0.0111	0.004	38.9	ug/L	25	Standard
|	Al	27	294081.3	28.8	1.8862	0.221	11.7	ug/L	1120	Standard
|	Sc	45	46569.4	31.1				ug/L	61425	Standard
|	Ti	47	283.0	42.7	0.6228	0.047	7.5	ug/L	70	Standard
|	V	51	44469.0	51.9	4.7327	0.731	15.4	ug/L	3309	Standard
|	Cr	52	9919.7	23.8	-0.1516	0.176	115.8	ug/L	13497	Standard
|	Cr	53	1226.7	13.5	-1.2256	0.305	24.9	ug/L	3162	Standard
|	Mn	55	21435.8	35.9	1.5909	0.121	7.6	ug/L	2226	Standard
|	Co	59	611.0	12.7	0.0027	0.017	612.9	ug/L	1003	Standard
|	Ni	60	1001.4	37.3	0.3513	0.028	8.1	ug/L	355	Standard
|	Cu	65	401.3	35.2	0.0110	0.005	49.1	ug/L	473	Standard
|	Zn	66	3858.2	47.0	3.5779	0.484	13.5	ug/L	341	Standard
[>	Ge	72	455057.0	37.9				ug/L	566981	Standard
|	As	75	1278.7	37.3	1.3914	0.014	1.0	ug/L	-156	Standard
|	Se	82	31.8	41.0	0.0611	0.071	116.0	ug/L	35	Standard
|	Se-1	77	303.0	9.0	0.2444	1.714	701.3	ug/L	354	Standard
[>	Ga	71	46.7	80.4				mg/L	43	Standard
|	Rb	85	1771.8	41.3				ug/L	48	Standard
|	Y	89	331345.1	38.0				ug/L	447702	Standard
[>	Rh	103	25.0	20.0				ug/L	20	Standard
|	Mo	98	142.6	5.5	0.0339	0.017	49.3	ug/L	158	Standard
|	Ag	107	128.7	22.8	0.0031	0.003	106.2	ug/L	133	Standard
|	Cd	111	20.8	41.1	0.0015	0.002	114.6	mg/L	7	Standard
|	Cd	114	66.0	49.0	0.0063	0.001	23.3	ug/L	72	Standard
[>	In	115	756603.4	40.0				ug/L	1004638	Standard
|	Sn	118	274.7	81.6	0.0786	0.067	85.7	ug/L	364	Standard
|	Sb	123	1512.4	17.1	0.1762	0.050	28.3	ug/L	2464	Standard
|	Ba	135	2803.6	35.8	0.9945	0.137	13.7	ug/L	39	Standard
|	Ce	140	313.3	84.2				ug/L	195	Standard
[>	Tb	159	1243004.2	36.2				ug/L	1640193	Standard
|	Ho	165	33.3	45.8				ug/L	25	Standard
|	Tl	203	175.7	22.2	0.0035	0.002	65.4	ug/L	324	Standard
|	Tl	205	421.7	16.4	0.0104	0.003	26.3	ug/L	698	Standard
|	Pb	206	470.3	41.0	0.0023	0.002	96.7	ug/L	600	Standard
|	Pb	207	390.7	36.6	0.0004	0.000	47.0	ug/L	541	Standard
|	Pb	208	1348.4	34.8	0.0034	0.001	36.2	ug/L	1750	Standard
	U	238	5.7	10.2	0.0026	0.000	7.6	ug/L	10	Standard
[>	Bi	209	619728.4	36.9				ug/L	811518	Standard

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Na	23	5.0	173.2	0.7553	1.300	172.1	mg/L	0	Standard
Mg	24	85.0	29.4	1.7197	0.703	40.9	mg/L	77	Standard
K	39	95.0	27.3	0.6593	0.408	61.8	mg/L	18	Standard
Ca	43	100.0	13.2	11.1918	7.057	63.1	mg/L	178	Standard
Fe	54	19.0	68.7	-0.0423	0.316	745.9	mg/L	29	Standard
Fe	57	483.3	4.7	13.6235	8.176	60.0	mg/L	408	Standard
Sc-1	45	46569.4	31.1				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	5.0	20.0				ug/L	12	Standard
Br	81	1500.1	31.5				ug/L	1747	Standard
P	31	21.7	93.3				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	413.3	3.7				ug/L	370	Standard
C	12	90.0	0.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	30.0	33.3				mg/L	17	Standard
Dy	164	31.9	18.3				mg/L	9	Standard
Ho-1	165	33.3	45.8				mg/L	25	Standard
Er	166	30.0	66.7				mg/L	20	Standard
I	127	15251.2	18.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		82.425	
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		80.260	
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	75.311
[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	76.367
[	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

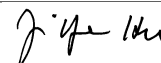
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611053609

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Method 6020 - Summary Report

Sample ID: L1611053609PS WG591386-01

Sample Date/Time: Friday, November 11, 2016 16:00:19

Number of Replicates: 3

Autosampler Position: 230

Sample Description: 1

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	162750.1	45.6				ug/L	206101	Standard
|	Be	9	83249.5	43.1	45.4314	1.034	2.3	ug/L	25	Standard
|	Al	27	256549.3	35.6	1.7172	0.155	9.0	ug/L	1120	Standard
|	Sc	45	45249.2	33.5				ug/L	61425	Standard
|	Ti	47	279.3	39.6	0.6363	0.072	11.4	ug/L	70	Standard
|	V	51	415094.2	37.7	49.3900	1.393	2.8	ug/L	3309	Standard
|	Cr	52	341745.5	37.8	43.6504	1.272	2.9	ug/L	13497	Standard
|	Cr	53	43172.1	37.3	42.9338	1.736	4.0	ug/L	3162	Standard
|	Mn	55	552722.9	39.6	44.6998	0.844	1.9	ug/L	2226	Standard
|	Co	59	431026.2	40.9	44.2182	0.255	0.6	ug/L	1003	Standard
|	Ni	60	94755.9	40.6	45.3203	0.815	1.8	ug/L	355	Standard
|	Cu	65	89280.9	42.7	46.7411	0.916	2.0	ug/L	473	Standard
|	Zn	66	50826.6	39.4	52.2032	0.780	1.5	ug/L	341	Standard
>	Ge	72	450206.0	40.7				ug/L	566981	Standard
|	As	75	47498.5	40.4	48.4110	0.800	1.7	ug/L	-156	Standard
|	Se	82	4003.1	42.8	48.6944	1.068	2.2	ug/L	35	Standard
|	Se-1	77	3481.8	41.2	49.3401	0.518	1.1	ug/L	354	Standard
>	Ga	71	91.7	45.7				mg/L	43	Standard
|	Rb	85	1720.1	43.1				ug/L	48	Standard
|	Y	89	327200.1	39.9				ug/L	447702	Standard
>	Rh	103	58.3	58.3				ug/L	20	Standard
|	Mo	98	88.2	7.2	0.0177	0.008	45.5	ug/L	158	Standard
|	Ag	107	330634.0	39.3	43.1675	0.968	2.2	ug/L	133	Standard
|	Cd	111	118467.2	41.5	48.4858	0.356	0.7	mg/L	7	Standard
|	Cd	114	302036.3	41.9	45.8473	0.332	0.7	ug/L	72	Standard
>	In	115	733996.0	41.6				ug/L	1004638	Standard
|	Sn	118	198.7	27.4	0.0564	0.018	31.2	ug/L	364	Standard
|	Sb	123	291941.2	44.1	44.4689	1.044	2.3	ug/L	2464	Standard
|	Ba	135	128800.5	38.7	47.0819	1.285	2.7	ug/L	39	Standard
|	Ce	140	273.3	48.8				ug/L	195	Standard
>	Tb	159	1229525.0	38.5				ug/L	1640193	Standard
|	Ho	165	41.7	25.0				ug/L	25	Standard
|	Tl	203	494314.9	38.5	44.7394	0.450	1.0	ug/L	324	Standard
|	Tl	205	1168758.7	38.6	39.5380	0.581	1.5	ug/L	698	Standard
|	Pb	206	385856.2	38.5	44.7966	0.919	2.1	ug/L	600	Standard
|	Pb	207	339980.8	37.9	44.4210	0.906	2.0	ug/L	541	Standard
|	Pb	208	1140885.6	36.7	45.3861	1.036	2.3	ug/L	1750	Standard
	U	238	470856.1	28.3	47.8943	4.184	8.7	ug/L	10	Standard
>	Bi	209	610723.8	37.6				ug/L	811518	Standard

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Na	23	13.3	94.4	2.4413	2.114	86.6	mg/L	0	Standard
Mg	24	73.3	14.2	1.4772	0.510	34.5	mg/L	77	Standard
K	39	93.3	44.6	0.5776	0.077	13.4	mg/L	18	Standard
Ca	43	106.7	37.6	9.8106	5.612	57.2	mg/L	178	Standard
Fe	54	16.7	39.2	-0.0934	0.219	234.5	mg/L	29	Standard
Fe	57	493.3	21.5	15.3254	12.452	81.2	mg/L	408	Standard
Sc-1	45	45249.2	33.5				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.7	15.1				ug/L	12	Standard
Br	81	1436.7	35.2				ug/L	1747	Standard
P	31	25.0	40.0				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	418.3	12.0				ug/L	370	Standard
C	12	66.7	37.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	20.0	50.0				mg/L	17	Standard
Dy	164	25.2	47.5				mg/L	9	Standard
Ho-1	165	41.7	25.0				mg/L	25	Standard
Er	166	30.0	57.7				mg/L	20	Standard
I	127	13311.0	21.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		78.966	
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		79.404	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611053609PS WG591386-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	73.061
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
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[Ca	43	
[Fe	54	
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[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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Sample ID: L1611053609PS WG591386-01

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Method 6020 - Summary Report

Sample ID: L1611053609SDL WG591386-02

Sample Date/Time: Friday, November 11, 2016 16:04:02

Number of Replicates: 3

Autosampler Position: 231

Sample Description: 5

Method File: C:\NexlONData\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	161694.9	44.1				ug/L	206101	Standard
|	Be	9	11.7	65.5	-0.0110	0.008	70.6	ug/L	25	Standard
|	Al	27	58361.8	29.1	0.4052	0.074	18.2	ug/L	1120	Standard
|	Sc	45	44246.3	34.5				ug/L	61425	Standard
|	Ti	47	84.7	41.1	0.0928	0.010	11.2	ug/L	70	Standard
|	V	51	8267.5	56.0	0.6433	0.155	24.1	ug/L	3309	Standard
|	Cr	52	8718.3	21.4	-0.2614	0.209	79.9	ug/L	13497	Standard
|	Cr	53	1126.7	7.5	-1.2632	0.415	32.8	ug/L	3162	Standard
|	Mn	55	5455.1	35.7	0.3197	0.044	13.8	ug/L	2226	Standard
|	Co	59	520.3	6.5	-0.0041	0.018	439.6	ug/L	1003	Standard
|	Ni	60	467.7	34.0	0.1067	0.014	13.4	ug/L	355	Standard
|	Cu	65	396.3	54.3	0.0061	0.028	448.2	ug/L	473	Standard
|	Zn	66	1610.8	52.2	1.3592	0.231	17.0	ug/L	341	Standard
>	Ge	72	441708.9	40.2				ug/L	566981	Standard
|	As	75	233.7	33.6	0.3563	0.075	21.1	ug/L	-156	Standard
|	Se	82	23.1	39.5	-0.0318	0.033	104.2	ug/L	35	Standard
|	Se-1	77	303.3	10.4	0.3927	1.491	379.7	ug/L	354	Standard
>	Ga	71	46.7	43.3				mg/L	43	Standard
|	Rb	85	383.3	35.4				ug/L	48	Standard
|	Y	89	318595.3	38.9				ug/L	447702	Standard
>	Rh	103	25.0	80.0				ug/L	20	Standard
|	Mo	98	188.9	12.4	0.0519	0.028	53.3	ug/L	158	Standard
|	Ag	107	140.7	18.7	0.0056	0.005	81.1	ug/L	133	Standard
|	Cd	111	8.4	24.6	-0.0029	0.002	53.9	mg/L	7	Standard
|	Cd	114	64.7	95.9	0.0055	0.005	90.6	ug/L	72	Standard
>	In	115	732127.7	42.5				ug/L	1004638	Standard
|	Sn	118	444.7	88.6	0.1796	0.127	70.8	ug/L	364	Standard
|	Sb	123	4543.0	4.9	0.7088	0.253	35.7	ug/L	2464	Standard
|	Ba	135	508.7	44.9	0.1770	0.037	20.8	ug/L	39	Standard
|	Ce	140	45.0	22.2				ug/L	195	Standard
>	Tb	159	1207127.5	38.6				ug/L	1640193	Standard
|	Ho	165	20.0	90.1				ug/L	25	Standard
|	Tl	203	89.0	27.3	-0.0043	0.001	28.6	ug/L	324	Standard
|	Tl	205	236.7	6.8	0.0044	0.002	56.9	ug/L	698	Standard
|	Pb	206	437.3	41.7	-0.0000	0.002	4395.8	ug/L	600	Standard
|	Pb	207	381.3	41.0	0.0001	0.003	4163.4	ug/L	541	Standard
|	Pb	208	1233.0	39.1	-0.0001	0.001	1587.9	ug/L	1750	Standard
	U	238	4.7	24.7	0.0026	0.000	8.4	ug/L	10	Standard
>	Bi	209	602693.1	37.7				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	56.7	5.1	1.0251	0.518	50.5	mg/L	77	Standard
K	39	30.0	44.1	0.1399	0.159	113.6	mg/L	18	Standard
Ca	43	100.0	18.0	7.2322	16.342	226.0	mg/L	178	Standard
Fe	54	24.2	34.3	0.0079	0.049	619.9	mg/L	29	Standard
Fe	57	421.7	8.7	12.0046	9.276	77.3	mg/L	408	Standard
Sc-1	45	44246.3	34.5				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	9.7	6.0				ug/L	12	Standard
Br	81	1246.7	38.5				ug/L	1747	Standard
P	31	21.7	70.5				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	411.7	15.2				ug/L	370	Standard
C	12	46.7	32.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	69.3				mg/L	17	Standard
Dy	164	25.5	79.1				mg/L	9	Standard
Ho-1	165	20.0	90.1				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	6208.0	18.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		78.454	
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		77.905	
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	72.875
[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	74.267
[	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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Sample ID: L1611053609SDL WG591386-02

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 16:07:10

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	183584.6	39.6				ug/L	206101	Standard
|	Be	9	98280.1	34.9	47.7476	2.302	4.8	ug/L	25	Standard
|	Al	27	7937613.2	30.4	46.7003	4.096	8.8	ug/L	1120	Standard
|	Sc	45	49829.2	27.3				ug/L	61425	Standard
|	Ti	47	37995.1	30.2	94.7658	5.133	5.4	ug/L	70	Standard
|	V	51	454999.5	30.2	48.2506	2.636	5.5	ug/L	3309	Standard
|	Cr	52	422269.3	31.7	48.0557	2.186	4.5	ug/L	13497	Standard
|	Cr	53	53433.1	34.3	47.0781	1.186	2.5	ug/L	3162	Standard
|	Mn	55	670255.2	33.0	48.2337	1.320	2.7	ug/L	2226	Standard
|	Co	59	535924.8	34.4	48.9205	1.005	2.1	ug/L	1003	Standard
|	Ni	60	115884.9	34.6	49.2376	1.059	2.2	ug/L	355	Standard
|	Cu	65	107647.6	34.8	50.3279	1.026	2.0	ug/L	473	Standard
|	Zn	66	55348.5	32.9	50.5632	1.422	2.8	ug/L	341	Standard
>	Ge	72	507373.6	35.8				ug/L	566981	Standard
|	As	75	54280.6	35.4	49.0451	0.332	0.7	ug/L	-156	Standard
|	Se	82	4438.4	38.3	47.8230	1.443	3.0	ug/L	35	Standard
|	Se-1	77	3814.9	36.9	47.7091	1.314	2.8	ug/L	354	Standard
>	Ga	71	101.7	47.8				mg/L	43	Standard
|	Rb	85	646.7	44.6				ug/L	48	Standard
|	Y	89	369306.2	34.9				ug/L	447702	Standard
>	Rh	103	41.7	25.0				ug/L	20	Standard
|	Mo	98	391781.0	33.6	98.2544	3.251	3.3	ug/L	158	Standard
|	Ag	107	429795.8	34.3	49.2433	1.298	2.6	ug/L	133	Standard
|	Cd	111	140476.9	36.8	50.4544	0.181	0.4	mg/L	7	Standard
|	Cd	114	375823.8	39.6	49.7499	1.582	3.2	ug/L	72	Standard
>	In	115	836600.2	37.1				ug/L	1004638	Standard
|	Sn	118	87712.9	37.9	50.8694	0.359	0.7	ug/L	364	Standard
|	Sb	123	374353.6	35.8	50.5305	0.724	1.4	ug/L	2464	Standard
|	Ba	135	153357.9	33.9	49.2080	1.583	3.2	ug/L	39	Standard
|	Ce	140	185.0	30.7				ug/L	195	Standard
>	Tb	159	1368400.4	33.5				ug/L	1640193	Standard
|	Ho	165	53.3	23.6				ug/L	25	Standard
|	Tl	203	594504.6	33.4	50.2026	0.993	2.0	ug/L	324	Standard
|	Tl	205	1419330.0	33.8	44.7513	0.893	2.0	ug/L	698	Standard
|	Pb	206	465010.4	33.4	50.3628	0.945	1.9	ug/L	600	Standard
|	Pb	207	408252.5	32.9	49.7231	0.696	1.4	ug/L	541	Standard
|	Pb	208	1369037.0	32.0	50.7299	0.313	0.6	ug/L	1750	Standard
	U	238	568504.1	23.1	53.7867	4.378	8.1	ug/L	10	Standard
>	Bi	209	653676.4	31.7				ug/L	811518	Standard

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Na	23	21.7	96.1	3.6077	2.725	75.5	mg/L	0	Standard
Mg	24	246.7	23.3	6.1467	1.846	30.0	mg/L	77	Standard
K	39	713.4	27.2	4.8016	0.217	4.5	mg/L	18	Standard
Ca	43	100.0	5.0	12.9389	8.529	65.9	mg/L	178	Standard
Fe	54	359.8	48.4	5.2448	1.265	24.1	mg/L	29	Standard
Fe	57	535.0	7.4	14.0584	7.562	53.8	mg/L	408	Standard
Sc-1	45	49829.2	27.3				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.7	24.0				ug/L	12	Standard
Br	81	1420.1	46.0				ug/L	1747	Standard
P	31	40.0	57.3				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	373.3	19.0				ug/L	370	Standard
C	12	53.3	39.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	43.3				mg/L	17	Standard
Dy	164	39.4	87.7				mg/L	9	Standard
Ho-1	165	53.3	23.6				mg/L	25	Standard
Er	166	13.3	114.6				mg/L	20	Standard
I	127	3548.8	22.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	95.495		
Al	27	93.401		
Sc	45			
Ti	47	94.766		
V	51	96.501		
Cr	52	96.111		
Cr	53			
Mn	55	96.467		
Co	59	97.841		
Ni	60	98.475		
Cu	65	100.656		
Zn	66	101.126		
Ge	72		89.487	
As	75	98.090		
Se	82	95.646		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	98.254	
[Ag	107	98.487	
[Cd	111	100.909	
[Cd	114		
>	In	115		83.274
[Sn	118	101.739	
[	Sb	123	101.061	
[	Ba	135	98.416	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.405	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	101.460	
[	U	238	107.573	
>	Bi	209		80.550
[	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 7

Sample Date/Time: Friday, November 11, 2016 16:10:15

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	170688.7	45.3				ug/L	206101	Standard
|	Be	9	36.7	41.7	0.0003	0.005	1496.1	ug/L	25	Standard
|	Al	27	1398.4	32.2	0.0146	0.001	8.8	ug/L	1120	Standard
|	Sc	45	46241.4	35.7				ug/L	61425	Standard
|	Ti	47	36.7	30.0	-0.0310	0.061	195.4	ug/L	70	Standard
|	V	51	2862.3	18.4	0.0331	0.084	254.1	ug/L	3309	Standard
|	Cr	52	11414.5	26.2	0.0273	0.258	946.6	ug/L	13497	Standard
|	Cr	53	1320.1	9.9	-1.1145	0.446	40.1	ug/L	3162	Standard
|	Mn	55	2718.3	24.0	0.0862	0.042	49.2	ug/L	2226	Standard
|	Co	59	1220.7	21.8	0.0647	0.027	41.3	ug/L	1003	Standard
|	Ni	60	272.3	21.5	0.0080	0.028	355.3	ug/L	355	Standard
|	Cu	65	371.7	38.5	-0.0083	0.014	168.6	ug/L	473	Standard
|	Zn	66	274.7	42.3	-0.0167	0.018	104.9	ug/L	341	Standard
>	Ge	72	470815.0	45.6				ug/L	566981	Standard
|	As	75	-111.2	22.9	-0.0116	0.030	256.5	ug/L	-156	Standard
|	Se	82	20.8	50.3	-0.0788	0.051	64.1	ug/L	35	Standard
|	Se-1	77	293.0	5.5	0.0490	1.665	3396.7	ug/L	354	Standard
>	Ga	71	53.3	62.4				mg/L	43	Standard
|	Rb	85	51.7	14.8				ug/L	48	Standard
|	Y	89	340914.3	44.9				ug/L	447702	Standard
>	Rh	103	30.0	60.1				ug/L	20	Standard
|	Mo	98	206.0	5.8	0.0538	0.027	51.0	ug/L	158	Standard
|	Ag	107	158.0	30.9	0.0063	0.003	44.9	ug/L	133	Standard
|	Cd	111	12.4	26.0	-0.0016	0.001	89.7	mg/L	7	Standard
|	Cd	114	82.3	26.2	0.0095	0.004	39.2	ug/L	72	Standard
>	In	115	780430.0	46.9				ug/L	1004638	Standard
|	Sn	118	288.3	18.1	0.1156	0.055	47.4	ug/L	364	Standard
|	Sb	123	6121.5	5.3	0.9560	0.436	45.6	ug/L	2464	Standard
|	Ba	135	35.7	18.7	0.0038	0.004	106.7	ug/L	39	Standard
|	Ce	140	58.3	32.5				ug/L	195	Standard
>	Tb	159	1281152.3	42.4				ug/L	1640193	Standard
|	Ho	165	13.3	43.3				ug/L	25	Standard
|	Tl	203	62.7	15.3	-0.0067	0.002	26.1	ug/L	324	Standard
|	Tl	205	133.3	17.7	0.0004	0.001	279.1	ug/L	698	Standard
|	Pb	206	467.7	51.3	0.0012	0.004	382.1	ug/L	600	Standard
|	Pb	207	398.7	41.9	0.0013	0.002	132.2	ug/L	541	Standard
|	Pb	208	1295.4	41.0	0.0011	0.003	242.3	ug/L	1750	Standard
	U	238	43.0	9.3	0.0066	0.001	22.3	ug/L	10	Standard
>	Bi	209	620865.4	42.2				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	48.3	21.5	0.6323	0.200	31.6	mg/L	77	Standard
K	39	11.7	65.5	-0.0218	0.066	301.2	mg/L	18	Standard
Ca	43	98.3	5.9	10.3276	10.437	101.1	mg/L	178	Standard
Fe	54	31.1	19.0	0.1501	0.226	150.3	mg/L	29	Standard
Fe	57	486.7	10.7	14.9498	11.755	78.6	mg/L	408	Standard
Sc-1	45	46241.4	35.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.3	28.4				ug/L	12	Standard
Br	81	1233.4	35.1				ug/L	1747	Standard
P	31	20.0	43.3				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	361.7	18.8				ug/L	370	Standard
C	12	33.3	45.8				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	13.3	43.3				mg/L	17	Standard
Dy	164	12.9	89.9				mg/L	9	Standard
Ho-1	165	13.3	43.3				mg/L	25	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	4340.7	26.9				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		83.039	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	77.683
[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	76.507
[	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
In 115 Int Std for QC Std	In	115	Rerun sample
QC Std 7	Sb	123	
Bi 209 Int Std for QC Std	Bi	209	Rerun sample

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: L1611053611

Sample Date/Time: Friday, November 11, 2016 16:13:22

Number of Replicates: 3

Autosampler Position: 232

Sample Description: 1

Method File: C:\NexlONData\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	152550.4	42.6				ug/L	206101	Standard
|	Be	9	33.3	43.3	0.0043	0.017	401.6	ug/L	25	Standard
|	Al	27	283960.0	33.1	2.0213	0.181	8.9	ug/L	1120	Standard
|	Sc	45	42982.1	33.5				ug/L	61425	Standard
|	Ti	47	244.3	35.4	0.5724	0.034	6.0	ug/L	70	Standard
|	V	51	16951.2	43.5	1.7693	0.093	5.2	ug/L	3309	Standard
|	Cr	52	10964.1	24.5	0.0814	0.233	285.8	ug/L	13497	Standard
|	Cr	53	1241.7	21.6	-1.1479	0.256	22.3	ug/L	3162	Standard
|	Mn	55	71341.1	50.7	5.7577	0.659	11.4	ug/L	2226	Standard
|	Co	59	893.7	28.5	0.0359	0.015	42.4	ug/L	1003	Standard
|	Ni	60	1358.4	51.0	0.5390	0.073	13.5	ug/L	355	Standard
|	Cu	65	342.0	36.3	-0.0090	0.011	122.8	ug/L	473	Standard
|	Zn	66	756.0	57.1	0.4904	0.125	25.6	ug/L	341	Standard
>	Ge	72	430632.3	40.2				ug/L	566981	Standard
|	As	75	362.4	43.3	0.4866	0.014	2.9	ug/L	-156	Standard
|	Se	82	34.2	11.9	0.1485	0.125	84.0	ug/L	35	Standard
|	Se-1	77	286.3	8.7	0.3825	2.009	525.4	ug/L	354	Standard
>	Ga	71	63.3	50.8				mg/L	43	Standard
|	Rb	85	2020.2	42.9				ug/L	48	Standard
|	Y	89	307838.4	36.2				ug/L	447702	Standard
>	Rh	103	28.3	20.4				ug/L	20	Standard
|	Mo	98	386.4	19.0	0.1230	0.067	54.3	ug/L	158	Standard
|	Ag	107	186.3	47.4	0.0158	0.023	143.4	ug/L	133	Standard
|	Cd	111	50.8	80.9	0.0202	0.029	143.6	mg/L	7	Standard
|	Cd	114	111.6	39.0	0.0167	0.012	74.4	ug/L	72	Standard
>	In	115	699008.0	40.8				ug/L	1004638	Standard
|	Sn	118	64.0	9.5	-0.0301	0.021	70.4	ug/L	364	Standard
|	Sb	123	3132.9	2.4	0.4939	0.192	38.8	ug/L	2464	Standard
|	Ba	135	2934.7	41.8	1.1124	0.120	10.8	ug/L	39	Standard
|	Ce	140	428.3	50.7				ug/L	195	Standard
>	Tb	159	1164912.6	35.4				ug/L	1640193	Standard
|	Ho	165	26.7	75.8				ug/L	25	Standard
|	Tl	203	227.3	27.1	0.0109	0.011	104.9	ug/L	324	Standard
|	Tl	205	576.7	49.5	0.0195	0.018	92.8	ug/L	698	Standard
|	Pb	206	473.3	29.9	0.0082	0.011	137.3	ug/L	600	Standard
|	Pb	207	382.3	24.2	0.0043	0.009	218.1	ug/L	541	Standard
|	Pb	208	1271.0	29.6	0.0046	0.008	165.8	ug/L	1750	Standard
	U	238	43.3	92.8	0.0075	0.006	84.8	ug/L	10	Standard
>	Bi	209	581105.9	36.7				ug/L	811518	Standard

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Na	23	3.3	86.6	0.6854	0.631	92.1	mg/L	0	Standard
Mg	24	68.3	84.5	1.1193	1.011	90.3	mg/L	77	Standard
K	39	103.3	14.8	0.7818	0.324	41.4	mg/L	18	Standard
Ca	43	113.3	12.7	2.8604	12.974	453.6	mg/L	178	Standard
Fe	54	24.1	20.4	0.0302	0.064	210.6	mg/L	29	Standard
Fe	57	436.7	9.2	12.6621	5.662	44.7	mg/L	408	Standard
Sc-1	45	42982.1	33.5				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	11.3	18.4				ug/L	12	Standard
Br	81	1303.4	26.3				ug/L	1747	Standard
P	31	26.7	21.7				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	408.3	1.9				ug/L	370	Standard
C	12	90.0	96.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	46.7	24.7				mg/L	17	Standard
Dy	164	42.1	35.5				mg/L	9	Standard
Ho-1	165	26.7	75.8				mg/L	25	Standard
Er	166	26.7	57.3				mg/L	20	Standard
I	127	10753.9	14.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		74.017	
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		75.952	
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	69.578
[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	71.607
[	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

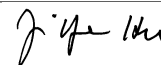
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: L1611053613

Sample Date/Time: Friday, November 11, 2016 16:16:28

Number of Replicates: 3

Autosampler Position: 233

Sample Description: 1

Method File: C:\NexlONData\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	154184.5	43.1				ug/L	206101	Standard
|	Be	9	25.0	80.0	-0.0061	0.007	122.0	ug/L	25	Standard
|	Al	27	439294.2	35.9	3.0761	0.237	7.7	ug/L	1120	Standard
|	Sc	45	43621.1	34.9				ug/L	61425	Standard
|	Ti	47	142.7	47.1	0.2617	0.043	16.4	ug/L	70	Standard
|	V	51	30380.0	45.5	3.4128	0.222	6.5	ug/L	3309	Standard
|	Cr	52	10104.5	23.1	-0.0349	0.223	639.7	ug/L	13497	Standard
|	Cr	53	1048.4	4.4	-1.3158	0.394	29.9	ug/L	3162	Standard
|	Mn	55	30486.1	53.1	2.3647	0.293	12.4	ug/L	2226	Standard
|	Co	59	747.7	25.0	0.0202	0.012	57.6	ug/L	1003	Standard
|	Ni	60	802.0	46.0	0.2713	0.021	7.9	ug/L	355	Standard
|	Cu	65	315.7	37.4	-0.0240	0.007	30.7	ug/L	473	Standard
|	Zn	66	455.3	56.8	0.1807	0.072	40.1	ug/L	341	Standard
>	Ge	72	430067.7	40.6				ug/L	566981	Standard
|	As	75	586.7	43.1	0.7238	0.020	2.7	ug/L	-156	Standard
|	Se	82	101.0	32.0	1.0061	0.110	10.9	ug/L	35	Standard
|	Se-1	77	353.3	12.9	1.3426	1.496	111.5	ug/L	354	Standard
>	Ga	71	85.0	73.5				mg/L	43	Standard
|	Rb	85	9703.4	39.3				ug/L	48	Standard
|	Y	89	310009.1	39.6				ug/L	447702	Standard
>	Rh	103	31.7	36.5				ug/L	20	Standard
|	Mo	98	2414.2	32.9	0.7217	0.077	10.7	ug/L	158	Standard
|	Ag	107	125.0	29.2	0.0036	0.002	67.0	ug/L	133	Standard
|	Cd	111	10.6	35.2	-0.0021	0.000	16.3	mg/L	7	Standard
|	Cd	114	48.6	20.3	0.0053	0.003	60.0	ug/L	72	Standard
>	In	115	707069.7	43.4				ug/L	1004638	Standard
|	Sn	118	52.3	52.0	-0.0450	0.004	7.9	ug/L	364	Standard
|	Sb	123	2156.2	8.6	0.3142	0.116	36.8	ug/L	2464	Standard
|	Ba	135	8312.2	41.1	3.1481	0.206	6.5	ug/L	39	Standard
|	Ce	140	20.0	0.0				ug/L	195	Standard
>	Tb	159	1193118.6	38.1				ug/L	1640193	Standard
|	Ho	165	10.0	50.0				ug/L	25	Standard
|	Tl	203	274.0	43.9	0.0131	0.003	19.3	ug/L	324	Standard
|	Tl	205	640.0	39.3	0.0184	0.002	13.3	ug/L	698	Standard
|	Pb	206	397.0	32.2	-0.0020	0.004	198.6	ug/L	600	Standard
|	Pb	207	334.3	35.1	-0.0038	0.003	75.5	ug/L	541	Standard
|	Pb	208	1161.7	39.7	-0.0014	0.001	41.8	ug/L	1750	Standard
	U	238	4.3	13.3	0.0025	0.000	4.7	ug/L	10	Standard
>	Bi	209	585614.0	40.3				ug/L	811518	Standard

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Na	23	11.7	24.7	2.8250	1.483	52.5	mg/L	0	Standard
Mg	24	110.0	29.8	2.6597	0.535	20.1	mg/L	77	Standard
K	39	258.3	24.0	1.9695	0.263	13.4	mg/L	18	Standard
Ca	43	106.7	27.1	5.3606	15.449	288.2	mg/L	178	Standard
Fe	54	34.3	29.5	0.2669	0.379	142.2	mg/L	29	Standard
Fe	57	503.3	4.9	17.1712	10.531	61.3	mg/L	408	Standard
Sc-1	45	43621.1	34.9				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	10.3	29.6				ug/L	12	Standard
Br	81	1553.4	35.0				ug/L	1747	Standard
P	31	20.0	25.0				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	403.3	12.5				ug/L	370	Standard
C	12	110.0	15.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	26.7	57.3				mg/L	17	Standard
Dy	164	18.6	136.2				mg/L	9	Standard
Ho-1	165	10.0	50.0				mg/L	25	Standard
Er	166	30.0	88.2				mg/L	20	Standard
I	127	12807.2	19.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		74.810	
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		75.852	
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	70.381
[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	72.163
[	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

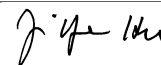
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: L1611053615

Sample Date/Time: Friday, November 11, 2016 16:19:33

Number of Replicates: 3

Autosampler Position: 234

Sample Description: 1

Method File: C:\NexlONData\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	159898.1	40.4				ug/L	206101	Standard
|	Be	9	23.3	68.9	-0.0065	0.009	135.0	ug/L	25	Standard
|	Al	27	173443.4	29.4	1.1875	0.152	12.8	ug/L	1120	Standard
|	Sc	45	44075.1	32.3				ug/L	61425	Standard
|	Ti	47	141.7	33.9	0.2639	0.048	18.2	ug/L	70	Standard
|	V	51	27569.0	47.4	2.9793	0.351	11.8	ug/L	3309	Standard
|	Cr	52	9518.1	24.5	-0.1526	0.173	113.3	ug/L	13497	Standard
|	Cr	53	1163.4	12.0	-1.2346	0.326	26.4	ug/L	3162	Standard
|	Mn	55	9961.6	41.1	0.6903	0.054	7.8	ug/L	2226	Standard
|	Co	59	598.7	20.1	0.0029	0.012	401.0	ug/L	1003	Standard
|	Ni	60	613.0	36.1	0.1792	0.010	5.3	ug/L	355	Standard
|	Cu	65	307.0	38.0	-0.0330	0.013	38.5	ug/L	473	Standard
|	Zn	66	515.3	52.2	0.2402	0.072	30.1	ug/L	341	Standard
>	Ge	72	437063.8	38.6				ug/L	566981	Standard
|	As	75	640.6	38.3	0.7756	0.019	2.5	ug/L	-156	Standard
|	Se	82	64.2	35.7	0.4963	0.023	4.6	ug/L	35	Standard
|	Se-1	77	327.0	6.0	0.8567	1.674	195.5	ug/L	354	Standard
>	Ga	71	46.7	80.4				mg/L	43	Standard
|	Rb	85	4717.5	34.0				ug/L	48	Standard
|	Y	89	315536.1	35.5				ug/L	447702	Standard
>	Rh	103	26.7	39.0				ug/L	20	Standard
|	Mo	98	167.0	12.2	0.0440	0.019	43.6	ug/L	158	Standard
|	Ag	107	108.0	15.6	0.0014	0.003	234.6	ug/L	133	Standard
|	Cd	111	9.4	26.9	-0.0025	0.002	60.2	mg/L	7	Standard
|	Cd	114	45.1	26.4	0.0041	0.001	20.2	ug/L	72	Standard
>	In	115	712542.3	38.2				ug/L	1004638	Standard
|	Sn	118	59.3	44.9	-0.0400	0.004	9.5	ug/L	364	Standard
|	Sb	123	1461.2	15.2	0.1821	0.052	28.5	ug/L	2464	Standard
|	Ba	135	2624.9	36.4	0.9820	0.111	11.3	ug/L	39	Standard
|	Ce	140	30.0	33.3				ug/L	195	Standard
>	Tb	159	1216717.1	35.8				ug/L	1640193	Standard
|	Ho	165	21.7	53.3				ug/L	25	Standard
|	Tl	203	118.7	18.8	-0.0012	0.002	161.3	ug/L	324	Standard
|	Tl	205	286.7	48.0	0.0054	0.002	44.5	ug/L	698	Standard
|	Pb	206	423.0	36.6	-0.0006	0.001	91.0	ug/L	600	Standard
|	Pb	207	342.0	36.8	-0.0042	0.002	54.6	ug/L	541	Standard
|	Pb	208	1214.7	35.3	0.0001	0.002	1538.5	ug/L	1750	Standard
	U	238	3.0	33.3	0.0024	0.000	1.5	ug/L	10	Standard
>	Bi	209	594744.5	36.5				ug/L	811518	Standard

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Na	23	6.7	86.6	1.4987	1.456	97.1	mg/L	0	Standard
Mg	24	110.0	32.8	2.7179	1.374	50.6	mg/L	77	Standard
K	39	128.3	43.8	0.8841	0.276	31.2	mg/L	18	Standard
Ca	43	108.3	49.4	5.6457	20.913	370.4	mg/L	178	Standard
Fe	54	15.7	34.4	-0.1288	0.162	126.0	mg/L	29	Standard
Fe	57	473.3	6.9	14.6748	9.325	63.5	mg/L	408	Standard
Sc-1	45	44075.1	32.3				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	7.3	7.9				ug/L	12	Standard
Br	81	1510.1	31.2				ug/L	1747	Standard
P	31	23.3	32.7				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	390.0	9.2				ug/L	370	Standard
C	12	86.7	37.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	86.6				mg/L	17	Standard
Dy	164	19.2	54.6				mg/L	9	Standard
Ho-1	165	21.7	53.3				mg/L	25	Standard
Er	166	16.7	69.3				mg/L	20	Standard
I	127	12261.7	18.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		77.582	
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		77.086	
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	70.925
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
[Tl	205	
[Pb	206	
[Pb	207	
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[U	238	
>	Bi	209	73.288
[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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Sample ID: L1611053615

Report Date/Time: Friday, November 11, 2016 16:21:44

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Method 6020 - Summary Report

Sample ID: L1611053617

Sample Date/Time: Friday, November 11, 2016 16:22:38

Number of Replicates: 3

Autosampler Position: 235

Sample Description: 1

Method File: C:\NexlONData\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	157789.6	42.8				ug/L	206101	Standard
|	Be	9	25.0	20.0	-0.0031	0.008	246.0	ug/L	25	Standard
|	Al	27	164036.2	33.3	1.1315	0.102	9.1	ug/L	1120	Standard
|	Sc	45	43478.7	33.8				ug/L	61425	Standard
|	Ti	47	161.7	51.1	0.3063	0.046	15.0	ug/L	70	Standard
|	V	51	47267.8	49.7	5.3536	0.637	11.9	ug/L	3309	Standard
|	Cr	52	9153.2	24.8	-0.1907	0.190	99.4	ug/L	13497	Standard
|	Cr	53	1130.0	3.8	-1.2175	0.479	39.3	ug/L	3162	Standard
|	Mn	55	3561.5	46.4	0.1574	0.018	11.7	ug/L	2226	Standard
|	Co	59	482.7	16.4	-0.0088	0.013	142.1	ug/L	1003	Standard
|	Ni	60	511.7	44.4	0.1263	0.012	9.5	ug/L	355	Standard
|	Cu	65	295.7	31.2	-0.0345	0.016	46.1	ug/L	473	Standard
|	Zn	66	460.3	58.5	0.1797	0.079	44.2	ug/L	341	Standard
>	Ge	72	435891.7	41.4				ug/L	566981	Standard
|	As	75	1395.6	44.4	1.5575	0.042	2.7	ug/L	-156	Standard
|	Se	82	49.1	21.4	0.3318	0.117	35.2	ug/L	35	Standard
|	Se-1	77	312.7	8.7	0.6414	1.561	243.4	ug/L	354	Standard
>	Ga	71	61.7	54.0				mg/L	43	Standard
|	Rb	85	2611.9	40.7				ug/L	48	Standard
|	Y	89	309133.6	36.9				ug/L	447702	Standard
>	Rh	103	23.3	49.5				ug/L	20	Standard
|	Mo	98	127.4	19.9	0.0339	0.022	66.2	ug/L	158	Standard
|	Ag	107	128.7	26.1	0.0043	0.003	79.7	ug/L	133	Standard
|	Cd	111	12.8	41.4	-0.0012	0.001	87.2	mg/L	7	Standard
|	Cd	114	27.1	72.3	0.0009	0.002	222.3	ug/L	72	Standard
>	In	115	706170.3	42.2				ug/L	1004638	Standard
|	Sn	118	47.3	56.5	-0.0487	0.004	8.6	ug/L	364	Standard
|	Sb	123	2690.8	33.4	0.3769	0.035	9.3	ug/L	2464	Standard
|	Ba	135	3051.0	43.4	1.1473	0.172	15.0	ug/L	39	Standard
|	Ce	140	63.3	38.9				ug/L	195	Standard
>	Tb	159	1179532.3	39.1				ug/L	1640193	Standard
|	Ho	165	20.0	43.3				ug/L	25	Standard
|	Tl	203	106.0	20.7	-0.0022	0.002	104.9	ug/L	324	Standard
|	Tl	205	290.0	20.9	0.0063	0.002	28.2	ug/L	698	Standard
|	Pb	206	420.7	41.7	-0.0005	0.002	411.4	ug/L	600	Standard
|	Pb	207	340.7	35.5	-0.0032	0.001	45.1	ug/L	541	Standard
|	Pb	208	1162.4	37.7	-0.0014	0.001	98.8	ug/L	1750	Standard
	U	238	20.7	148.4	0.0037	0.002	59.0	ug/L	10	Standard
>	Bi	209	584511.2	37.2				ug/L	811518	Standard

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Na	23	5.0	0.0	1.1659	0.347	29.8	mg/L	0	Standard
Mg	24	68.3	21.1	1.5370	1.151	74.9	mg/L	77	Standard
K	39	90.0	5.6	0.6421	0.209	32.6	mg/L	18	Standard
Ca	43	95.0	5.3	9.5772	10.722	112.0	mg/L	178	Standard
Fe	54	25.9	29.0	0.0967	0.245	253.8	mg/L	29	Standard
Fe	57	490.0	6.7	15.8526	7.906	49.9	mg/L	408	Standard
Sc-1	45	43478.7	33.8				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	10.3	24.4				ug/L	12	Standard
Br	81	1406.7	37.5				ug/L	1747	Standard
P	31	20.0	25.0				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	441.7	9.1				ug/L	370	Standard
C	12	93.3	30.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	91.7				mg/L	17	Standard
Dy	164	12.7	124.5				mg/L	9	Standard
Ho-1	165	20.0	43.3				mg/L	25	Standard
Er	166	13.3	86.6				mg/L	20	Standard
I	127	13244.3	21.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		76.559	
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		76.879	
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	70.291
[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	72.027
[	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: L1611053619

Sample Date/Time: Friday, November 11, 2016 16:25:43

Number of Replicates: 3

Autosampler Position: 236

Sample Description: 1

Method File: C:\NexlONData\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	164157.3	40.3				ug/L	206101	Standard
|	Be	9	20.0	66.1	-0.0085	0.004	44.9	ug/L	25	Standard
|	Al	27	190265.9	33.4	1.2536	0.101	8.1	ug/L	1120	Standard
|	Sc	45	45997.5	31.0				ug/L	61425	Standard
|	Ti	47	131.7	37.1	0.2215	0.013	5.8	ug/L	70	Standard
|	V	51	33637.7	38.5	3.6848	0.112	3.0	ug/L	3309	Standard
|	Cr	52	10153.2	22.8	-0.0976	0.195	199.5	ug/L	13497	Standard
|	Cr	53	1158.4	7.2	-1.2524	0.433	34.5	ug/L	3162	Standard
|	Mn	55	22229.8	56.8	1.5894	0.312	19.7	ug/L	2226	Standard
|	Co	59	570.3	16.5	-0.0015	0.012	818.2	ug/L	1003	Standard
|	Ni	60	670.7	49.6	0.1887	0.035	18.4	ug/L	355	Standard
|	Cu	65	283.3	36.7	-0.0495	0.003	6.7	ug/L	473	Standard
|	Zn	66	445.7	63.0	0.1431	0.106	74.4	ug/L	341	Standard
>	Ge	72	448732.1	38.0				ug/L	566981	Standard
|	As	75	890.4	37.2	1.0120	0.058	5.7	ug/L	-156	Standard
|	Se	82	39.5	15.8	0.1932	0.125	64.8	ug/L	35	Standard
|	Se-1	77	315.0	4.9	0.5006	1.593	318.2	ug/L	354	Standard
>	Ga	71	88.3	54.4				mg/L	43	Standard
|	Rb	85	4747.5	36.4				ug/L	48	Standard
|	Y	89	322149.8	36.8				ug/L	447702	Standard
>	Rh	103	33.3	34.6				ug/L	20	Standard
|	Mo	98	361.8	11.6	0.0989	0.027	27.7	ug/L	158	Standard
|	Ag	107	121.3	26.4	0.0022	0.002	83.8	ug/L	133	Standard
|	Cd	111	11.5	22.7	-0.0018	0.001	75.8	mg/L	7	Standard
|	Cd	114	30.1	46.6	0.0017	0.003	180.5	ug/L	72	Standard
>	In	115	741054.3	38.5				ug/L	1004638	Standard
|	Sn	118	59.3	36.2	-0.0400	0.011	26.7	ug/L	364	Standard
|	Sb	123	2943.0	26.7	0.3988	0.055	13.7	ug/L	2464	Standard
|	Ba	135	5675.5	45.0	2.0066	0.176	8.8	ug/L	39	Standard
|	Ce	140	28.3	50.9				ug/L	195	Standard
>	Tb	159	1220747.5	34.8				ug/L	1640193	Standard
|	Ho	165	13.3	57.3				ug/L	25	Standard
|	Tl	203	178.7	34.0	0.0035	0.000	8.1	ug/L	324	Standard
|	Tl	205	411.7	36.0	0.0095	0.000	3.5	ug/L	698	Standard
|	Pb	206	413.3	31.3	-0.0028	0.002	54.5	ug/L	600	Standard
|	Pb	207	346.3	35.8	-0.0050	0.001	22.3	ug/L	541	Standard
|	Pb	208	1222.4	35.7	-0.0013	0.001	91.5	ug/L	1750	Standard
	U	238	4.7	86.6	0.0025	0.000	11.4	ug/L	10	Standard
>	Bi	209	612142.3	34.5				ug/L	811518	Standard

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Na	23	6.7	43.3	1.4644	0.735	50.2	mg/L	0	Standard
Mg	24	85.0	46.7	1.6530	0.622	37.6	mg/L	77	Standard
K	39	138.3	15.0	0.9726	0.330	33.9	mg/L	18	Standard
Ca	43	115.0	26.1	4.3229	16.478	381.2	mg/L	178	Standard
Fe	54	25.7	45.0	0.0473	0.254	535.9	mg/L	29	Standard
Fe	57	508.3	4.9	15.4521	9.208	59.6	mg/L	408	Standard
Sc-1	45	45997.5	31.0				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.7	15.1				ug/L	12	Standard
Br	81	1816.8	40.1				ug/L	1747	Standard
P	31	28.3	27.0				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	383.3	9.3				ug/L	370	Standard
C	12	113.3	27.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	20.0	50.0				mg/L	17	Standard
Dy	164	8.9	120.7				mg/L	9	Standard
Ho-1	165	13.3	57.3				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	12798.9	18.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		79.649	
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		79.144	
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	73.763
[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	75.432
[	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

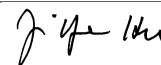
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: L1611053621

Sample Date/Time: Friday, November 11, 2016 16:28:49

Number of Replicates: 3

Autosampler Position: 237

Sample Description: 1

Method File: C:\NexlONData\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	161144.1	43.9				ug/L	206101	Standard
|	Be	9	18.3	41.7	-0.0074	0.008	110.5	ug/L	25	Standard
|	Al	27	233967.2	32.3	1.5897	0.181	11.4	ug/L	1120	Standard
|	Sc	45	45006.8	33.8				ug/L	61425	Standard
|	Ti	47	99.3	53.1	0.1256	0.033	26.2	ug/L	70	Standard
|	V	51	4028.8	32.5	0.1774	0.039	22.0	ug/L	3309	Standard
|	Cr	52	10015.8	24.3	-0.0961	0.211	219.4	ug/L	13497	Standard
|	Cr	53	1130.0	10.0	-1.2776	0.354	27.7	ug/L	3162	Standard
|	Mn	55	49041.6	39.0	3.9077	0.276	7.1	ug/L	2226	Standard
|	Co	59	691.0	16.8	0.0132	0.018	136.5	ug/L	1003	Standard
|	Ni	60	649.7	40.6	0.1907	0.016	8.6	ug/L	355	Standard
|	Cu	65	258.7	34.7	-0.0591	0.014	23.2	ug/L	473	Standard
|	Zn	66	704.7	52.7	0.4248	0.087	20.4	ug/L	341	Standard
>	Ge	72	445028.8	41.2				ug/L	566981	Standard
|	As	75	-106.9	86.1	0.0026	0.056	2126.5	ug/L	-156	Standard
|	Se	82	28.7	24.1	0.0493	0.061	124.6	ug/L	35	Standard
|	Se-1	77	320.0	5.0	0.6988	1.749	250.2	ug/L	354	Standard
>	Ga	71	43.3	59.2				mg/L	43	Standard
|	Rb	85	1796.8	42.2				ug/L	48	Standard
|	Y	89	318898.6	37.8				ug/L	447702	Standard
>	Rh	103	31.7	39.7				ug/L	20	Standard
|	Mo	98	88.2	15.8	0.0192	0.013	65.5	ug/L	158	Standard
|	Ag	107	118.7	25.8	0.0024	0.003	124.1	ug/L	133	Standard
|	Cd	111	12.2	53.3	-0.0018	0.001	63.9	mg/L	7	Standard
|	Cd	114	45.3	74.3	0.0032	0.002	71.3	ug/L	72	Standard
>	In	115	725588.7	40.8				ug/L	1004638	Standard
|	Sn	118	52.3	29.9	-0.0441	0.004	8.9	ug/L	364	Standard
|	Sb	123	1223.1	29.2	0.1337	0.022	16.4	ug/L	2464	Standard
|	Ba	135	5319.4	37.1	1.9737	0.244	12.4	ug/L	39	Standard
|	Ce	140	23.3	44.6				ug/L	195	Standard
>	Tb	159	1192913.5	39.0				ug/L	1640193	Standard
|	Ho	165	18.3	15.7				ug/L	25	Standard
|	Tl	203	120.3	40.2	-0.0016	0.002	92.9	ug/L	324	Standard
|	Tl	205	283.3	43.1	0.0052	0.001	11.0	ug/L	698	Standard
|	Pb	206	422.7	41.1	-0.0018	0.003	189.7	ug/L	600	Standard
|	Pb	207	352.7	44.8	-0.0041	0.003	73.8	ug/L	541	Standard
|	Pb	208	1191.4	36.1	-0.0015	0.002	138.7	ug/L	1750	Standard
	U	238	5.0	91.7	0.0027	0.001	26.8	ug/L	10	Standard
>	Bi	209	603769.6	37.8				ug/L	811518	Standard

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Na	23	15.0	33.3	3.4460	1.933	56.1	mg/L	0	Standard
Mg	24	65.0	13.3	1.2847	0.703	54.7	mg/L	77	Standard
K	39	70.0	12.4	0.4693	0.234	49.8	mg/L	18	Standard
Ca	43	131.7	32.3	-3.0930	22.310	721.3	mg/L	178	Standard
Fe	54	30.5	58.6	0.2211	0.519	234.8	mg/L	29	Standard
Fe	57	461.7	3.8	13.6027	8.889	65.3	mg/L	408	Standard
Sc-1	45	45006.8	33.8				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	11.3	22.2				ug/L	12	Standard
Br	81	1416.7	26.7				ug/L	1747	Standard
P	31	28.3	66.8				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	441.7	10.5				ug/L	370	Standard
C	12	160.0	18.8				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	12.9	48.2				mg/L	9	Standard
Ho-1	165	18.3	15.7				mg/L	25	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	11195.9	20.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		78.187	
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		78.491	
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	72.224
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
[Tl	205	
[Pb	206	
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[Pb	208	
[U	238	
>	Bi	209	74.400
[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

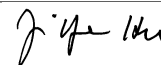
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 16:31:56

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	178404.8	39.5				ug/L	206101	Standard
|	Be	9	95564.8	36.2	47.6492	1.492	3.1	ug/L	25	Standard
|	Al	27	7653810.1	28.0	46.6005	4.906	10.5	ug/L	1120	Standard
|	Sc	45	48680.2	27.1				ug/L	61425	Standard
|	Ti	47	36893.9	30.1	96.1545	5.986	6.2	ug/L	70	Standard
|	V	51	444717.0	31.7	49.1005	2.342	4.8	ug/L	3309	Standard
|	Cr	52	410394.0	31.4	48.8614	2.547	5.2	ug/L	13497	Standard
|	Cr	53	51293.0	33.1	47.3721	1.755	3.7	ug/L	3162	Standard
|	Mn	55	641089.8	33.2	48.1683	1.629	3.4	ug/L	2226	Standard
|	Co	59	512301.5	34.1	48.8958	1.257	2.6	ug/L	1003	Standard
|	Ni	60	110955.8	34.2	49.3009	1.326	2.7	ug/L	355	Standard
|	Cu	65	103025.9	34.7	50.3324	1.087	2.2	ug/L	473	Standard
|	Zn	66	53616.5	33.7	51.0695	1.552	3.0	ug/L	341	Standard
>	Ge	72	487096.7	36.9				ug/L	566981	Standard
|	As	75	52340.7	34.1	49.5573	1.328	2.7	ug/L	-156	Standard
|	Se	82	4285.4	38.6	48.2401	0.937	1.9	ug/L	35	Standard
|	Se-1	77	3615.8	34.5	47.4862	1.306	2.7	ug/L	354	Standard
>	Ga	71	120.0	50.5				mg/L	43	Standard
|	Rb	85	563.3	29.2				ug/L	48	Standard
|	Y	89	355376.1	36.3				ug/L	447702	Standard
>	Rh	103	65.0	23.1				ug/L	20	Standard
|	Mo	98	380157.2	34.5	97.7570	1.317	1.3	ug/L	158	Standard
|	Ag	107	415735.9	34.5	48.9441	0.666	1.4	ug/L	133	Standard
|	Cd	111	137732.7	37.9	50.7318	0.945	1.9	mg/L	7	Standard
|	Cd	114	365489.0	39.9	49.7722	1.876	3.8	ug/L	72	Standard
>	In	115	811740.5	35.9				ug/L	1004638	Standard
|	Sn	118	84419.9	37.6	50.3840	1.121	2.2	ug/L	364	Standard
|	Sb	123	366216.4	36.2	50.7497	0.136	0.3	ug/L	2464	Standard
|	Ba	135	149051.8	34.0	49.1280	1.001	2.0	ug/L	39	Standard
|	Ce	140	185.0	37.5				ug/L	195	Standard
>	Tb	159	1309824.7	30.9				ug/L	1640193	Standard
|	Ho	165	55.0	32.8				ug/L	25	Standard
|	Tl	203	578582.4	34.9	50.4513	1.055	2.1	ug/L	324	Standard
|	Tl	205	1370363.9	34.3	44.7177	0.664	1.5	ug/L	698	Standard
|	Pb	206	451315.0	34.6	50.4965	0.892	1.8	ug/L	600	Standard
|	Pb	207	398365.4	34.7	50.0795	0.923	1.8	ug/L	541	Standard
|	Pb	208	1338101.0	32.6	51.3064	0.179	0.3	ug/L	1750	Standard
	U	238	560189.3	23.6	54.8492	4.554	8.3	ug/L	10	Standard
>	Bi	209	632200.5	32.7				ug/L	811518	Standard

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Na	23	23.3	32.7	4.6185	1.545	33.5	mg/L	0	Standard
Mg	24	235.0	6.4	6.1623	2.159	35.0	mg/L	77	Standard
K	39	725.0	26.9	5.0146	0.541	10.8	mg/L	18	Standard
Ca	43	113.3	5.1	8.2173	10.089	122.8	mg/L	178	Standard
Fe	54	388.9	42.1	5.9644	1.032	17.3	mg/L	29	Standard
Fe	57	595.0	17.9	17.5623	8.229	46.9	mg/L	408	Standard
Sc-1	45	48680.2	27.1				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	9.0	29.4				ug/L	12	Standard
Br	81	1476.7	32.2				ug/L	1747	Standard
P	31	26.7	57.3				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	340.0	13.5				ug/L	370	Standard
C	12	23.3	65.5				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	5.4	109.8				mg/L	9	Standard
Ho-1	165	55.0	32.8				mg/L	25	Standard
Er	166	26.7	21.7				mg/L	20	Standard
I	127	3380.4	23.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	95.298		
Al	27	93.201		
Sc	45			
Ti	47	96.155		
V	51	98.201		
Cr	52	97.723		
Cr	53			
Mn	55	96.337		
Co	59	97.792		
Ni	60	98.602		
Cu	65	100.665		
Zn	66	102.139		
Ge	72		85.911	
As	75	99.115		
Se	82	96.480		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	97.757	
[Ag	107	97.888	
[Cd	111	101.464	
[Cd	114		
>	In	115		80.799
[Sn	118	100.768	
[	Sb	123	101.499	
[	Ba	135	98.256	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.903	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	102.613	
[	U	238	109.698	
>	Bi	209		77.903
[	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
Bi 209 Int Std for QC Std	Bi	209	Rerun sample

Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 16:35:02

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	170065.8	48.5				ug/L	206101	Standard
|	Be	9	11.7	89.2	-0.0135	0.005	36.7	ug/L	25	Standard
|	Al	27	1565.1	35.5	0.0158	0.001	7.4	ug/L	1120	Standard
|	Sc	45	46461.1	37.5				ug/L	61425	Standard
|	Ti	47	47.0	16.1	-0.0090	0.037	409.0	ug/L	70	Standard
|	V	51	2858.4	20.8	0.0348	0.081	232.3	ug/L	3309	Standard
|	Cr	52	11562.6	25.7	0.0684	0.293	427.5	ug/L	13497	Standard
|	Cr	53	1380.1	7.4	-1.0186	0.517	50.8	ug/L	3162	Standard
|	Mn	55	2639.6	25.7	0.0816	0.041	50.8	ug/L	2226	Standard
|	Co	59	963.4	19.2	0.0398	0.025	63.1	ug/L	1003	Standard
|	Ni	60	254.3	15.0	0.0031	0.036	1159.0	ug/L	355	Standard
|	Cu	65	352.0	42.8	-0.0188	0.009	47.0	ug/L	473	Standard
|	Zn	66	289.0	41.7	0.0015	0.025	1701.8	ug/L	341	Standard
>	Ge	72	468249.7	47.8				ug/L	566981	Standard
|	As	75	-96.2	50.8	-0.0020	0.070	3424.3	ug/L	-156	Standard
|	Se	82	26.6	34.8	0.0428	0.235	548.3	ug/L	35	Standard
|	Se-1	77	279.3	3.4	-0.0742	1.808	2435.7	ug/L	354	Standard
>	Ga	71	36.7	41.7				mg/L	43	Standard
|	Rb	85	38.3	15.1				ug/L	48	Standard
|	Y	89	346727.1	46.6				ug/L	447702	Standard
>	Rh	103	10.0	50.0				ug/L	20	Standard
|	Mo	98	228.0	3.6	0.0597	0.025	42.7	ug/L	158	Standard
|	Ag	107	172.0	44.6	0.0074	0.001	11.7	ug/L	133	Standard
|	Cd	111	21.7	7.9	0.0027	0.003	122.2	mg/L	7	Standard
|	Cd	114	76.9	35.8	0.0083	0.002	18.6	ug/L	72	Standard
>	In	115	779243.8	49.1				ug/L	1004638	Standard
|	Sn	118	239.0	15.2	0.0844	0.048	56.5	ug/L	364	Standard
|	Sb	123	5655.6	3.7	0.8821	0.394	44.6	ug/L	2464	Standard
|	Ba	135	45.7	20.3	0.0074	0.004	54.8	ug/L	39	Standard
|	Ce	140	55.0	63.0				ug/L	195	Standard
>	Tb	159	1254302.0	43.4				ug/L	1640193	Standard
|	Ho	165	13.3	57.3				ug/L	25	Standard
|	Tl	203	60.0	47.6	-0.0074	0.000	6.8	ug/L	324	Standard
|	Tl	205	128.3	53.0	-0.0002	0.000	281.1	ug/L	698	Standard
|	Pb	206	480.0	50.3	0.0031	0.003	85.5	ug/L	600	Standard
|	Pb	207	410.3	49.9	0.0021	0.004	174.5	ug/L	541	Standard
|	Pb	208	1365.0	46.0	0.0037	0.001	39.1	ug/L	1750	Standard
	U	238	49.7	12.1	0.0074	0.002	22.5	ug/L	10	Standard
>	Bi	209	619396.5	45.0				ug/L	811518	Standard

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Na	23	3.3	86.6	0.7027	0.692	98.4	mg/L	0	Standard
Mg	24	51.7	22.3	0.7322	0.235	32.1	mg/L	77	Standard
K	39	16.7	17.3	0.0224	0.051	228.4	mg/L	18	Standard
Ca	43	80.0	43.3	14.7373	19.201	130.3	mg/L	178	Standard
Fe	54	34.2	38.0	0.1610	0.014	8.9	mg/L	29	Standard
Fe	57	475.0	4.8	13.4468	7.720	57.4	mg/L	408	Standard
Sc-1	45	46461.1	37.5				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.3	63.8				ug/L	12	Standard
Br	81	1346.7	33.5				ug/L	1747	Standard
P	31	18.3	41.7				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	440.0	16.4				ug/L	370	Standard
C	12	43.3	48.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	18.9	90.3				mg/L	9	Standard
Ho-1	165	13.3	57.3				mg/L	25	Standard
Er	166	23.3	49.5				mg/L	20	Standard
I	127	4270.6	21.2				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		82.586	
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	77.565
[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	76.326
[	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
In 115 Int Std for QC Std	In	115	Rerun sample
QC Std 7	Sb	123	
Bi 209 Int Std for QC Std	Bi	209	Rerun sample

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: PBW 78 WG591065-02

Sample Date/Time: Friday, November 11, 2016 16:38:08

Number of Replicates: 3

Autosampler Position: 238

Sample Description: 50

Method File: C:\NexlONData\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	178047.2	44.8				ug/L	206101	Standard
|	Be	9	18.3	150.2	-0.0122	0.009	70.8	ug/L	25	Standard
|	Al	27	1535.1	23.7	0.0154	0.002	13.4	ug/L	1120	Standard
|	Sc	45	48314.6	34.2				ug/L	61425	Standard
|	Ti	47	38.7	11.7	-0.0307	0.052	170.4	ug/L	70	Standard
|	V	51	1497.2	26.1	-0.1178	0.121	103.1	ug/L	3309	Standard
|	Cr	52	13446.2	24.5	0.2791	0.315	112.7	ug/L	13497	Standard
|	Cr	53	29489.5	21.3	28.4701	6.425	22.6	ug/L	3162	Standard
|	Mn	55	3516.4	30.7	0.1427	0.036	25.1	ug/L	2226	Standard
|	Co	59	777.4	21.1	0.0172	0.017	98.2	ug/L	1003	Standard
|	Ni	60	293.7	18.6	0.0174	0.033	187.4	ug/L	355	Standard
|	Cu	65	361.3	36.7	-0.0148	0.021	142.8	ug/L	473	Standard
|	Zn	66	1924.8	40.7	1.6041	0.065	4.1	ug/L	341	Standard
>	Ge	72	475651.6	44.4				ug/L	566981	Standard
|	As	75	-123.0	79.5	-0.0146	0.088	603.1	ug/L	-156	Standard
|	Se	82	20.7	26.0	-0.0642	0.083	128.8	ug/L	35	Standard
|	Se-1	77	1234.1	17.1	14.7748	4.859	32.9	ug/L	354	Standard
>	Ga	71	75.0	40.6				mg/L	43	Standard
|	Rb	85	43.3	65.6				ug/L	48	Standard
|	Y	89	341228.9	41.8				ug/L	447702	Standard
>	Rh	103	30.0	33.3				ug/L	20	Standard
|	Mo	98	74.7	10.5	0.0135	0.011	83.5	ug/L	158	Standard
|	Ag	107	134.0	33.5	0.0031	0.004	143.6	ug/L	133	Standard
|	Cd	111	14.9	17.7	-0.0002	0.003	1272.2	mg/L	7	Standard
|	Cd	114	50.8	40.9	0.0041	0.001	14.0	ug/L	72	Standard
>	In	115	792953.1	48.1				ug/L	1004638	Standard
|	Sn	118	156.7	24.9	0.0237	0.028	118.6	ug/L	364	Standard
|	Sb	123	1669.4	15.5	0.2204	0.149	67.7	ug/L	2464	Standard
|	Ba	135	54.0	21.8	0.0101	0.004	44.2	ug/L	39	Standard
|	Ce	140	35.0	79.5				ug/L	195	Standard
>	Tb	159	1291593.1	42.5				ug/L	1640193	Standard
|	Ho	165	21.7	13.3				ug/L	25	Standard
|	Tl	203	12230.9	53.0	1.0395	0.128	12.3	ug/L	324	Standard
|	Tl	205	29343.6	52.3	0.9407	0.113	12.0	ug/L	698	Standard
|	Pb	206	2873.0	35.4	0.2821	0.026	9.1	ug/L	600	Standard
|	Pb	207	2460.9	31.7	0.2738	0.035	12.9	ug/L	541	Standard
|	Pb	208	8465.3	31.8	0.2887	0.036	12.6	ug/L	1750	Standard
	U	238	22.7	14.2	0.0046	0.001	26.4	ug/L	10	Standard
>	Bi	209	626757.9	44.0				ug/L	811518	Standard

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Na	23	5.0	173.2	1.0854	1.871	172.4	mg/L	0	Standard
Mg	24	46.7	22.3	0.5150	0.222	43.1	mg/L	77	Standard
K	39	21.7	35.3	0.0409	0.004	10.9	mg/L	18	Standard
Ca	43	96.7	20.9	11.3691	15.754	138.6	mg/L	178	Standard
Fe	54	32.4	36.5	0.1117	0.159	142.1	mg/L	29	Standard
Fe	57	426.7	20.7	10.7307	11.203	104.4	mg/L	408	Standard
Sc-1	45	48314.6	34.2				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	11.0	41.7				ug/L	12	Standard
Br	81	1346.7	43.7				ug/L	1747	Standard
P	31	28.3	27.0				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	420.0	18.6				ug/L	370	Standard
C	12	33.3	45.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	22.7	26.1				mg/L	9	Standard
Ho-1	165	21.7	13.3				mg/L	25	Standard
Er	166	13.3	43.3				mg/L	20	Standard
I	127	4639.1	22.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		86.388	
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		83.892	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: PBW 78 WG591065-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	78.929
[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	77.233
[	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

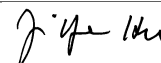
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: PBW 78 WG591065-02

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Method 6020 - Summary Report

Sample ID: LCSW 78 WG591065-03

Sample Date/Time: Friday, November 11, 2016 16:41:14

Number of Replicates: 3

Autosampler Position: 239

Sample Description: 50

Method File: C:\NexlONData\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	185889.6	44.0				ug/L	206101	Standard
|	Be	9	1016.7	39.0	0.4699	0.025	5.3	ug/L	25	Standard
|	Al	27	116184.0	37.0	0.6780	0.042	6.2	ug/L	1120	Standard
|	Sc	45	50169.9	35.6				ug/L	61425	Standard
|	Ti	47	3595.1	40.3	9.2854	0.304	3.3	ug/L	70	Standard
|	V	51	85093.3	40.6	9.2172	0.317	3.4	ug/L	3309	Standard
|	Cr	52	53586.7	38.8	5.1691	0.299	5.8	ug/L	13497	Standard
|	Cr	53	59764.4	29.4	57.9915	7.648	13.2	ug/L	3162	Standard
|	Mn	55	64418.4	40.3	4.7744	0.158	3.3	ug/L	2226	Standard
|	Co	59	20404.6	41.6	1.9069	0.056	3.0	ug/L	1003	Standard
|	Ni	60	10921.7	42.5	4.7798	0.127	2.7	ug/L	355	Standard
|	Cu	65	10269.9	44.9	4.8537	0.051	1.1	ug/L	473	Standard
|	Zn	66	11241.0	42.3	10.5597	0.241	2.3	ug/L	341	Standard
>	Ge	72	481776.9	43.8				ug/L	566981	Standard
|	As	75	3842.8	38.1	3.8048	0.212	5.6	ug/L	-156	Standard
|	Se	82	323.6	43.3	3.4022	0.021	0.6	ug/L	35	Standard
|	Se-1	77	2380.2	27.0	31.3614	5.311	16.9	ug/L	354	Standard
>	Ga	71	66.7	28.4				mg/L	43	Standard
|	Rb	85	126.7	22.8				ug/L	48	Standard
|	Y	89	346043.8	42.8				ug/L	447702	Standard
>	Rh	103	65.0	40.7				ug/L	20	Standard
|	Mo	98	34907.6	42.0	9.4124	0.297	3.2	ug/L	158	Standard
|	Ag	107	29236.4	43.4	3.5862	0.077	2.1	ug/L	133	Standard
|	Cd	111	1280.7	45.6	0.4876	0.012	2.4	mg/L	7	Standard
|	Cd	114	5177.5	48.8	0.7330	0.047	6.4	ug/L	72	Standard
>	In	115	778260.8	45.4				ug/L	1004638	Standard
|	Sn	118	15608.1	45.4	9.6792	0.078	0.8	ug/L	364	Standard
|	Sb	123	85051.0	41.4	12.3863	0.442	3.6	ug/L	2464	Standard
|	Ba	135	27663.8	41.7	9.5584	0.336	3.5	ug/L	39	Standard
|	Ce	140	36.7	43.8				ug/L	195	Standard
>	Tb	159	1282274.2	39.2				ug/L	1640193	Standard
|	Ho	165	10.0	86.6				ug/L	25	Standard
|	Tl	203	59794.9	41.0	5.2955	0.118	2.2	ug/L	324	Standard
|	Tl	205	140230.2	41.3	4.6447	0.121	2.6	ug/L	698	Standard
|	Pb	206	44391.4	40.5	5.0124	0.076	1.5	ug/L	600	Standard
|	Pb	207	38813.1	40.6	4.9234	0.088	1.8	ug/L	541	Standard
|	Pb	208	129988.4	39.2	5.0264	0.007	0.1	ug/L	1750	Standard
	U	238	33.3	59.2	0.0052	0.001	11.5	ug/L	10	Standard
>	Bi	209	620982.8	39.1				ug/L	811518	Standard

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Na	23	5.0	173.2	1.1094	1.913	172.4	mg/L	0	Standard
Mg	24	66.7	15.6	1.0630	0.409	38.4	mg/L	77	Standard
K	39	96.7	48.1	0.5635	0.325	57.7	mg/L	18	Standard
Ca	43	100.0	18.0	11.9809	13.357	111.5	mg/L	178	Standard
Fe	54	38.8	43.8	0.1966	0.261	132.7	mg/L	29	Standard
Fe	57	508.3	14.2	13.9697	11.126	79.6	mg/L	408	Standard
Sc-1	45	50169.9	35.6				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	10.7	44.3				ug/L	12	Standard
Br	81	1440.1	36.6				ug/L	1747	Standard
P	31	31.7	32.9				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	393.3	9.5				ug/L	370	Standard
C	12	36.7	78.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	19.0	91.0				mg/L	9	Standard
Ho-1	165	10.0	86.6				mg/L	25	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	4729.1	24.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		90.193	
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		84.972	
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	77.467
[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	76.521
[	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: F BLANK WG590907-01

Sample Date/Time: Friday, November 11, 2016 16:44:19

Number of Replicates: 3

Autosampler Position: 240

Sample Description: 50

Method File: C:\NexlONData\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	172454.5	49.9				ug/L	206101	Standard
|	Be	9	18.3	31.5	-0.0079	0.006	73.2	ug/L	25	Standard
|	Al	27	1600.1	23.7	0.0163	0.002	14.6	ug/L	1120	Standard
|	Sc	45	47609.6	36.3				ug/L	61425	Standard
|	Ti	47	34.7	7.3	-0.0405	0.046	112.5	ug/L	70	Standard
|	V	51	2212.2	21.5	-0.0190	0.162	852.0	ug/L	3309	Standard
|	Cr	52	13741.6	28.0	0.3267	0.263	80.6	ug/L	13497	Standard
|	Cr	53	27985.2	24.7	27.0459	5.240	19.4	ug/L	3162	Standard
|	Mn	55	3014.0	30.0	0.1066	0.031	29.3	ug/L	2226	Standard
|	Co	59	657.0	17.9	0.0063	0.017	267.2	ug/L	1003	Standard
|	Ni	60	270.3	21.7	0.0069	0.026	385.9	ug/L	355	Standard
|	Cu	65	400.7	40.6	0.0053	0.009	165.2	ug/L	473	Standard
|	Zn	66	1585.1	42.1	1.2875	0.035	2.8	ug/L	341	Standard
>	Ge	72	468638.8	44.6				ug/L	566981	Standard
|	As	75	-117.3	143.3	0.0177	0.102	575.9	ug/L	-156	Standard
|	Se	82	25.7	20.4	0.0297	0.190	638.0	ug/L	35	Standard
|	Se-1	77	1233.7	17.5	14.9999	4.599	30.7	ug/L	354	Standard
>	Ga	71	71.7	31.5				mg/L	43	Standard
|	Rb	85	53.3	14.3				ug/L	48	Standard
|	Y	89	332516.5	41.7				ug/L	447702	Standard
>	Rh	103	18.3	31.5				ug/L	20	Standard
|	Mo	98	55.1	35.4	0.0060	0.004	73.0	ug/L	158	Standard
|	Ag	107	124.3	29.6	0.0024	0.004	162.7	ug/L	133	Standard
|	Cd	111	10.9	18.2	-0.0018	0.002	135.3	mg/L	7	Standard
|	Cd	114	58.8	46.6	0.0053	0.001	14.3	ug/L	72	Standard
>	In	115	774216.4	47.8				ug/L	1004638	Standard
|	Sn	118	168.0	24.3	0.0332	0.026	78.7	ug/L	364	Standard
|	Sb	123	660.0	12.6	0.0504	0.055	108.7	ug/L	2464	Standard
|	Ba	135	46.3	35.1	0.0070	0.002	32.0	ug/L	39	Standard
|	Ce	140	56.7	44.4				ug/L	195	Standard
>	Tb	159	1260554.9	41.2				ug/L	1640193	Standard
|	Ho	165	13.3	21.7				ug/L	25	Standard
|	Tl	203	3020.3	34.0	0.2676	0.020	7.5	ug/L	324	Standard
|	Tl	205	6890.0	29.7	0.2372	0.026	11.0	ug/L	698	Standard
|	Pb	206	1868.8	36.6	0.1699	0.013	7.6	ug/L	600	Standard
|	Pb	207	1629.1	33.7	0.1682	0.016	9.5	ug/L	541	Standard
|	Pb	208	5368.4	29.2	0.1715	0.027	15.6	ug/L	1750	Standard
	U	238	5.7	20.4	0.0027	0.000	12.4	ug/L	10	Standard
>	Bi	209	608521.2	41.9				ug/L	811518	Standard

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Na	23	1.7	173.2	0.3882	0.664	171.0	mg/L	0	Standard
Mg	24	55.0	50.6	0.7677	0.772	100.5	mg/L	77	Standard
K	39	21.7	13.3	0.0573	0.059	102.8	mg/L	18	Standard
Ca	43	91.7	61.3	12.9999	24.229	186.4	mg/L	178	Standard
Fe	54	32.3	39.4	0.1691	0.376	222.5	mg/L	29	Standard
Fe	57	463.3	8.0	12.2913	8.046	65.5	mg/L	408	Standard
Sc-1	45	47609.6	36.3				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	8.0	45.1				ug/L	12	Standard
Br	81	1303.4	51.3				ug/L	1747	Standard
P	31	30.0	44.1				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	325.0	24.4				ug/L	370	Standard
C	12	90.0	40.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	12.1	50.2				mg/L	9	Standard
Ho-1	165	13.3	21.7				mg/L	25	Standard
Er	166	26.7	21.7				mg/L	20	Standard
I	127	2950.3	26.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		83.675	
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		82.655	
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	77.064
[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	74.986
[	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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Sample ID: F BLANK WG590907-01

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Method 6020 - Summary Report

Sample ID: L1611048313 WG591065-01

Sample Date/Time: Friday, November 11, 2016 16:47:24

Number of Replicates: 3

Autosampler Position: 241

Sample Description: 50

Method File: C:\NexlONData\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	179624.9	41.8				ug/L	206101	Standard
|	Be	9	16.7	62.4	-0.0103	0.006	56.7	ug/L	25	Standard
|	Al	27	776797.0	32.1	4.6879	0.416	8.9	ug/L	1120	Standard
|	Sc	45	49435.1	29.4				ug/L	61425	Standard
|	Ti	47	38.3	10.9	-0.0402	0.026	64.5	ug/L	70	Standard
|	V	51	278.0	172.6	-0.2966	0.042	14.1	ug/L	3309	Standard
|	Cr	52	13635.7	24.3	0.2432	0.227	93.4	ug/L	13497	Standard
|	Cr	53	34633.8	18.8	32.7885	6.302	19.2	ug/L	3162	Standard
|	Mn	55	126881.9	36.5	9.4842	0.259	2.7	ug/L	2226	Standard
|	Co	59	686.7	19.0	0.0056	0.012	220.5	ug/L	1003	Standard
|	Ni	60	432.0	29.7	0.0722	0.020	28.0	ug/L	355	Standard
|	Cu	65	380.3	34.1	-0.0105	0.016	155.0	ug/L	473	Standard
|	Zn	66	1316.4	37.2	0.9789	0.024	2.5	ug/L	341	Standard
>	Ge	72	482948.5	39.2				ug/L	566981	Standard
|	As	75	-127.8	149.3	-0.0011	0.162	15004.2	ug/L	-156	Standard
|	Se	82	23.8	12.5	-0.0307	0.078	253.1	ug/L	35	Standard
|	Se-1	77	1272.1	20.7	14.4657	3.177	22.0	ug/L	354	Standard
>	Ga	71	75.0	35.3				mg/L	43	Standard
|	Rb	85	473.3	30.0				ug/L	48	Standard
|	Y	89	347731.3	38.0				ug/L	447702	Standard
>	Rh	103	36.7	31.5				ug/L	20	Standard
|	Mo	98	63.6	16.2	0.0082	0.004	44.8	ug/L	158	Standard
|	Ag	107	130.7	33.8	0.0022	0.001	39.1	ug/L	133	Standard
|	Cd	111	11.2	37.1	-0.0018	0.003	139.4	mg/L	7	Standard
|	Cd	114	39.7	31.1	0.0028	0.002	84.4	ug/L	72	Standard
>	In	115	786988.4	39.3				ug/L	1004638	Standard
|	Sn	118	136.0	19.6	0.0080	0.015	192.1	ug/L	364	Standard
|	Sb	123	472.6	15.5	0.0144	0.036	249.7	ug/L	2464	Standard
|	Ba	135	4194.6	35.1	1.4249	0.056	3.9	ug/L	39	Standard
|	Ce	140	43.3	33.3				ug/L	195	Standard
>	Tb	159	1307880.0	34.1				ug/L	1640193	Standard
|	Ho	165	6.7	43.3				ug/L	25	Standard
|	Tl	203	2189.2	30.2	0.1830	0.015	8.0	ug/L	324	Standard
|	Tl	205	5160.9	26.9	0.1693	0.015	8.8	ug/L	698	Standard
|	Pb	206	1764.1	24.4	0.1540	0.024	15.5	ug/L	600	Standard
|	Pb	207	1464.4	28.2	0.1397	0.014	10.3	ug/L	541	Standard
|	Pb	208	5149.0	24.4	0.1546	0.022	14.2	ug/L	1750	Standard
	U	238	772.7	28.3	0.0782	0.006	7.1	ug/L	10	Standard
>	Bi	209	628104.9	36.5				ug/L	811518	Standard

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Na	23	5.0	100.0	1.0772	1.287	119.5	mg/L	0	Standard
Mg	24	71.7	28.2	1.1489	0.257	22.4	mg/L	77	Standard
K	39	15.0	33.3	-0.0091	0.012	129.4	mg/L	18	Standard
Ca	43	85.0	23.5	16.8063	11.528	68.6	mg/L	178	Standard
Fe	54	45.8	45.9	0.2940	0.119	40.6	mg/L	29	Standard
Fe	57	498.3	10.3	12.7481	7.973	62.5	mg/L	408	Standard
Sc-1	45	49435.1	29.4				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	10.3	29.6				ug/L	12	Standard
Br	81	1500.1	29.5				ug/L	1747	Standard
P	31	30.0	28.9				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	393.3	12.8				ug/L	370	Standard
C	12	63.3	63.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	2.4	284.5				mg/L	9	Standard
Ho-1	165	6.7	43.3				mg/L	25	Standard
Er	166	20.0	173.2				mg/L	20	Standard
I	127	7065.0	15.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		87.154	
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		85.179	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611048313 WG591065-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	78.336
[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	77.399
[	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: L1611048313S WG591065-04

Sample Date/Time: Friday, November 11, 2016 16:50:29

Number of Replicates: 3

Autosampler Position: 242

Sample Description: 50

Method File: C:\NexlONData\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	181827.6	45.0				ug/L	206101	Standard
|	Be	9	983.4	41.7	0.4631	0.082	17.8	ug/L	25	Standard
|	Al	27	896625.5	35.1	5.3523	0.472	8.8	ug/L	1120	Standard
|	Sc	45	50519.3	35.1				ug/L	61425	Standard
|	Ti	47	3668.2	37.4	9.4904	0.450	4.7	ug/L	70	Standard
|	V	51	81896.3	40.8	8.7976	0.149	1.7	ug/L	3309	Standard
|	Cr	52	52457.0	36.5	5.0290	0.356	7.1	ug/L	13497	Standard
|	Cr	53	70087.9	27.0	68.4170	9.782	14.3	ug/L	3162	Standard
|	Mn	55	186978.8	39.9	14.0474	0.388	2.8	ug/L	2226	Standard
|	Co	59	20022.6	39.8	1.8679	0.049	2.6	ug/L	1003	Standard
|	Ni	60	10884.3	39.7	4.7716	0.127	2.7	ug/L	355	Standard
|	Cu	65	10043.0	40.9	4.7665	0.077	1.6	ug/L	473	Standard
|	Zn	66	11122.9	41.6	10.4081	0.094	0.9	ug/L	341	Standard
>	Ge	72	482911.3	42.5				ug/L	566981	Standard
|	As	75	3856.9	40.7	3.7684	0.333	8.8	ug/L	-156	Standard
|	Se	82	347.7	42.1	3.6721	0.120	3.3	ug/L	35	Standard
|	Se-1	77	2302.5	22.6	30.3369	6.153	20.3	ug/L	354	Standard
>	Ga	71	86.7	50.4				mg/L	43	Standard
|	Rb	85	533.3	33.8				ug/L	48	Standard
|	Y	89	347029.8	41.1				ug/L	447702	Standard
>	Rh	103	66.7	45.8				ug/L	20	Standard
|	Mo	98	34607.7	39.1	9.1705	0.297	3.2	ug/L	158	Standard
|	Ag	107	28847.1	40.8	3.4737	0.058	1.7	ug/L	133	Standard
|	Cd	111	1298.4	41.4	0.4874	0.006	1.1	mg/L	7	Standard
|	Cd	114	5115.5	41.5	0.7185	0.028	3.9	ug/L	72	Standard
>	In	115	791753.0	42.6				ug/L	1004638	Standard
|	Sn	118	15802.6	42.4	9.6453	0.128	1.3	ug/L	364	Standard
|	Sb	123	84177.7	38.9	12.0373	0.426	3.5	ug/L	2464	Standard
|	Ba	135	32034.9	40.7	10.8265	0.223	2.1	ug/L	39	Standard
|	Ce	140	70.0	14.3				ug/L	195	Standard
>	Tb	159	1301829.4	36.9				ug/L	1640193	Standard
|	Ho	165	8.3	173.2				ug/L	25	Standard
|	Tl	203	55114.6	38.5	4.8266	0.058	1.2	ug/L	324	Standard
|	Tl	205	130918.7	40.9	4.2666	0.118	2.8	ug/L	698	Standard
|	Pb	206	43134.5	39.0	4.8034	0.078	1.6	ug/L	600	Standard
|	Pb	207	37955.2	39.8	4.7403	0.089	1.9	ug/L	541	Standard
|	Pb	208	128289.9	37.2	4.8967	0.036	0.7	ug/L	1750	Standard
	U	238	802.4	29.9	0.0809	0.006	7.5	ug/L	10	Standard
>	Bi	209	630149.0	37.9				ug/L	811518	Standard

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Na	23	16.7	45.8	3.5131	2.491	70.9	mg/L	0	Standard
Mg	24	86.7	35.3	1.5439	0.556	36.0	mg/L	77	Standard
K	39	115.0	13.0	0.7352	0.330	44.9	mg/L	18	Standard
Ca	43	106.7	22.2	9.2954	16.088	173.1	mg/L	178	Standard
Fe	54	39.1	55.1	0.1892	0.349	184.6	mg/L	29	Standard
Fe	57	515.0	18.4	14.3069	12.886	90.1	mg/L	408	Standard
Sc-1	45	50519.3	35.1				mg/L	61425	Standard
Cl	35	2.7	114.6				ug/L	1	Standard
Kr	83	8.7	6.7				ug/L	12	Standard
Br	81	1736.8	34.4				ug/L	1747	Standard
P	31	33.3	22.9				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	391.7	9.6				ug/L	370	Standard
C	12	46.7	53.9				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	15.9	132.2				mg/L	9	Standard
Ho-1	165	8.3	173.2				mg/L	25	Standard
Er	166	16.7	69.3				mg/L	20	Standard
I	127	6946.6	19.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		88.222	
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		85.172	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611048313S WG591065-04

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	78.810
[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	77.651
[	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

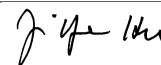
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611048313S WG591065-04

Report Date/Time: Friday, November 11, 2016 16:52:40

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Method 6020 - Summary Report

Sample ID: L1611048313SD WG591065-05

Sample Date/Time: Friday, November 11, 2016 16:53:34

Number of Replicates: 3

Autosampler Position: 243

Sample Description: 50

Method File: C:\NexlONData\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	184475.5	42.2				ug/L	206101	Standard
|	Be	9	893.4	40.9	0.4095	0.033	8.1	ug/L	25	Standard
|	Al	27	913954.4	33.8	5.3501	0.404	7.5	ug/L	1120	Standard
|	Sc	45	51171.1	33.7				ug/L	61425	Standard
|	Ti	47	3739.8	36.5	9.7248	0.535	5.5	ug/L	70	Standard
|	V	51	84616.0	36.2	9.2295	0.550	6.0	ug/L	3309	Standard
|	Cr	52	52974.8	35.5	5.1263	0.420	8.2	ug/L	13497	Standard
|	Cr	53	70410.7	26.2	69.0718	10.353	15.0	ug/L	3162	Standard
|	Mn	55	189092.5	39.6	14.2545	0.409	2.9	ug/L	2226	Standard
|	Co	59	20272.1	40.9	1.8906	0.051	2.7	ug/L	1003	Standard
|	Ni	60	10823.3	41.3	4.7341	0.105	2.2	ug/L	355	Standard
|	Cu	65	9900.3	41.1	4.7033	0.091	1.9	ug/L	473	Standard
|	Zn	66	11128.9	40.1	10.4765	0.288	2.7	ug/L	341	Standard
>	Ge	72	481719.5	42.5				ug/L	566981	Standard
|	As	75	3871.8	34.6	3.8526	0.275	7.1	ug/L	-156	Standard
|	Se	82	346.9	38.1	3.7130	0.180	4.9	ug/L	35	Standard
|	Se-1	77	2339.9	20.9	31.1625	6.932	22.2	ug/L	354	Standard
>	Ga	71	66.7	24.1				mg/L	43	Standard
|	Rb	85	583.3	40.8				ug/L	48	Standard
|	Y	89	349155.5	40.3				ug/L	447702	Standard
>	Rh	103	58.3	32.5				ug/L	20	Standard
|	Mo	98	35167.1	39.7	9.3673	0.381	4.1	ug/L	158	Standard
|	Ag	107	29179.8	40.2	3.5434	0.127	3.6	ug/L	133	Standard
|	Cd	111	1302.0	42.4	0.4910	0.012	2.5	mg/L	7	Standard
|	Cd	114	5370.0	41.8	0.7593	0.016	2.2	ug/L	72	Standard
>	In	115	789931.9	44.1				ug/L	1004638	Standard
|	Sn	118	15828.5	40.2	9.7822	0.381	3.9	ug/L	364	Standard
|	Sb	123	84679.1	38.5	12.2062	0.657	5.4	ug/L	2464	Standard
|	Ba	135	31940.6	38.3	10.9362	0.606	5.5	ug/L	39	Standard
|	Ce	140	68.3	29.6				ug/L	195	Standard
>	Tb	159	1296722.7	38.0				ug/L	1640193	Standard
|	Ho	165	10.0	100.0				ug/L	25	Standard
|	Tl	203	55324.5	38.8	4.8632	0.035	0.7	ug/L	324	Standard
|	Tl	205	132654.3	41.1	4.3400	0.065	1.5	ug/L	698	Standard
|	Pb	206	43473.8	40.6	4.8443	0.047	1.0	ug/L	600	Standard
|	Pb	207	38391.8	38.9	4.8275	0.030	0.6	ug/L	541	Standard
|	Pb	208	127658.7	38.1	4.8845	0.068	1.4	ug/L	1750	Standard
	U	238	818.7	29.8	0.0829	0.007	8.4	ug/L	10	Standard
>	Bi	209	629629.2	39.5				ug/L	811518	Standard

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Na	23	16.7	17.3	3.1861	0.537	16.9	mg/L	0	Standard
Mg	24	86.7	21.8	1.6370	0.995	60.8	mg/L	77	Standard
K	39	83.3	45.4	0.4398	0.200	45.4	mg/L	18	Standard
Ca	43	103.3	22.9	12.3486	10.877	88.1	mg/L	178	Standard
Fe	54	31.9	55.6	0.0700	0.245	349.8	mg/L	29	Standard
Fe	57	451.7	18.0	9.9355	8.419	84.7	mg/L	408	Standard
Sc-1	45	51171.1	33.7				mg/L	61425	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	9.0	19.2				ug/L	12	Standard
Br	81	1766.8	38.3				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	370.0	5.9				ug/L	370	Standard
C	12	53.3	43.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	22.2	90.3				mg/L	9	Standard
Ho-1	165	10.0	100.0				mg/L	25	Standard
Er	166	23.3	99.0				mg/L	20	Standard
I	127	7176.7	13.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		89.507	
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		84.962	
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	78.629
[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	77.587
[	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

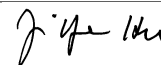
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611048313SD WG591065-05

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Method 6020 - Summary Report

Sample ID: L1611042601

Sample Date/Time: Friday, November 11, 2016 16:56:40

Number of Replicates: 3

Autosampler Position: 244

Sample Description: 50

Method File: C:\NexlONData\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	179986.6	41.5				ug/L	206101	Standard
|	Be	9	25.0	87.2	-0.0079	0.005	68.8	ug/L	25	Standard
|	Al	27	791212.2	32.6	4.7524	0.379	8.0	ug/L	1120	Standard
|	Sc	45	50724.3	33.1				ug/L	61425	Standard
|	Ti	47	45.7	14.2	-0.0182	0.042	229.9	ug/L	70	Standard
|	V	51	330.8	86.7	-0.2718	0.052	19.1	ug/L	3309	Standard
|	Cr	52	13750.5	23.0	0.2733	0.296	108.2	ug/L	13497	Standard
|	Cr	53	31099.3	19.0	29.3759	6.440	21.9	ug/L	3162	Standard
|	Mn	55	76582.7	38.2	5.6645	0.208	3.7	ug/L	2226	Standard
|	Co	59	889.4	23.4	0.0256	0.015	60.3	ug/L	1003	Standard
|	Ni	60	1313.1	44.7	0.4543	0.017	3.8	ug/L	355	Standard
|	Cu	65	4979.9	40.1	2.2531	0.046	2.0	ug/L	473	Standard
|	Zn	66	11549.8	37.7	10.8636	0.441	4.1	ug/L	341	Standard
>	Ge	72	485134.6	42.0				ug/L	566981	Standard
|	As	75	16.9	371.6	0.1120	0.054	47.9	ug/L	-156	Standard
|	Se	82	279.7	44.6	2.8472	0.102	3.6	ug/L	35	Standard
|	Se-1	77	1453.7	24.8	17.1373	3.444	20.1	ug/L	354	Standard
>	Ga	71	51.7	63.0				mg/L	43	Standard
|	Rb	85	10765.9	40.8				ug/L	48	Standard
|	Y	89	353464.0	37.3				ug/L	447702	Standard
>	Rh	103	33.3	22.9				ug/L	20	Standard
|	Mo	98	821.7	37.0	0.2082	0.012	5.8	ug/L	158	Standard
|	Ag	107	140.7	29.6	0.0035	0.002	63.4	ug/L	133	Standard
|	Cd	111	830.3	40.9	0.3076	0.015	4.9	mg/L	7	Standard
|	Cd	114	2159.2	43.1	0.2984	0.018	6.0	ug/L	72	Standard
>	In	115	796756.3	42.9				ug/L	1004638	Standard
|	Sn	118	161.3	21.3	0.0252	0.029	115.5	ug/L	364	Standard
|	Sb	123	1530.7	25.1	0.1644	0.035	21.4	ug/L	2464	Standard
|	Ba	135	8486.6	36.8	2.8723	0.155	5.4	ug/L	39	Standard
|	Ce	140	66.7	45.8				ug/L	195	Standard
>	Tb	159	1301141.2	38.2				ug/L	1640193	Standard
|	Ho	165	16.7	124.9				ug/L	25	Standard
|	Tl	203	1524.7	29.8	0.1231	0.011	8.7	ug/L	324	Standard
|	Tl	205	3535.4	24.8	0.1147	0.015	12.8	ug/L	698	Standard
|	Pb	206	2002.1	31.1	0.1772	0.016	9.2	ug/L	600	Standard
|	Pb	207	1653.1	35.2	0.1600	0.011	6.9	ug/L	541	Standard
|	Pb	208	5763.4	29.9	0.1752	0.017	9.5	ug/L	1750	Standard
	U	238	255.3	25.6	0.0272	0.003	11.2	ug/L	10	Standard
>	Bi	209	633846.9	38.2				ug/L	811518	Standard

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Na	23	38.3	58.8	7.1000	3.549	50.0	mg/L	0	Standard
Mg	24	218.3	18.4	5.4040	1.877	34.7	mg/L	77	Standard
K	39	630.0	35.1	4.1388	0.321	7.8	mg/L	18	Standard
Ca	43	151.7	38.6	-5.1574	26.679	517.3	mg/L	178	Standard
Fe	54	30.8	10.6	0.0926	0.170	184.1	mg/L	29	Standard
Fe	57	455.0	21.2	10.8444	11.581	106.8	mg/L	408	Standard
Sc-1	45	50724.3	33.1				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	9.3	16.4				ug/L	12	Standard
Br	81	1753.4	31.5				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	383.3	7.6				ug/L	370	Standard
C	12	63.3	71.2				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	8.9	187.2				mg/L	9	Standard
Ho-1	165	16.7	124.9				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	18761.8	16.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		87.329	
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		85.564	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611042601

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	79.308
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
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[Pb	206	
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[U	238	
>	Bi	209	78.106
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[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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Sample ID: L1611042601

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Method 6020 - Summary Report

Sample ID: L1611042601PS WG591390-01

Sample Date/Time: Friday, November 11, 2016 16:59:46

Number of Replicates: 3

Autosampler Position: 245

Sample Description: 50

Method File: C:\NexlONData\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	183094.2	41.5				ug/L	206101	Standard
|	Be	9	95481.3	37.6	46.4607	1.693	3.6	ug/L	25	Standard
|	Al	27	800716.6	31.6	4.7367	0.418	8.8	ug/L	1120	Standard
|	Sc	45	51009.4	30.7				ug/L	61425	Standard
|	Ti	47	40.0	5.0	-0.0351	0.034	97.9	ug/L	70	Standard
|	V	51	445984.3	36.5	48.8244	1.247	2.6	ug/L	3309	Standard
|	Cr	52	410983.5	35.9	48.5415	1.584	3.3	ug/L	13497	Standard
|	Cr	53	81870.6	33.8	77.2504	4.276	5.5	ug/L	3162	Standard
|	Mn	55	711934.7	36.9	53.1790	1.232	2.3	ug/L	2226	Standard
|	Co	59	504957.2	38.5	47.8323	0.632	1.3	ug/L	1003	Standard
|	Ni	60	109216.5	38.3	48.2094	0.744	1.5	ug/L	355	Standard
|	Cu	65	107101.0	39.4	51.8833	0.128	0.2	ug/L	473	Standard
|	Zn	66	63331.9	37.3	60.0473	1.292	2.2	ug/L	341	Standard
>	Ge	72	488812.2	39.4				ug/L	566981	Standard
|	As	75	52176.9	39.0	48.9702	0.649	1.3	ug/L	-156	Standard
|	Se	82	4403.5	41.5	49.3148	0.991	2.0	ug/L	35	Standard
|	Se-1	77	4761.1	35.9	64.0342	2.326	3.6	ug/L	354	Standard
>	Ga	71	58.3	39.6				mg/L	43	Standard
|	Rb	85	10897.6	38.3				ug/L	48	Standard
|	Y	89	358234.7	39.7				ug/L	447702	Standard
>	Rh	103	66.7	17.3				ug/L	20	Standard
|	Mo	98	808.4	34.0	0.2017	0.015	7.4	ug/L	158	Standard
|	Ag	107	342106.4	37.7	40.5197	1.016	2.5	ug/L	133	Standard
|	Cd	111	132971.3	39.2	49.4788	0.427	0.9	mg/L	7	Standard
|	Cd	114	338605.7	40.1	46.6662	0.126	0.3	ug/L	72	Standard
>	In	115	808956.2	40.2				ug/L	1004638	Standard
|	Sn	118	127.3	39.9	-0.0033	0.004	123.4	ug/L	364	Standard
|	Sb	123	355375.4	38.8	49.6083	0.701	1.4	ug/L	2464	Standard
|	Ba	135	152284.3	36.6	50.5751	1.646	3.3	ug/L	39	Standard
|	Ce	140	63.3	22.8				ug/L	195	Standard
>	Tb	159	1315894.6	36.4				ug/L	1640193	Standard
|	Ho	165	38.3	19.9				ug/L	25	Standard
|	Tl	203	565777.4	36.8	48.7652	0.421	0.9	ug/L	324	Standard
|	Tl	205	1328652.0	37.5	42.7310	0.843	2.0	ug/L	698	Standard
|	Pb	206	437236.0	36.7	48.3321	0.384	0.8	ug/L	600	Standard
|	Pb	207	384851.2	35.5	47.9257	0.148	0.3	ug/L	541	Standard
|	Pb	208	1288678.7	34.1	48.8841	0.757	1.5	ug/L	1750	Standard
	U	238	555809.1	26.2	53.7876	4.585	8.5	ug/L	10	Standard
>	Bi	209	641131.2	35.8				ug/L	811518	Standard

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Na	23	35.0	51.5	6.8801	4.594	66.8	mg/L	0	Standard
Mg	24	206.7	32.2	4.6954	0.277	5.9	mg/L	77	Standard
K	39	571.7	12.8	3.8780	0.835	21.5	mg/L	18	Standard
Ca	43	121.7	22.6	7.4238	12.869	173.3	mg/L	178	Standard
Fe	54	39.3	46.6	0.2598	0.406	156.4	mg/L	29	Standard
Fe	57	501.7	14.0	12.6053	10.101	80.1	mg/L	408	Standard
Sc-1	45	51009.4	30.7				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.0	60.1				ug/L	12	Standard
Br	81	1803.4	27.6				ug/L	1747	Standard
P	31	21.7	48.0				ug/L	17	Standard
S	34	0.0					ug/L	3	Standard
Sr	88	373.3	13.2				ug/L	370	Standard
C	12	36.7	78.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	23.3	24.7				mg/L	17	Standard
Dy	164	12.7	90.0				mg/L	9	Standard
Ho-1	165	38.3	19.9				mg/L	25	Standard
Er	166	13.3	114.6				mg/L	20	Standard
I	127	18586.6	17.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		88.837	
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		86.213	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611042601PS WG591390-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	80.522
[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	79.004
[	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

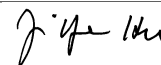
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: L1611042601SDL WG591390-02

Sample Date/Time: Friday, November 11, 2016 17:02:51

Number of Replicates: 3

Autosampler Position: 246

Sample Description: 250

Method File: C:\NexlONData\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	161084.8	43.5				ug/L	206101	Standard
|	Be	9	21.7	53.3	-0.0038	0.014	363.3	ug/L	25	Standard
|	Al	27	140479.0	35.0	0.9494	0.079	8.3	ug/L	1120	Standard
|	Sc	45	46110.2	33.4				ug/L	61425	Standard
|	Ti	47	38.3	15.9	-0.0321	0.025	77.8	ug/L	70	Standard
|	V	51	2821.2	26.8	0.0317	0.043	137.0	ug/L	3309	Standard
|	Cr	52	11123.6	22.8	0.0523	0.228	435.9	ug/L	13497	Standard
|	Cr	53	9798.3	21.0	8.2513	1.820	22.1	ug/L	3162	Standard
|	Mn	55	14289.4	37.4	1.0351	0.017	1.6	ug/L	2226	Standard
|	Co	59	582.7	13.4	0.0011	0.015	1354.8	ug/L	1003	Standard
|	Ni	60	456.3	30.8	0.1006	0.020	20.0	ug/L	355	Standard
|	Cu	65	1090.4	37.2	0.3855	0.017	4.4	ug/L	473	Standard
|	Zn	66	3512.1	38.0	3.3733	0.028	0.8	ug/L	341	Standard
>	Ge	72	444829.4	38.5				ug/L	566981	Standard
|	As	75	-119.3	104.4	0.0018	0.079	4426.8	ug/L	-156	Standard
|	Se	82	60.6	30.5	0.4499	0.153	33.9	ug/L	35	Standard
|	Se-1	77	573.7	12.6	4.8345	2.459	50.9	ug/L	354	Standard
>	Ga	71	50.0	26.5				mg/L	43	Standard
|	Rb	85	1951.8	35.9				ug/L	48	Standard
|	Y	89	319119.6	36.9				ug/L	447702	Standard
>	Rh	103	35.0	37.8				ug/L	20	Standard
|	Mo	98	162.4	32.0	0.0377	0.004	11.8	ug/L	158	Standard
|	Ag	107	172.0	34.5	0.0089	0.002	18.2	ug/L	133	Standard
|	Cd	111	156.8	47.9	0.0562	0.007	12.5	mg/L	7	Standard
|	Cd	114	405.0	46.8	0.0575	0.003	4.9	ug/L	72	Standard
>	In	115	734533.1	41.9				ug/L	1004638	Standard
|	Sn	118	63.3	33.9	-0.0367	0.009	24.3	ug/L	364	Standard
|	Sb	123	2284.2	3.1	0.3320	0.160	48.3	ug/L	2464	Standard
|	Ba	135	1490.4	40.1	0.5337	0.010	1.8	ug/L	39	Standard
|	Ce	140	25.0	60.0				ug/L	195	Standard
>	Tb	159	1216202.6	37.6				ug/L	1640193	Standard
|	Ho	165	10.0	86.6				ug/L	25	Standard
|	Tl	203	1232.4	22.7	0.1053	0.017	16.2	ug/L	324	Standard
|	Tl	205	3023.6	23.9	0.1035	0.015	14.3	ug/L	698	Standard
|	Pb	206	1455.4	25.2	0.1265	0.021	16.5	ug/L	600	Standard
|	Pb	207	1255.7	24.4	0.1225	0.021	17.0	ug/L	541	Standard
|	Pb	208	4328.3	25.8	0.1304	0.020	15.3	ug/L	1750	Standard
	U	238	86.7	21.4	0.0112	0.002	14.2	ug/L	10	Standard
>	Bi	209	599529.4	37.4				ug/L	811518	Standard

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Na	23	6.7	43.3	1.5897	1.164	73.2	mg/L	0	Standard
Mg	24	58.3	30.1	0.8985	0.138	15.3	mg/L	77	Standard
K	39	120.0	33.1	0.7965	0.200	25.1	mg/L	18	Standard
Ca	43	118.3	20.0	3.5967	14.460	402.0	mg/L	178	Standard
Fe	54	32.5	9.3	0.1900	0.249	130.9	mg/L	29	Standard
Fe	57	480.0	6.5	14.0087	9.656	68.9	mg/L	408	Standard
Sc-1	45	46110.2	33.4				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	10.7	23.6				ug/L	12	Standard
Br	81	1226.7	23.5				ug/L	1747	Standard
P	31	21.7	53.3				ug/L	17	Standard
S	34	5.0	0.0				ug/L	3	Standard
Sr	88	410.0	18.8				ug/L	370	Standard
C	12	53.3	65.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	12.2	41.6				mg/L	9	Standard
Ho-1	165	10.0	86.6				mg/L	25	Standard
Er	166	23.3	65.5				mg/L	20	Standard
I	127	6921.6	20.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
> Li	6		78.158	
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		78.456	
As	75			
Se	82			
Se-1	77			
> Ga	71			

Sample ID: L1611042601SDL WG591390-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	73.114
[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	73.878
[	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: L1611042701

Sample Date/Time: Friday, November 11, 2016 17:05:57

Number of Replicates: 3

Autosampler Position: 247

Sample Description: 50

Method File: C:\NexlONData\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	185082.4	34.7				ug/L	206101	Standard
|	Be	9	26.7	60.3	-0.0067	0.004	57.8	ug/L	25	Standard
|	Al	27	1505.1	18.7	0.0146	0.002	10.6	ug/L	1120	Standard
|	Sc	45	50237.4	27.8				ug/L	61425	Standard
|	Ti	47	39.0	24.5	-0.0454	0.010	21.6	ug/L	70	Standard
|	V	51	554.8	7.7	-0.2531	0.020	8.0	ug/L	3309	Standard
|	Cr	52	14337.7	23.8	0.2703	0.168	62.2	ug/L	13497	Standard
|	Cr	53	34864.4	19.5	31.7090	4.789	15.1	ug/L	3162	Standard
|	Mn	55	2774.3	24.7	0.0721	0.020	27.1	ug/L	2226	Standard
|	Co	59	809.4	20.5	0.0147	0.010	67.0	ug/L	1003	Standard
|	Ni	60	617.0	37.8	0.1419	0.018	13.0	ug/L	355	Standard
|	Cu	65	607.3	33.3	0.0935	0.012	12.6	ug/L	473	Standard
|	Zn	66	8894.5	34.3	8.0578	0.048	0.6	ug/L	341	Standard
>	Ge	72	493658.3	34.2				ug/L	566981	Standard
|	As	75	-35.4	356.2	0.0878	0.139	158.1	ug/L	-156	Standard
|	Se	82	49.7	27.5	0.2425	0.066	27.4	ug/L	35	Standard
|	Se-1	77	1162.0	19.3	12.2169	2.363	19.3	ug/L	354	Standard
>	Ga	71	88.3	31.2				mg/L	43	Standard
|	Rb	85	11196.3	41.0				ug/L	48	Standard
|	Y	89	351981.1	31.2				ug/L	447702	Standard
>	Rh	103	26.7	28.6				ug/L	20	Standard
|	Mo	98	5751.8	35.5	1.4681	0.004	0.3	ug/L	158	Standard
|	Ag	107	132.3	28.8	0.0019	0.002	101.9	ug/L	133	Standard
|	Cd	111	12.9	56.8	-0.0021	0.002	98.8	mg/L	7	Standard
|	Cd	114	58.6	70.5	0.0044	0.003	68.7	ug/L	72	Standard
>	In	115	809834.2	35.3				ug/L	1004638	Standard
|	Sn	118	114.3	39.4	-0.0105	0.019	181.2	ug/L	364	Standard
|	Sb	123	2817.1	17.2	0.3745	0.189	50.6	ug/L	2464	Standard
|	Ba	135	17139.4	34.0	5.6489	0.138	2.4	ug/L	39	Standard
|	Ce	140	30.0	16.7				ug/L	195	Standard
>	Tb	159	1325223.4	29.2				ug/L	1640193	Standard
|	Ho	165	8.3	34.6				ug/L	25	Standard
|	Tl	203	1461.7	31.9	0.1106	0.003	2.9	ug/L	324	Standard
|	Tl	205	3483.8	29.0	0.1061	0.005	4.3	ug/L	698	Standard
|	Pb	206	13619.9	34.2	1.4173	0.031	2.2	ug/L	600	Standard
|	Pb	207	11180.4	33.8	1.3057	0.024	1.8	ug/L	541	Standard
|	Pb	208	38809.5	31.4	1.3863	0.010	0.7	ug/L	1750	Standard
	U	238	22.0	40.4	0.0044	0.001	31.8	ug/L	10	Standard
>	Bi	209	656283.7	31.9				ug/L	811518	Standard

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Na	23	15.0	33.3	2.8935	1.052	36.4	mg/L	0	Standard
Mg	24	193.3	19.6	4.5351	0.839	18.5	mg/L	77	Standard
K	39	641.7	17.2	4.3915	0.950	21.6	mg/L	18	Standard
Ca	43	141.7	5.4	0.7585	12.738	1679.2	mg/L	178	Standard
Fe	54	37.3	33.9	0.2214	0.317	143.2	mg/L	29	Standard
Fe	57	545.0	12.6	14.6246	8.646	59.1	mg/L	408	Standard
Sc-1	45	50237.4	27.8				mg/L	61425	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	10.3	40.3				ug/L	12	Standard
Br	81	1673.4	27.2				ug/L	1747	Standard
P	31	23.3	68.9				ug/L	17	Standard
S	34	5.0	100.0				ug/L	3	Standard
Sr	88	338.3	16.8				ug/L	370	Standard
C	12	50.0	40.0				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	12.9	116.4				mg/L	9	Standard
Ho-1	165	8.3	34.6				mg/L	25	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	14155.1	16.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		89.802	
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		87.068	
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	80.610
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
[Tl	205	
[Pb	206	
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[U	238	
>	Bi	209	80.871
[Na	23	
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[K	39	
[Ca	43	
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[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 6

Sample Date/Time: Friday, November 11, 2016 17:09:04

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	174776.7	38.2				ug/L	206101	Standard
|	Be	9	92319.6	32.1	47.2477	2.710	5.7	ug/L	25	Standard
|	Al	27	7607234.1	28.9	46.9681	3.964	8.4	ug/L	1120	Standard
|	Sc	45	48258.7	26.9				ug/L	61425	Standard
|	Ti	47	36783.4	30.5	95.7198	2.456	2.6	ug/L	70	Standard
|	V	51	434965.7	31.2	48.0749	0.973	2.0	ug/L	3309	Standard
|	Cr	52	400604.0	31.4	47.6402	0.808	1.7	ug/L	13497	Standard
|	Cr	53	51760.8	31.6	47.9664	0.935	1.9	ug/L	3162	Standard
|	Mn	55	629472.0	31.6	47.4484	0.787	1.7	ug/L	2226	Standard
|	Co	59	503757.4	32.2	48.2819	0.519	1.1	ug/L	1003	Standard
|	Ni	60	109148.1	32.7	48.6632	0.341	0.7	ug/L	355	Standard
|	Cu	65	101316.2	32.9	49.7045	0.146	0.3	ug/L	473	Standard
|	Zn	66	52551.1	31.9	50.2484	0.641	1.3	ug/L	341	Standard
[>	Ge	72	482993.8	33.2				ug/L	566981	Standard
|	As	75	51431.3	32.2	48.9005	0.535	1.1	ug/L	-156	Standard
|	Se	82	4171.4	35.4	47.2947	1.009	2.1	ug/L	35	Standard
|	Se-1	77	3656.5	34.8	48.0362	1.753	3.7	ug/L	354	Standard
[>	Ga	71	88.3	39.8				mg/L	43	Standard
|	Rb	85	566.7	39.0				ug/L	48	Standard
|	Y	89	352698.7	31.9				ug/L	447702	Standard
[>	Rh	103	53.3	10.8				ug/L	20	Standard
|	Mo	98	370764.0	31.7	97.9474	1.630	1.7	ug/L	158	Standard
|	Ag	107	403363.7	32.1	48.7411	0.604	1.2	ug/L	133	Standard
|	Cd	111	132587.5	33.6	50.3554	0.266	0.5	mg/L	7	Standard
|	Cd	114	348756.7	34.4	49.0928	0.457	0.9	ug/L	72	Standard
[>	In	115	790401.8	33.4				ug/L	1004638	Standard
|	Sn	118	81018.1	35.2	49.6364	0.842	1.7	ug/L	364	Standard
|	Sb	123	360091.5	34.2	51.1915	0.376	0.7	ug/L	2464	Standard
|	Ba	135	144810.8	31.2	49.0214	1.022	2.1	ug/L	39	Standard
|	Ce	140	186.7	48.6				ug/L	195	Standard
[>	Tb	159	1321460.3	29.4				ug/L	1640193	Standard
|	Ho	165	56.7	27.0				ug/L	25	Standard
|	Tl	203	568175.5	30.2	49.7051	0.430	0.9	ug/L	324	Standard
|	Tl	205	1325821.7	30.1	43.3632	0.495	1.1	ug/L	698	Standard
|	Pb	206	443936.5	31.3	49.6964	0.968	1.9	ug/L	600	Standard
|	Pb	207	388538.3	30.9	48.9202	0.743	1.5	ug/L	541	Standard
|	Pb	208	1302554.3	30.0	49.8738	0.394	0.8	ug/L	1750	Standard
	U	238	562220.2	22.9	54.7076	3.225	5.9	ug/L	10	Standard
[>	Bi	209	631904.4	29.2				ug/L	811518	Standard

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Na	23	23.3	24.7	4.5977	0.473	10.3	mg/L	0	Standard
Mg	24	215.0	12.3	5.4333	0.966	17.8	mg/L	77	Standard
K	39	815.0	16.0	5.8171	1.005	17.3	mg/L	18	Standard
Ca	43	93.3	13.5	14.5225	6.886	47.4	mg/L	178	Standard
Fe	54	365.1	46.1	5.5663	1.124	20.2	mg/L	29	Standard
Fe	57	531.7	6.0	14.7193	7.450	50.6	mg/L	408	Standard
Sc-1	45	48258.7	26.9				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	11.0	47.2				ug/L	12	Standard
Br	81	1313.4	34.7				ug/L	1747	Standard
P	31	33.3	8.7				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	405.0	4.9				ug/L	370	Standard
C	12	53.3	88.6				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	22.5	23.2				mg/L	9	Standard
Ho-1	165	56.7	27.0				mg/L	25	Standard
Er	166	16.7	69.3				mg/L	20	Standard
I	127	3320.4	30.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	94.495		
Al	27	93.936		
Sc	45			
Ti	47	95.720		
V	51	96.150		
Cr	52	95.280		
Cr	53			
Mn	55	94.897		
Co	59	96.564		
Ni	60	97.326		
Cu	65	99.409		
Zn	66	100.497		
Ge	72		85.187	
As	75	97.801		
Se	82	94.589		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	97.947	
[Ag	107	97.482	
[Cd	111	100.711	
[Cd	114		
>	In	115		78.675
[Sn	118	99.273	
[	Sb	123	102.383	
[	Ba	135	98.043	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	99.410	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	99.748	
[	U	238	109.415	
>	Bi	209		77.867
[	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
In 115 Int Std for QC Std	In	115	Rerun sample
Bi 209 Int Std for QC Std	Bi	209	Rerun sample

Sample ID: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 17:12:09

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	165428.8	42.6				ug/L	206101	Standard
|	Be	9	41.7	36.7	0.0038	0.005	136.7	ug/L	25	Standard
|	Al	27	1356.7	28.5	0.0147	0.002	10.8	ug/L	1120	Standard
|	Sc	45	45059.9	32.3				ug/L	61425	Standard
|	Ti	47	38.0	20.6	-0.0272	0.049	181.8	ug/L	70	Standard
|	V	51	2522.2	23.1	-0.0013	0.053	4067.4	ug/L	3309	Standard
|	Cr	52	10021.5	25.3	-0.1048	0.196	186.9	ug/L	13497	Standard
|	Cr	53	2090.1	15.8	-0.2253	0.525	233.2	ug/L	3162	Standard
|	Mn	55	2191.8	24.4	0.0494	0.028	56.8	ug/L	2226	Standard
|	Co	59	905.4	26.1	0.0340	0.013	38.7	ug/L	1003	Standard
|	Ni	60	258.3	17.9	0.0076	0.033	441.6	ug/L	355	Standard
|	Cu	65	353.3	37.2	-0.0103	0.010	95.6	ug/L	473	Standard
|	Zn	66	268.0	35.5	-0.0084	0.035	412.2	ug/L	341	Standard
>	Ge	72	446937.4	41.3				ug/L	566981	Standard
|	As	75	-74.2	53.2	0.0157	0.057	364.4	ug/L	-156	Standard
|	Se	82	27.5	22.7	0.0344	0.076	221.0	ug/L	35	Standard
|	Se-1	77	320.3	0.4	0.7421	1.974	266.0	ug/L	354	Standard
>	Ga	71	43.3	13.3				mg/L	43	Standard
|	Rb	85	45.0	11.1				ug/L	48	Standard
|	Y	89	332027.1	42.6				ug/L	447702	Standard
>	Rh	103	25.0	52.9				ug/L	20	Standard
|	Mo	98	195.5	9.6	0.0506	0.021	42.3	ug/L	158	Standard
|	Ag	107	178.3	31.6	0.0097	0.003	30.7	ug/L	133	Standard
|	Cd	111	19.7	22.0	0.0020	0.004	182.7	mg/L	7	Standard
|	Cd	114	68.6	61.8	0.0067	0.002	36.6	ug/L	72	Standard
>	In	115	748468.3	44.3				ug/L	1004638	Standard
|	Sn	118	239.0	19.5	0.0859	0.036	42.2	ug/L	364	Standard
|	Sb	123	5349.8	7.4	0.8570	0.387	45.2	ug/L	2464	Standard
|	Ba	135	39.0	40.7	0.0045	0.000	10.2	ug/L	39	Standard
|	Ce	140	35.0	75.6				ug/L	195	Standard
>	Tb	159	1216143.6	38.8				ug/L	1640193	Standard
|	Ho	165	6.7	86.6				ug/L	25	Standard
|	Tl	203	211.7	38.1	0.0068	0.000	4.6	ug/L	324	Standard
|	Tl	205	498.3	22.6	0.0134	0.002	18.7	ug/L	698	Standard
|	Pb	206	451.3	35.1	0.0025	0.002	93.1	ug/L	600	Standard
|	Pb	207	374.3	44.9	-0.0012	0.003	243.3	ug/L	541	Standard
|	Pb	208	1318.7	39.6	0.0033	0.001	16.1	ug/L	1750	Standard
	U	238	55.0	22.8	0.0078	0.001	11.4	ug/L	10	Standard
>	Bi	209	603456.8	38.6				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	13.3	0.5634	0.452	80.2	mg/L	77	Standard
K	39	21.7	74.2	0.0712	0.146	204.7	mg/L	18	Standard
Ca	43	85.0	10.2	13.9302	10.496	75.3	mg/L	178	Standard
Fe	54	20.8	78.0	-0.0990	0.161	162.8	mg/L	29	Standard
Fe	57	478.3	3.2	14.0186	7.089	50.6	mg/L	408	Standard
Sc-1	45	45059.9	32.3				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	10.0	30.0				ug/L	12	Standard
Br	81	1356.7	16.8				ug/L	1747	Standard
P	31	35.0	14.3				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	356.7	8.2				ug/L	370	Standard
C	12	30.0	33.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	8.7	103.7				mg/L	9	Standard
Ho-1	165	6.7	86.6				mg/L	25	Standard
Er	166	26.7	78.1				mg/L	20	Standard
I	127	3698.8	21.8				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		78.828	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	74.501
[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	74.361
[	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
Ge 72 Int Std for QC Std	Ge	72	Rerun sample
In 115 Int Std for QC Std	In	115	Rerun sample
QC Std 7	Sb	123	

Sample ID: QC Std 7

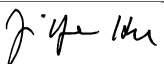
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Method 6020 - Summary Report

Sample ID: L1611042801

Sample Date/Time: Friday, November 11, 2016 17:15:17

Number of Replicates: 3

Autosampler Position: 248

Sample Description: 50

Method File: C:\NexlONData\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	181092.0	34.9				ug/L	206101	Standard
|	Be	9	21.7	74.2	-0.0092	0.004	41.5	ug/L	25	Standard
|	Al	27	1688.4	21.8	0.0158	0.001	7.5	ug/L	1120	Standard
|	Sc	45	50056.3	26.0				ug/L	61425	Standard
|	Ti	47	36.3	5.7	-0.0434	0.036	82.8	ug/L	70	Standard
|	V	51	2284.1	8.2	-0.0425	0.097	228.1	ug/L	3309	Standard
|	Cr	52	12021.9	17.0	0.0510	0.271	532.1	ug/L	13497	Standard
|	Cr	53	13799.7	12.8	11.5896	3.109	26.8	ug/L	3162	Standard
|	Mn	55	2555.6	24.3	0.0609	0.022	36.5	ug/L	2226	Standard
|	Co	59	772.4	19.2	0.0135	0.012	89.7	ug/L	1003	Standard
|	Ni	60	635.7	35.9	0.1587	0.009	5.5	ug/L	355	Standard
|	Cu	65	624.7	33.1	0.1096	0.013	12.3	ug/L	473	Standard
|	Zn	66	1546.1	35.1	1.1970	0.021	1.7	ug/L	341	Standard
>	Ge	72	483278.2	36.6				ug/L	566981	Standard
|	As	75	-152.7	42.5	-0.0415	0.055	131.8	ug/L	-156	Standard
|	Se	82	52.6	32.2	0.2856	0.025	8.6	ug/L	35	Standard
|	Se-1	77	997.7	15.6	10.3288	2.774	26.9	ug/L	354	Standard
>	Ga	71	135.0	30.3				mg/L	43	Standard
|	Rb	85	10163.7	37.1				ug/L	48	Standard
|	Y	89	350845.9	33.8				ug/L	447702	Standard
>	Rh	103	36.7	56.8				ug/L	20	Standard
|	Mo	98	2295.8	32.0	0.5960	0.028	4.7	ug/L	158	Standard
|	Ag	107	177.3	40.6	0.0071	0.001	11.2	ug/L	133	Standard
|	Cd	111	17.0	48.6	-0.0002	0.003	1254.9	mg/L	7	Standard
|	Cd	114	56.0	40.0	0.0046	0.002	44.7	ug/L	72	Standard
>	In	115	797896.6	37.0				ug/L	1004638	Standard
|	Sn	118	149.7	18.9	0.0153	0.018	120.7	ug/L	364	Standard
|	Sb	123	1743.3	17.6	0.2146	0.128	59.5	ug/L	2464	Standard
|	Ba	135	18718.2	34.9	6.2746	0.239	3.8	ug/L	39	Standard
|	Ce	140	25.0	0.0				ug/L	195	Standard
>	Tb	159	1326406.1	32.4				ug/L	1640193	Standard
|	Ho	165	15.0	57.7				ug/L	25	Standard
|	Tl	203	2075.8	43.2	0.1619	0.020	12.6	ug/L	324	Standard
|	Tl	205	4859.2	43.8	0.1482	0.021	14.2	ug/L	698	Standard
|	Pb	206	1805.8	31.8	0.1482	0.005	3.4	ug/L	600	Standard
|	Pb	207	1535.1	25.9	0.1427	0.010	7.4	ug/L	541	Standard
|	Pb	208	5121.7	30.0	0.1441	0.003	2.4	ug/L	1750	Standard
	U	238	21.7	51.0	0.0041	0.001	21.5	ug/L	10	Standard
>	Bi	209	643722.7	31.9				ug/L	811518	Standard

Sample ID: L1611042801

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Na	23	36.7	70.0	6.4103	2.964	46.2	mg/L	0	Standard
Mg	24	216.7	29.4	5.0812	0.562	11.1	mg/L	77	Standard
K	39	580.0	12.1	3.9484	0.531	13.4	mg/L	18	Standard
Ca	43	103.3	7.4	12.4156	7.972	64.2	mg/L	178	Standard
Fe	54	26.2	48.5	0.0196	0.306	1560.1	mg/L	29	Standard
Fe	57	530.0	9.6	13.5759	7.417	54.6	mg/L	408	Standard
Sc-1	45	50056.3	26.0				mg/L	61425	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	9.0	22.2				ug/L	12	Standard
Br	81	1750.1	41.0				ug/L	1747	Standard
P	31	38.3	52.7				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	400.0	11.9				ug/L	370	Standard
C	12	66.7	8.7				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	22.2	67.6				mg/L	9	Standard
Ho-1	165	15.0	57.7				mg/L	25	Standard
Er	166	23.3	24.7				mg/L	20	Standard
I	127	15764.9	10.3				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		87.866	
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		85.237	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611042801

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	79.421
[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	79.323
[Na	23	
[Mg	24	
[K	39	
[Ca	43	
[Fe	54	
[Fe	57	
>	Sc-1	45	
[Cl	35	
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[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

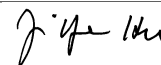
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611042801

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 17:18:24

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	180947.5	37.3				ug/L	206101	Standard
|	Be	9	97847.5	35.3	47.9350	0.936	2.0	ug/L	25	Standard
|	Al	27	7797721.8	27.4	46.5414	4.149	8.9	ug/L	1120	Standard
|	Sc	45	50361.2	27.7				ug/L	61425	Standard
|	Ti	47	38032.7	29.4	97.5825	5.586	5.7	ug/L	70	Standard
|	V	51	452289.6	30.6	49.1935	2.521	5.1	ug/L	3309	Standard
|	Cr	52	416234.0	30.9	48.7477	2.346	4.8	ug/L	13497	Standard
|	Cr	53	52502.9	30.1	48.0012	2.727	5.7	ug/L	3162	Standard
|	Mn	55	655222.6	32.9	48.4282	1.402	2.9	ug/L	2226	Standard
|	Co	59	520575.2	32.8	48.9816	1.438	2.9	ug/L	1003	Standard
|	Ni	60	112606.5	33.5	49.2724	1.157	2.3	ug/L	355	Standard
|	Cu	65	105002.6	33.8	50.5453	1.016	2.0	ug/L	473	Standard
|	Zn	66	54021.4	32.1	50.7599	1.771	3.5	ug/L	341	Standard
>	Ge	72	494010.5	35.7				ug/L	566981	Standard
|	As	75	52951.8	33.8	49.3178	0.856	1.7	ug/L	-156	Standard
|	Se	82	4338.1	36.8	48.1933	0.698	1.4	ug/L	35	Standard
|	Se-1	77	3775.5	34.2	48.9529	1.169	2.4	ug/L	354	Standard
>	Ga	71	70.0	24.7				mg/L	43	Standard
|	Rb	85	515.0	30.1				ug/L	48	Standard
|	Y	89	364760.0	33.3				ug/L	447702	Standard
>	Rh	103	61.7	36.6				ug/L	20	Standard
|	Mo	98	382841.8	31.5	98.4028	3.758	3.8	ug/L	158	Standard
|	Ag	107	416462.4	32.3	48.9178	1.553	3.2	ug/L	133	Standard
|	Cd	111	137007.1	33.8	50.5674	0.920	1.8	mg/L	7	Standard
|	Cd	114	356238.2	34.0	48.7835	0.922	1.9	ug/L	72	Standard
>	In	115	817029.8	35.8				ug/L	1004638	Standard
|	Sn	118	83792.4	34.3	50.0100	0.762	1.5	ug/L	364	Standard
|	Sb	123	367075.5	33.0	50.8660	1.311	2.6	ug/L	2464	Standard
|	Ba	135	148107.7	30.5	48.8354	2.339	4.8	ug/L	39	Standard
|	Ce	140	148.3	28.1				ug/L	195	Standard
>	Tb	159	1311780.7	30.3				ug/L	1640193	Standard
|	Ho	165	41.7	48.5				ug/L	25	Standard
|	Tl	203	573060.2	28.8	48.8542	1.322	2.7	ug/L	324	Standard
|	Tl	205	1369012.4	30.8	43.4478	0.671	1.5	ug/L	698	Standard
|	Pb	206	453158.2	31.3	49.2955	0.189	0.4	ug/L	600	Standard
|	Pb	207	400916.3	31.4	49.0109	0.177	0.4	ug/L	541	Standard
|	Pb	208	1339178.9	29.5	49.8907	0.997	2.0	ug/L	1750	Standard
	U	238	573827.7	21.8	54.4222	4.857	8.9	ug/L	10	Standard
>	Bi	209	653173.2	31.7				ug/L	811518	Standard

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Na	23	15.0	33.3	3.1129	1.701	54.6	mg/L	0	Standard
Mg	24	231.7	26.1	5.5322	0.949	17.1	mg/L	77	Standard
K	39	760.0	22.4	5.1051	0.267	5.2	mg/L	18	Standard
Ca	43	108.3	2.7	11.1028	7.380	66.5	mg/L	178	Standard
Fe	54	360.7	34.7	5.3543	0.392	7.3	mg/L	29	Standard
Fe	57	530.0	9.0	13.8032	8.260	59.8	mg/L	408	Standard
Sc-1	45	50361.2	27.7				mg/L	61425	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	9.3	40.6				ug/L	12	Standard
Br	81	1486.7	24.7				ug/L	1747	Standard
P	31	26.7	60.3				ug/L	17	Standard
S	34	6.7	43.3				ug/L	3	Standard
Sr	88	388.3	10.4				ug/L	370	Standard
C	12	50.0	72.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	173.2				mg/L	17	Standard
Dy	164	22.9	175.0				mg/L	9	Standard
Ho-1	165	41.7	48.5				mg/L	25	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	3438.7	30.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	95.870		
Al	27	93.083		
Sc	45			
Ti	47	97.583		
V	51	98.387		
Cr	52	97.495		
Cr	53			
Mn	55	96.856		
Co	59	97.963		
Ni	60	98.545		
Cu	65	101.091		
Zn	66	101.520		
Ge	72		87.130	
As	75	98.636		
Se	82	96.387		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	98.403	
[Ag	107	97.836	
[Cd	111	101.135	
[Cd	114		
>	In	115		81.326
[Sn	118	100.020	
[	Sb	123	101.732	
[	Ba	135	97.671	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	97.708	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	99.781	
[	U	238	108.844	
>	Bi	209		80.488
[	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

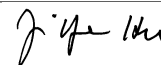
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Friday, November 11, 2016 17:21:29

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	181251.8	39.5				ug/L	206101	Standard
|	Be	9	40.0	50.0	-0.0001	0.002	3128.8	ug/L	25	Standard
|	Al	27	2028.5	47.3	0.0173	0.001	5.8	ug/L	1120	Standard
|	Sc	45	48959.2	31.7				ug/L	61425	Standard
|	Ti	47	44.0	23.1	-0.0301	0.019	62.6	ug/L	70	Standard
|	V	51	2497.9	17.9	-0.0310	0.064	205.2	ug/L	3309	Standard
|	Cr	52	10423.1	24.6	-0.1898	0.187	98.5	ug/L	13497	Standard
|	Cr	53	1905.1	15.7	-0.6309	0.520	82.4	ug/L	3162	Standard
|	Mn	55	2310.5	26.6	0.0389	0.022	55.8	ug/L	2226	Standard
|	Co	59	925.7	21.4	0.0280	0.020	72.5	ug/L	1003	Standard
|	Ni	60	284.3	20.1	0.0052	0.026	493.1	ug/L	355	Standard
|	Cu	65	372.3	29.9	-0.0159	0.024	148.2	ug/L	473	Standard
|	Zn	66	292.3	34.0	-0.0132	0.011	84.1	ug/L	341	Standard
>	Ge	72	493948.7	37.5				ug/L	566981	Standard
|	As	75	-94.4	56.0	0.0157	0.043	272.1	ug/L	-156	Standard
|	Se	82	28.8	38.9	0.0083	0.082	992.7	ug/L	35	Standard
|	Se-1	77	327.7	4.2	0.4040	2.317	573.5	ug/L	354	Standard
>	Ga	71	51.7	53.3				mg/L	43	Standard
|	Rb	85	40.0	12.5				ug/L	48	Standard
|	Y	89	360726.4	35.8				ug/L	447702	Standard
>	Rh	103	23.3	61.9				ug/L	20	Standard
|	Mo	98	228.4	18.3	0.0523	0.014	27.4	ug/L	158	Standard
|	Ag	107	192.0	31.8	0.0089	0.002	20.8	ug/L	133	Standard
|	Cd	111	39.7	63.0	0.0068	0.005	67.6	mg/L	7	Standard
|	Cd	114	109.8	35.9	0.0120	0.002	13.3	ug/L	72	Standard
>	In	115	816005.5	38.1				ug/L	1004638	Standard
|	Sn	118	254.3	19.3	0.0809	0.037	46.2	ug/L	364	Standard
|	Sb	123	5769.2	21.2	0.8285	0.379	45.7	ug/L	2464	Standard
|	Ba	135	55.7	38.4	0.0088	0.002	21.5	ug/L	39	Standard
|	Ce	140	28.3	27.0				ug/L	195	Standard
>	Tb	159	1323720.4	34.6				ug/L	1640193	Standard
|	Ho	165	11.7	24.7				ug/L	25	Standard
|	Tl	203	233.3	42.6	0.0069	0.002	29.0	ug/L	324	Standard
|	Tl	205	550.0	50.1	0.0126	0.003	22.9	ug/L	698	Standard
|	Pb	206	557.3	39.6	0.0088	0.003	35.6	ug/L	600	Standard
|	Pb	207	459.3	44.4	0.0048	0.006	126.7	ug/L	541	Standard
|	Pb	208	1589.0	41.1	0.0086	0.004	46.9	ug/L	1750	Standard
	U	238	109.7	38.1	0.0122	0.001	4.6	ug/L	10	Standard
>	Bi	209	652403.5	34.7				ug/L	811518	Standard

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Na	23	1.7	173.2	0.4936	0.846	171.5	mg/L	0	Standard
Mg	24	43.3	35.3	0.3674	0.140	38.2	mg/L	77	Standard
K	39	18.3	68.6	0.0243	0.093	383.0	mg/L	18	Standard
Ca	43	68.3	47.0	19.2304	19.438	101.1	mg/L	178	Standard
Fe	54	26.0	62.2	-0.0263	0.145	552.0	mg/L	29	Standard
Fe	57	460.0	18.1	11.2319	8.376	74.6	mg/L	408	Standard
Sc-1	45	48959.2	31.7				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.0	54.5				ug/L	12	Standard
Br	81	1456.7	23.1				ug/L	1747	Standard
P	31	23.3	44.6				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	360.0	15.0				ug/L	370	Standard
C	12	53.3	75.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	15.4	36.9				mg/L	9	Standard
Ho-1	165	11.7	24.7				mg/L	25	Standard
Er	166	26.7	114.6				mg/L	20	Standard
I	127	3983.9	19.4				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		87.119	
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	81.224
[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	80.393
[	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 7	Sb	123	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: PBW 62 WG591282-02

Sample Date/Time: Friday, November 11, 2016 17:24:35

Number of Replicates: 3

Autosampler Position: 249

Sample Description: 50

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	174546.6	42.5				ug/L	206101	Standard
|	Be	9	18.3	56.8	-0.0081	0.007	87.0	ug/L	25	Standard
|	Al	27	1328.4	23.6	0.0141	0.001	10.5	ug/L	1120	Standard
|	Sc	45	48169.1	34.4				ug/L	61425	Standard
|	Ti	47	41.3	7.8	-0.0275	0.037	135.6	ug/L	70	Standard
|	V	51	1208.9	40.2	-0.1750	0.059	33.7	ug/L	3309	Standard
|	Cr	52	11103.9	24.9	-0.0452	0.192	425.1	ug/L	13497	Standard
|	Cr	53	20060.1	15.2	18.6109	4.692	25.2	ug/L	3162	Standard
|	Mn	55	2443.9	26.3	0.0576	0.024	41.7	ug/L	2226	Standard
|	Co	59	655.0	17.1	0.0045	0.015	336.6	ug/L	1003	Standard
|	Ni	60	298.3	14.4	0.0194	0.033	172.1	ug/L	355	Standard
|	Cu	65	398.3	31.1	0.0049	0.019	393.9	ug/L	473	Standard
|	Zn	66	1111.0	38.2	0.8029	0.030	3.8	ug/L	341	Standard
>	Ge	72	472558.9	39.1				ug/L	566981	Standard
|	As	75	-136.8	20.1	-0.0477	0.075	158.0	ug/L	-156	Standard
|	Se	82	25.9	38.0	-0.0194	0.048	247.3	ug/L	35	Standard
|	Se-1	77	1003.4	12.5	11.0810	3.930	35.5	ug/L	354	Standard
>	Ga	71	45.0	29.4				mg/L	43	Standard
|	Rb	85	36.7	55.1				ug/L	48	Standard
|	Y	89	330808.7	37.0				ug/L	447702	Standard
>	Rh	103	30.0	33.3				ug/L	20	Standard
|	Mo	98	80.4	8.7	0.0150	0.011	73.2	ug/L	158	Standard
|	Ag	107	141.7	30.6	0.0041	0.002	52.7	ug/L	133	Standard
|	Cd	111	15.9	6.3	0.0000	0.002	7548.9	mg/L	7	Standard
|	Cd	114	58.2	34.4	0.0056	0.002	42.7	ug/L	72	Standard
>	In	115	772800.4	40.9				ug/L	1004638	Standard
|	Sn	118	128.0	29.4	0.0029	0.009	326.7	ug/L	364	Standard
|	Sb	123	1532.7	17.5	0.1963	0.130	66.3	ug/L	2464	Standard
|	Ba	135	44.3	54.3	0.0053	0.002	38.8	ug/L	39	Standard
|	Ce	140	28.3	20.4				ug/L	195	Standard
>	Tb	159	1255503.1	37.8				ug/L	1640193	Standard
|	Ho	165	16.7	17.3				ug/L	25	Standard
|	Tl	203	2339.2	45.3	0.1942	0.016	8.1	ug/L	324	Standard
|	Tl	205	5556.2	44.0	0.1798	0.013	7.2	ug/L	698	Standard
|	Pb	206	1611.4	30.4	0.1387	0.015	10.7	ug/L	600	Standard
|	Pb	207	1397.1	31.9	0.1342	0.012	8.9	ug/L	541	Standard
|	Pb	208	4688.0	32.3	0.1380	0.011	8.3	ug/L	1750	Standard
	U	238	21.7	37.0	0.0043	0.001	16.5	ug/L	10	Standard
>	Bi	209	615927.6	38.9				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	50.0	26.5	0.6257	0.392	62.7	mg/L	77	Standard
K	39	26.7	39.0	0.1080	0.135	125.4	mg/L	18	Standard
Ca	43	95.0	5.3	13.0648	8.743	66.9	mg/L	178	Standard
Fe	54	32.5	23.0	0.1423	0.200	140.6	mg/L	29	Standard
Fe	57	410.0	8.5	9.1379	8.195	89.7	mg/L	408	Standard
Sc-1	45	48169.1	34.4				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	10.3	20.1				ug/L	12	Standard
Br	81	1190.1	36.5				ug/L	1747	Standard
P	31	13.3	78.1				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	406.7	20.6				ug/L	370	Standard
C	12	73.3	20.8				mg/L	47	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	18.7	87.4				mg/L	9	Standard
Ho-1	165	16.7	17.3				mg/L	25	Standard
Er	166	26.7	78.1				mg/L	20	Standard
I	127	4127.3	26.0				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		84.690	
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		83.346	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: PBW 62 WG591282-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	76.923
[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	75.898
[	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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Sample ID: PBW 62 WG591282-02

Report Date/Time: Friday, November 11, 2016 17:26:46

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Method 6020 - Summary Report

Sample ID: LCSW 62 WG591282-03

Sample Date/Time: Friday, November 11, 2016 17:27:41

Number of Replicates: 3

Autosampler Position: 250

Sample Description: 50

Method File: C:\NexlONData\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	191232.6	40.4				ug/L	206101	Standard
|	Be	9	943.4	36.8	0.4200	0.036	8.5	ug/L	25	Standard
|	Al	27	119251.5	31.5	0.6783	0.053	7.8	ug/L	1120	Standard
|	Sc	45	50816.9	30.3				ug/L	61425	Standard
|	Ti	47	3825.9	32.5	9.7087	0.532	5.5	ug/L	70	Standard
|	V	51	86330.9	34.7	9.1345	0.326	3.6	ug/L	3309	Standard
|	Cr	52	52186.7	32.6	4.8512	0.338	7.0	ug/L	13497	Standard
|	Cr	53	55328.6	20.2	52.4849	8.894	16.9	ug/L	3162	Standard
|	Mn	55	65937.1	35.9	4.7608	0.114	2.4	ug/L	2226	Standard
|	Co	59	20789.9	36.8	1.8949	0.031	1.7	ug/L	1003	Standard
|	Ni	60	11022.1	38.3	4.6988	0.080	1.7	ug/L	355	Standard
|	Cu	65	10391.6	39.3	4.8016	0.052	1.1	ug/L	473	Standard
|	Zn	66	11375.0	36.9	10.4447	0.201	1.9	ug/L	341	Standard
>	Ge	72	492926.6	38.5				ug/L	566981	Standard
|	As	75	3982.5	34.7	3.8311	0.128	3.3	ug/L	-156	Standard
|	Se	82	350.3	38.9	3.6063	0.079	2.2	ug/L	35	Standard
|	Se-1	77	2153.5	15.6	27.4686	6.511	23.7	ug/L	354	Standard
>	Ga	71	58.3	17.8				mg/L	43	Standard
|	Rb	85	105.0	31.2				ug/L	48	Standard
|	Y	89	352532.0	35.0				ug/L	447702	Standard
>	Rh	103	56.7	48.6				ug/L	20	Standard
|	Mo	98	35762.5	35.3	9.3378	0.179	1.9	ug/L	158	Standard
|	Ag	107	30018.2	35.8	3.5745	0.053	1.5	ug/L	133	Standard
|	Cd	111	1290.6	36.6	0.4787	0.004	0.9	mg/L	7	Standard
|	Cd	114	5202.6	38.2	0.7206	0.006	0.9	ug/L	72	Standard
>	In	115	800052.2	37.4				ug/L	1004638	Standard
|	Sn	118	16346.4	38.7	9.8385	0.119	1.2	ug/L	364	Standard
|	Sb	123	87266.6	35.4	12.2842	0.221	1.8	ug/L	2464	Standard
|	Ba	135	28588.5	35.0	9.5622	0.211	2.2	ug/L	39	Standard
|	Ce	140	58.3	21.6				ug/L	195	Standard
>	Tb	159	1327534.8	35.7				ug/L	1640193	Standard
|	Ho	165	11.7	65.5				ug/L	25	Standard
|	Tl	203	57311.0	35.1	4.9252	0.040	0.8	ug/L	324	Standard
|	Tl	205	135621.3	34.9	4.3649	0.066	1.5	ug/L	698	Standard
|	Pb	206	44767.9	36.7	4.8837	0.121	2.5	ug/L	600	Standard
|	Pb	207	39410.4	35.1	4.8476	0.049	1.0	ug/L	541	Standard
|	Pb	208	132577.0	34.9	4.9576	0.112	2.3	ug/L	1750	Standard
	U	238	14.7	30.7	0.0034	0.000	5.3	ug/L	10	Standard
>	Bi	209	642475.9	34.7				ug/L	811518	Standard

Sample ID: LCSW 62 WG591282-03

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Na	23	1.7	173.2	0.3457	0.590	170.7	mg/L	0	Standard
Mg	24	78.3	35.2	1.2524	0.148	11.8	mg/L	77	Standard
K	39	106.7	7.2	0.6468	0.200	31.0	mg/L	18	Standard
Ca	43	78.3	30.2	18.6186	13.260	71.2	mg/L	178	Standard
Fe	54	34.0	30.9	0.1500	0.310	206.6	mg/L	29	Standard
Fe	57	478.3	15.8	11.5295	10.343	89.7	mg/L	408	Standard
Sc-1	45	50816.9	30.3				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	5.7	27.0				ug/L	12	Standard
Br	81	1320.1	25.3				ug/L	1747	Standard
P	31	43.3	13.3				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	381.7	5.5				ug/L	370	Standard
C	12	46.7	75.3				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	17	Standard
Dy	164	16.5	36.7				mg/L	9	Standard
Ho-1	165	11.7	65.5				mg/L	25	Standard
Er	166	3.3	173.2				mg/L	20	Standard
I	127	4515.7	18.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		92.786	
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		86.939	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: LCSW 62 WG591282-03

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	79.636
[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	79.170
[	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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Sample ID: LCSW 62 WG591282-03

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Method 6020 - Summary Report

Sample ID: F BLANK WG591135-01

Sample Date/Time: Friday, November 11, 2016 17:30:46

Number of Replicates: 3

Autosampler Position: 251

Sample Description: 50

Method File: C:\NexlONData\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	187847.7	38.9				ug/L	206101	Standard
|	Be	9	21.7	35.3	-0.0087	0.001	9.9	ug/L	25	Standard
|	Al	27	1388.4	20.4	0.0138	0.001	9.7	ug/L	1120	Standard
|	Sc	45	51211.7	30.5				ug/L	61425	Standard
|	Ti	47	36.0	24.1	-0.0486	0.038	78.9	ug/L	70	Standard
|	V	51	939.2	23.3	-0.2032	0.052	25.5	ug/L	3309	Standard
|	Cr	52	12396.9	22.5	0.0487	0.196	402.8	ug/L	13497	Standard
|	Cr	53	25518.8	22.0	22.5613	3.325	14.7	ug/L	3162	Standard
|	Mn	55	2165.2	24.7	0.0273	0.018	66.8	ug/L	2226	Standard
|	Co	59	577.7	9.7	-0.0056	0.015	266.2	ug/L	1003	Standard
|	Ni	60	290.3	15.3	0.0078	0.025	325.4	ug/L	355	Standard
|	Cu	65	395.3	35.2	-0.0084	0.013	152.7	ug/L	473	Standard
|	Zn	66	1215.4	35.0	0.8556	0.031	3.6	ug/L	341	Standard
>	Ge	72	493554.0	37.0				ug/L	566981	Standard
|	As	75	-70.2	153.7	0.0475	0.092	193.0	ug/L	-156	Standard
|	Se	82	25.1	31.8	-0.0259	0.120	463.4	ug/L	35	Standard
|	Se-1	77	1119.7	17.9	11.7695	2.784	23.7	ug/L	354	Standard
>	Ga	71	58.3	9.9				mg/L	43	Standard
|	Rb	85	33.3	45.8				ug/L	48	Standard
|	Y	89	356838.1	36.6				ug/L	447702	Standard
>	Rh	103	25.0	20.0				ug/L	20	Standard
|	Mo	98	57.3	13.2	0.0068	0.007	99.7	ug/L	158	Standard
|	Ag	107	158.0	7.9	0.0062	0.006	89.4	ug/L	133	Standard
|	Cd	111	13.6	11.3	-0.0013	0.002	133.1	mg/L	7	Standard
|	Cd	114	32.9	23.1	0.0019	0.003	133.6	ug/L	72	Standard
>	In	115	808155.6	39.2				ug/L	1004638	Standard
|	Sn	118	139.0	30.6	0.0061	0.017	282.5	ug/L	364	Standard
|	Sb	123	626.3	25.9	0.0383	0.054	140.4	ug/L	2464	Standard
|	Ba	135	37.3	36.4	0.0029	0.001	22.7	ug/L	39	Standard
|	Ce	140	31.7	81.0				ug/L	195	Standard
>	Tb	159	1330648.1	33.8				ug/L	1640193	Standard
|	Ho	165	6.7	43.3				ug/L	25	Standard
|	Tl	203	1296.7	28.9	0.0983	0.005	4.7	ug/L	324	Standard
|	Tl	205	3082.0	20.7	0.0959	0.012	12.1	ug/L	698	Standard
|	Pb	206	1325.7	24.6	0.0957	0.012	12.2	ug/L	600	Standard
|	Pb	207	1116.0	26.6	0.0884	0.009	9.7	ug/L	541	Standard
|	Pb	208	3823.9	22.1	0.0957	0.016	16.3	ug/L	1750	Standard
	U	238	10.7	23.6	0.0031	0.000	8.8	ug/L	10	Standard
>	Bi	209	653165.0	33.5				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	156.7	31.3	3.4167	1.220	35.7	mg/L	77	Standard
K	39	20.0	43.3	0.0186	0.017	92.6	mg/L	18	Standard
Ca	43	108.3	25.4	12.2238	7.348	60.1	mg/L	178	Standard
Fe	54	37.6	20.2	0.1825	0.167	91.3	mg/L	29	Standard
Fe	57	448.3	11.2	9.6318	8.258	85.7	mg/L	408	Standard
Sc-1	45	51211.7	30.5				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.3	16.4				ug/L	12	Standard
Br	81	1343.4	29.5				ug/L	1747	Standard
P	31	43.3	29.0				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	396.7	9.1				ug/L	370	Standard
C	12	76.7	32.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	17	Standard
Dy	164	19.2	138.8				mg/L	9	Standard
Ho-1	165	6.7	43.3				mg/L	25	Standard
Er	166	16.7	69.3				mg/L	20	Standard
I	127	4145.6	18.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		91.143	
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		87.049	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: F BLANK WG591135-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	80.442
[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	80.487
[	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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Sample ID: F BLANK WG591135-01

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Method 6020 - Summary Report

Sample ID: F BLANK WG591135-02

Sample Date/Time: Friday, November 11, 2016 17:33:51

Number of Replicates: 3

Autosampler Position: 252

Sample Description: 50

Method File: C:\NexlONData\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	171900.0	44.6				ug/L	206101	Standard
|	Be	9	33.3	43.3	0.0020	0.016	786.8	ug/L	25	Standard
|	Al	27	1236.7	17.4	0.0139	0.002	15.0	ug/L	1120	Standard
|	Sc	45	47671.2	35.6				ug/L	61425	Standard
|	Ti	47	33.3	25.0	-0.0508	0.022	44.1	ug/L	70	Standard
|	V	51	645.7	158.0	-0.2026	0.163	80.7	ug/L	3309	Standard
|	Cr	52	12030.7	27.6	0.1212	0.223	184.4	ug/L	13497	Standard
|	Cr	53	28502.6	21.6	28.1590	5.846	20.8	ug/L	3162	Standard
|	Mn	55	2000.5	24.4	0.0291	0.029	98.4	ug/L	2226	Standard
|	Co	59	563.7	9.9	-0.0018	0.018	1012.6	ug/L	1003	Standard
|	Ni	60	259.3	19.3	0.0040	0.029	737.8	ug/L	355	Standard
|	Cu	65	338.0	33.8	-0.0213	0.016	76.0	ug/L	473	Standard
|	Zn	66	1135.4	40.0	0.8608	0.043	5.0	ug/L	341	Standard
>	Ge	72	461462.8	43.4				ug/L	566981	Standard
|	As	75	-110.7	67.5	-0.0007	0.035	4794.1	ug/L	-156	Standard
|	Se	82	17.6	48.8	-0.1155	0.039	33.6	ug/L	35	Standard
|	Se-1	77	1127.7	15.6	13.5954	4.472	32.9	ug/L	354	Standard
>	Ga	71	55.0	15.7				mg/L	43	Standard
|	Rb	85	28.3	36.7				ug/L	48	Standard
|	Y	89	334973.2	41.4				ug/L	447702	Standard
>	Rh	103	28.3	27.0				ug/L	20	Standard
|	Mo	98	34.0	16.6	0.0014	0.005	386.6	ug/L	158	Standard
|	Ag	107	114.3	32.9	0.0010	0.002	148.7	ug/L	133	Standard
|	Cd	111	8.6	35.4	-0.0029	0.002	65.0	mg/L	7	Standard
|	Cd	114	40.2	48.1	0.0027	0.001	33.9	ug/L	72	Standard
>	In	115	754147.8	44.4				ug/L	1004638	Standard
|	Sn	118	116.3	28.1	-0.0017	0.011	643.0	ug/L	364	Standard
|	Sb	123	411.7	13.4	0.0092	0.033	362.9	ug/L	2464	Standard
|	Ba	135	645.7	41.7	0.2202	0.006	2.6	ug/L	39	Standard
|	Ce	140	25.0	20.0				ug/L	195	Standard
>	Tb	159	1243512.6	39.7				ug/L	1640193	Standard
|	Ho	165	15.0	88.2				ug/L	25	Standard
|	Tl	203	1077.7	28.0	0.0879	0.012	13.5	ug/L	324	Standard
|	Tl	205	2616.9	29.9	0.0866	0.010	12.1	ug/L	698	Standard
|	Pb	206	1208.1	32.0	0.0922	0.012	12.7	ug/L	600	Standard
|	Pb	207	1010.4	28.1	0.0858	0.014	16.7	ug/L	541	Standard
|	Pb	208	3424.8	26.8	0.0907	0.017	18.7	ug/L	1750	Standard
	U	238	5.3	28.6	0.0026	0.000	2.4	ug/L	10	Standard
>	Bi	209	611288.1	40.0				ug/L	811518	Standard

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Na	23	3.3	173.2	0.7577	1.304	172.1	mg/L	0	Standard
Mg	24	48.3	15.8	0.6298	0.453	72.0	mg/L	77	Standard
K	39	10.0	50.0	-0.0428	0.017	40.7	mg/L	18	Standard
Ca	43	85.0	11.8	15.8786	7.773	49.0	mg/L	178	Standard
Fe	54	27.5	27.0	0.0968	0.288	297.8	mg/L	29	Standard
Fe	57	458.3	7.4	12.2587	9.193	75.0	mg/L	408	Standard
Sc-1	45	47671.2	35.6				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.0	26.5				ug/L	12	Standard
Br	81	1296.7	37.1				ug/L	1747	Standard
P	31	36.7	20.8				ug/L	17	Standard
S	34	5.0	173.2				ug/L	3	Standard
Sr	88	406.7	27.7				ug/L	370	Standard
C	12	43.3	58.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	114.6				mg/L	17	Standard
Dy	164	22.9	64.8				mg/L	9	Standard
Ho-1	165	15.0	88.2				mg/L	25	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	4098.9	24.4				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		83.406	
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		81.389	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: F BLANK WG591135-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	75.067
[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	75.326
[	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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Sample ID: F BLANK WG591135-02

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Method 6020 - Summary Report

Sample ID: L1611054501 WG591282-01

Sample Date/Time: Friday, November 11, 2016 17:36:57

Number of Replicates: 3

Autosampler Position: 253

Sample Description: 50

Method File: C:\NexlONData\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	190503.7	36.1				ug/L	206101	Standard
|	Be	9	16.7	45.8	-0.0112	0.002	19.7	ug/L	25	Standard
|	Al	27	3880.5	22.9	0.0278	0.003	9.8	ug/L	1120	Standard
|	Sc	45	51225.8	27.6				ug/L	61425	Standard
|	Ti	47	45.0	21.9	-0.0291	0.016	53.7	ug/L	70	Standard
|	V	51	1153.3	80.8	-0.1596	0.142	88.8	ug/L	3309	Standard
|	Cr	52	13163.6	24.8	0.1240	0.176	141.6	ug/L	13497	Standard
|	Cr	53	23499.3	29.5	20.0338	1.509	7.5	ug/L	3162	Standard
|	Mn	55	10209.0	28.3	0.6252	0.058	9.3	ug/L	2226	Standard
|	Co	59	1466.7	23.0	0.0774	0.017	22.4	ug/L	1003	Standard
|	Ni	60	668.0	32.8	0.1674	0.013	7.6	ug/L	355	Standard
|	Cu	65	198691.7	33.7	95.5259	2.699	2.8	ug/L	473	Standard
|	Zn	66	65446.6	32.5	61.3226	2.444	4.0	ug/L	341	Standard
>	Ge	72	496951.3	36.8				ug/L	566981	Standard
|	As	75	-74.2	158.8	0.0444	0.128	287.4	ug/L	-156	Standard
|	Se	82	27.1	22.9	0.0148	0.153	1031.2	ug/L	35	Standard
|	Se-1	77	1041.0	17.3	10.5161	2.653	25.2	ug/L	354	Standard
>	Ga	71	93.3	48.6				mg/L	43	Standard
|	Rb	85	185316.2	37.6				ug/L	48	Standard
|	Y	89	359102.3	35.3				ug/L	447702	Standard
>	Rh	103	275.0	40.9				ug/L	20	Standard
|	Mo	98	31.3	18.0	-0.0007	0.004	515.4	ug/L	158	Standard
|	Ag	107	121.0	24.1	0.0008	0.002	214.4	ug/L	133	Standard
|	Cd	111	12.6	18.3	-0.0014	0.002	168.6	mg/L	7	Standard
|	Cd	114	41.9	31.0	0.0027	0.001	52.7	ug/L	72	Standard
>	In	115	807958.7	37.3				ug/L	1004638	Standard
|	Sn	118	114.0	19.0	-0.0080	0.017	211.0	ug/L	364	Standard
|	Sb	123	14284.8	31.9	1.9560	0.109	5.6	ug/L	2464	Standard
|	Ba	135	3829137.8	32.9	1276.0254	61.786	4.8	ug/L	39	Standard
|	Ce	140	25469.6	33.3				ug/L	195	Standard
>	Tb	159	1351853.7	33.3				ug/L	1640193	Standard
|	Ho	165	1091.7	41.2				ug/L	25	Standard
|	Tl	203	1032.4	27.9	0.0757	0.004	5.5	ug/L	324	Standard
|	Tl	205	2341.9	31.8	0.0702	0.007	9.6	ug/L	698	Standard
|	Pb	206	8034129.1	33.1	873.7022	9.019	1.0	ug/L	600	Standard
|	Pb	207	6707698.5	32.9	820.1827	8.392	1.0	ug/L	541	Standard
|	Pb	208	23266006.3	31.1	867.0460	17.862	2.1	ug/L	1750	Standard
	U	238	29.7	28.1	0.0049	0.000	9.8	ug/L	10	Standard
>	Bi	209	652944.1	32.5				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	146.7	31.5	3.0722	0.392	12.8	mg/L	77	Standard
K	39	33.3	45.8	0.1082	0.066	61.0	mg/L	18	Standard
Ca	43	78.3	24.2	19.4755	11.040	56.7	mg/L	178	Standard
Fe	54	27.8	26.8	0.0143	0.136	953.7	mg/L	29	Standard
Fe	57	443.3	13.6	8.9460	7.609	85.1	mg/L	408	Standard
Sc-1	45	51225.8	27.6				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.3	63.8				ug/L	12	Standard
Br	81	1600.1	33.7				ug/L	1747	Standard
P	31	16.7	17.3				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	375.0	8.7				ug/L	370	Standard
C	12	100.0	45.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	17	Standard
Dy	164	113.1	40.5				mg/L	9	Standard
Ho-1	165	1091.7	41.2				mg/L	25	Standard
Er	166	1466.7	47.5				mg/L	20	Standard
I	127	4340.6	23.8				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		92.432	
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		87.649	
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	80.423
[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	80.460
[	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

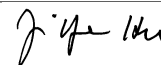
Measurement Type	Analyte	Mass	Out of Limits Message
Ba 135 Upper, S, EEE	Ba	135	
Pb 206 Upper, S, EEE	Pb	206	
Pb 207 Upper, S, EEE	Pb	207	

Sample ID: L1611054501 WG591282-01

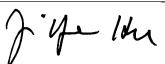
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Sample ID: L1611054501 WG591282-01
Report Date/Time: Friday, November 11, 2016 17:39:08
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Method 6020 - Summary Report

Sample ID: L1611054501S WG591282-04

Sample Date/Time: Friday, November 11, 2016 17:40:03

Number of Replicates: 3

Autosampler Position: 254

Sample Description: 50

Method File: C:\NexlONData\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	212182.9	35.1				ug/L	206101	Standard
|	Be	9	998.4	27.0	0.4073	0.062	15.3	ug/L	25	Standard
|	Al	27	133349.6	26.4	0.6835	0.061	8.9	ug/L	1120	Standard
|	Sc	45	56011.4	26.3				ug/L	61425	Standard
|	Ti	47	4135.9	28.5	9.4432	0.288	3.0	ug/L	70	Standard
|	V	51	98486.1	28.2	9.4416	0.323	3.4	ug/L	3309	Standard
|	Cr	52	58828.6	27.2	4.9632	0.275	5.5	ug/L	13497	Standard
|	Cr	53	48448.5	23.5	40.0962	3.692	9.2	ug/L	3162	Standard
|	Mn	55	80715.0	29.8	5.2864	0.093	1.8	ug/L	2226	Standard
|	Co	59	24131.3	29.9	1.9969	0.030	1.5	ug/L	1003	Standard
|	Ni	60	12548.9	30.6	4.8636	0.039	0.8	ug/L	355	Standard
|	Cu	65	228796.3	30.8	100.0150	0.581	0.6	ug/L	473	Standard
|	Zn	66	81626.5	30.1	69.5068	1.056	1.5	ug/L	341	Standard
>	Ge	72	543460.7	31.4				ug/L	566981	Standard
|	As	75	4602.2	29.3	3.9921	0.083	2.1	ug/L	-156	Standard
|	Se	82	376.3	30.8	3.5117	0.135	3.8	ug/L	35	Standard
|	Se-1	77	2170.8	16.2	24.1275	4.567	18.9	ug/L	354	Standard
>	Ga	71	95.0					mg/L	43	Standard
|	Rb	85	207646.5	32.8				ug/L	48	Standard
|	Y	89	392385.4	31.0				ug/L	447702	Standard
>	Rh	103	293.3	28.1				ug/L	20	Standard
|	Mo	98	40087.7	29.0	9.3910	0.313	3.3	ug/L	158	Standard
|	Ag	107	33635.6	30.8	3.5825	0.058	1.6	ug/L	133	Standard
|	Cd	111	1495.7	32.9	0.4960	0.015	3.1	mg/L	7	Standard
|	Cd	114	5939.4	34.2	0.7340	0.019	2.6	ug/L	72	Standard
>	In	115	893851.0	32.3				ug/L	1004638	Standard
|	Sn	118	18342.6	32.9	9.8978	0.064	0.6	ug/L	364	Standard
|	Sb	123	111758.5	29.7	14.1095	0.387	2.7	ug/L	2464	Standard
|	Ba	135	4141617.4	28.0	1246.3744	56.801	4.6	ug/L	39	Standard
|	Ce	140	26898.3	26.6				ug/L	195	Standard
>	Tb	159	1434654.7	29.3				ug/L	1640193	Standard
|	Ho	165	1081.7	27.4				ug/L	25	Standard
|	Tl	203	61757.9	28.3	4.8267	0.016	0.3	ug/L	324	Standard
|	Tl	205	145853.3	28.1	4.2688	0.021	0.5	ug/L	698	Standard
|	Pb	206	8780571.7	28.5	882.4300	5.601	0.6	ug/L	600	Standard
|	Pb	207	7291807.7	28.6	823.4779	1.049	0.1	ug/L	541	Standard
|	Pb	208	25102690.6	27.5	862.6433	8.753	1.0	ug/L	1750	Standard
	U	238	8.7	24.0	0.0029	0.000	14.9	ug/L	10	Standard
>	Bi	209	707139.4	28.5				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2268	0.384	169.4	mg/L	0	Standard
Mg	24	190.0	33.6	3.8735	1.275	32.9	mg/L	77	Standard
K	39	131.7	17.1	0.7408	0.285	38.5	mg/L	18	Standard
Ca	43	90.0	48.4	19.5299	10.930	56.0	mg/L	178	Standard
Fe	54	37.5	15.6	0.1317	0.155	117.9	mg/L	29	Standard
Fe	57	428.3	10.2	6.5618	7.132	108.7	mg/L	408	Standard
Sc-1	45	56011.4	26.3				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.0	11.1				ug/L	12	Standard
Br	81	1686.8	27.2				ug/L	1747	Standard
P	31	26.7	39.0				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	453.3	12.1				ug/L	370	Standard
C	12	86.7	58.1				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	17	Standard
Dy	164	113.3	46.9				mg/L	9	Standard
Ho-1	165	1081.7	27.4				mg/L	25	Standard
Er	166	1323.4	32.7				mg/L	20	Standard
I	127	4745.8	22.7				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.951	
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		95.852	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611054501S WG591282-04

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	88.972
[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	87.138
[	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
Cu 65 Upper, S, EEE	Cu	65	
Ba 135 Upper, S, EEE	Ba	135	
Pb 206 Upper, S, EEE	Pb	206	

Sample ID: L1611054501S WG591282-04

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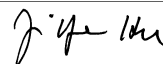
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Pb 207 Upper, S, EEE Pb 207
Pb 208 Upper, S, EEE Pb 208

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Method 6020 - Summary Report

Sample ID: L1611054501SD WG591282-05

Sample Date/Time: Friday, November 11, 2016 17:43:08

Number of Replicates: 3

Autosampler Position: 255

Sample Description: 50

Method File: C:\NexlONData\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	209338.2	36.9				ug/L	206101	Standard
|	Be	9	1000.0	26.2	0.4144	0.052	12.5	ug/L	25	Standard
|	Al	27	131843.6	26.2	0.6879	0.070	10.1	ug/L	1120	Standard
|	Sc	45	57142.0	25.1				ug/L	61425	Standard
|	Ti	47	4107.3	27.6	9.5879	0.466	4.9	ug/L	70	Standard
|	V	51	96019.6	27.5	9.4081	0.479	5.1	ug/L	3309	Standard
|	Cr	52	58301.8	27.2	5.0349	0.330	6.6	ug/L	13497	Standard
|	Cr	53	50249.5	23.2	42.5585	3.974	9.3	ug/L	3162	Standard
|	Mn	55	78897.5	29.3	5.2795	0.173	3.3	ug/L	2226	Standard
|	Co	59	23413.9	30.7	1.9733	0.044	2.2	ug/L	1003	Standard
|	Ni	60	12694.7	32.5	5.0061	0.007	0.1	ug/L	355	Standard
|	Cu	65	224398.9	32.4	99.7890	0.618	0.6	ug/L	473	Standard
|	Zn	66	80318.4	29.7	69.8367	1.947	2.8	ug/L	341	Standard
>	Ge	72	533720.1	32.6				ug/L	566981	Standard
|	As	75	4436.1	31.6	3.9125	0.036	0.9	ug/L	-156	Standard
|	Se	82	374.0	28.6	3.5869	0.212	5.9	ug/L	35	Standard
|	Se-1	77	2150.2	14.8	24.4821	4.889	20.0	ug/L	354	Standard
>	Ga	71	121.7	33.2				mg/L	43	Standard
|	Rb	85	200685.4	33.7				ug/L	48	Standard
|	Y	89	391044.5	32.2				ug/L	447702	Standard
>	Rh	103	338.3	31.0				ug/L	20	Standard
|	Mo	98	39039.0	31.1	9.2667	0.218	2.4	ug/L	158	Standard
|	Ag	107	32727.3	31.5	3.5431	0.075	2.1	ug/L	133	Standard
|	Cd	111	1494.1	36.6	0.4993	0.027	5.4	mg/L	7	Standard
|	Cd	114	5806.9	31.2	0.7355	0.061	8.3	ug/L	72	Standard
>	In	115	880270.7	33.6				ug/L	1004638	Standard
|	Sn	118	17872.9	32.5	9.8207	0.259	2.6	ug/L	364	Standard
|	Sb	123	108972.0	31.0	13.9649	0.357	2.6	ug/L	2464	Standard
|	Ba	135	4048633.6	29.3	1236.3967	49.999	4.0	ug/L	39	Standard
|	Ce	140	26848.5	30.2				ug/L	195	Standard
>	Tb	159	1430553.7	31.4				ug/L	1640193	Standard
|	Ho	165	1130.0	29.7				ug/L	25	Standard
|	Tl	203	60516.3	31.1	4.8430	0.027	0.6	ug/L	324	Standard
|	Tl	205	144350.8	31.5	4.3200	0.043	1.0	ug/L	698	Standard
|	Pb	206	8589361.4	31.1	884.3019	5.265	0.6	ug/L	600	Standard
|	Pb	207	7129326.1	30.6	825.5765	3.942	0.5	ug/L	541	Standard
|	Pb	208	24562354.2	29.8	864.9696	8.254	1.0	ug/L	1750	Standard
	U	238	11.7	13.1	0.0032	0.000	12.7	ug/L	10	Standard
>	Bi	209	689616.3	30.5				ug/L	811518	Standard

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Na	23	3.3	86.6	0.5745	0.535	93.0	mg/L	0	Standard
Mg	24	213.3	14.3	4.4451	1.303	29.3	mg/L	77	Standard
K	39	135.0	3.7	0.7330	0.223	30.4	mg/L	18	Standard
Ca	43	78.3	32.8	21.8853	9.661	44.1	mg/L	178	Standard
Fe	54	49.0	40.2	0.2657	0.245	92.0	mg/L	29	Standard
Fe	57	436.7	8.4	6.3218	6.107	96.6	mg/L	408	Standard
Sc-1	45	57142.0	25.1				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	6.7	37.7				ug/L	12	Standard
Br	81	1626.8	33.2				ug/L	1747	Standard
P	31	30.0	0.0				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	406.7	2.8				ug/L	370	Standard
C	12	146.7	63.4				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	116.7	24.6				mg/L	9	Standard
Ho-1	165	1130.0	29.7				mg/L	25	Standard
Er	166	1390.1	31.3				mg/L	20	Standard
I	127	4840.8	14.5				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.570	
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		94.134	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611054501SD WG591282-05

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	87.621
[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	84.979
[	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
Ba 135 Upper, S, EEE	Ba	135	
Pb 206 Upper, S, EEE	Pb	206	
Pb 207 Upper, S, EEE	Pb	207	

Sample ID: L1611054501SD WG591282-05

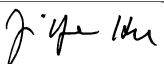
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Method 6020 - Summary Report

Sample ID: L1611048801

Sample Date/Time: Friday, November 11, 2016 17:46:14

Number of Replicates: 3

Autosampler Position: 256

Sample Description: 50

Method File: C:\NexlONData\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	177099.0	39.7				ug/L	206101	Standard
|	Be	9	16.7	34.6	-0.0091	0.006	65.0	ug/L	25	Standard
|	Al	27	2150.2	24.5	0.0190	0.002	10.0	ug/L	1120	Standard
|	Sc	45	50193.9	32.7				ug/L	61425	Standard
|	Ti	47	41.3	15.7	-0.0322	0.024	74.3	ug/L	70	Standard
|	V	51	3037.7	20.6	0.0366	0.057	157.0	ug/L	3309	Standard
|	Cr	52	11825.7	20.6	0.0396	0.255	644.0	ug/L	13497	Standard
|	Cr	53	12088.3	20.0	9.8795	2.469	25.0	ug/L	3162	Standard
|	Mn	55	3721.5	30.3	0.1519	0.024	16.1	ug/L	2226	Standard
|	Co	59	645.7	11.1	0.0033	0.017	526.1	ug/L	1003	Standard
|	Ni	60	601.0	34.2	0.1477	0.009	6.3	ug/L	355	Standard
|	Cu	65	785.0	34.4	0.1940	0.023	11.7	ug/L	473	Standard
|	Zn	66	2282.9	34.3	1.9400	0.083	4.3	ug/L	341	Standard
>	Ge	72	478466.6	37.6				ug/L	566981	Standard
|	As	75	-104.4	63.4	-0.0035	0.072	2042.5	ug/L	-156	Standard
|	Se	82	95.8	34.4	0.7957	0.044	5.5	ug/L	35	Standard
|	Se-1	77	980.0	13.4	10.4178	3.515	33.7	ug/L	354	Standard
>	Ga	71	116.7	65.9				mg/L	43	Standard
|	Rb	85	10532.3	33.5				ug/L	48	Standard
|	Y	89	343279.5	37.2				ug/L	447702	Standard
>	Rh	103	28.3	66.8				ug/L	20	Standard
|	Mo	98	652.6	31.0	0.1673	0.016	9.7	ug/L	158	Standard
|	Ag	107	124.7	23.5	0.0019	0.003	139.4	ug/L	133	Standard
|	Cd	111	13.5	40.4	-0.0016	0.001	67.4	mg/L	7	Standard
|	Cd	114	43.4	32.3	0.0033	0.002	65.2	ug/L	72	Standard
>	In	115	786235.4	39.7				ug/L	1004638	Standard
|	Sn	118	183.7	28.0	0.0382	0.023	59.2	ug/L	364	Standard
|	Sb	123	345.0	8.5	-0.0062	0.026	412.9	ug/L	2464	Standard
|	Ba	135	13961.5	32.2	4.8288	0.492	10.2	ug/L	39	Standard
|	Ce	140	66.7	28.4				ug/L	195	Standard
>	Tb	159	1314733.7	36.8				ug/L	1640193	Standard
|	Ho	165	15.0	33.3				ug/L	25	Standard
|	Tl	203	1102.4	30.3	0.0847	0.005	6.4	ug/L	324	Standard
|	Tl	205	2591.9	28.6	0.0819	0.010	11.9	ug/L	698	Standard
|	Pb	206	16957.9	34.3	1.8585	0.097	5.2	ug/L	600	Standard
|	Pb	207	14245.9	35.4	1.7461	0.038	2.2	ug/L	541	Standard
|	Pb	208	48964.3	33.0	1.8373	0.099	5.4	ug/L	1750	Standard
	U	238	3.7	103.3	0.0025	0.001	22.7	ug/L	10	Standard
>	Bi	209	635057.0	36.1				ug/L	811518	Standard

Sample ID: L1611048801

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Na	23	18.3	56.8	3.3759	1.174	34.8	mg/L	0	Standard
Mg	24	223.3	34.3	5.2538	0.314	6.0	mg/L	77	Standard
K	39	633.3	22.1	4.3314	0.701	16.2	mg/L	18	Standard
Ca	43	103.3	31.1	13.5752	2.115	15.6	mg/L	178	Standard
Fe	54	22.5	101.9	-0.1102	0.250	227.0	mg/L	29	Standard
Fe	57	483.3	6.9	12.0043	9.198	76.6	mg/L	408	Standard
Sc-1	45	50193.9	32.7				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	10.3	31.1				ug/L	12	Standard
Br	81	1733.4	21.4				ug/L	1747	Standard
P	31	35.0	14.3				ug/L	17	Standard
S	34	6.7	114.6				ug/L	3	Standard
Sr	88	356.7	8.5				ug/L	370	Standard
C	12	56.7	10.2				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	43.3				mg/L	17	Standard
Dy	164	24.9	94.9				mg/L	9	Standard
Ho-1	165	15.0	33.3				mg/L	25	Standard
Er	166	36.7	41.7				mg/L	20	Standard
I	127	11966.4	13.2				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		85.928	
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		84.388	
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	78.261
[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	78.255
[	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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Sample ID: L1611048801

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Method 6020 - Summary Report

Sample ID: L1611048801PS WG591392-01

Sample Date/Time: Friday, November 11, 2016 17:49:19

Number of Replicates: 3

Autosampler Position: 257

Sample Description: 50

Method File: C:\NexlONData\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	188261.2	38.6				ug/L	206101	Standard
|	Be	9	94481.6	36.7	44.4312	1.875	4.2	ug/L	25	Standard
|	Al	27	1750.1	22.9	0.0159	0.001	9.4	ug/L	1120	Standard
|	Sc	45	50856.5	28.6				ug/L	61425	Standard
|	Ti	47	45.0	30.1	-0.0306	0.009	27.9	ug/L	70	Standard
|	V	51	448731.1	33.7	48.6371	0.779	1.6	ug/L	3309	Standard
|	Cr	52	415494.2	33.2	48.5729	1.020	2.1	ug/L	13497	Standard
|	Cr	53	65079.8	30.7	60.2528	2.754	4.6	ug/L	3162	Standard
|	Mn	55	637147.1	35.3	46.9856	0.156	0.3	ug/L	2226	Standard
|	Co	59	509322.4	36.1	47.7224	0.383	0.8	ug/L	1003	Standard
|	Ni	60	109585.5	36.6	47.7712	0.580	1.2	ug/L	355	Standard
|	Cu	65	103485.5	37.2	49.6094	1.035	2.1	ug/L	473	Standard
|	Zn	66	53250.3	34.8	49.9316	0.964	1.9	ug/L	341	Standard
>	Ge	72	492142.8	35.3				ug/L	566981	Standard
|	As	75	51312.1	36.5	47.6911	1.104	2.3	ug/L	-156	Standard
|	Se	82	4226.4	39.4	46.8647	2.081	4.4	ug/L	35	Standard
|	Se-1	77	4317.0	30.4	57.3240	2.809	4.9	ug/L	354	Standard
>	Ga	71	128.3	32.7				mg/L	43	Standard
|	Rb	85	10997.6	33.7				ug/L	48	Standard
|	Y	89	357840.2	35.8				ug/L	447702	Standard
>	Rh	103	56.7	53.9				ug/L	20	Standard
|	Mo	98	680.1	30.1	0.1683	0.012	7.1	ug/L	158	Standard
|	Ag	107	344942.7	34.8	40.8559	1.009	2.5	ug/L	133	Standard
|	Cd	111	133461.1	37.0	49.6016	0.357	0.7	mg/L	7	Standard
|	Cd	114	336768.6	38.8	46.2722	0.642	1.4	ug/L	72	Standard
>	In	115	808537.2	37.3				ug/L	1004638	Standard
|	Sn	118	136.3	41.0	0.0013	0.003	230.5	ug/L	364	Standard
|	Sb	123	358738.4	37.3	49.9353	0.058	0.1	ug/L	2464	Standard
|	Ba	135	159804.2	36.2	52.7837	0.586	1.1	ug/L	39	Standard
|	Ce	140	60.0	22.0				ug/L	195	Standard
>	Tb	159	1334239.4	36.5				ug/L	1640193	Standard
|	Ho	165	28.3	27.0				ug/L	25	Standard
|	Tl	203	564147.4	35.0	47.8438	0.194	0.4	ug/L	324	Standard
|	Tl	205	1324028.7	34.9	41.9667	0.296	0.7	ug/L	698	Standard
|	Pb	206	454044.3	34.6	49.4186	0.121	0.2	ug/L	600	Standard
|	Pb	207	400327.7	35.2	48.9124	0.343	0.7	ug/L	541	Standard
|	Pb	208	1342884.2	33.2	50.0291	0.735	1.5	ug/L	1750	Standard
	U	238	560702.3	25.9	53.2224	4.324	8.1	ug/L	10	Standard
>	Bi	209	652642.5	34.8				ug/L	811518	Standard

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Na	23	15.0	100.0	2.6188	2.283	87.2	mg/L	0	Standard
Mg	24	268.3	14.0	6.5886	1.035	15.7	mg/L	77	Standard
K	39	678.3	27.0	4.4870	0.431	9.6	mg/L	18	Standard
Ca	43	93.3	34.4	17.1483	1.566	9.1	mg/L	178	Standard
Fe	54	25.7	36.6	-0.0335	0.036	106.8	mg/L	29	Standard
Fe	57	495.0	14.9	10.9727	3.352	30.6	mg/L	408	Standard
Sc-1	45	50856.5	28.6				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	9.0	29.4				ug/L	12	Standard
Br	81	1693.4	30.7				ug/L	1747	Standard
P	31	25.0	40.0				ug/L	17	Standard
S	34	6.7	43.3				ug/L	3	Standard
Sr	88	420.0	15.5				ug/L	370	Standard
C	12	66.7	45.8				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	15.9	96.6				mg/L	9	Standard
Ho-1	165	28.3	27.0				mg/L	25	Standard
Er	166	16.7	34.6				mg/L	20	Standard
I	127	12446.9	20.1				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		91.344	
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		86.801	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611048801PS WG591392-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	80.480
[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	80.422
[	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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Sample ID: L1611048801PS WG591392-01

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Method 6020 - Summary Report

Sample ID: L1611048801SDL WG591392-02

Sample Date/Time: Friday, November 11, 2016 17:52:25

Number of Replicates: 3

Autosampler Position: 258

Sample Description: 250

Method File: C:\NexlONData\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	159927.9	34.7				ug/L	206101	Standard
|	Be	9	46.7	99.6	0.0038	0.016	407.4	ug/L	25	Standard
|	Al	27	15321.0	160.4	0.0812	0.115	141.3	ug/L	1120	Standard
|	Sc	45	46248.8	26.8				ug/L	61425	Standard
|	Ti	47	49.7	45.9	-0.0097	0.026	265.0	ug/L	70	Standard
|	V	51	2647.1	33.0	0.0016	0.047	2947.7	ug/L	3309	Standard
|	Cr	52	10207.2	20.8	-0.1024	0.160	156.2	ug/L	13497	Standard
|	Cr	53	7063.3	15.9	5.1089	1.189	23.3	ug/L	3162	Standard
|	Mn	55	2484.6	65.1	0.0533	0.063	117.7	ug/L	2226	Standard
|	Co	59	615.0	27.5	0.0014	0.010	708.9	ug/L	1003	Standard
|	Ni	60	324.7	38.5	0.0299	0.015	51.3	ug/L	355	Standard
|	Cu	65	448.7	37.4	0.0355	0.018	50.6	ug/L	473	Standard
|	Zn	66	2281.5	33.1	2.0704	0.066	3.2	ug/L	341	Standard
>	Ge	72	447393.1	32.1				ug/L	566981	Standard
|	As	75	-112.3	89.0	0.0038	0.073	1953.3	ug/L	-156	Standard
|	Se	82	39.1	27.3	0.1798	0.158	88.1	ug/L	35	Standard
|	Se-1	77	509.3	12.7	3.5147	1.757	50.0	ug/L	354	Standard
>	Ga	71	65.0	35.3				mg/L	43	Standard
|	Rb	85	2016.8	26.8				ug/L	48	Standard
|	Y	89	318442.7	31.8				ug/L	447702	Standard
>	Rh	103	21.7	35.3				ug/L	20	Standard
|	Mo	98	130.0	34.5	0.0280	0.001	2.3	ug/L	158	Standard
|	Ag	107	194.3	36.0	0.0118	0.001	12.2	ug/L	133	Standard
|	Cd	111	17.5	71.2	0.0002	0.003	1597.5	mg/L	7	Standard
|	Cd	114	33.2	77.1	0.0016	0.002	135.3	ug/L	72	Standard
>	In	115	717996.5	33.2				ug/L	1004638	Standard
|	Sn	118	66.0	20.0	-0.0340	0.006	18.7	ug/L	364	Standard
|	Sb	123	2129.8	17.4	0.3086	0.166	53.8	ug/L	2464	Standard
|	Ba	135	2453.2	32.2	0.9027	0.012	1.3	ug/L	39	Standard
|	Ce	140	35.0	51.5				ug/L	195	Standard
>	Tb	159	1201852.4	30.8				ug/L	1640193	Standard
|	Ho	165	13.3	21.7				ug/L	25	Standard
|	Tl	203	1228.1	20.9	0.1040	0.012	11.7	ug/L	324	Standard
|	Tl	205	2875.3	21.4	0.0976	0.010	10.3	ug/L	698	Standard
|	Pb	206	6026.9	22.0	0.6821	0.067	9.8	ug/L	600	Standard
|	Pb	207	5111.9	25.9	0.6434	0.039	6.0	ug/L	541	Standard
|	Pb	208	19029.1	36.2	0.7192	0.035	4.9	ug/L	1750	Standard
	U	238	253.0	155.4	0.0219	0.029	131.4	ug/L	10	Standard
>	Bi	209	595594.9	31.8				ug/L	811518	Standard

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Na	23	1.7	173.2	0.2686	0.457	170.0	mg/L	0	Standard
Mg	24	90.0	25.5	1.9105	0.811	42.4	mg/L	77	Standard
K	39	103.3	2.8	0.6865	0.187	27.2	mg/L	18	Standard
Ca	43	108.3	21.8	8.4728	9.843	116.2	mg/L	178	Standard
Fe	54	29.2	29.3	0.0770	0.060	78.5	mg/L	29	Standard
Fe	57	478.3	10.3	13.0893	7.174	54.8	mg/L	408	Standard
Sc-1	45	46248.8	26.8				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	8.7	13.3				ug/L	12	Standard
Br	81	1203.4	25.0				ug/L	1747	Standard
P	31	16.7	34.6				ug/L	17	Standard
S	34	3.3	86.6				ug/L	3	Standard
Sr	88	406.7	16.7				ug/L	370	Standard
C	12	46.7	75.3				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	9.5	105.4				mg/L	9	Standard
Ho-1	165	13.3	21.7				mg/L	25	Standard
Er	166	10.0	173.2				mg/L	20	Standard
I	127	5182.6	14.6				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		77.597	
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		78.908	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1611048801SDL WG591392-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	71.468
[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	73.393
[	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

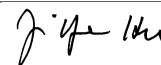
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1611048801SDL WG591392-02

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Friday, November 11, 2016 17:55:32

Number of Replicates: 3

Autosampler Position: 101

Sample Description:

Method File: C:\NexlONData\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	190884.2	30.7				ug/L	206101	Standard
|	Be	9	103060.2	28.8	47.7986	1.134	2.4	ug/L	25	Standard
|	Al	27	8168336.0	24.5	45.7695	2.814	6.1	ug/L	1120	Standard
|	Sc	45	52445.0	21.3				ug/L	61425	Standard
|	Ti	47	39801.1	25.3	97.7032	2.152	2.2	ug/L	70	Standard
|	V	51	472507.3	25.9	49.2431	0.732	1.5	ug/L	3309	Standard
|	Cr	52	434370.5	25.5	48.8066	0.937	1.9	ug/L	13497	Standard
|	Cr	53	54870.4	26.3	47.9785	0.498	1.0	ug/L	3162	Standard
|	Mn	55	681674.3	27.1	48.4096	0.171	0.4	ug/L	2226	Standard
|	Co	59	543173.4	28.4	48.9748	0.647	1.3	ug/L	1003	Standard
|	Ni	60	117549.6	28.3	49.3753	0.569	1.2	ug/L	355	Standard
|	Cu	65	109662.0	28.5	50.6919	0.636	1.3	ug/L	473	Standard
|	Zn	66	56765.5	27.6	51.1124	0.413	0.8	ug/L	341	Standard
>	Ge	72	511291.8	27.3				ug/L	566981	Standard
|	As	75	55566.4	29.1	49.6600	1.013	2.0	ug/L	-156	Standard
|	Se	82	4549.4	33.0	48.4667	2.773	5.7	ug/L	35	Standard
|	Se-1	77	3980.6	29.3	49.5781	1.277	2.6	ug/L	354	Standard
>	Ga	71	90.0	33.3				mg/L	43	Standard
|	Rb	85	593.3	38.3				ug/L	48	Standard
|	Y	89	371740.6	25.4				ug/L	447702	Standard
>	Rh	103	65.0	50.4				ug/L	20	Standard
|	Mo	98	396918.0	26.7	97.6694	2.227	2.3	ug/L	158	Standard
|	Ag	107	433165.4	27.7	48.6954	0.717	1.5	ug/L	133	Standard
|	Cd	111	145230.7	29.2	51.3234	0.504	1.0	mg/L	7	Standard
|	Cd	114	381496.4	29.5	50.0054	0.969	1.9	ug/L	72	Standard
>	In	115	849313.7	29.0				ug/L	1004638	Standard
|	Sn	118	88075.8	29.0	50.3821	0.681	1.4	ug/L	364	Standard
|	Sb	123	388259.6	27.5	51.5854	0.809	1.6	ug/L	2464	Standard
|	Ba	135	154029.3	26.5	48.5384	1.223	2.5	ug/L	39	Standard
|	Ce	140	156.7	29.0				ug/L	195	Standard
>	Tb	159	1365873.3	26.5				ug/L	1640193	Standard
|	Ho	165	66.7	41.3				ug/L	25	Standard
|	Tl	203	607315.6	26.7	50.2186	0.880	1.8	ug/L	324	Standard
|	Tl	205	1441141.2	27.1	44.5047	0.741	1.7	ug/L	698	Standard
|	Pb	206	475149.1	26.8	50.3816	0.381	0.8	ug/L	600	Standard
|	Pb	207	419061.8	26.6	49.9455	0.721	1.4	ug/L	541	Standard
|	Pb	208	1395121.8	26.1	50.5391	0.436	0.9	ug/L	1750	Standard
	U	238	595807.6	19.0	54.8213	4.218	7.7	ug/L	10	Standard
>	Bi	209	669771.7	26.9				ug/L	811518	Standard

Sample ID: QC Std 6

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Na	23	11.7	24.7	2.1642	0.656	30.3	mg/L	0	Standard
Mg	24	225.0	17.6	5.0791	0.508	10.0	mg/L	77	Standard
K	39	870.0	23.9	5.5999	0.869	15.5	mg/L	18	Standard
Ca	43	85.0	17.6	18.9412	7.328	38.7	mg/L	178	Standard
Fe	54	375.5	35.6	5.3054	1.060	20.0	mg/L	29	Standard
Fe	57	586.7	9.3	14.4402	4.201	29.1	mg/L	408	Standard
Sc-1	45	52445.0	21.3				mg/L	61425	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	7.3	28.4				ug/L	12	Standard
Br	81	1400.1	27.9				ug/L	1747	Standard
P	31	33.3	22.9				ug/L	17	Standard
S	34	3.3	173.2				ug/L	3	Standard
Sr	88	405.0	1.2				ug/L	370	Standard
C	12	60.0	66.7				mg/L	47	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	17	Standard
Dy	164	38.7	50.5				mg/L	9	Standard
Ho-1	165	66.7	41.3				mg/L	25	Standard
Er	166	26.7	114.6				mg/L	20	Standard
I	127	2930.3	21.9				mg/L	6023	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
> Li	6			
Be	9	95.597		
Al	27	91.539		
Sc	45			
Ti	47	97.703		
V	51	98.486		
Cr	52	97.613		
Cr	53			
Mn	55	96.819		
Co	59	97.950		
Ni	60	98.751		
Cu	65	101.384		
Zn	66	102.225		
> Ge	72		90.178	
As	75	99.320		
Se	82	96.933		
Se-1	77			
> Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	97.669	
[Ag	107	97.391	
[Cd	111	102.647	
[Cd	114		
>	In	115		84.539
[Sn	118	100.764	
[	Sb	123	103.171	
[	Ba	135	97.077	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.437	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	101.078	
[	U	238	109.643	
>	Bi	209		82.533
[	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 7

Sample Date/Time: Friday, November 11, 2016 17:58:38

Number of Replicates: 3

Autosampler Position: 102

Sample Description:

Method File: C:\NexlONData\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	180288.8	41.5				ug/L	206101	Standard
|	Be	9	43.3	17.6	0.0044	0.009	212.1	ug/L	25	Standard
|	Al	27	1555.1	23.4	0.0153	0.002	11.8	ug/L	1120	Standard
|	Sc	45	48894.6	33.4				ug/L	61425	Standard
|	Ti	47	33.0	18.4	-0.0564	0.020	35.8	ug/L	70	Standard
|	V	51	2470.9	13.9	-0.0279	0.066	237.5	ug/L	3309	Standard
|	Cr	52	10584.1	21.4	-0.1394	0.208	149.4	ug/L	13497	Standard
|	Cr	53	2096.8	20.6	-0.4455	0.345	77.5	ug/L	3162	Standard
|	Mn	55	2309.8	22.6	0.0434	0.026	59.8	ug/L	2226	Standard
|	Co	59	917.0	13.9	0.0297	0.022	75.6	ug/L	1003	Standard
|	Ni	60	272.3	15.9	0.0028	0.028	999.7	ug/L	355	Standard
|	Cu	65	393.0	38.5	-0.0073	0.003	42.6	ug/L	473	Standard
|	Zn	66	283.0	39.5	-0.0199	0.012	61.3	ug/L	341	Standard
>	Ge	72	484050.4	37.5				ug/L	566981	Standard
|	As	75	-75.3	60.7	0.0376	0.025	67.2	ug/L	-156	Standard
|	Se	82	34.6	18.4	0.1016	0.146	144.0	ug/L	35	Standard
|	Se-1	77	332.0	2.4	0.4580	1.940	423.6	ug/L	354	Standard
>	Ga	71	45.0	44.4				mg/L	43	Standard
|	Rb	85	46.7	16.4				ug/L	48	Standard
|	Y	89	349179.9	35.3				ug/L	447702	Standard
>	Rh	103	16.7	17.3				ug/L	20	Standard
|	Mo	98	208.4	11.3	0.0506	0.023	46.3	ug/L	158	Standard
|	Ag	107	185.3	17.3	0.0094	0.005	53.8	ug/L	133	Standard
|	Cd	111	14.7	29.7	-0.0010	0.001	84.4	mg/L	7	Standard
|	Cd	114	59.7	40.7	0.0051	0.001	20.3	ug/L	72	Standard
>	In	115	803299.2	39.4				ug/L	1004638	Standard
|	Sn	118	260.3	10.5	0.0905	0.049	54.3	ug/L	364	Standard
|	Sb	123	5876.5	11.8	0.8652	0.392	45.4	ug/L	2464	Standard
|	Ba	135	55.3	47.3	0.0084	0.002	23.3	ug/L	39	Standard
|	Ce	140	28.3	40.8				ug/L	195	Standard
>	Tb	159	1320179.4	36.5				ug/L	1640193	Standard
|	Ho	165	13.3	78.1				ug/L	25	Standard
|	Tl	203	202.7	32.0	0.0052	0.002	30.0	ug/L	324	Standard
|	Tl	205	476.7	35.0	0.0112	0.001	5.3	ug/L	698	Standard
|	Pb	206	565.0	39.0	0.0117	0.002	19.7	ug/L	600	Standard
|	Pb	207	477.3	40.9	0.0093	0.004	43.1	ug/L	541	Standard
|	Pb	208	1616.0	34.4	0.0123	0.001	6.2	ug/L	1750	Standard
	U	238	71.3	27.2	0.0090	0.001	11.2	ug/L	10	Standard
>	Bi	209	634670.3	35.6				ug/L	811518	Standard

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Na	23	0.0		0.0050	0.000	0.0	mg/L	0	Standard
Mg	24	41.7	59.2	0.4212	0.791	187.7	mg/L	77	Standard
K	39	11.7	89.2	-0.0407	0.062	152.8	mg/L	18	Standard
Ca	43	91.7	12.6	14.9994	6.524	43.5	mg/L	178	Standard
Fe	54	21.1	69.5	-0.0146	0.337	2313.2	mg/L	29	Standard
Fe	57	516.7	10.1	14.9063	11.787	79.1	mg/L	408	Standard
Sc-1	45	48894.6	33.4				mg/L	61425	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	9.7	52.1				ug/L	12	Standard
Br	81	1283.4	41.8				ug/L	1747	Standard
P	31	15.0	88.2				ug/L	17	Standard
S	34	1.7	173.2				ug/L	3	Standard
Sr	88	406.7	8.6				ug/L	370	Standard
C	12	43.3	35.3				mg/L	47	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	13.3	43.3				mg/L	17	Standard
Dy	164	29.4	68.9				mg/L	9	Standard
Ho-1	165	13.3	78.1				mg/L	25	Standard
Er	166	13.3	43.3				mg/L	20	Standard
I	127	3742.1	18.8				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		85.373	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: QC Std 7

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	79.959
[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	78.208
[	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
In 115 Int Std for QC Std	In	115	Rerun sample
QC Std 7	Sb	123	
Bi 209 Int Std for QC Std	Bi	209	Rerun sample

Sample ID: QC Std 7

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2.4 General Chemistry Data

2.4.1 Method 9056

2.4.1.1 Summary Data

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 14:04
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.					

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.					

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.					

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.					

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.					

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.					

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 11:31
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.					

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.					

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.					

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 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.					

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.					

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 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.					

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.					

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 14:40

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.					

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.					

2.4.1.2 QC Summary Data

Example Calculations - Ion Chromatography

A. Methods 9056/300.0 (Quadratic with Offset)

1. Retrieve Curve Data from the ICAL Curve

c2 = the value of curve constant

c1= the curve slope

c0 = the curve offset

2. Obtain the area, y , from the instrument raw data

3. Calculate the concentration of the analyte, f(y), where:

$$f(y) = \frac{1}{2 * c_2} * \left(-c_1 \pm \sqrt{c_1^2 - 4 * c_2 * (c_0 - y)} \right)$$

Example Calculation:

Value of constant, c2, (curve):	0.0003
Value of curve constant, c1, (slope):	0.0869
Value of curve constant, c0, (offset):	-0.0103
Area of target analyte, y, (uS*min):	2.993
Calculated concentration, f(y), (mg/L):	31.1998864
	or: -40.1161215 *
Dilution factor (D):	1.00
Concentration of analyte in sample (mg/L):	31.200

* There are two possible solutions, but only one is valid.

B. Method 314.0 - Perchlorate (Linear)

Retrieve Curve Data from Linear Plot

c1 = the curve slope

Obtain the area, y , from the quantitation report

Calculate the concentration of the analyte, f(y), where:

$$f(y) = y / c1$$

Example Calculation:

Value of c1, slope:	0.0034
Area of target analyte, y:	0.083
Calculated concentration:	24.4117647
Dilution Factor:	1
Concentration in sample:	24.4117647

Microbac Laboratories Inc.
Instrument Run Log

Instrument: IC2 Dataset: 101216 IC2 ICAL.SEQ
 Analyst1: CAS Analyst2: JWR
 Method: IC01 SOP: 300/9056 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT38178

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
 Analytical WGs 587194 (LOD/LOQ Waters), 587087 (LOD/LOQ Soils)
 Internal STD: NA Surrogate STD: NA Calibration STD STD77046 (10/12/2016)
 CCV STD: STD77046 LCS STD: STD77045 MS/MSD STD: NA

Comments: ICAL WG587294 : Alternate Source STD77045
 Guard Column : Ionpac AG14A (4x50mm)
 Dionex S/N 012640
 Analytical Column : Ionpac AS14A (4x250mm)
 Dionex S/N 010066
 Cond Suppressor : AERS 500 (4mm)
 Dionex S/N 140122040
 System backpressure = 1666psi

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I2_101216-01	ELUENT	1	1		10/12/16 13:14
2	I2_101216-02	DI WATER	1	1		10/12/16 13:33
3	I2_101216-03	WG587294-01 STD	1	1	STD77046	10/12/16 13:52
4	I2_101216-04	WG587294-02 STD	1	1	STD77046	10/12/16 14:12
5	I2_101216-05	WG587294-03 STD	1	1	STD77046	10/12/16 14:31
6	I2_101216-06	WG587294-04 STD	1	1	STD77046	10/12/16 14:50
7	I2_101216-07	WG587294-05 STD	1	1	STD77046	10/12/16 15:09
8	I2_101216-08	WG587294-06 STD	1	1	STD77046	10/12/16 15:28
9	I2_101216-09	WG587294-07 SSCV	1	1	STD77045	10/12/16 15:48
10	I2_101216-10	LCRV @Level-6	1	1	STD77045	10/12/16 16:14
11	I2_101216-11	LCRV @Level-4	1	1	STD77045	10/12/16 16:34
12	I2_101216-12	LCRV @Level-2	1	1	STD77045	10/12/16 16:53
13	I2_101216-13	LCRV @Level-0	1	1		10/12/16 17:12
14	I2_101216-14	WG587303-01 ANION CCV	1	1	STD77046	10/12/16 17:31
15	I2_101216-15	WG587303-02 ANION CCB	1	1		10/12/16 17:51
16	I2_101216-16	WG587194-01 ANION BLANK	1	1		10/12/16 18:10
17	I2_101216-17	WG587194-02 ANION LCS	1	1	STD77045	10/12/16 18:29
18	I2_101216-18	WG587194-03 ANION LCS2	1	1	STD77045	10/12/16 18:48
19	I2_101216-19	L16100002-01 LOD (F,CL,BR,SO4)	1	1	STD77045	10/12/16 19:07
20	I2_101216-20	L16100002-01 LOD (NO2,NO3)	1	1	STD77045	10/12/16 19:27
21	I2_101216-21	L16100004-01 LOQ (F,CL,BR,SO4)	1	1	STD77045	10/12/16 19:46
22	I2_101216-22	L16100004-01 LOQ (NO2,NO3)	1	1	STD77045	10/12/16 20:05
23	I2_101216-23	L16100004-09 LOQ (F,CL,BR,SO4)	1	1	STD77045	10/12/16 20:24
24	I2_101216-24	L16100004-09 LOQ (NO2,NO3)	1	1	STD77045	10/12/16 20:43
25	I2_101216-25	WG587303-03 ANION CCV	1	1	STD77046	10/12/16 21:03
26	I2_101216-26	WG587303-04 ANION CCB	1	1		10/12/16 21:22
27	I2_101216-27	WG587087-01 ANION BLANK-SOIL	7	1		10/12/16 21:41
28	I2_101216-28	WG587087-02 ANION LCS-SOIL	7	1	STD77045	10/12/16 22:00
29	I2_101216-29	WG587087-03 ANION LCS2-SOIL	7	1	STD77045	10/12/16 22:20
30	I2_101216-30	L16100003-01 LOD (F,CL,BR,SO4)	7	1	STD77045	10/12/16 22:39

Page: 1

Approved: 14-OCT-16




Microbac Laboratories Inc.
Instrument Run Log

Instrument: IC2 Dataset: 101216 IC2 ICAL.SEQ
 Analyst1: CAS Analyst2: JWR
 Method: IC01 SOP: 300/9056 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT38178

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
 Analytical WGs 587194 (LOD/LOQ Waters), 587087 (LOD/LOQ Soils)
 Internal STD: NA Surrogate STD: NA STD77046 (10/12/2016)
 CCV STD: STD77046 LCS STD: STD77045 NA

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
31	I2_101216-31	L16100003-01 LOD (NO2,NO3)	7	1	STD77045	10/12/16 22:58
32	I2_101216-32	L16100005-01 LOQ (F,CL,BR,SO4)	7	1	STD77045	10/12/16 23:17
33	I2_101216-33	L16100005-01 LOQ (NO2,NO3)	7	1	STD77045	10/12/16 23:36
34	I2_101216-34	L16100005-10 LOQ (F,CL,BR,SO4)	7	1	STD77045	10/12/16 23:56
35	I2_101216-35	L16100005-10 LOQ (NO2,NO3)	7	1	STD77045	10/13/16 00:15
36	I2_101216-36	WG587303-05 ANION CCV	1	1	STD77046	10/13/16 00:34
37	I2_101216-37	WG587303-06 ANION CCB	1	1		10/13/16 00:53
38	I2_101216-38	END	1	1		10/13/16 01:12

Comments

Seq.	Rerun	Dil.	Reason	Analytes
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Eri C. Zimm



Microbac Laboratories Inc.
Instrument Run Log

Instrument: IC2 Dataset: 110216 IC2.SEQ
 Analyst1: CAS Analyst2: NA
 Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT38318

Workgroups: Column 1 ID: AS14A-4MM Column 2 ID: AG14A-4MM
 Analytical WG590064
 Internal STD: NA Surrogate STD: NA Calibration STD WG587294 12-OCT-2016
 CCV STD: STD77046 LCS STD: STD77045 MS/MSD STD: STD77045

Comments: System Backpressure: 1653psi
 Samples L16110074(-09,05,03,01) were analyzed at dilutions only due to their pre-run screen results for chloride and sulfate, which were greater than 200 ppm.
 Sample L16110074-11 was analyzed at dilutions only due to its pre-run screen results for chloride, which was greater than 200 ppm.
 Samples L16110116-03 and L16110145-01 were analyzed at dilutions only due to their pre-run screen results for sulfate, which were greater than 200 ppm.
 After WG590065-04 ANION CCB, there was a failure in the autosampler, requiring all samples after it to be reanalyzed the following day with another beginning CCV/CCB.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I2_110216-01	ELUENT	1	1		11/02/16 10:50
2	I2_110216-02	DI WATER	1	1		11/02/16 11:09
3	I2_110216-03	WG590065-01 ANION CCV	1	1	STD77046	11/02/16 11:28
4	I2_110216-04	WG590065-02 ANION CCB	1	1		11/02/16 11:47
5	I2_110216-05	WG590064-01 ANION BLANK	1	1		11/02/16 12:06
6	I2_110216-06	WG590064-02 ANION LCS	1	1	STD77045	11/02/16 12:26
7	I2_110216-07	L16110064-01 (F,CL,NO3)	1	1		11/02/16 12:45
8	I2_110216-08	L16110064-02 (F,CL,NO3)	1	1		11/02/16 13:04
9	I2_110216-09	L16110064-03 (F,CL,NO3) REF	1	1		11/02/16 13:23
10	I2_110216-10	WG590064-04 DUP 0064-03	1	1		11/02/16 13:42
11	I2_110216-11	WG590064-05 MS 0064-03	1	1	STD77045	11/02/16 14:02
12	I2_110216-12	WG590064-06 MSD 0064-03	1	1	STD77045	11/02/16 14:21
13	I2_110216-13	L16110074-11 (CL,NO2,NO3,SO4) 10x	1	10		11/02/16 14:40
14	I2_110216-14	L16110074-11 RR CL 100x	1	100		11/02/16 14:59
15	I2_110216-15	WG590065-03 ANION CCV	1	1	STD77046	11/02/16 15:18
16	I2_110216-16	WG590065-04 ANION CCB	1	1		11/02/16 15:38
17	I2_110216-17	WG590065-05 ANION CCV	1	1	STD77046	11/03/16 09:16
18	I2_110216-18	WG590065-06 ANION CCB	1	1		11/03/16 09:35
19	I2_110216-19	L16110074-09 (CL,NO2,NO3,SO4) 5x	1	5		11/03/16 09:55
20	I2_110216-20	L16110074-09 RR CL 50x	1	50		11/03/16 10:14
21	I2_110216-21	L16110074-07 (CL,NO2,NO3,SO4)	1	1		11/03/16 10:33
22	I2_110216-22	L16110074-07 RR SO4 2x (NR)	1	2		11/03/16 10:52
23	I2_110216-23	L16110074-07 RR CL 20x	1	20		11/03/16 11:12
24	I2_110216-24	L16110074-05 (CL,NO2,NO3,SO4) 2x	1	2		11/03/16 11:31
25	I2_110216-25	L16110074-05 RR SO4 5x	1	5		11/03/16 11:50
26	I2_110216-26	L16110074-05 RR CL 20x	1	20		11/03/16 12:09

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Approved: 04-NOV-16




Microbac Laboratories Inc.
Instrument Run Log

Instrument: IC2 Dataset: 110216 IC2.SEQ
 Analyst1: CAS Analyst2: NA
 Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT38318

Workgroups: Column 1 ID: AS14A-4MM Column 2 ID: AG14A-4MM
Analytical WG590064
 Internal STD: NA Surrogate STD: NA WG587294 12-OCT-2016
 CCV STD: STD77046 LCS STD: STD77045 STD77045

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
27	I2_110216-27	WG590065-07 ANION CCV	1	1	STD77046	11/03/16 12:28
28	I2_110216-28	WG590065-08 ANION CCB	1	1		11/03/16 12:48
29	I2_110216-29	L16110074-03 (CL,NO2,NO3,SO4) 2x	1	2		11/03/16 13:07
30	I2_110216-30	L16110074-03 RR SO4 5x	1	5		11/03/16 13:26
31	I2_110216-31	L16110074-03 RR CL 25x	1	25		11/03/16 13:45
32	I2_110216-32	L16110074-01 (CL,NO2,NO3,SO4) 2x	1	2		11/03/16 14:04
33	I2_110216-33	L16110074-01 RR SO4 5x	1	5		11/03/16 14:24
34	I2_110216-34	L16110074-01 RR CL 20x	1	20		11/03/16 14:43
35	I2_110216-35	L16110075-03 (CL,NO3,SO4)	1	1		11/03/16 15:02
36	I2_110216-36	L16110075-03 RR CL 5x	1	5		11/03/16 15:21
37	I2_110216-37	L16110075-04 (CL,NO3,SO4)	1	1		11/03/16 15:40
38	I2_110216-38	L16110075-04 RR CL 5x	1	5		11/03/16 16:00
39	I2_110216-39	WG590065-09 ANION CCV	1	1	STD77046	11/03/16 16:19
40	I2_110216-40	WG590065-10 ANION CCB	1	1		11/03/16 16:38
41	I2_110216-41	L16110075-05 (CL,NO3,SO4) REF	1	1		11/03/16 16:57
42	I2_110216-42	WG590064-08 DUP 0075-05	1	1		11/03/16 17:16
43	I2_110216-43	L16110075-05 RR CL,SO4 5x	1	5		11/03/16 17:36
44	I2_110216-44	L16110115-01 (SO4)	2	1		11/03/16 17:55
45	I2_110216-45	L16110116-01 (BR, SO4)	2	1		11/03/16 18:14
46	I2_110216-46	L16110116-03 (F,NO2,BR,SO4) 2x	2	2		11/03/16 18:33
47	I2_110216-47	L16110116-03 RR SO4 5x (NR)	2	5		11/03/16 18:53
48	I2_110216-48	L16110145-01 (ALL) 10x	1	10		11/03/16 19:12
49	I2_110216-49	L16110145-01 RR SO4 20x (NR)	1	20		11/03/16 19:31
50	I2_110216-50	WG590065-11 ANION CCV	1	1	STD77046	11/03/16 19:50
51	I2_110216-51	WG590065-12 ANION CCB	1	1		11/03/16 20:09
52	I2_110216-52	END	1	1		11/03/16 20:29

Comments

Seq.	Rerun	Dil.	Reason	Analytes
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Approved: 04-NOV-16




Microbac Laboratories Inc.

Data Checklist


Date: 12-OCT-2016
 Analyst: CAS
 Analyst: JWR
 Method: 300/9056
 Instrument: IC2
 Curve Workgroup: WG587294
 Runlog ID: 78045
 Analytical Workgroups: L16100002, L16100004, L16100003, L16100005

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	1666PSI
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 (MS)	NA
Continuing calibration blank (CCB) (IC)	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
Samples	INTERNAL QC ONLY
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	0005-01 (SO4) NEEDED
Manual integrations	X
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	CAS
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:
13-OCT-2016



Secondary Reviewer:
14-OCT-2016




Microbac Laboratories Inc.

Data Checklist

Date: 02-NOV-2016
 Analyst: CAS
 Analyst: NA
 Method: 300/9056
 Instrument: IC2
 Curve Workgroup: NA
 Runlog ID: 78491
 Analytical Workgroups: L16110064, L16110074, L16110075, 11-0115, 11-0116, 11-0145

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	1653PSI
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 (MS)	NA
Continuing calibration blank (CCB) (IC)	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
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	X
Reruns	X
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	X
Check for completeness	X
Primary Reviewer	CAS
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:
04-NOV-2016



Secondary Reviewer:
04-NOV-2016




Analytical Method:9056
 Login Number:L16110074

AAB#:WG590064

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					11/02/2016	1.1	2		11/03/16	2.3	2	*
50WW13-110116	01	11/01/16					11/02/2016	1.1	2		11/03/16	2.2	2	*
50WW13-110116	01	11/01/16					11/02/2016	1.1	2		11/03/16	2.3	2	*
50WW14-110116	03	11/01/16					11/02/2016	1.1	2		11/03/16	2.2	2	*
50WW14-110116	03	11/01/16					11/02/2016	1.1	2		11/03/16	2.2	2	*
50WW14-110116	03	11/01/16					11/02/2016	1.1	2		11/03/16	2.2	2	*
50WW11-110116	05	11/01/16					11/02/2016	1	2		11/03/16	2	2	
50WW11-110116	05	11/01/16					11/02/2016	1	2		11/03/16	2.1	2	*
50WW11-110116	05	11/01/16					11/02/2016	1	2		11/03/16	2.1	2	*
50WW06-110116	07	11/01/16					11/02/2016	1	2		11/03/16	2	2	
50WW06-110116	07	11/01/16					11/02/2016	1	2		11/03/16	2	2	
50WW12-110116	09	11/01/16					11/02/2016	.9	2		11/03/16	1.9	2	
50WW12-110116	09	11/01/16					11/02/2016	.9	2		11/03/16	1.9	2	
50WW23-110116	11	11/01/16					11/02/2016	.9	2		11/02/16	1	2	
50WW23-110116	11	11/01/16					11/02/2016	.9	2		11/02/16	1	2	

* = SEE PROJECT QAPP REQUIREMENTS



METHOD BLANK SUMMARY

Login Number: L16110074 Work Group: WG590064
 Blank File ID: I2_110216-05 Blank Sample ID: WG590064-01
 Prep Date: 11/02/16 11:28 Instrument ID: IC2
 Analyzed Date: 11/02/16 12:06 Method: 9056
 Analyst: CAS

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590064-02	I2_110216-06	11/02/16 12:26	01
DUP	WG590064-04	I2_110216-10	11/02/16 13:42	01
50WW23-110116	L16110074-11	I2_110216-13	11/02/16 14:40	DL01
50WW23-110116	L16110074-11	I2_110216-14	11/02/16 14:59	DL02
50WW12-110116	L16110074-09	I2_110216-19	11/03/16 09:55	DL01
50WW12-110116	L16110074-09	I2_110216-20	11/03/16 10:14	DL02
50WW06-110116	L16110074-07	I2_110216-21	11/03/16 10:33	01
50WW06-110116	L16110074-07	I2_110216-23	11/03/16 11:12	DL01
50WW11-110116	L16110074-05	I2_110216-24	11/03/16 11:31	DL01
50WW11-110116	L16110074-05	I2_110216-25	11/03/16 11:50	DL02
50WW11-110116	L16110074-05	I2_110216-26	11/03/16 12:09	DL03
50WW14-110116	L16110074-03	I2_110216-29	11/03/16 13:07	DL01
50WW14-110116	L16110074-03	I2_110216-30	11/03/16 13:26	DL02
50WW14-110116	L16110074-03	I2_110216-31	11/03/16 13:45	DL03
50WW13-110116	L16110074-01	I2_110216-32	11/03/16 14:04	DL01
50WW13-110116	L16110074-01	I2_110216-33	11/03/16 14:24	DL02
50WW13-110116	L16110074-01	I2_110216-34	11/03/16 14:43	DL03
DUP	WG590064-08	I2_110216-42	11/03/16 17:16	01

Report Name: BLANK_SUMMARY
 PDF File ID: 5008192
 Report generated 11/07/2016 11:57



Login Number: L16110074 Prep Date: 11/02/16 11:28 Sample ID: WG590064-01
 Instrument ID: IC2 Run Date: 11/02/16 12:06 Prep Method: 9056
 File ID: I2 110216-05 Analyst: CAS Method: 9056
 Workgroup (AAB#): WG590064 Matrix: Water Units: mg/L
 Contract #: Cal ID: IC2-12-OCT-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Chloride	0.100	0.400	0.100	1	U
Nitrate	0.100	0.400	0.100	1	U
Nitrite	0.100	0.400	0.100	1	U
Sulfate	0.500	2.00	0.500	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: 5008193
 07-NOV-2016 11:57



Login Number: L16110074 Run Date: 11/02/2016 Sample ID: WG590064-02
 Instrument ID: IC2 Run Time: 12:26 Prep Method: 9056
 File ID: I2 110216-06 Analyst: CAS Method: 9056
 Workgroup (AAB#): WG590064 Matrix: Water Units: mg/L
 QC Key: DOD4 Lot#: STD77045 Cal ID: IC2-12-OCT-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Chloride	8.00	7.96	99.5	90 - 110	
Nitrate	5.42	5.42	100	90 - 110	
Nitrite	4.87	4.90	101	90 - 110	
Sulfate	40.0	40.0	99.9	90 - 110	

LCS - Modified 03/06/2008
 PDF File ID: 5008194
 Report generated: 11/07/2016 11:57



Login Number: L16110074
Analytical Method: 9056
ICAL Workgroup: WG587294

Instrument ID: IC2
Initial Calibration Date: 12-OCT-16 15:28
Column ID: F

Analyte	AVG RF	% RSD	LINEAR (R)	QUAD (R ²)
Chloride	4.561	9.12		0.99600
Nitrate	1.895	11.0		0.99600
Nitrite	2.580	14.7		0.99700
Sulfate	6.085	13.1		0.99500

R = Correlation coefficient; 0.995 minimum
R² = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 5011231
Report generated 11/07/2016 11:57



Login Number: L16110074
 Analytical Method: 9056

Instrument ID: IC2
 Initial Calibration Date: 12-OCT-16 15:28
 Column ID: F

Analyte	WG587294-01			WG587294-02			WG587294-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	0.200	0.042000000 0	4.762	1.00	0.200000000	5.000	4.00	0.832000000	4.808
Nitrate	0.134	0.063000000 0	2.120	0.678	0.327000000	2.072	2.71	1.380000000	1.964
Nitrite	0.122	0.037000000 0	3.292	0.609	0.215000000	2.832	2.44	0.966000000	2.521
Sulfate	1.00	0.141000000	7.092	5.00	0.742000000	6.739	20.0	3.186000000	6.277

INT_CAL - Modified 03/06/2008
 PDF File ID: 5011231
 Report generated 11/07/2016 11:57



Login Number: L16110074
 Analytical Method: 9056

Instrument ID: IC2
 Initial Calibration Date: 12-OCT-16 15:28
 Column ID: F

Analyte	WG587294-04			WG587294-05			WG587294-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	8.00	1.75500000	4.558	12.0	2.77400000	4.326	24.0	6.13200000	3.914
Nitrate	5.42	2.90900000	1.864	8.13	4.61600000	1.762	16.3	10.23200000	1.590
Nitrite	4.87	2.04600000	2.381	7.31	3.21000000	2.276	14.6	6.71200000	2.177
Sulfate	40.0	6.81300000	5.871	60.0	10.84700000	5.531	120	23.99500000	5.001

INT_CAL - Modified 03/06/2008
 PDF File ID: 5011231
 Report generated 11/07/2016 11:57



Login Number: L16110074 Run Date: 10/12/2016 Sample ID: WG587294-07
 Instrument ID: IC2 Run Time: 15:48 Method: 9056
 File ID: I2 101216-09 Analyst: CAS QC Key: DOD4
 ICal Workgroup: WG587294 Cal ID: IC2 - 12-OCT-16

Analyte	Expected	Found	Units	RF	%D	UCL	Q
Chloride	8.00	8.09	mg/L	4.53	1.20	10	
Nitrate	5.42	5.48	mg/L	1.85	1.00	10	
Nitrite	4.87	5.15	mg/L	2.29	5.70	10	
Sulfate	40.0	40.6	mg/L	5.84	1.40	10	

* Exceeds %D Limit



Login Number: L16110074 Run Date: 11/02/2016 Sample ID: WG590065-02
 Instrument ID: IC2 Run Time: 11:47 Method: 9056
 File ID: I2 110216-04 Analyst: CAS Units: mg/L
 Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.400	0.100	U
Nitrate	0.100	0.400	0.100	U
Nitrite	0.100	0.400	0.100	U
Sulfate	0.500	2.00	0.500	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: 5008196
 Report generated 11/07/2016 11:57



Login Number: L16110074 Run Date: 11/02/2016 Sample ID: WG590065-04
Instrument ID: IC2 Run Time: 15:38 Method: 9056
File ID: I2 110216-16 Analyst: CAS Units: mg/L
Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.400	0.100	U
Nitrate	0.100	0.400	0.100	U
Nitrite	0.100	0.400	0.100	U
Sulfate	0.500	2.00	0.500	U

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



Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590065-06
 Instrument ID: IC2 Run Time: 09:35 Method: 9056
 File ID: I2 110216-18 Analyst: CAS Units: mg/L
 Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.400	0.100	U
Nitrate	0.100	0.400	0.100	U
Nitrite	0.100	0.400	0.100	U
Sulfate	0.500	2.00	0.500	U

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



Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590065-08
 Instrument ID: IC2 Run Time: 12:48 Method: 9056
 File ID: I2 110216-28 Analyst: CAS Units: mg/L
 Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.400	0.100	U
Nitrate	0.100	0.400	0.100	U
Nitrite	0.100	0.400	0.100	U
Sulfate	0.500	2.00	0.500	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: 5008196
 Report generated 11/07/2016 11:57



Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590065-10
 Instrument ID: IC2 Run Time: 16:38 Method: 9056
 File ID: I2 110216-40 Analyst: CAS Units: mg/L
 Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.400	0.100	U
Nitrate	0.100	0.400	0.100	U
Nitrite	0.100	0.400	0.100	U
Sulfate	0.500	2.00	0.500	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: 5008196
 Report generated 11/07/2016 11:57



Login Number: L16110074 Run Date: 11/02/2016 Sample ID: WG590065-01
 Instrument ID: IC2 Run Time: 11:28 Method: 9056
 File ID: I2 110216-03 Analyst: CAS QC Key: DOD4
 Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
Chloride	8.00	7.95	mg/L	4.62	0.675	10	
Nitrate	5.42	5.41	mg/L	1.87	0.177	10	
Nitrite	4.87	4.88	mg/L	2.43	0.0944	10	
Sulfate	40.0	39.9	mg/L	5.95	0.335	10	

* Exceeds %D Criteria



Login Number: L16110074 Run Date: 11/02/2016 Sample ID: WG590065-03
Instrument ID: IC2 Run Time: 15:18 Method: 9056
File ID: I2 110216-15 Analyst: CAS QC Key: DOD4
Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
Chloride	8.00	8.06	mg/L	4.55	0.713	10	
Nitrate	5.42	5.49	mg/L	1.84	1.24	10	
Nitrite	4.87	5.00	mg/L	2.37	2.58	10	
Sulfate	40.0	40.3	mg/L	5.88	0.830	10	

* Exceeds %D Criteria



Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590065-05
Instrument ID: IC2 Run Time: 09:16 Method: 9056
File ID: I2 110216-17 Analyst: CAS QC Key: DOD4
Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
Chloride	8.00	8.04	mg/L	4.56	0.500	10	
Nitrate	5.42	5.48	mg/L	1.85	1.00	10	
Nitrite	4.87	4.96	mg/L	2.38	1.88	10	
Sulfate	40.0	40.5	mg/L	5.86	1.18	10	

* Exceeds %D Criteria



Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590065-07
Instrument ID: IC2 Run Time: 12:28 Method: 9056
File ID: I2 110216-27 Analyst: CAS QC Key: DOD4
Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
Chloride	8.00	8.07	mg/L	4.55	0.825	10	
Nitrate	5.42	5.49	mg/L	1.84	1.34	10	
Nitrite	4.87	4.96	mg/L	2.39	1.76	10	
Sulfate	40.0	40.5	mg/L	5.85	1.26	10	

* Exceeds %D Criteria



Login Number: L16110074 Run Date: 11/03/2016 Sample ID: WG590065-09
 Instrument ID: IC2 Run Time: 16:19 Method: 9056
 File ID: I2 110216-39 Analyst: CAS QC Key: DOD4
 Workgroup (AAB#): WG590064 Cal ID: IC2 - 12-OCT-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
Chloride	8.00	8.14	mg/L	4.50	1.74	10	
Nitrate	5.42	5.54	mg/L	1.82	2.24	10	
Nitrite	4.87	4.97	mg/L	2.38	2.07	10	
Sulfate	40.0	40.9	mg/L	5.80	2.13	10	

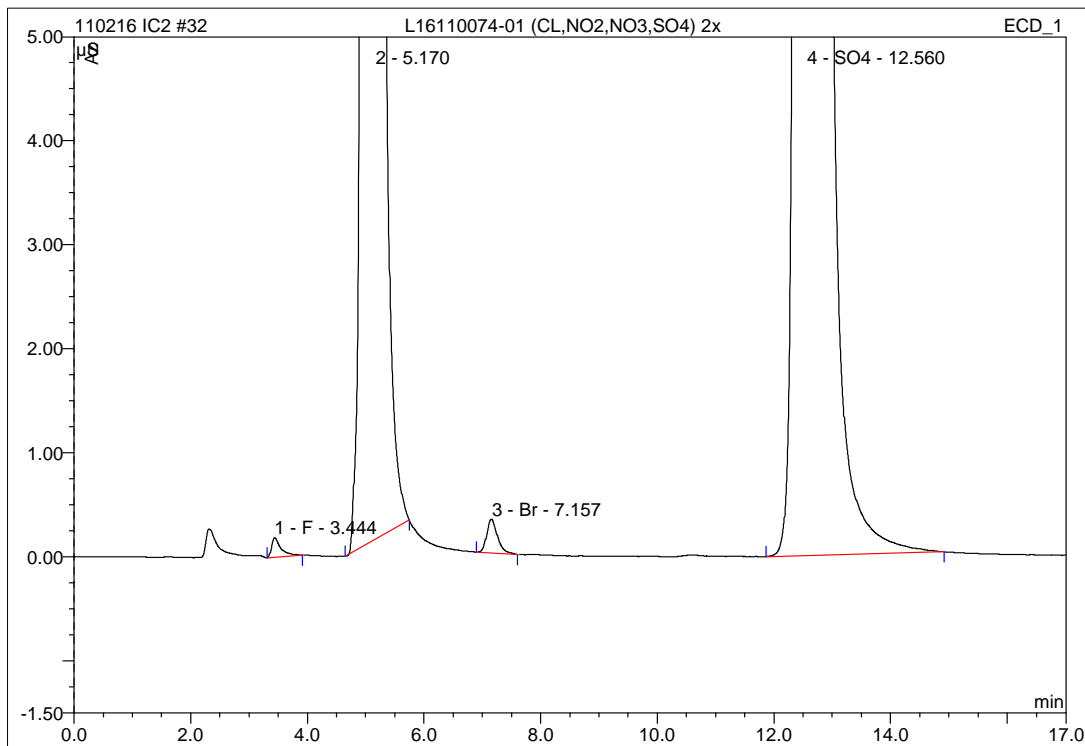
* Exceeds %D Criteria



2.4.1.3 Sample Data

32 L16110074-01 (CL,NO2,NO3,SO4) 2x**1,2 CAS (CL&SO4 screens>200ppm)**

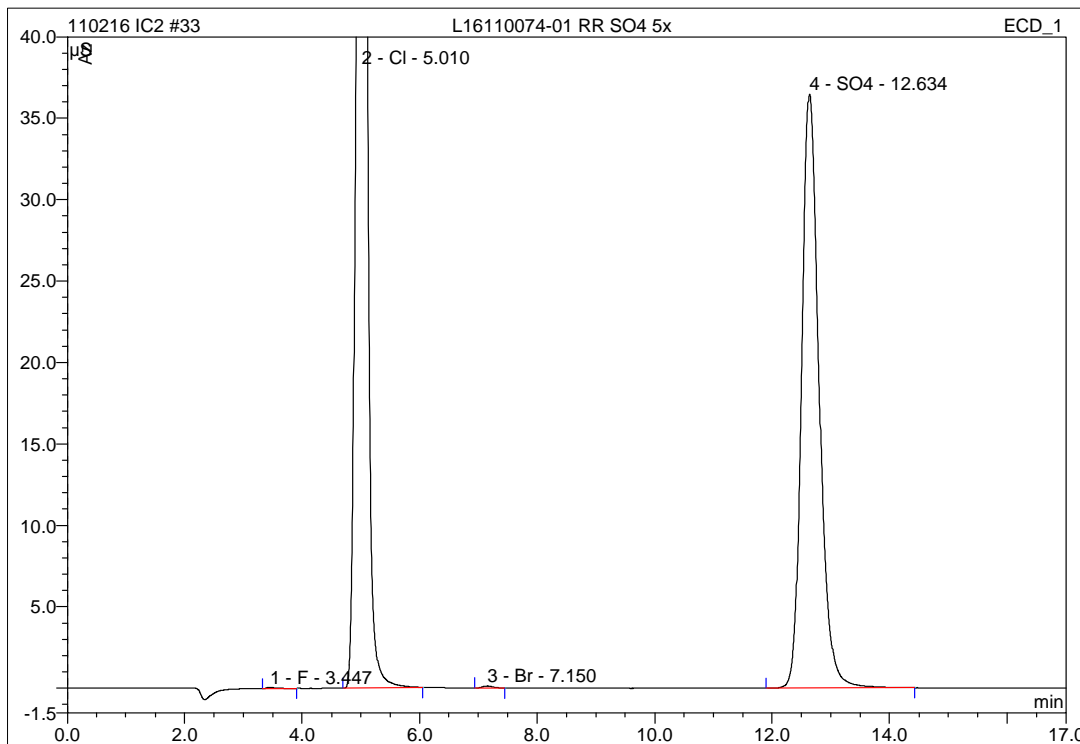
Sample Name:	L16110074-01 (CL,NO2,NO3,SO4) 2x	Injection Volume:	25.0
Vial Number:	32	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 14:04	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.44	F	0.188	0.036	0.04	0.189	BMB
2	5.17	n.a.	243.944	50.041	57.55	n.a.	BMB
3	7.16	Br	0.325	0.069	0.08	0.817	BMB
4	12.56	SO4	103.611	36.811	42.33	166.174	BMB
Total:			348.068	86.957	100.00	167.180	

33 L16110074-01 RR SO4 5x**1,5 CAS**

Sample Name:	L16110074-01 RR SO4 5x	Injection Volume:	25.0
Vial Number:	33	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 14:24	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



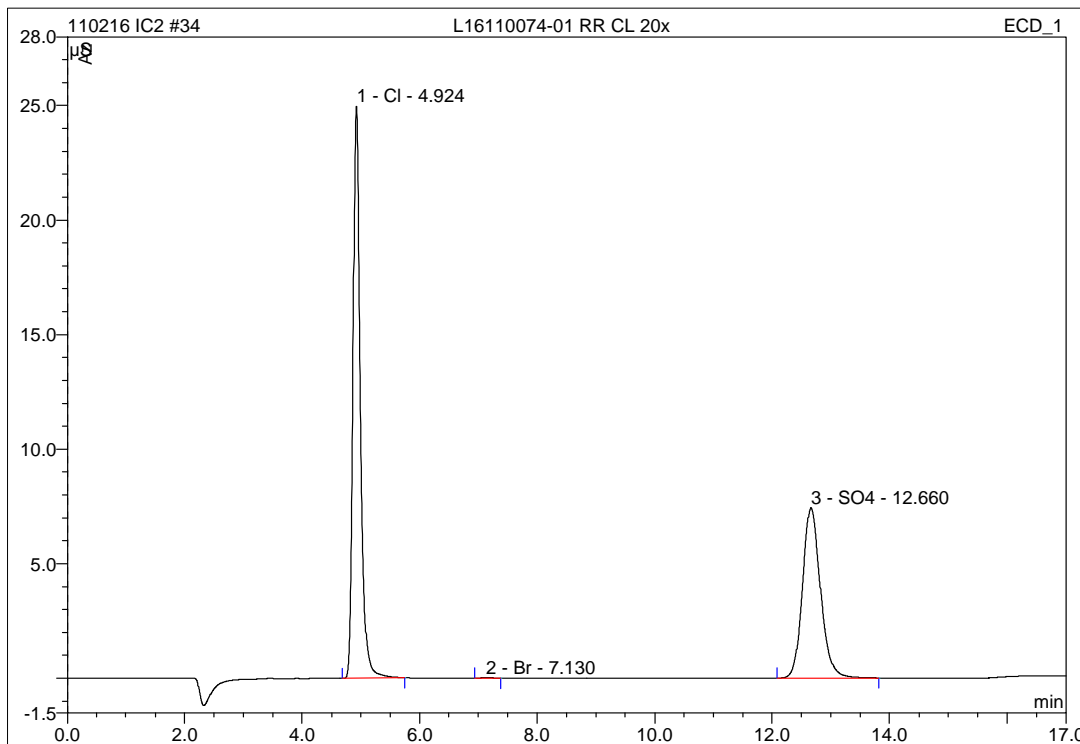
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	0.081	0.015	0.05	0.114	BMB
2	5.01	Cl	89.042	17.583	58.24	53.265	BMB
3	7.15	Br	0.124	0.025	0.08	0.300	BMB
4	12.63	SO4	36.454	12.569	41.63	69.443	BMB
Total:			125.701	30.191	100.00	123.122	

IC/Integration

Chromleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

34 L16110074-01 RR CL 20x**1,20 CAS**

Sample Name:	L16110074-01 RR CL 20x	Injection Volume:	25.0
Vial Number:	34	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 14:43	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



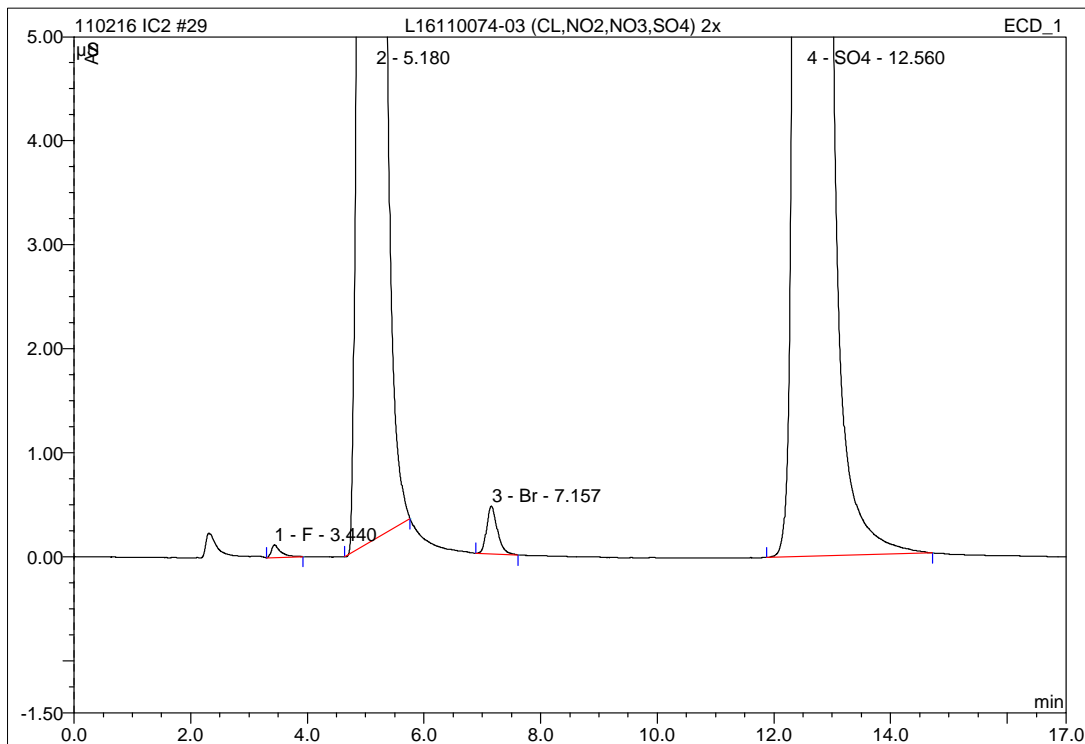
No.	Ret.Time min	Peak Name	Height μS	Area $\mu\text{S}\cdot\text{min}$	Rel.Area %	Amount mg/L	Type
1	4.92	Cl	24.973	3.614	57.66	15.316	BMB
2	7.13	Br	0.032	0.007	0.11	0.089	BMB
3	12.66	SO4	7.434	2.647	42.23	16.710	BMB
Total:			32.439	6.268	100.00	32.116	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

29 L16110074-03 (CL,NO2,NO3,SO4) 2x**1,2 CAS (CL&SO4 screens>200ppm)**

Sample Name:	L16110074-03 (CL,NO2,NO3,SO4) 2x	Injection Volume:	25.0
Vial Number:	29	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 13:07	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



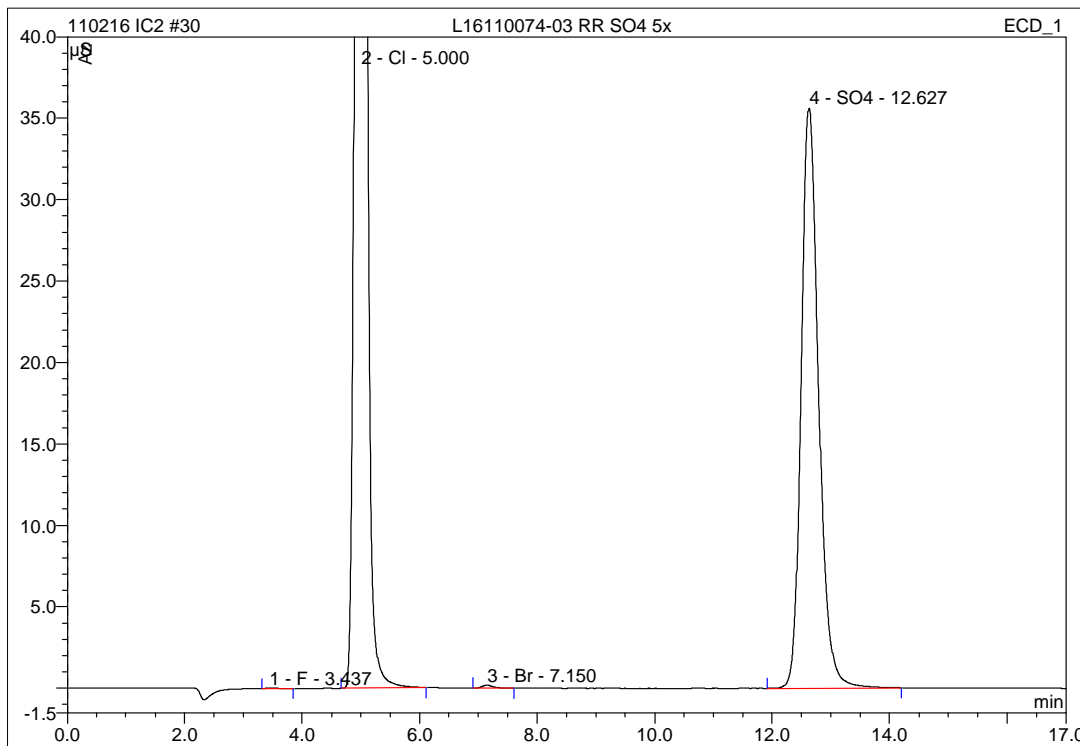
No.	Ret.Time min	Peak Name	Height μS	Area μS*min	Rel.Area %	Amount mg/L	Type
1	3.44	F	0.121	0.023	0.02	0.142	BMB
2	5.18	n.a.	269.198	60.197	62.95	n.a.	BMB
3	7.16	Br	0.459	0.098	0.10	1.144	BMB
4	12.56	SO4	99.687	35.303	36.92	160.955	BMB
Total:			369.465	95.621	100.00	162.241	

IC/Integration

Chromleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

30 L16110074-03 RR SO4 5x**1,5 CAS**

Sample Name:	L16110074-03 RR SO4 5x	Injection Volume:	25.0
Vial Number:	30	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 13:26	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



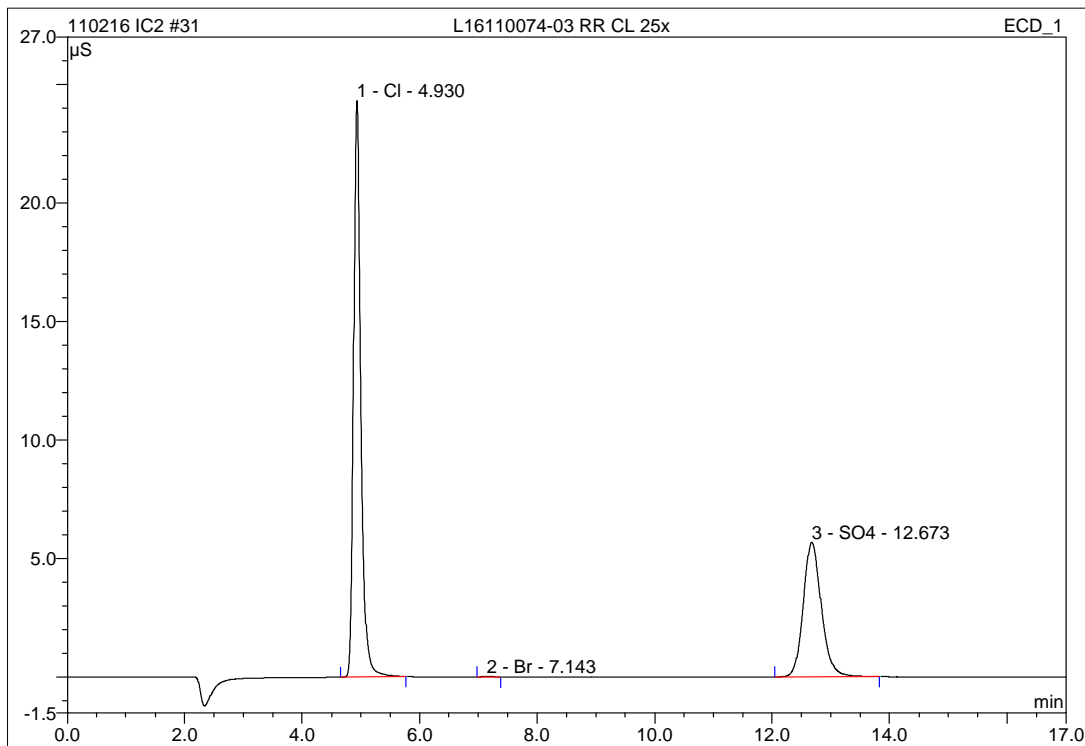
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.44	F	0.059	0.011	0.03	0.102	BMB
2	5.00	Cl	106.791	21.869	64.01	62.116	BMB
3	7.15	Br	0.178	0.039	0.11	0.459	BMB
4	12.63	SO4	35.597	12.244	35.84	67.892	BMB
Total:			142.625	34.163	100.00	130.569	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

31 L16110074-03 RR CL 25x**1,25 CAS**

Sample Name:	L16110074-03 RR CL 25x	Injection Volume:	25.0
Vial Number:	31	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 13:45	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



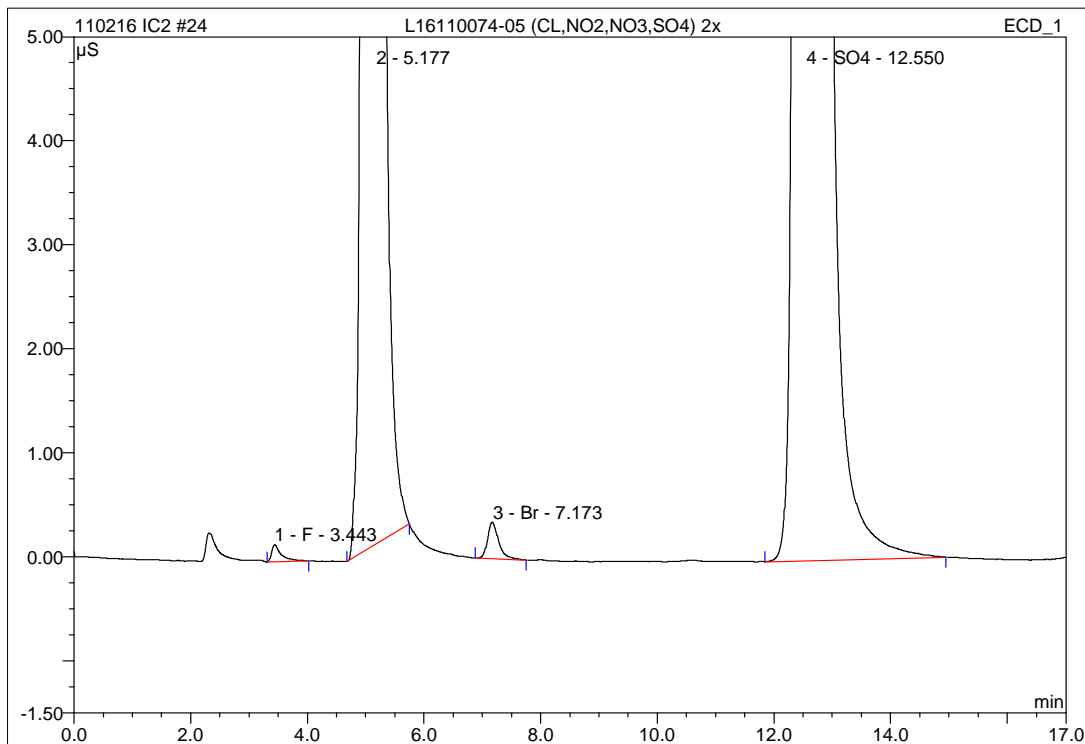
No.	Ret.Time min	Peak Name	Height μS	Area $\mu\text{S}\cdot\text{min}$	Rel.Area %	Amount mg/L	Type
1	4.93	Cl	24.304	3.473	62.98	14.798	BMB
2	7.14	Br	0.035	0.007	0.12	0.089	BMB
3	12.67	SO4	5.670	2.035	36.90	12.992	BMB
Total:			30.008	5.515	100.00	27.879	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

24 L16110074-05 (CL,NO2,NO3,SO4) 2x**1,2 CAS (CL&SO4 screens>200ppm)**

Sample Name:	L16110074-05 (CL,NO2,NO3,SO4) 2x	Injection Volume:	25.0
Vial Number:	22	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 11:31	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



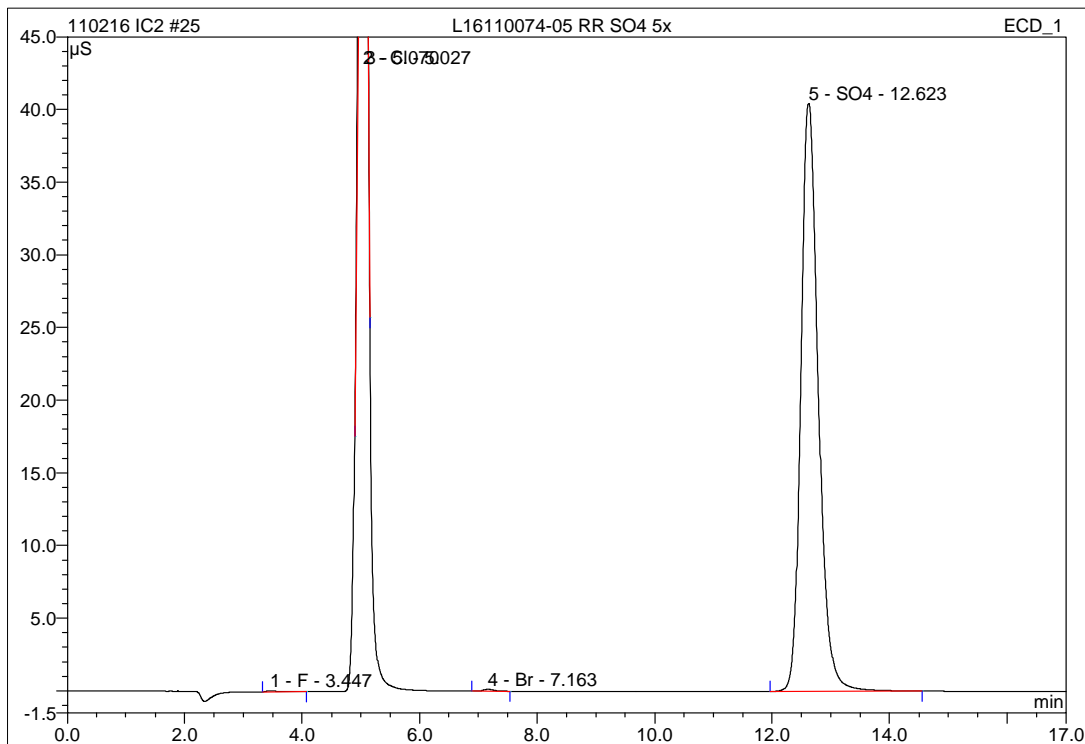
No.	Ret.Time min	Peak Name	Height μS	Area μS*min	Rel.Area %	Amount mg/L	Type
1	3.44	F	0.166	0.034	0.04	0.180	BMB
2	5.18	n.a.	250.011	51.514	56.27	n.a.	BMB
3	7.17	Br	0.351	0.078	0.08	0.911	BMB
4	12.55	SO4	111.615	39.924	43.61	176.715	BMB
Total:			362.143	91.549	100.00	177.806	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

25 L16110074-05 RR SO4 5x**1,5 CAS**

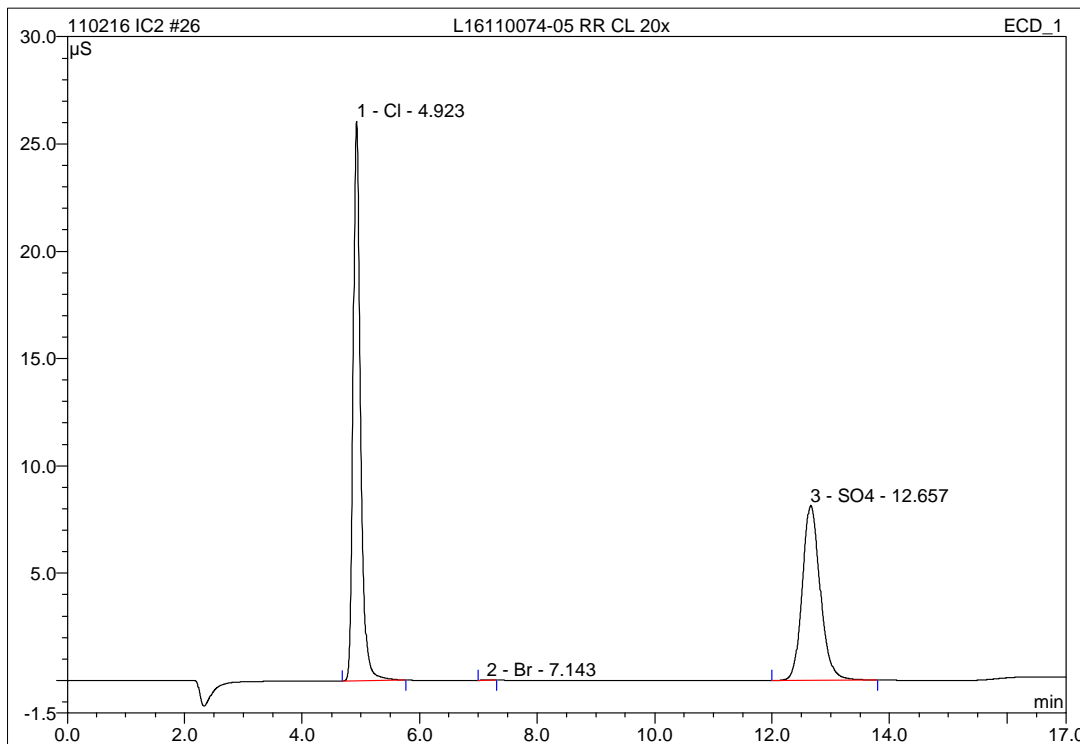
Sample Name:	L16110074-05 RR SO4 5x	Injection Volume:	25.0
Vial Number:	23	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 11:50	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	0.078	0.017	0.10	0.121	BMB
2	5.03	Cl	14.504	1.900	11.42	8.654	BMb
3	5.07	n.a.	9.011	0.784	4.71	n.a.	bMB
4	7.16	Br	0.136	0.029	0.18	0.349	BMB
5	12.62	SO4	40.456	13.901	83.59	75.703	BMB
Total:			64.186	16.631	100.00	84.827	

26 L16110074-05 RR CL 20x**1,20 CAS**

Sample Name:	L16110074-05 RR CL 20x	Injection Volume:	25.0
Vial Number:	24	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 12:09	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



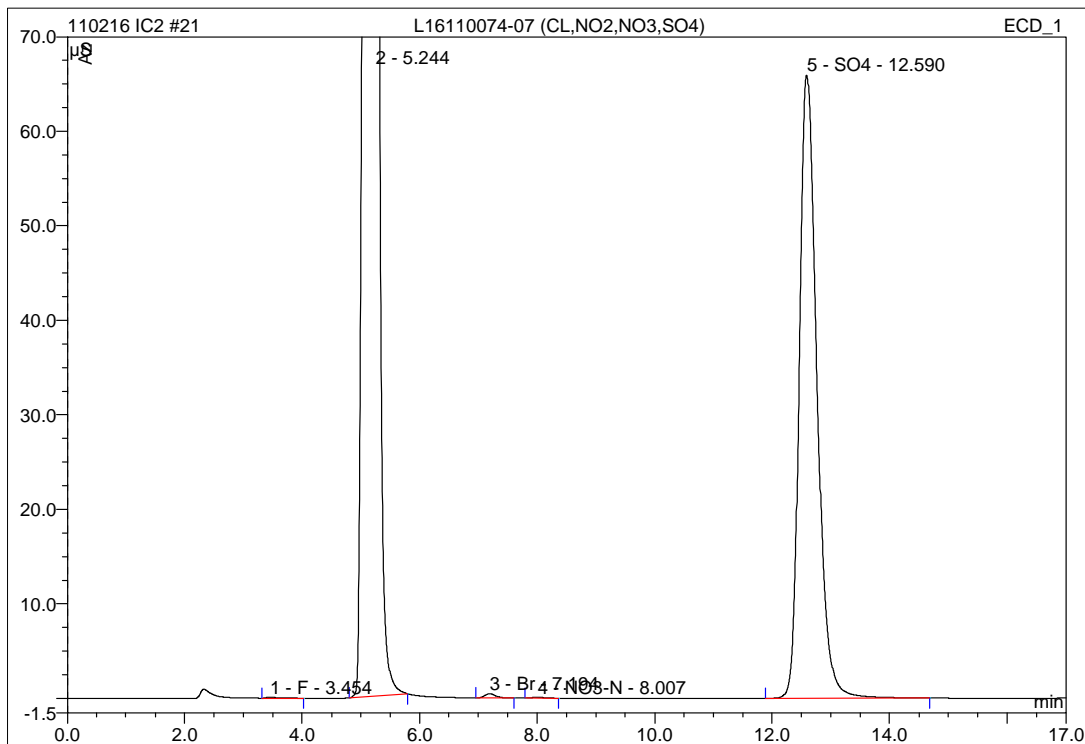
No.	Ret.Time min	Peak Name	Height μS	Area $\mu\text{S}\cdot\text{min}$	Rel.Area %	Amount mg/L	Type
1	4.92	Cl	26.058	3.787	56.61	15.942	BMB
2	7.14	Br	0.027	0.005	0.07	0.063	BMB
3	12.66	SO4	8.149	2.897	43.32	18.212	BMB
Total:			34.234	6.688	100.00	34.217	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

21 L16110074-07 (CL,NO2,NO3,SO4)**1,1 CAS**

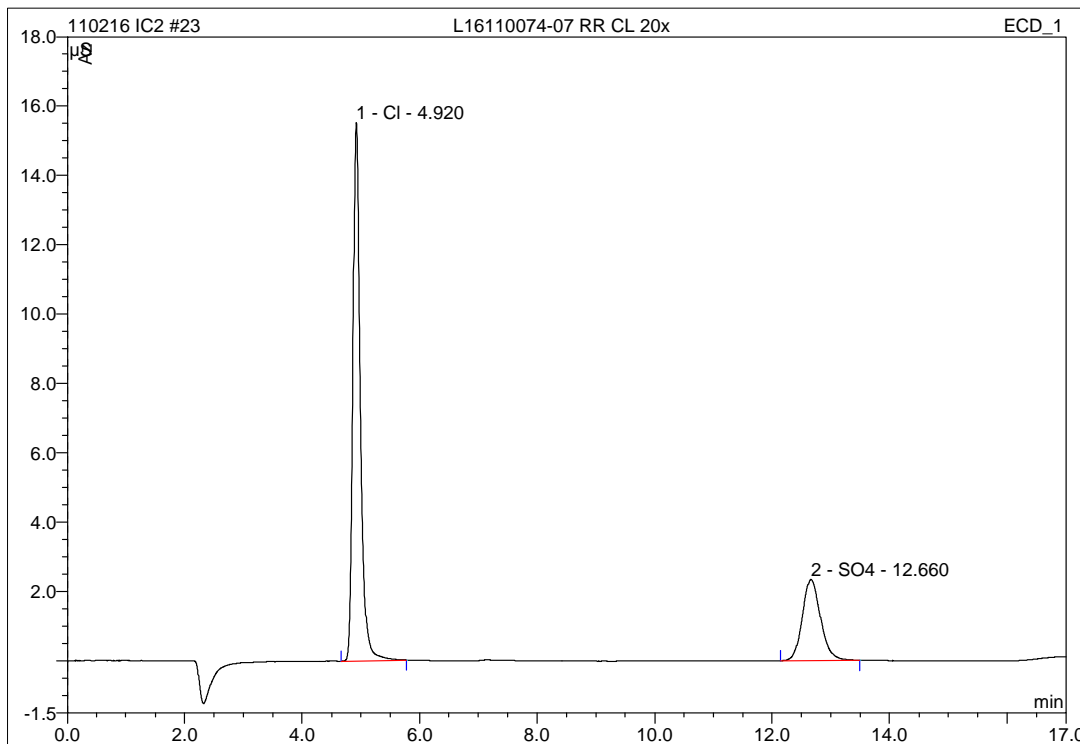
Sample Name:	L16110074-07 (CL,NO2,NO3,SO4)	Injection Volume:	25.0
Vial Number:	19	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 10:33	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	0.121	0.028	0.03	0.159	BMB
2	5.24	n.a.	317.733	66.828	74.41	n.a.	BMB
3	7.19	Br	0.464	0.096	0.11	1.123	BMB
4	8.01	NO3-N	0.096	0.023	0.03	0.052	BMB
5	12.59	SO4	65.938	22.841	25.43	114.311	BMB
Total:			384.352	89.815	100.00	115.646	

23 L16110074-07 RR CL 20x**1,20 CAS**

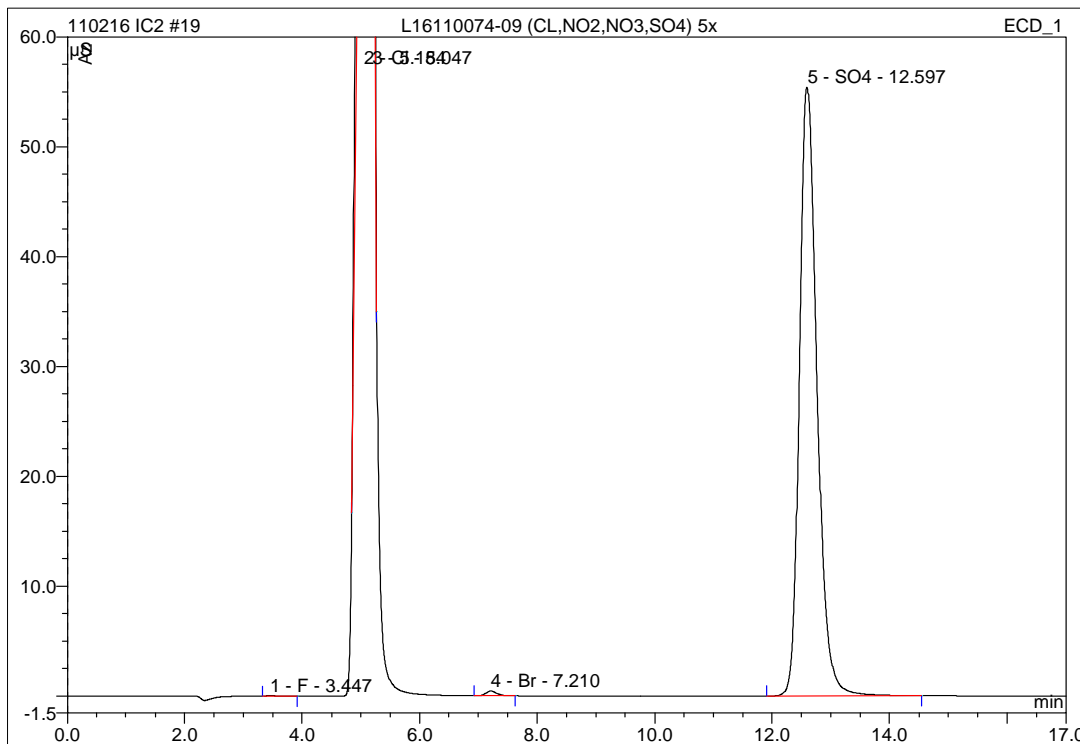
Sample Name:	L16110074-07 RR CL 20x	Injection Volume:	25.0
Vial Number:	21	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 11:12	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area $\mu\text{S}\cdot\text{min}$	Rel.Area %	Amount mg/L	Type
1	4.92	Cl	15.527	2.288	73.06	10.240	BMB
2	12.66	SO4	2.339	0.844	26.94	5.543	BMB
Total:			17.866	3.132	100.00	15.783	

19 L16110074-09 (CL,NO2,NO3,SO4) 5x**1,5 CAS (CL&SO4 screens>200ppm)**

Sample Name:	L16110074-09 (CL,NO2,NO3,SO4) 5x	Injection Volume:	25.0
Vial Number:	17	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 9:55	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



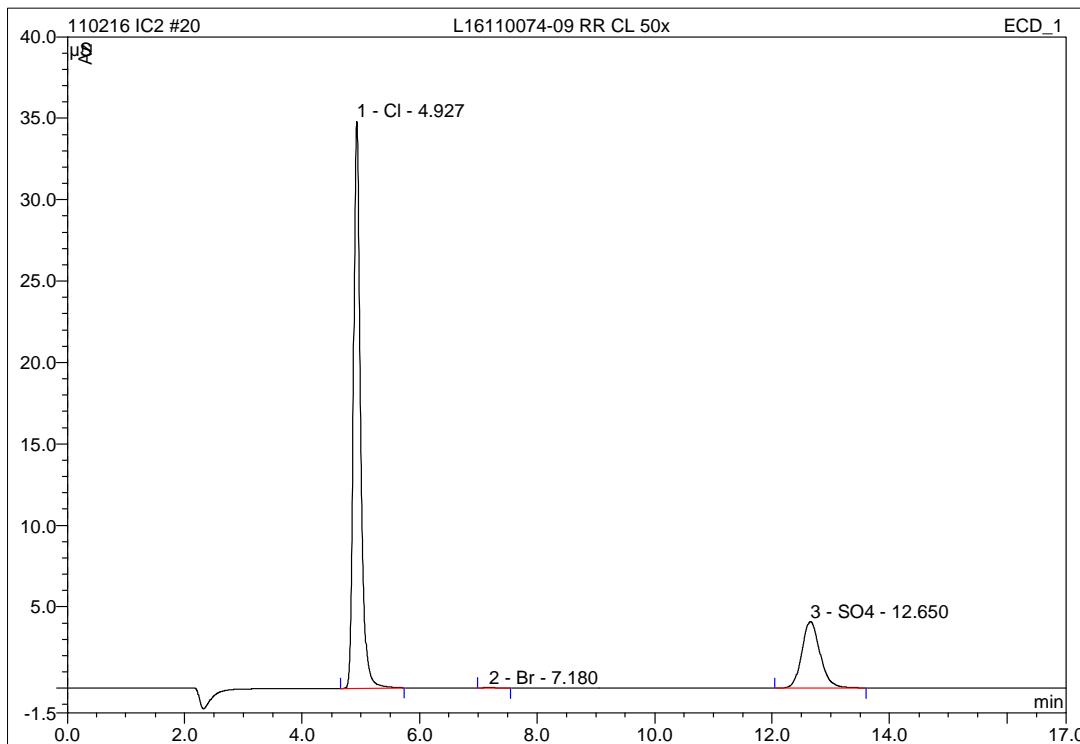
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	0.062	0.012	0.03	0.105	BMB
2	5.05	Cl	75.011	12.558	31.83	41.674	BMb
3	5.18	n.a.	105.665	7.587	19.23	n.a.	bMB
4	7.21	Br	0.437	0.093	0.24	1.087	BMB
5	12.60	SO4	55.392	19.198	48.67	99.218	BMB
Total:			236.567	39.447	100.00	142.084	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

20 L16110074-09 RR CL 50x**1,50 CAS**

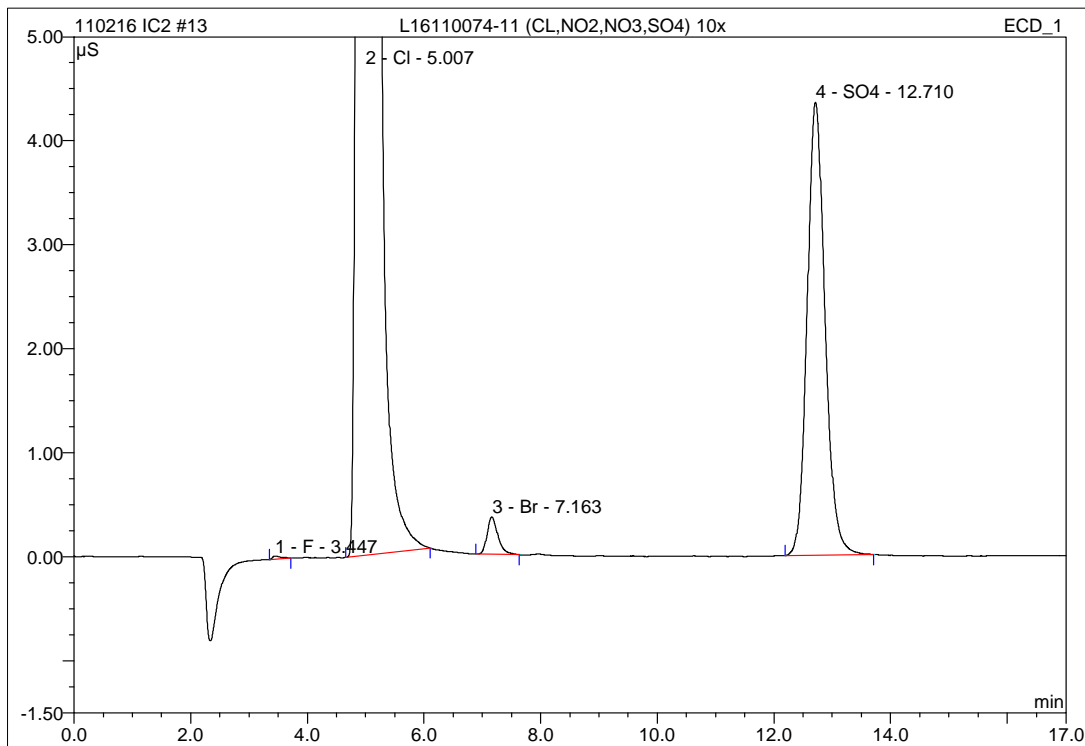
Sample Name:	L16110074-09 RR CL 50x	Injection Volume:	25.0
Vial Number:	18	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 10:14	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area $\mu\text{S}\cdot\text{min}$	Rel.Area %	Amount mg/L	Type
1	4.93	Cl	34.808	4.867	76.60	19.715	BMB
2	7.18	Br	0.042	0.009	0.15	0.119	BMB
3	12.65	SO4	4.086	1.477	23.25	9.540	BMB
Total:			38.936	6.353	100.00	29.375	

13 L16110074-11 (CL,NO2,NO3,SO4) 10x**1,10 CAS (CL screen>200 ppm)**

Sample Name:	L16110074-11 (CL,NO2,NO3,SO4) 10x	Injection Volume:	25.0
Vial Number:	13	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 14:40	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



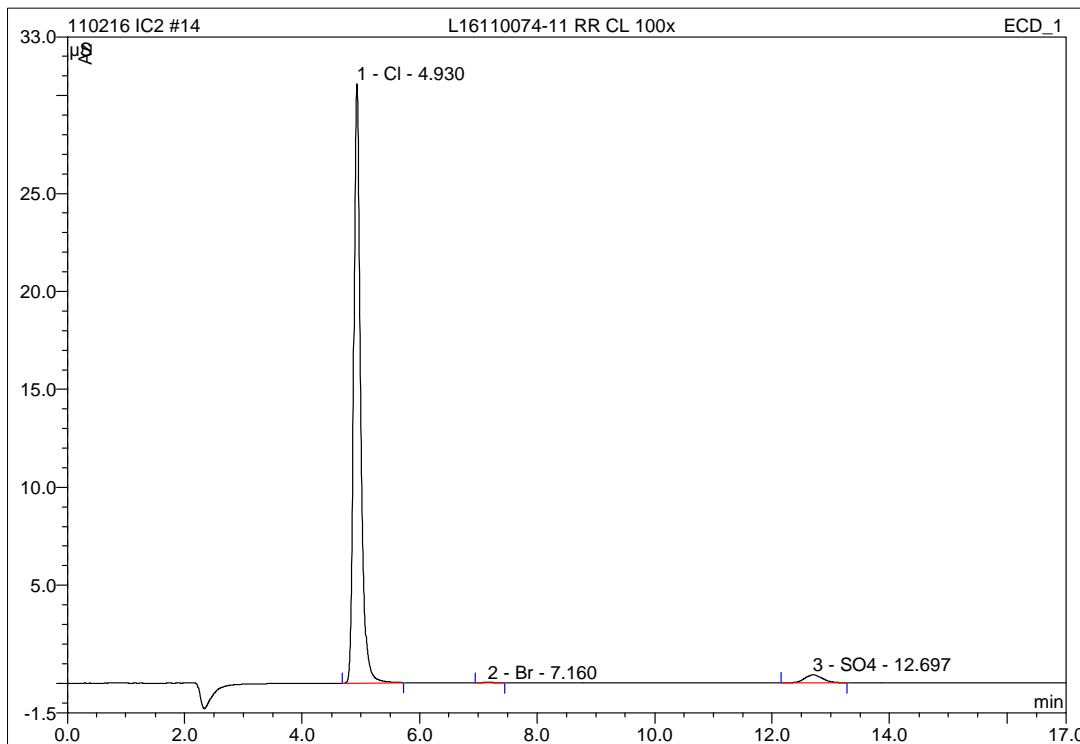
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	0.031	0.005	0.01	0.081	BMB
2	5.01	Cl	288.054	54.831	97.11	114.012	BMB
3	7.16	Br	0.360	0.078	0.14	0.915	BMB
4	12.71	SO4	4.356	1.550	2.74	9.994	BMB
Total:			292.802	56.464	100.00	125.001	

IC/Integration

Chromleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

14 L16110074-11 RR CL 100x**1,100 CAS**

Sample Name:	L16110074-11 RR CL 100x	Injection Volume:	25.0
Vial Number:	14	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 14:59	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area $\mu\text{S}\cdot\text{min}$	Rel.Area %	Amount mg/L	Type
1	4.93	Cl	30.590	4.183	96.48	17.354	BMB
2	7.16	Br	0.034	0.007	0.17	0.094	BMB
3	12.70	SO4	0.409	0.145	3.35	1.035	BMB
Total:			31.033	4.335	100.00	18.483	

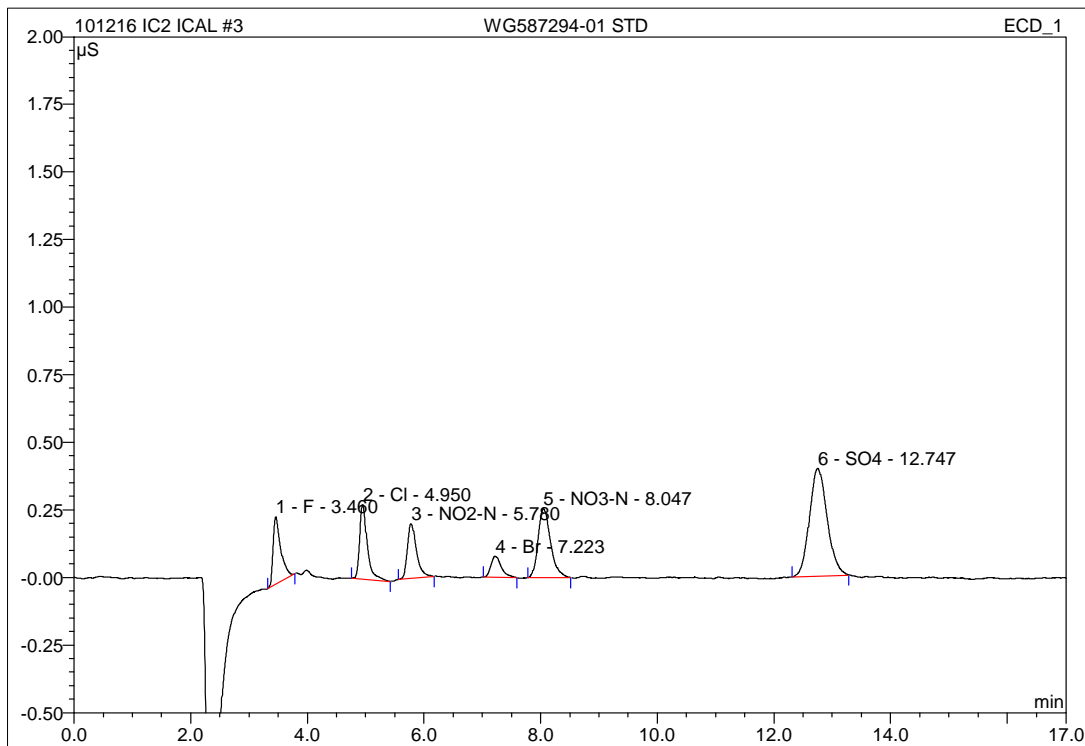
IC/Integration

Chromleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

2.4.1.4 Standards Data

3 WG587294-01 STD**1,1 CAS STD77046 (Level-1)**

Sample Name:	WG587294-01 STD	Injection Volume:	25.0
Vial Number:	3	Channel:	ECD_1
Sample Type:	standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	10/12/2016 13:52	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



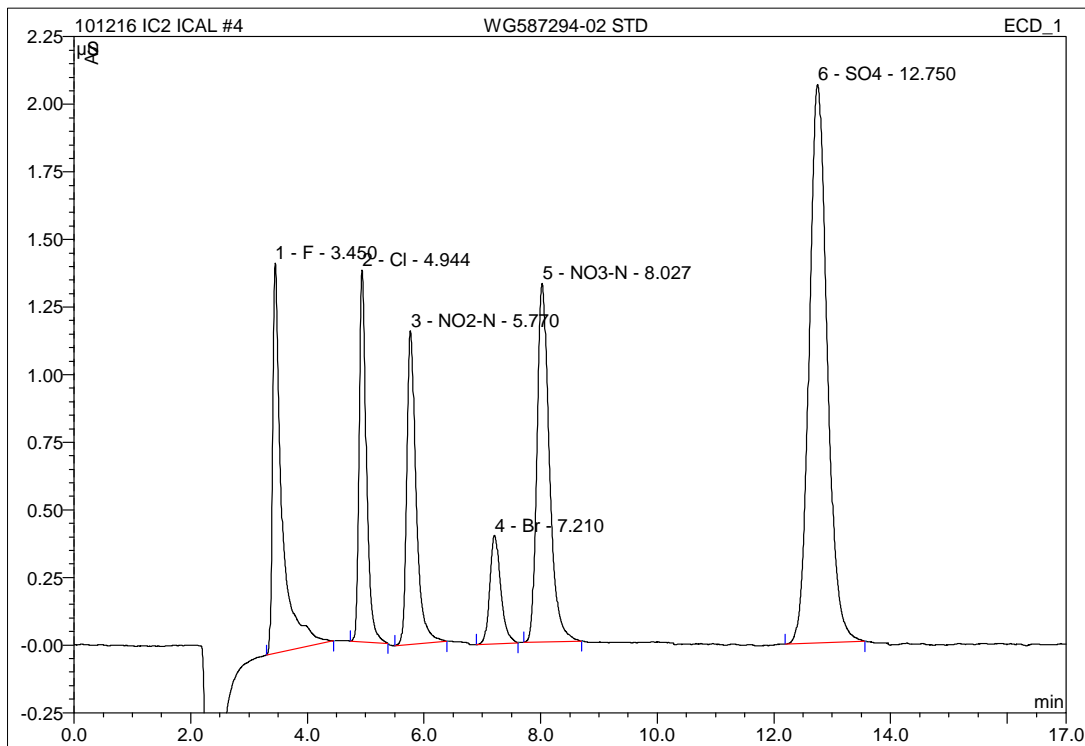
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.46	F	0.251	0.039	11.54	0.200	BMB
2	4.95	Cl	0.275	0.042	12.47	0.201	BMB
3	5.78	NO2-N	0.203	0.037	10.87	0.123	BMB
4	7.22	Br	0.078	0.016	4.80	0.199	BMB
5	8.05	NO3-N	0.256	0.063	18.74	0.136	BMB
6	12.75	SO4	0.398	0.141	41.58	1.004	BMB
Total:			1.461	0.338	100.00	1.862	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

4 WG587294-02 STD**1,1 CAS STD77046 (Level-2)**

Sample Name:	WG587294-02 STD	Injection Volume:	25.0
Vial Number:	4	Channel:	ECD_1
Sample Type:	standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	10/12/2016 14:12	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



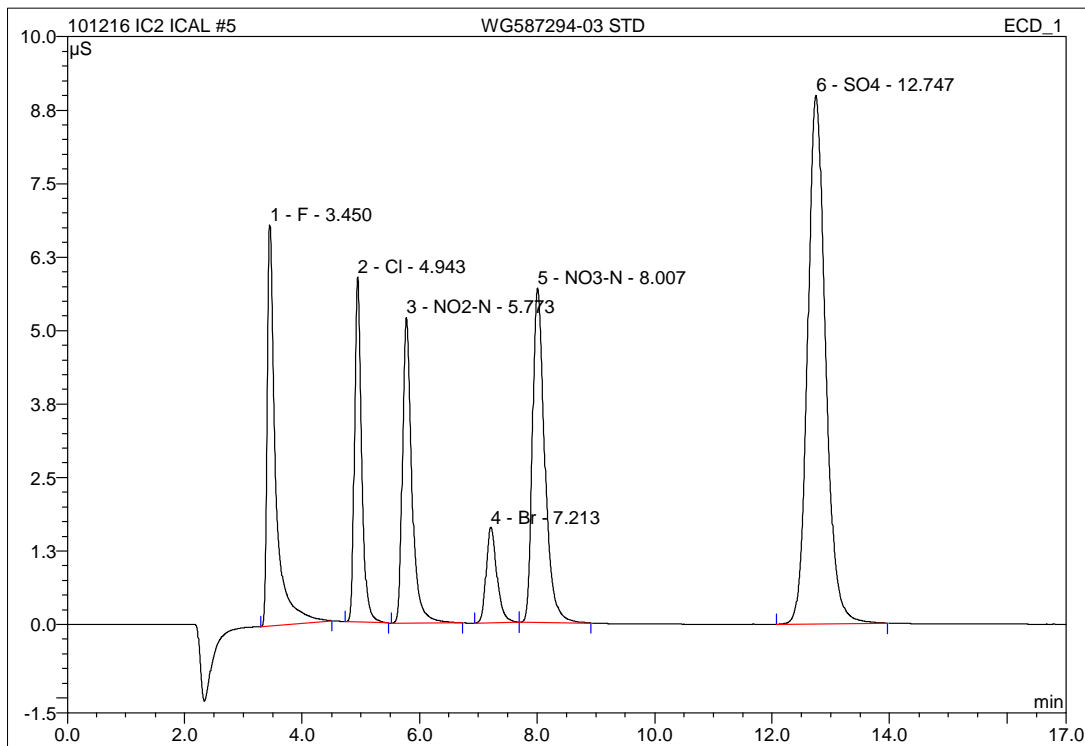
No.	Ret.Time min	Peak Name	Height μS	Area μS*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	1.443	0.271	14.70	1.013	BMB
2	4.94	Cl	1.376	0.200	10.83	0.985	BMB
3	5.77	NO2-N	1.159	0.215	11.69	0.581	BMB
4	7.21	Br	0.402	0.087	4.72	1.019	BMB
5	8.03	NO3-N	1.326	0.327	17.76	0.670	BMB
6	12.75	SO4	2.065	0.742	40.29	4.894	BMB
Total:			7.771	1.842	100.00	9.161	

IC/Integration

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Version 6.80 SP1 Build 2238

5 WG587294-03 STD**1,1 CAS STD77046 (Level-3)**

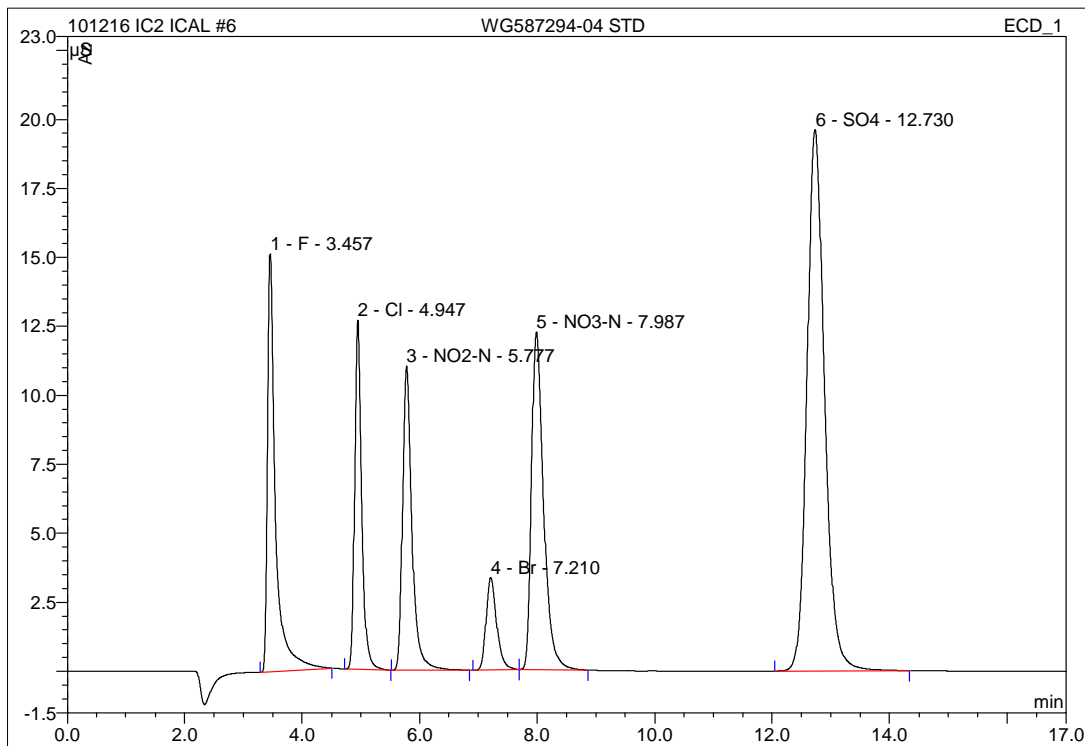
Sample Name:	WG587294-03 STD	Injection Volume:	25.0
Vial Number:	5	Channel:	ECD_1
Sample Type:	standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	10/12/2016 14:31	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μ S	Area μ S*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	6.820	1.119	14.30	3.927	BMB
2	4.94	Cl	5.876	0.832	10.63	3.996	BMB
3	5.77	NO2-N	5.197	0.966	12.35	2.446	BMB
4	7.21	Br	1.628	0.344	4.39	3.960	BMB
5	8.01	NO3-N	5.689	1.380	17.63	2.707	bMB
6	12.75	SO4	8.992	3.186	40.70	19.932	BMB
Total:			34.202	7.828	100.00	36.967	

6 WG587294-04 STD**1,1 CAS STD77046 (Level-4)**

Sample Name:	WG587294-04 STD	Injection Volume:	25.0
Vial Number:	6	Channel:	ECD_1
Sample Type:	standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	10/12/2016 14:50	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



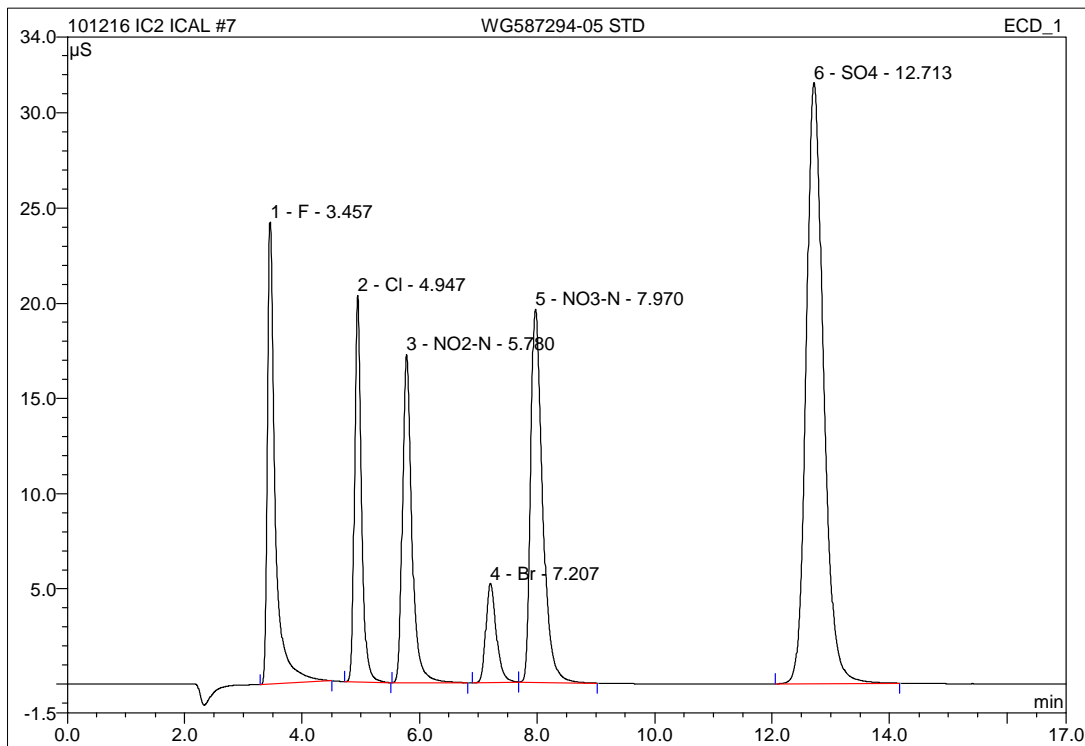
No.	Ret.Time min	Peak Name	Height μ S	Area μ S*min	Rel.Area %	Amount mg/L	Type
1	3.46	F	15.142	2.345	14.15	7.981	BMB
2	4.95	Cl	12.656	1.755	10.59	8.047	BMB
3	5.78	NO2-N	11.035	2.046	12.35	4.969	BMB
4	7.21	Br	3.356	0.699	4.22	7.924	BMB
5	7.99	NO3-N	12.242	2.909	17.56	5.436	BMB
6	12.73	SO4	19.625	6.813	41.12	40.379	BMB
Total:			74.055	16.567	100.00	74.737	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

7 WG587294-05 STD**1,1 CAS STD77046 (Level-5)**

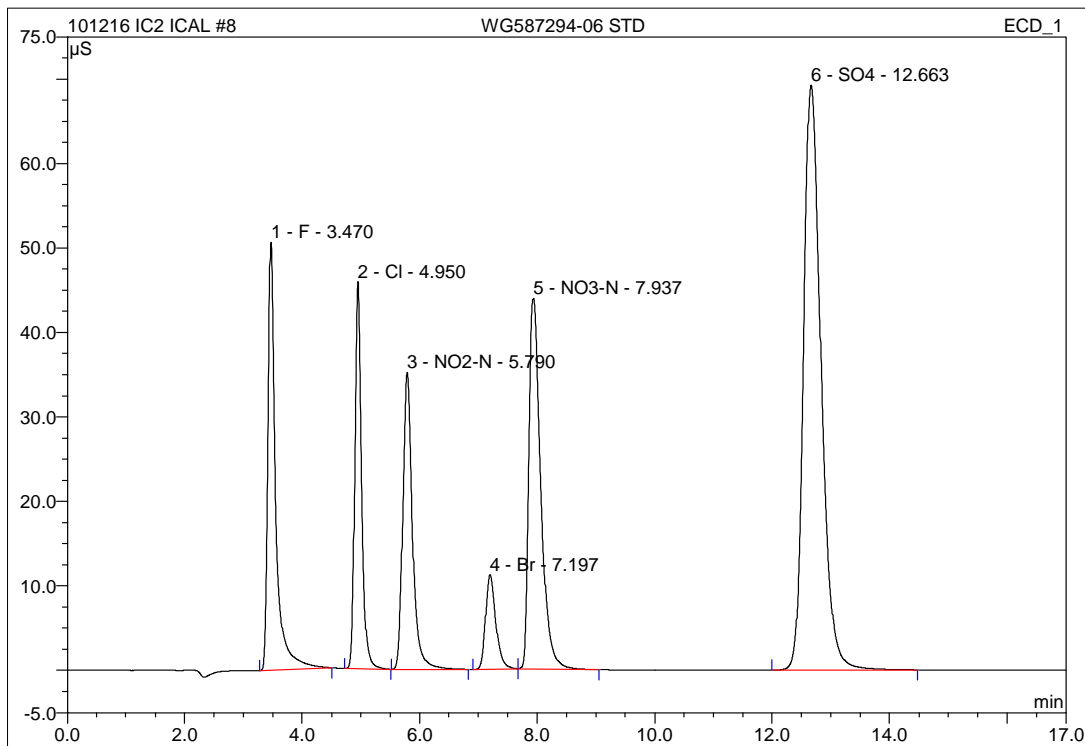
Sample Name:	WG587294-05 STD	Injection Volume:	25.0
Vial Number:	7	Channel:	ECD_1
Sample Type:	standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	10/12/2016 15:09	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μ S	Area μ S*min	Rel.Area %	Amount mg/L	Type
1	3.46	F	24.266	3.660	13.98	12.152	BMB
2	4.95	Cl	20.307	2.774	10.59	12.156	BMB
3	5.78	NO2-N	17.236	3.210	12.26	7.515	BMB
4	7.21	Br	5.212	1.075	4.11	11.997	BMB
5	7.97	NO3-N	19.590	4.616	17.63	8.234	BMB
6	12.71	SO4	31.553	10.847	41.43	61.113	BMB
Total:			118.163	26.182	100.00	113.167	

8 WG587294-06 STD**1,1 CAS STD77046 (Level-6)**

Sample Name:	WG587294-06 STD	Injection Volume:	25.0
Vial Number:	8	Channel:	ECD_1
Sample Type:	standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	10/12/2016 15:28	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



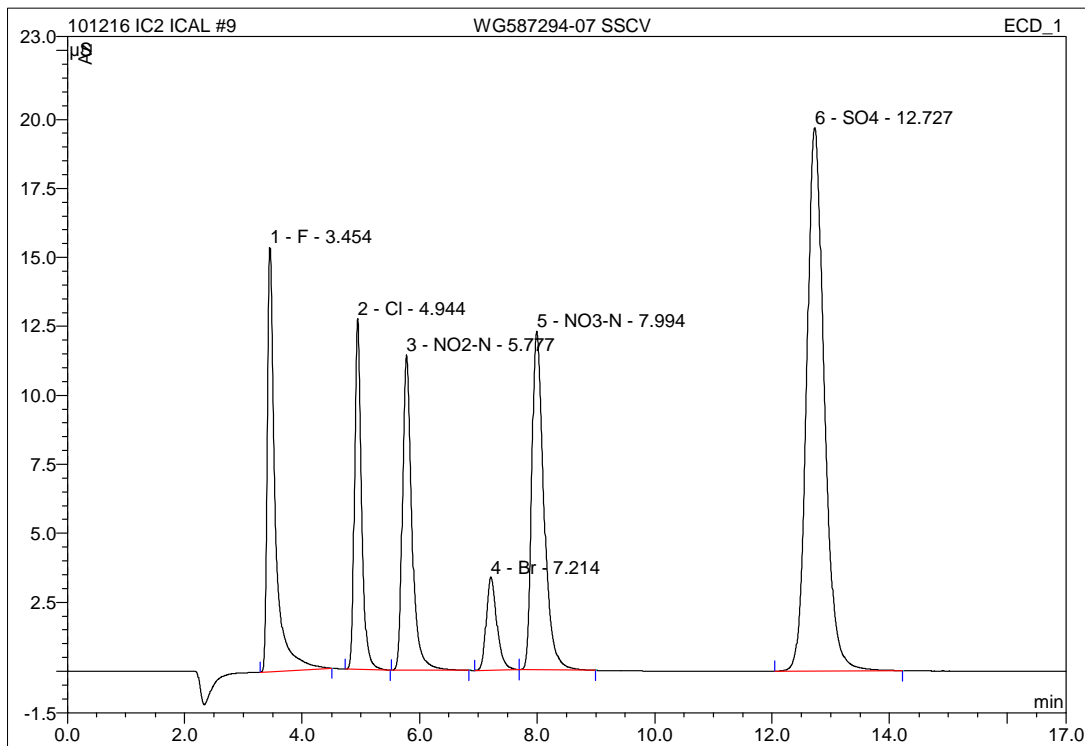
No.	Ret.Time min	Peak Name	Height μ S	Area μ S*min	Rel.Area %	Amount mg/L	Type
1	3.47	F	50.632	7.677	13.47	23.931	BMB
2	4.95	Cl	45.834	6.132	10.76	23.850	BMB
3	5.79	NO2-N	35.116	6.712	11.77	14.370	BMB
4	7.20	Br	11.209	2.256	3.96	24.089	BMB
5	7.94	NO3-N	43.829	10.232	17.95	16.178	bMB
6	12.66	SO4	69.262	23.995	42.09	118.934	BMB
Total:			255.882	57.004	100.00	221.352	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

9 WG587294-07 SSCV**1,1 CAS STD77045 (@Level-4)**

Sample Name:	WG587294-07 SSCV	Injection Volume:	25.0
Vial Number:	9	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	10/12/2016 15:48	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000

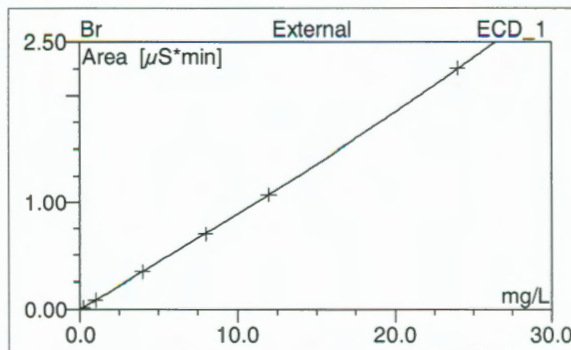
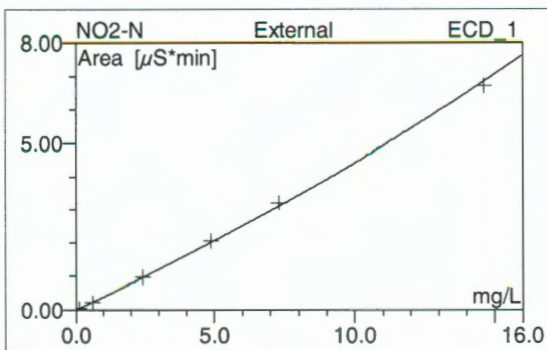
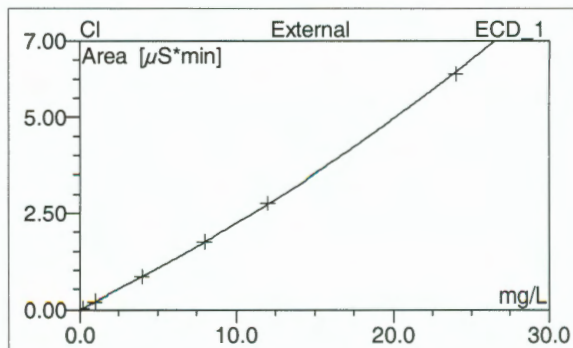
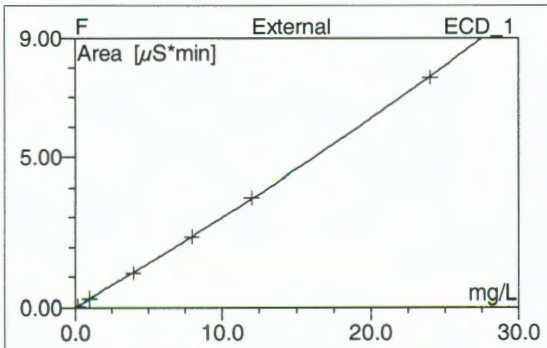


No.	Ret.Time min	Peak Name	Height μ S	Area μ S*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	15.383	2.372	14.16	8.071	BMB
2	4.94	Cl	12.707	1.765	10.54	8.092	BMB
3	5.78	NO2-N	11.424	2.127	12.70	5.151	BMB
4	7.21	Br	3.367	0.704	4.20	7.973	BMB
5	7.99	NO3-N	12.269	2.932	17.51	5.475	bMB
6	12.73	SO4	19.700	6.850	40.89	40.577	BMB
Total:			74.849	16.750	100.00	75.339	

IC/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

9 WG587294-07 SSCV	
1,1 CAS STD77045 (@Level-4)	
Sample Name:	WG587294-07 SSCV
Vial Number:	9
Sample Type:	unknown
Control Program:	9056
Quantif. Method:	101216_9056
Recording Time:	#####
Run Time (min):	17.00
Injection Volume:	25.0
Channel:	ECD_1
Wavelength:	n.a.
Bandwidth:	n.a.
Dilution Factor:	1.0000
Sample Weight:	1.0000
Sample Amount:	1.0000

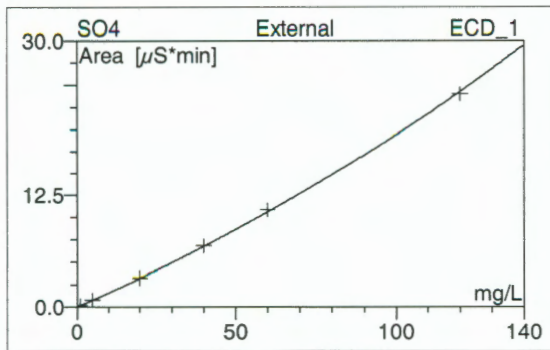
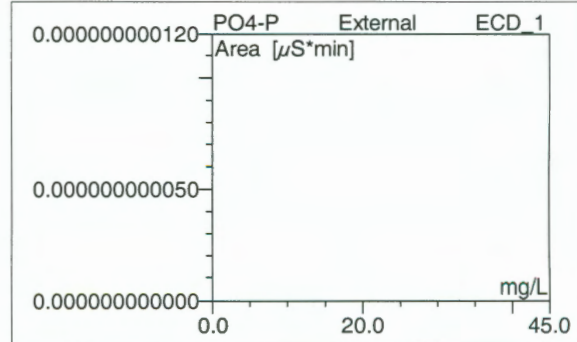
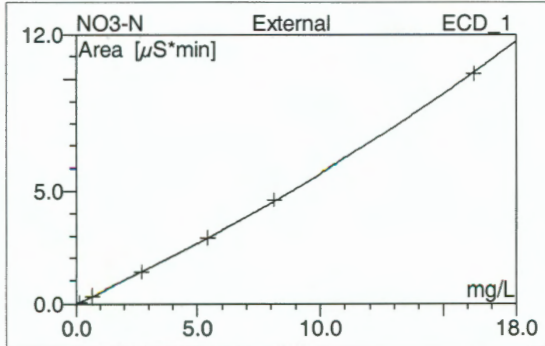


No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	3.45	F	XXQOff	6	99.9017	-0.0176	0.2832	0.0016
2	4.94	Cl	XXQOff	6	99.6062	0.0024	0.1978	0.0025
3	5.78	NO2-N	XXQOff	6	99.7411	-0.0107	0.3855	0.0057
4	7.21	Br	XXQOff	6	99.9503	-0.0009	0.0857	0.0003
5	7.99	NO3-N	XXQOff	6	99.6072	-0.0029	0.4866	0.0090
6	12.73	SO4	XXQOff	6	99.5345	-0.0127	0.1522	0.0004
Average:					99.7235	-0.0071	0.2652	0.0033

IC/Calibration(Batch)

Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

9 WG587294-07 SSCV		
1,1 CAS STD77045 (@Level-4)		
Sample Name:	WG587294-07 SSCV	Injection Volume: 25.0
Vial Number:	9	Channel: ECD_1
Sample Type:	unknown	Wavelength: n.a.
Control Program:	9056	Bandwidth: n.a.
Quantif. Method:	101216_9056	Dilution Factor: 1.0000
Recording Time:	#####	Sample Weight: 1.0000
Run Time (min):	17.00	Sample Amount: 1.0000



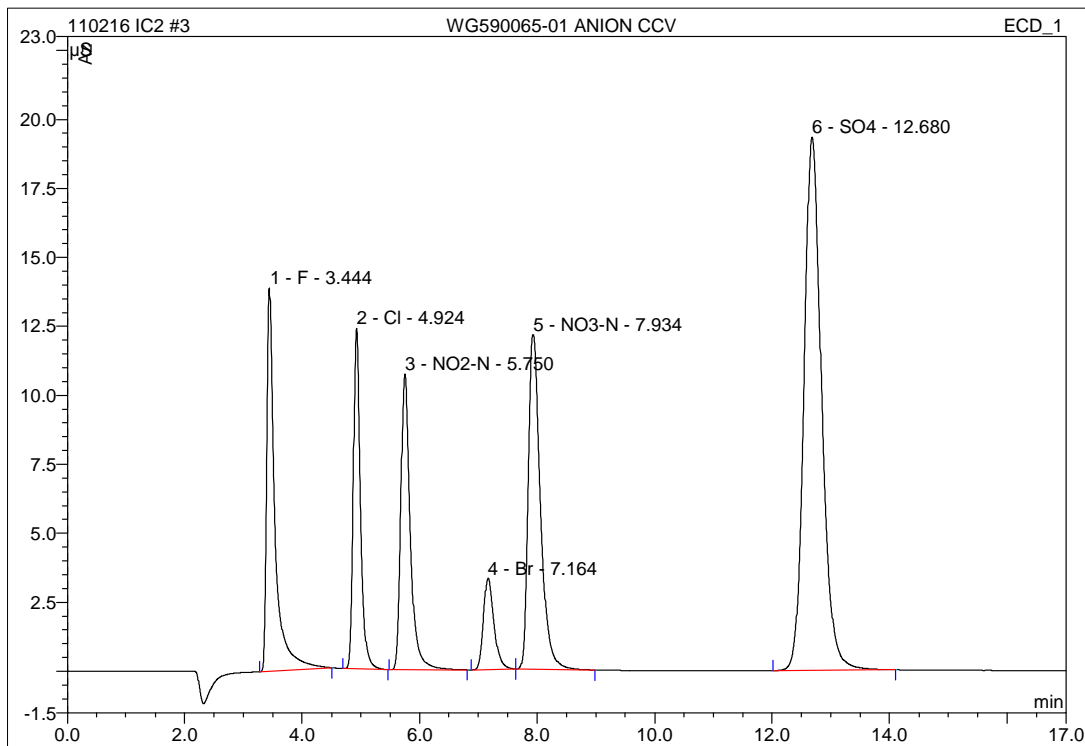
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	3.45	F	XXQOff	6	99.9017	-0.0176	0.2832	0.0016
2	4.94	Cl	XXQOff	6	99.6062	0.0024	0.1978	0.0025
3	5.78	NO2-N	XXQOff	6	99.7411	-0.0107	0.3855	0.0057
4	7.21	Br	XXQOff	6	99.9503	-0.0009	0.0857	0.0003
5	7.99	NO3-N	XXQOff	6	99.6072	-0.0029	0.4866	0.0090
6	12.73	SO4	XXQOff	6	99.5345	-0.0127	0.1522	0.0004
Average:					99.7235	-0.0071	0.2652	0.0033

IC/Calibration(Batch)(2)

Chromleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

3 WG590065-01 ANION CCV**1,1 CAS STD77046 (1653psi)**

Sample Name:	WG590065-01 ANION CCV	Injection Volume:	25.0
Vial Number:	3	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 11:28	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area μS*min	Rel.Area %	Amount mg/L	Type
1	3.44	F	13.892	2.225	13.68	7.593	BMB
2	4.92	Cl	12.337	1.731	10.64	7.946	BMB
3	5.75	NO2-N	10.713	2.005	12.33	4.876	BMB
4	7.16	Br	3.308	0.688	4.23	7.801	BMB
5	7.93	NO3-N	12.135	2.895	17.80	5.412	bMB
6	12.68	SO4	19.323	6.718	41.31	39.866	BMB
Total:			71.708	16.262	100.00	73.494	

IC/Integration

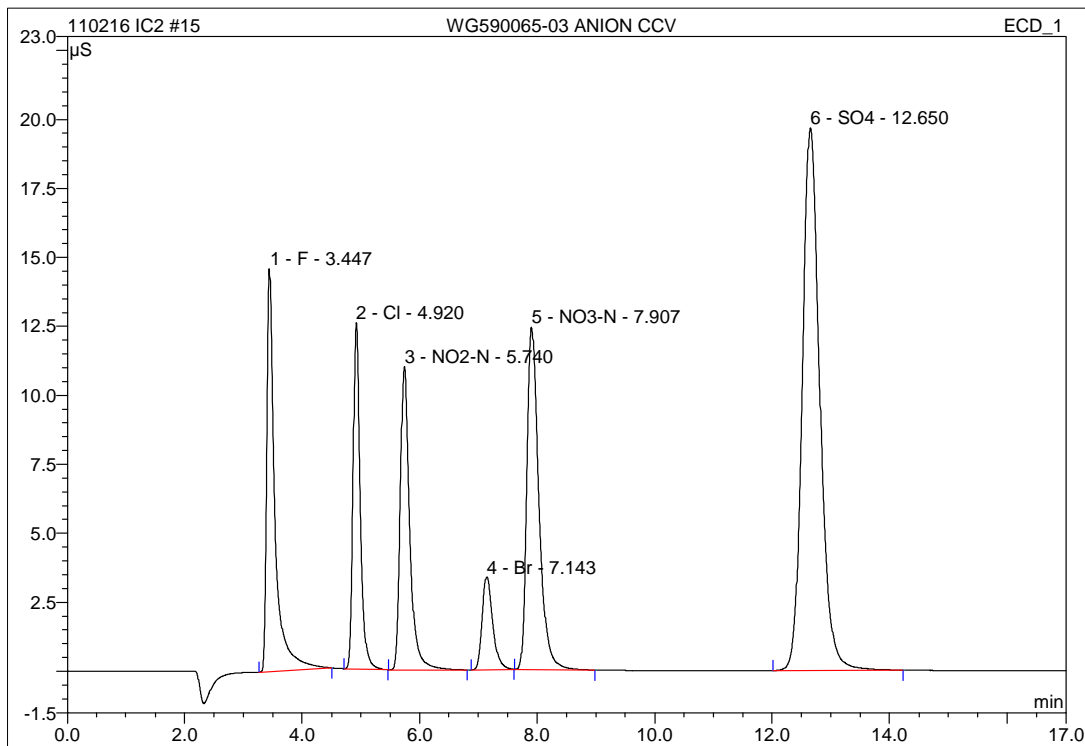
Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

3 WG590065-01 ANION CCV		
1,1 CAS STD77046 (1653psi)		
<i>Sample Name:</i>	WG590065-01 ANION CCV	<i>Injection Volume:</i> 25.0
<i>Vial Number:</i>	3	<i>Channel:</i> ECD_1
<i>Sample Type:</i>	unknown	<i>Wavelength:</i> n.a.
<i>Control Program:</i>	9056	<i>Bandwidth:</i> n.a.
<i>Quantif. Method:</i>	101216_9056	<i>Dilution Factor:</i> 1.0000
<i>Recording Time:</i>	11/2/2016 11:28	<i>Sample Weight:</i> 1.0000
<i>Run Time (min):</i>	17.00	<i>Sample Amount:</i> 1.0000

WG590065-01 ANI Actual mg/L	Recovered mg/L	%Difference	
F 8.00	7.5930	-5.09	PASS
Cl 8	7.9459	-0.68	PASS
NO2-N 4.8714	4.8764	0.10	PASS
NO3-N 5.4216	5.4119	-0.18	PASS
Br 8	7.8012	-2.49	PASS
SO4 40	39.8657	-0.34	PASS
PO4-P 13.0456	n.a.	#VALUE!	#VALUE!

15 WG590065-03 ANION CCV**1,1 CAS STD77046**

Sample Name:	WG590065-03 ANION CCV	Injection Volume:	25.0
Vial Number:	15	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 15:18	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area μS*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	14.593	2.318	13.98	7.895	BMB
2	4.92	Cl	12.552	1.757	10.60	8.057	BMB
3	5.74	NO2-N	10.994	2.059	12.42	4.997	BMB
4	7.14	Br	3.367	0.700	4.22	7.933	BMB
5	7.91	NO3-N	12.397	2.940	17.73	5.489	BMB
6	12.65	SO4	19.671	6.804	41.04	40.332	BMB
Total:			73.574	16.578	100.00	74.701	

IC/Integration

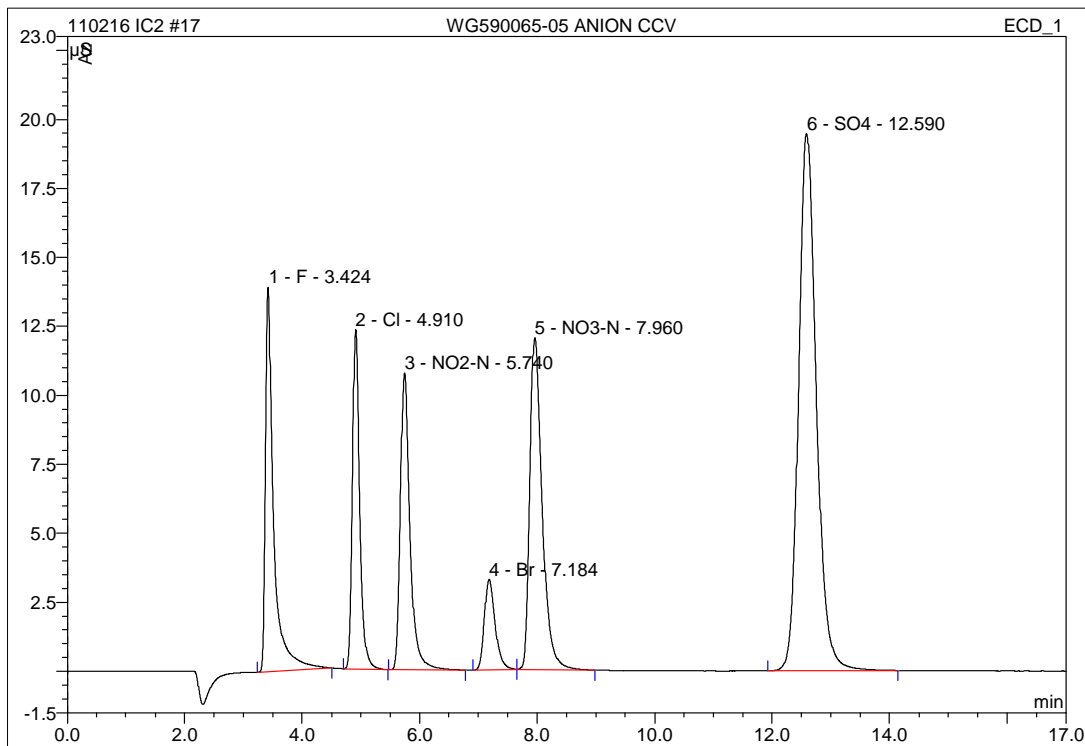
Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

15		WG590065-03 ANION CCV	
1,1 CAS STD77046			
<i>Sample Name:</i>	WG590065-03 ANION CCV	<i>Injection Volume:</i>	25.0
<i>Vial Number:</i>	15	<i>Channel:</i>	ECD_1
<i>Sample Type:</i>	unknown	<i>Wavelength:</i>	n.a.
<i>Control Program:</i>	9056	<i>Bandwidth:</i>	n.a.
<i>Quantif. Method:</i>	101216_9056	<i>Dilution Factor:</i>	1.0000
<i>Recording Time:</i>	11/2/2016 15:18	<i>Sample Weight:</i>	1.0000
<i>Run Time (min):</i>	17.00	<i>Sample Amount:</i>	1.0000

WG590065-03 ANI Actual mg/L	Recovered mg/L	%Difference	
F 8.00	7.8945	-1.32	PASS
Cl 8	8.0566	0.71	PASS
NO2-N 4.8714	4.9970	2.58	PASS
NO3-N 5.4216	5.4885	1.23	PASS
Br 8	7.9331	-0.84	PASS
SO4 40	40.3316	0.83	PASS
PO4-P 13.0456	n.a.	#VALUE!	#VALUE!

17 WG590065-05 ANION CCV**1,1 CAS STD77046**

Sample Name:	WG590065-05 ANION CCV	Injection Volume:	25.0
Vial Number:	17	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 9:16	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area μS*min	Rel.Area %	Amount mg/L	Type
1	3.42	F	13.923	2.231	13.53	7.613	BMB
2	4.91	Cl	12.313	1.753	10.63	8.040	BMB
3	5.74	NO2-N	10.759	2.044	12.39	4.963	BMB
4	7.18	Br	3.285	0.698	4.23	7.912	BMB
5	7.96	NO3-N	12.018	2.933	17.79	5.476	bMB
6	12.59	SO4	19.471	6.830	41.42	40.470	BMB
Total:			71.769	16.489	100.00	74.474	

IC/Integration

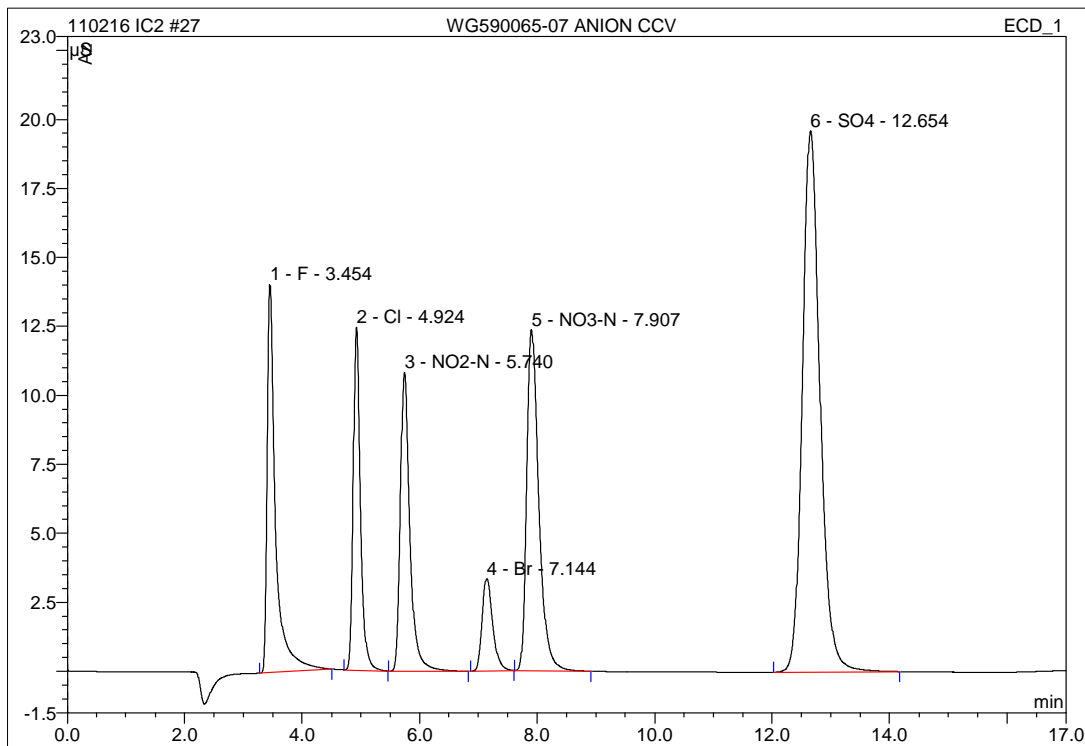
Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

17		WG590065-05 ANION CCV	
1,1 CAS STD77046			
<i>Sample Name:</i>	WG590065-05 ANION CCV	<i>Injection Volume:</i>	25.0
<i>Vial Number:</i>	17	<i>Channel:</i>	ECD_1
<i>Sample Type:</i>	unknown	<i>Wavelength:</i>	n.a.
<i>Control Program:</i>	9056	<i>Bandwidth:</i>	n.a.
<i>Quantif. Method:</i>	101216_9056	<i>Dilution Factor:</i>	1.0000
<i>Recording Time:</i>	11/3/2016 9:16	<i>Sample Weight:</i>	1.0000
<i>Run Time (min):</i>	17.00	<i>Sample Amount:</i>	1.0000

WG590065-05 ANI Actual mg/L	Recovered mg/L	%Difference	
F 8.00	7.6131	-4.84	PASS
Cl 8	8.0397	0.50	PASS
NO2-N 4.8714	4.9632	1.88	PASS
NO3-N 5.4216	5.4763	1.01	PASS
Br 8	7.9120	-1.10	PASS
SO4 40	40.4702	1.18	PASS
PO4-P 13.0456	n.a.	#VALUE!	#VALUE!

27 WG590065-07 ANION CCV**1,1 CAS STD77046**

Sample Name:	WG590065-07 ANION CCV	Injection Volume:	25.0
Vial Number:	27	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 12:28	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μ S	Area μ S*min	Rel.Area %	Amount mg/L	Type
1	3.45	F	14.059	2.287	13.80	7.793	BMB
2	4.92	Cl	12.438	1.759	10.62	8.066	BMB
3	5.74	NO2-N	10.834	2.041	12.32	4.957	BMB
4	7.14	Br	3.353	0.701	4.23	7.948	BMB
5	7.91	NO3-N	12.357	2.943	17.77	5.494	BMB
6	12.65	SO4	19.631	6.836	41.26	40.502	BMB
Total:			72.672	16.567	100.00	74.760	

IC/Integration

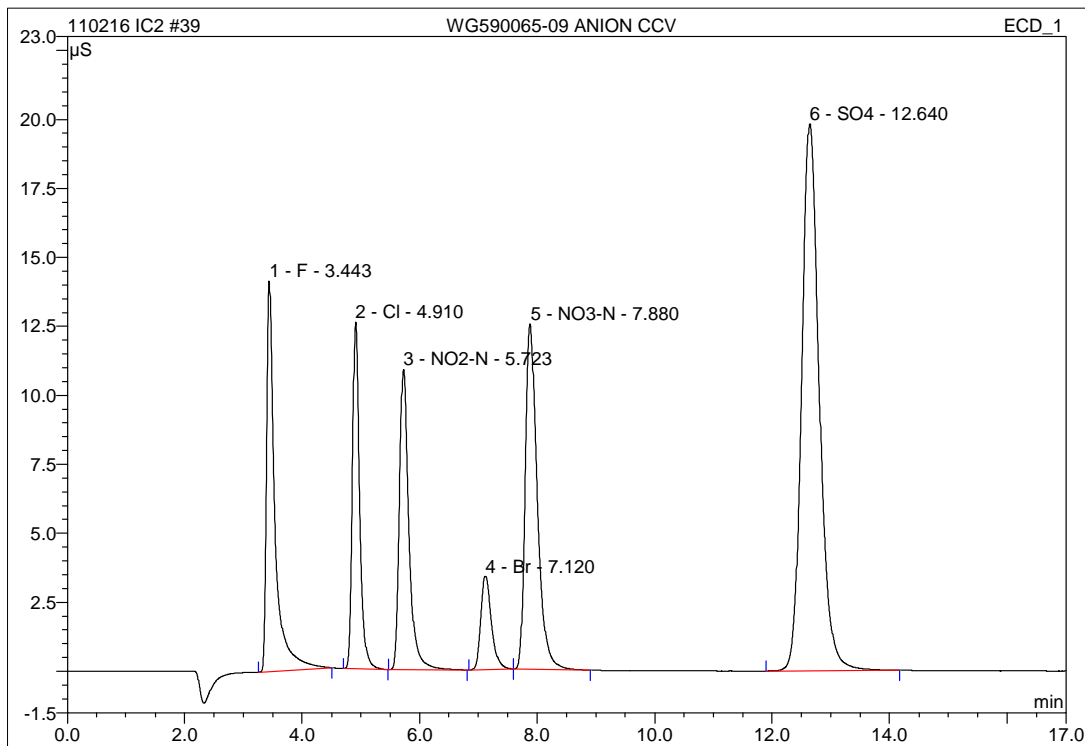
Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

27		WG590065-07 ANION CCV	
1,1 CAS STD77046			
<i>Sample Name:</i>	WG590065-07 ANION CCV	<i>Injection Volume:</i>	25.0
<i>Vial Number:</i>	27	<i>Channel:</i>	ECD_1
<i>Sample Type:</i>	unknown	<i>Wavelength:</i>	n.a.
<i>Control Program:</i>	9056	<i>Bandwidth:</i>	n.a.
<i>Quantif. Method:</i>	101216_9056	<i>Dilution Factor:</i>	1.0000
<i>Recording Time:</i>	11/3/2016 12:28	<i>Sample Weight:</i>	1.0000
<i>Run Time (min):</i>	17.00	<i>Sample Amount:</i>	1.0000

WG590065-07 ANI Actual mg/L	Recovered mg/L	%Difference	
F 8.00	7.7931	-2.59	PASS
Cl 8	8.0662	0.83	PASS
NO2-N 4.8714	4.9569	1.76	PASS
NO3-N 5.4216	5.4941	1.34	PASS
Br 8	7.9484	-0.65	PASS
SO4 40	40.5017	1.25	PASS
PO4-P 13.0456	n.a.	#VALUE!	#VALUE!

39 WG590065-09 ANION CCV**1,1 CAS STD77046**

Sample Name:	WG590065-09 ANION CCV	Injection Volume:	25.0
Vial Number:	39	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 16:19	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
1	3.44	F	14.158	2.312	13.83	7.875	BMB
2	4.91	Cl	12.580	1.777	10.63	8.139	BMB
3	5.72	NO2-N	10.886	2.047	12.25	4.972	BMB
4	7.12	Br	3.389	0.710	4.25	8.039	BMB
5	7.88	NO3-N	12.518	2.972	17.78	5.543	bMB
6	12.64	SO4	19.831	6.901	41.28	40.851	BMB
Total:			73.360	16.718	100.00	75.419	

IC/Integration

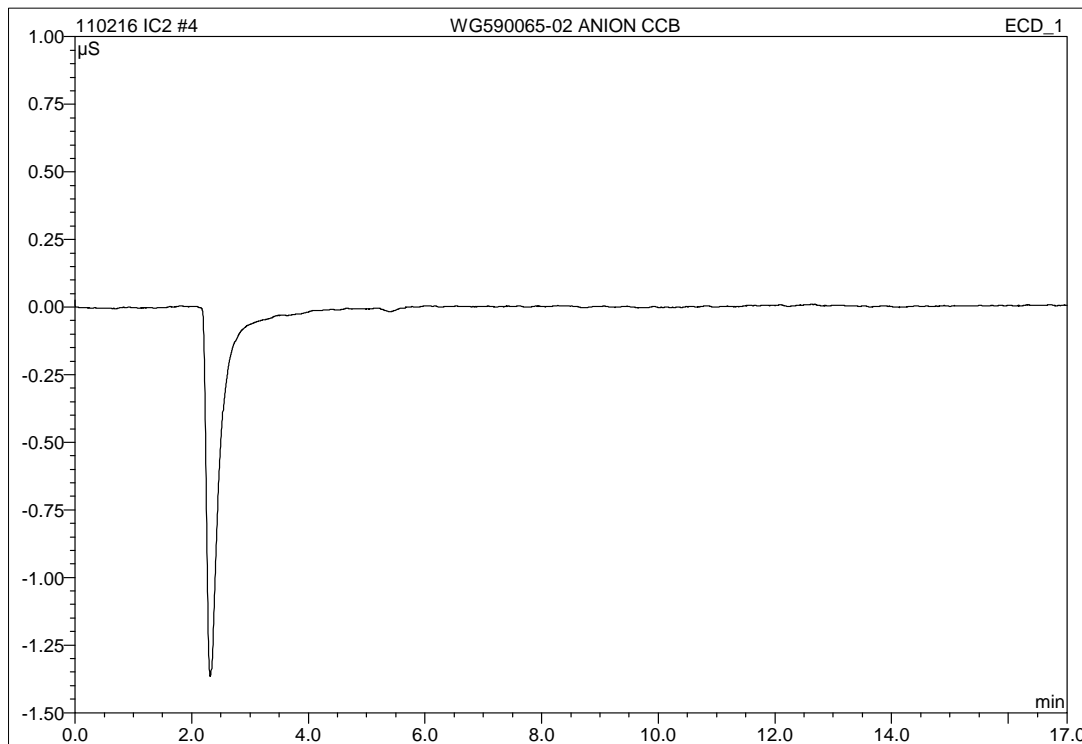
Chromeleon (c) Dionex 1996-2001
Version 6.80 SP1 Build 2238

39 WG590065-09 ANION CCV		
1,1 CAS STD77046		
<i>Sample Name:</i>	WG590065-09 ANION CCV	<i>Injection Volume:</i> 25.0
<i>Vial Number:</i>	39	<i>Channel:</i> ECD_1
<i>Sample Type:</i>	unknown	<i>Wavelength:</i> n.a.
<i>Control Program:</i>	9056	<i>Bandwidth:</i> n.a.
<i>Quantif. Method:</i>	101216_9056	<i>Dilution Factor:</i> 1.0000
<i>Recording Time:</i>	11/3/2016 16:19	<i>Sample Weight:</i> 1.0000
<i>Run Time (min):</i>	17.00	<i>Sample Amount:</i> 1.0000

WG590065-09 ANI Actual mg/L	Recovered mg/L	%Difference	
F 8.00	7.8750	-1.56	PASS
Cl 8	8.1392	1.74	PASS
NO2-N 4.8714	4.9715	2.06	PASS
NO3-N 5.4216	5.5427	2.23	PASS
Br 8	8.0393	0.49	PASS
SO4 40	40.8514	2.13	PASS
PO4-P 13.0456	n.a.	#VALUE!	#VALUE!

4 WG590065-02 ANION CCB**1,1 CAS**

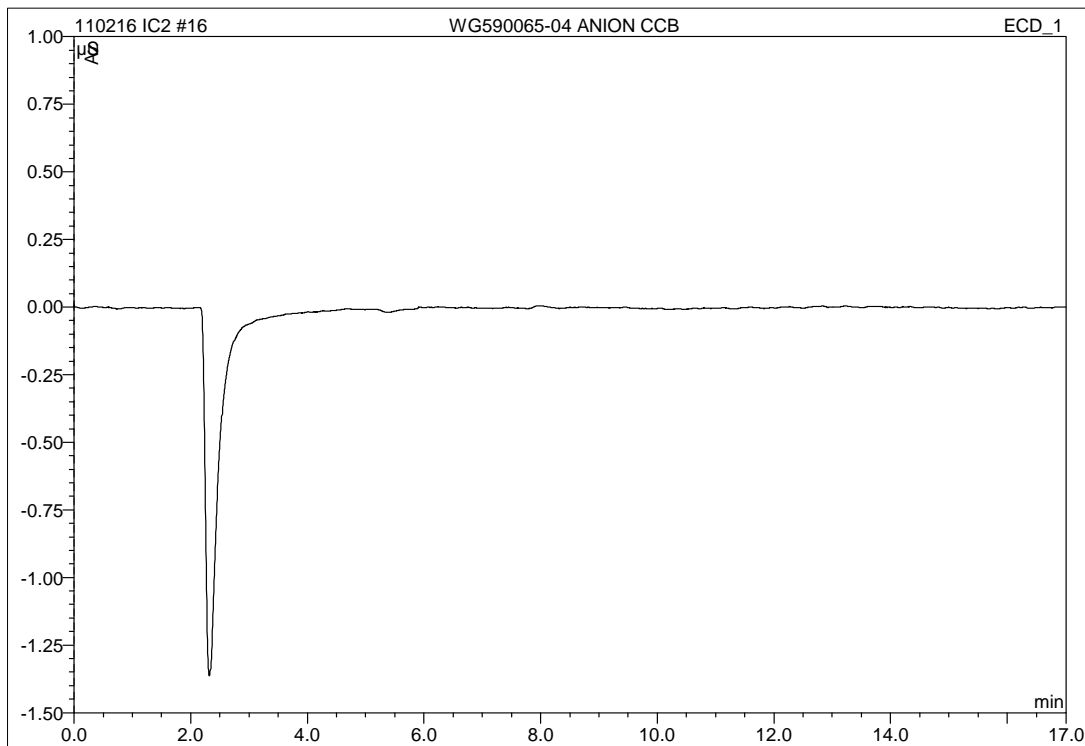
Sample Name:	WG590065-02 ANION CCB	Injection Volume:	25.0
Vial Number:	4	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 11:47	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
Total:			0.000	0.000	0.00	0.000	

16 WG590065-04 ANION CCB**1,1 CAS**

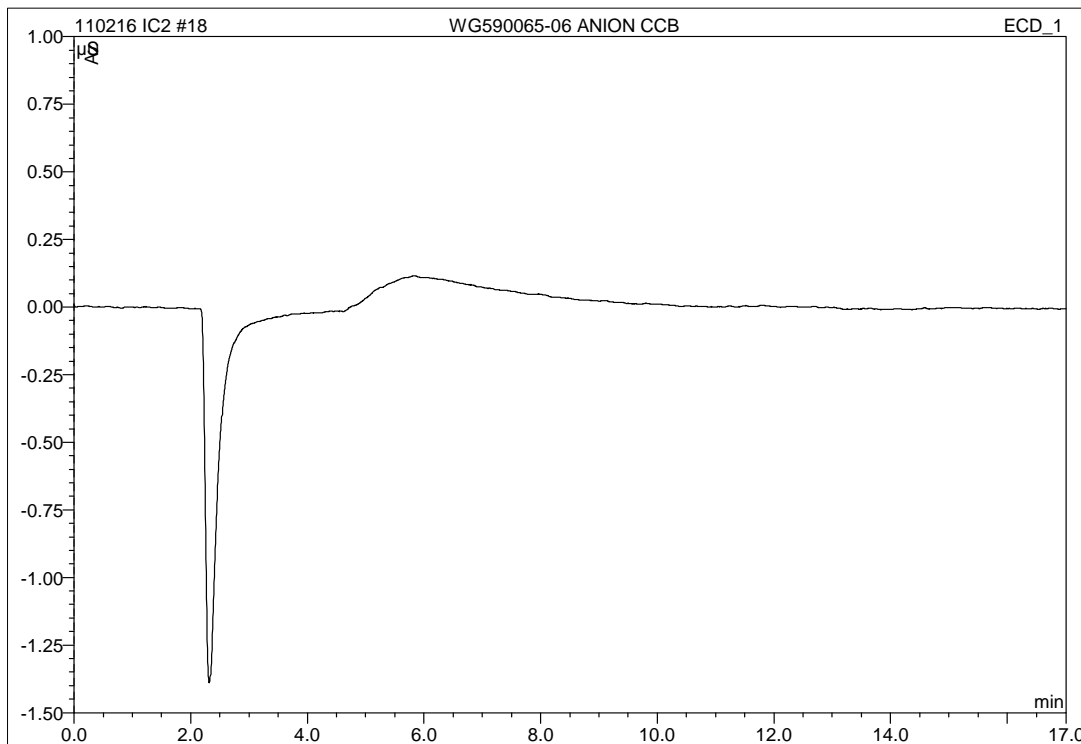
Sample Name:	WG590065-04 ANION CCB	Injection Volume:	25.0
Vial Number:	16	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 15:38	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
Total:			0.000	0.000	0.00	0.000	

18 WG590065-06 ANION CCB**1,1 CAS**

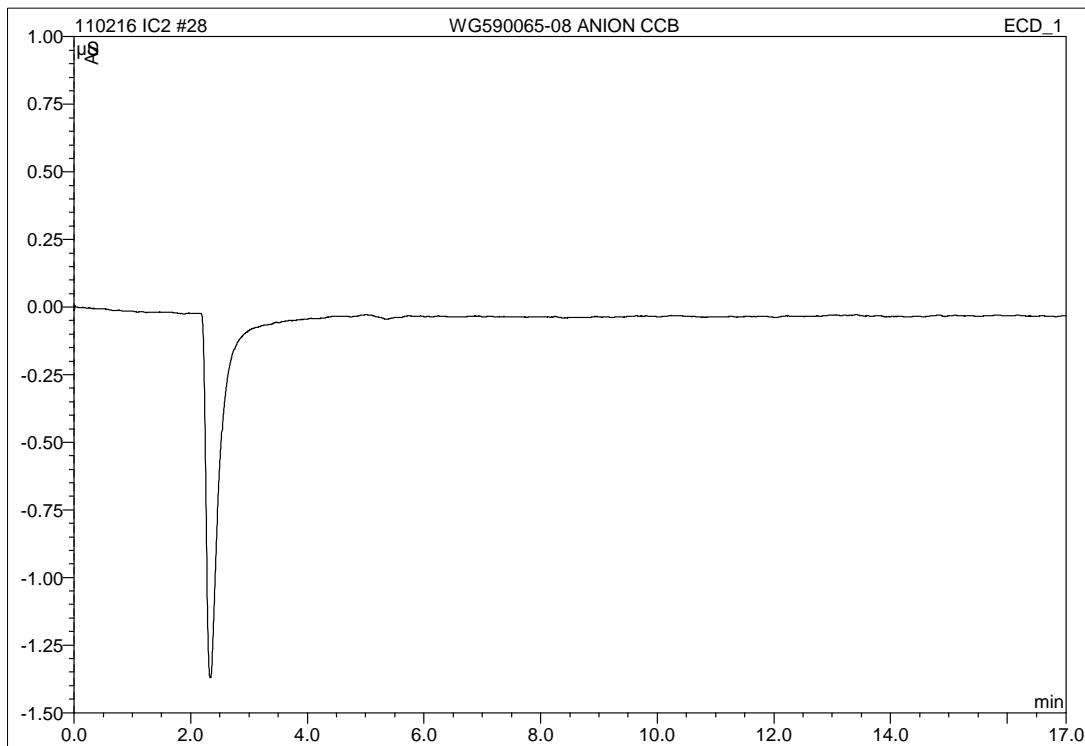
Sample Name:	WG590065-06 ANION CCB	Injection Volume:	25.0
Vial Number:	18	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 9:35	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
Total:			0.000	0.000	0.00	0.000	

28 WG590065-08 ANION CCB**1,1 CAS**

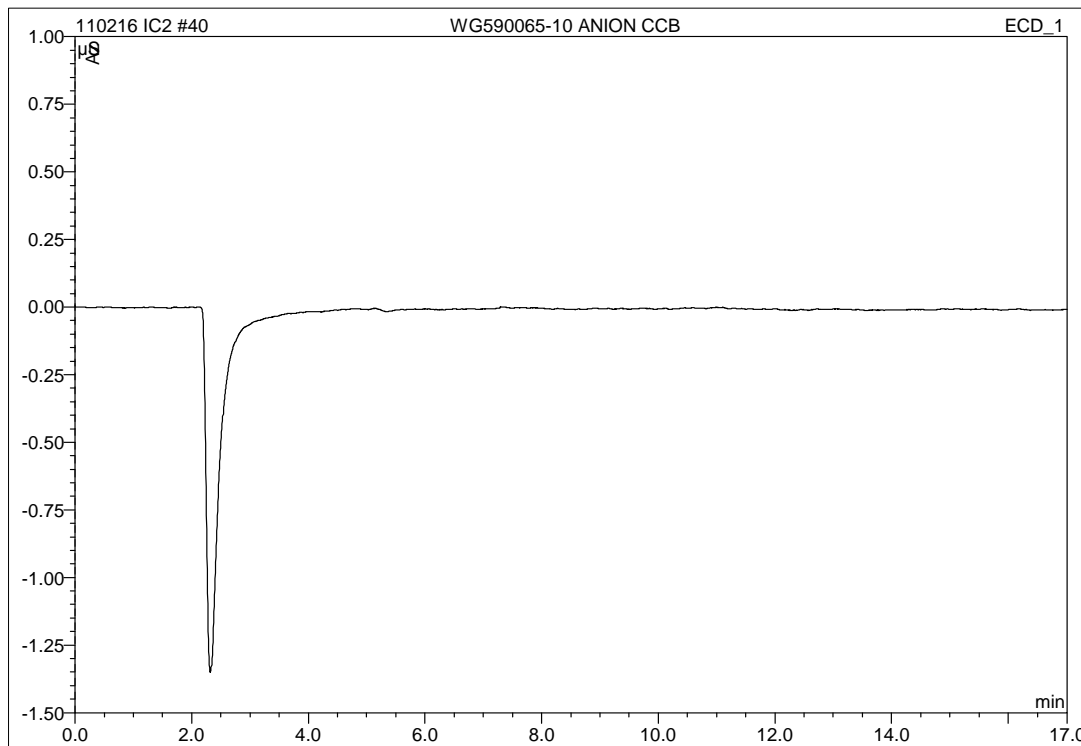
Sample Name:	WG590065-08 ANION CCB	Injection Volume:	25.0
Vial Number:	28	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 12:48	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
Total:			0.000	0.000	0.00	0.000	

40 WG590065-10 ANION CCB**1,1 CAS**

Sample Name:	WG590065-10 ANION CCB	Injection Volume:	25.0
Vial Number:	40	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/03/2016 16:38	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount mg/L	Type
Total:			0.000	0.000	0.00	0.000	

RETENTION TIME WINDOWS

Lab Name: MICROBAC Laboratories, Inc.

Instrument ID: IC1

IC Column: AG14A-SC/AS14A-SC

	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	6/5/2013	6/5/2013	6/6/2013
File #	WG432976-05	WG432976-07	WG433275-01
Time	16:16	18:25	16:50

COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
F	3.41	3.40	3.41	0.017
Cl	4.87	4.87	4.88	0.017
NO2-N	5.67	5.66	5.67	0.017
Br	7.01	6.99	7.02	0.046
NO3-N	7.76	7.74	7.77	0.046
SO4	13.35	13.35	13.35	0.000

Instrument ID: IC2

IC Column: AS14A-4mm

	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	3/2/2015	3/4/2015	3/5/2015
File #	WG514023-02	WG514341-02	WG514431-02
Time	23:15	18:47	17:41

COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
F	3.33	3.33	3.32	0.017
Cl	4.75	4.78	4.76	0.043
NO2-N	5.54	5.59	5.56	0.082
Br	6.86	6.98	6.93	0.180
NO3-N	7.59	7.73	7.67	0.222
SO4	12.42	12.38	12.34	0.116

Instrument ID: IC3

IC Column: AG14A-SC/AS14A-SC

	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	5/20/2014	5/21/2014	5/21/2014
File #	WG476910-05	WG476934-01	WG476934-03
Time	12:41	9:54	13:59

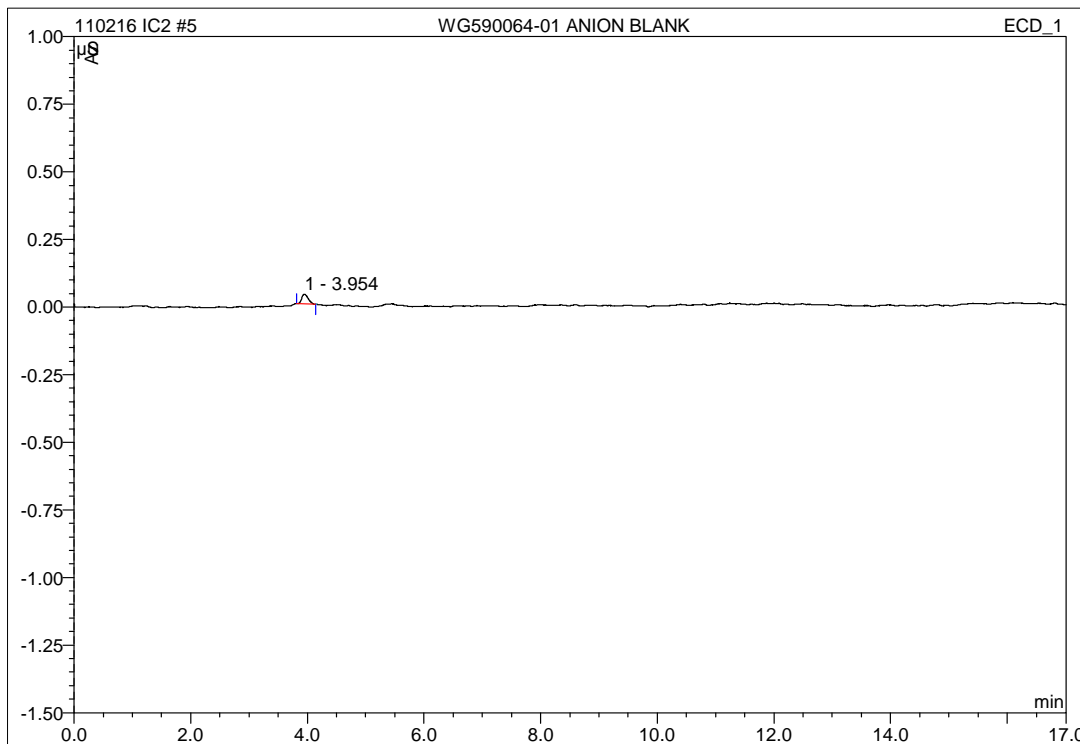
COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
F	3.41	3.41	3.41	0.000
Cl	5.11	5.09	5.07	0.050
NO2-N	6.14	6.11	6.07	0.101
Br	7.90	7.84	7.75	0.220
NO3-N	8.94	8.86	8.76	0.271
SO4	13.35	13.39	13.42	0.101

Page 1

2.4.1.5 Raw QC Data

5 WG590064-01 ANION BLANK**1,1 CAS**

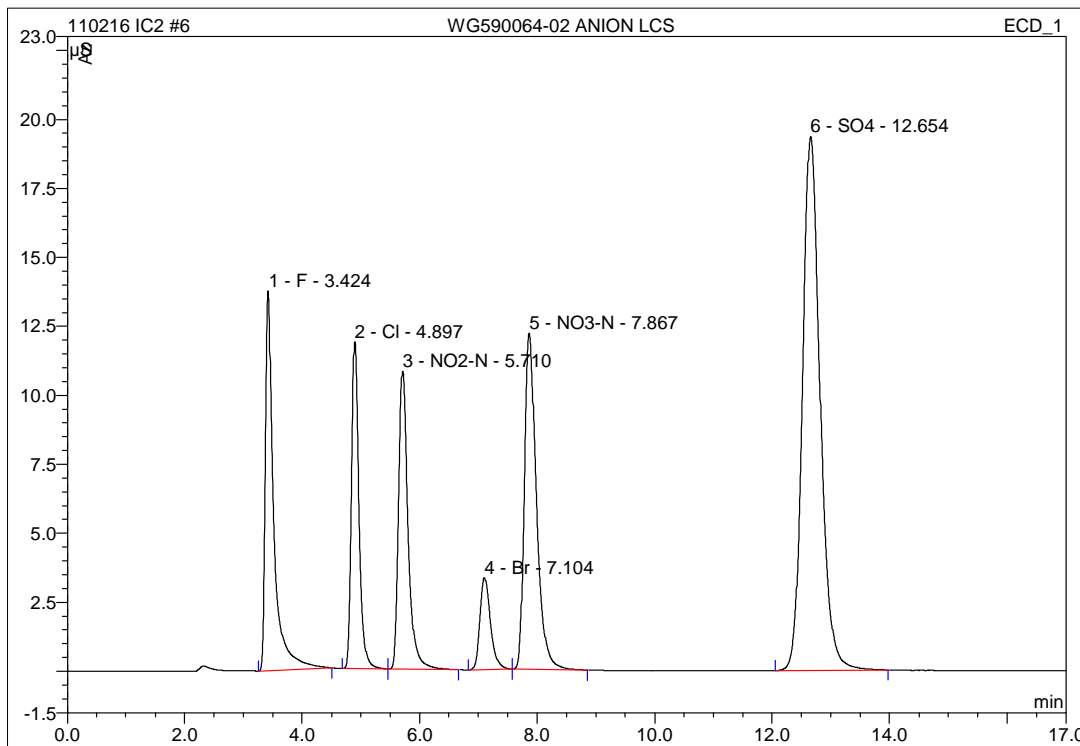
Sample Name:	WG590064-01 ANION BLANK	Injection Volume:	25.0
Vial Number:	5	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 12:06	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area $\mu\text{S}\cdot\text{min}$	Rel.Area %	Amount mg/L	Type
1	3.95	n.a.	0.037	0.005	100.00	n.a.	BMB
Total:			0.037	0.005	100.00	0.000	

6 WG590064-02 ANION LCS**1,1 CAS STD77045**

Sample Name:	WG590064-02 ANION LCS	Injection Volume:	25.0
Vial Number:	6	Channel:	ECD_1
Sample Type:	unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	101216_9056	Dilution Factor:	1.0000
Recording Time:	11/02/2016 12:26	Sample Weight:	1.0000
Run Time (min):	17.00	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height μS	Area μS*min	Rel.Area %	Amount mg/L	Type
1	3.42	F	13.758	2.278	13.92	7.764	BMB
2	4.90	Cl	11.864	1.733	10.60	7.957	BMB
3	5.71	NO2-N	10.793	2.016	12.32	4.900	BMB
4	7.10	Br	3.325	0.694	4.24	7.870	BMB
5	7.87	NO3-N	12.181	2.899	17.72	5.418	bMB
6	12.65	SO4	19.357	6.738	41.19	39.977	BMB
Total:			71.279	16.359	100.00	73.888	

IC/Integration

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2.4.2 Alkalinity Data

2.4.2.1 Summary Data

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 #: L16110074-03	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 #: L16110074-05	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

Lab Report #: L16110074

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

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 CaCO ₃)	11-43-8	345		80.0	40.0	20.0

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 CaCO ₃)	11-43-8	338		80.0	40.0	20.0

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 CaCO ₃)	11-43-8	253		40.0	20.0	10.0

2.4.2.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
 b = intercept from the linear equation
 y = instrument response as absorbance or OD
 x = concentration of analyte (mg/L)
 $y = mx + b$

Step 2: Calculate the instrument concentration, x

Where:

$$x = (y - b)/m$$

Step 3: Solve for analyte concentration in sample, Cx

$$Cx = (x) (D)$$

Example Calculation (LCS):

Value of m from plot:	7.809
Value of b from plot:	0.0004135
Absorbance of unknown from quantitation report (y):	0.31
Calculated concentration (x):	0.03964483
Dilution factor (D):	1.00
Concentration of analyte in sample, Cy:	0.0396 mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

$$y = Ax^2 + Bx + C$$

Step 3: Solve for analyte concentration in sample, Cy

$$Cy = (y) (D)$$

Example Calculation (LCS):

Value of A from plot:	101.2796
Value of B from plot:	318.9056
Value of C from plot:	-2.2712
Absorbance of unknown from quantitation report (x):	0.1583
Calculated concentration (y):	50.7495108
Dilution factor (D):	1.00
Concentration of analyte in sample, Cy:	50.75 mg/L

Microbac Laboratories Inc.

Data Checklist

Date: 02-NOV-2016
 Analyst: DCM
 Analyst: NA
 Method: ALK
 Instrument: SC
 Curve Workgroup: NA
 Runlog ID: _____
 Analytical Workgroups: WG590104 WG590056

Calibration/Linearity	11-02-2016
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
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	DCM
Secondary Reviewer	SAV
Comments	

Primary Reviewer:
02-NOV-2016



Secondary Reviewer:
03-NOV-2016




Analytical Method: 310.2
 Login Number: L16110074

AAB#: WG590104

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					11/02/2016	1.2	14		11/02/16	1.2	14	
50WW14-110116	03	11/01/16					11/02/2016	1.1	14		11/02/16	1.1	14	
50WW11-110116	05	11/01/16					11/02/2016	1.1	14		11/02/16	1.1	14	
50WW06-110116	07	11/01/16					11/02/2016	1.1	14		11/02/16	1.1	14	
50WW12-110116	09	11/01/16					11/02/2016	1	14		11/02/16	1	14	
50WW23-110116	11	11/01/16					11/02/2016	.9	14		11/02/16	.9	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
 PDF File ID: 5007113
 Report generated 11/03/2016 10:56



METHOD BLANK SUMMARY

Login Number: L16110074 Work Group: WG590104
 Blank File ID: SC161102003.012 Blank Sample ID: WG590104-01
 Prep Date: 11/02/16 12:35 Instrument ID: SMARTCHEM
 Analyzed Date: 11/02/16 12:35 Method: 310.2
 Analyst: DCM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590104-02	SC161102003.013	11/02/16 12:35	01
LCS2	WG590104-03	SC161102003.014	11/02/16 12:36	01
50WW13-110116	L16110074-01	SC161102003.016	11/02/16 12:37	DL01
50WW14-110116	L16110074-03	SC161102003.017	11/02/16 12:38	DL01
50WW11-110116	L16110074-05	SC161102003.018	11/02/16 12:39	DL01
50WW23-110116	L16110074-11	SC161102003.023	11/02/16 12:41	01
DUP	WG590104-05	SC161102003.024	11/02/16 12:42	01
50WW06-110116	L16110074-07	SC161102003.028	11/02/16 12:51	DL01
50WW12-110116	L16110074-09	SC161102003.030	11/02/16 12:53	DL01

Report Name: BLANK_SUMMARY
 PDF File ID: 5007114
 Report generated 11/03/2016 10:56



Login Number: L16110074 Prep Date: 11/02/16 12:35 Sample ID: WG590104-01
Instrument ID: SMARTCHEM Run Date: 11/02/16 12:35 Prep Method: 310.2
File ID: SC161102003.012 Analyst: DCM Method: 310.2
Workgroup (AAB#): WG590104 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: SMARTC-02-NOV-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Alkalinity, Total (as CaCO3)	10.0	40.0	10.0	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: 5007115
03-NOV-2016 10:56



Login Number: L16110074 Analyst: DCM Prep Method: 310.2
 Instrument ID: SMARTCHEM Matrix: Water Method: 310.2
 Workgroup (AAB#): WG590104 Units: mg/L
 QC Key: DOD4 Lot #: STD78728
 Sample ID: WG590104-02 LCS File ID: SC161102003.013 Run Date: 11/02/2016 12:35
 Sample ID: WG590104-03 LCS2 File ID: SC161102003.014 Run Date: 11/02/2016 12:36

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Alkalinity, Total (as CaCO3)	200	202	101	200	208	104	2.91	85 - 115	20	

LCS_LCS2 - Modified 03/06/2008
 PDF File ID: 5007116
 Report generated: 11/03/2016 10:56



2.4.2.3 Raw Data

SMARTCHEM RUN LOG
(smartchem2, smartchem3)

WORKGROUP: WG590056
590054

Daily Check

- Lamp On
 - Probe Rinse Full
 - DI Water > 1/2 Full
 - Wash Solution > 1/2 Full
 - NO3 Reagent bottle connected / purged
 - NO3 pH adj to pH 5-9
 - Syringe filter lot # _____
 - pH paper Lot #: HCG81919
- WBL Run
 - Reagents Full
 - Dilution H₂O Full
 - Waste Container Check

- 1) Workgroup _____
Plan # 20161102002
- 2) Workgroup _____
Plan # 20161102003
- 3) Workgroup _____
Plan # _____
- Instrument: SCI SC2

Analyte	1	2	3
Dilution	41k		
SC Prepared Curve			
Position			
1-1	ICV		
1-2	Bilk		
1-3	LCS		
1-4	LCS Dup		
1-5	10-1476-02	1/4	color
1-6	03	1/4	color
1-7	05	1/4	color
1-8	06	1/4	color
1-9	08	1/4	color
1-10	09	1/4	color
1-11	11-31-02	1/4	color
1-12	03	1/4	color
1-13	05	1/4	color
1-14	06	1/4	color
1-15	07	1/4	1/100 color
1-16	10-1375-01		B
1-17	02	1/2	B
1-18	MS 03	1/2	B
1-19	MSD 04	1/2	B
1-20	10-1456-03		B
1-21	11-72-02		
1-22	03	1/2	
2-1	REF 04	1/2	
2-2	05	1/2	
2-3	MS 06	1/2	

Position	Analyte	1	2	3
2-4	11-72-07 MSD	1/2		
2-5	DUP 11-72-04	1/2		
2-6				
2-7				
2-8				
2-9				
2-10	1	ICV		
2-11	2	Bilk		
2-12	3	LCS		
2-13	4	LCS Dup		
2-14	5	10-1375-01	1/5	B
2-15	6	11-74-01	1/2	
2-16	7	03	1/2	
2-17	8	05	1/2	
2-18	9	07		
2-19	0	09		
2-20	11	11		
2-21	12	DUP 11-74-11		
2-22				
2-23				
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES: * Run NO2 std on NO3 runs
* LCS Dup must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

*pH < 8.3

DCN#121947



SMARTCHEM RUN LOG

(smartchem2, smartchem3)

	Analyte	1	2	3
Position				
3-3				
3-4				
3-5				
3-6				
3-7				
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

	Analyte	1	2	3
Position				
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

Chloride	EPA 325.2/SM 4500-Cl E-2000
Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
<input checked="" type="checkbox"/> Alkalinity	EPA 310.2
Sulfate	EPA 375.4/SM 426C (15 th)/ SM4500-504 E-1997

Ammonia	EPA 350.1/SM 4500-NH3 B-1997
TKN	EPA 351.2
Phos	EPA 365.4

Analyte	Alk	Reagents
SOP & Revision	153102 R17	REGT 38330
Curve Stock (SC made)	Std 76180	
NO2 STD		
ICV	Std 78727	
CCV	Std 78726	
LCS	Std 78728	
MS	Std 78273 0.4(2000) Dilution 10=100	

Comments: _____

Analyst: David Mershle

Date: 11/2/16

DCN#121947



MICROBAC (OVD)
 SMARTCHEM200 INST1 (VER3.1.14)
 NH3, TKN, NO3NO2 (MG/L N)
 ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

Smp#[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.0	0.4855	0.00		10:14:18 AM
DIL-1	RBL	0.0	0.4834	0.00		10:14:36 AM
DIL-1	RBL	0.0	0.4873	0.00		10:15:30 AM
DIL-1	Std-1	0.0	-0.0074	0.00		10:15:48 AM
SR5-1	Std-2	10.0	-0.0187	0.00		10:16:43 AM
SR5-2	Std-3	20.0	-0.0268	0.00		10:17:00 AM
SR5-3	Std-4	50.0	-0.0696	0.00		10:17:55 AM
SR5-4	Std-5	100.0	-0.1164	0.00		10:18:12 AM
SR5-5	Std-6	200.0	-0.2271	0.00	EPL	10:19:06 AM
SR5-6	Std-7	250.0	-0.2889	0.00		10:19:24 AM
SR5-7	Std-8	300.0	-0.3295	0.00		10:20:18 AM
ST-3	1CCV (150 mg/L)	146.6	-0.1720	97.76		10:20:36 AM
ST-2	2CCB (0 mg/L)	-17.9	0.0145	0.00	INV,><,LL	10:21:30 AM
1	ICV	249.9	-0.2818	0.00		10:21:48 AM
2	WG590056-01 BLK	-13.9	0.0098	0.00	INV,><,LL	10:22:42 AM
3	WG590056-02 LCS	191.4	-0.2202	0.00		10:23:00 AM
4	WG590056-03 LCSDUP	195.9	-0.2250	0.00		10:23:54 AM
5	L16101476-02 (4)	167.5	-0.1946	0.00		10:24:12 AM
6	L16101476-03 (4)	84.0	-0.1028	0.00		10:25:07 AM
7	L16101476-05 (4)	160.3	-0.1868	0.00		10:25:25 AM
8	L16101476-06 (4)	65.3	-0.0817	0.00		10:26:19 AM
9	L16101476-08 (4)	198.5	-0.2278	0.00		10:26:36 AM
10	L16101476-09 (4)	127.3	-0.1508	0.00		10:27:31 AM
ST-3	1CCV (150 mg/L)	146.0	-0.1713	97.33		10:27:49 AM
ST-2	2CCB (0 mg/L)	-9.8	0.0050	0.00	INV,><,LL	10:28:43 AM
11	L16110031-02 (4)	167.9	-0.1950	0.00		10:29:01 AM
12	L16110031-03 (4)	111.9	-0.1339	0.00		10:29:55 AM
13	L16110031-05 (4)	163.2	-0.1899	0.00		10:30:13 AM
14	L16110031-06 (4)	69.4	-0.0863	0.00		10:31:07 AM
15	L16110031-07 (100)	112.3	-0.1343	0.00		10:31:25 AM
16	L16101375-01	×393.2	-0.4266	0.00	><,LH	10:32:19 AM
17	L16101375-02 (2)	269.1	-0.3017	0.00		10:32:37 AM

Report Date :11/02/2016 Run Date :11/2/2016 Operator : SMARTCHEM1 Plan # :20161102002

Plan Description : ALK-A1-DCM/11/02/2016

MICROBAC (OVD)
 SMARTCHEM200 INST1 (VER3.1.14)
 NH3, TKN, NO3NO2 (MG/L N)
 ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

Smp#[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
18	L16101375-03 (2) MS	× 307.7	-0.3412	0.00	EPL,><,LH	10:33:31 AM
19	L16101375-04 (2) MSD	× 310.6	-0.3442	0.00	><,LH	10:33:49 AM
20	L16101456-03	× 367.9	-0.4017	0.00	><,LH	10:34:43 AM
ST-3	1CCV (150 mg/L)	155.6	-0.1817	103.72		10:35:01 AM
ST-2	2CCB (0 mg/L)	8.2	-0.0161	0.00	EPL	10:35:55 AM
21	L16110072-02	158.5	-0.1849	0.00		10:36:13 AM
22	L16110072-03 (2)	231.5	-0.2626	0.00		10:37:07 AM
23	L16110072-04 (2)	205.4	-0.2351	0.00		10:37:25 AM
24	L16110072-05 (2)	207.0	-0.2368	0.00		10:38:19 AM
25	L16110072-06 (2) MS	276.0	-0.3088	0.00		10:38:37 AM
26	L16110072-07 (2) MSD	274.5	-0.3073	0.00		10:39:31 AM
27	<i>dcn</i> <i>11/2/16</i> WG590056-07 (2) DUP	223.9	-0.2547	0.00		10:39:49 AM
28	ID 28	15.7	-0.0249	0.00		10:40:43 AM
ST-3	1CCV (150 mg/L)	158.4	-0.1848	105.62		10:41:01 AM
ST-2	2CCB (0 mg/L)	7.7	-0.0156	0.00		10:41:55 AM
16-[1/2]	L16101375-01	× 690.1	-0.3789	0.00	><,LH	10:49:35 AM
18-[1/2]	L16101375-03 (2) MS	325.2	-0.1893	0.00	LH	10:50:47 AM
ST-3	1CCV (150 mg/L)	150.5	-0.1762	100.34		10:50:47 AM
ST-2	2CCB (0 mg/L)	-7.1	0.0018	0.00	INV,><,LL	10:51:41 AM
19-[1/2]	L16101375-04 (2) MSD	338.2	-0.1963	0.00	LH	10:53:11 AM
20-[1/2]	L16101456-03	505.7	-0.2849	0.00	LH	10:54:23 AM
ST-3	1CCV (150 mg/L)	161.9	-0.1885	107.90		10:54:23 AM
ST-2	2CCB (0 mg/L)	11.4	-0.0199	0.00		10:55:17 AM
16-[1/4]	L16101375-01	× 845.3	-0.2414	0.00	LH	11:02:57 AM
ST-3	1CCV (150 mg/L)	167.5	-0.1946	111.67		11:02:57 AM
ST-2	2CCB (0 mg/L)	20.3	-0.0302	0.00		11:03:51 AM

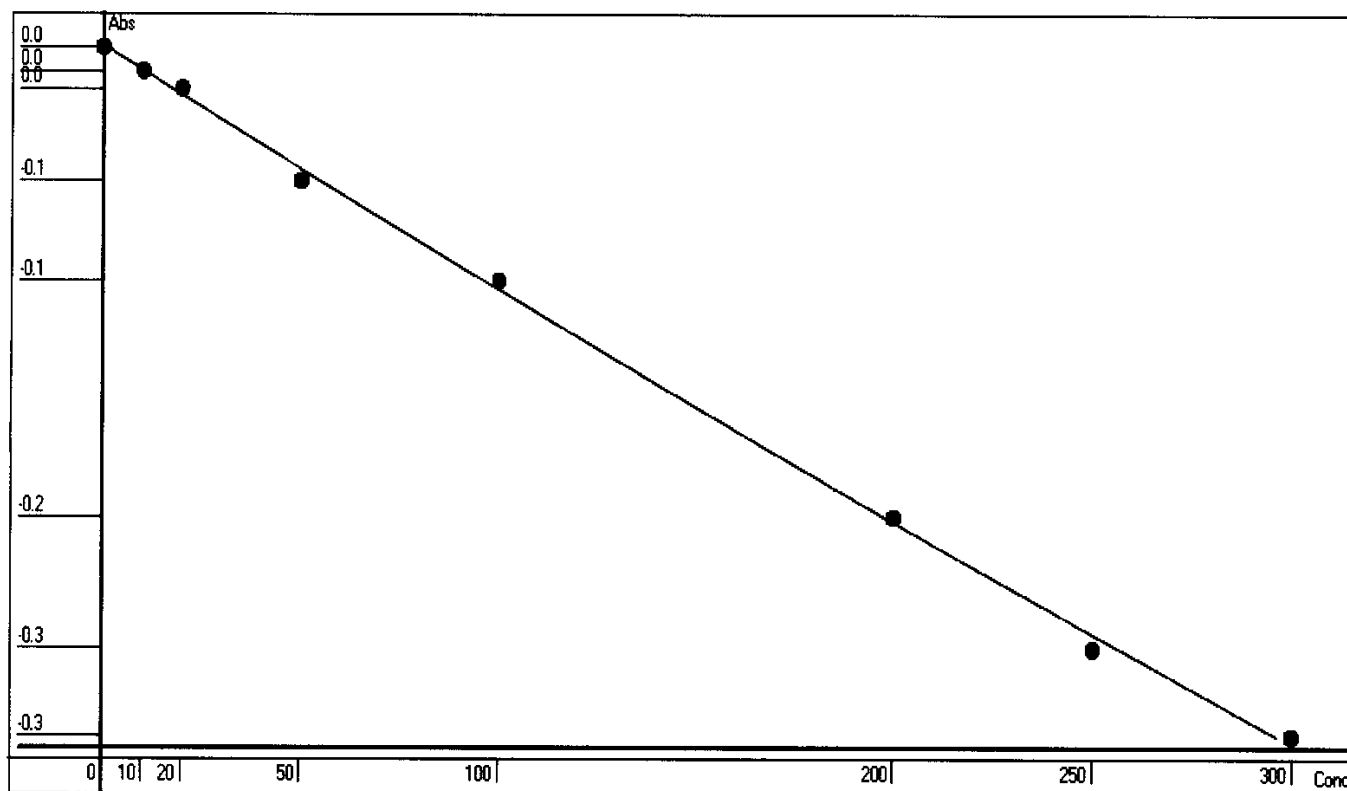
Report Date :11/02/2016 Run Date :11/2/2016 Operator : SMARTCHEM1 Plan # :20161102002

Plan Description : ALK-A1-DCM/11/02/2016

Calibrant Report - WALK -

Calib Lot #:010104 Exp Date:6/21/2020 User:MICROBAC

Plan #: 20161102002 Description: [ALK-A1-DCM/11/02/2016] Unit



Point	OD	Conc	Recalc Conc	% Error
1	-0.0074	0	0.7223	72.23
2	-0.0187	10	10.4024	4.02
3	-0.0268	20	17.3719	-13.14
4	-0.0696	50	54.6229	9.25
5	-0.1164	100	96.1727	-3.83
6	-0.2271	200	197.8521	-1.07
7	-0.2889	250	256.6942	2.68
8	-0.3295	300	296.1613	-1.28

Conc= +194.9143*Abso^2 -851.5607*Abso -5.5899 R²=0.9989

RBL
0.4864
0

Report Date 11/2/2016 Run Date 11/2/2016

MICROBAC (OVD)
 SMARTCHEM200 INST1 (VER3.1.14)
 NH3, TKN, NO3NO2 (MG/L N)
 ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

Smp#[/Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.0	0.3855	0.00		12:27:03 PM
DIL-1	RBL	0.0	0.3856	0.00		12:27:21 PM
DIL-1	RBL	0.0	0.3955	0.00		12:28:15 PM
DIL-1	Std-1	0.0	0.0091	0.00	INV	12:28:33 PM
SR5-1	Std-2	10.0	-0.0055	0.00		12:29:27 PM
SR5-2	Std-3	20.0	-0.0167	0.00		12:29:45 PM
SR5-3	Std-4	50.0	-0.0399	0.00		12:30:39 PM
SR5-4	Std-5	100.0	-0.0875	0.00		12:30:57 PM
SR5-5	Std-6	200.0	-0.1755	0.00	EPL	12:31:52 PM
SR5-6	Std-7	250.0	-0.2256	0.00		12:32:09 PM
SR5-7	Std-8	300.0	-0.2683	0.00		12:33:03 PM
ST-3	1CCV (150 mg/L)	153.8	-0.1363	102.54		12:33:21 PM
ST-2	2CCB (0 mg/L)	-3.5	0.0087	0.00	INV,LL	12:34:15 PM
1	ICV	239.2	-0.2138	0.00		12:34:33 PM
2	WG590104-01 BLK	-5.0	0.0101	0.00	INV,><,LL	12:35:27 PM
3	WG590104-02 LCS	201.7	-0.1799	0.00		12:35:45 PM
4	WG590104-03 LCSDUP	207.7	-0.1853	0.00		12:36:40 PM
5	L16101375-01 (5)	137.5	-0.1214	0.00		12:36:57 PM
6	L16110074-01 (2)	181.7	-0.1617	0.00		12:37:51 PM
7	L16110074-03 (2)	128.4	-0.1131	0.00		12:38:10 PM
8	L16110074-05 (2)	166.3	-0.1477	0.00		12:39:03 PM
9	L16110074-07	X 314.5	-0.2816	0.00	><,LH	12:39:21 PM
10	L16110074-09	X 301.0	-0.2695	0.00	><,LH	12:40:15 PM
ST-3	1CCV (150 mg/L)	152.6	-0.1352	101.74		12:40:33 PM
ST-2	2CCB (0 mg/L)	-6.5	0.0115	0.00	INV,><,LL	12:41:27 PM
11	L16110074-11	253.1	-0.2264	0.00		12:41:45 PM
12	WG590104-05 DUP	245.8	-0.2198	0.00		12:42:40 PM
13	ID 13	-11.2	0.0159	0.00	INV,><,LL	12:42:58 PM
ST-3	1CCV (150 mg/L)	148.0	-0.1310	98.67		12:43:51 PM
ST-2	2CCB (0 mg/L)	-8.5	0.0134	0.00	INV,><,LL	12:44:10 PM
9-[1/2]	L16110074-07	344.7	-0.1532	0.00	EPL,LH	12:51:49 PM
ST-3	1CCV (150 mg/L)	153.7	-0.1362	102.47		12:53:02 PM

Report Date :11/02/2016 Run Date :11/2/2016 Operator : SMARTCHEM1 Plan # :20161102003

Plan Description : ALK-B1-DCM/11/02/2016

MICROBAC (OVD)
 SMARTCHEM200 INST1 (VER3.1.14)
 NH3, TKN, NO3NO2 (MG/L N)
 ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

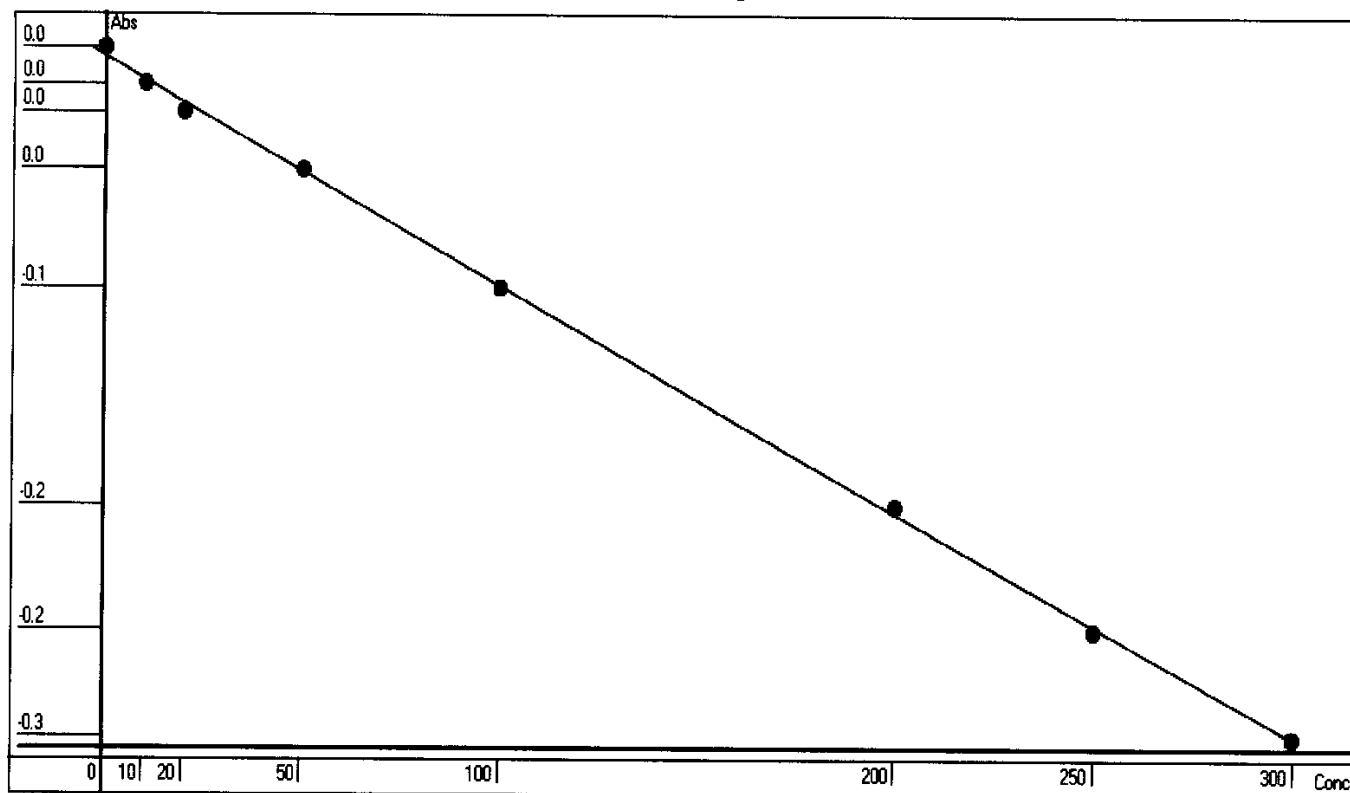
Smp#[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
10-[1/2]	L16110074-09	337.7	-0.1500	0.00	LH	12:53:02 PM
ST-2	2CCB (0 mg/L)	4.9	0.0009	0.00	INV	12:53:56 PM

Report Date :11/02/2016 Run Date :11/2/2016 Operator : SMARTCHEM1 Plan # :20161102003
Plan Description : ALK-B1-DCM/11/02/2016

Calibrant Report - WALK -

Calib Lot #:010104 Exp Date:6/21/2020 User:MICROBAC

Plan #: 20161102003 Description : [ALK-B1-DCM/11/02/2016] Unit



Point	OD	Conc	Recalc Conc	% Error
1	0.0091	0	-3.9782	-397.82
2	-0.0055	10	11.7374	17.37
3	-0.0167	20	23.8135	19.07
4	-0.0399	50	48.8846	-2.23
5	-0.0875	100	100.5610	0.56
6	-0.1754	200	196.8276	-1.59
7	-0.2255	250	252.1833	0.87
8	-0.2682	300	299.6419	-0.12
Conc= +70.4465*Abso^2 -1076.663*Abso +5.8136 R ² =0.9995				RBL 0.3855 0

Report Date 11/2/2016 Run Date 11/2/2016

2.4.3 Phosphorus Data

2.4.3.1 Summary Data

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: 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.					

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: 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 #: L16110074-05	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.					

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 #: L16110074-09	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 #: L16110074-11	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.
---	--

2.4.3.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
 b = intercept from the linear equation
 y = instrument response as absorbance or OD
 x = concentration of analyte (mg/L)
 $y = mx + b$

Step 2: Calculate the instrument concentration, x

Where:

$$x = (y - b)/m$$

Step 3: Solve for analyte concentration in sample, Cx

$$C_x = (x) (D)$$

Example Calculation (LCS):

Value of m from plot:	7.809
Value of b from plot:	0.0004135
Absorbance of unknown from quantitation report (y):	0.31
Calculated concentration (x):	0.03964483
Dilution factor (D):	1.00
Concentration of analyte in sample, C _y :	0.0396 mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

$$y = Ax^2 + Bx + C$$

Step 3: Solve for analyte concentration in sample, C_y

$$C_y = (y) (D)$$

Example Calculation (LCS):

Value of A from plot:	101.2796
Value of B from plot:	318.9056
Value of C from plot:	-2.2712
Absorbance of unknown from quantitation report (x):	0.1583
Calculated concentration (y):	50.7495108
Dilution factor (D):	1.00
Concentration of analyte in sample, C _y :	50.75 mg/L

Microbac Laboratories Inc.

Data Checklist

Date: 08-NOV-2016
 Analyst: DCM
 Analyst: NA
 Method: PHOS
 Instrument: SC
 Curve Workgroup: NA
 Runlog ID: _____
 Analytical Workgroups: WG590779 WG590729

Calibration/Linearity	11-08-2016
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
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	DCM
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
09-NOV-2016



Secondary Reviewer:
11-NOV-2016




Analytical Method: 365.4
Login Number: L16110074

AAB#: WG590729

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	7.1	28		11/08/16	7.1	28	
50WW14-110116	03	11/01/16					11/08/2016	7	28		11/08/16	7	28	
50WW11-110116	05	11/01/16					11/08/2016	7	28		11/08/16	7	28	
50WW06-110116	07	11/01/16					11/08/2016	6.9	28		11/08/16	6.9	28	
50WW23-110116	11	11/01/16					11/08/2016	6.8	28		11/08/16	6.8	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5015256
Report generated 11/09/2016 14:14



Analytical Method:365.4
Login Number:L16110074

AAB#:WG590779

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
50WW12-110116	09	11/01/16					11/08/2016	6.9	28		11/08/16	6.9	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5015256
Report generated 11/09/2016 14:14



METHOD BLANK SUMMARY

Login Number: L16110074 Work Group: WG590729
 Blank File ID: SC161108002.010 Blank Sample ID: WG590729-01
 Prep Date: 11/08/16 09:48 Instrument ID: SMARTCHEM
 Analyzed Date: 11/08/16 09:48 Method: 365.4
 Analyst: DCM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590729-02	SC161108002.011	11/08/16 09:49	01
50WW13-110116	L16110074-01	SC161108002.023	11/08/16 09:56	01
50WW14-110116	L16110074-03	SC161108002.024	11/08/16 09:57	01
50WW11-110116	L16110074-05	SC161108002.025	11/08/16 09:57	01
50WW06-110116	L16110074-07	SC161108002.026	11/08/16 09:58	01
50WW23-110116	L16110074-11	SC161108002.028	11/08/16 09:59	01
DUP	WG590729-04	SC161108002.034	11/08/16 10:03	01

Report Name: BLANK_SUMMARY
 PDF File ID: 5015257
 Report generated 11/09/2016 14:14



METHOD BLANK SUMMARY

Login Number: L16110074 Work Group: WG590779
 Blank File ID: SC161108003.010 Blank Sample ID: WG590779-01
 Prep Date: 11/08/16 10:46 Instrument ID: SMARTCHEM
 Analyzed Date: 11/08/16 10:46 Method: 365.4
 Analyst: DCM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590779-02	SC161108003.011	11/08/16 10:47	01
DUP	WG590779-04	SC161108003.014	11/08/16 10:49	01
50WW12-110116	L16110074-09	SC161108003.017	11/08/16 10:50	DL01

Report Name: BLANK_SUMMARY
 PDF File ID: 5015257
 Report generated 11/09/2016 14:14



Login Number: L16110074 Prep Date: 11/08/16 09:48 Sample ID: WG590729-01
Instrument ID: SMARTCHEM Run Date: 11/08/16 09:48 Prep Method: 365.4
File ID: SC161108002.010 Analyst: DCM Method: 365.4
Workgroup (AAB#): WG590729 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: SMARTC-08-NOV-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Phosphorus, Total	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: 5015258
09-NOV-2016 14:14



Login Number: L16110074 Prep Date: 11/08/16 10:46 Sample ID: WG590779-01
Instrument ID: SMARTCHEM Run Date: 11/08/16 10:46 Prep Method: 365.4
File ID: SC161108003.010 Analyst: DCM Method: 365.4
Workgroup (AAB#): WG590779 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: SMARTC-08-NOV-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Phosphorus, Total	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: 5015258
09-NOV-2016 14:14



Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590729-02
Instrument ID: SMARTCHEM Run Time: 09:49 Prep Method: 365.4
File ID: SC161108002.011 Analyst: DCM Method: 365.4
Workgroup (AAB#): WG590729 Matrix: Water Units: mg/L
QC Key: DOD4 Lot#: STD78555 Cal ID: SMARTC - 08-NOV-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Phosphorus, Total	1.00	0.956	95.6	70 - 130	

LCS - Modified 03/06/2008
PDF File ID: 5015259
Report generated: 11/09/2016 14:14



Login Number: L16110074 Run Date: 11/08/2016 Sample ID: WG590779-02
Instrument ID: SMARTCHEM Run Time: 10:47 Prep Method: 365.4
File ID: SC161108003.011 Analyst: DCM Method: 365.4
Workgroup (AAB#): WG590779 Matrix: Water Units: mg/L
QC Key: DOD4 Lot#: STD78555 Cal ID: SMARTC - 08-NOV-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Phosphorus, Total	1.00	0.996	99.6	70 - 130	

LCS - Modified 03/06/2008
PDF File ID: 5015259
Report generated: 11/09/2016 14:14



2.4.3.3 Raw Data

SMARTCHEM RUN LOG
(smartchem2, smartchem3)

WORKGROUP: WG590729
590779

Daily Check

- | | |
|--|--|
| <input checked="" type="checkbox"/> Lamp On | <input checked="" type="checkbox"/> WBL Run |
| <input checked="" type="checkbox"/> Probe Rinse Full | <input checked="" type="checkbox"/> Reagents Full |
| <input checked="" type="checkbox"/> DI Water > 1/2 Full | <input checked="" type="checkbox"/> Dilution H ₂ O Full |
| <input checked="" type="checkbox"/> Wash Solution > 1/2 Full | <input checked="" type="checkbox"/> Waste Container Check |
| <input type="checkbox"/> NO3 Reagent bottle connected / purged | |
| <input type="checkbox"/> NO3 pH adj to pH 5-9 | |
| Syringe filter lot # _____ | |
| pH paper Lot #: _____ | |

- 1) Workgroup _____
Plan # 2016108002
- 2) Workgroup _____
Plan # 2016108003
- 3) Workgroup _____
Plan # _____
- Instrument: SC1 SC2

Analyte	1	2	3
	PHCS		
	Dilution		
SC Prepared Curve			
Position			
1-1	ICV		
1-2	Blk		
1-3	LCS		
1-4	11-44-05		
1-5	11-45-05		
1-6	11-289-c1		
1-7	c2	1/25	
1-8	11-148-c1		
1-9	02		
1-10	c3		
1-11	04		
1-12	11-83-c3	1 ^{ml} /250	
1-13	11-74-c1		
1-14	c3		
1-15	05		
1-16	07		
1-17	09		
1-18	11		
1-19	11-142-c1		
1-20	c2		
1-21	c3		
1-22	DUP 11-148-c1		
2-1	MS 11-148-c1		
2-2	MS 11-148-02		
2-3			

Position	Analyte	1	2	3
2-1	ICV			
2-2	Blk			
2-3	LCS			
2-4	11-289-c2	1/5		
2-5	11-148-c1	REF		
2-6	DUP 11-148-c1			
2-7	MS 11-148-c1			
2-8	11-289-c1	1/2		
2-9	11-74-09	1/2		
2-10				
2-11				
2-12				
2-13				
2-14				
2-15				
2-16				
2-17				
2-18				
2-19				
2-20				
2-21				
2-22				
2-23				
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES: * Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

DCN#122070



SMARTCHEM RUN LOG
(smartchem2, smartchem3)

WORKGROUP: WG590729

Analyte	1	2	3
Position			
3-3			
3-4			
3-5			
3-6			
3-7			
3-8			
3-9			
3-10			
3-11			
3-12			
3-13			
3-14			
3-15			

Analyte	1	2	3
Position			
3-16			
3-17			
3-18			
3-19			
3-20			
3-21			
3-22			
3-23			
3-24			
3-25			
3-26			
3-27			
3-28			

Chloride	EPA 325.2/SM 4500-CI E-2000
Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
Alkalinity	EPA 310.2
Sulfate	EPA 375.4/SM 426C (15 th)/ SM4500-504 E-1997

Ammonia	EPA 350.1/SM 4500-NH3 B-1997
TKN	EPA 351.2
Phos	EPA 365.4

Analyte	PAAs	Reagents
SOP & Revision	K3654 R19	RFI 38224
Curve Stock (SC made)		RFI 37402
NO2 STD		RFI 38384
ICV	see Digest Log	
CCV		
LCS		
MS	Dilution	

Comments: _____

Analyst: David Merkle

Date: 11/8/16

DCN#122070



TKN/Phosphorus Digestion Log

TKN WG: _____ Phos WG: 590729
 TKN Std: std 78767 Phos Std: std 78767
 TKN CCV: 1/2 (std 78767) Phos CCV: 1/2 (std 78767)
 TKN ICV: std 78620 Phos ICV: std 78700
 TKN LCS: std 78619 Phos LCS: std 78555

MS/MSD: std 76885Daily Dilution: 1125 / 25 = 45Block Digester Temperature: 380 °CDigest Reagent: REF 5 8332

	Sample	Volume	TKN Dilution	Phos Dilution		Sample	Volume	TKN Dilution	Phos Dilution
1	SH				26	11-74-03			✓
2	SH				27	05			✓
3	JCVT				28	07			✓
4	ICVP				29	09			✓
5	LCS				30	11			✓
6	LCS				31	11-142-01			✓
7	11-72-02		✓		32	02			✓
8	03		✓		33	03			✓
9	REF 04		✓		34	DUP 1-148-01		✓	✓
10	05		✓		35	MS 11-148-01		✓	✓
11	MS 06		✓		36	MS 11-148-02		✓	✓
12	MSD 07		✓		37	Bik			
13	11-44-05		✓	✓	38	Bik			
14	11-45-05		✓	✓	39	Bik			
15	11-254-02	1/50	✓		40	Bik			
16	05	1/50	✓		41				
17	08	1/50	✓		42				
18	11-289-01		✓	✓	43				
19	02		✓	✓	44				
20	11-148-01		✓	✓	45				
21	02		✓	✓	46				
22	03		✓	✓	47				
23	04		✓	✓	48				
24	11-83-03	1/250		✓	49				
25	11-74-01			✓	50				

Analyst: Daniel Morkle Date: 11/7/16

MICROBAC (OVD)
 SMARTCHEM200 INST1 (VER3.1.14)
 NH3, TKN, NO3NO2 (MG/L N)
 ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WTPH -Unit [mg/L] - EPA 365.4 TOTAL PHOSPHORUS

Smp#[/Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.0656	0.00	R	9:41:30 AM
DIL-1	RBL	0.000	0.0671	0.00	R	9:41:48 AM
DIL-1	RBL	0.000	0.0650	0.00	R	9:42:42 AM
SR5-1	Std-1	0.010	0.0022	0.00		9:43:00 AM
SR5-2	Std-2	0.200	0.0353	0.00		9:43:55 AM
SR5-3	Std-3	0.500	0.0796	0.00		9:44:12 AM
SR5-4	Std-4	1.000	0.1530	0.00		9:45:07 AM
SR5-5	Std-5	1.500	0.2246	0.00		9:45:24 AM
ST-1	Std-6	2.000	0.3022	0.00	EPL	9:46:18 AM
ST-3	1CCV (1 mg/L)	1.058	0.1610	105.75		9:46:36 AM
ST-2	2CCB (0 mg/L)	0.040	0.0094	0.00		9:47:30 AM
1	ICV	1.439	0.2179	0.00		9:47:48 AM
2	WG590729-01 BLK	-0.090	-0.0100	0.00	INV,><,LL	9:48:42 AM
3	WG590729-02 LCS	0.956	0.1458	0.00		9:49:00 AM
4	L16110044-05	0.170	0.0288	0.00	EPL	9:49:54 AM
5	L16110045-05	-0.002	0.0032	0.00	LL	9:50:12 AM
6	L16110289-01	X 2.648	0.3979	0.00	EPL,><,LH	9:51:06 AM
7	L16110289-02 (25)	X 0.324	0.0517	0.00		9:51:24 AM
8	L16110148-01	0.368	0.0583	0.00		9:52:18 AM
9	L16110148-02	-0.028	-0.0007	0.00	INV,><,LL	9:52:36 AM
10	L16110148-03	0.384	0.0606	0.00		9:53:30 AM
ST-3	1CCV (1 mg/L)	1.046	0.1593	104.61		9:53:48 AM
ST-2	2CCB (0 mg/L)	0.070	0.0138	0.00		9:54:43 AM
11	L16110148-04	0.380	0.0600	0.00		9:55:00 AM
12	L16110083-03 (250)	1.019	0.1553	0.00		9:55:55 AM
13	L16110074-01	0.034	0.0085	0.00		9:56:12 AM
14	L16110074-03	0.488	0.0761	0.00		9:57:07 AM
15	L16110074-05	0.136	0.0237	0.00		9:57:24 AM
16	L16110074-07	0.590	0.0913	0.00	EPL	9:58:19 AM
17	L16110074-09	X 2.056	0.3098	0.00	EPL,><,LH	9:58:36 AM
18	L16110074-11	-0.042	-0.0028	0.00	INV,><,LL	9:59:31 AM
19	L16110142-01	0.020	0.0064	0.00		9:59:48 AM

Report Date :11/08/2016 Run Date :11/8/2016 Operator : SMARTCHEM1 Plan # :20161108002
 Plan Description : PHOS-A1-DCM/11/08/2016

MICROBAC (OVD)
 SMARTCHEM200 INST1 (VER3.1.14)
 NH3, TKN, NO3NO2 (MG/L N)
 ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WTPH -Unit [mg/L] - EPA 365.4 TOTAL PHOSPHORUS

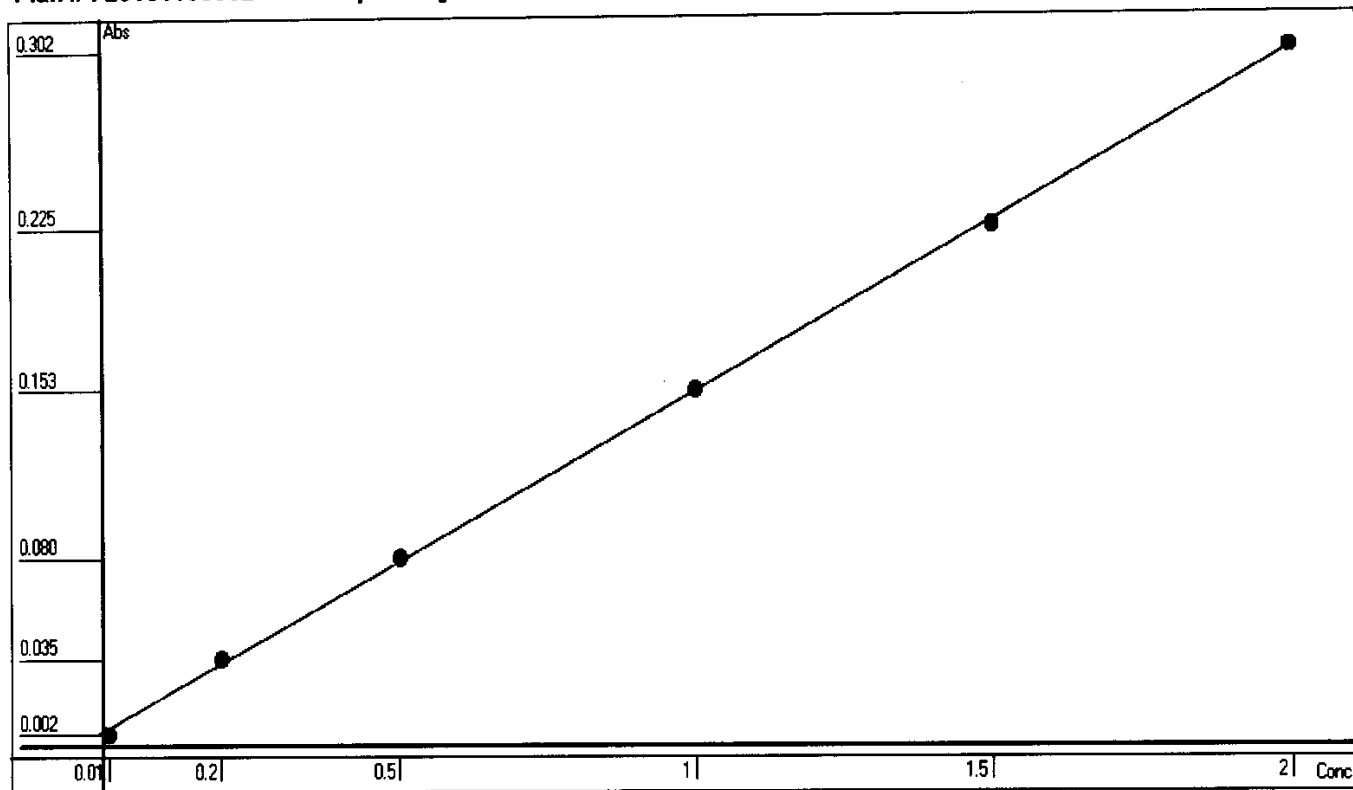
Smp#[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
20	L16110142-02	-0.021	0.0004	0.00	><,LL	10:00:43 AM
ST-3	1CCV (1 mg/L)	1.007	0.1534	100.65		10:01:01 AM
ST-2	2CCB (0 mg/L)	0.097	0.0179	0.00		10:01:54 AM
21	L16110142-03	0.051	0.0111	0.00		10:02:12 AM
22	WG590729-04 DUP	0.016	0.0058	0.00		10:03:06 AM
23	WG590729-05 MS	1.009	0.1537	0.00		10:03:24 AM
24	WG590729-07 MS	0.715	0.1100	0.00		10:04:18 AM
25	ID 25	-0.052	-0.0043	0.00	INV,><,LL	10:04:36 AM
26	ID 26	0.557	0.0865	0.00		10:05:31 AM
27	ID 27	0.919	0.1403	0.00		10:05:48 AM
ST-3	1CCV (1 mg/L)	0.935	0.1428	93.53		10:06:42 AM
ST-2	2CCB (0 mg/L)	0.004	0.0041	0.00		10:07:00 AM
6-[1/2]	L16110289-01	× 0.292	0.0252	0.00		10:14:40 AM
17-[1/2]	L16110074-09	× -0.178	-0.0098	0.00	INV,><,LL	10:15:52 AM
ST-3	1CCV (1 mg/L)	0.872	0.1334	87.22		10:15:52 AM
ST-2	2CCB (0 mg/L)	-0.021	0.0003	0.00	><,LL	10:16:46 AM

Report Date :11/08/2016 Run Date :11/8/2016 Operator : SMARTCHEM1 Plan # :20161108002
 Plan Description : PHOS-A1-DCM/11/08/2016

Calibrant Report - WTPH -

Calib Lot #:010104 Exp Date:6/18/2020 User:MICROBAC

Plan # : 20161108002 Description : [PHOS-A1-DCM/11/08/2016] Unit



Point	OD	Conc	Recalc Conc	% Error
1	0.0022	0.01	-0.0084	-184.00
2	0.0353	0.2	0.2137	6.85
3	0.0796	0.5	0.5111	2.22
4	0.1530	1	1.0038	0.38
5	0.2246	1.5	1.4843	-1.05
6	0.3022	2	2.0052	0.26

Conc= +6.7121*Abso -0.0232 R²=0.9997

RBL
0.0653
0

Report Date 11/8/2016 Run Date 11/8/2016

MICROBAC (OVD)
 SMARTCHEM200 INST1 (VER3.1.14)
 NH3, TKN, NO3NO2 (MG/L N)
 ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WTPH -Unit [mg/L] - EPA 365.4 TOTAL PHOSPHORUS

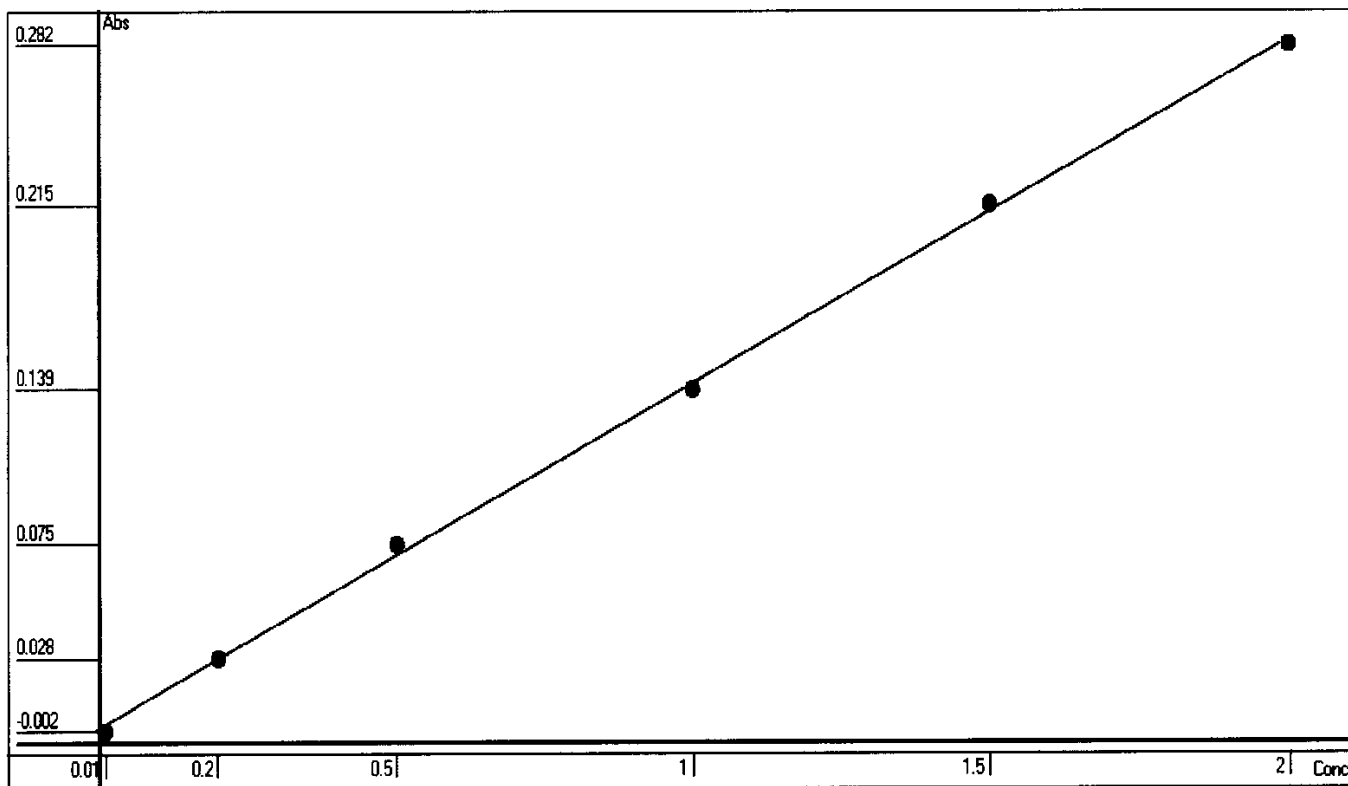
Smp#[/Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.0600	0.00	R	10:39:39 AM
DIL-1	RBL	0.000	0.0577	0.00	R	10:39:56 AM
DIL-1	RBL	0.000	0.0553	0.00	R	10:40:51 AM
SR5-1	Std-1	0.010	-0.0024	0.00	INV	10:41:08 AM
SR5-2	Std-2	0.200	0.0275	0.00		10:42:03 AM
SR5-3	Std-3	0.500	0.0748	0.00		10:42:21 AM
SR5-4	Std-4	1.000	0.1392	0.00		10:43:16 AM
SR5-5	Std-5	1.500	0.2154	0.00		10:43:33 AM
ST-1	Std-6	2.000	0.2818	0.00	EPL	10:44:27 AM
ST-3	1CCV (1 mg/L)	1.121	0.1587	112.09		10:44:45 AM
ST-2	2CCB (0 mg/L)	0.048	0.0058	0.00		10:45:39 AM
1	ICV	1.511	0.2143	0.00		10:45:57 AM
2	WG590779-01 BLK	-0.076	-0.0118	0.00	INV,><,LL	10:46:51 AM
3	WG590779-02 LCS	0.996	0.1409	0.00		10:47:08 AM
4	L16110289-02 (5)	1.436	0.2036	0.00		10:48:02 AM
5	WG590779-03 REF	-0.017	-0.0034	0.00	INV,><,LL	10:48:20 AM
6	WG590779-04 DUP	0.006	-0.0002	0.00	INV	10:49:15 AM
7	WG590779-05 MS	1.069	0.1513	0.00		10:49:33 AM
8	ID 811-289-01 (2)	1.050	0.1486	0.00		10:50:27 AM
9	ID 911-74-09 (2)	1.033	0.1462	0.00		10:50:45 AM
ST-3	1CCV (1 mg/L)	1.073	0.1519	107.32		10:51:39 AM
ST-2	2CCB (0 mg/L)	0.039	0.0045	0.00		10:51:57 AM

Report Date :11/08/2016 Run Date :11/08/2016 Operator : SMARTCHEM1 Plan # :20161108003
 Plan Description : PHOS-B1-DCM/11/08/2016

Calibrant Report - WTPH -

Calib Lot #:010104 Exp Date:6/18/2020 User:MICROBAC

Plan # : 20161108003 Description : [PHOS-B1-DCM/11/08/2016] Unit



Point	OD	Conc	Recalc Conc	% Error
1	-0.0024	0.01	-0.0094	-194.00
2	0.0275	0.2	0.2004	0.20
3	0.0748	0.5	0.5324	6.48
4	0.1391	1	0.9836	-1.64
5	0.2154	1.5	1.5191	1.27
6	0.2817	2	1.9845	-0.78

Conc= +7.0183*Abso +0.0074 R²=0.9993

RBL
0.0588
0

Report Date 11/8/2016 Run Date 11/8/2016

2.4.4 Sulfide Data

2.4.4.1 Summary Data

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.					

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: 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.					

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.					

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: 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.					

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: 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.					

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.					

2.4.4.2 QC Summary Data

Example Total Sulfide(Liquid) Calculations

$[\text{mL Iodine} * \text{N Iodide}] - (\text{mL titrant} * \text{N titrant}) * 16000 / (\text{volume} * \text{dilution}) = \text{mg/L Sulfide}$
 where:

mL Iodine = mL of Iodine used

N Iodine = normality of Iodine

mL titrant = mL of titrant used

N titrant = normality of titrant

16000 = factor: 1mL of 0.025 N iodine reacts with 0.4mg sulfide

volume = mL filtered of mL titrated(if not filtered)

dilution = dilution in decimal form (1/5 = 0.2)

Example Total Sulfide(Soil) Calculations

$[(\text{mL Iodine} * \text{N Iodine}) - (\text{mL titrant} * \text{N titrant})] * 16.03 / \text{weight} = \text{mg/kg sulfide}$
 where:

mL Iodine = mL of Iodine used

N Iodine = normality of Iodine

mL titrant = normality of titrant

16.03 = 32.06 grams per 2 equivalents

weight = kg of sample used

Microbac Laboratories Inc.

Data Checklist

Date: 03-NOV-2016
 Analyst: TB
 Analyst: NA
 Method: S
 Instrument: BURET
 Curve Workgroup: NA
 Runlog ID: _____
 Analytical Workgroups: WG590306

Calibration/Linearity	11/03/2016
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
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	TB
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
09-NOV-2016

Todd Boyle

Secondary Reviewer:
11-NOV-2016

Drenna Johnson



Analytical Method:SM4500-S-(-2)-F-
Login Number:L16110074

AAB#:WG590306

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	2.4	7		11/03/16	2.4	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	2.3	7		11/03/16	2.3	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	2.2	7		11/03/16	2.2	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: 5018989
Report generated 11/11/2016 07:59



METHOD BLANK SUMMARY

Login Number: L16110074 Work Group: WG590306
 Blank File ID: ET.1611031715-01 Blank Sample ID: WG590306-01
 Prep Date: 11/03/16 17:15 Instrument ID: BURET
 Analyzed Date: 11/03/16 17:15 Method: SM4500-S-(-2)-F-
 Analyst: TB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590306-02	ET.1611031715-02	11/03/16 17:15	
LCS2	WG590306-03	ET.1611031715-03	11/03/16 17:15	
50WW13-110116	L16110074-01	ET.1611031715-04	11/03/16 17:15	
50WW14-110116	L16110074-03	ET.1611031715-05	11/03/16 17:15	
50WW11-110116	L16110074-05	ET.1611031715-06	11/03/16 17:15	
50WW06-110116	L16110074-07	ET.1611031715-07	11/03/16 17:15	
50WW12-110116	L16110074-09	ET.1611031715-08	11/03/16 17:15	
50WW23-110116	L16110074-11	ET.1611031715-09	11/03/16 17:15	

Report Name: BLANK_SUMMARY
 PDF File ID: 5018990
 Report generated 11/11/2016 07:59



Login Number: L16110074 Prep Date: 11/03/16 17:15 Sample ID: WG590306-01
Instrument ID: BURET Run Date: 11/03/16 17:15 Prep Method: SM4500-S-(-2)-F
File ID: ET.1611031715-01 Analyst: TB Method: SM4500-S-(-2)-F
Workgroup (AAB#): WG590306 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: BURET - _____

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Sulfide	0.500	2.00	0.500	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: 5018991
11-NOV-2016 07:59



Login Number: L16110074 Analyst: TB Prep Method: SM4500-S-(-2)-F
 Instrument ID: BURET Matrix: Water Method: SM4500-S-(-2)-F
 Workgroup (AAB#): WG590306 Units: mg/L
 QC Key: DOD4 Lot #: STD78857
 Sample ID: WG590306-02 LCS File ID: ET.1611031715-02 Run Date: 11/03/2016 17:15
 Sample ID: WG590306-03 LCS2 File ID: ET.1611031715-03 Run Date: 11/03/2016 17:15

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Sulfide	19.1	19.0	99.6	19.1	19.0	99.6	0.00	85 - 115	10	

LCS_LCS2 - Modified 03/06/2008
 PDF File ID: 5018992
 Report generated: 11/11/2016 07:59



2.4.4.3 Raw Data

SULFIDE
(sulfide)

WORKGROUP: WG590306

Water:
EPA 376.1 / SM4500-S(-2)-F
SOP K3761 Revision #: 17

Soil:
SM846 9030B/9034
SOP K9030 Revision #: _____

Instrument: Buret

LCS: SA 78857

Iodine standardization (0.025N) COA: 19159
mL 0.025N titrant: 10.0
Volume I: 10.0 mL
Normality I: 0.025

(0.1 N I) COA: 18931
mL 0.025 N titrant: 8.0
Volume I: 2.0 mL
Normality I: 0.100

Stock standardization (in duplicate) 5.0 mL stock
mL I 1) 10.0 2) 10.0
N I 1) 0.10 2) 0.10
mL 0.025 titrant 1) 24.1 2) 24.1
LCS daily dilution: $\frac{3(1272)}{200} = 19.1$ mg/L

pH paper lot #: 15A103
1272 = stock conc (mg/L)
Titrant: T- 1775-12-04

SAMPLE	Volume Filtered mL	mL Iodine	N Iodine	$\frac{0.025}{N}$ Sodium Thiosulfate (mL)
BLANK	200	15.0	0.025	15.0
LCS (mL)	200	15.0	0.025	5.5
LCSDUP (mL)	200	15.0	0.025	5.5
11-0074-01	480	15.0	0.025	14.9
03	480	15.0	0.025	15.0
05	460	15.0	0.025	14.8
07	490	15.0	0.025	15.0
09	480	15.0	0.025	14.5
11	480 510	15.0	0.025	15.0
144-01	480	15.0	0.025	15.0
03	460	15.0	0.025	14.9
05	490	15.0	0.025	14.7

11/3/16

Analyst: [Signature] Date/Time: 11/3/16 1715

DCN#121998



Microbac Laboratories Inc.
TITRAMETRIC REPORT

Workgroup (AAB#): WG590306Analyst: TBProduct: EPA 376.1\9034Run Date: 11/03/2016 17:15Analyte: Sulfide

SAMPLE NUMBER	Volume	Vol I	Nor I	Vol T	Nor T	Dil	Analytical	Reported	Units
WG590306-01	200.0	15	.025	15	.025	1	0	0	mg/L
WG590306-02	200.0	15	.025	5.5	.025	1	19.0	19.00	mg/L
WG590306-03	200.0	15	.025	5.5	.025	1	19.0	19.00	mg/L
L16110074-01	480.0	15	.025	14.9	.025	1	0.0833	ND	mg/L
L16110074-03	480.0	15	.025	15	.025	1	0	ND	mg/L
L16110074-05	460.0	15	.025	14.8	.025	1	0.174	ND	mg/L
L16110074-07	490.0	15	.025	15	.025	1	0	ND	mg/L
L16110074-09	480.0	15	.025	14.5	.025	1	0.417	ND	mg/L
L16110074-11	510.0	15	.025	15	.025	1	0	ND	mg/L
L16110144-01	480.0	15	.025	15	.025	1	0	ND	mg/L
L16110144-03	460.0	15	.025	14.9	.025	1	0.0870	ND	mg/L
L16110144-05	490.0	15	.025	14.7	.025	1	0.245	ND	mg/L

SULFIDE_REPORT - Modified 03/06/2008

Report generated 11/09/2016 15:32



2.4.5 Total Organic Carbon Data

2.4.5.1 Summary Data

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 #: L16110074-03	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 #: L16110074-05	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

Lab Report #: L16110074

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

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 #: L16110074-09	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 #: L16110074-11	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

2.4.5.2 QC Summary Data

**Total Organic Carbon Example Calculations
(Direct Readout Parameter)**

$$(\text{Readout})/(\text{dilution}) = \text{mg/L}$$

where:

Readout = direct readout from the instrument

dilution = dilution in decimal form (ex. 1/5 dilution = 0.2)

Microbac Laboratories Inc.

Data Checklist

Date: 03-NOV-2016
 Analyst: DCM
 Analyst: NA
 Method: TOC
 Instrument: TOC-VWP
 Curve Workgroup: NA
 Runlog ID: _____
 Analytical Workgroups: WG590226

Calibration/Linearity	10-31-2015
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
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	DCM
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
07-NOV-2016



Secondary Reviewer:
08-NOV-2016




Analytical Method: 415.1
Login Number: L16110074

AAB#: WG590226

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	3.1	28		11/04/16	3.1	28	
50WW14-110116	03	11/01/16					11/04/2016	3	28		11/04/16	3	28	
50WW11-110116	05	11/01/16					11/04/2016	3	28		11/04/16	3	28	
50WW06-110116	07	11/01/16					11/04/2016	3	28		11/04/16	3	28	
50WW12-110116	09	11/01/16					11/03/2016	2.2	28		11/03/16	2.2	28	
50WW23-110116	11	11/01/16					11/04/2016	2.9	28		11/04/16	2.9	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5012377
Report generated 11/07/2016 17:14



METHOD BLANK SUMMARY

Login Number: L16110074 Work Group: WG590226
 Blank File ID: TC11032016.004 Blank Sample ID: WG590226-01
 Prep Date: 11/03/16 11:38 Instrument ID: TOC-VWP
 Analyzed Date: 11/03/16 11:38 Method: 415.1
 Analyst: DCM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590226-02	TC11032016.005	11/03/16 11:57	01
LCS2	WG590226-03	TC11032016.006	11/03/16 12:18	01
50WW12-110116	L16110074-09	TC11032016.025	11/03/16 19:25	DL01
DUP	WG590226-08	TC11032016.032	11/03/16 21:40	01
50WW13-110116	L16110074-01	TC11032016.038	11/04/16 09:45	DL01
50WW14-110116	L16110074-03	TC11032016.039	11/04/16 10:06	DL01
50WW11-110116	L16110074-05	TC11032016.040	11/04/16 10:29	DL01
50WW06-110116	L16110074-07	TC11032016.041	11/04/16 10:52	DL01
50WW23-110116	L16110074-11	TC11032016.042	11/04/16 11:14	DL01

Report Name: BLANK_SUMMARY
 PDF File ID: 5012378
 Report generated 11/07/2016 17:15



Login Number: L16110074 Prep Date: 11/03/16 11:38 Sample ID: WG590226-01
Instrument ID: TOC-VWP Run Date: 11/03/16 11:38 Prep Method: 415.1
File ID: TC11032016.004 Analyst: DCM Method: 415.1
Workgroup (AAB#): WG590226 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: TOC-VW-30-OCT-15

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Total Organic Carbon	0.500	2.00	0.500	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: 5012379
07-NOV-2016 17:15



Login Number: L16110074 Analyst: DCM Prep Method: 415.1
 Instrument ID: TOC-VWP Matrix: Water Method: 415.1
 Workgroup (AAB#): WG590226 Units: mg/L
 QC Key: DOD4 Lot #: STD77870
 Sample ID: WG590226-02 LCS File ID: TC11032016.005 Run Date: 11/03/2016 11:57
 Sample ID: WG590226-03 LCS2 File ID: TC11032016.006 Run Date: 11/03/2016 12:18

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Total Organic Carbon	25.0	26.3	105	25.0	26.2	105	0.496	85 - 115	15	

LCS_LCS2 - Modified 03/06/2008
 PDF File ID: 5012380
 Report generated: 11/07/2016 17:15



2.4.5.3 Raw Data

Curve

wg545145

Total Organic Carbon

MAKE DAILY

CCV (TOC): $\frac{5}{200}(1000) = 25\text{mg/L}$ LCS (TOC): $\frac{5}{200}(1000) = 25\text{mg/L}$

CCV (TIC): $\frac{5}{200}(1000) = 25\text{mg/L}$ *See Below* MS (TOC): _____

Calibration Curve Date: _____ Reagent: RGT 34567
RGT 34459

SM5310-C: Matrix 2 WG _____ EPA 415.1/9060A(mod): Matrix 1 WG _____ SOP: K 4151 Rev. 18

Instrument: Shimadza TOC-VWP/ASI

- drain reservoir filled
- ASI water bottle full
- dilution water bottle full

- DAILY CHECK**
- 3rd bottle full
 - sufficient gas
 - sufficient persulfate

- sufficient acid waste container

Position	Sample ID	Dilution	Position	Sample ID	Dilution	Position	Sample ID	Dilution
1	TC Curve		26	TC Curve		51		
2	TIC Curve		27	Std 72133		52	<i>See SOP for point preparation</i>	
3	TC ICV		28			53		
4	TIC ICV		29	TIC Curve		54		
5			30	Std 72165		55		
6			31			56		
7			32			57		
8			33	TOC (TC)		58		
9			34	ICV		59		
10			35	Std 72270		60	$\frac{5}{200}(1000) = 25$	
11			36			61		
12			37	TIC ICV		62		
13	<i>All points analyzed in duplicate</i>		38	Std 72654		63		
14			39			64		
15			40			65		
16			41			66		
17			42			67		
18			43			68		
19			44			69		
20			45			70		
21			46			71		
22			47			72		
23			48			73		
24			49			74		
25			50			75		

Analyst: David Morkle Date/Time: 10/31/15

DCN#114406



10/31/2015 3:38:21 PM

CURVES-10-30-2015.i32

Instr. Information

System TOCVW ASI
 Detector Wet Chemical

Cal. Curve

Sample Name: TCCURVE
 Sample ID:
 Cal. Curve: TCCURVE-10-30-2015.2015_10_30_16_06_37.cal
 Status: Completed

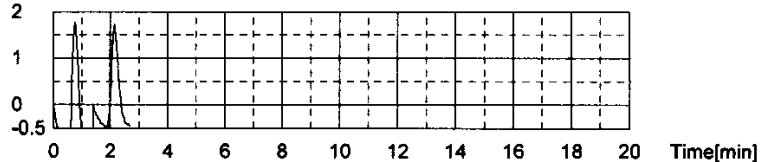
Type	Anal.
Standard	TC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.764	500uL	1	*****		10/30/2015 4:10:07 PM
2	3.607	500uL	1	*****		10/30/2015 4:13:33 PM

Acid Add. 0.000%
 Mean Area 4.186

Signal[mV] 2

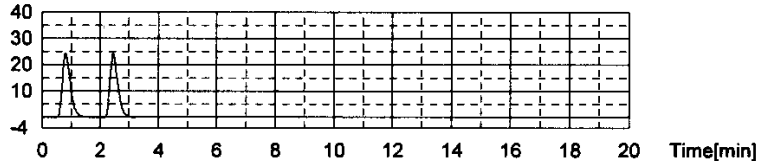


Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	46.19	500uL	1	*****		10/30/2015 4:19:03 PM
2	46.28	500uL	1	*****		10/30/2015 4:22:56 PM

Acid Add. 0.000%
 Mean Area 46.23

Signal[mV] 40

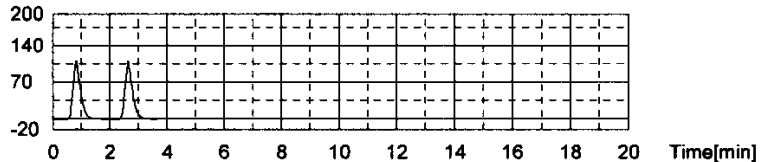


Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	194.3	500uL	1	*****		10/30/2015 4:28:42 PM
2	193.1	500uL	1	*****		10/30/2015 4:32:47 PM

Acid Add. 0.000%
 Mean Area 193.7

Signal[mV] 200



Conc: 10.00mg/L

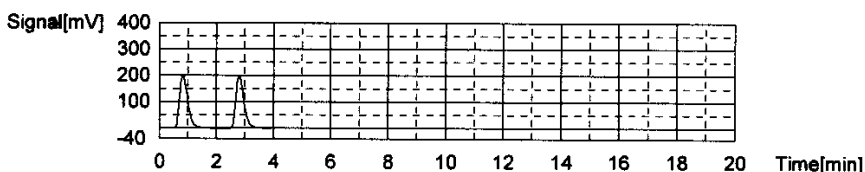
1/5

10/31/2015 3:38:21 PM

CURVES-10-30-2015.t32

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	390.8	500uL	1	*****		10/30/2015 4:38:42 PM
2	391.3	500uL	1	*****		10/30/2015 4:42:54 PM

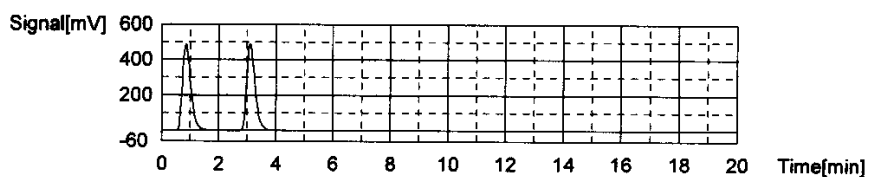
Acid Add. 0.000%
Mean Area 391.1



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	989.0	500uL	1	*****		10/30/2015 4:49:06 PM
2	994.6	500uL	1	*****		10/30/2015 4:53:33 PM

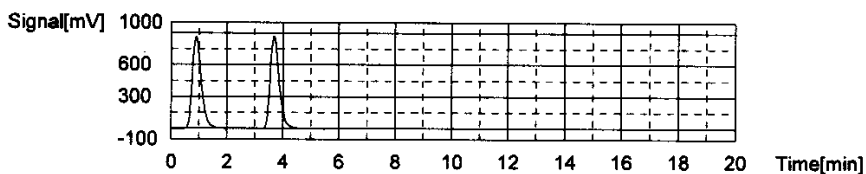
Acid Add. 0.000%
Mean Area 991.8



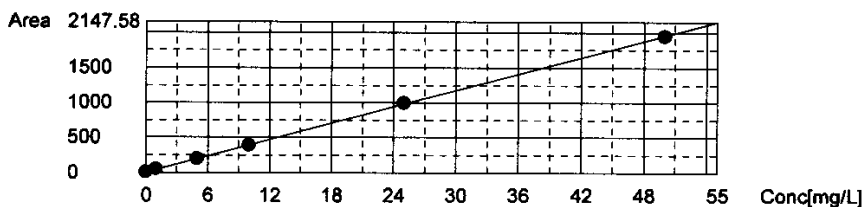
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1946	500uL	1	*****		10/30/2015 5:00:24 PM
2	1948	500uL	1	*****		10/30/2015 5:05:23 PM

Acid Add. 0.000%
Mean Area 1947



Slope: 38.95
Intercept: 4.952
r^2: 0.999910
Zero Shift: No



Sample

Sample Name: TC ICV
Sample ID:
Origin: TCCURVE-10-30-2015.2015_10_30_16_06_37.cal
Status: Completed
Chk. Result:

Type	Anal.	Dil.	Result
Unknown	TC	1.000	TC:25.93mg/L

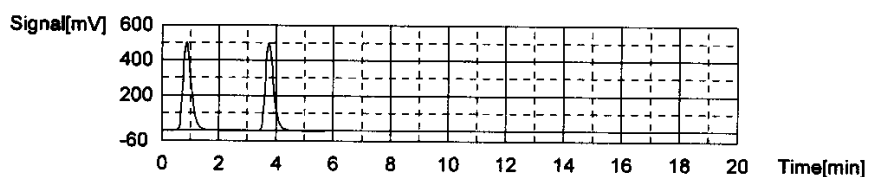
1. Det

= 103.7%

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1020	26.06mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_3	10/31/2015 9:56:57 AM
2	1010	25.80mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_3	10/31/2015 10:02:17 AM

Mean Area 1015
Mean Conc. 25.93mg/L



Cal. Curve

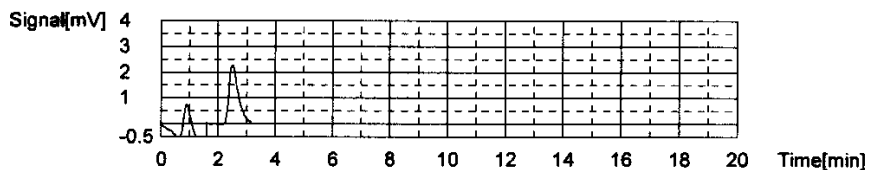
Sample Name: TICCURVE
Sample ID: Untitled
Cal. Curve: TICCURVE-10-30-2015.2015_10_31_11_55_05.cal
Status: Completed

Type	Anal.
Standard	IC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	2.732	500uL	1	*****		10/31/2015 12:00:21 PM
2	5.011	500uL	1	*****		10/31/2015 12:04:52 PM

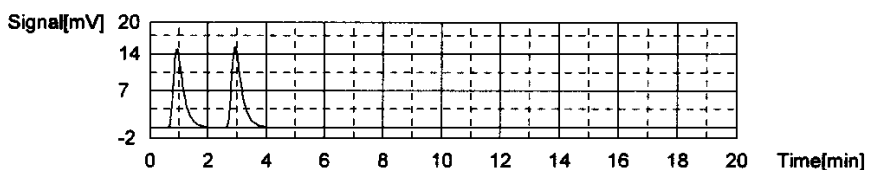
Acid Add. 10.00%
Mean Area 3.872



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	35.96	500uL	1	*****		10/31/2015 12:12:47 PM
2	37.13	500uL	1	*****		10/31/2015 12:17:43 PM

Acid Add. 10.00%
Mean Area 36.55



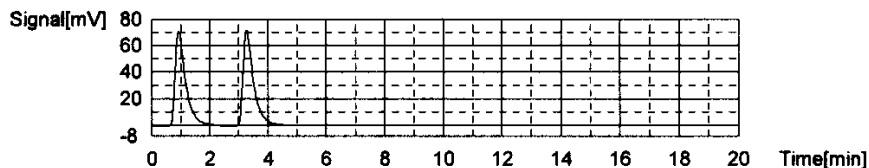
Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	173.6	500uL	1	*****		10/31/2015 12:26:14 PM
2	175.6	500uL	1	*****		10/31/2015 12:31:38 PM

10/31/2015 3:38:21 PM

CURVES-10-30-2015.i32

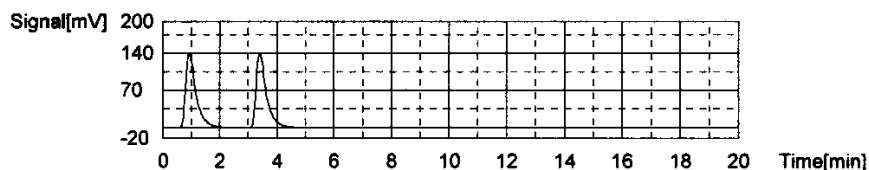
Acid Add. 10.00%
Mean Area 174.6



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	344.8	500uL	1	*****		10/31/2015 12:40:18 PM
2	345.1	500uL	1	*****		10/31/2015 12:45:49 PM

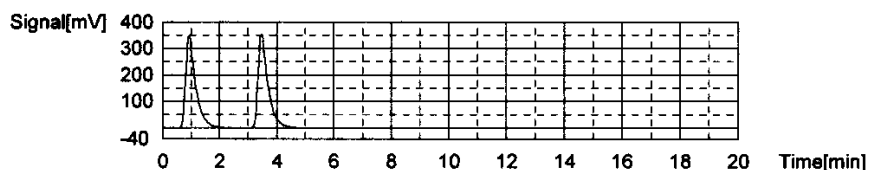
Acid Add. 10.00%
Mean Area 345.0



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	835.5	500uL	1	*****		10/31/2015 12:54:43 PM
2	845.9	500uL	1	*****		10/31/2015 1:00:42 PM

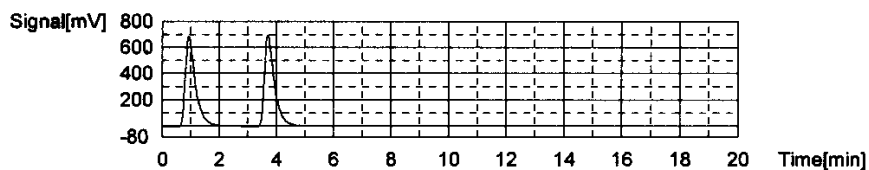
Acid Add. 10.00%
Mean Area 840.7



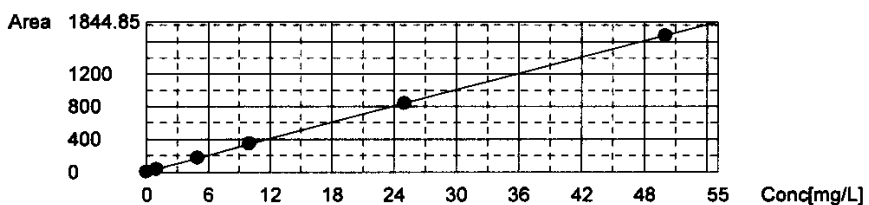
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1676	500uL	1	*****		10/31/2015 1:09:51 PM
2	1677	500uL	1	*****		10/31/2015 1:15:54 PM

Acid Add. 10.00%
Mean Area 1677



Slope: 33.42
Intercept: 5.927
r²: 0.999982
Zero Shift: No



Sample

10/31/2015 3:38:21 PM

CURVES-10-30-2015.132

Sample Name: TIC ICV
 Sample ID: Untitled
 Origin: TICCURVE-10-30-2015.cal
 Status: Completed
 Chk. Result: Completed

Type	Anal.	Dil.	Result
Unknown	IC	1.000	IC:25.37mg/L

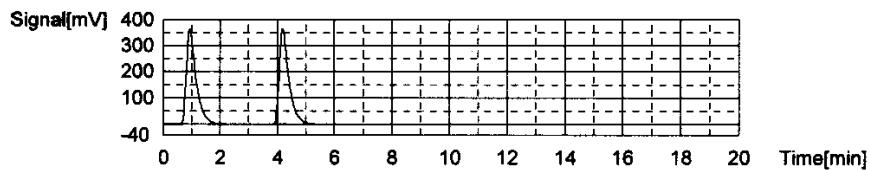
= 101.5%

1. Det

Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	854.5	25.39mg/L	500uL	1	1	TICCURVE-10-30-2015.2015_10_31_11_55_0	10/31/2015 1:25:27 PM
2	853.1	25.35mg/L	500uL	1	1	TICCURVE-10-30-2015.2015_10_31_11_55_0	10/31/2015 1:31:33 PM

Mean Area 853.8
 Mean Conc. 25.37mg/L



5/5

Total Organic Carbon

MAKE DAILY

CCV (TOC): Std 75879
(5/200)(1000) = 25mg/L

LCS (TOC): Std 77870
(5/200)(1000) = 25mg/L

CCV (TIC): Std 78236
(5/200)(1000) = 25mg/L

MS (TOC): Std 77870
0.4 (1000) / 10 = 40

Calibration Curve Date: 10/31/15

Reagent: RET 38296
RET 37475

- SM5310-C : Matrix 2 WG 590226
- EPA 415.1/9060A(mod): Matrix 1 WG _____

SOP: K 4151 Rev. 19
Instrument: Shimadza TOC-VWP/ASI

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> drain reservoir filled | <input checked="" type="checkbox"/> DAILY CHECK | <input type="checkbox"/> sufficient acid waste container |
| <input type="checkbox"/> ASI water bottle full | <input type="checkbox"/> 3 rd bottle full | |
| <input type="checkbox"/> dilution water bottle full | <input type="checkbox"/> sufficient gas | |
| | <input type="checkbox"/> sufficient persulfate | |

Position	Sample ID	Dilution	Position	Sample ID	Dilution	Position	Sample ID	Dilution
1	TIC		26	CCV		51		
2	TOC / TIC		27	CCB		52		
3	CCV		28	11-74-11	1/10	53		
4	31k		29	11-75-c3	1/2	54		
5	LCS		30	c4	1/2	55		
6	LCS DUP		31	c5	1/2	56		
7	11-106-c9		32	DUP 11-106-c9		57		
8	11-110-c1	1/5	33	CCV		58		
9	c2 dup	1/5, 1/20	34	CCB		59		
10	11-111-c1		35	CCV		60		
11	11-25-c1	1/3	36	CCB		61		
12	11-29-c3		37	11-72-c3	1/4	62		
13	11-72-c2	1/2	38	11-74-c1	1/5, 1/10	63		
14	CCV		39	c3	1/5	64		
15	CCB		40	c5	1/5	65		
16	11-72-c3	1/2	41	c7	1/5	66		
17	REF c4	1/2	42	11	1/5	67		
18	c5	1/2	43	11-75-c3	1/5	68		
19	MS c6	1/2	44	CCV		69		
20	MSTD c7	1/2	45	CCB		70		
21	11-74-c1	1/10	46			71		
22	c3	1/10	47			72		
23	c5	1/10	48			73		
24	c7	1/10	49			74		
25	c9	1/5	50			75		

Analyst: David Merkle Date/Time: 11/3/16 1102

DCN#121985



C:\TOC3201\Data\11-03-2016-DCM-TOC.t32

	Analysis	Sample Name	Result	Status	Date / Time	Vial
1	TOC	TIC	TOC:3.438mg/L TC:27.42mg/L IC:23.98mg/L	Complete	11/3/2016 11:02:55 AM	1
2	TOC	TOC/TIC	TOC:27.78mg/L TC:36.41mg/L IC:8.628mg/L	Complete	11/3/2016 11:15:30 AM	2
3	TOC	CCV	TOC:25.76mg/L TC:25.78mg/L IC:0.01802mg/L	Complete	11/3/2016 11:27:41 AM	3
4	TOC	WG590226-01 BLK	TOC:0.00911mg/L TC:0.1175mg/L IC:0.1083mg/L	Complete	11/3/2016 11:49:47 AM	0
5	TOC	WG590226-02 LCS	TOC:26.28mg/L TC:26.29mg/L IC:0.01269mg/L	Complete	11/3/2016 12:10:13 PM	5
6	TOC	WG590226-03 LCSDUP	TOC:26.15mg/L TC:26.18mg/L IC:0.02472mg/L	Complete	11/3/2016 12:31:04 PM	6
7	TOC	L16110106-09	TOC:5.210mg/L TC:16.12mg/L IC:10.91mg/L	Complete	11/3/2016 12:52:28 PM	7
8	TOC	L16110110-01 (5)	TOC:37.62mg/L TC:43.46mg/L IC:5.835mg/L	Complete	11/3/2016 1:17:05 PM	8
9	TOC	L16110110-02 (20)	TOC:18.70mg/L TC:28.01mg/L IC:9.310mg/L	Complete	11/3/2016 1:59:52 PM	9
10	TOC	L16110111-01	TOC:24.11mg/L TC:28.58mg/L IC:4.469mg/L	Complete	11/3/2016 2:27:39 PM	10
11	TOC	L16110025-01 (3)	TOC:20.78mg/L TC:33.15mg/L IC:12.37mg/L	Complete	11/3/2016 2:51:35 PM	11
12	TOC	L16110029-03	TOC:29.39mg/L TC:43.24mg/L IC:13.85mg/L	Complete	11/3/2016 3:13:01 PM	12
13	TOC	L16110072-02 (2)	TOC:8.362mg/L TC:36.37mg/L IC:28.01mg/L	Complete	11/3/2016 3:36:27 PM	13
14	TOC	CCV	TOC:25.76mg/L TC:25.93mg/L IC:0.1721mg/L	Complete	11/3/2016 3:48:36 PM	14
15	TOC	CCB	!!Error!! TOC:-0.00641mg/L TC:0.1122mg/L IC:0.1186mg/L	Complete	11/3/2016 3:57:32 PM	0
16	TOC		TOC:8.331mg/L TC:59.84mg/L IC:51.51mg/L	Complete	11/3/2016 4:22:28 PM	16
17	TOC	L16110072-04 (2)	TOC:9.772mg/L TC:46.23mg/L IC:36.46mg/L	Complete	11/3/2016 4:46:28 PM	17
18	TOC	L16110072-05 (2)	TOC:9.556mg/L TC:44.55mg/L IC:34.99mg/L	Complete	11/3/2016 5:10:00 PM	18
19	TOC	L16110072-06 (2) MS	TOC:12.87mg/L TC:37.53mg/L IC:24.65mg/L	Complete	11/3/2016 5:32:14 PM	19
20	TOC	L16110072-07 (2) MSD	TOC:12.38mg/L TC:35.02mg/L IC:22.64mg/L	Complete	11/3/2016 5:54:41 PM	20
21	TOC		TOC:2.085mg/L TC:8.029mg/L IC:5.944mg/L	Complete	11/3/2016 6:15:25 PM	21
22	TOC	<Untitled>	TOC:1.904mg/L TC:6.941mg/L IC:5.037mg/L	Complete	11/3/2016 6:35:56 PM	22
23	TOC	<Untitled>	TOC:2.291mg/L TC:9.406mg/L IC:7.115mg/L	Complete	11/3/2016 6:56:37 PM	23
24	TOC	<Untitled>	TOC:1.912mg/L TC:8.239mg/L IC:6.327mg/L	Complete	11/3/2016 7:17:12 PM	24
25	TOC	L16110074-09 (5)	TOC:4.318mg/L TC:25.93mg/L IC:21.62mg/L	Complete	11/3/2016 7:40:08 PM	25
26	TOC	CCV	TOC:26.11mg/L TC:26.27mg/L IC:0.1554mg/L	Complete	11/3/2016 7:52:14 PM	26
27	TOC	CCB	!!Error!! TOC:-0.00202mg/L TC:0.1152mg/L IC:0.1172mg/L	Complete	11/3/2016 8:01:08 PM	0
28	TOC	<Untitled>	TOC:6.121mg/L TC:7.106mg/L IC:0.9844mg/L	Complete	11/3/2016 8:21:47 PM	28
29	TOC		TOC:7.475mg/L TC:57.05mg/L IC:49.58mg/L	Complete	11/3/2016 8:46:53 PM	29
30	TOC	L16110075-04 (2)	TOC:8.599mg/L TC:36.63mg/L IC:28.03mg/L	Complete	11/3/2016 9:09:47 PM	30
31	TOC	L16110075-05 (2)	TOC:9.024mg/L TC:37.58mg/L IC:28.55mg/L	Complete	11/3/2016 9:33:24 PM	31
32	TOC	WG590226-05 DUP	TOC:4.338mg/L TC:7.690mg/L IC:3.352mg/L	Complete	11/3/2016 9:54:12 PM	32
33	TOC	CCV	TOC:25.96mg/L TC:26.06mg/L IC:0.1019mg/L	Complete	11/3/2016 10:06:20 PM	33
34	TOC	CCB	TOC:0.00562mg/L TC:0.1198mg/L IC:0.1142mg/L	Complete	11/3/2016 10:15:14 PM	0
35	TOC	CCV	TOC:25.53mg/L TC:25.63mg/L IC:0.09808mg/L	Complete	11/4/2016 8:45:52 AM	35
36	TOC	CCB	TOC:0.00986mg/L TC:0.1347mg/L IC:0.1249mg/L	Complete	11/4/2016 8:54:49 AM	0
37	TOC	L16110072-03 (4)	TOC:22.15mg/L TC:39.12mg/L IC:16.97mg/L	Complete	11/4/2016 9:17:57 AM	37
38	TOC	L16110074-01 (10)	TOC:3.792mg/L TC:17.75mg/L IC:13.96mg/L	Complete	11/4/2016 9:59:07 AM	38
39	TOC	L16110074-03 (5)	TOC:3.890mg/L TC:20.10mg/L IC:16.21mg/L	Complete	11/4/2016 10:21:14 AM	39
40	TOC	L16110074-05 (5)	TOC:6.271mg/L TC:29.32mg/L IC:23.05mg/L	Complete	11/4/2016 10:44:24 AM	40
41	TOC	L16110074-07 (5)	TOC:6.910mg/L TC:26.79mg/L IC:19.88mg/L	Complete	11/4/2016 11:06:35 AM	41
42	TOC	L16110074-11 (5)	TOC:3.127mg/L TC:19.00mg/L IC:15.87mg/L	Complete	11/4/2016 11:29:24 AM	42
43	TOC	L16110075-03 (5)	TOC:4.551mg/L TC:22.32mg/L IC:17.77mg/L	Complete	11/4/2016 11:51:13 AM	43
44	TOC	CCV	TOC:25.56mg/L TC:25.75mg/L IC:0.1949mg/L	Complete	11/4/2016 12:03:22 PM	44
45	TOC	CCB	!!Error!! TOC:-0.00928mg/L TC:0.1240mg/L IC:0.1332mg/L	Complete	11/4/2016 12:12:18 PM	0

11/4/2016 1:21:03 PM

1/1

11/4/2016 1:21:10 PM

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Instr. Information

System TOCVW ASI
 Detector Wet Chemical

Sample

Sample Name: TIC
 Sample ID:
 Origin: TOC-10-31-2015.met
 Status Completed
 Chk. Result

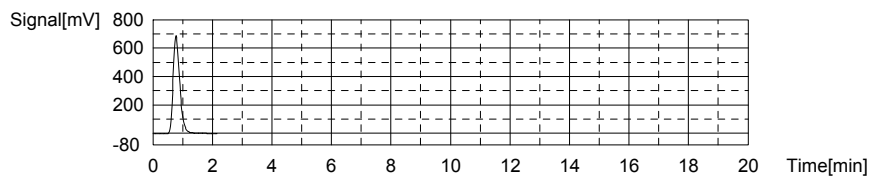
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.438mg/L TC:27.42mg/L IC:23.98mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1073	27.42mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 10:57:40 AM

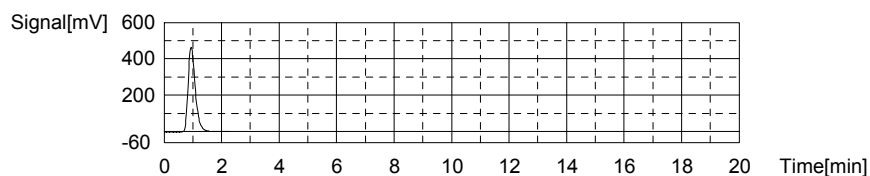
Mean Area 1073
 Mean Conc. 27.42mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	807.6	23.98mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 11:02:55 AM

Mean Area 807.6
 Mean Conc. 23.98mg/L



Sample

Sample Name: TOC/TIC
 Sample ID:
 Origin: TOC-10-31-2015.met
 Status Completed
 Chk. Result

Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:27.78mg/L TC:36.41mg/L IC:8.628mg/L

1. Det

Anal.: TC

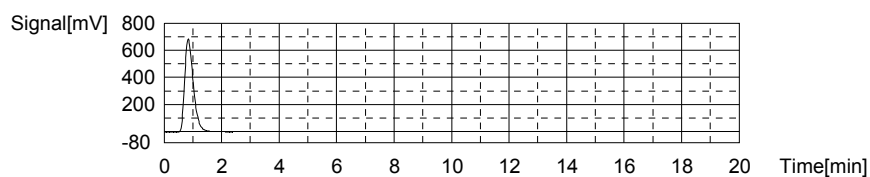
1/32

11/4/2016 1:21:10 PM

11-03-2016-DCM-TOC.i32

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1423	36.41mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 11:10:43 AM

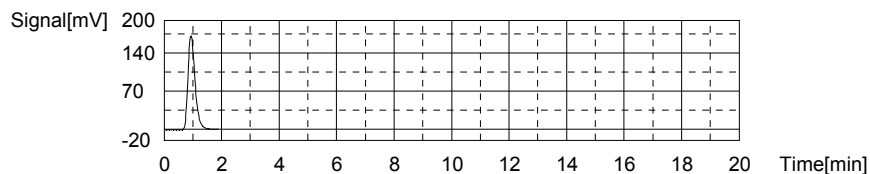
Mean Area 1423
Mean Conc. 36.41mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	294.3	8.628mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 11:15:30 AM

Mean Area 294.3
Mean Conc. 8.628mg/L



Sample

Sample Name: CCV
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

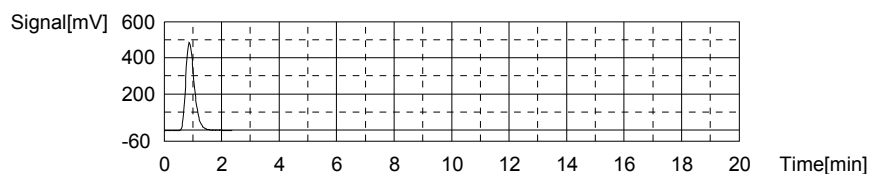
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.76mg/L TC:25.78mg/L IC:0.01802mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1009	25.78mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 11:23:17 AM

Mean Area 1009
Mean Conc. 25.78mg/L



Anal.: IC

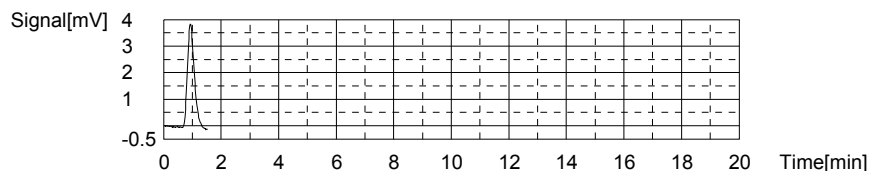
No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.529	0.01802mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 11:27:41 AM

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11/4/2016 1:21:10 PM

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Mean Area 6.529
Mean Conc. 0.01802mg/L



Sample

Sample Name: WG590226-01 BLK
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

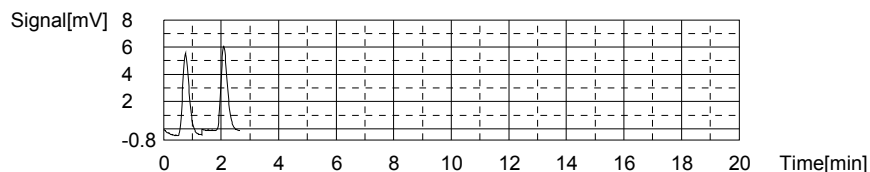
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.00911mg/L TC:0.1175mg/L IC:0.1083mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.358	0.1131mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 11:38:27 AM
2	9.695	0.1218mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 11:41:55 AM

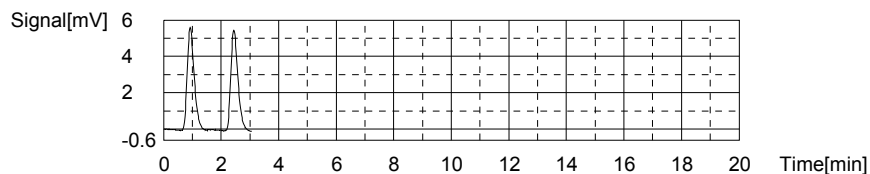
Mean Area 9.527
Mean Conc. 0.1175mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.660	0.1117mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 11:45:52 AM
2	9.436	0.1050mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 11:49:47 AM

Mean Area 9.548
Mean Conc. 0.1083mg/L



Sample

Sample Name: WG590226-02 LCS
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

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11/4/2016 1:21:10 PM

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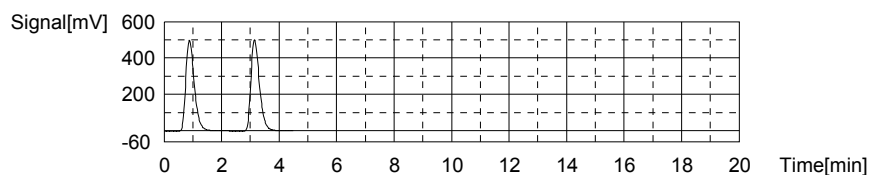
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:26.28mg/L TC:26.29mg/L IC:0.01269mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1025	26.19mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 11:57:18 AM
2	1033	26.40mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 12:01:47 PM

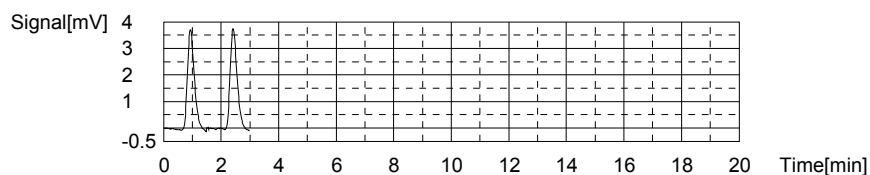
Mean Area 1029
Mean Conc. 26.29mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.349	0.01263mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 12:06:06 PM
2	6.353	0.01275mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 12:10:13 PM

Mean Area 6.351
Mean Conc. 0.01269mg/L



Sample

Sample Name: WG590226-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

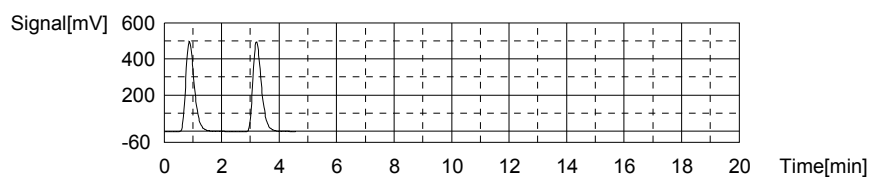
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:26.15mg/L TC:26.18mg/L IC:0.02472mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1025	26.19mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 12:18:00 PM
2	1024	26.16mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 12:22:30 PM

Mean Area 1025
Mean Conc. 26.18mg/L



Anal.: IC

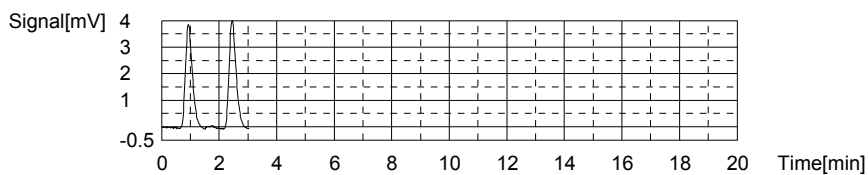
4/32

11/4/2016 1:21:10 PM

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No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.662	0.02200mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/3/2016 12:26:53 PM
2	6.844	0.02744mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/3/2016 12:31:04 PM

Mean Area 6.753
Mean Conc. 0.02472mg/L



Sample

Sample Name: L16110106-09
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

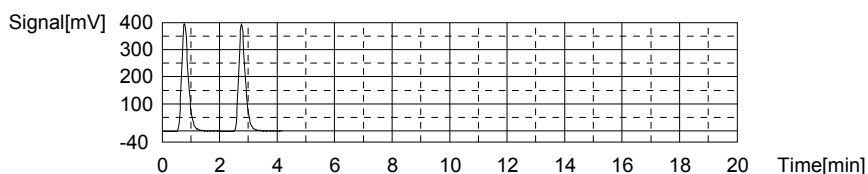
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:5.210mg/L TC:16.12mg/L IC:10.91mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	634.3	16.16mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 3	11/3/2016 12:38:29 PM
2	631.1	16.08mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 3	11/3/2016 12:42:56 PM

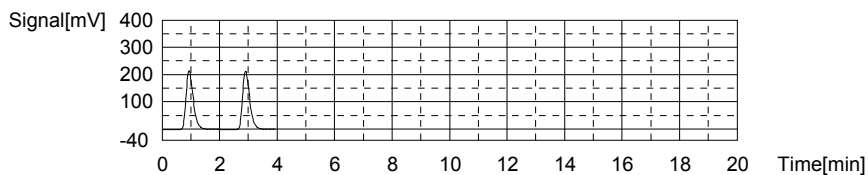
Mean Area 632.7
Mean Conc. 16.12mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	370.9	10.92mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/3/2016 12:47:50 PM
2	370.1	10.90mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/3/2016 12:52:28 PM

Mean Area 370.5
Mean Conc. 10.91mg/L



Sample

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11/4/2016 1:21:10 PM

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Sample Name: L16110110-01 (5)
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

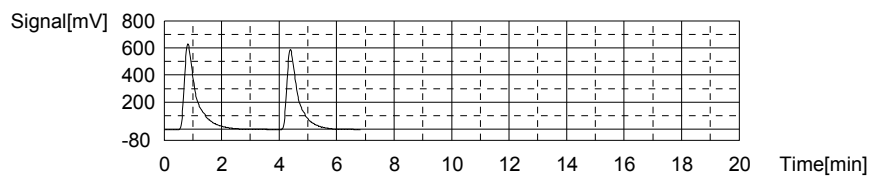
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:37.62mg/L TC:43.46mg/L IC:5.835mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1799	46.06mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 1:01:29 PM
2	1596	40.85mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 1:07:50 PM

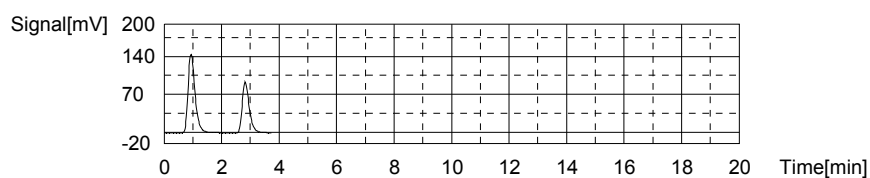
Mean Area 1698
 Mean Conc. 43.46mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	243.2	7.099mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 1:12:34 PM
2	158.7	4.571mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 1:17:05 PM

Mean Area 201.0
 Mean Conc. 5.835mg/L



Sample

Sample Name: L16110110-02 (20)
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:18.70mg/L TC:28.01mg/L IC:9.310mg/L

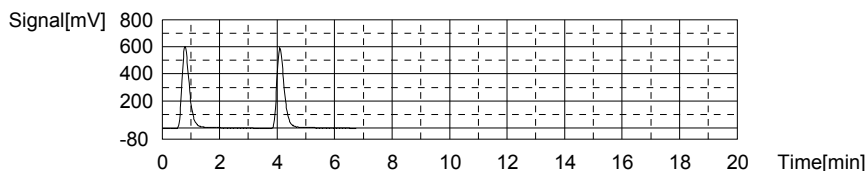
1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1106	28.27mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 1:44:42 PM
2	1086	27.76mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 1:50:25 PM

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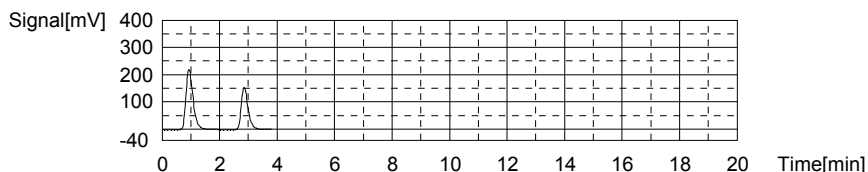
Mean Area 1096
Mean Conc. 28.01mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	377.5	11.12mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 1:55:15 PM
2	256.7	7.503mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 1:59:52 PM

Mean Area 317.1
Mean Conc. 9.310mg/L



Sample

Sample Name: L16110111-01
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

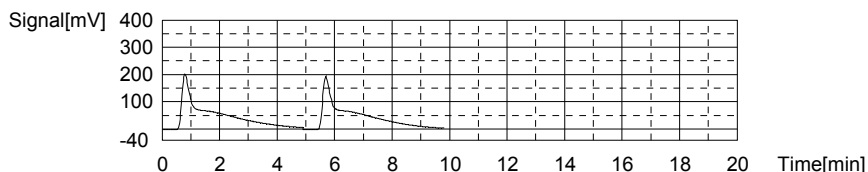
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:24.11mg/L TC:28.58mg/L IC:4.469mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1136	29.04mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 2:10:12 PM
2	1100	28.12mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 2:18:25 PM

Mean Area 1118
Mean Conc. 28.58mg/L



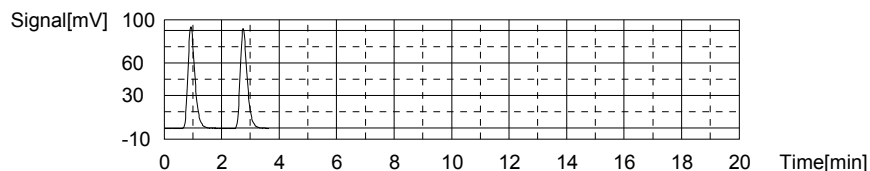
Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	156.3	4.499mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 2:23:09 PM
2	154.3	4.439mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 2:27:39 PM

11/4/2016 1:21:10 PM

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Mean Area 155.3
Mean Conc. 4.469mg/L



Sample

Sample Name: L16110025-01 (3)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

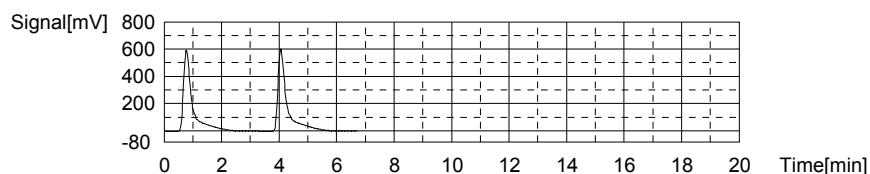
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:20.78mg/L TC:33.15mg/L IC:12.37mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1273	32.56mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 2:36:22 PM
2	1319	33.74mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 2:42:05 PM

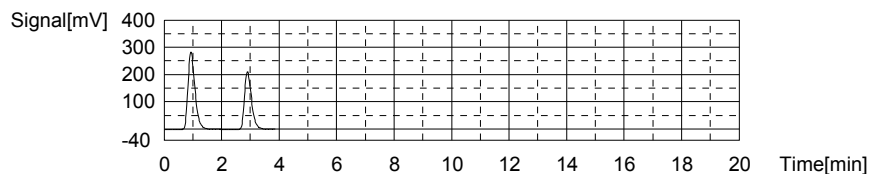
Mean Area 1296
Mean Conc. 33.15mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	479.0	14.15mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 2:47:00 PM
2	359.9	10.59mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 2:51:35 PM

Mean Area 419.5
Mean Conc. 12.37mg/L



Sample

Sample Name: L16110029-03
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

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11/4/2016 1:21:10 PM

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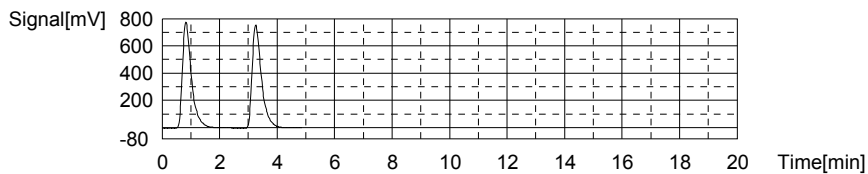
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:29.39mg/L TC:43.24mg/L IC:13.85mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1681	43.03mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 2:59:28 PM
2	1697	43.44mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 3:04:10 PM

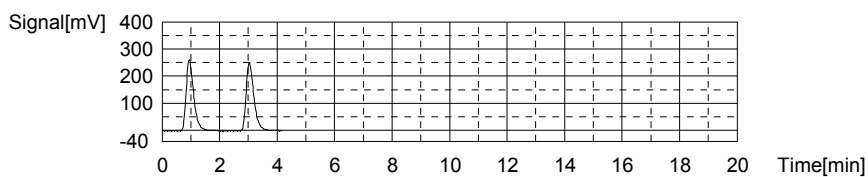
Mean Area 1689
Mean Conc. 43.24mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	471.1	13.92mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 3:09:11 PM
2	466.8	13.79mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 3:14:01 PM

Mean Area 469.0
Mean Conc. 13.85mg/L



Sample

Sample Name: L16110072-02 (2)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

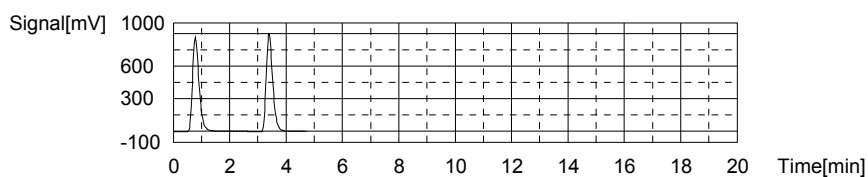
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:8.362mg/L TC:36.37mg/L IC:28.01mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1410	36.08mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 3:22:04 PM
2	1433	36.67mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 3:26:28 PM

Mean Area 1422
Mean Conc. 36.37mg/L



Anal.: IC

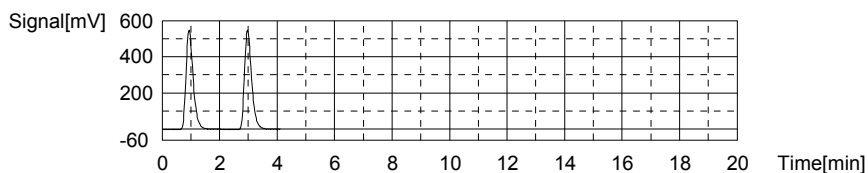
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11/4/2016 1:21:10 PM

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No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	941.8	28.00mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/3/2016 3:31:32 PM
2	942.4	28.02mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/3/2016 3:36:27 PM

Mean Area 942.1
Mean Conc. 28.01mg/L



Sample

Sample Name: CCV
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

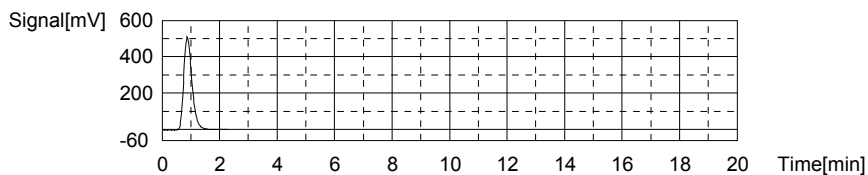
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.76mg/L TC:25.93mg/L IC:0.1721mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1015	25.93mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 3	11/3/2016 3:44:10 PM

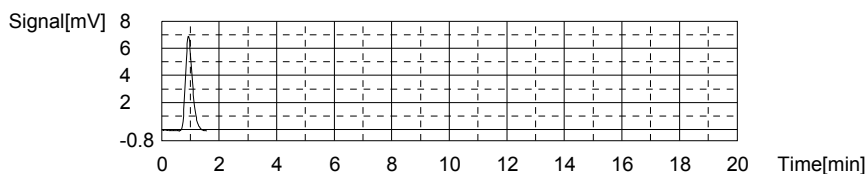
Mean Area 1015
Mean Conc. 25.93mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	11.68	0.1721mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/3/2016 3:48:36 PM

Mean Area 11.68
Mean Conc. 0.1721mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

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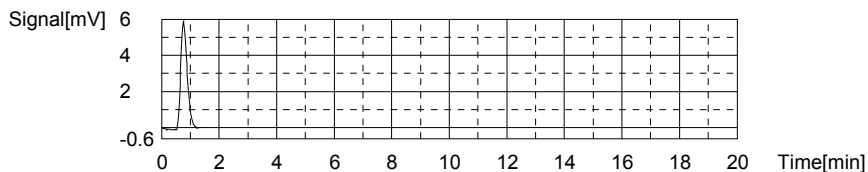
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-0.00641mg/L TC:0.1122mg/L IC:0.1186mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.323	0.1122mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 3:53:35 PM

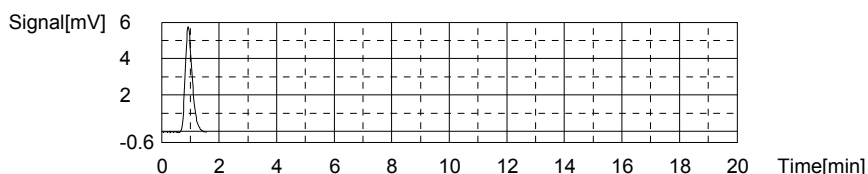
Mean Area 9.323
Mean Conc. 0.1122mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.892	0.1186mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 3:57:32 PM

Mean Area 9.892
Mean Conc. 0.1186mg/L



Sample

Sample Name: <Untitled>
Sample ID: TOC-10-31-2015A.met
Origin: Completed
Status: Completed
Chk. Result: Completed

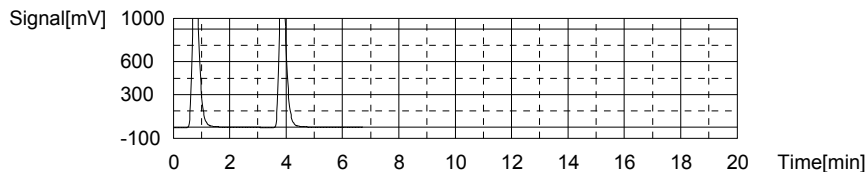
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:8.331mg/L TC:59.84mg/L IC:51.51mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2325	59.57mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 4:06:04 PM
2	2346	60.11mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 4:12:02 PM

Mean Area 2336
Mean Conc. 59.84mg/L



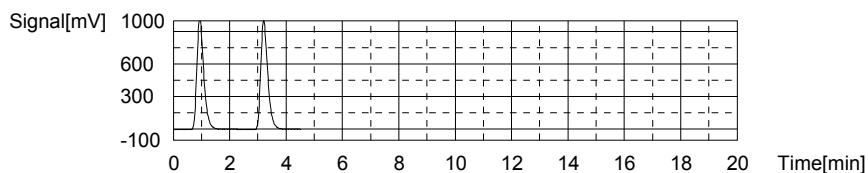
Anal.: IC

11/4/2016 1:21:10 PM

11-03-2016-DCM-TOC.i32

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1736	51.76mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 4:17:22 PM
2	1719	51.25mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 4:22:28 PM

Mean Area 1728
Mean Conc. 51.51mg/L



Sample

Sample Name: L16110072-04 (2)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

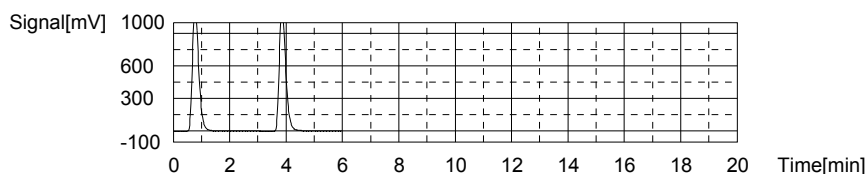
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:9.772mg/L TC:46.23mg/L IC:36.46mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1803	46.17mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 4:30:59 PM
2	1808	46.29mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 4:36:08 PM

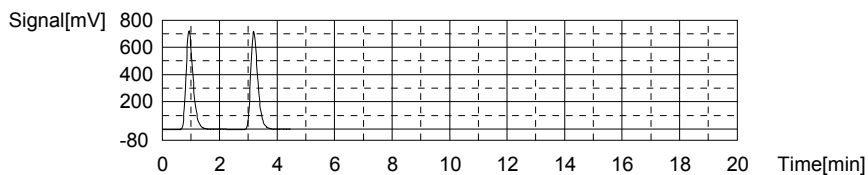
Mean Area 1806
Mean Conc. 46.23mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1226	36.50mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 4:41:26 PM
2	1223	36.41mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 4:46:28 PM

Mean Area 1225
Mean Conc. 36.46mg/L



Sample

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Sample Name: L16110072-05 (2)
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

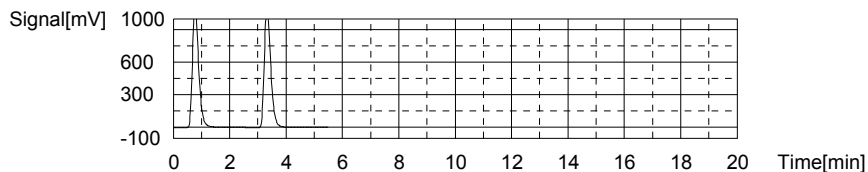
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:9.556mg/L TC:44.55mg/L IC:34.99mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1720	44.03mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 4:54:27 PM
2	1760	45.06mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 4:59:39 PM

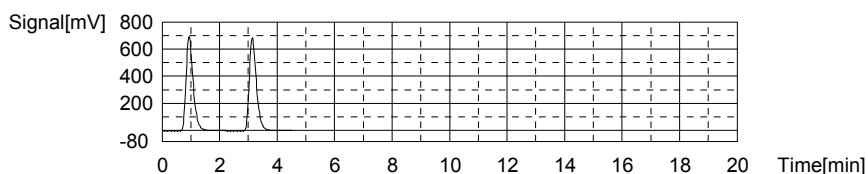
Mean Area 1740
 Mean Conc. 44.55mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1178	35.07mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 5:04:53 PM
2	1173	34.92mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 5:10:00 PM

Mean Area 1176
 Mean Conc. 34.99mg/L



Sample

Sample Name: L16110072-06 (2) MS
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:12.87mg/L TC:37.53mg/L IC:24.65mg/L

1. Det

Anal.: TC

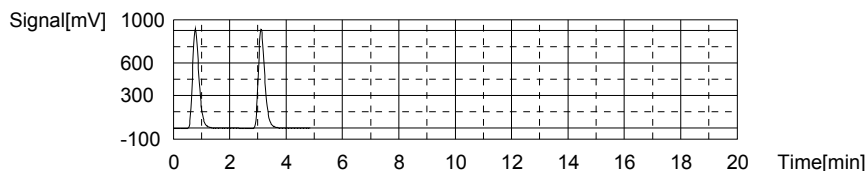
No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1466	37.51mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 5:17:46 PM
2	1467	37.54mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 5:22:33 PM

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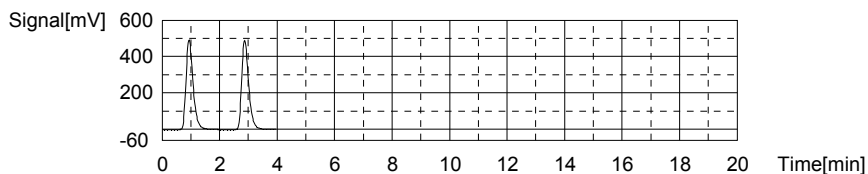
Mean Area 1467
Mean Conc. 37.53mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	832.4	24.73mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 5:27:31 PM
2	827.5	24.58mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 5:32:14 PM

Mean Area 830.0
Mean Conc. 24.65mg/L



Sample

Sample Name: L16110072-07 (2) MSD
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

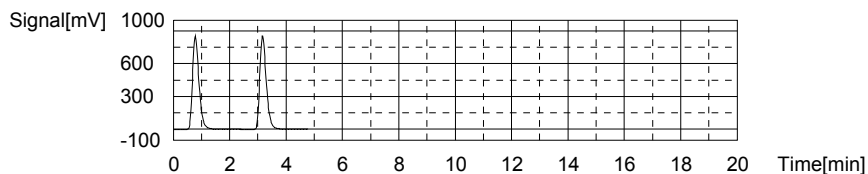
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:12.38mg/L TC:35.02mg/L IC:22.64mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1359	34.77mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 5:40:03 PM
2	1379	35.28mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 5:44:43 PM

Mean Area 1369
Mean Conc. 35.02mg/L



Anal.: IC

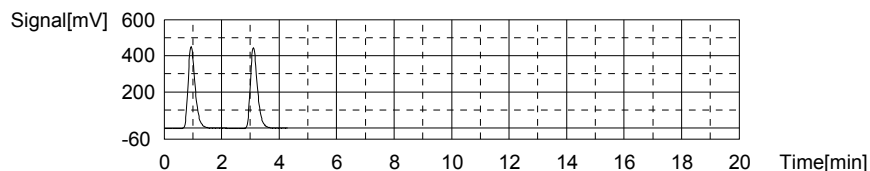
No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	767.9	22.80mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 5:49:51 PM
2	757.7	22.49mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 5:54:41 PM

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Mean Area 762.8
Mean Conc. 22.64mg/L



Sample

Sample Name: <Untitled>
Sample ID: TOC-10-31-2015A.met
Origin: Completed
Status: Completed
Chk. Result: Completed

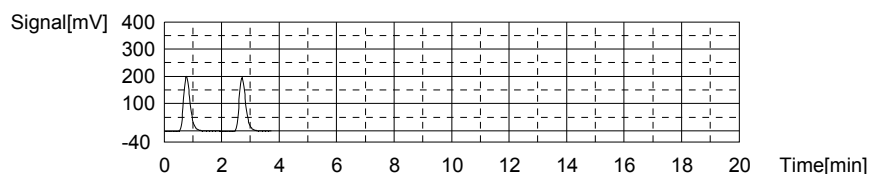
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.085mg/L TC:8.029mg/L IC:5.944mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	320.9	8.112mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 6:02:03 PM
2	314.4	7.945mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 6:06:07 PM

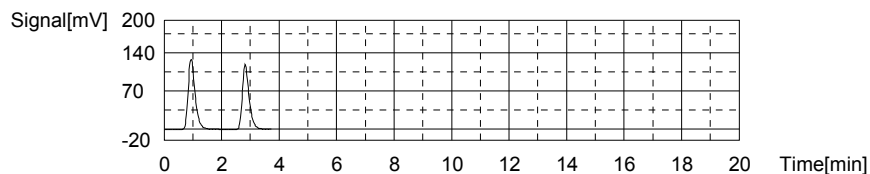
Mean Area 317.7
Mean Conc. 8.029mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	215.3	6.264mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 6:10:55 PM
2	193.9	5.624mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 6:15:25 PM

Mean Area 204.6
Mean Conc. 5.944mg/L



Sample

Sample Name: <Untitled>
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result: Completed

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11/4/2016 1:21:10 PM

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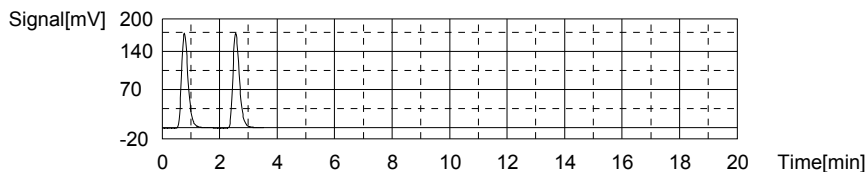
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.904mg/L TC:6.941mg/L IC:5.037mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	275.2	6.939mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 6:22:38 PM
2	275.4	6.944mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 6:26:39 PM

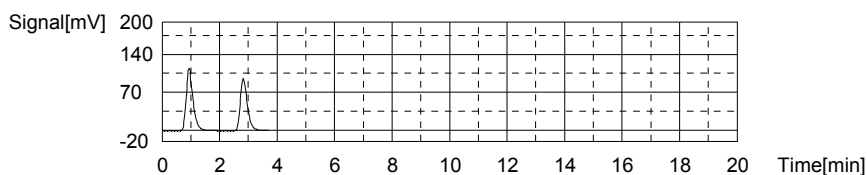
Mean Area 275.3
Mean Conc. 6.941mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	185.4	5.370mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 6:31:27 PM
2	163.2	4.705mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 6:35:56 PM

Mean Area 174.3
Mean Conc. 5.037mg/L



Sample

Sample Name: <Untitled>
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

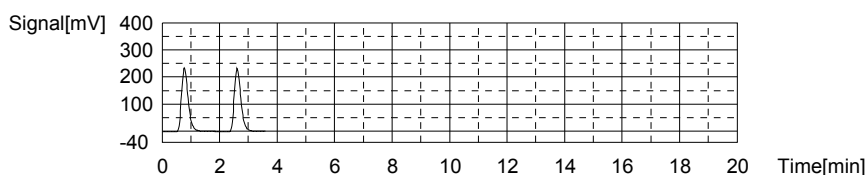
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.291mg/L TC:9.406mg/L IC:7.115mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	372.6	9.439mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 6:43:13 PM
2	370.0	9.373mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 6:47:14 PM

Mean Area 371.3
Mean Conc. 9.406mg/L



Anal.: IC

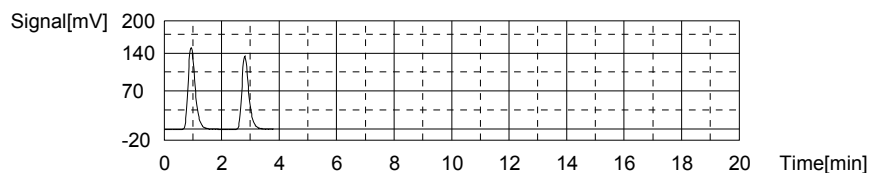
16/32

11/4/2016 1:21:10 PM

11-03-2016-DCM-TOC.i32

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	259.0	7.572mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 6:51:59 PM
2	228.5	6.659mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 6:56:37 PM

Mean Area 243.8
Mean Conc. 7.115mg/L



Sample

Sample Name: <Untitled>
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

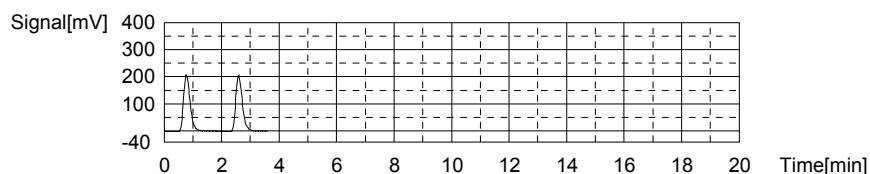
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.912mg/L TC:8.239mg/L IC:6.327mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	327.6	8.284mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 7:03:52 PM
2	324.1	8.194mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 7:07:55 PM

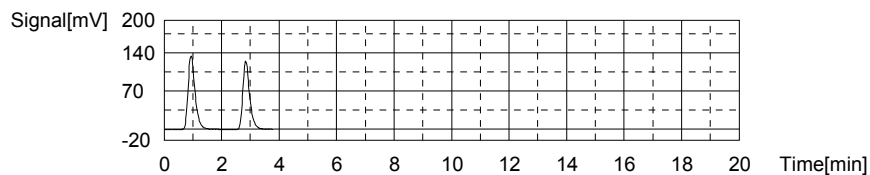
Mean Area 325.9
Mean Conc. 8.239mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	227.4	6.626mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 7:12:42 PM
2	207.4	6.028mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 7:17:12 PM

Mean Area 217.4
Mean Conc. 6.327mg/L



Sample

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11-03-2016-DCM-TOC.i32

Sample Name: L16110074-09 (5)
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

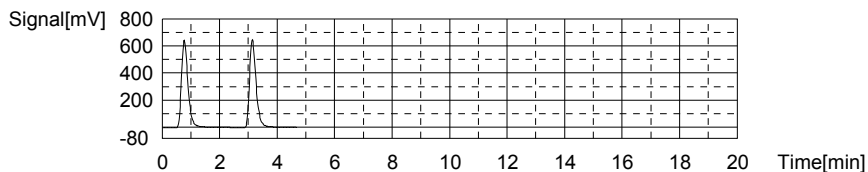
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.318mg/L TC:25.93mg/L IC:21.62mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1008	25.75mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 7:25:01 PM
2	1022	26.11mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 7:30:26 PM

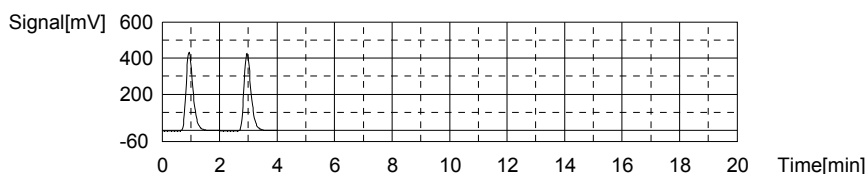
Mean Area 1015
 Mean Conc. 25.93mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	733.0	21.75mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 7:35:25 PM
2	723.8	21.48mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 7:40:08 PM

Mean Area 728.4
 Mean Conc. 21.62mg/L



Sample

Sample Name: CCV
 Sample ID:
 Origin: TOC-10-31-2015.met
 Status: Completed
 Chk. Result

Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:26.11mg/L TC:26.27mg/L IC:0.1554mg/L

1. Det

Anal.: TC

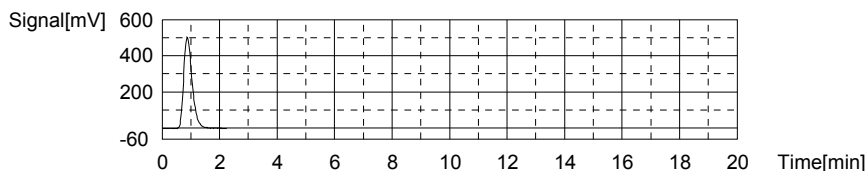
No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1028	26.27mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 7:47:49 PM

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11/4/2016 1:21:10 PM

11-03-2016-DCM-TOC.i32

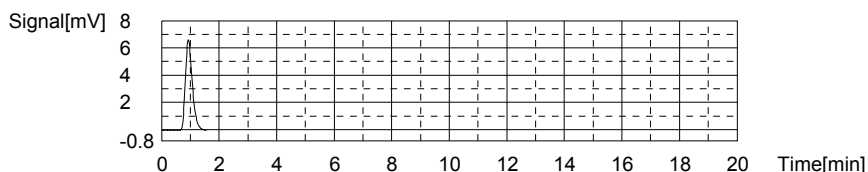
Mean Area 1028
Mean Conc. 26.27mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	11.12	0.1554mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 7:52:14 PM

Mean Area 11.12
Mean Conc. 0.1554mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

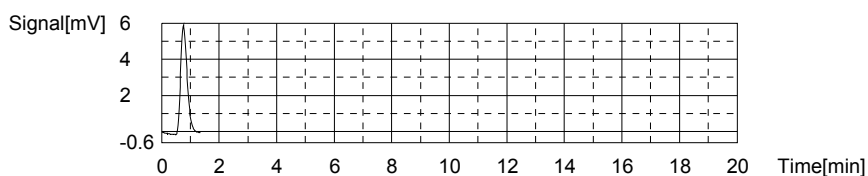
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-0.00202mg/L TC:0.1152mg/L IC:0.1172mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.439	0.1152mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 7:57:12 PM

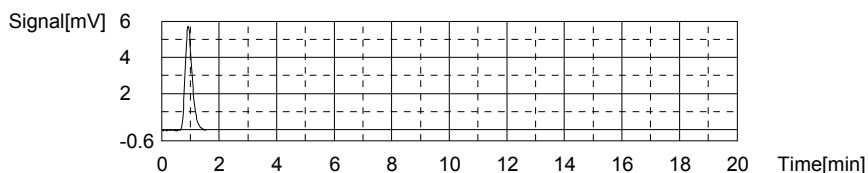
Mean Area 9.439
Mean Conc. 0.1152mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.845	0.1172mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 8:01:08 PM

Mean Area 9.845
Mean Conc. 0.1172mg/L



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Sample

Sample Name: <Untitled>
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

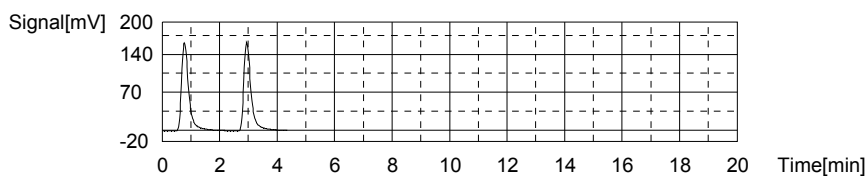
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:6.121mg/L TC:7.106mg/L IC:0.9844mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	280.8	7.082mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 8:08:46 PM
2	282.6	7.129mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 8:13:13 PM

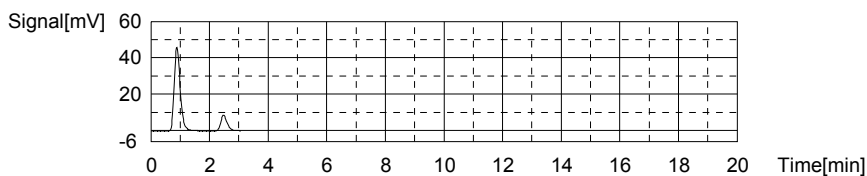
Mean Area 281.7
 Mean Conc. 7.106mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	64.83	1.762mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 8:17:40 PM
2	12.83	0.2065mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 8:21:47 PM

Mean Area 38.83
 Mean Conc. 0.9844mg/L



Sample

Sample Name: <Untitled>
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:7.475mg/L TC:57.05mg/L IC:49.58mg/L

1. Det

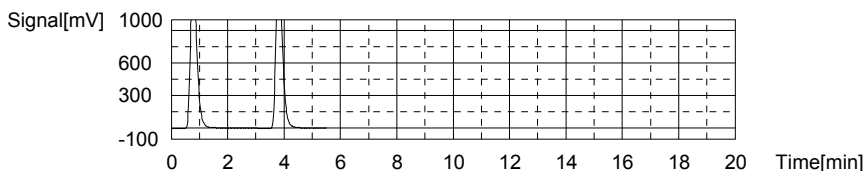
Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2204	56.46mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 8:30:17 PM
2	2250	57.64mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 8:35:53 PM

11/4/2016 1:21:10 PM

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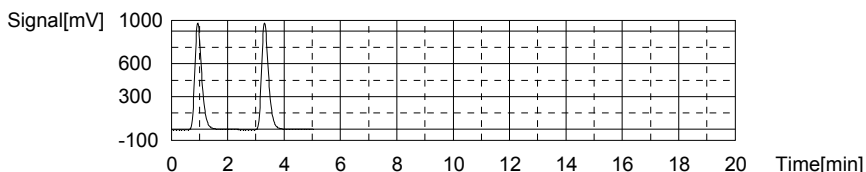
Mean Area 2227
Mean Conc. 57.05mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1660	49.49mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 8:41:21 PM
2	1666	49.67mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 8:46:53 PM

Mean Area 1663
Mean Conc. 49.58mg/L



Sample

Sample Name: L16110075-04 (2)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

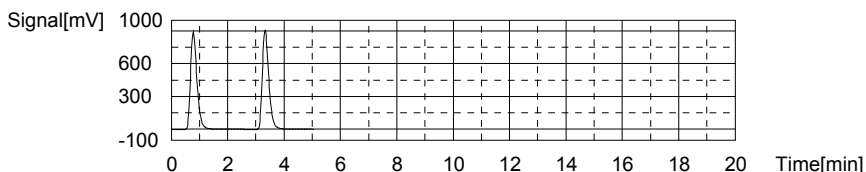
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:8.599mg/L TC:36.63mg/L IC:28.03mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1422	36.38mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 8:54:54 PM
2	1441	36.87mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/3/2016 8:59:38 PM

Mean Area 1432
Mean Conc. 36.63mg/L



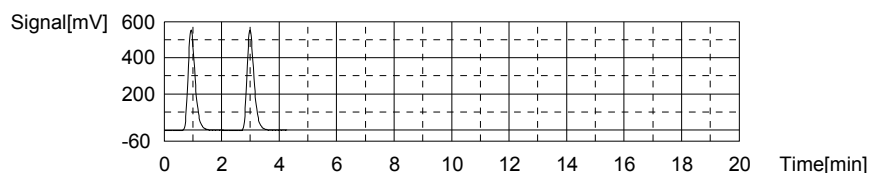
Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	941.7	28.00mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 9:04:42 PM
2	943.8	28.06mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/3/2016 9:09:47 PM

11/4/2016 1:21:10 PM

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Mean Area 942.8
Mean Conc. 28.03mg/L



Sample

Sample Name: L16110075-05 (2)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

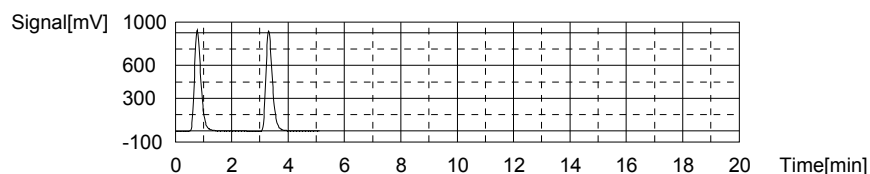
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:9.024mg/L TC:37.58mg/L IC:28.55mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1476	37.77mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 9:17:47 PM
2	1461	37.38mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 9:23:27 PM

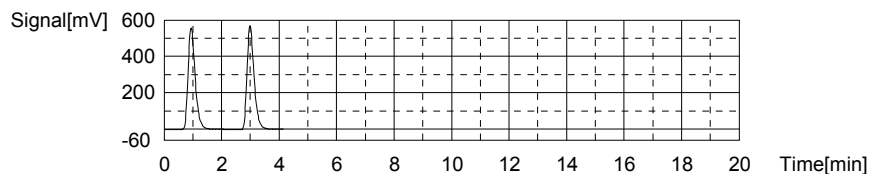
Mean Area 1469
Mean Conc. 37.58mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	955.3	28.40mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 9:28:31 PM
2	965.3	28.70mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 9:33:24 PM

Mean Area 960.3
Mean Conc. 28.55mg/L



Sample

Sample Name: WG590226-05 DUP
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

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11/4/2016 1:21:10 PM

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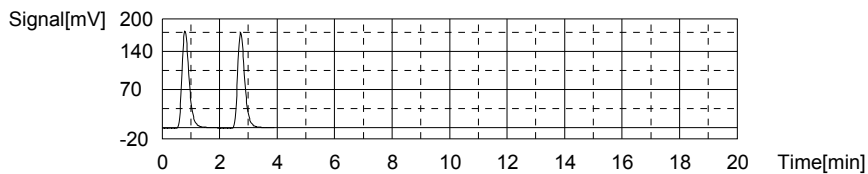
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.338mg/L TC:7.690mg/L IC:3.352mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	306.3	7.737mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 9:40:47 PM
2	302.6	7.642mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 9:45:01 PM

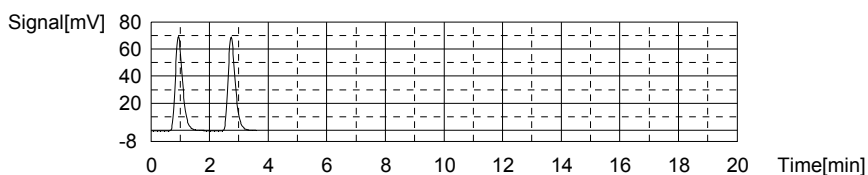
Mean Area 304.5
Mean Conc. 7.690mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	118.3	3.362mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 9:49:44 PM
2	117.6	3.341mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 9:54:12 PM

Mean Area 118.0
Mean Conc. 3.352mg/L



Sample

Sample Name: CCV
Sample ID: TOC-10-31-2015.met
Origin: Completed
Status: Completed
Chk. Result

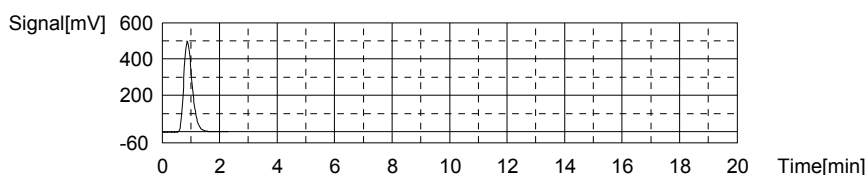
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.96mg/L TC:26.06mg/L IC:0.1019mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1020	26.06mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 10:01:58 PM

Mean Area 1020
Mean Conc. 26.06mg/L



Anal.: IC

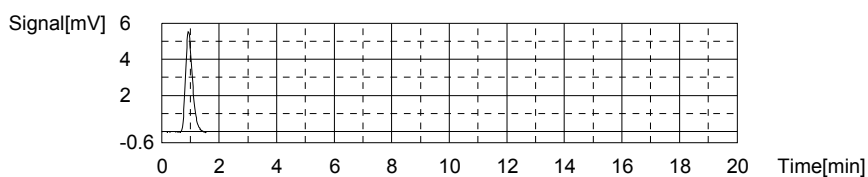
23/32

11/4/2016 1:21:10 PM

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No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.334	0.1019mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 10:06:20 PM

Mean Area 9.334
Mean Conc. 0.1019mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

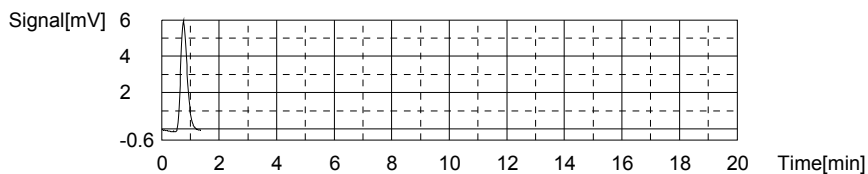
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.00562mg/L TC:0.1198mg/L IC:0.1142mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.618	0.1198mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_30_16_06_31	11/3/2016 10:11:19 PM

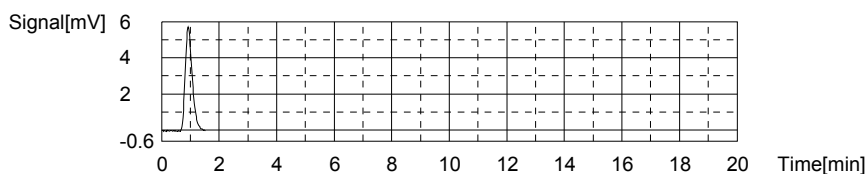
Mean Area 9.618
Mean Conc. 0.1198mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.743	0.1142mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/3/2016 10:15:14 PM

Mean Area 9.743
Mean Conc. 0.1142mg/L



Sample

Sample Name: CCV
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

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11/4/2016 1:21:10 PM

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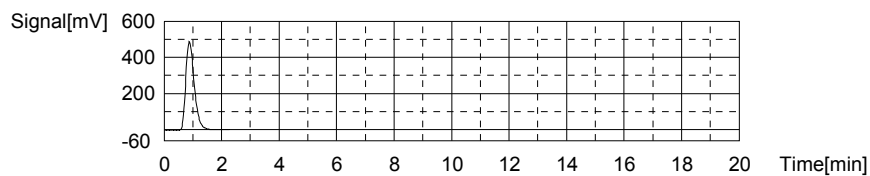
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.53mg/L TC:25.63mg/L IC:0.09808mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1003	25.63mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/4/2016 8:41:30 AM

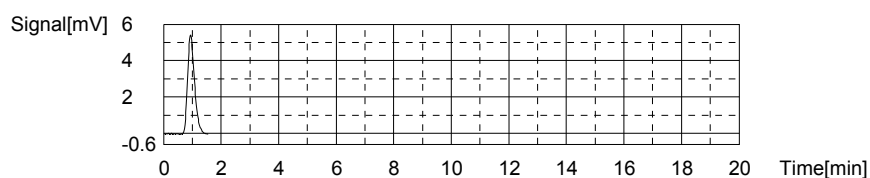
Mean Area 1003
Mean Conc. 25.63mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.205	0.09808mg/L	500uL	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/4/2016 8:45:52 AM

Mean Area 9.205
Mean Conc. 0.09808mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

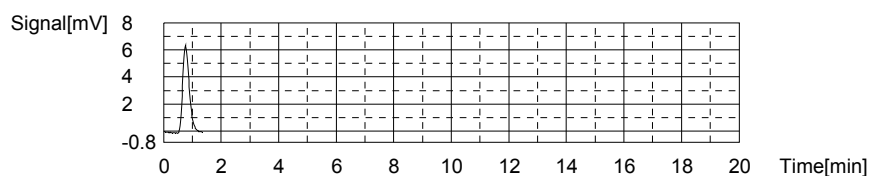
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:0.00989mg/L TC:0.1347mg/L IC:0.1249mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.20	0.1347mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/4/2016 8:50:51 AM

Mean Area 10.20
Mean Conc. 0.1347mg/L



Anal.: IC

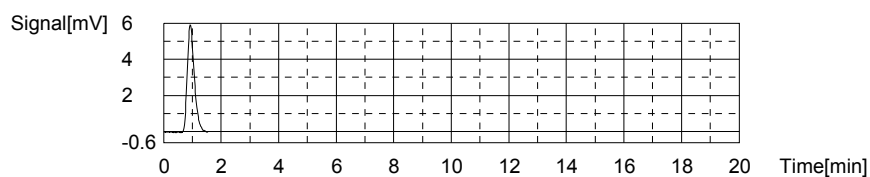
25/32

11/4/2016 1:21:10 PM

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No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.10	0.1249mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/4/2016 8:54:49 AM

Mean Area 10.10
Mean Conc. 0.1249mg/L



Sample

Sample Name: L16110072-03 (4)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result:

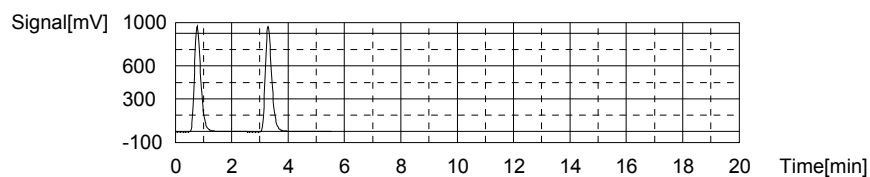
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:22.15mg/L TC:39.12mg/L IC:16.97mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1522	38.95mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 3	11/4/2016 9:02:48 AM
2	1535	39.28mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 3	11/4/2016 9:08:10 AM

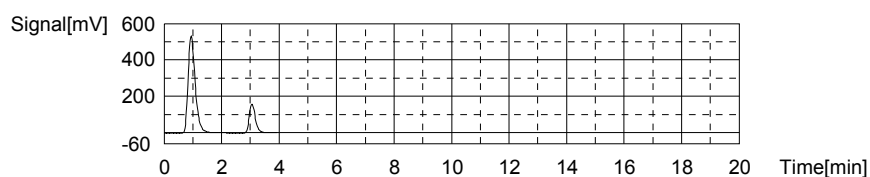
Mean Area 1529
Mean Conc. 39.12mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	911.8	27.10mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/4/2016 9:13:23 AM
2	234.6	6.842mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/4/2016 9:17:57 AM

Mean Area 573.2
Mean Conc. 16.97mg/L



Sample

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11/4/2016 1:21:10 PM

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Sample Name: L16110074-01 (10)
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

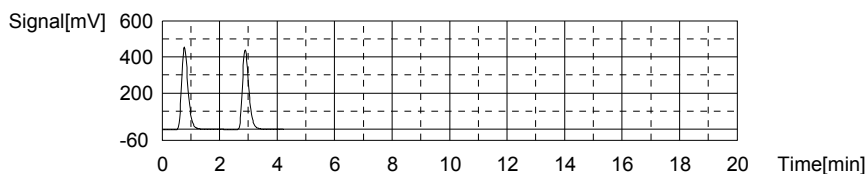
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.792mg/L TC:17.75mg/L IC:13.96mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	705.4	17.98mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 9:45:07 AM
2	687.5	17.52mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 9:49:29 AM

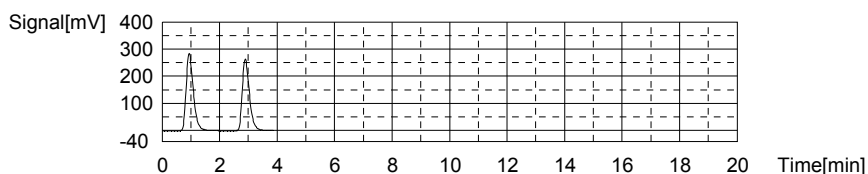
Mean Area 696.5
 Mean Conc. 17.75mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	490.1	14.49mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 9:54:23 AM
2	455.1	13.44mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 9:59:07 AM

Mean Area 472.6
 Mean Conc. 13.96mg/L



Sample

Sample Name: L16110074-03 (5)
 Sample ID: <Untitled>
 Origin: TOC-10-31-2015A.met
 Status: Completed
 Chk. Result

Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.890mg/L TC:20.10mg/L IC:16.21mg/L

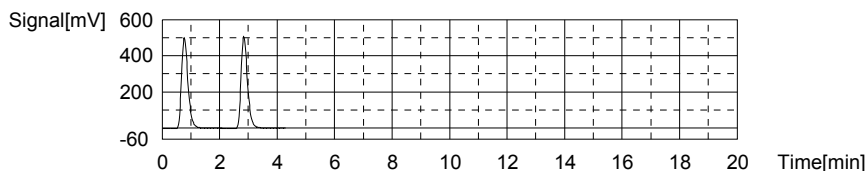
1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	781.8	19.95mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 10:06:43 AM
2	793.6	20.25mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 10:11:12 AM

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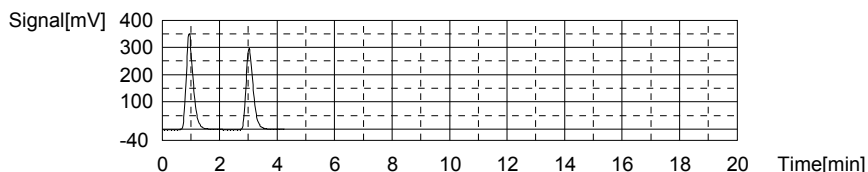
Mean Area 787.7
Mean Conc. 20.10mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	584.8	17.32mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 10:16:16 AM
2	510.5	15.10mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 10:21:14 AM

Mean Area 547.7
Mean Conc. 16.21mg/L



Sample

Sample Name: L16110074-05 (5)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

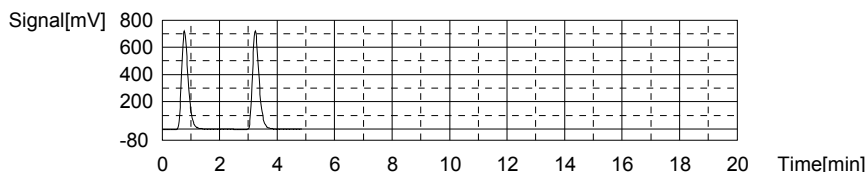
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:6.271mg/L TC:29.32mg/L IC:23.05mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1145	29.27mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 10:29:10 AM
2	1149	29.37mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 10:34:41 AM

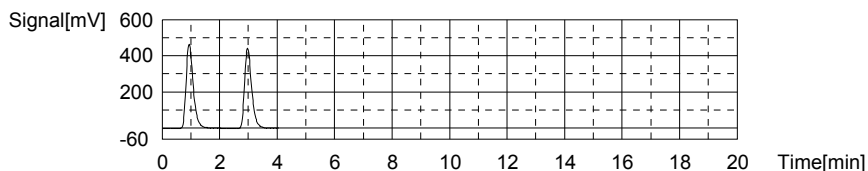
Mean Area 1147
Mean Conc. 29.32mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	797.8	23.69mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 10:39:41 AM
2	755.0	22.41mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 10:44:24 AM

Mean Area 776.4
Mean Conc. 23.05mg/L



Sample

Sample Name: L16110074-07 (5)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

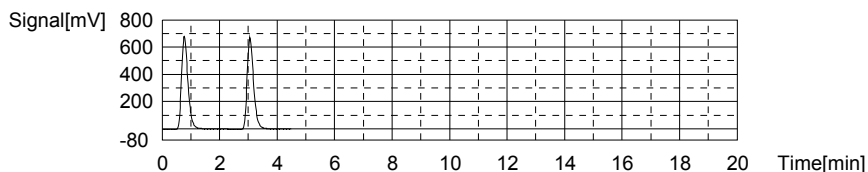
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:6.910mg/L TC:26.79mg/L IC:19.88mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1054	26.93mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/4/2016 10:52:09 AM
2	1043	26.65mg/L	500uL	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/4/2016 10:56:49 AM

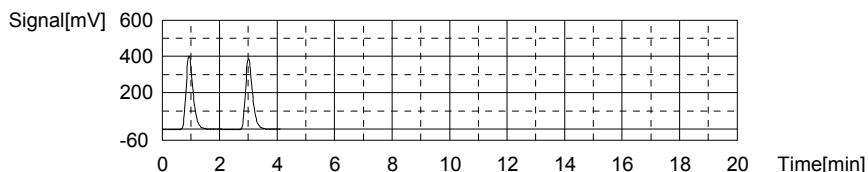
Mean Area 1049
Mean Conc. 26.79mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	684.3	20.30mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/4/2016 11:01:52 AM
2	656.7	19.47mg/L	500uL	1		TICCURVE-10-30-2015.2015_10_31_11_55_01	11/4/2016 11:06:35 AM

Mean Area 670.5
Mean Conc. 19.88mg/L



Sample

Sample Name: L16110074-11 (5)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

11/4/2016 1:21:10 PM

11-03-2016-DCM-TOC.i32

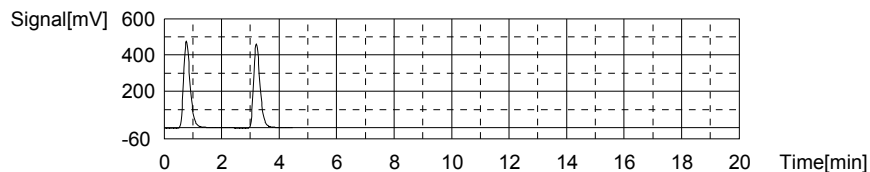
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.127mg/L TC:19.00mg/L IC:15.87mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	762.6	19.45mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 11:14:29 AM
2	727.4	18.55mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 11:19:40 AM

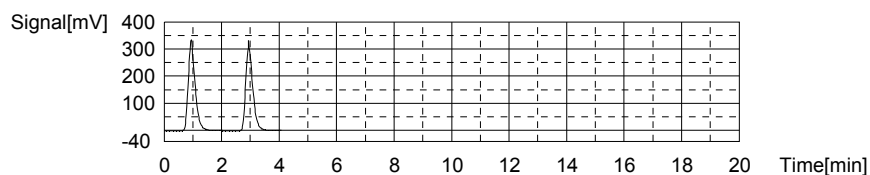
Mean Area 745.0
Mean Conc. 19.00mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	541.6	16.03mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 11:24:36 AM
2	531.4	15.72mg/L	500uL	1		TICURVE-10-30-2015.2015 10 31 11 55 01	11/4/2016 11:29:24 AM

Mean Area 536.5
Mean Conc. 15.87mg/L



Sample

Sample Name: L16110075-03 (5)
Sample ID: <Untitled>
Origin: TOC-10-31-2015A.met
Status: Completed
Chk. Result

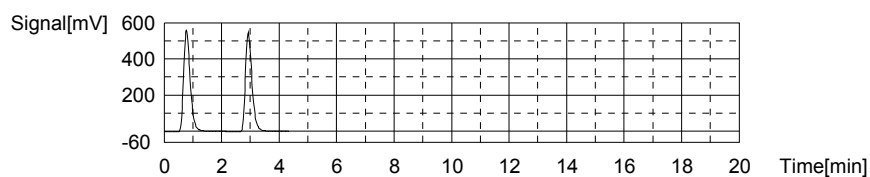
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.551mg/L TC:22.32mg/L IC:17.77mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	882.5	22.53mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 11:37:01 AM
2	865.8	22.10mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 31	11/4/2016 11:41:38 AM

Mean Area 874.2
Mean Conc. 22.32mg/L



Anal.: IC

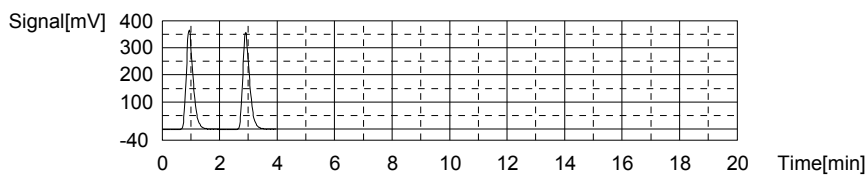
30/32

11/4/2016 1:21:10 PM

11-03-2016-DCM-TOC.i32

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	606.6	17.97mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/4/2016 11:46:33 AM
2	592.9	17.56mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/4/2016 11:51:13 AM

Mean Area 599.8
Mean Conc. 17.77mg/L



Sample

Sample Name: CCV
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

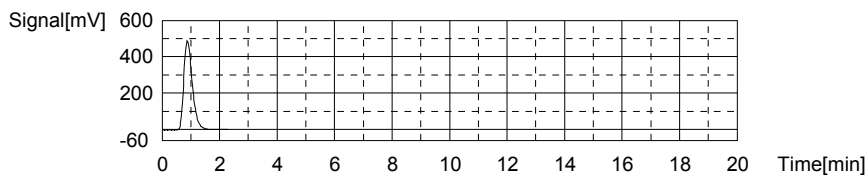
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.56mg/L TC:25.75mg/L IC:0.1949mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1008	25.75mg/L	500uL	1		TCCURVE-10-30-2015.2015 10 30 16 06 3	11/4/2016 11:58:57 AM

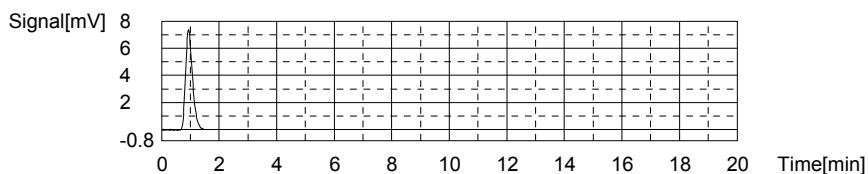
Mean Area 1008
Mean Conc. 25.75mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.44	0.1949mg/L	500uL	1		TICCURVE-10-30-2015.2015 10 31 11 55 0	11/4/2016 12:03:22 PM

Mean Area 12.44
Mean Conc. 0.1949mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC-10-31-2015.met
Status: Completed
Chk. Result

31/32

11/4/2016 1:21:10 PM

11-03-2016-DCM-TOC.t32

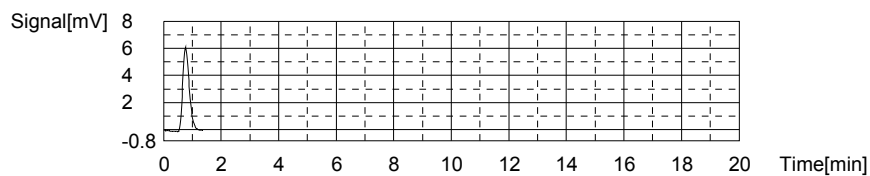
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-0.00928mg/L TC:0.1240mg/L IC:0.1332mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.780	0.1240mg/L	500ul	1		TCCURVE-10-30-2015.2015_10_30_16_06_31	11/4/2016 12:08:20 PM

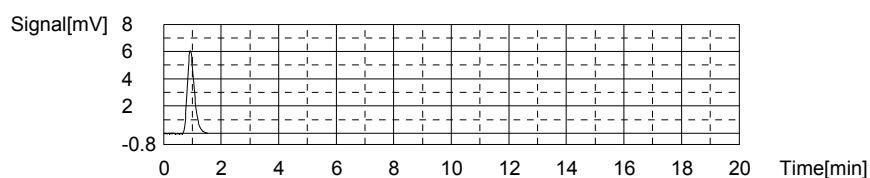
Mean Area 9.780
Mean Conc. 0.1240mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.38	0.1332mg/L	500ul	1		TICURVE-10-30-2015.2015_10_31_11_55_01	11/4/2016 12:12:18 PM

Mean Area 10.38
Mean Conc. 0.1332mg/L



32/32

3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
November 17, 2016

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
CAS - Craig A. Smith	CEB - CHAD E. BARNES
CJQ - Cameron J. Quick	CLC - CHRYS L. CRAWFORD
CLS - CARA L. STRICKLER	CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS	CRW - CHRISTINA R. WILSON
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	DTG - DOMINIC T. GEHRET
ECL - ERIC C. LAWSON	EMW - ERIC M. WILKEN
ENY - EMILY N. YOAK	ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN	HDD - HANAH D. DAWKINS
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
KAK - KATHY A. KIRBY	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
LSJ - LAURA S. JONES	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

List of Valid Qualifiers

November 17, 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
>,H1	Result is greater than the associated numerical value. Sample analysis performed past holding time.
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 receipt 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 receipt 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 tentatively 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



List of Valid Qualifiers

November 17, 2016

Qualkey: DOD

TNTC	Too numerous to count
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 receipt 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





Chain of Custody Record

COC Number:

Laboratory: Microbac POC: Stephanie Mossburg Address: 158 Starlite Drive Marietta, OH 45750 Phone: 1-800-373-4071				Project Manager: Debra Richmann Phone/Fax Number: 210-296-2000 Sampler (print): Scott Beesinger				Mail to: Linda Raabe 112 East Pecan STE. 400 San Antonio, TX 78205 210-296-2000														
Client: AECOM Address: 112 East Pecan Ste. 400 San Antonio, TX 78205				Signature: <i>Scott Beesinger</i>				Fed Ex Airbill No:														
Turn Around Time: STANDARD				pH:				Number of Containers VOC Perchlorate Dissolved Gases / Carbon Dioxide Alkalinity Sulfide Chloride / Sulfate Nitrate / Nitrite TOC / Total Phosphorous Dissolved Iron / Dissolved Manganese				Program:										
Project Name/Location: Longhorn																						
Project Number: 60256135.0002GA																						
Site Name	Sample ID/Location ID	SBD	SED	Date	Time	Comp	Grab	Matrix	Number of Containers	VOC	Perchlorate	Dissolved Gases / Carbon Dioxide	Alkalinity	Sulfide	Chloride / Sulfate Nitrate / Nitrite	TOC / Total Phosphorous	Dissolved Iron / Dissolved Manganese	SA CODE	Cooler ID	LOT CONTROL NUMBERS		
																				ABL OT	EBL OT	TBL OT
SITE 50	50ww13-110116			11/1/16	0810	X	W	1	1	X	X	X	X	X	X	X	X					
	50ww13FF-110116			11/1/16	0810	X	W	1	1								X					
	50ww14-110116			11/1/16	0915	X	W	1	1	X	X	X	X	X	X	X	X					
	50ww14FF-110116			11/1/16	0915	X	W	1	1								X					
	50ww11-110116			11/1/16	1020	X	W	1	1	X	X	X	X	X	X	X	X					
	50ww11FF-110116			11/1/16	1020	X	W	1	1								X					
	50ww06-110116			11/1/16	1120	X	W	1	1	X	X	X	X	X	X	X	X					
	50ww06FF-110116			11/1/16	1120	X	W	1	1								X					
	50ww12-110116			11/1/16	1330	X	W	1	1	X	X	X	X	X	X	X	X					
	50ww12FF-110116			11/1/16	1330	X	W	1	1								X					
	50ww23-110116			11/1/16	1435	X	W	1	1	X	X	X	X	X	X	X	X					
	50ww23FF-110116			11/1/16	1435	X	W	1	1								X					
Trip Blank			11/1/16		X	W	2	2	X													
Comments: STANDARD TAT																						
Relinquished by: <i>Scott Beesinger</i>				Date: 11/1/16		Time: 1540		Received by: (Signature) _____				Received by: (Signature) _____		Date: _____		Time: _____		Relinquished by: (Signature) _____				
Relinquished by: (Signature) _____				Date: _____		Time: _____		Received for Laboratory by: (Signature) _____				Received: 11/02/2016 10:10		By: BRENDA GREGORY		221000092962						

•Homogenize all composite samples prior to analysis

Distribution:



Microbac OVD
 Received: 11/02/2016 10:10
 By: BRENDA GREGORY
Brenda Gregory

ier

COOLER TEMP >6° C LOG

Cooler ID 3962

SAMPLE ID	Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6
	°C	°C	°C	°C	°C	°C

0.10 11/2/16

pH Exceptions

pH Lot # HC681919

SAMPLE ID	Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6

0.10 11/2/16

**PRESERVATIVE
EXCEPTIONS**
 NONE
 AS NOTED

0.10 11/2/16

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L16110074-01	824139	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L16110074-01	824140	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-01 **824141** **9056**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	SEM	02-NOV-2016 12:34	CAS	BRG	
3	STORE	SEM	A1	07-NOV-2016 10:00	BRG	CAS	

Samplenum **Container ID** **Products**
L16110074-01 **824142** **ALK**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	02-NOV-2016 13:12	DCM	CLS	
3	STORE	WET	A1	02-NOV-2016 14:56	CLS	DCM	

Samplenum **Container ID** **Products**
L16110074-01 **824143** **6850**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	SEM	08-NOV-2016 11:03	JWR	BRG	
3	STORE	SEM	A1	09-NOV-2016 12:45	BRG	JWR	

Samplenum **Container ID** **Products**
L16110074-01 **824144** **TOC**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		<2
2	ANALYZ	W1	WET	03-NOV-2016 10:55	DCM	BRG	
3	STORE	WET	A1	09-NOV-2016 16:01	BRG	EPT	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-01 824145 S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	03-NOV-2016 14:22	TB	BRG	
3	ANALYZ	WET	A1	04-NOV-2016 09:47	BRG	TB	

Samplenum **Container ID** **Products**
L16110074-02 824146 FE-D MN-MSD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	DIG	02-NOV-2016 12:25	AC	CLS	
3	STORE	DIG	A1	02-NOV-2016 13:14	BRG	ERP	
4	ANALYZ*	DIG	METALS	07-NOV-2016 12:07	KKB	AC	

*Sample extract/digestate/leachate

Samplenum **Container ID** **Products**
L16110074-03 824147 826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-03 824148 RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Samplenum **Container ID** **Products**
L16110074-03 824149 9056

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	SEM	02-NOV-2016 12:35	CAS	BRG	
3	STORE	SEM	A1	07-NOV-2016 10:00	BRG	CAS	

Samplenum **Container ID** **Products**
L16110074-03 824150 ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	02-NOV-2016 13:12	DCM	CLS	
3	STORE	WET	A1	02-NOV-2016 14:56	CLS	DCM	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum Container ID Products
L16110074-03 824151 6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	SEM	08-NOV-2016 11:03	JWR	BRG	
3	STORE	SEM	A1	09-NOV-2016 12:45	BRG	JWR	

Samplenum Container ID Products
L16110074-03 824152 TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		<2
2	ANALYZ	W1	WET	03-NOV-2016 10:55	DCM	BRG	
3	STORE	WET	A1	09-NOV-2016 16:01	BRG	EPT	

Samplenum Container ID Products
L16110074-03 824153 S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	03-NOV-2016 14:22	TB	BRG	
3	ANALYZ	WET	A1	04-NOV-2016 09:47	BRG	TB	

Samplenum Container ID Products
L16110074-04 824154 FE-D MN-MSD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	DIG	02-NOV-2016 12:25	AC	CLS	
3	STORE	DIG	A1	02-NOV-2016 13:14	BRG	ERP	
4	ANALYZ*	DIG	METALS	07-NOV-2016 12:07	KKB	AC	

*Sample extract/digestate/leachate

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L16110074-05	824155	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L16110074-05	824156	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-05 824157 9056

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	SEM	02-NOV-2016 12:34	CAS	BRG	
3	STORE	SEM	A1	07-NOV-2016 10:00	BRG	CAS	

Samplenum **Container ID** **Products**
L16110074-05 824158 ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	02-NOV-2016 13:12	DCM	CLS	
3	STORE	WET	A1	02-NOV-2016 14:56	CLS	DCM	

Samplenum **Container ID** **Products**
L16110074-05 824159 6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	SEM	08-NOV-2016 11:03	JWR	BRG	
3	STORE	SEM	A1	09-NOV-2016 12:45	BRG	JWR	

Samplenum **Container ID** **Products**
L16110074-05 824160 TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		<2
2	ANALYZ	W1	WET	03-NOV-2016 10:55	DCM	BRG	
3	STORE	WET	A1	09-NOV-2016 16:01	BRG	EPT	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-05 824161 S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	03-NOV-2016 14:22	TB	BRG	
3	ANALYZ	WET	A1	04-NOV-2016 09:47	BRG	TB	

Samplenum **Container ID** **Products**
L16110074-06 824162 FE-D MN-MSD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	DIG	02-NOV-2016 12:25	AC	CLS	
3	STORE	DIG	A1	02-NOV-2016 13:14	BRG	ERP	
4	ANALYZ*	DIG	METALS	07-NOV-2016 12:07	KKB	AC	

*Sample extract/digestate/leachate

Samplenum **Container ID** **Products**
L16110074-07 824163 826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	ORG4	02-NOV-2016 11:19	CLS		
2	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-07 824164 RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Samplenum **Container ID** **Products**
L16110074-07 824165 9056

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	SEM	02-NOV-2016 12:34	CAS	BRG	
3	STORE	SEM	A1	07-NOV-2016 10:00	BRG	CAS	

Samplenum **Container ID** **Products**
L16110074-07 824166 ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	02-NOV-2016 13:12	DCM	CLS	
3	STORE	WET	A1	02-NOV-2016 14:56	CLS	DCM	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-07 824167 6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	SEM	08-NOV-2016 11:03	JWR	BRG	
3	STORE	SEM	A1	09-NOV-2016 12:45	BRG	JWR	

Samplenum **Container ID** **Products**
L16110074-07 824168 TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		<2
2	ANALYZ	W1	WET	03-NOV-2016 10:55	DCM	BRG	
3	STORE	WET	A1	09-NOV-2016 16:01	BRG	EPT	

Samplenum **Container ID** **Products**
L16110074-07 824169 S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	03-NOV-2016 14:22	TB	BRG	
3	ANALYZ	WET	A1	04-NOV-2016 09:47	BRG	TB	

Samplenum **Container ID** **Products**
L16110074-08 824170 FE-D MN-MSD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	DIG	02-NOV-2016 12:25	AC	CLS	
3	STORE	DIG	A1	02-NOV-2016 13:14	BRG	ERP	
4	ANALYZ*	DIG	METALS	07-NOV-2016 12:07	KKB	AC	

*Sample extract/digestate/leachate

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L16110074-09	824171	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:57	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:57	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:57	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L16110074-09	824172	RSK175EXT

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-09 **824173** **9056**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	SEM	02-NOV-2016 12:34	CAS	BRG	
3	STORE	SEM	A1	07-NOV-2016 10:00	BRG	CAS	

Samplenum **Container ID** **Products**
L16110074-09 **824174** **ALK**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	02-NOV-2016 13:12	DCM	CLS	
3	STORE	WET	A1	02-NOV-2016 14:56	CLS	DCM	

Samplenum **Container ID** **Products**
L16110074-09 **824175** **6850**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	SEM	08-NOV-2016 11:03	JWR	BRG	
3	STORE	SEM	A1	09-NOV-2016 12:45	BRG	JWR	

Samplenum **Container ID** **Products**
L16110074-09 **824176** **TOC**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		<2
2	ANALYZ	W1	WET	03-NOV-2016 10:55	DCM	BRG	
3	STORE	WET	A1	09-NOV-2016 16:01	BRG	EPT	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-09 824177 S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	03-NOV-2016 14:22	TB	BRG	
3	ANALYZ	WET	A1	04-NOV-2016 09:47	BRG	TB	

Samplenum **Container ID** **Products**
L16110074-10 824178 FE-D MN-MSD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	DIG	02-NOV-2016 12:25	AC	CLS	
3	STORE	DIG	A1	02-NOV-2016 13:14	BRG	ERP	
4	ANALYZ*	DIG	METALS	07-NOV-2016 12:07	KKB	AC	

*Sample extract/digestate/leachate

Samplenum **Container ID** **Products**
L16110074-11 824179 826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:57	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:57	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:58	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-11 **824180** **RSK175EXT**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG1	02-NOV-2016 15:55	AWE	CLS	
3	STORE	ORG1	A1	16-NOV-2016 07:19	CLS	AWE	

Samplenum **Container ID** **Products**
L16110074-11 **824181** **9056**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	SEM	02-NOV-2016 12:34	CAS	BRG	
3	STORE	SEM	A1	07-NOV-2016 10:00	BRG	CAS	

Samplenum **Container ID** **Products**
L16110074-11 **824182** **ALK**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	02-NOV-2016 13:12	DCM	CLS	
3	STORE	WET	A1	02-NOV-2016 14:56	CLS	DCM	

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: L16110074

Account: 2551

Project: 2551.096

Samples: 13

Due Date: 11-NOV-2016

Samplenum **Container ID** **Products**
L16110074-11 824183 6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	SEM	08-NOV-2016 11:03	JWR	BRG	
3	STORE	SEM	A1	09-NOV-2016 12:45	BRG	JWR	

Samplenum **Container ID** **Products**
L16110074-11 824184 TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		<2
2	ANALYZ	W1	WET	03-NOV-2016 10:55	DCM	BRG	
3	STORE	WET	A1	09-NOV-2016 16:01	BRG	EPT	

Samplenum **Container ID** **Products**
L16110074-11 824185 S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	ANALYZ	W1	WET	03-NOV-2016 14:22	TB	BRG	
3	ANALYZ	WET	A1	04-NOV-2016 09:47	BRG	TB	

Samplenum **Container ID** **Products**
L16110074-12 824186 FE-D MN-MSD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	02-NOV-2016 11:19	CLS		
2	PREP	W1	DIG	02-NOV-2016 12:25	AC	CLS	
3	STORE	DIG	A1	02-NOV-2016 13:14	BRG	ERP	
4	ANALYZ*	DIG	METALS	07-NOV-2016 12:07	KKB	AC	

*Sample extract/digestate/leachate

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: L16110074**Account:** 2551**Project:** 2551.096**Samples:** 13**Due Date:** 11-NOV-2016

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L16110074-13	824187	826-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:57	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2016 11:19	CLS		
2	ANALYZ	V1	ORG4	02-NOV-2016 15:57	AWE	CLS	
3	STORE	ORG4	A1	16-NOV-2016 07:24	CLS	AWE	

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 CHEMICALSOVD MSS01/GC-MS

1-Methylnaphthalene
Benzaldehyde
Biphenyl
Caprolactam
Pentachloroethane

NELAP Accreditation by Laboratory SOP**SOLID AND HAZARDOUS CHEMICALS**OVD MSV01/GC-MS

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

Laboratory Report Number: L16110144

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 18 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



Lab Report #: L16110144

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.

The following discrepancies were noted:

Discrepancy	Resolution
Sample ID: 50WW16-110216. 1 of 3 RSK vials rec'd w/headspace. BRG	Please proceed ALS

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
0019560	I	3.0		J4616883120	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)?	No



Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
50WW08-110216	L16110144-01	11/02/2016 08:15	11/03/2016 09:26
50WW08FF-110216	L16110144-02	11/02/2016 08:15	11/03/2016 09:26
50WW22-110216	L16110144-03	11/02/2016 09:25	11/03/2016 09:26
50WW22FF-110216	L16110144-04	11/02/2016 09:25	11/03/2016 09:26
50WW16-110216	L16110144-05	11/02/2016 10:40	11/03/2016 09:26
50WW16FF-110216	L16110144-06	11/02/2016 10:40	11/03/2016 09:26
50WW27-110216	L16110144-07	11/02/2016 13:20	11/03/2016 09:26
50WW15-110216	L16110144-08	11/02/2016 14:15	11/03/2016 09:26
50WW15FD-110216	L16110144-09	11/02/2016 14:15	11/03/2016 09:26
TRIP BLANK	L16110144-10	11/02/2016 00:01	11/03/2016 09:26

Microbac REPORT L16110144
PREPARED FOR AECOM Technical Services, Inc.
WORK ID:

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Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	8260
Prep Batch Number(s):	590443,590743	Reviewer Name:	Sarah Vandenberg
LRC Date:	2016-11-14 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
Sarah Vandenberg	<i>Sarah Vandenberg</i>		2016-11-14 19:00:03



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	8260
Prep Batch Number(s):	590443,590743	Reviewer Name:	Sarah Vandenberg
LRC Date:	2016-11-14 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:	L16110144
Project Name:		Method:	8260
Prep Batch Number(s):	590443,590743	Reviewer Name:	Sarah Vandenberg
LRC Date:	2016-11-14 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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	8260
Prep Batch Number(s):	590443,590743	Reviewer Name:	Sarah Vandenberg
LRC Date:	2016-11-14 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			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					



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	8260
Prep Batch Number(s):	590443,590743	Reviewer Name:	Sarah Vandenberg
LRC Date:	2016-11-14 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:	L16110144
Project Name:		Method:	8260
Prep Batch Number(s):	590443,590743	Reviewer Name:	Sarah Vandenberg
LRC Date:	2016-11-14 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) Benzene and Toluene exceeded the UCL in the LCS analyzed 11/04/2016 on HPMS8.

2) Bromochloromethane, Bromodichloromethane, Carbon Tetrachloride, Dibromomethane, Dibromomethane, Styrene, 1,1,1-Trichloroethane, and m-,p-Xylene exceeded the UCL in the ICV analyzed 10/31/2016 on HPMS8.



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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 16:44:40



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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:	L16110144
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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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					



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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:	L16110144
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.




Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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 13:21:05



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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:	L16110144
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:	L16110144
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.



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6010
Prep Batch Number(s):	WG590228	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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	2016-11-17 12:46:46



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6010
Prep Batch Number(s):	WG590228	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6010
Prep Batch Number(s):	WG590228	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6010
Prep Batch Number(s):	WG590228	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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					



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6010
Prep Batch Number(s):	WG590228	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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:	L16110144
Project Name:		Method:	6010
Prep Batch Number(s):	WG590228	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6020
Prep Batch Number(s):	WG590567	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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	2016-11-17 13:04:53



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6020
Prep Batch Number(s):	WG590567	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6020
Prep Batch Number(s):	WG590567	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6020
Prep Batch Number(s):	WG590567	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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					



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	6020
Prep Batch Number(s):	WG590567	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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:	L16110144
Project Name:		Method:	6020
Prep Batch Number(s):	WG590567	Reviewer Name:	Kim Rhodes
LRC Date:	2016-11-17 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



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	9056
Prep Batch Number(s):	WG590307	Reviewer Name:	Eric Lawson
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
Eric Lawson		Chemist III	2016-11-08 20:19:48



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	9056
Prep Batch Number(s):	WG590307	Reviewer Name:	Eric Lawson
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:	L16110144
Project Name:		Method:	9056
Prep Batch Number(s):	WG590307	Reviewer Name:	Eric Lawson
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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	9056
Prep Batch Number(s):	WG590307	Reviewer Name:	Eric Lawson
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					



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	9056
Prep Batch Number(s):	WG590307	Reviewer Name:	Eric Lawson
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:	L16110144
Project Name:		Method:	9056
Prep Batch Number(s):	WG590307	Reviewer Name:	Eric Lawson
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 are no exceptions.



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	ALK-COLOR
Prep Batch Number(s):	WG590536	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		Conventional Lab Supervisor	2016-11-11 16:06:43



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	ALK-COLOR
Prep Batch Number(s):	WG590536	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:	L16110144
Project Name:		Method:	ALK-COLOR
Prep Batch Number(s):	WG590536	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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	ALK-COLOR
Prep Batch Number(s):	WG590536	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:	L16110144
Project Name:		Method:	ALK-COLOR
Prep Batch Number(s):	WG590536	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:	L16110144
Project Name:		Method:	ALK-COLOR
Prep Batch Number(s):	WG590536	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



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	PHOS
Prep Batch Number(s):	WG591071	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		Conventional Lab Supervisor	2016-11-11 16:06:17



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	PHOS
Prep Batch Number(s):	WG591071	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:	L16110144
Project Name:		Method:	PHOS
Prep Batch Number(s):	WG591071	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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	PHOS
Prep Batch Number(s):	WG591071	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:	L16110144
Project Name:		Method:	PHOS
Prep Batch Number(s):	WG591071	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.

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Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	PHOS
Prep Batch Number(s):	WG591071	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



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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		Conventional Lab Supervisor	2016-11-11 16:05:17



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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				



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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:	L16110144
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.

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Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
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



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	TOC
Prep Batch Number(s):	WG590598	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		Conventional Lab Supervisor	2016-11-11 16:05:47



Texas Risk Reduction Program (TRRP) Checklist

Laboratory Name:	Microbac OVD	Laboratory Log Number:	L16110144
Project Name:		Method:	TOC
Prep Batch Number(s):	WG590598	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				



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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				



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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					



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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



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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

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: HPMS8
Client ID: 50VW08-110216	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590743	Analyst: TMB	Run Date: 11/08/2016 12:10
Collect Date: 11/02/2016 08:15	Dilution: 2.5	File ID: 8M416007
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	12.5	U	25.0	12.5	6.25
Benzene	71-43-2	0.626	U	2.50	0.626	0.313
Bromobenzene	108-86-1	0.626	U	2.50	0.626	0.313
Bromochloromethane	74-97-5	1.00	U	2.50	1.00	0.500
Bromodichloromethane	75-27-4	1.25	U	2.50	1.25	0.625
Bromoform	75-25-2	2.50	U	5.00	2.50	1.25
Bromomethane	74-83-9	2.50	U	5.00	2.50	1.25
2-Butanone	78-93-3	12.5	U	25.0	12.5	6.25
n-Butylbenzene	104-51-8	1.25	U	2.50	1.25	0.625
sec-Butylbenzene	135-98-8	1.25	U	2.50	1.25	0.625
tert-Butylbenzene	98-06-6	1.25	U	2.50	1.25	0.625
Carbon disulfide	75-15-0	2.50	U	5.00	2.50	1.25
Carbon tetrachloride	56-23-5	1.25	U	2.50	1.25	0.625
Chlorobenzene	108-90-7	0.626	U	2.50	0.626	0.313
Chlorodibromomethane	124-48-1	1.25	U	2.50	1.25	0.625
Chloroethane	75-00-3	2.50	U	5.00	2.50	1.25
Chloroform	67-66-3	0.351	J	2.50	0.626	0.313
Chloromethane	74-87-3	2.50	U	5.00	2.50	1.25
2-Chlorotoluene	95-49-8	0.626	U	2.50	0.626	0.313
4-Chlorotoluene	106-43-4	1.25	U	2.50	1.25	0.625
1,2-Dibromo-3-chloropropane	96-12-8	5.00	U	12.5	5.00	2.50
1,2-Dibromoethane	106-93-4	1.25	U	2.50	1.25	0.625
Dibromomethane	74-95-3	1.25	U	2.50	1.25	0.625
1,2-Dichlorobenzene	95-50-1	0.626	U	2.50	0.626	0.313
1,3-Dichlorobenzene	541-73-1	1.25	U	2.50	1.25	0.625
1,4-Dichlorobenzene	106-46-7	0.626	U	2.50	0.626	0.313
Dichlorodifluoromethane	75-71-8	1.25	U	2.50	1.25	0.625
1,1-Dichloroethane	75-34-3	0.750	J	2.50	0.626	0.313
1,2-Dichloroethane	107-06-2	2.41	J	2.50	1.25	0.625
1,1-Dichloroethene	75-35-4	2.50	U	5.00	2.50	1.25
cis-1,2-Dichloroethene	156-59-2	38.0		2.50	1.25	0.625
trans-1,2-Dichloroethene	156-60-5	1.25	U	2.50	1.25	0.625

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dichloropropane	78-87-5	1.00	U	2.50	1.00	0.500
1,3-Dichloropropane	142-28-9	1.00	U	2.50	1.00	0.500
2,2-Dichloropropane	594-20-7	1.25	U	2.50	1.25	0.625
cis-1,3-Dichloropropene	10061-01-5	1.25	U	2.50	1.25	0.625
trans-1,3-Dichloropropene	10061-02-6	2.50	U	5.00	2.50	1.25
1,1-Dichloropropene	563-58-6	1.25	U	2.50	1.25	0.625
Ethylbenzene	100-41-4	1.25	U	2.50	1.25	0.625
2-Hexanone	591-78-6	12.5	U	25.0	12.5	6.25
Hexachlorobutadiene	87-68-3	1.25	U	2.50	1.25	0.625
Isopropylbenzene	98-82-8	1.25	U	2.50	1.25	0.625
p-Isopropyltoluene	99-87-6	1.25	U	2.50	1.25	0.625
4-Methyl-2-pentanone	108-10-1	12.5	U	25.0	12.5	6.25
Methylene chloride	75-09-2	1.25	U	2.50	1.25	0.625
Naphthalene	91-20-3	1.00	U	2.50	1.00	0.500
n-Propylbenzene	103-65-1	0.626	U	2.50	0.626	0.313
Styrene	100-42-5	0.626	U	2.50	0.626	0.313
1,1,1,2-Tetrachloroethane	630-20-6	1.25	U	2.50	1.25	0.625
1,1,2,2-Tetrachloroethane	79-34-5	1.00	U	2.50	1.00	0.500
Tetrachloroethene	127-18-4	1.11	J	2.50	1.25	0.625
Toluene	108-88-3	1.25	U	2.50	1.25	0.625
1,2,3-Trichlorobenzene	87-61-6	0.750	U	2.50	0.750	0.375
1,2,4-Trichlorobenzene	120-82-1	1.00	U	2.50	1.00	0.500
1,1,1-Trichloroethane	71-55-6	1.25	U	2.50	1.25	0.625
1,1,2-Trichloroethane	79-00-5	1.25	U	2.50	1.25	0.625
Trichloroethene	79-01-6	379		2.50	1.25	0.625
Trichlorofluoromethane	75-69-4	1.25	U	2.50	1.25	0.625
1,2,3-Trichloropropane	96-18-4	2.50	U	5.00	2.50	1.25
1,2,4-Trimethylbenzene	95-63-6	1.25	U	2.50	1.25	0.625
1,3,5-Trimethylbenzene	108-67-8	1.25	U	2.50	1.25	0.625
Vinyl chloride	75-01-4	1.25	U	2.50	1.25	0.625
o-Xylene	95-47-6	1.25	U	2.50	1.25	0.625
m-,p-Xylene	179601-23-1	2.50	U	5.00	2.50	1.25

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	97.4	85	115	
1,2-Dichloroethane-d4	90.4	70	120	
Toluene-d8	95.4	85	120	
4-Bromofluorobenzene	98.7	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW08-110216	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 18:07
Collect Date: 11/02/2016 08:15	Dilution: 1	File ID: 16G50951
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	6.61		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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW08-110216	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 18:27
Collect Date: 11/02/2016 08:15	Dilution: 10	File ID: 16G50972
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	529000		100000	50000	25000
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
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Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW08-110216	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 20:40
Collect Date: 11/02/2016 08:15	Dilution: 100	File ID: 1LM.LM37564
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	126		40.0	20.0	10.0

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: IC1
Client ID: 50WW08-110216	Prep Method: 9056	Prep Date: 11/03/2016 19:34
Matrix: Water	Analytical Method: 9056	Cal Date: 10/11/2016 18:33
Workgroup #: WG590307	Analyst: CAS	Run Date: 11/04/2016 02:52
Collect Date: 11/02/2016 08:15	Dilution: 2	File ID: I1_110316-27
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	0.350	J	0.800	0.400	0.200
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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: IC1
Client ID: 50WW08-110216	Prep Method: 9056	Prep Date: 11/03/2016 19:34
Matrix: Water	Analytical Method: 9056	Cal Date: 10/11/2016 18:33
Workgroup #: WG590307	Analyst: CAS	Run Date: 11/04/2016 03:10
Collect Date: 11/02/2016 08:15	Dilution: 5	File ID: I1_110316-28
Sample Tag: DL02	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfate	14808-79-8	300		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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: IC1
Client ID: 50WW08-110216	Prep Method: 9056	Prep Date: 11/03/2016 19:34
Matrix: Water	Analytical Method: 9056	Cal Date: 10/11/2016 18:33
Workgroup #: WG590307	Analyst: CAS	Run Date: 11/04/2016 03:28
Collect Date: 11/02/2016 08:15	Dilution: 20	File ID: I1_110316-29
Sample Tag: DL03	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	349		8.00	4.00	2.00
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: 50WW08-110216	Prep Method: 310.2	Prep Date: N/A
Matrix: Water	Analytical Method: 310.2	Cal Date: 11/07/2016 08:33
Workgroup #: WG590536	Analyst: DCM	Run Date: 11/07/2016 08:42
Collect Date: 11/02/2016 08:15	Dilution: 2	File ID: SC161107001.023
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	419		80.0	40.0	20.0

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: 50WW08-110216	Prep Method: 365.4	Prep Date: N/A
Matrix: Water	Analytical Method: 365.4	Cal Date: 11/10/2016 10:17
Workgroup #: WG591071	Analyst: DCM	Run Date: 11/10/2016 10:21
Collect Date: 11/02/2016 08:15	Dilution: 1	File ID: SC161110002.013
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	0.135	J	0.400	0.200	0.100
J	Estimated value ; the analyte concentration was less than the LOQ.					

Lab Report #: L16110144
Lab Project #: 2551.096
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Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: BURET
Client ID: 50WW08-110216	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: 11/02/2016 08:15	Dilution: 1	File ID: ET.1611031715-10
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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: TOC-VWP
Client ID: 50WW08-110216	Prep Method: 415.1	Prep Date: N/A
Matrix: Water	Analytical Method: 415.1	Cal Date:
Workgroup #: WG590598	Analyst: DCM	Run Date: 11/07/2016 20:04
Collect Date: 11/02/2016 08:15	Dilution: 3	File ID: TC11072016.036
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	13.6		6.00	3.00	1.50

Certificate of Analysis

Sample #: L16110144-02	PrePrep Method: N/A	Instrument: ICP-THERMO4
Client ID: 50WW08FF-110216	Prep Method: 3015	Prep Date: 11/03/2016 12:36
Matrix: Water	Analytical Method: 6010C	Cal Date: 11/04/2016 10:50
Workgroup #: WG590393	Analyst: KKB	Run Date: 11/04/2016 14:23
Collect Date: 11/02/2016 08:15	Dilution: 1	File ID: T4.110416.142314
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.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-02	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: 50WW08FF-110216	Prep Method: 3015	Prep Date: 11/07/2016 09:25
Matrix: Water	Analytical Method: 6020A	Cal Date: 11/11/2016 08:49
Workgroup #: WG590881	Analyst: JYH	Run Date: 11/11/2016 10:08
Collect Date: 11/02/2016 08:15	Dilution: 1	File ID: NI.111116.100823
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0392		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: HPMS8
Client ID: 50WW22-110216	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590443	Analyst: ADC	Run Date: 11/04/2016 20:21
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: 8M415958
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	U	1.00	0.500	0.250

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	U	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

Lab Report #: L16110144

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	97.0	85	115			
1,2-Dichloroethane-d4	93.0	70	120			
Toluene-d8	95.5	85	120			
4-Bromofluorobenzene	96.6	75	120			
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW22-110216	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 18:18
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: 16G50952
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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW22-110216	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 18:15
Collect Date: 11/02/2016 09:25	Dilution: 10	File ID: 16G50971
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	828000		100000	50000	25000
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW22-110216	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 20:59
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: 1LM.LM37565
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	1.02		0.400	0.200	0.100

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: IC1
Client ID: 50WW22-110216	Prep Method: 9056	Prep Date: 11/03/2016 19:34
Matrix: Water	Analytical Method: 9056	Cal Date: 10/11/2016 18:33
Workgroup #: WG590307	Analyst: CAS	Run Date: 11/04/2016 03:46
Collect Date: 11/02/2016 09:25	Dilution: 10	File ID: I1_110316-30
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	658		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.

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: IC1
Client ID: 50WW22-110216	Prep Method: 9056	Prep Date: 11/03/2016 19:34
Matrix: Water	Analytical Method: 9056	Cal Date: 10/11/2016 18:33
Workgroup #: WG590307	Analyst: CAS	Run Date: 11/04/2016 04:23
Collect Date: 11/02/2016 09:25	Dilution: 50	File ID: I1_110316-32
Sample Tag: DL02	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	856		20.0	10.0	5.00
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: 50WW22-110216	Prep Method: 310.2	Prep Date: N/A
Matrix: Water	Analytical Method: 310.2	Cal Date: 11/07/2016 08:33
Workgroup #: WG590536	Analyst: DCM	Run Date: 11/07/2016 08:43
Collect Date: 11/02/2016 09:25	Dilution: 2	File ID: SC161107001.024
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	407		80.0	40.0	20.0

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: 50WW22-110216	Prep Method: 365.4	Prep Date: N/A
Matrix: Water	Analytical Method: 365.4	Cal Date: 11/10/2016 10:17
Workgroup #: WG591071	Analyst: DCM	Run Date: 11/10/2016 10:22
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: SC161110002.014
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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: BURET
Client ID: 50WW22-110216	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: 11/02/2016 09:25	Dilution: 1	File ID: ET.1611031715-11
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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: TOC-VWP
Client ID: 50WW22-110216	Prep Method: 415.1	Prep Date: N/A
Matrix: Water	Analytical Method: 415.1	Cal Date:
Workgroup #: WG590598	Analyst: DCM	Run Date: 11/08/2016 10:35
Collect Date: 11/02/2016 09:25	Dilution: 10	File ID: TC11072016.088
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	26.0		20.0	10.0	5.00

Certificate of Analysis

Sample #: L16110144-04	PrePrep Method: N/A	Instrument: ICP-THERMO4
Client ID: 50WW22FF-110216	Prep Method: 3015	Prep Date: 11/03/2016 12:36
Matrix: Water	Analytical Method: 6010C	Cal Date: 11/04/2016 10:50
Workgroup #: WG590393	Analyst: KKB	Run Date: 11/04/2016 14:26
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: T4.110416.142659
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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-04	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: 50WW22FF-110216	Prep Method: 3015	Prep Date: 11/07/2016 09:25
Matrix: Water	Analytical Method: 6020A	Cal Date: 11/11/2016 08:49
Workgroup #: WG590881	Analyst: JYH	Run Date: 11/11/2016 10:11
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: NI.111116.101128
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.00390	J	0.00400	0.00200	0.00100
J	Estimated value ; the analyte concentration was less than the LOQ.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: HPMS8
Client ID: 50WW16-110216	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590443	Analyst: ADC	Run Date: 11/04/2016 20:51
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: 8M415959
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	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

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	U	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	2.72		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	97.1	85	115			
1,2-Dichloroethane-d4	91.9	70	120			
Toluene-d8	96.1	85	120			
4-Bromofluorobenzene	95.1	75	120			
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW16-110216	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 18:30
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: 16G50953
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	15.3		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.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW16-110216	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 18:03
Collect Date: 11/02/2016 10:40	Dilution: 10	File ID: 16G50970
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	599000		100000	50000	25000
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW16-110216	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 21:18
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: 1LM.LM37566
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.846		0.400	0.200	0.100

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: IC1
Client ID: 50WW16-110216	Prep Method: 9056	Prep Date: 11/03/2016 19:34
Matrix: Water	Analytical Method: 9056	Cal Date: 10/11/2016 18:33
Workgroup #: WG590307	Analyst: CAS	Run Date: 11/04/2016 04:41
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: I1_110316-33
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	6.59		0.400	0.200	0.100
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	38.0		2.00	1.00	0.500

U	Analyte was not detected. The concentration is below the reported LOD.					
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Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: 50WW16-110216	Prep Method: 310.2	Prep Date: N/A
Matrix: Water	Analytical Method: 310.2	Cal Date: 11/07/2016 08:33
Workgroup #: WG590536	Analyst: DCM	Run Date: 11/07/2016 08:43
Collect Date: 11/02/2016 10:40	Dilution: 2	File ID: SC161107001.025
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Alkalinity, Total (as CaCO3)	11-43-8	108		80.0	40.0	20.0

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: 50WW16-110216	Prep Method: 365.4	Prep Date: N/A
Matrix: Water	Analytical Method: 365.4	Cal Date: 11/10/2016 10:17
Workgroup #: WG591071	Analyst: DCM	Run Date: 11/10/2016 10:22
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: SC161110002.015
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Phosphorus, Total	7723-14-0	0.909		0.400	0.200	0.100

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: BURET
Client ID: 50WW16-110216	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: 11/02/2016 10:40	Dilution: 1	File ID: ET.1611031715-12
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.					

Lab Report #: L16110144
 Lab Project #: 2551.096
 Project Name: Longhorn Army Ammunition
 Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: TOC-VWP
Client ID: 50WW16-110216	Prep Method: 415.1	Prep Date: N/A
Matrix: Water	Analytical Method: 415.1	Cal Date:
Workgroup #: WG590598	Analyst: DCM	Run Date: 11/07/2016 20:52
Collect Date: 11/02/2016 10:40	Dilution: 5	File ID: TC11072016.040
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Total Organic Carbon	TOC	10.3		10.0	5.00	2.50

Certificate of Analysis

Sample #: L16110144-06	PrePrep Method: N/A	Instrument: ICP-THERMO4
Client ID: 50WW16FF-110216	Prep Method: 3015	Prep Date: 11/03/2016 12:36
Matrix: Water	Analytical Method: 6010C	Cal Date: 11/04/2016 10:50
Workgroup #: WG590393	Analyst: KKB	Run Date: 11/04/2016 14:30
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: T4.110416.143052
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	4.45		0.100	0.100	0.0500

Certificate of Analysis

Sample #: L16110144-06	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: 50WW16FF-110216	Prep Method: 3015	Prep Date: 11/07/2016 09:25
Matrix: Water	Analytical Method: 6020A	Cal Date: 11/11/2016 08:49
Workgroup #: WG590881	Analyst: JYH	Run Date: 11/11/2016 10:14
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: NI.111116.101434
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0557		0.00400	0.00200	0.00100

Certificate of Analysis

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Sample #: L16110144-07

PrePrep Method: N/A

Instrument: HPMS8

Client ID: 50WW27-110216

Prep Method: 5030B/5030C/5035A

Prep Date: N/A

Matrix: Water

Analytical Method: 8260B

Cal Date: 10/30/2016 23:19

Workgroup #: WG590443

Analyst: ADC

Run Date: 11/04/2016 21:19

Collect Date: 11/02/2016 13:20

Dilution: 1

File ID: 8M415960

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	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	0.498	J	1.00	0.500	0.250
trans-1,2-Dichloroethene	156-60-5	0.500	U	1.00	0.500	0.250

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	U	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	96.8	85	115	
1,2-Dichloroethane-d4	91.1	70	120	
Toluene-d8	95.9	85	120	
4-Bromofluorobenzene	97.4	75	120	

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-07	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW27-110216	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 21:37
Collect Date: 11/02/2016 13:20	Dilution: 1	File ID: 1LM.LM37567
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.124	J	0.400	0.200	0.100
J	Estimated value ; the analyte concentration was less than the LOQ.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-08	PrePrep Method: N/A	Instrument: HPMS8
Client ID: 50WW15-110216	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590443	Analyst: ADC	Run Date: 11/04/2016 21:49
Collect Date: 11/02/2016 14:15	Dilution: 1	File ID: 8M415961
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	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	6.63		1.00	0.500	0.250

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	U	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	1.89		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	9.52		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	1.18		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	96.5	85	115			
1,2-Dichloroethane-d4	91.2	70	120			
Toluene-d8	95.6	85	120			
4-Bromofluorobenzene	99.2	75	120			
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-08	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW15-110216	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 21:56
Collect Date: 11/02/2016 14:15	Dilution: 1	File ID: 1LM.LM37568
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.					

Certificate of Analysis

Sample #: L16110144-09	PrePrep Method: N/A	Instrument: HPMS8
Client ID: 50WW15FD-110216	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590443	Analyst: ADC	Run Date: 11/04/2016 22:17
Collect Date: 11/02/2016 14:15	Dilution: 1	File ID: 8M415962
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	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	5.37		1.00	0.500	0.250

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	U	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	0.917	J	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	7.10		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	0.927	J	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	97.2	85	115	
1,2-Dichloroethane-d4	89.3	70	120	
Toluene-d8	96.3	85	120	
4-Bromofluorobenzene	96.6	75	120	
J	Estimated value ; the analyte concentration was less than the LOQ.			

U	Analyte was not detected. The concentration is below the reported LOD.
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Lab Report #: L16110144
Lab Project #: 2551.096
Project Name: Longhorn Army Ammunition
Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-09	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW15FD-110216	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 22:15
Collect Date: 11/02/2016 14:15	Dilution: 1	File ID: 1LM.LM37569
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.					

Certificate of Analysis

Sample #: L16110144-10	PrePrep Method: N/A	Instrument: HPMS8
Client ID: TRIP BLANK	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590443	Analyst: ADC	Run Date: 11/04/2016 19:52
Collect Date: 11/02/2016 00:01	Dilution: 1	File ID: 8M415957
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	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

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	U	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	96.1	85	115			
1,2-Dichloroethane-d4	90.0	70	120			
Toluene-d8	96.0	85	120			
4-Bromofluorobenzene	96.7	75	120			
U	Analyte was not detected. The concentration is below the reported LOD.					

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

Certificate of Analysis

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: HPMS8
Client ID: 50WW08-110216	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590743	Analyst: TMB	Run Date: 11/08/2016 12:10
Collect Date: 11/02/2016 08:15	Dilution: 2.5	File ID: 8M416007
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Acetone	67-64-1	12.5	U	25.0	12.5	6.25
Benzene	71-43-2	0.626	U	2.50	0.626	0.313
Bromobenzene	108-86-1	0.626	U	2.50	0.626	0.313
Bromochloromethane	74-97-5	1.00	U	2.50	1.00	0.500
Bromodichloromethane	75-27-4	1.25	U	2.50	1.25	0.625
Bromoform	75-25-2	2.50	U	5.00	2.50	1.25
Bromomethane	74-83-9	2.50	U	5.00	2.50	1.25
2-Butanone	78-93-3	12.5	U	25.0	12.5	6.25
n-Butylbenzene	104-51-8	1.25	U	2.50	1.25	0.625
sec-Butylbenzene	135-98-8	1.25	U	2.50	1.25	0.625
tert-Butylbenzene	98-06-6	1.25	U	2.50	1.25	0.625
Carbon disulfide	75-15-0	2.50	U	5.00	2.50	1.25
Carbon tetrachloride	56-23-5	1.25	U	2.50	1.25	0.625
Chlorobenzene	108-90-7	0.626	U	2.50	0.626	0.313
Chlorodibromomethane	124-48-1	1.25	U	2.50	1.25	0.625
Chloroethane	75-00-3	2.50	U	5.00	2.50	1.25
Chloroform	67-66-3	0.351	J	2.50	0.626	0.313
Chloromethane	74-87-3	2.50	U	5.00	2.50	1.25
2-Chlorotoluene	95-49-8	0.626	U	2.50	0.626	0.313
4-Chlorotoluene	106-43-4	1.25	U	2.50	1.25	0.625
1,2-Dibromo-3-chloropropane	96-12-8	5.00	U	12.5	5.00	2.50
1,2-Dibromoethane	106-93-4	1.25	U	2.50	1.25	0.625
Dibromomethane	74-95-3	1.25	U	2.50	1.25	0.625
1,2-Dichlorobenzene	95-50-1	0.626	U	2.50	0.626	0.313
1,3-Dichlorobenzene	541-73-1	1.25	U	2.50	1.25	0.625
1,4-Dichlorobenzene	106-46-7	0.626	U	2.50	0.626	0.313
Dichlorodifluoromethane	75-71-8	1.25	U	2.50	1.25	0.625
1,1-Dichloroethane	75-34-3	0.750	J	2.50	0.626	0.313
1,2-Dichloroethane	107-06-2	2.41	J	2.50	1.25	0.625
1,1-Dichloroethene	75-35-4	2.50	U	5.00	2.50	1.25
cis-1,2-Dichloroethene	156-59-2	38.0		2.50	1.25	0.625
trans-1,2-Dichloroethene	156-60-5	1.25	U	2.50	1.25	0.625

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
1,2-Dichloropropane	78-87-5	1.00	U	2.50	1.00	0.500
1,3-Dichloropropane	142-28-9	1.00	U	2.50	1.00	0.500
2,2-Dichloropropane	594-20-7	1.25	U	2.50	1.25	0.625
cis-1,3-Dichloropropene	10061-01-5	1.25	U	2.50	1.25	0.625
trans-1,3-Dichloropropene	10061-02-6	2.50	U	5.00	2.50	1.25
1,1-Dichloropropene	563-58-6	1.25	U	2.50	1.25	0.625
Ethylbenzene	100-41-4	1.25	U	2.50	1.25	0.625
2-Hexanone	591-78-6	12.5	U	25.0	12.5	6.25
Hexachlorobutadiene	87-68-3	1.25	U	2.50	1.25	0.625
Isopropylbenzene	98-82-8	1.25	U	2.50	1.25	0.625
p-Isopropyltoluene	99-87-6	1.25	U	2.50	1.25	0.625
4-Methyl-2-pentanone	108-10-1	12.5	U	25.0	12.5	6.25
Methylene chloride	75-09-2	1.25	U	2.50	1.25	0.625
Naphthalene	91-20-3	1.00	U	2.50	1.00	0.500
n-Propylbenzene	103-65-1	0.626	U	2.50	0.626	0.313
Styrene	100-42-5	0.626	U	2.50	0.626	0.313
1,1,1,2-Tetrachloroethane	630-20-6	1.25	U	2.50	1.25	0.625
1,1,1,2-Tetrachloroethane	79-34-5	1.00	U	2.50	1.00	0.500
Tetrachloroethene	127-18-4	1.11	J	2.50	1.25	0.625
Toluene	108-88-3	1.25	U	2.50	1.25	0.625
1,2,3-Trichlorobenzene	87-61-6	0.750	U	2.50	0.750	0.375
1,2,4-Trichlorobenzene	120-82-1	1.00	U	2.50	1.00	0.500
1,1,1-Trichloroethane	71-55-6	1.25	U	2.50	1.25	0.625
1,1,2-Trichloroethane	79-00-5	1.25	U	2.50	1.25	0.625
Trichloroethene	79-01-6	379		2.50	1.25	0.625
Trichlorofluoromethane	75-69-4	1.25	U	2.50	1.25	0.625
1,2,3-Trichloropropane	96-18-4	2.50	U	5.00	2.50	1.25
1,2,4-Trimethylbenzene	95-63-6	1.25	U	2.50	1.25	0.625
1,3,5-Trimethylbenzene	108-67-8	1.25	U	2.50	1.25	0.625
Vinyl chloride	75-01-4	1.25	U	2.50	1.25	0.625
o-Xylene	95-47-6	1.25	U	2.50	1.25	0.625
m-,p-Xylene	179601-23-1	2.50	U	5.00	2.50	1.25

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	97.4	85	115	
1,2-Dichloroethane-d4	90.4	70	120	
Toluene-d8	95.4	85	120	
4-Bromofluorobenzene	98.7	75	120	
J	Estimated value ; the analyte concentration was less than the LOQ.			
U	Analyte was not detected. The concentration is below the reported LOD.			

Certificate of Analysis

Sample #: L16110144-03

PrePrep Method: N/A

Instrument: HPMS8

Client ID: 50WW22-110216

Prep Method: 5030B/5030C/5035A

Prep Date: N/A

Matrix: Water

Analytical Method: 8260B

Cal Date: 10/30/2016 23:19

Workgroup #: WG590443

Analyst: ADC

Run Date: 11/04/2016 20:21

Collect Date: 11/02/2016 09:25

Dilution: 1

File ID: 8M415958

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	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

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	U	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
1,1,1,2-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	97.0	85	115	
1,2-Dichloroethane-d4	93.0	70	120	
Toluene-d8	95.5	85	120	
4-Bromofluorobenzene	96.6	75	120	

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

Certificate of Analysis

Sample #: L16110144-05

PrePrep Method: N/A

Instrument: HPMS8

Client ID: 50WW16-110216

Prep Method: 5030B/5030C/5035A

Prep Date: N/A

Matrix: Water

Analytical Method: 8260B

Cal Date: 10/30/2016 23:19

Workgroup #: WG590443

Analyst: ADC

Run Date: 11/04/2016 20:51

Collect Date: 11/02/2016 10:40

Dilution: 1

File ID: 8M415959

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	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

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	U	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
1,1,1,2-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	2.72		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	97.1	85	115	
1,2-Dichloroethane-d4	91.9	70	120	
Toluene-d8	96.1	85	120	
4-Bromofluorobenzene	95.1	75	120	

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

Certificate of Analysis

Sample #: L16110144-07	PrePrep Method: N/A	Instrument: HPMS8
Client ID: 50WW27-110216	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590443	Analyst: ADC	Run Date: 11/04/2016 21:19
Collect Date: 11/02/2016 13:20	Dilution: 1	File ID: 8M415960
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	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	0.498	J	1.00	0.500	0.250

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	U	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	96.8	85	115	
1,2-Dichloroethane-d4	91.1	70	120	
Toluene-d8	95.9	85	120	
4-Bromofluorobenzene	97.4	75	120	

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

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

Sample #: L16110144-08

PrePrep Method: N/A

Instrument: HPMS8

Client ID: 50WW15-110216

Prep Method: 5030B/5030C/5035A

Prep Date: N/A

Matrix: Water

Analytical Method: 8260B

Cal Date: 10/30/2016 23:19

Workgroup #: WG590443

Analyst: ADC

Run Date: 11/04/2016 21:49

Collect Date: 11/02/2016 14:15

Dilution: 1

File ID: 8M415961

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	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	6.63		1.00	0.500	0.250

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	U	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
1,1,1,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	1.89		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	9.52		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	1.18		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	96.5	85	115	
1,2-Dichloroethane-d4	91.2	70	120	
Toluene-d8	95.6	85	120	
4-Bromofluorobenzene	99.2	75	120	

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

Certificate of Analysis

Sample #: L16110144-09

PrePrep Method: N/A

Instrument: HPMS8

Client ID: 50WW15FD-110216

Prep Method: 5030B/5030C/5035A

Prep Date: N/A

Matrix: Water

Analytical Method: 8260B

Cal Date: 10/30/2016 23:19

Workgroup #: WG590443

Analyst: ADC

Run Date: 11/04/2016 22:17

Collect Date: 11/02/2016 14:15

Dilution: 1

File ID: 8M415962

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	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	5.37		1.00	0.500	0.250

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	U	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
1,1,1,2-Tetrachloroethane	79-34-5	0.400	U	1.00	0.400	0.200
Tetrachloroethene	127-18-4	0.917	J	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	7.10		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	0.927	J	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	97.2	85	115	
1,2-Dichloroethane-d4	89.3	70	120	
Toluene-d8	96.3	85	120	
4-Bromofluorobenzene	96.6	75	120	

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

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

Sample #: L16110144-10	PrePrep Method: N/A	Instrument: HPMS8
Client ID: TRIP BLANK	Prep Method: 5030B/5030C/5035A	Prep Date: N/A
Matrix: Water	Analytical Method: 8260B	Cal Date: 10/30/2016 23:19
Workgroup #: WG590443	Analyst: ADC	Run Date: 11/04/2016 19:52
Collect Date: 11/02/2016 00:01	Dilution: 1	File ID: 8M415957
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	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

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	U	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
1,1,1,2-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	96.1	85	115	
1,2-Dichloroethane-d4	90.0	70	120	
Toluene-d8	96.0	85	120	
4-Bromofluorobenzene	96.7	75	120	

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

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

$$Ax^2 + Bx + C - y = 0$$

$$x = \frac{b \pm \sqrt{(b^2 - 4a(c - y))}}{2a} \quad (\text{Two possible solutions})$$

Step 4: Solve for analyte concentration Cx

$$Cx = (Cis)(\text{Amount ratio})$$

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 quantitation 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

Analyst(s): BUB
 Date: 11-3-16
 Filter Lot #: 9097607

Balance ID: BAL020
 pH Probe ID: T3
 Temp probe ID: 1025 1023

Analyst / Date		Analyst / Date	
<u>BUB</u>	<u>11-3-16</u>	<u>BUB</u>	<u>11-4-16</u>
Time	Temp	Time	Temp
On	On °C	Off	Off °C
<u>15:33</u>	<u>22.1</u>	<u>8:08</u>	<u>22.4</u>

Agitator Speed 30 ± 2 rpm

ZHE	Sample #	Pressure ✓	PSI ON	PSI OFF	Method	Fluid #	Matrix*	%Solid	Size Reduction		Int. Wt. (g)	Fluid Vol. (mL)
									Yes	No		
A												
B												
C												
D												
E												
F												
G												
H												
I												
J												
K	<u>11-0112-01</u>	<input checked="" type="checkbox"/>	<u>10</u>	<u>10</u>	<u>1311</u>	<u>F₁-194</u>	<u>S</u>	<u>100</u>		<input checked="" type="checkbox"/>	<u>25.00</u>	<u>500</u>
L	<u>11-0112-02</u>	<input checked="" type="checkbox"/>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		<input checked="" type="checkbox"/>	<u>25.00</u>	<u>500</u>
M	<u>11-0105-01</u>	<input checked="" type="checkbox"/>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		<input checked="" type="checkbox"/>	<u>15.00</u>	<u>500</u>
N	<u>11-0105-02</u>	<input checked="" type="checkbox"/>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		<input checked="" type="checkbox"/>	<u>25.00</u>	<u>500</u>
O	<u>11-0105-03</u>	<input checked="" type="checkbox"/>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		<input checked="" type="checkbox"/>	<u>25.01</u>	<u>500</u>
P	<u>11-0102-01</u>	<input checked="" type="checkbox"/>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		<input checked="" type="checkbox"/>	<u>25.00</u>	<u>500</u>
Q												
R												
S												
NA	<u>FBIX-1</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>1311</u>	<u>F₁-194</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>40</u>	<u>40</u>

*Matrix Code = (S-solid) (SS-sand, soil or sludge) (P-paint) (O-organic) (W-water or waste)

Comments: NA

Peer Review By: Charles Davis

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 051716
 Analyst1: TMB Analyst2: FJB
 Method: 8260B SOP: MSV01 Rev: 23
 Method: 624 SOP: MSV10 Rev: 14
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID: _____

Internal Standard: STD75899 Surrogate Standard: STD75899
 CCV: STD76072; STD76127 LCS: STD76109; STD75801 MS/MSD: NA
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG569079; WG569083

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
8M412319	WG569084-01 50ng BFB STD 8260	NA	1	1	STD76034	05/17/16 08:53
8M412320	WG569084-02 50ug/L CCV STD 8260	NA	1	1	STD76127	05/17/16 09:18
8M412321	WG569079-01 100ug/L A9 CCV STD 8260	NA	1	1	STD76072	05/17/16 09:47
8M412322	WG569079-03 50ug/L A9/FOO STD 8260	NA	1	1	STD76072	05/17/16 10:16
8M412323	WG569079-04 20ug/L A9/FOO STD 8260	NA	1	1	STD76072	05/17/16 10:44
8M412324	WG569079-05 5ug/L A9/FOO STD 8260	NA	1	1	STD76072	05/17/16 11:13
8M412325	WG569079-06 200ug/L A9/FOO STD 8260	NA	1	1	STD76072	05/17/16 11:42
8M412326	WG569079-07 300ug/L A9/FOO STD 8260	NA	1	1	STD76072	05/17/16 12:40
8M412327	WG569079-08 400ug/L A9/FOO STD 8260	NA	1	1	STD76072	05/17/16 13:10
8M412328	WG569079-09 500ug/L A9/FOO STD 8260	NA	1	1	STD76072	05/17/16 13:39
8M412329	RINSE	NA	1	1		05/17/16 14:08
8M412330	RINSE	NA	1	1		05/17/16 14:37
8M412331	WG569079-10 100ug/L ALT SRC STD 826	NA	1	1	STD75801	05/17/16 15:06
8M412332	WG569259-01 BFB 50ng 8260	NA	1	1	STD76034	05/17/16 18:27
8M412333	WG569259-02 50ug/L CCV 8260	NA	1	1	STD76034	05/17/16 18:53
8M412334	WG569260-01 100ug/L CCV A9	NA	1	1	STD76072	05/17/16 19:22
8M412335	WG569083-01 VBLK0517 BLANK 8260	NA	1	1		05/17/16 19:51
8M412336	WG569083-02 20ug/L LCS 8260	NA	1	1	STD76109	05/17/16 20:20
8M412337	WG569083-03 20ug/L LCS2 8260	NA	1	1	STD76109	05/17/16 20:49
8M412338	WG569083-04 100ug/L LCS A9	NA	1	1	STD75801	05/17/16 21:18
8M412339	WG569083-05 100ug/L LCS2 A9	NA	1	1	STD75801	05/17/16 21:46
8M412340	L16050844-01 TB A 826-A9-SPE	5	1	1		05/17/16 22:16
8M412341	L16050844-07 EB A 826-A9-SPE	5	1	1		05/17/16 22:45
8M412342	L16050844-11 AB A 826-A9-SPE	5	1	1		05/17/16 23:14
8M412343	L16050844-02 A 826-A9-SPE	6	1	1		05/17/16 23:43
8M412344	L16050844-05 A 826-A9-SPE	6	1	1		05/18/16 00:12
8M412345	L16050844-06 A 826-A9-SPE	6	1	1		05/18/16 00:41
8M412346	L16050844-12 A 826-A9-SPE	6	1	1		05/18/16 01:10
8M412347	L16050840-01 A 826-A9-SPE	7	1	1		05/18/16 01:38
8M412348	L16050844-08 A 826-A9-SPE	7	1	1		05/18/16 02:07
8M412349	L16050844-13 A 826-A9-SPE	7	1	1		05/18/16 02:36
8M412350	L16050844-15 A 826-A9-SPE	7	1	1		05/18/16 03:05
8M412351	L16050839-01 A 826-A9-SPE	7	1	1		05/18/16 03:33
8M412352	L16050844-03 2.5X A 826-A9-SPE	7	1	2.5		05/18/16 04:02

Approved: May 20, 2016

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Sarah Vandenberg

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 051716
 Analyst1: TMB Analyst2: FJB
 Method: 8260B SOP: MSV01 Rev: 23
 Method: 624 SOP: MSV10 Rev: 14
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18
 Maintenance Log ID: _____

Internal Standard: STD75899 Surrogate Standard: STD75899
 CCV: STD76072; STD76127 LCS: STD76109; STD75801 MS/MSD: NA
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG569079; WG569083

Comments: _____

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
8M412353	L16050844-04 5X A 826-A9-SPE	7	1	5		05/18/16 04:31
8M412354	L16050844-09 5X A 826-A9-SPE	7	1	5		05/18/16 05:01
8M412355	L16050844-10 5X A 826-A9-SPE	7	1	5		05/18/16 05:30
8M412356	L16050844-14 50X A 826-A9-SPE	7	1	50		05/18/16 05:59
8M412357	RINSE	NA	1	1		05/18/16 06:28

Comments

Seq.	Rerun	Dil.	Reason	Analytes
2				
File ID: 8M412320				
DNR. Running an a9/foo curve.				
32	X	10	Over Calibration Range	CIS12-DCE
File ID: 8M412350				
40	X	2.5	Analyzed too dilute	
File ID: 8M412353				
DNR.				
37	X	25	Over Calibration Range	TCE
File ID: 8M412355				
38	X	20	Analyzed too dilute	
File ID: 8M412356				
DNR.				

Approved: May 20, 2016

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Sarah Vandenberg



Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 103016
 Analyst1: FJB Analyst2: NA
 Method: 8260B SOP: MSV01 / OVAP MSV01 Rev: 24
 Method: 5030B/5030C/5035A SOP: PAT01 / OVAP PAT01 Rev: 18
 Method: 624 SOP: MSV10 Rev: 15
 Maintenance Log ID: 53948

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78763 LCS: STD78759 MS/MSD: STD78759
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG589331

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
8M415820	WG589331-01 BFB 50ng 8260	NA	1	1	STD78474	10/30/16 17:15
8M415821	RINSE	NA	1	1		10/30/16 17:41
8M415822	WG589331-02 0.3ug/L STD 8260	NA	1	1	STD78763	10/30/16 18:58
8M415823	WG589331-03 0.4ug/L STD 8260	NA	1	1	STD78763	10/30/16 19:27
8M415824	WG589331-04 1ug/L STD 8260	NA	1	1	STD78763	10/30/16 19:56
8M415825	WG589331-05 2ug/L STD 8260	NA	1	1	STD78763	10/30/16 20:25
8M415826	WG589331-06 5ug/L STD 8260	NA	1	1	STD78763	10/30/16 20:54
8M415827	WG589331-07 20ug/L STD 8260	NA	1	1	STD78763	10/30/16 21:23
8M415828	WG589331-08 50ug/L STD 8260	NA	1	1	STD78763	10/30/16 21:52
8M415829	WG589331-09 100ug/L STD 8260	NA	1	1	STD78763	10/30/16 22:21
8M415830	WG589331-10 200ug/L STD 8260	NA	1	1	STD78763	10/30/16 22:50
8M415831	WG589331-11 300ug/L STD 8260	NA	1	1	STD78763	10/30/16 23:19
8M415832	RINSE	NA	1	1		10/30/16 23:47
8M415833	WG589331-12 50ug/L ICV 8260	NA	1	1	STD78759	10/31/16 00:17
8M415834	RINSE	NA	1	1		10/31/16 00:46

Approved: November 04, 2016

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Cathy Carter



Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 103116
 Analyst1: FJB Analyst2: NA
 Method: 8260B SOP: MSV01 Rev: 24
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18
 Method: 624 SOP: MSV10 Rev: 15
 Maintenance Log ID: _____

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78763 LCS: STD78759 MS/MSD: STD78759
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG589746

Comments: Has ICV rerun.

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
8M415835	WG589745-01 BFB 50ng 8260	NA	1	1	STD78474	10/31/16 11:19
8M415836	WG589745-02 50ug/L CCV 8260	NA	1	1	STD78763	10/31/16 11:44
8M415837	WG589759-01 100ug/L CCV A9	NA	1	1	STD78417	10/31/16 12:14
8M415838	WG589746-01 BLANK 8260	NA	1	1		10/31/16 12:43
8M415839	WG589331-12 50ug/L ICV 8260	NA	1	1	STD78759	10/31/16 13:12
8M415840	WG589746-02 20ug/L LCS 8260	NA	1	1	STD78759	10/31/16 13:41
8M415841	WG589746-03 20ug/L LCS2 8260	NA	1	1	STD78759	10/31/16 14:11
8M415842	L16101385-03 TB A 826-BETX	<2	2	1		10/31/16 14:40
8M415843	L16101274-31 TB A 826-SPE	<2	1	1		10/31/16 15:09
8M415844	L16101309-02 TB A 826-SPE1	<2	1	1		10/31/16 15:38
8M415845	L16101404-04 TB A 826-SPE	<2	1	1		10/31/16 16:07
8M415846	L16101138-02 TB B 826-SPE1	<2	1	1		10/31/16 16:37
8M415847	L16100945-21 B 826-SPE	<2	1	1		10/31/16 17:05
8M415848	L16101138-01 5X B 826-SPE1	7	1	5		10/31/16 17:34
8M415849	L16101404-05 2X A 826-SPE	3	1	2		10/31/16 18:04
8M415850	L16101404-06 2X A 826-SPE	10	1	2		10/31/16 18:33
8M415851	L16101274-02 A 826-SPE	<2	1	1		10/31/16 19:03
8M415852	L16101274-07 A 826-SPE	<2	1	1		10/31/16 19:32
8M415853	L16101274-12 A 826-SPE	<2	1	1		10/31/16 20:01
8M415854	L16101274-17 A 826-SPE	<2	1	1		10/31/16 20:30
8M415855	L16101274-22 A 826-SPE	<2	1	1		10/31/16 21:00
8M415856	L16101274-27 A 826-SPE	<2	1	1		10/31/16 21:29
8M415857	L16101385-01 A 826-BETX	<2	2	1		10/31/16 21:58
8M415858	L16101309-01 A 826-SPE1	<2	1	1		10/31/16 22:27
8M415859	L16101236-01 A 826-SPE	<2	1	1		10/31/16 22:56
8M415860	CCV	NA	1	1		10/31/16 23:25
8M415861	RINSE	NA	1	1		10/31/16 23:54

Comments

Seq.	Rerun	Dil.	Reason	Analytes
14				
File ID: 8M415848				
L16101138-01 Client indicated sample was preserved. Suspect matrix interfered with preservative.				

Approved: November 03, 2016

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Sarah Vandenberg

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 103116
 Analyst1: FJB Analyst2: NA
 Method: 8260B SOP: MSV01 Rev: 24
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18
 Method: 624 SOP: MSV10 Rev: 15
 Maintenance Log ID: _____

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78763 LCS: STD78759 MS/MSD: STD78759
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG589746

Comments: Has ICV rerun.

Comments

Seq.	Rerun	Dil.	Reason	Analytes
16	X	1	Analyzed too dilute	
File ID: 8M415850				
L16101404-06				

Approved: November 03, 2016

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 110416
 Analyst1: ADC Analyst2: NA
 Method: 8260B SOP: MSV01 Rev: 24
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID: _____

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78763 LCS: STD78759 MS/MSD: NA
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG590443

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
8M415944	WG590442-01 BFB 50ng 8260	NA	1	1	STD78474	11/04/16 13:36
8M415945	WG590442-02 50ug/L CCV 8260	NA	1	1	STD78763	11/04/16 14:00
8M415946	WG590XX-01 100ug/L CCV A9	NA	1	1	STD78XXX	11/04/16 14:30
8M415947	WG590443-01 BLANK 8260	NA	1	1		11/04/16 14:59
8M415948	L16101050-01 A 826-REF-BLK	<2	1	1		11/04/16 15:27
8M415949	L16101050-02 A 826-REF-BLK	<2	1	1		11/04/16 15:56
8M415950	L16101050-03 A 826-REF-BLK	<2	1	1		11/04/16 16:26
8M415951	L16101050-04 A 826-REF-BLK	<2	1	1		11/04/16 16:56
8M415952	L16101050-05 A 826-REF-BLK	<2	1	1		11/04/16 17:25
8M415953	WG590443-02 20ug/L LCS 8260	NA	1	1	STD78759	11/04/16 17:54
8M415954	WG590443-03 20ug/L LCS2 8260	NA	1	1	STD78759	11/04/16 18:24
8M415955	L16110084-03 B D1 500X 826-SPE	<2	1	500		11/04/16 18:53
8M415956	L16110147-01 A TB 826-SPE	<2	1	1		11/04/16 19:23
8M415957	L16110144-10 A TB 826-LOW	<2	1	1		11/04/16 19:52
8M415958	L16110144-03 A 826-LOW	<2	1	1		11/04/16 20:21
8M415959	L16110144-05 A 826-LOW	<2	1	1		11/04/16 20:51
8M415960	L16110144-07 A 826-LOW	<2	1	1		11/04/16 21:19
8M415961	L16110144-08 A 826-LOW	<2	1	1		11/04/16 21:49
8M415962	L16110144-09 A 826-LOW	<2	1	1		11/04/16 22:17
8M415963	L16110075-03 A 826-SPE	<2	1	1		11/04/16 22:46
8M415964	L16110075-04 A 826-SPE	<2	1	1		11/04/16 23:15
8M415965	L16110075-05 A 826-SPE	<2	1	1		11/04/16 23:43
8M415966	L16110147-02 A 826-SPE	<2	1	1		11/05/16 00:13
8M415967	L16110161-01 A 2X SED IN VIAL 826-SPE	6	1	2		11/05/16 00:42
8M415968	L16110144-01 A 2.5X 826-LOW	<2	1	2.5		11/05/16 01:10
8M415969	CCV	NA	1	1		11/05/16 01:40
8M415970	RINSE	NA	1	1		11/05/16 02:09
8M415971	RINSE	NA	1	1		11/05/16 02:38

Comments

Seq.	Rerun	Dil.	Reason	Analytes
3				
File ID: 8M415946				

Approved: November 09, 2016

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Sarah Vandenberg

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 110416
 Analyst1: ADC Analyst2: NA
 Method: 8260B SOP: MSV01 Rev: 24
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18

Maintenance Log ID: _____

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78763 LCS: STD78759 MS/MSD: NA
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG590443

Comments: **Comments**

Seq.	Rerun	Dil.	Reason	Analytes
			Not needed, DNR.	
23	X	10	Over Calibration Range	VC
File ID: 8M415966				
24	X	10	Over Calibration Range	BEN
File ID: 8M415967				
25	X	2.5	Carry-over contamination	
File ID: 8M415968				
DNR.				

Approved: November 09, 2016

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 110816
 Analyst1: TMB Analyst2: NA
 Method: 8260B SOP: MSV01 Rev: 24
 Method: 624 SOP: MSV10 Rev: 15
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18
 Maintenance Log ID: 53952

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78876 LCS: STD78759 MS/MSD: STD78759
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG590743

Comments:

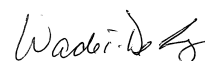
File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
8M416002	WG590742-01 50ng BFB STD 8260	NA	1	1	STD78474	11/08/16 09:43
8M416003	WG590742-02 50ug/L CCV STD 8260	NA	1	1	STD78876	11/08/16 10:07
8M416004	WG590742-02 50ug/L CCV STD 8260	NA	1	1	STD78876	11/08/16 10:37
8M416005	WG000000-01 100ug/L A9 CCV STD 8260	NA	1	1	STD78417	11/08/16 11:11
8M416006	WG590743-01 VBLK1108 BLANK STD 826	NA	1	1		11/08/16 11:40
8M416007	L16110144-01 C 2.5X 826-LOW 00	<2	1	2.5		11/08/16 12:10
8M416008	WG590743-02 20ug/L LCS STD 8260	NA	1	1	STD78759	11/08/16 12:39
8M416009	L16110147-06 A MS 826-SPE	<2	1	1	STD78759	11/08/16 13:08
8M416010	L16110147-07 A MSD 826-SPE	<2	1	1	STD78759	11/08/16 13:38
8M416011	L16110146-01 B 10X 826-SPE D1	<2	1	10		11/08/16 14:07
8M416012	L16110059-01 A 100X 8260	<2	1	100		11/08/16 14:37
8M416013	L16110059-01 B 10X 8260	<2	1	10		11/08/16 15:17
8M416014	L16110202-01 B 10X 8260 D1	<2	1	10		11/08/16 15:46
8M416015	L16110105-01 A 10X 826-TC	NA	17	10		11/08/16 16:15
8M416016	L16110105-02 A 10X 826-TC	NA	17	10		11/08/16 16:45
8M416017	L16110105-03 A 10X 826-TC	NA	17	10		11/08/16 17:14
8M416018	L16100002-01 LOD 826-SPE	NA	1	1	STD78937	11/08/16 17:42
8M416019	L16110272-01 B 826-LOW	<2	1	1		11/08/16 18:12
8M416020	L16110147-03 A 826-SPE	<2	1	1		11/08/16 18:41
8M416021	L16110147-04 A 826-SPE	<2	1	1		11/08/16 19:10
8M416022	L16110147-05 RS A 826-SPE	<2	1	1		11/08/16 19:39
8M416023	L16110147-08 A 826-SPE	<2	1	1		11/08/16 20:09
8M416024	L16110147-09 A 826-SPE	<2	1	1		11/08/16 20:38
8M416025	L16110147-10 A 826-SPE	<2	1	1		11/08/16 21:08
8M416026	L16110147-11 A 826-SPE	<2	1	1		11/08/16 21:37
8M416027	CCV	NA	1	1		11/08/16 22:06
8M416028	RINSE	NA	1	1		11/08/16 22:35
8M416029	WG590199-01 A 10X FBLK 826-TC	NA	17	10		11/08/16 23:04
8M416030	RINSE	NA	1	1		11/08/16 23:34

Comments

Seq.	Rerun	Dil.	Reason	Analytes
2	X			

Approved: November 09, 2016

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 110816
 Analyst1: TMB Analyst2: NA
 Method: 8260B SOP: MSV01 Rev: 24
 Method: 624 SOP: MSV10 Rev: 15
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18
 Maintenance Log ID: 53952

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78876 LCS: STD78759 MS/MSD: STD78759
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG590743

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 8M416003				
VC was high, DNR.				
4				
File ID: 8M416005				
Not needed, DNR.				
13	X	1		
File ID: 8M416009				
Carry-over contamination in the reference sample				
14	X	1		
File ID: 8M416010				
Carry-over contamination in the reference sample				
11	X	10	Analyzed too dilute	
File ID: 8M416012				
DNR.				
12				
File ID: 8M416013				
Contains a layer of oil.				
21	X	100	Over Calibration Range	VC, CIS12-DCE
File ID: 8M416020				
22	X	1	Carry-over contamination	
File ID: 8M416021				
L16110147-04				
23	X	1	Carry-over contamination	
File ID: 8M416022				
L16110147-05				
24	X	1	Carry-over contamination	
File ID: 8M416023				
L16110147-08				
25	X	1	Carry-over contamination	
File ID: 8M416024				
DNR.				
26	X	25	Over Calibration Range	VC, CIS12-DCE
File ID: 8M416025				

Approved: November 09, 2016

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Wade D. [Signature]



Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS8 Dataset: 110816
 Analyst1: TMB Analyst2: NA
 Method: 8260B SOP: MSV01 Rev: 24
 Method: 624 SOP: MSV10 Rev: 15
 Method: 5030B/5030C/5035A SOP: PAT01 Rev: 18
 Maintenance Log ID: 53952

Internal Standard: STD78510 Surrogate Standard: STD78510
 CCV: STD78876 LCS: STD78759 MS/MSD: STD78759
 Column 1 ID: RTX502.2 Column 2 ID: NA
 Workgroups: WG590743

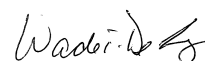
Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
27	X	1	Carry-over contamination	
File ID: 8M416026				
L16110147-11				
30				
File ID: 8M416029				
Has VC and CIS12-DCE carry over.				

Approved: November 09, 2016

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Microbac Laboratories Inc.

Data Checklist

Date: 17-MAY-2016
 Analyst: TMB
 Analyst: FJB
 Method: 8260B/624
 Instrument: HPMS8
 Curve Workgroup: NA
 Runlog ID: 75174
 Analytical Workgroups: WG569079; WG569083

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	X
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	TMB
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	TMB
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:
19-MAY-2016

Tiffany Bailey

Secondary Reviewer:
20-MAY-2016

Sarah Vandenberg



Microbac Laboratories Inc.

Data Checklist

Date: 30-OCT-2016
 Analyst: FJB
 Analyst: NA
 Method: 8260B/624
 Instrument: HPMS8
 Curve Workgroup: WG589331
 Runlog ID: 78442
 Analytical Workgroups: WG589331

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	NA
TCL Hits	NA
Spectra of TCL Hits	NA
Surrogates	NA
Internal Standards Criteria	NA
Library Searches	NA
Calculations & Correct Factors	NA
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	FJB
Secondary Reviewer	ADC
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:
02-NOV-2016



Secondary Reviewer:
04-NOV-2016




Microbac Laboratories Inc.

Data Checklist

Date: 31-OCT-2016
 Analyst: FJB
 Analyst: NA
 Method: 8260B
 Instrument: HPMS8
 Curve Workgroup: NA
 Runlog ID: 78471
 Analytical Workgroups: WG589746

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	X
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	WTD
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	FJB
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:
03-NOV-2016



Secondary Reviewer:
03-NOV-2016




Microbac Laboratories Inc.

Data Checklist

Date: 04-NOV-2016
 Analyst: ADC
 Analyst: NA
 Method: 8260B
 Instrument: HPMS8
 Curve Workgroup: NA
 Runlog ID: 78586
 Analytical Workgroups: WG590443

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	TMB
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	TMB
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

Tiffany Bailey

Secondary Reviewer:
09-NOV-2016

Sarah Vandenberg



Microbac Laboratories Inc.

Data Checklist

Date: 08-NOV-2016
 Analyst: TMB
 Analyst: NA
 Method: 8260B/624
 Instrument: HPMS8
 Curve Workgroup: NA
 Runlog ID: 78574
 Analytical Workgroups: WG590743

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	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	TMB
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	X
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	TMB
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:
08-NOV-2016

Tiffany Bailey

Secondary Reviewer:
09-NOV-2016

Wade D. ...



Analytical Method:8260B
Login Number:L16110144

AAB#:WG590443

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
50WW22-110216	03	11/02/16					11/04/2016	2.5	14		11/04/16	2.5	14	
50WW16-110216	05	11/02/16					11/04/2016	2.4	14		11/04/16	2.4	14	
50WW27-110216	07	11/02/16					11/04/2016	2.3	14		11/04/16	2.3	14	
50WW15-110216	08	11/02/16					11/04/2016	2.3	14		11/04/16	2.3	14	
50WW15FD-110216	09	11/02/16					11/04/2016	2.3	14		11/04/16	2.3	14	
TRIP BLANK	10	11/02/16					11/04/2016	2.8	14		11/04/16	2.8	14	

* = SEE PROJECT QAPP REQUIREMENTS



Analytical Method:8260B
Login Number:L16110144

AAB#:WG590743

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
50WW08-110216	01	11/02/16					11/08/2016	6.2	14		11/08/16	6.2	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5014675
Report generated 11/14/2016 10:42



Login Number:L16110144
 Instrument Id:HPMS8
 Workgroup (AAB#):WG590443

Method:8260
 CAL ID: HPMS8 - 30-OCT-16
 Matrix:Water

Sample Number	Dilution	Tag	1	2	3	4
L16110144-03	1.00	01	93.0	97.0	96.6	95.5
L16110144-05	1.00	01	91.9	97.1	95.1	96.1
L16110144-07	1.00	01	91.1	96.8	97.4	95.9
L16110144-08	1.00	01	91.2	96.5	99.2	95.6
L16110144-09	1.00	01	89.3	97.2	96.6	96.3
L16110144-10	1.00	01	90.0	96.1	96.7	96.0
WG590443-01	1.00	01	93.0	96.9	95.3	94.9
WG590443-02	1.00	01	91.2	98.3	92.4	94.5
WG590443-03	1.00	01	92.2	98.2	93.5	93.7

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



Login Number: L16110144
 Instrument Id: HPMS8
 Workgroup (AAB#): WG590743

Method: 8260
 CAL ID: HPMS8 - 30-OCT-16
 Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L16110144-01	2.50	DL01	90.4	97.4	98.7	95.4
WG590743-01	1.00	01	88.7	96.5	98.5	95.6
WG590743-02	1.00	01	87.7	96.5	93.1	94.1

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



METHOD BLANK SUMMARY

Login Number: L16110144 Work Group: WG590443
 Blank File ID: 8M415947 Blank Sample ID: WG590443-01
 Prep Date: 11/04/16 14:59 Instrument ID: HPMS8
 Analyzed Date: 11/04/16 14:59 Method: 8260B
 Analyst: ADC

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590443-02	8M415953	11/04/16 17:54	01
LCS2	WG590443-03	8M415954	11/04/16 18:24	01
TRIP BLANK	L16110144-10	8M415957	11/04/16 19:52	01
50WW22-110216	L16110144-03	8M415958	11/04/16 20:21	01
50WW16-110216	L16110144-05	8M415959	11/04/16 20:51	01
50WW27-110216	L16110144-07	8M415960	11/04/16 21:19	01
50WW15-110216	L16110144-08	8M415961	11/04/16 21:49	01
50WW15FD-110216	L16110144-09	8M415962	11/04/16 22:17	01

Report Name: BLANK_SUMMARY
 PDF File ID: 5015642
 Report generated 11/14/2016 10:42



METHOD BLANK SUMMARY

Login Number: L16110144 Work Group: WG590743
Blank File ID: 8M416006 Blank Sample ID: WG590743-01
Prep Date: 11/08/16 11:40 Instrument ID: HPMS8
Analyzed Date: 11/08/16 11:40 Method: 8260B
Analyst: TMB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
50WW08-110216	L16110144-01	8M416007	11/08/16 12:10	DL01
LCS	WG590743-02	8M416008	11/08/16 12:39	01

Report Name: BLANK_SUMMARY
PDF File ID: 5015642
Report generated 11/14/2016 10:42



Login Number: L16110144 Prep Date: 11/04/16 14:59 Sample ID: WG590443-01
 Instrument ID: HPMS8 Run Date: 11/04/16 14:59 Prep Method: 5030B/5030C/503
 File ID: 8M415947 Analyst: ADC Method: 8260B
 Workgroup (AAB#): WG590443 Matrix: Water Units: ug/L
 Contract #: _____ Cal ID: HPMS8 - 30-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: 5014676
 14-NOV-2016 10:42



Login Number: L16110144 Prep Date: 11/04/16 14:59 Sample ID: WG590443-01
 Instrument ID: HPMS8 Run Date: 11/04/16 14:59 Prep Method: 5030B/5030C/503
 File ID: 8M415947 Analyst: ADC Method: 8260B
 Workgroup (AAB#): WG590443 Matrix: Water Units: ug/L
 Contract #: _____ Cal ID: HPMS8 - 30-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	96.9	85 - 115	PASS
1,2-Dichloroethane-d4	93.0	70 - 120	PASS
Toluene-d8	94.9	85 - 120	PASS
4-Bromofluorobenzene	95.3	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: 5014676
 14-NOV-2016 10:42



Login Number: L16110144 Prep Date: 11/08/16 11:40 Sample ID: WG590743-01
 Instrument ID: HPMS8 Run Date: 11/08/16 11:40 Prep Method: 5030B/5030C/503
 File ID: 8M416006 Analyst: TMB Method: 8260B
 Workgroup (AAB#): WG590743 Matrix: Water Units: ug/L
 Contract #: _____ Cal ID: HPMS8 - 30-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: 5014676
 14-NOV-2016 10:42



Login Number: L16110144 Prep Date: 11/08/16 11:40 Sample ID: WG590743-01
 Instrument ID: HPMS8 Run Date: 11/08/16 11:40 Prep Method: 5030B/5030C/503
 File ID: 8M416006 Analyst: TMB Method: 8260B
 Workgroup (AAB#): WG590743 Matrix: Water Units: ug/L
 Contract #: _____ Cal ID: HPMS8 - 30-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	96.5	85 - 115	PASS
1,2-Dichloroethane-d4	88.7	70 - 120	PASS
Toluene-d8	95.6	85 - 120	PASS
4-Bromofluorobenzene	98.5	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: 5014676
 14-NOV-2016 10:42



Login Number: L16110144 Run Date: 11/08/2016 Sample ID: WG590743-02
 Instrument ID: HPMS8 Run Time: 12:39 Prep Method: 5030B/5030C/503
 File ID: 8M416008 Analyst: TMB Method: 8260B
 Workgroup (AAB#): WG590743 Matrix: Water Units: ug/L
 QC Key: DOD4 Lot#: STD78759 Cal ID: HPMS8-30-OCT-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Acetone	20.0	17.2	86.1	40 - 140	
Benzene	20.0	23.4	117	80 - 120	
Bromobenzene	20.0	20.8	104	75 - 125	
Bromochloromethane	20.0	21.9	110	65 - 130	
Bromodichloromethane	20.0	22.9	114	75 - 120	
Bromoform	20.0	20.6	103	70 - 130	
Bromomethane	20.0	17.6	87.8	30 - 145	
2-Butanone	20.0	18.8	93.8	30 - 150	
n-Butylbenzene	20.0	22.6	113	70 - 135	
sec-Butylbenzene	20.0	23.2	116	70 - 125	
tert-Butylbenzene	20.0	20.8	104	70 - 130	
Carbon disulfide	20.0	17.7	88.7	35 - 160	
Carbon tetrachloride	20.0	23.3	117	65 - 140	
Chlorobenzene	20.0	21.6	108	80 - 120	
Chlorodibromomethane	20.0	21.2	106	60 - 135	
Chloroethane	20.0	19.5	97.7	60 - 135	
Chloroform	20.0	23.3	116	65 - 135	
Chloromethane	20.0	18.6	92.9	40 - 125	
2-Chlorotoluene	20.0	23.4	117	75 - 125	
4-Chlorotoluene	20.0	21.8	109	75 - 130	
1,2-Dibromo-3-chloropropane	20.0	19.7	98.3	50 - 130	
1,2-Dibromoethane	20.0	21.1	105	80 - 120	
Dibromomethane	20.0	24.0	120	75 - 125	
1,2-Dichlorobenzene	20.0	20.9	105	70 - 120	
1,3-Dichlorobenzene	20.0	21.3	106	75 - 125	
1,4-Dichlorobenzene	20.0	21.2	106	75 - 125	
Dichlorodifluoromethane	20.0	11.9	59.6	30 - 155	
1,1-Dichloroethane	20.0	21.6	108	70 - 135	
1,2-Dichloroethane	20.0	22.1	110	70 - 130	
1,1-Dichloroethene	20.0	19.8	99.2	70 - 130	
cis-1,2-Dichloroethene	20.0	22.8	114	70 - 125	
trans-1,2-Dichloroethene	20.0	20.8	104	60 - 140	
1,2-Dichloropropane	20.0	22.5	113	75 - 125	
1,3-Dichloropropane	20.0	22.0	110	75 - 125	
2,2-Dichloropropane	20.0	22.4	112	70 - 135	
cis-1,3-Dichloropropene	20.0	23.6	118	70 - 130	
trans-1,3-Dichloropropene	20.0	20.6	103	55 - 140	
1,1-Dichloropropene	20.0	22.2	111	75 - 130	
Ethylbenzene	20.0	22.0	110	75 - 125	
2-Hexanone	20.0	18.3	91.5	55 - 130	
Hexachlorobutadiene	20.0	18.5	92.7	50 - 140	

LCS - Modified 03/06/2008
 PDF File ID: 5014677
 Report generated: 11/14/2016 10:42



Login Number: L16110144 Run Date: 11/08/2016 Sample ID: WG590743-02
 Instrument ID: HPMS8 Run Time: 12:39 Prep Method: 5030B/5030C/503
 File ID: 8M416008 Analyst: TMB Method: 8260B
 Workgroup (AAB#): WG590743 Matrix: Water Units: ug/L
 QC Key: DOD4 Lot#: STD78759 Cal ID: HPMS8-30-OCT-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Isopropylbenzene	20.0	23.4	117	75 - 125	
p-Isopropyltoluene	20.0	22.8	114	75 - 130	
4-Methyl-2-pentanone	20.0	18.9	94.4	60 - 135	
Methylene chloride	20.0	21.5	107	55 - 140	
Naphthalene	20.0	18.9	94.6	55 - 140	
n-Propylbenzene	20.0	23.0	115	70 - 130	
Styrene	20.0	23.0	115	65 - 135	
1,1,1,2-Tetrachloroethane	20.0	21.0	105	80 - 130	
1,1,2,2-Tetrachloroethane	20.0	22.1	110	65 - 130	
Tetrachloroethene	20.0	20.6	103	45 - 150	
Toluene	20.0	23.2	116	75 - 120	
1,2,3-Trichlorobenzene	20.0	18.4	92.0	55 - 140	
1,2,4-Trichlorobenzene	20.0	18.6	92.8	65 - 135	
1,1,1-Trichloroethane	20.0	23.4	117	65 - 130	
1,1,2-Trichloroethane	20.0	21.8	109	75 - 125	
Trichloroethene	20.0	22.1	110	70 - 125	
Trichlorofluoromethane	20.0	19.1	95.4	60 - 145	
1,2,3-Trichloropropane	20.0	22.3	112	75 - 125	
1,2,4-Trimethylbenzene	20.0	22.8	114	75 - 130	
1,3,5-Trimethylbenzene	20.0	22.9	114	75 - 130	
Vinyl chloride	20.0	20.5	103	50 - 145	
o-Xylene	20.0	21.8	109	80 - 120	
m-,p-Xylene	40.0	46.4	116	75 - 130	

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	96.5	85 - 115	PASS
1,2-Dichloroethane-d4	87.7	70 - 120	PASS
Toluene-d8	94.1	85 - 120	PASS
4-Bromofluorobenzene	93.1	75 - 120	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
 PDF File ID: 5014677
 Report generated: 11/14/2016 10:42



Login Number: L16110144 Analyst: ADC Prep Method: 5030B/5030C/503
 Instrument ID: HPMS8 Matrix: Water Method: 8260B
 Workgroup (AAB#): WG590443 Units: ug/L
 QC Key: DOD4 Lot #: STD78759

Sample ID: WG590443-02 LCS File ID: 8M415953 Run Date: 11/04/2016 17:54
 Sample ID: WG590443-03 LCS2 File ID: 8M415954 Run Date: 11/04/2016 18:24

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,1,1,2-Tetrachloroethane	20.0	21.5	108	20.0	22.1	110	2.48	80 - 130	30	
1,1,1-Trichloroethane	20.0	24.0	120	20.0	24.7	124	3.12	65 - 130	30	
1,1,2,2-Tetrachloroethane	20.0	21.9	109	20.0	22.2	111	1.34	65 - 130	30	
1,1,2-Trichloroethane	20.0	22.6	113	20.0	22.8	114	0.706	75 - 125	30	
1,1-Dichloroethane	20.0	22.4	112	20.0	22.7	114	1.64	70 - 135	30	
1,1-Dichloroethene	20.0	20.9	105	20.0	21.9	110	4.80	70 - 130	30	
1,1-Dichloropropene	20.0	22.9	114	20.0	23.8	119	4.09	75 - 130	30	
1,2,3-Trichlorobenzene	20.0	19.2	95.8	20.0	20.0	100	4.22	55 - 140	30	
1,2,3-Trichloropropane	20.0	22.6	113	20.0	22.3	112	1.12	75 - 125	30	
1,2,4-Trichlorobenzene	20.0	19.0	95.2	20.0	20.0	99.8	4.71	65 - 135	30	
1,2,4-Trimethylbenzene	20.0	23.3	117	20.0	23.9	120	2.57	75 - 130	30	
1,2-Dibromo-3-chloropropane	20.0	19.4	97.1	20.0	19.4	97.1	0.0157	50 - 130	30	
1,2-Dibromoethane	20.0	22.0	110	20.0	22.2	111	0.678	80 - 120	30	
1,2-Dichlorobenzene	20.0	21.6	108	20.0	22.3	111	2.75	70 - 120	30	
1,2-Dichloroethane	20.0	22.7	113	20.0	23.1	116	2.10	70 - 130	30	
1,2-Dichloropropane	20.0	22.7	113	20.0	23.4	117	3.03	75 - 125	30	
1,3,5-Trimethylbenzene	20.0	23.1	116	20.0	23.9	119	3.04	75 - 130	30	
1,3-Dichlorobenzene	20.0	21.6	108	20.0	22.1	111	2.61	75 - 125	30	
1,3-Dichloropropane	20.0	22.8	114	20.0	22.9	115	0.623	75 - 125	30	
1,4-Dichlorobenzene	20.0	21.5	108	20.0	22.2	111	2.93	75 - 125	30	
2,2-Dichloropropane	20.0	22.4	112	20.0	23.4	117	4.35	70 - 135	30	
2-Butanone	20.0	16.7	83.7	20.0	18.3	91.3	8.73	30 - 150	30	
2-Chlorotoluene	20.0	22.8	114	20.0	23.9	119	4.64	75 - 125	30	
2-Hexanone	20.0	17.2	86.2	20.0	17.8	89.2	3.35	55 - 130	30	
4-Chlorotoluene	20.0	23.2	116	20.0	23.3	116	0.193	75 - 130	30	
4-Methyl-2-pentanone	20.0	17.6	88.0	20.0	18.8	93.8	6.37	60 - 135	30	
Acetone	20.0	14.6	73.0	20.0	17.1	85.5	15.8	40 - 140	30	
Benzene	20.0	23.8	119	20.0	24.7	123	3.41	80 - 120	30	*
Bromobenzene	20.0	21.4	107	20.0	21.9	109	2.34	75 - 125	30	
Bromochloromethane	20.0	22.6	113	20.0	23.1	115	2.21	65 - 130	30	
Bromodichloromethane	20.0	23.4	117	20.0	23.9	119	1.89	75 - 120	30	
Bromoform	20.0	21.7	109	20.0	21.8	109	0.403	70 - 130	30	
Bromomethane	20.0	18.7	93.3	20.0	19.4	97.0	3.88	30 - 145	30	
Carbon disulfide	20.0	19.1	95.3	20.0	19.9	99.4	4.25	35 - 160	30	
Carbon tetrachloride	20.0	24.3	121	20.0	25.4	127	4.46	65 - 140	30	
Chlorobenzene	20.0	22.2	111	20.0	22.4	112	0.849	80 - 120	30	
Chloroethane	20.0	20.8	104	20.0	22.3	112	7.37	60 - 135	30	
Chloroform	20.0	23.6	118	20.0	24.3	122	3.11	65 - 135	30	
Chloromethane	20.0	21.4	107	20.0	21.7	108	1.26	40 - 125	30	
cis-1,2-Dichloroethene	20.0	23.1	115	20.0	24.0	120	3.94	70 - 125	30	

LCS_LCS2 - Modified 03/06/2008
 PDF File ID: 5014824
 Report generated: 11/14/2016 10:42



Login Number: L16110144 Analyst: ADC Prep Method: 5030B/5030C/503
 Instrument ID: HPMS8 Matrix: Water Method: 8260B
 Workgroup (AAB#): WG590443 Units: ug/L
 QC Key: DOD4 Lot #: STD78759

Sample ID: WG590443-02 LCS File ID: 8M415953 Run Date: 11/04/2016 17:54
 Sample ID: WG590443-03 LCS2 File ID: 8M415954 Run Date: 11/04/2016 18:24

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
cis-1,3-Dichloropropene	20.0	24.4	122	20.0	24.8	124	1.63	70 - 130	30	
Chlorodibromomethane	20.0	21.9	109	20.0	22.2	111	1.42	60 - 135	30	
Dibromomethane	20.0	24.8	124	20.0	25.4	127	2.23	75 - 125	30	*
Dichlorodifluoromethane	20.0	16.7	83.5	20.0	17.3	86.6	3.64	30 - 155	30	
Ethylbenzene	20.0	22.4	112	20.0	22.9	115	2.39	75 - 125	30	
Hexachlorobutadiene	20.0	19.3	96.5	20.0	19.9	99.7	3.20	50 - 140	30	
Isopropylbenzene	20.0	23.9	119	20.0	24.5	123	2.66	75 - 125	30	
m-,p-Xylene	40.0	47.2	118	40.0	48.2	121	2.14	75 - 130	30	
Methylene chloride	20.0	22.0	110	20.0	22.7	114	3.49	55 - 140	30	
n-Butylbenzene	20.0	22.8	114	20.0	23.6	118	3.39	70 - 135	30	
n-Propylbenzene	20.0	23.4	117	20.0	24.1	120	2.95	70 - 130	30	
Naphthalene	20.0	19.4	96.9	20.0	20.5	102	5.45	55 - 140	30	
o-Xylene	20.0	22.2	111	20.0	22.8	114	2.75	80 - 120	30	
p-Isopropyltoluene	20.0	23.1	116	20.0	23.9	120	3.34	75 - 130	30	
sec-Butylbenzene	20.0	23.7	118	20.0	24.4	122	3.10	70 - 125	30	
Styrene	20.0	23.5	117	20.0	23.9	119	1.60	65 - 135	30	
tert-Butylbenzene	20.0	21.2	106	20.0	22.0	110	3.43	70 - 130	30	
Tetrachloroethene	20.0	21.3	107	20.0	22.2	111	3.79	45 - 150	30	
Toluene	20.0	23.7	118	20.0	24.3	121	2.54	75 - 120	30	*
trans-1,2-Dichloroethene	20.0	21.4	107	20.0	21.9	110	2.52	60 - 140	30	
trans-1,3-Dichloropropene	20.0	21.8	109	20.0	22.1	110	1.36	55 - 140	30	
Trichloroethene	20.0	22.6	113	20.0	23.7	118	4.71	70 - 125	30	
Trichlorofluoromethane	20.0	20.5	102	20.0	21.5	107	4.83	60 - 145	30	
Vinyl chloride	20.0	24.8	124	20.0	23.2	116	6.86	50 - 145	30	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
1,2-Dichloroethane-d4	91.2	92.2	70 - 120	PASS
Dibromofluoromethane	98.3	98.2	85 - 115	PASS
4-Bromofluorobenzene	92.4	93.5	75 - 120	PASS
Toluene-d8	94.5	93.7	85 - 120	PASS

* EXCEEDS %REC LIMIT
EXCEEDS RPD LIMIT



BFB

Login Number: L16110144 Tune ID: WG569084-01
 Instrument: HPMS8 Run Date: 05/17/2016
 Analyst: TMB Run Time: 08:53
 Workgroup: WG569084 File ID: 8M412319
 Cal ID: HPMS8-13-MAY-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	19.1	6316	PASS
75.0	95.0	30.0	60.0	54.7	18130	PASS
95.0	95.0	100	100	100	33138	PASS
96.0	95.0	5.00	9.00	6.76	2241	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	72.2	23934	PASS
175	174	5.00	9.00	7.88	1886	PASS
176	174	95.0	101	96.8	23159	PASS
177	176	5.00	9.00	7.15	1655	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG569079-01	STD-CCV	01	05/17/2016 09:47	
WG569079-03	STD	01	05/17/2016 10:16	
WG569079-04	STD	01	05/17/2016 10:44	
WG569079-05	STD	01	05/17/2016 11:13	
WG569079-06	STD	01	05/17/2016 11:42	
WG569079-07	STD	01	05/17/2016 12:40	
WG569079-08	STD	01	05/17/2016 13:10	
WG569079-09	STD	01	05/17/2016 13:39	
WG569079-10	SSCV	01	05/17/2016 15:06	

* Sample past 12 hour tune limit



BFB

Login Number: L16110144 Tune ID: WG589331-01
 Instrument: HPMS8 Run Date: 10/30/2016
 Analyst: FJB Run Time: 17:15
 Workgroup: WG589331 File ID: 8M415820
 Cal ID: HPMS8-30-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	16.0	7994	PASS
75.0	95.0	30.0	60.0	49.4	24645	PASS
95.0	95.0	100	100	100	49845	PASS
96.0	95.0	5.00	9.00	6.83	3402	PASS
173	174	0	2.00	0.330	115	PASS
174	95.0	50.0	100	70.0	34901	PASS
175	174	5.00	9.00	7.13	2490	PASS
176	174	95.0	101	98.3	34293	PASS
177	176	5.00	9.00	6.70	2297	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG589331-02	STD	01	10/30/2016 18:58	
WG589331-03	STD	01	10/30/2016 19:27	
WG589331-04	STD	01	10/30/2016 19:56	
WG589331-05	STD	01	10/30/2016 20:25	
WG589331-06	STD	01	10/30/2016 20:54	
WG589331-07	STD	01	10/30/2016 21:23	
WG589331-08	STD-CCV	01	10/30/2016 21:52	
WG589331-09	STD	01	10/30/2016 22:21	
WG589331-10	STD	01	10/30/2016 22:50	
WG589331-11	STD	01	10/30/2016 23:19	

* Sample past 12 hour tune limit



BFB

Login Number: L16110144 Tune ID: WG589745-01
 Instrument: HPMS8 Run Date: 10/31/2016
 Analyst: FJB Run Time: 11:19
 Workgroup: WG589745 File ID: 8M415835
 Cal ID: HPMS8-30-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	16.0	7564	PASS
75.0	95.0	30.0	60.0	49.6	23505	PASS
95.0	95.0	100	100	100	47413	PASS
96.0	95.0	5.00	9.00	6.90	3273	PASS
173	174	0	2.00	0.297	105	PASS
174	95.0	50.0	100	74.6	35365	PASS
175	174	5.00	9.00	7.09	2509	PASS
176	174	95.0	101	96.1	34000	PASS
177	176	5.00	9.00	7.16	2433	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG589331-12	SSCV	01	10/31/2016 13:12	

* Sample past 12 hour tune limit



BFB

Login Number: L16110144 Tune ID: WG590442-01
 Instrument: HPMS8 Run Date: 11/04/2016
 Analyst: ADC Run Time: 13:36
 Workgroup: WG590442 File ID: 8M415944
 Cal ID: HPMS8-30-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	16.3	6135	PASS
75.0	95.0	30.0	60.0	50.4	18929	PASS
95.0	95.0	100	100	100	37592	PASS
96.0	95.0	5.00	9.00	6.68	2512	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	71.2	26760	PASS
175	174	5.00	9.00	7.46	1997	PASS
176	174	95.0	101	100	26873	PASS
177	176	5.00	9.00	6.34	1703	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG590442-02	CCV	01	11/04/2016 14:00	
WG590443-01	BLANK	01	11/04/2016 14:59	
WG590443-02	LCS	01	11/04/2016 17:54	
WG590443-03	LCS2	01	11/04/2016 18:24	
L16110144-10	TRIP BLANK	01	11/04/2016 19:52	
L16110144-03	50WW22-110216	01	11/04/2016 20:21	
L16110144-05	50WW16-110216	01	11/04/2016 20:51	
L16110144-07	50WW27-110216	01	11/04/2016 21:19	
L16110144-08	50WW15-110216	01	11/04/2016 21:49	
L16110144-09	50WW15FD-110216	01	11/04/2016 22:17	

* Sample past 12 hour tune limit



BFB

Login Number: L16110144 Tune ID: WG590742-01
 Instrument: HPMS8 Run Date: 11/08/2016
 Analyst: TMB Run Time: 09:43
 Workgroup: WG590742 File ID: 8M416002
 Cal ID: HPMS8-30-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	16.1	5943	PASS
75.0	95.0	30.0	60.0	50.9	18825	PASS
95.0	95.0	100	100	100	36962	PASS
96.0	95.0	5.00	9.00	7.00	2587	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	70.2	25947	PASS
175	174	5.00	9.00	6.78	1758	PASS
176	174	95.0	101	96.6	25059	PASS
177	176	5.00	9.00	6.06	1518	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG590742-02	CCV	01	11/08/2016 10:37	
WG590743-01	BLANK	01	11/08/2016 11:40	
L16110144-01	50WW08-110216	DL01	11/08/2016 12:10	
WG590743-02	LCS	01	11/08/2016 12:39	
WG590199-01	FBLK1	DL01	11/08/2016 23:04	*

* Sample past 12 hour tune limit



Calibration Table Report
 Method: A9FOOWT.M
 Title: A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Calibration: Thu May 19 08:54:31 2016
 Curve: WG569079
 Calibration Files

Compound	Concentration (ppm)										Avg	%RSD
	5	20	50	100	200	300	400	500				
I Fluorobenzene	ISTD											
T Acetonitrile	0.009	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	2.076	
T 3-Chloro-1-propene	0.306	0.330	0.335	0.331	0.324	0.307	0.304	0.304	0.318	4.307		
T 2-Chloro-1,3-butadiene	0.368	0.420	0.420	0.419	0.419	0.392	0.389	0.387	0.402	5.022		
T Ethyl Acetate	0.080	0.096	0.097	0.100	0.099	0.098	0.100	0.095	0.096	6.751		
T Methacrylonitrile	0.041	0.054	0.055	0.055	0.055	0.054	0.055	0.052	0.053	9.227		
T Isobutyl Alcohol		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	3.599		
T 1-Butanol										0.000	0.000	
T Methyl methacrylate	0.089	0.106	0.106	0.105	0.106	0.105	0.107	0.102	0.103	5.868		
T 2-Nitropropane	0.041	0.042	0.043	0.046	0.047	0.048	0.046	0.045	5.992			
I Chlorobenzene-d5	ISTD											
I 1,4-Dichlorobenzene-d4	ISTD											
T Cyclohexanone	0.011	0.010	0.010	0.009	0.010	0.011	0.010	0.010	4.971			

Thu May 19 09:04:52 2016

Calibration Table Report
 Method: 8260WTR.M
 Title: Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Calibration: Mon Oct 31 10:01:52 2016
 Curve: WG589331
 Calibration Files

Compound	0.3 0.4 1 2 5 20 50 100 200 300										Avg	%RSD	Linear	Quad
	8M15822.D	8M15823.D	8M15824.D	8M15825.D	8M15826.D	8M15827.D	8M15828.D	8M15829.D	8M15830.D	8M15831.D				
I Fluorobenzene	ISTD													
T Dichlorodifluoromethane	0.332	0.388	0.377	0.387	0.443	0.435	0.431	0.444	0.404	0.405			9.273	
P Chloromethane		0.372	0.342	0.324	0.331	0.315	0.307	0.305	0.286	0.323			8.147	
C Vinyl Chloride	0.394	0.402	0.382	0.361	0.355	0.328	0.304	0.288	0.256	0.341			14.802	
T 1,3-Butadiene		0.298	0.275	0.259	0.246	0.180	0.105			0.227			31.745	0.999
T Bromomethane		0.233	0.213	0.216	0.224	0.224	0.234	0.254	0.257	0.232			7.029	
T Chloroethane	0.157	0.159	0.170	0.175	0.173	0.170	0.172	0.182	0.180	0.171			4.977	
T Trichlorofluoromethane	0.419	0.474	0.460	0.471	0.465	0.458	0.462	0.488	0.469	0.463			4.046	
T Diethyl ether		0.113	0.109	0.113	0.113	0.115	0.118			0.123			3.730	
T Isoprene		0.349	0.356	0.358	0.363	0.374	0.380			0.394			4.250	
T Acrolein			0.012	0.012	0.012	0.013	0.013			0.014			6.294	
T 1,1,2-Trichloro-1,2,2-Trifluoroet		0.254	0.242	0.254	0.252	0.249	0.253	0.270	0.264	0.255			3.370	
T Acetone				0.021	0.021	0.021	0.021	0.020	0.020	0.021			3.090	
P 1,1-Dichloroethene	0.338	0.348	0.346	0.358	0.348	0.342	0.348	0.365	0.359	0.350			2.483	
T Tert-Butyl Alcohol			0.006	0.006	0.006	0.006	0.006			0.006			3.824	
T Dimethyl Sulfide	0.181	0.192	0.188	0.190	0.189	0.189	0.191	0.197	0.200	0.191			2.832	
T Iodomethane		0.195	0.208	0.221	0.241	0.244	0.254	0.261	0.256	0.235			10.241	
T Methyl acetate				0.075	0.066	0.066	0.070	0.069	0.071	0.069			4.825	
T Methylene Chloride		0.263	0.251	0.242	0.235	0.236	0.239	0.253	0.251	0.246			3.937	
T Carbon Disulfide		0.844	0.827	0.833	0.826	0.820	0.819	0.803	0.762	0.817			3.085	
T Acrylonitrile		0.024	0.027	0.028	0.030	0.032	0.032			0.037			14.089	
T Methyl Tert Butyl Ether		0.447	0.427	0.447	0.433	0.443	0.446	0.455	0.447	0.443			1.967	
T trans-1,2-Dichloroethene	0.333	0.337	0.336	0.332	0.325	0.322	0.326	0.345	0.335	0.332			2.137	
T n-Hexane				0.282	0.278	0.275	0.278	0.290	0.287	0.282			2.058	
T Diisopropyl ether		0.525	0.505	0.524	0.525	0.527	0.526			0.516			1.528	
T Vinyl Acetate			0.208	0.196	0.174	0.168	0.157	0.158	0.168	0.176			10.966	
P 1,1-Dichloroethane	0.427	0.434	0.420	0.423	0.421	0.418	0.422	0.440	0.429	0.426			1.722	
T Ethyl-Tert-Butyl ether		0.498	0.489	0.510	0.513	0.520	0.523			0.517			2.383	
T 2-Butanone				0.031	0.031	0.033	0.033	0.032	0.033	0.032			2.388	
T Propionitrile			0.008	0.009	0.009	0.010	0.010			0.010			6.512	
T 2,2-Dichloropropane	0.400	0.414	0.407	0.411	0.395	0.392	0.397	0.415	0.406	0.404			2.076	
T cis-1,2-Dichloroethene	0.276	0.284	0.277	0.274	0.274	0.274	0.279	0.298	0.296	0.281			3.366	
C Chloroform	0.523	0.503	0.479	0.469	0.464	0.454	0.452	0.456	0.468	0.451			5.031	
T 1-Bromopropane		0.036	0.043	0.046	0.045	0.045	0.046	0.048	0.050	0.045			8.869	
T Bromochloromethane	0.124	0.133	0.124	0.135	0.130	0.131	0.133	0.137	0.135	0.131			3.556	
T Tetrahydrofuran		0.030	0.022	0.021	0.020	0.021	0.021			0.021			15.686	1.000
S Dibromofluoromethane		0.222	0.220	0.239	0.245	0.244	0.244	0.247	0.255	0.240			5.102	
T 1,1,1-Trichloroethane	0.392	0.435	0.423	0.437	0.425	0.424	0.435	0.464	0.453	0.432			4.708	
T Cyclohexane		0.364	0.353	0.350	0.342	0.339	0.349	0.365	0.367	0.353			3.046	
T 1,1-Dichloropropene		0.349	0.356	0.366	0.352	0.351	0.359	0.377	0.371	0.360			2.919	
T Tert-Amyl-Methyl ether		0.455	0.444	0.467	0.461	0.475	0.480			0.484			3.055	
T Carbon Tetrachloride	0.337	0.392	0.385	0.388	0.384	0.387	0.397	0.412	0.411	0.388			5.646	
S 1,2-Dichloroethane-d4		0.197	0.200	0.208	0.208	0.208	0.206	0.207	0.210	0.205			2.130	
T Heptane										0.000			0.000	
T 1,2-Dichloroethane	0.233	0.248	0.244	0.250	0.243	0.248	0.249	0.256	0.248	0.247			2.512	
T Benzene	1.073	1.090	1.036	1.042	1.025	1.009	1.002	0.968	0.858	1.011			6.724	
T Trichloroethene	0.268	0.258	0.256	0.263	0.257	0.259	0.268	0.291	0.291	0.268			5.133	
T Methylcyclohexane				0.423	0.416	0.418	0.426	0.445	0.444	0.429			3.020	
C 1,2-Dichloropropane	0.217	0.221	0.203	0.219	0.212	0.212	0.216	0.227	0.226	0.217			3.402	
T Bromodichloromethane	0.305	0.329	0.302	0.315	0.318	0.324	0.328	0.340	0.332	0.322			3.934	
T 1,4-Dioxane				0.001	0.001	0.001	0.001			0.001			18.106	0.994
T Dibromomethane	0.073	0.109	0.112	0.114	0.112	0.114	0.115	0.121	0.120	0.110			13.118	
T 2-Chloroethyl Vinyl Ether			0.080	0.083	0.080	0.087	0.085	0.087	0.089	0.084			4.322	
T 4-Methyl-2-Pentanone				0.030	0.031	0.034	0.033	0.033	0.034	0.032			4.506	
T cis-1,3-Dichloropropene	0.325	0.359	0.341	0.355	0.349	0.354	0.360	0.371	0.361	0.353			3.763	
T Dimethyl Disulfide				0.173	0.186	0.195	0.202	0.213	0.219	0.198			8.684	
I Chlorobenzene-d5	ISTD													
S Toluene-d8		1.300	1.231	1.251	1.281	1.268	1.243	1.238	1.218	1.254			2.185	
C Toluene	1.595	1.621	1.591	1.594	1.567	1.539	1.503	1.377	1.152	1.504			10.045	
T Ethyl Methacrylate		0.251	0.240	0.250	0.256	0.266	0.263	0.264	0.258	0.256			3.406	
T Paraldehyde										0.000			0.000	
T trans-1,3-Dichloropropene		0.394	0.384	0.405	0.408	0.418	0.418	0.425	0.406	0.407			3.281	
T 1,1,2-Trichloroethane	0.169	0.204	0.212	0.211	0.211	0.212	0.209	0.217	0.212	0.206			6.993	
T 2-Hexanone				0.040	0.041	0.044	0.042	0.042	0.041	0.042			3.270	
T 1,3-Dichloropropane	0.325	0.383	0.365	0.373	0.367	0.367	0.361	0.370	0.357	0.363			4.447	
T Tetrachloroethene	0.273	0.318	0.289	0.297	0.290	0.291	0.297	0.328	0.329	0.301			6.414	
T Dibromochloromethane	0.221	0.262	0.260	0.262	0.272	0.280	0.283	0.295	0.288	0.269			8.076	
T 1,2-Dibromoethane	0.179	0.203	0.194	0.209	0.203	0.206	0.204	0.208	0.203	0.201			4.583	
T 1-Chlorohexane	0.516	0.522	0.527	0.538	0.533	0.530	0.536	0.553	0.544	0.533			2.093	
P Chlorobenzene	1.020	1.010	0.968	0.995	0.958	0.983	1.012	1.020	0.882	0.983			4.477	
T 1,1,1,2-Tetrachloroethane	0.309	0.318	0.323	0.329	0.336	0.352	0.375	0.407	0.381	0.348			9.525	
C Ethylbenzene	0.497	0.559	0.556	0.563	0.567	0.589	0.625	0.671	0.616	0.583			8.574	
T m-,p-Xylene	0.668	0.685	0.669	0.684	0.678	0.693	0.708	0.660	0.541	0.665			7.329	
T o-Xylene		0.665	0.621	0.646	0.642	0.653	0.673	0.703	0.667	0.659			3.688	
T Styrene	0.944	1.044	1.013	1.050	1.053	1.079	1.087	1.066	0.932	1.030			5.478	
P Bromoform		0.115	0.128	0.136	0.147	0.154	0.158	0.162	0.160	0.145			11.707	
T Isopropylbenzene	1.628	1.715	1.665	1.707	1.661	1.653	1.615	1.451	1.207	1.589			10.251	
I 1,4-Dichlorobenzene-d4	ISTD													
P 1,1,2,2-Tetrachloroethane	0.383	0.503	0.459	0.465	0.453	0.462	0.461	0.460	0.458	0.456			6.806	
S p-Bromofluorobenzene			1.019	1.014	1.017	1.018	1.006	1.019	1.045	1.020			1.194	

T	1,2,3-Trichloropropane		0.104	0.112	0.129	0.129	0.128	0.130	0.130	0.131	0.124	8.135
T	trans-1,4-Dichloro-2-Butene		0.084	0.077	0.108	0.110	0.105	0.106	0.104	0.103	0.100	12.073
T	n-Propylbenzene	4.206	4.381	4.381	4.434	4.291	4.163	3.987	3.389		4.154	8.224
T	Bromobenzene	0.8	0.744	0.814	0.810	0.800	0.791	0.790	0.812	0.856	0.860	4.112
T	1,3,5-Trimethylbenzene		2.819	3.114	3.036	3.065	3.010	2.971	2.967	2.759	2.381	2.902
T	2-Chlorotoluene		2.589	2.862	2.766	2.703	2.762	2.663	2.669	2.450	2.345	2.646
T	4-Chlorotoluene		2.754	2.840	2.734	2.699	2.497	2.576	2.536	2.408	1.781	2.536
T	a-Methylstyrene				1.552	1.566	1.621	1.659	1.674	1.615	1.615	3.015
T	tert-Butylbenzene		0.591	0.591	0.584	0.592	0.591	0.622	0.677	0.696	0.618	7.117
T	1,2,4-Trimethylbenzene	2.912	3.151	3.041	3.134	3.047	3.026	3.016	2.768	2.376	2.941	8.205
T	sec-Butylbenzene		3.820	3.826	3.843	3.735	3.656	3.578	3.184	2.676	3.540	11.588
T	p-Isopropyltoluene		2.971	2.847	2.934	2.874	2.840	2.855	2.678	2.315	2.789	7.531
T	1,3-Dichlorobenzene	1.559	1.664	1.586	1.582	1.531	1.551	1.577	1.604	1.523	1.575	2.692
T	1,4-Dichlorobenzene	1.777	1.518	1.627	1.490	1.538	1.494	1.501	1.532	1.551	1.474	5.850
T	n-Butylbenzene		3.118	2.986	3.000	2.939	2.892	2.870	2.624	2.241	2.834	9.824
T	1,2-Dichlorobenzene	1.304	1.297	1.373	1.288	1.310	1.277	1.275	1.308	1.321	1.287	2.178
T	1,2-Dibromo-3-Chloropropane				0.066	0.070	0.067	0.070	0.072	0.071	0.072	0.070
T	1,2,4-Trichlorobenzene		0.845	0.926	0.841	0.837	0.826	0.837	0.877	0.922	0.934	5.052
T	Hexachlorobutadiene		0.366	0.425	0.409	0.417	0.399	0.403	0.424	0.454	0.479	7.699
T	Naphthalene		1.007	1.200	1.100	1.096	1.118	1.164	1.199	1.184	1.146	5.486
T	1,2,3-Trichlorobenzene	0.669	0.630	0.702	0.672	0.646	0.647	0.663	0.685	0.708	0.722	4.426

Tue Nov 01 11:12:43 2016

Login Number: L16110144 Run Date: 10/31/2016 Sample ID: WG589331-12
 Instrument ID: HPMS8 Run Time: 13:12 Method: 8260B
 File ID: 8M415839 Analyst: FJB QC Key: DOD4
 ICal Workgroup: WG589331 Cal ID: HPMS8 - 30-OCT-16

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chloroform	CCC	50.0	59.0	ug/L	0.557	18.0	20	
1,1-Dichloroethene	CCC	50.0	54.3	ug/L	0.381	8.70	20	
1,2-Dichloropropane	CCC	50.0	59.2	ug/L	0.257	18.3	20	
Ethylbenzene	CCC	50.0	58.2	ug/L	0.679	16.5	20	
Toluene	CCC	50.0	56.8	ug/L	1.71	13.6	20	
Vinyl Chloride	CCC	50.0	44.4	ug/L	0.303	11.2	20	
Bromoform	SPCC	50.0	59.6	ug/L	0.173	19.1	20	
Chlorobenzene	SPCC	50.0	56.3	ug/L	1.11	12.6	20	
Chloromethane	SPCC	50.0	47.5	ug/L	0.307	5.00	20	
1,1-Dichloroethane	SPCC	50.0	57.3	ug/L	0.488	14.5	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	54.4	ug/L	0.496	8.80	20	
Acetone		50.0	52.5	ug/L	0.0217	5.00	20	
Benzene		50.0	59.4	ug/L	1.20	18.7	20	
Bromobenzene		50.0	55.1	ug/L	0.890	10.1	20	
Bromochloromethane		50.0	60.2	ug/L	0.158	20.4	20	*
Bromodichloromethane		50.0	60.4	ug/L	0.389	20.9	20	*
Bromomethane		50.0	50.6	ug/L	0.235	1.10	20	
2-Butanone		50.0	54.3	ug/L	0.0347	8.70	20	
n-Butylbenzene		50.0	57.5	ug/L	3.26	15.0	20	
sec-Butylbenzene		50.0	57.5	ug/L	4.07	15.0	20	
tert-Butylbenzene		50.0	54.7	ug/L	0.676	9.30	20	
Carbon Disulfide		50.0	49.1	ug/L	0.801	1.90	20	
Carbon Tetrachloride		50.0	61.3	ug/L	0.475	22.5	20	*
Dibromochloromethane		50.0	58.0	ug/L	0.313	16.1	20	
Chloroethane		50.0	54.8	ug/L	0.187	9.60	20	
2-Chlorotoluene		50.0	56.7	ug/L	3.00	13.5	20	
4-Chlorotoluene		50.0	55.5	ug/L	2.82	11.1	20	
1,2-Dibromo-3-Chloropropane		50.0	55.2	ug/L	0.0770	10.4	20	
1,2-Dibromoethane		50.0	56.2	ug/L	0.226	12.5	20	
Dibromomethane		50.0	62.3	ug/L	0.137	24.6	20	*
1,2-Dichlorobenzene		50.0	55.4	ug/L	1.45	10.9	20	
1,3-Dichlorobenzene		50.0	55.0	ug/L	1.73	10.0	20	
1,4-Dichlorobenzene		50.0	54.7	ug/L	1.69	9.30	20	
Dichlorodifluoromethane		50.0	46.4	ug/L	0.375	7.20	20	
1,2-Dichloroethane		50.0	58.8	ug/L	0.290	17.7	20	
cis-1,2-Dichloroethene		50.0	59.0	ug/L	0.332	18.0	20	
trans-1,2-Dichloroethene		50.0	56.5	ug/L	0.376	13.0	20	
1,3-Dichloropropane		50.0	57.5	ug/L	0.418	14.9	20	
2,2-Dichloropropane		50.0	61.5	ug/L	0.497	23.1	20	*
cis-1,3-Dichloropropene		50.0	64.2	ug/L	0.453	28.4	20	*
trans-1,3-Dichloropropene		50.0	56.1	ug/L	0.457	12.2	20	
1,1-Dichloropropene		50.0	59.2	ug/L	0.427	18.5	20	

ALT - Modified 09/06/2007
 Version 1.5 PDF File ID: 5014678
 Report generated 11/14/2016 10:42



Login Number: L16110144 Run Date: 10/31/2016 Sample ID: WG589331-12
 Instrument ID: HPMS8 Run Time: 13:12 Method: 8260B
 File ID: 8M415839 Analyst: FJB QC Key: DOD4
 ICal Workgroup: WG589331 Cal ID: HPMS8 - 30-OCT-16

Analyte	Expected	Found	Units	RF	%D	UCL	Q
2-Hexanone	50.0	49.5	ug/L	0.0412	1.00	20	
Hexachlorobutadiene	50.0	56.6	ug/L	0.475	13.2	20	
Isopropylbenzene	50.0	58.9	ug/L	1.87	17.8	20	
p-Isopropyltoluene	50.0	58.6	ug/L	3.27	17.1	20	
4-Methyl-2-Pentanone	50.0	52.1	ug/L	0.0338	4.20	20	
Methylene Chloride	50.0	56.4	ug/L	0.278	12.7	20	
Naphthalene	50.0	57.2	ug/L	1.30	14.4	20	
n-Propylbenzene	50.0	55.8	ug/L	4.63	11.6	20	
Styrene	50.0	60.3	ug/L	1.24	20.6	20	*
1,1,1,2-Tetrachloroethane	50.0	56.9	ug/L	0.396	13.9	20	
Tetrachloroethene	50.0	56.5	ug/L	0.341	13.0	20	
1,2,3-Trichlorobenzene	50.0	56.0	ug/L	0.756	12.0	20	
1,2,4-Trichlorobenzene	50.0	55.4	ug/L	0.966	10.9	20	
1,1,1-Trichloroethane	50.0	61.0	ug/L	0.527	22.0	20	*
1,1,2-Trichloroethane	50.0	56.1	ug/L	0.232	12.2	20	
Trichloroethene	50.0	59.0	ug/L	0.316	18.0	20	
Trichlorofluoromethane	50.0	52.2	ug/L	0.484	4.50	20	
1,2,3-Trichloropropane	50.0	55.9	ug/L	0.139	11.8	20	
1,2,4-Trimethylbenzene	50.0	57.4	ug/L	3.38	14.9	20	
1,3,5-Trimethylbenzene	50.0	57.5	ug/L	3.34	15.1	20	
o-Xylene	50.0	57.3	ug/L	0.755	14.6	20	
m-,p-Xylene	100	121	ug/L	0.802	20.5	20	*

* Exceeds %D Limit

CCC Calibration Check Compounds
 SPCC System Performance Check Compounds



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590442-02
Instrument ID: HPMS8 Run Time: 14:00 Method: 8260B
File ID: 8M415945 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG590443 Cal ID: HPMS8 - 30-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloroform	CCC	50.0	51.7	ug/L	0.488	3.42	20	
1,1-Dichloroethene	CCC	50.0	52.8	ug/L	0.369	5.50	20	
1,2-Dichloropropane	CCC	50.0	49.9	ug/L	0.216	0.243	20	
Ethylbenzene	CCC	50.0	53.4	ug/L	0.622	6.80	20	
Toluene	CCC	50.0	53.4	ug/L	1.61	6.79	20	
Vinyl Chloride	CCC	50.0	59.4	ug/L	0.405	18.9	20	
Bromoform	SPCC	50.0	47.6	ug/L	0.138	4.74	20	
Chlorobenzene	SPCC	50.0	51.6	ug/L	1.01	3.17	20	
Chloromethane	SPCC	50.0	54.4	ug/L	0.351	8.83	20	
1,1-Dichloroethane	SPCC	50.0	51.9	ug/L	0.442	3.76	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	45.2	ug/L	0.413	9.51	20	
Xylenes		150	161	ug/L	0.704	7.61	20	
Acetone		50.0	42.5	ug/L	0.0176	15.0	20	
Benzene		50.0	54.2	ug/L	1.10	8.30	20	
Bromobenzene		50.0	48.0	ug/L	0.776	3.95	20	
Bromochloromethane		50.0	49.8	ug/L	0.131	0.407	20	
Bromodichloromethane		50.0	52.1	ug/L	0.335	4.21	20	
Bromomethane		50.0	45.6	ug/L	0.212	8.81	20	
2-Butanone		50.0	43.6	ug/L	0.0279	12.8	20	
n-Butylbenzene		50.0	53.7	ug/L	3.05	7.47	20	
sec-Butylbenzene		50.0	54.6	ug/L	3.87	9.23	20	
tert-Butylbenzene		50.0	50.0	ug/L	0.617	0.0846	20	
Carbon Disulfide		50.0	53.3	ug/L	0.870	6.58	20	
Carbon Tetrachloride		50.0	56.0	ug/L	0.435	12.1	20	
Dibromochloromethane		50.0	48.9	ug/L	0.264	2.11	20	
Chloroethane		50.0	52.2	ug/L	0.178	4.35	20	
2-Chlorotoluene		50.0	51.7	ug/L	2.74	3.39	20	
4-Chlorotoluene		50.0	52.6	ug/L	2.67	5.22	20	
1,2-Dibromo-3-Chloropropane		50.0	41.2	ug/L	0.0574	17.7	20	
1,2-Dibromoethane		50.0	46.6	ug/L	0.187	6.70	20	
Dibromomethane		50.0	51.7	ug/L	0.114	3.47	20	
1,2-Dichlorobenzene		50.0	47.4	ug/L	1.24	5.27	20	
1,3-Dichlorobenzene		50.0	49.5	ug/L	1.56	1.09	20	
1,4-Dichlorobenzene		50.0	48.5	ug/L	1.50	3.05	20	
Dichlorodifluoromethane		50.0	59.1	ug/L	0.478	18.2	20	
1,2-Dichloroethane		50.0	50.0	ug/L	0.247	0.0406	20	
cis-1,2-Dichloroethene		50.0	53.3	ug/L	0.300	6.67	20	
trans-1,2-Dichloroethene		50.0	51.9	ug/L	0.345	3.79	20	
1,3-Dichloropropane		50.0	46.4	ug/L	0.337	7.17	20	
2,2-Dichloropropane		50.0	57.3	ug/L	0.463	14.6	20	
cis-1,3-Dichloropropene		50.0	51.7	ug/L	0.365	3.43	20	
trans-1,3-Dichloropropene		50.0	48.1	ug/L	0.392	3.87	20	

CCV - Modified 03/05/2008
PDF File ID: 5014680
Report generated 11/14/2016 10:42



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590442-02
Instrument ID: HPMS8 Run Time: 14:00 Method: 8260B
File ID: 8M415945 Analyst: ADC QC Key: DOD4
Workgroup (AAB#): WG590443 Cal ID: HPMS8 - 30-OCT-16
Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloropropene	50.0	53.1	ug/L	0.382	6.23	20	
2-Hexanone	50.0	41.2	ug/L	0.0343	17.6	20	
Hexachlorobutadiene	50.0	47.0	ug/L	0.394	6.06	20	
Isopropylbenzene	50.0	54.7	ug/L	1.74	9.50	20	
p-Isopropyltoluene	50.0	53.9	ug/L	3.01	7.79	20	
4-Methyl-2-Pentanone	50.0	43.6	ug/L	0.0283	12.8	20	
Methylene Chloride	50.0	50.6	ug/L	0.249	1.21	20	
Naphthalene	50.0	40.6	ug/L	0.921	18.9	20	
n-Propylbenzene	50.0	52.7	ug/L	4.38	5.39	20	
Styrene	50.0	53.0	ug/L	1.09	6.07	20	
1,1,1,2-Tetrachloroethane	50.0	51.6	ug/L	0.359	3.16	20	
Tetrachloroethene	50.0	50.1	ug/L	0.302	0.172	20	
1,2,3-Trichlorobenzene	50.0	41.0	ug/L	0.553	18.1	20	
1,2,4-Trichlorobenzene	50.0	43.1	ug/L	0.752	13.7	20	
1,1,1-Trichloroethane	50.0	54.9	ug/L	0.475	9.86	20	
1,1,2-Trichloroethane	50.0	47.8	ug/L	0.197	4.50	20	
Trichloroethene	50.0	52.3	ug/L	0.280	4.56	20	
Trichlorofluoromethane	50.0	54.9	ug/L	0.509	9.87	20	
1,2,3-Trichloropropane	50.0	46.1	ug/L	0.115	7.70	20	
1,2,4-Trimethylbenzene	50.0	53.5	ug/L	3.15	6.93	20	
1,3,5-Trimethylbenzene	50.0	53.9	ug/L	3.13	7.82	20	
o-Xylene	50.0	51.2	ug/L	0.674	2.30	20	
m-,p-Xylene	100	110	ug/L	0.733	10.3	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5014680
Report generated 11/14/2016 10:42



Login Number: L16110144 Run Date: 11/08/2016 Sample ID: WG590742-02
Instrument ID: HPMS8 Run Time: 10:37 Method: 8260B
File ID: 8M416004 Analyst: TMB QC Key: DOD4
Workgroup (AAB#): WG590743 Cal ID: HPMS8 - 30-OCT-16
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloroform	CCC	50.0	52.5	ug/L	0.496	5.09	20	
1,1-Dichloroethene	CCC	50.0	52.3	ug/L	0.366	4.65	20	
1,2-Dichloropropane	CCC	50.0	51.8	ug/L	0.225	3.59	20	
Ethylbenzene	CCC	50.0	52.3	ug/L	0.610	4.67	20	
Toluene	CCC	50.0	53.2	ug/L	1.60	6.42	20	
Vinyl Chloride	CCC	50.0	58.5	ug/L	0.399	17.0	20	
Bromoform	SPCC	50.0	50.0	ug/L	0.145	0.0504	20	
Chlorobenzene	SPCC	50.0	51.6	ug/L	1.01	3.13	20	
Chloromethane	SPCC	50.0	57.2	ug/L	0.369	14.3	20	
1,1-Dichloroethane	SPCC	50.0	52.8	ug/L	0.450	5.53	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	48.8	ug/L	0.445	2.37	20	
Xylenes		150	159	ug/L	0.694	6.03	20	
Acetone		50.0	50.4	ug/L	0.0209	0.881	20	
Benzene		50.0	55.2	ug/L	1.12	10.3	20	
Bromobenzene		50.0	47.6	ug/L	0.768	4.87	20	
Bromochloromethane		50.0	51.8	ug/L	0.136	3.64	20	
Bromodichloromethane		50.0	53.8	ug/L	0.346	7.51	20	
Bromomethane		50.0	48.7	ug/L	0.226	2.51	20	
2-Butanone		50.0	52.2	ug/L	0.0333	4.34	20	
n-Butylbenzene		50.0	51.8	ug/L	2.94	3.69	20	
sec-Butylbenzene		50.0	53.0	ug/L	3.75	6.05	20	
tert-Butylbenzene		50.0	47.5	ug/L	0.587	5.02	20	
Carbon Disulfide		50.0	55.9	ug/L	0.912	11.7	20	
Carbon Tetrachloride		50.0	56.1	ug/L	0.435	12.2	20	
Dibromochloromethane		50.0	50.0	ug/L	0.270	0.0578	20	
Chloroethane		50.0	53.0	ug/L	0.181	6.10	20	
2-Chlorotoluene		50.0	51.2	ug/L	2.71	2.40	20	
4-Chlorotoluene		50.0	51.1	ug/L	2.59	2.30	20	
1,2-Dibromo-3-Chloropropane		50.0	44.2	ug/L	0.0616	11.6	20	
1,2-Dibromoethane		50.0	48.7	ug/L	0.196	2.55	20	
Dibromomethane		50.0	54.9	ug/L	0.121	9.90	20	
1,2-Dichlorobenzene		50.0	47.5	ug/L	1.24	4.93	20	
1,3-Dichlorobenzene		50.0	48.9	ug/L	1.54	2.16	20	
1,4-Dichlorobenzene		50.0	48.0	ug/L	1.49	4.01	20	
Dichlorodifluoromethane		50.0	58.7	ug/L	0.475	17.4	20	
1,2-Dichloroethane		50.0	51.2	ug/L	0.252	2.34	20	
cis-1,2-Dichloroethene		50.0	54.2	ug/L	0.305	8.47	20	
trans-1,2-Dichloroethene		50.0	51.8	ug/L	0.345	3.66	20	
1,3-Dichloropropane		50.0	48.1	ug/L	0.349	3.89	20	
2,2-Dichloropropane		50.0	57.2	ug/L	0.462	14.4	20	
cis-1,3-Dichloropropene		50.0	53.1	ug/L	0.375	6.20	20	
trans-1,3-Dichloropropene		50.0	49.3	ug/L	0.402	1.41	20	

CCV - Modified 03/05/2008
PDF File ID: 5014680
Report generated 11/14/2016 10:42



Login Number: L16110144 Run Date: 11/08/2016 Sample ID: WG590742-02
Instrument ID: HPMS8 Run Time: 10:37 Method: 8260B
File ID: 8M416004 Analyst: TMB QC Key: DOD4
Workgroup (AAB#): WG590743 Cal ID: HPMS8 - 30-OCT-16
Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloropropene	50.0	53.6	ug/L	0.386	7.24	20	
2-Hexanone	50.0	51.9	ug/L	0.0433	3.90	20	
Hexachlorobutadiene	50.0	44.2	ug/L	0.371	11.5	20	
Isopropylbenzene	50.0	53.8	ug/L	1.71	7.59	20	
p-Isopropyltoluene	50.0	52.0	ug/L	2.90	3.90	20	
4-Methyl-2-Pentanone	50.0	54.3	ug/L	0.0352	8.51	20	
Methylene Chloride	50.0	52.3	ug/L	0.258	4.61	20	
Naphthalene	50.0	44.8	ug/L	1.02	10.3	20	
n-Propylbenzene	50.0	51.8	ug/L	4.30	3.57	20	
Styrene	50.0	52.7	ug/L	1.09	5.48	20	
1,1,1,2-Tetrachloroethane	50.0	51.9	ug/L	0.361	3.74	20	
Tetrachloroethene	50.0	48.2	ug/L	0.291	3.61	20	
1,2,3-Trichlorobenzene	50.0	42.8	ug/L	0.578	14.4	20	
1,2,4-Trichlorobenzene	50.0	43.4	ug/L	0.756	13.3	20	
1,1,1-Trichloroethane	50.0	54.8	ug/L	0.474	9.61	20	
1,1,2-Trichloroethane	50.0	49.8	ug/L	0.205	0.469	20	
Trichloroethene	50.0	52.4	ug/L	0.281	4.87	20	
Trichlorofluoromethane	50.0	55.2	ug/L	0.512	10.5	20	
1,2,3-Trichloropropane	50.0	48.6	ug/L	0.121	2.87	20	
1,2,4-Trimethylbenzene	50.0	52.6	ug/L	3.09	5.13	20	
1,3,5-Trimethylbenzene	50.0	52.1	ug/L	3.02	4.15	20	
o-Xylene	50.0	50.7	ug/L	0.668	1.42	20	
m-,p-Xylene	100	108	ug/L	0.721	8.34	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5014680
Report generated 11/14/2016 10:42



Login Number: L16110144
Instrument ID: HPMS8
Workgroup (AAB#): WG590443

ICAL CCV Number: WG589331-08
CAL ID: HPMS8 - 30-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG589331-08	NA	NA	263212	566473	825560
Upper Limit	NA	NA	526424	1132946	1651120
Lower Limit	NA	NA	131606	283237	412780
<u>L16110144-03</u>	1.00	01	205917	473293	644801
L16110144-05	1.00	01	201507	457640	626821
L16110144-07	1.00	01	176575	409371	554718
L16110144-08	1.00	01	193274	456949	625361
L16110144-09	1.00	01	196558	452453	620006
L16110144-10	1.00	01	208642	477826	657679
WG590443-01	1.00	01	244909	546376	737550
WG590443-02	1.00	01	242852	516757	697146
WG590443-03	1.00	01	246118	526440	706900

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits



Login Number: L16110144
Instrument ID: HPMS8
Workgroup (AAB#): WG590743

ICAL CCV Number: WG589331-08
CAL ID: HPMS8 - 30-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG589331-08	NA	NA	263212	566473	825560
Upper Limit	NA	NA	526424	1132946	1651120
Lower Limit	NA	NA	131606	283237	412780
<u>L16110144-01</u>	2.50	DL01	203615	478856	653873
WG590743-01	1.00	01	208759	487617	663591
WG590743-02	1.00	01	233197	499914	670737

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits



Microbac Laboratories Inc.
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

00891657

Login Number: L16110144
Instrument ID: HPMS8
Workgroup (AAB#): WG590443

ICAL CCV Number: WG589331-08
CAL ID: HPMS8 - 30-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG589331-08	NA	NA	17.86	14.84	10.98
Upper Limit	NA	NA	18.36	15.34	11.48
Lower Limit	NA	NA	17.36	14.34	10.48
<u>L16110144-03</u>	1.00	01	17.86	14.84	10.97
L16110144-05	1.00	01	17.87	14.84	10.97
L16110144-07	1.00	01	17.86	14.85	10.97
L16110144-08	1.00	01	17.86	14.85	10.97
L16110144-09	1.00	01	17.86	14.84	10.98
L16110144-10	1.00	01	17.86	14.85	10.97
WG590443-01	1.00	01	17.86	14.84	10.98
WG590443-02	1.00	01	17.86	14.84	10.98
WG590443-03	1.00	01	17.86	14.84	10.98

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits



Microbac Laboratories Inc.
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

00891658

Login Number: L16110144
Instrument ID: HPMS8
Workgroup (AAB#): WG590743

ICAL CCV Number: WG589331-08
CAL ID: HPMS8-30-OCT-16
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG589331-08	NA	NA	17.86	14.84	10.98
Upper Limit	NA	NA	18.36	15.34	11.48
Lower Limit	NA	NA	17.36	14.34	10.48
<u>L16110144-01</u>	2.50	DL01	17.86	14.84	10.98
WG590743-01	1.00	01	17.86	14.84	10.98
WG590743-02	1.00	01	17.86	14.85	10.97

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits



2.1.1.3 Sample Data

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416007.D Vial: 6
 Acq On : 8 Nov 2016 12:10 Operator: TMB
 Sample : L16110144-01 C 2.5X 826-LOW 00 Inst : HPMS8
 Misc : 1,2.5 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 09 08:42:49 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

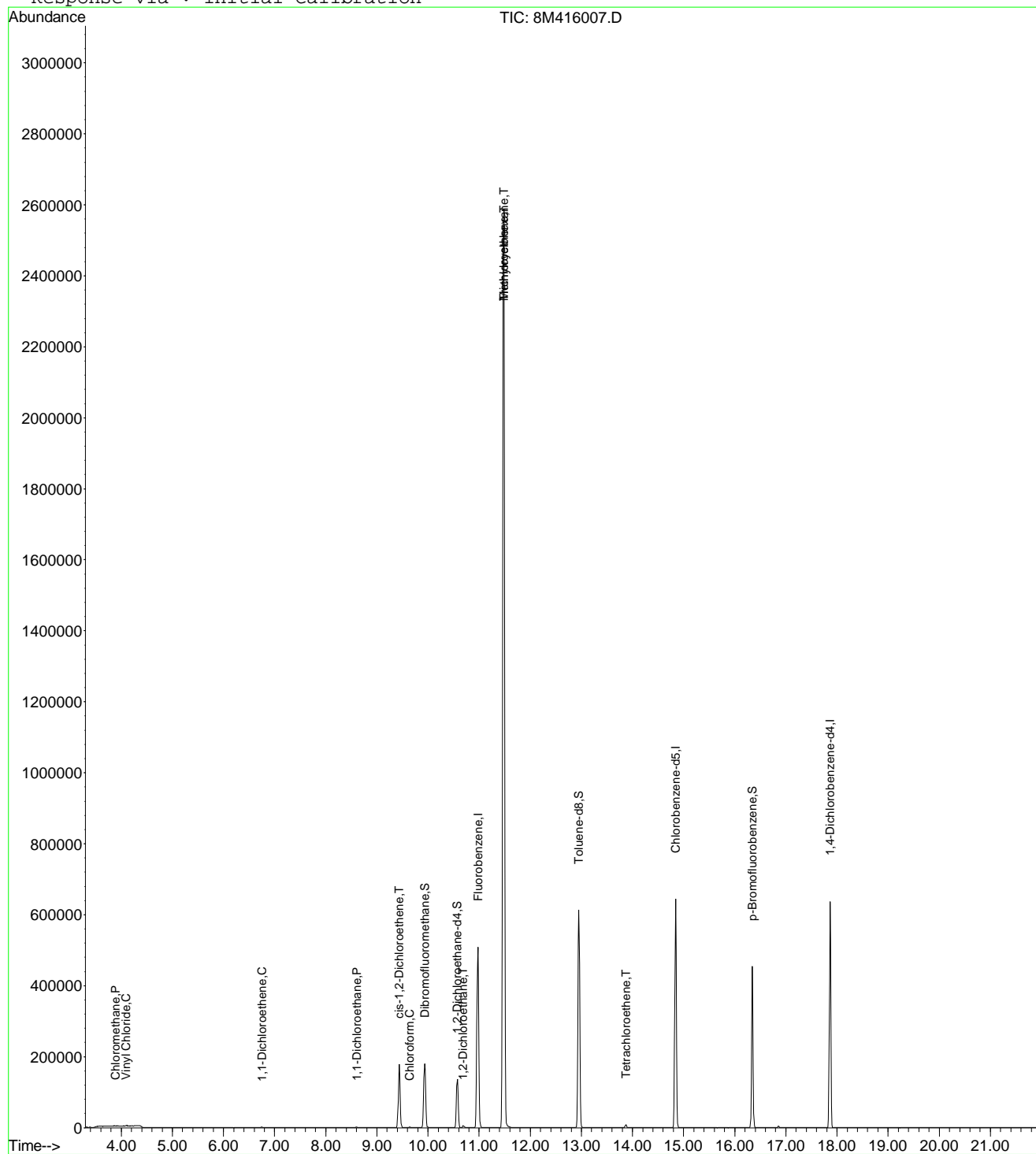
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	653873	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	478856	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	203615	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.93	111	152493	24.3426	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	97.36%	
43) 1,2-Dichloroethane-d4	10.57	65	121444	22.5950	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	90.40%	
58) Toluene-d8	12.95	98	572759	23.8491	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	95.40%	
80) p-Bromofluorobenzene	16.34	95	205015	24.6859	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	98.76%	
Target Compounds						
						Qvalue
3) Chloromethane	3.88	50	1035	0.1227	ug/L	77
4) Vinyl Chloride	4.09	62	1102	0.1236	ug/L #	41
14) 1,1-Dichloroethene	6.76	61	1637	0.1787	ug/L	89
27) 1,1-Dichloroethane	8.61	63	3345	0.3001	ug/L #	72
32) cis-1,2-Dichloroethene	9.44	96	111963	15.2196	ug/L	82
33) Chloroform	9.64	83	1730	0.1402	ug/L	96
45) 1,2-Dichloroethane	10.69	62	6208	0.9627	ug/L	89
47) Trichloroethene	11.48	130	1063633	151.7622	ug/L	99
48) Methylcyclohexane	11.48	83	14193	1.2654	ug/L #	1
66) Tetrachloroethene	13.87	164	2557	0.4429	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M416007.D 8260WTR.M Wed Nov 09 08:42:52 2016

Page 1

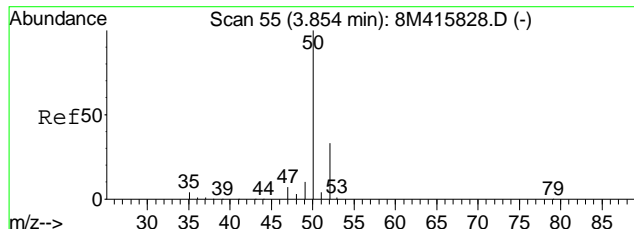
Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416007.D Vial: 6
Acq On : 8 Nov 2016 12:10 Operator: TMB
Sample : L16110144-01 C 2.5X 826-LOW 00 Inst : HPMS8
Misc : 1,2.5 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 9 8:42 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



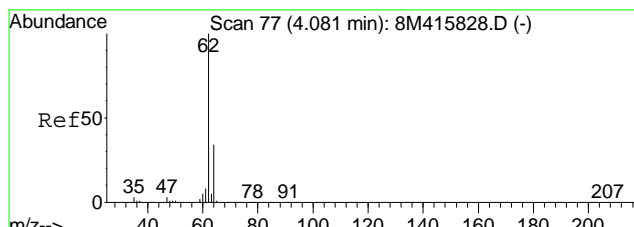
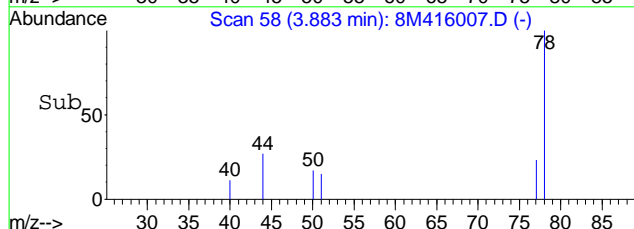
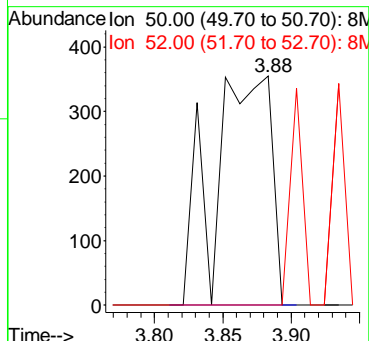
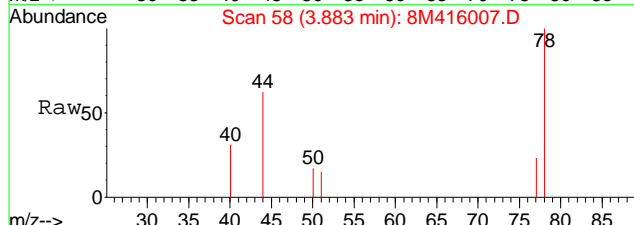
8M416007.D 8260WTR.M Wed Nov 09 08:42:53 2016

Page 2



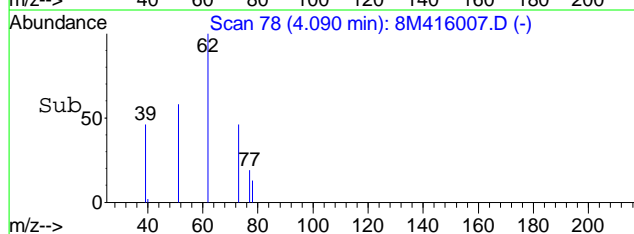
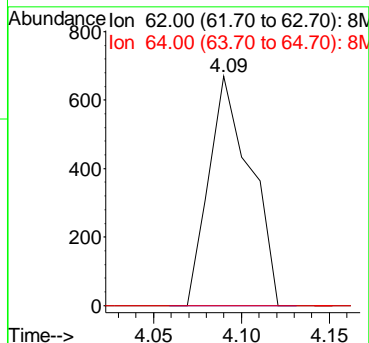
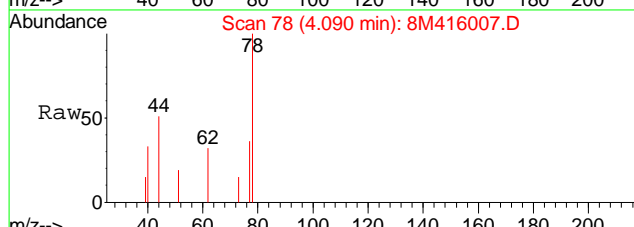
#3
 Chloromethane
 Concen: 0.12 ug/L
 RT: 3.88 min Scan# 58
 Delta R.T. 0.03 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

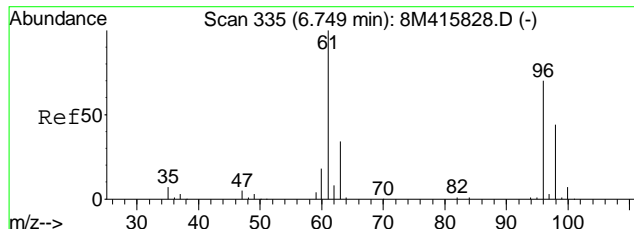
Tgt Ion	Resp	Lower	Upper
50	1035		
52	20.1	19.7	46.1



#4
 Vinyl Chloride
 Concen: 0.12 ug/L
 RT: 4.09 min Scan# 78
 Delta R.T. 0.01 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

Tgt Ion	Resp	Lower	Upper
62	1102		
64	0.0	20.2	47.0#

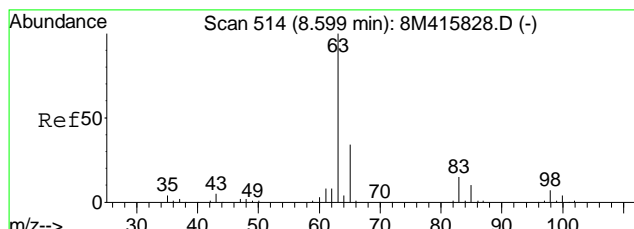
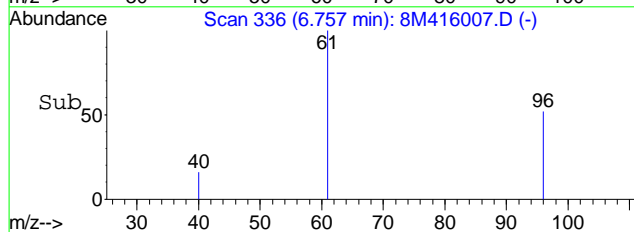
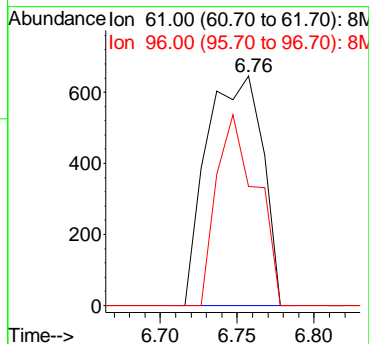
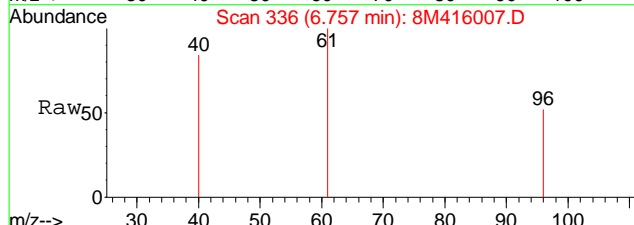




#14
 1,1-Dichloroethene
 Concen: 0.18 ug/L
 RT: 6.76 min Scan# 336
 Delta R.T. 0.01 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

Tgt Ion: 61 Resp: 1637

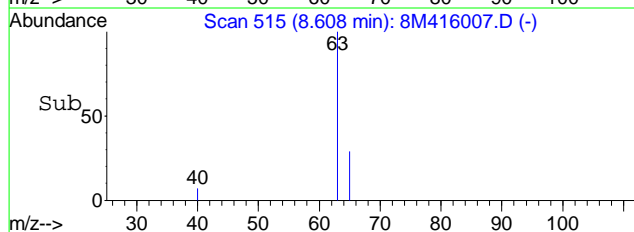
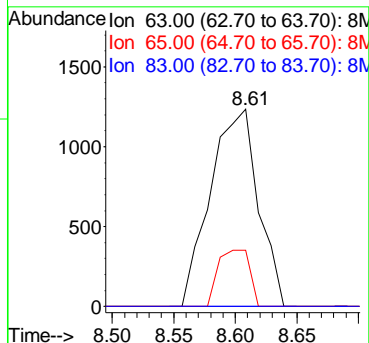
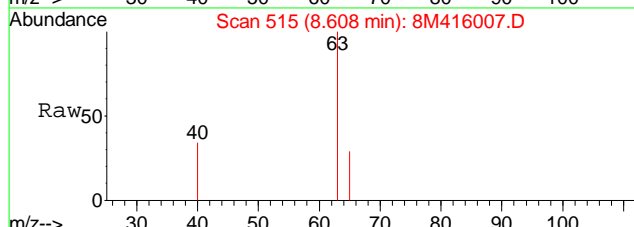
Ion	Ratio	Lower	Upper
61	100		
96	59.6	40.9	95.5

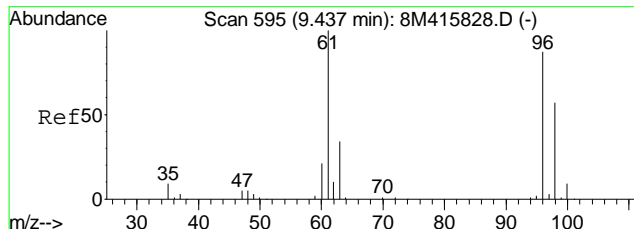


#27
 1,1-Dichloroethane
 Concen: 0.30 ug/L
 RT: 8.61 min Scan# 515
 Delta R.T. 0.01 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

Tgt Ion: 63 Resp: 3345

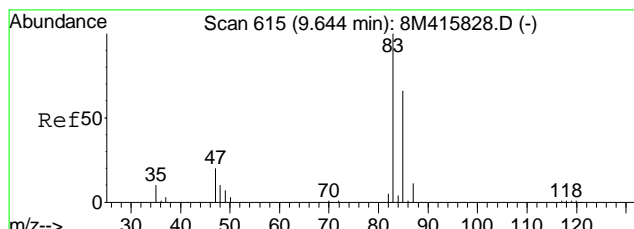
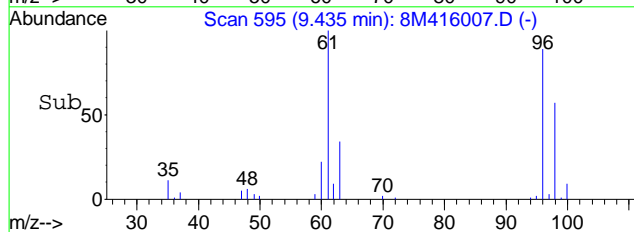
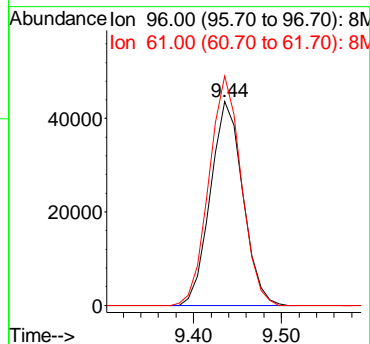
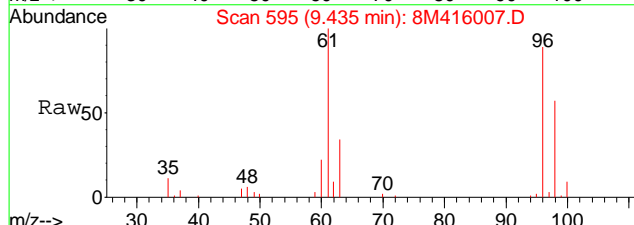
Ion	Ratio	Lower	Upper
63	100		
65	18.8	19.7	46.1#
83	0.0	9.0	21.0#





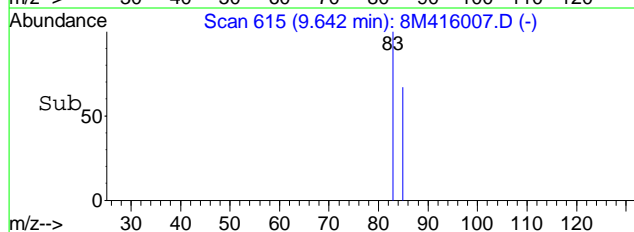
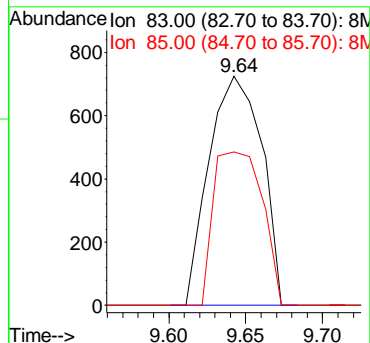
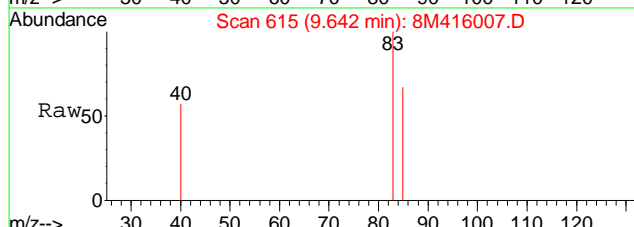
#32
 cis-1,2-Dichloroethene
 Concen: 15.22 ug/L
 RT: 9.44 min Scan# 595
 Delta R.T. -0.00 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

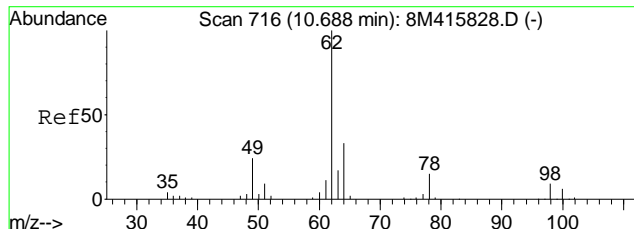
Tgt Ion	Resp	Lower	Upper
96	111963		
61	111.5	79.4	185.2



#33
 Chloroform
 Concen: 0.14 ug/L
 RT: 9.64 min Scan# 615
 Delta R.T. -0.00 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

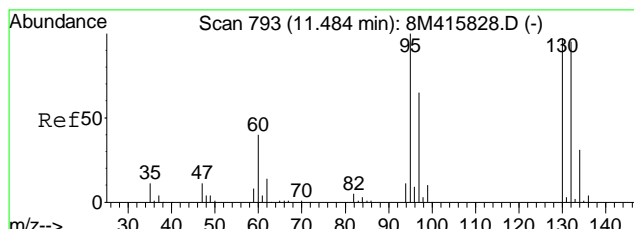
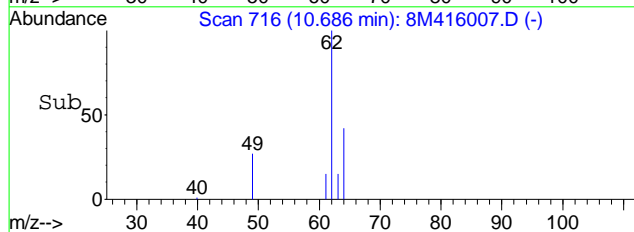
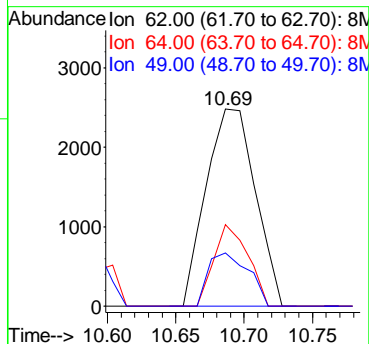
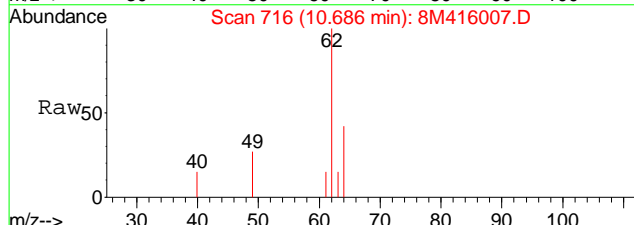
Tgt Ion	Resp	Lower	Upper
83	1730		
85	62.1	39.1	91.1





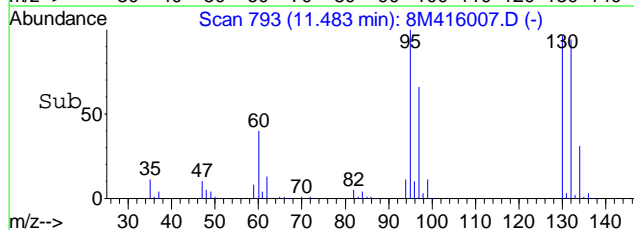
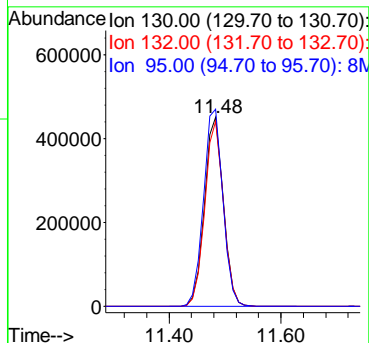
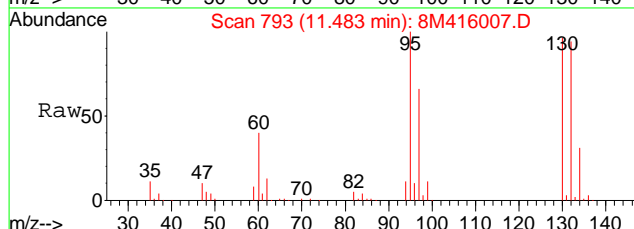
#45
 1,2-Dichloroethane
 Concen: 0.96 ug/L
 RT: 10.69 min Scan# 716
 Delta R.T. -0.00 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

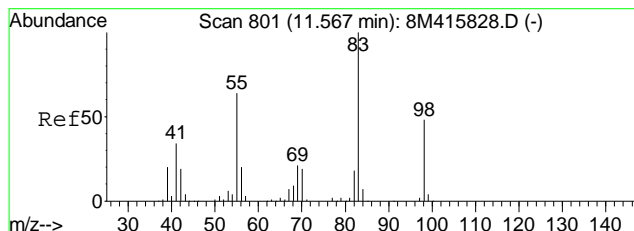
Tgt Ion	Resp	Lower	Upper
62	100		
64	28.8	19.8	46.2
49	22.1	18.1	42.3



#47
 Trichloroethene
 Concen: 151.76 ug/L
 RT: 11.48 min Scan# 793
 Delta R.T. -0.00 min
 Lab File: 8M416007.D
 Acq: 8 Nov 2016 12:10

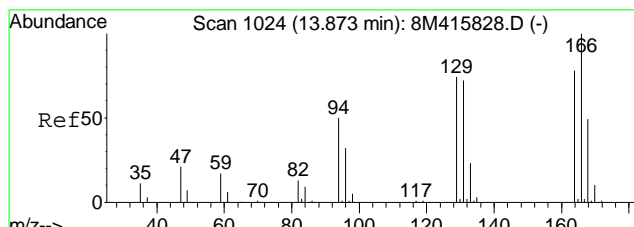
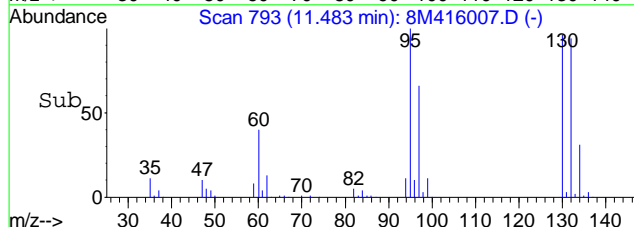
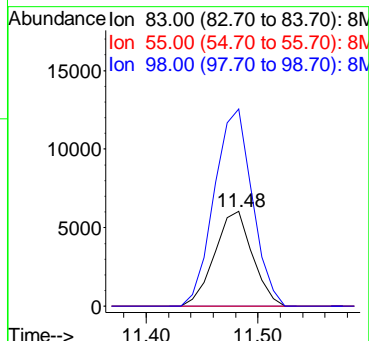
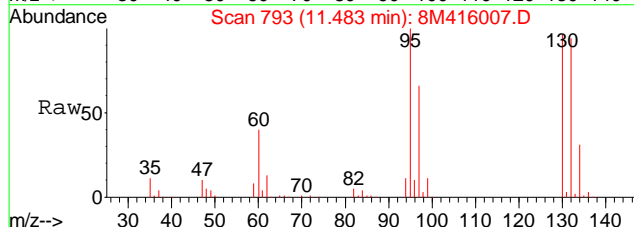
Tgt Ion	Resp	Lower	Upper
130	100		
132	96.6	58.1	135.5
95	106.8	62.7	146.3





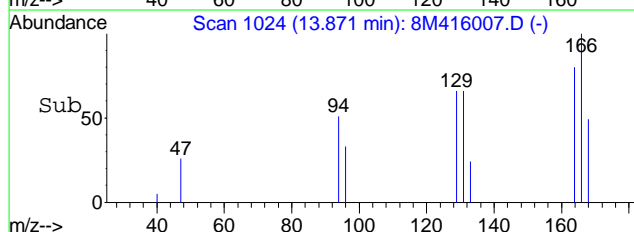
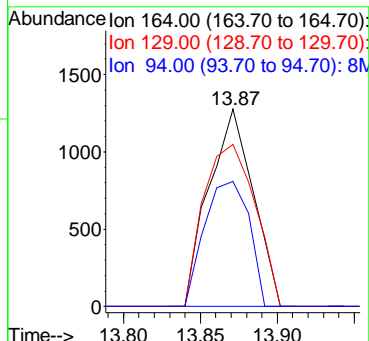
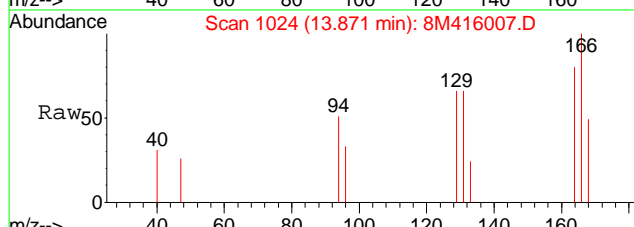
#48
Methylcyclohexane
Concen: 1.27 ug/L
RT: 11.48 min Scan# 793
Delta R.T. -0.08 min
Lab File: 8M416007.D
Acq: 8 Nov 2016 12:10

Tgt Ion	83	55	98
Resp	14193		
Ratio	100	0.0	209.1
Lower		38.3	28.1
Upper		89.3#	65.7#



#66
Tetrachloroethene
Concen: 0.44 ug/L
RT: 13.87 min Scan# 1024
Delta R.T. -0.00 min
Lab File: 8M416007.D
Acq: 8 Nov 2016 12:10

Tgt Ion	164	129	94
Resp	2557		
Ratio	100	95.5	63.9
Lower		57.2	39.3
Upper		133.4	91.7



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415958.D Vial: 15
 Acq On : 4 Nov 2016 20:21 Operator: ADC
 Sample : L16110144-03 A 826-LOW Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:52:57 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.97	96	644801	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	473293	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	205917	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	149741	24.2396	ug/L	0.00
Spiked Amount	25.000	Range	86 - 118	Recovery	=	96.96%
43) 1,2-Dichloroethane-d4	10.57	65	123206	23.2454	ug/L	0.00
Spiked Amount	25.000	Range	80 - 120	Recovery	=	93.00%
58) Toluene-d8	12.95	98	566710	23.8746	ug/L	0.00
Spiked Amount	25.000	Range	88 - 110	Recovery	=	95.48%
80) p-Bromofluorobenzene	16.34	95	202894	24.1574	ug/L	0.00
Spiked Amount	25.000	Range	86 - 115	Recovery	=	96.64%

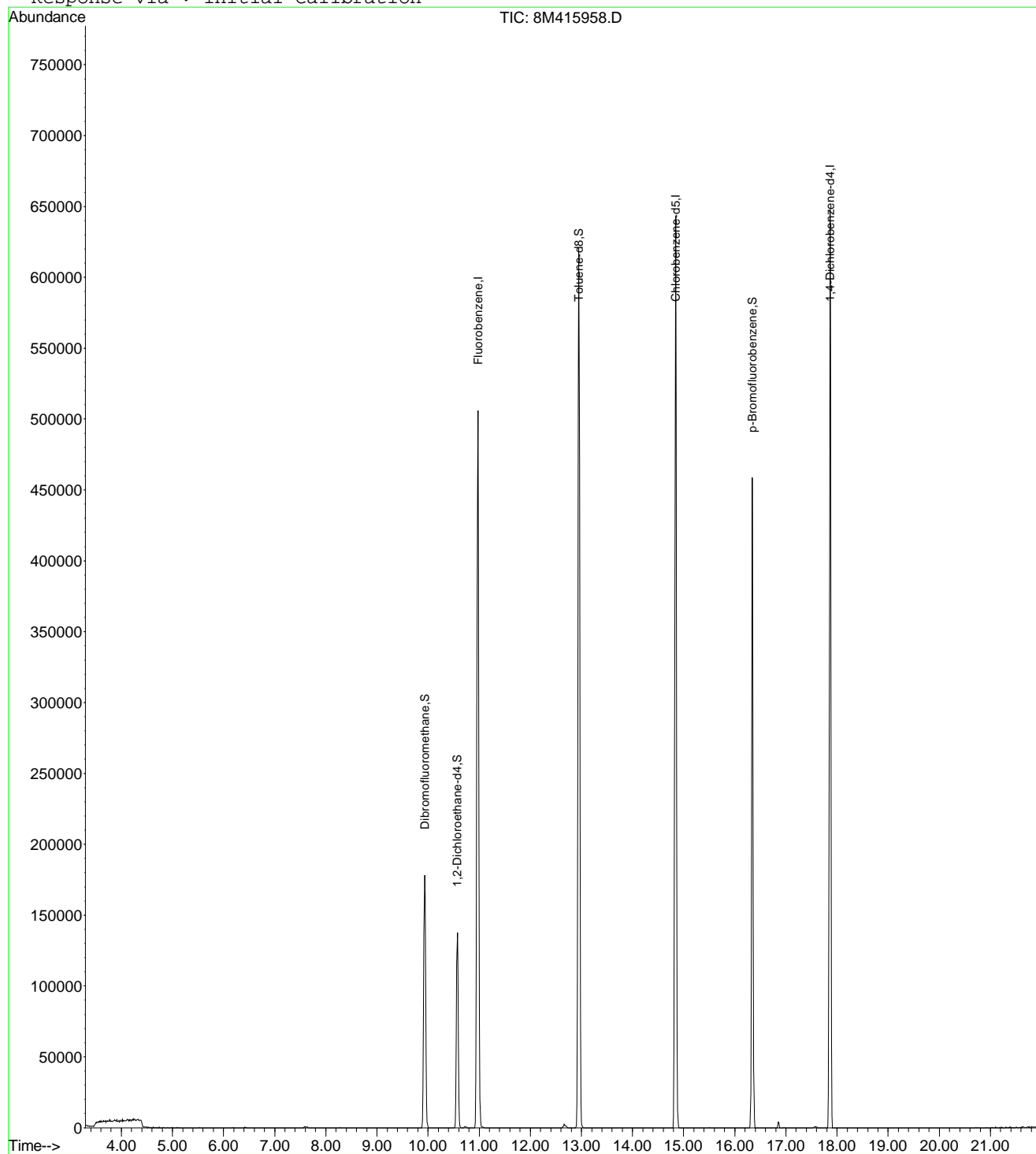
Target Compounds Qvalue

 (#) = qualifier out of range (m) = manual integration
 8M415958.D 8260WTR.M Mon Nov 07 09:53:00 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415958.D Vial: 15
Acq On : 4 Nov 2016 20:21 Operator: ADC
Sample : L16110144-03 A 826-LOW Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 7 9:52 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



8M415958.D 8260WTR.M Mon Nov 07 09:53:01 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415959.D Vial: 16
 Acq On : 4 Nov 2016 20:51 Operator: ADC
 Sample : L16110144-05 A 826-LOW Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:53:03 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.97	96	626821	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	457640	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.87	152	201507	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.94	111	145847	24.2865	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	97.16%	
43) 1,2-Dichloroethane-d4	10.57	65	118318	22.9635	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	91.84%	
58) Toluene-d8	12.94	98	551623	24.0338	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	96.12%	
80) p-Bromofluorobenzene	16.34	95	195501	23.7865	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	95.16%	
Target Compounds						
						Qvalue
3) Chloromethane	3.86	50	1362	0.1684	ug/L	# 70
47) Trichloroethene	11.48	130	18288	2.7220	ug/L	93

(#) = qualifier out of range (m) = manual integration
 8M415959.D 8260WTR.M Mon Nov 07 09:53:06 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415959.D Vial: 16

Acq On : 4 Nov 2016 20:51

Operator: ADC

Sample : L16110144-05 A 826-LOW

Inst : HPMS8

Misc : 1,1

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Nov 7 9:52 2016

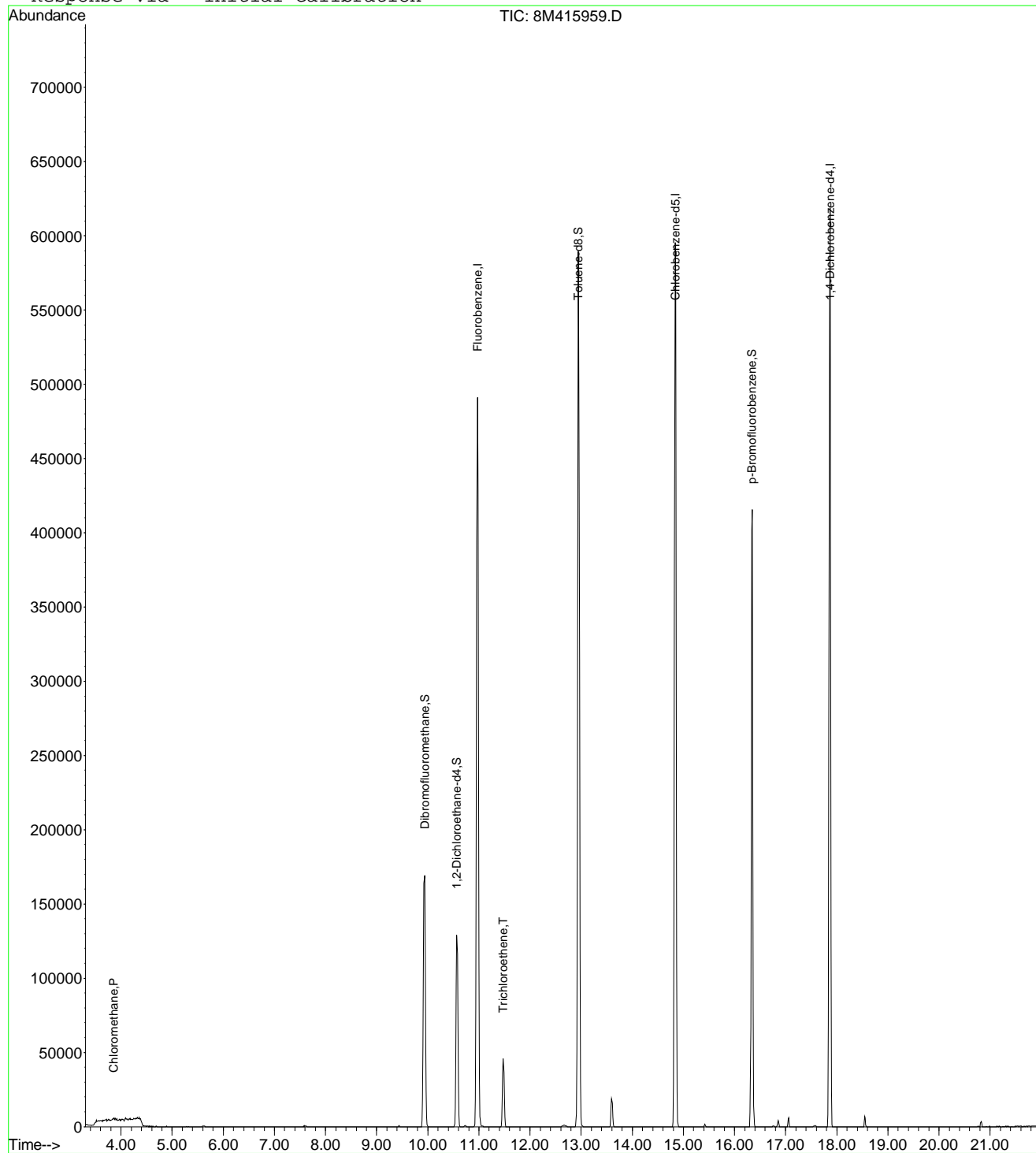
Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)

Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8

Last Update : Mon Oct 31 10:01:52 2016

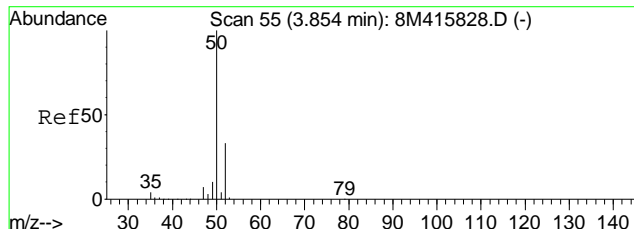
Response via : Initial Calibration



8M415959.D 8260WTR.M

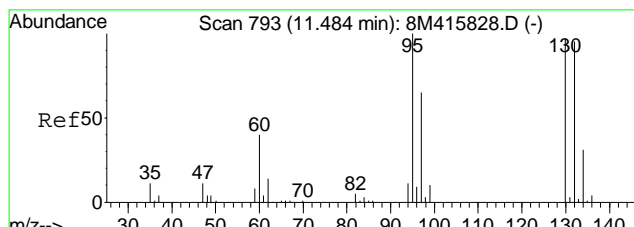
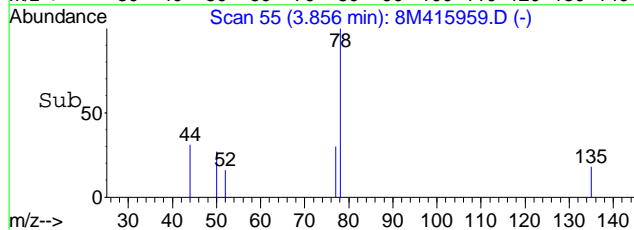
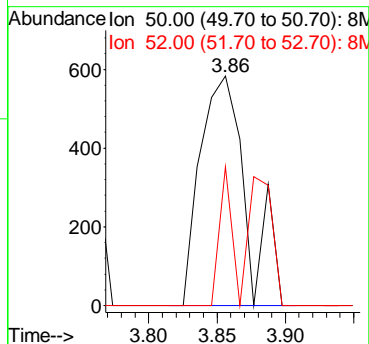
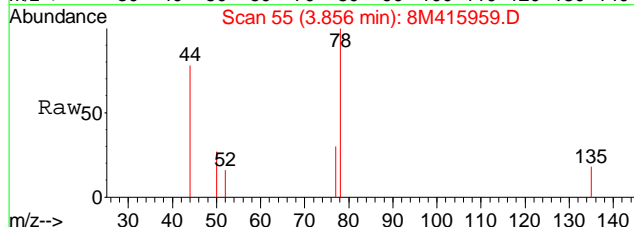
Mon Nov 07 09:53:07 2016

Page 2



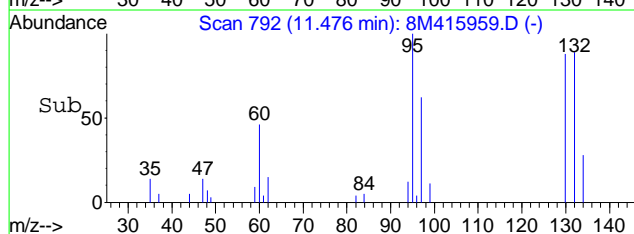
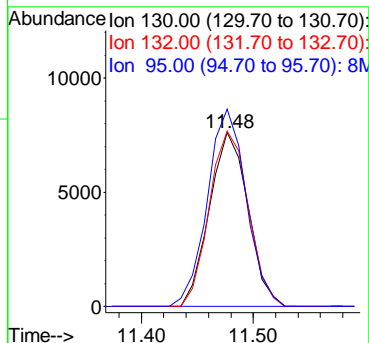
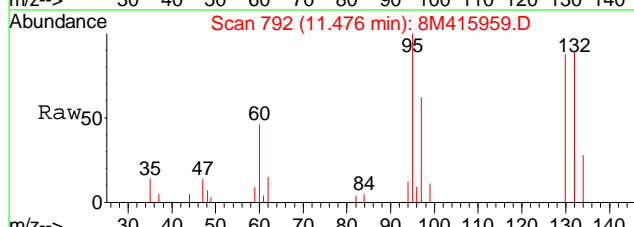
#3
 Chloromethane
 Concen: 0.17 ug/L
 RT: 3.86 min Scan# 55
 Delta R.T. 0.00 min
 Lab File: 8M415959.D
 Acq: 4 Nov 2016 20:51

Tgt Ion	Resp	Lower	Upper
50	1362		
52	16.0	19.7	46.1#



#47
 Trichloroethene
 Concen: 2.72 ug/L
 RT: 11.48 min Scan# 792
 Delta R.T. -0.01 min
 Lab File: 8M415959.D
 Acq: 4 Nov 2016 20:51

Tgt Ion	Resp	Lower	Upper
130	18288		
132	101.7	58.1	135.5
95	114.0	62.7	146.3



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415960.D Vial: 17
 Acq On : 4 Nov 2016 21:19 Operator: ADC
 Sample : L16110144-07 A 826-LOW Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:53:10 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

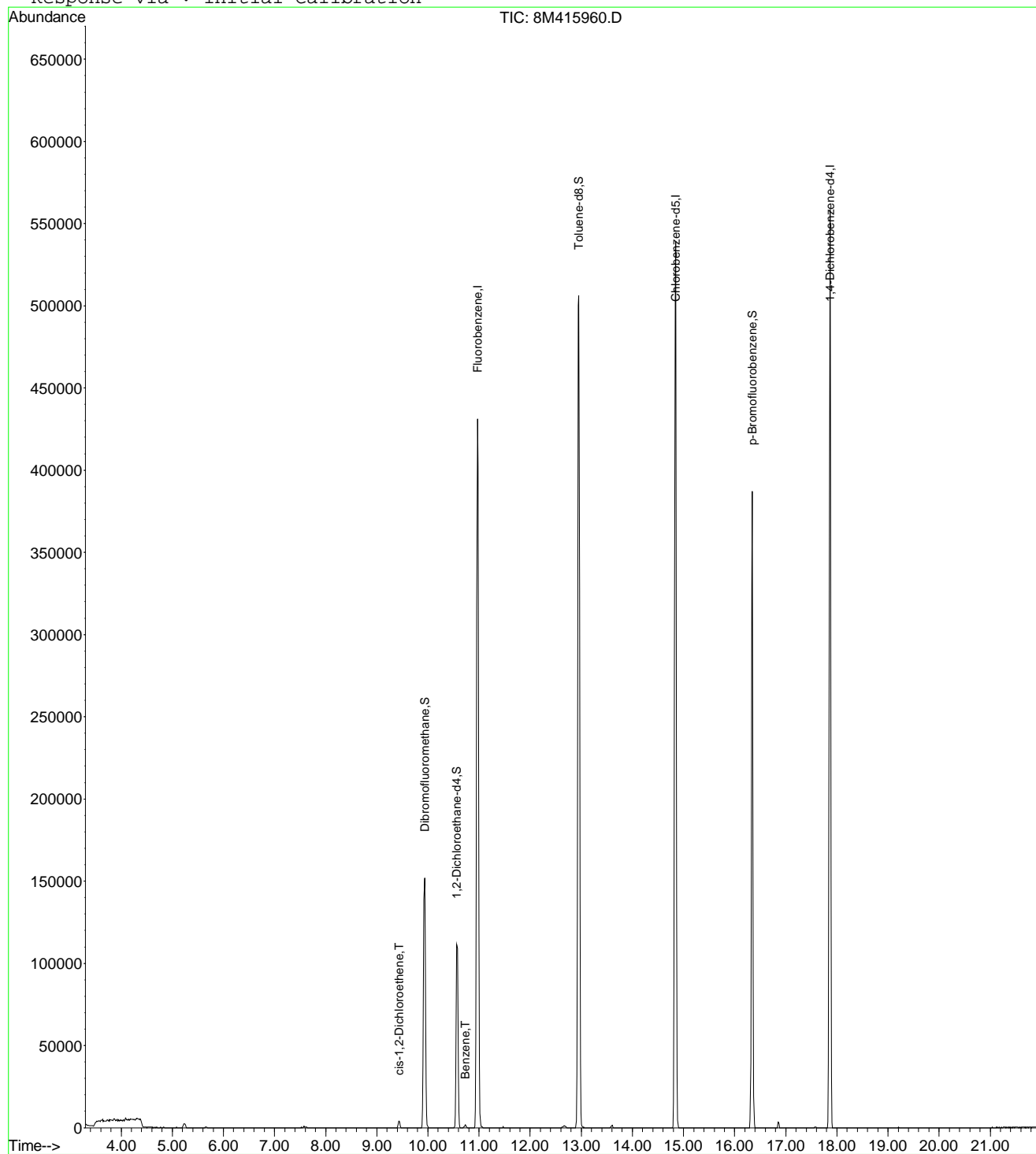
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.97	96	554718	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.85	117	409371	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	176575	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.93	111	128611	24.2001	ug/L	0.00
Spiked Amount	25.000	Range	86 - 118	Recovery	=	96.80%
43) 1,2-Dichloroethane-d4	10.56	65	103853	22.7760	ug/L	0.00
Spiked Amount	25.000	Range	80 - 120	Recovery	=	91.12%
58) Toluene-d8	12.95	98	492411	23.9837	ug/L	0.00
Spiked Amount	25.000	Range	88 - 110	Recovery	=	95.92%
80) p-Bromofluorobenzene	16.34	95	175453	24.3615	ug/L	0.00
Spiked Amount	25.000	Range	86 - 115	Recovery	=	97.44%
Target Compounds						
32) cis-1,2-Dichloroethene	9.44	96	3111	0.4985	ug/L	Qvalue 80
46) Benzene	10.73	78	3513	0.1565	ug/L	# 66

(#) = qualifier out of range (m) = manual integration
 8M415960.D 8260WTR.M Mon Nov 07 09:53:13 2016

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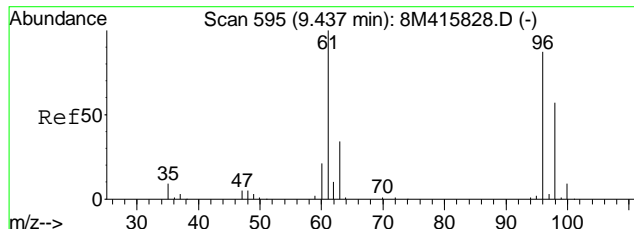
Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415960.D Vial: 17
Acq On : 4 Nov 2016 21:19 Operator: ADC
Sample : L16110144-07 A 826-LOW Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 7 9:53 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



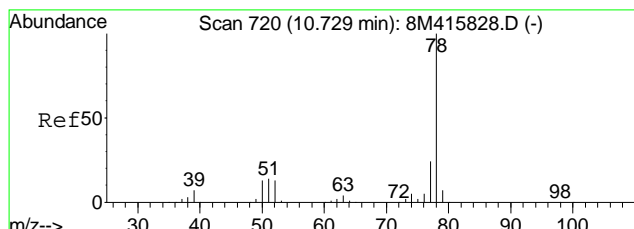
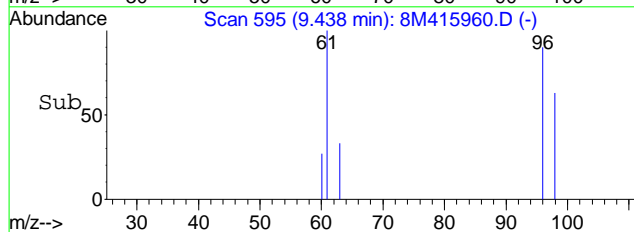
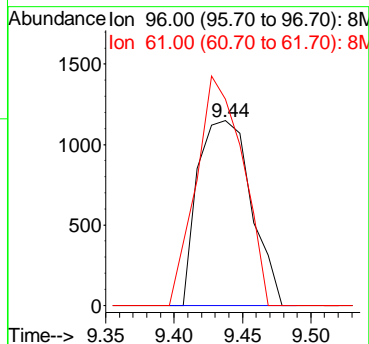
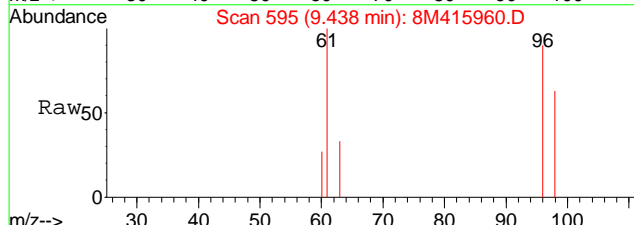
8M415960.D 8260WTR.M Mon Nov 07 09:53:14 2016

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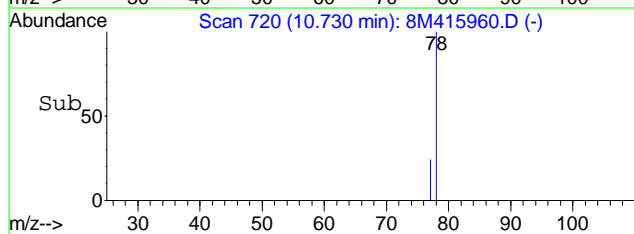
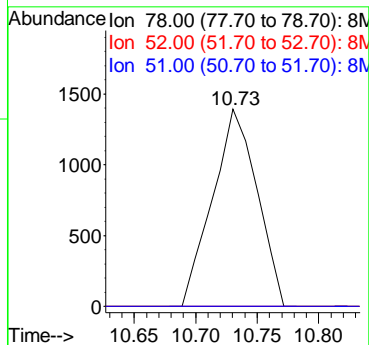
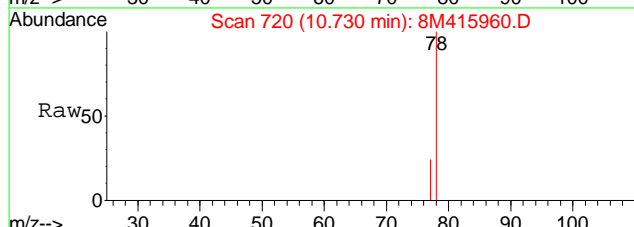
#32
 cis-1,2-Dichloroethene
 Concen: 0.50 ug/L
 RT: 9.44 min Scan# 595
 Delta R.T. 0.00 min
 Lab File: 8M415960.D
 Acq: 4 Nov 2016 21:19

Tgt Ion	Resp	Lower	Upper
96	3111		
96	100		
61	108.5	79.4	185.2



#46
 Benzene
 Concen: 0.16 ug/L
 RT: 10.73 min Scan# 720
 Delta R.T. 0.00 min
 Lab File: 8M415960.D
 Acq: 4 Nov 2016 21:19

Tgt Ion	Resp	Lower	Upper
78	3513		
78	100		
52	0.0	7.5	17.5#
51	0.0	9.2	21.4#



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415961.D Vial: 18
 Acq On : 4 Nov 2016 21:49 Operator: ADC
 Sample : L16110144-08 A 826-LOW Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:53:17 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

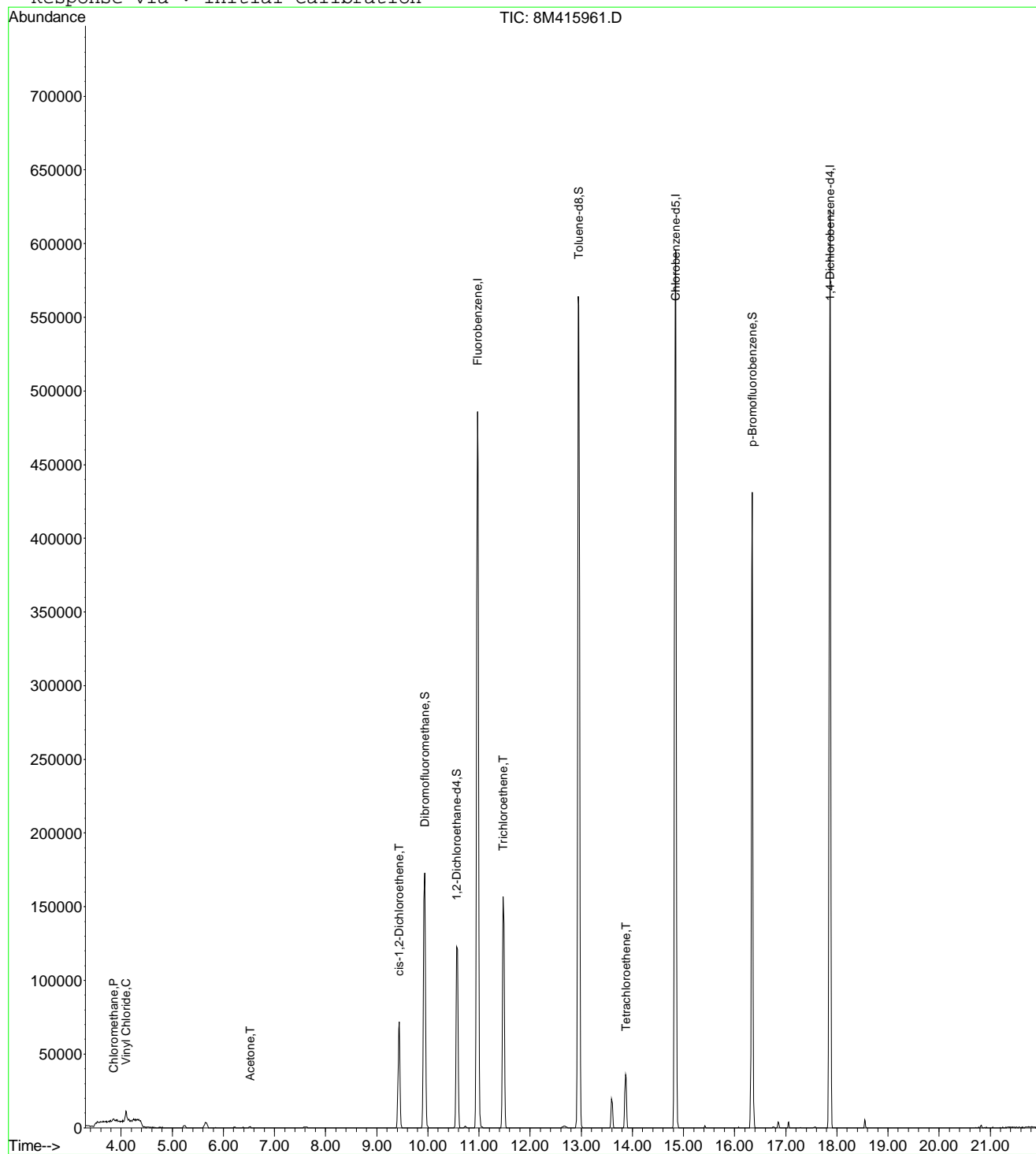
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.97	96	625361	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.85	117	456949	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	193274	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.93	111	144555	24.1276	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	96.52%	
43) 1,2-Dichloroethane-d4	10.56	65	117165	22.7928	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	91.16%	
58) Toluene-d8	12.95	98	547561	23.8929	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	95.56%	
80) p-Bromofluorobenzene	16.34	95	195483	24.7975	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	99.20%	
Target Compounds						
						Qvalue
3) Chloromethane	3.85	50	3406	0.4220	ug/L	86
4) Vinyl Chloride	4.09	62	10106	1.1848	ug/L	99
13) Acetone	6.52	43	1417	2.7404	ug/L #	44
32) cis-1,2-Dichloroethene	9.44	96	46657	6.6315	ug/L	84
47) Trichloroethene	11.47	130	63814	9.5203	ug/L	98
66) Tetrachloroethene	13.87	164	10410	1.8895	ug/L	93

(#) = qualifier out of range (m) = manual integration
 8M415961.D 8260WTR.M Mon Nov 07 09:53:20 2016

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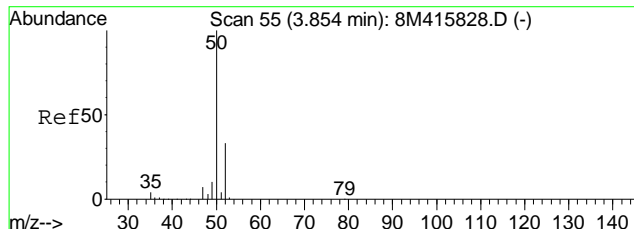
Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415961.D Vial: 18
Acq On : 4 Nov 2016 21:49 Operator: ADC
Sample : L16110144-08 A 826-LOW Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 7 9:53 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



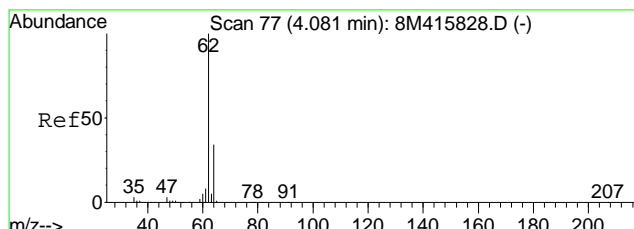
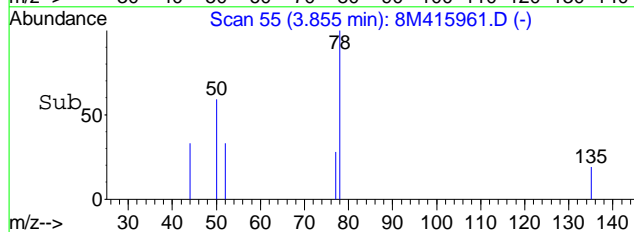
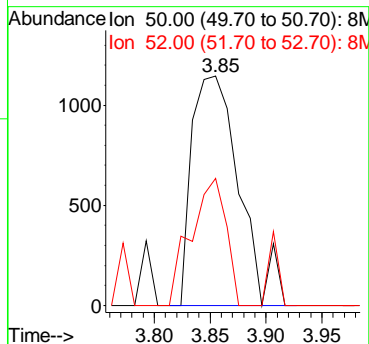
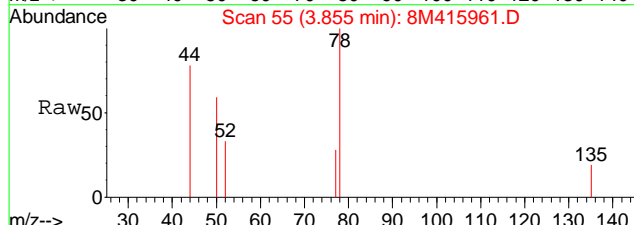
8M415961.D 8260WTR.M Mon Nov 07 09:53:21 2016

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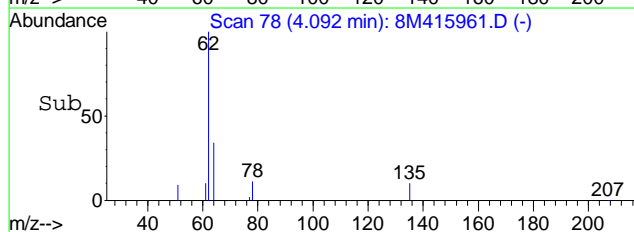
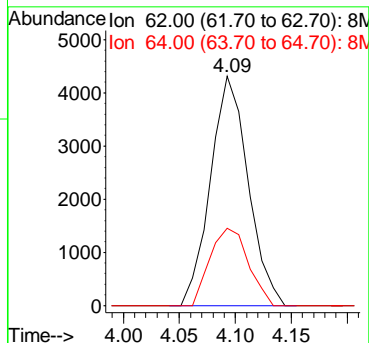
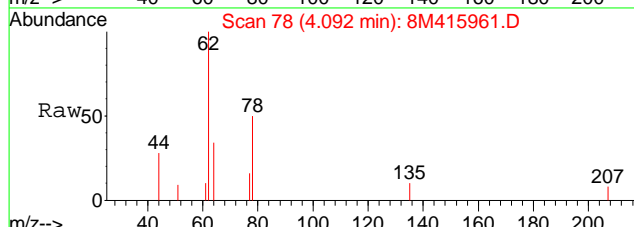
#3
 Chloromethane
 Concen: 0.42 ug/L
 RT: 3.85 min Scan# 55
 Delta R.T. 0.00 min
 Lab File: 8M415961.D
 Acq: 4 Nov 2016 21:49

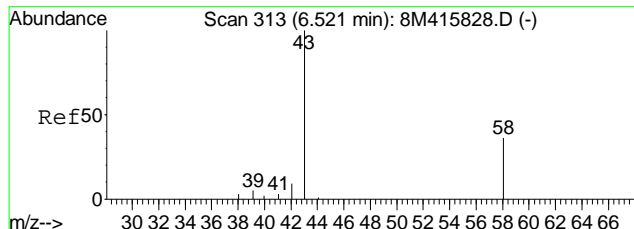
Tgt Ion: 50 Resp: 3406
 Ion Ratio Lower Upper
 50 100
 52 40.9 19.7 46.1



#4
 Vinyl Chloride
 Concen: 1.18 ug/L
 RT: 4.09 min Scan# 78
 Delta R.T. 0.01 min
 Lab File: 8M415961.D
 Acq: 4 Nov 2016 21:49

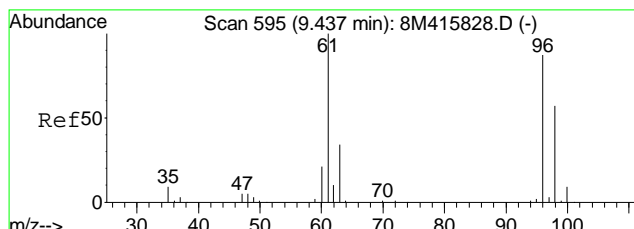
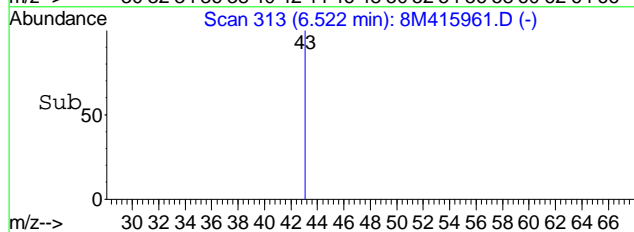
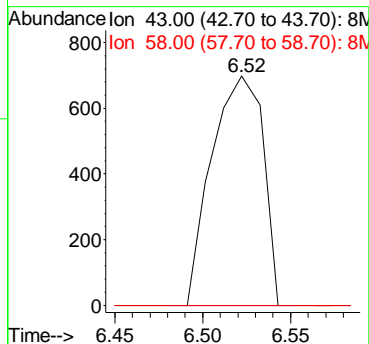
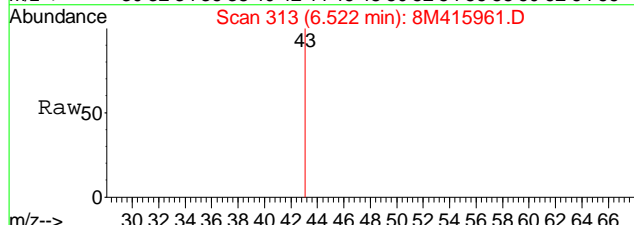
Tgt Ion: 62 Resp: 10106
 Ion Ratio Lower Upper
 62 100
 64 34.2 20.2 47.0





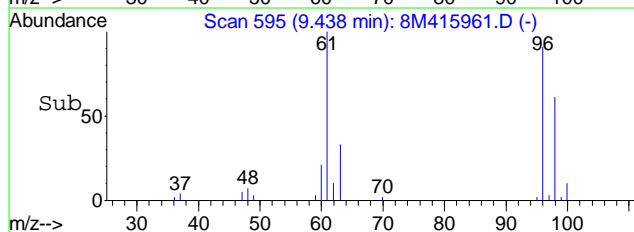
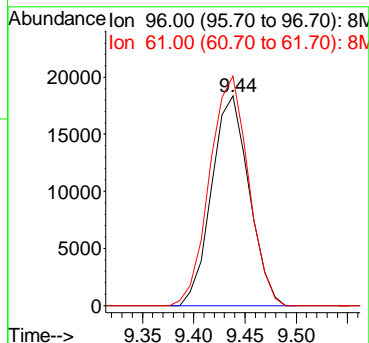
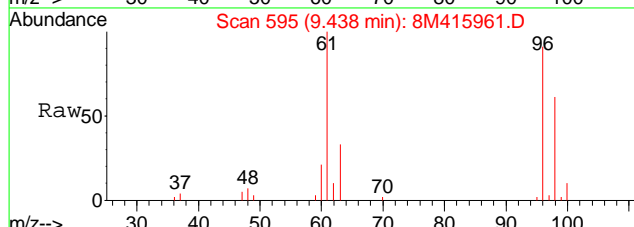
#13
 Acetone
 Concen: 2.74 ug/L
 RT: 6.52 min Scan# 313
 Delta R.T. 0.00 min
 Lab File: 8M415961.D
 Acq: 4 Nov 2016 21:49

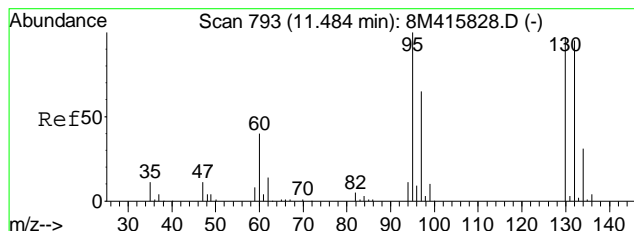
Tgt Ion	Resp	Lower	Upper
43	1417		
43	100		
58	0.0	18.1	42.3#



#32
 cis-1,2-Dichloroethene
 Concen: 6.63 ug/L
 RT: 9.44 min Scan# 595
 Delta R.T. 0.00 min
 Lab File: 8M415961.D
 Acq: 4 Nov 2016 21:49

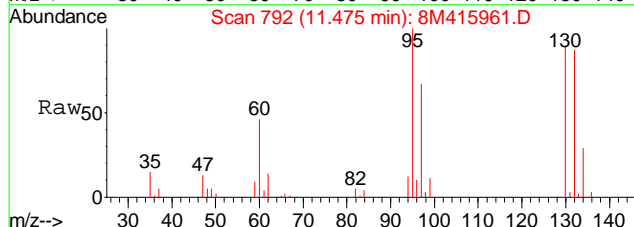
Tgt Ion	Resp	Lower	Upper
96	46657		
96	100		
61	113.0	79.4	185.2



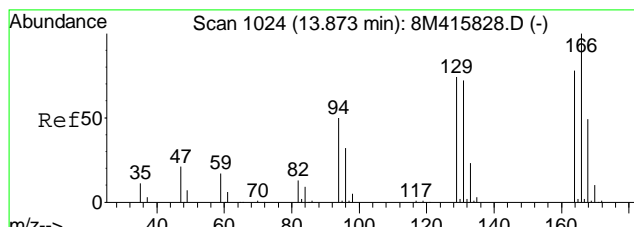
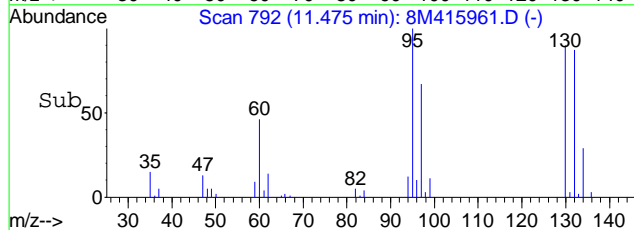
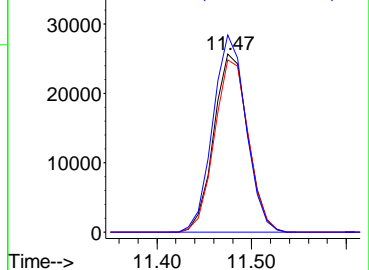


#47
 Trichloroethene
 Concen: 9.52 ug/L
 RT: 11.47 min Scan# 792
 Delta R.T. -0.01 min
 Lab File: 8M415961.D
 Acq: 4 Nov 2016 21:49

Tgt Ion	Resp	Lower	Upper
130	63814		
130	100		
132	96.7	58.1	135.5
95	108.2	62.7	146.3

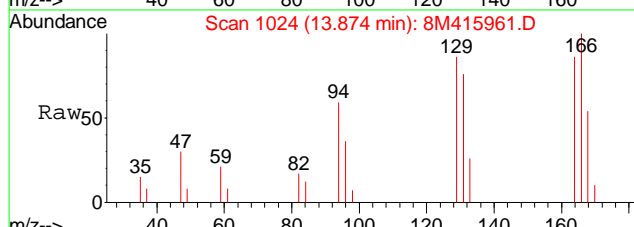


Abundance Ion 130.00 (129.70 to 130.70):
 Ion 132.00 (131.70 to 132.70):
 Ion 95.00 (94.70 to 95.70): 8N

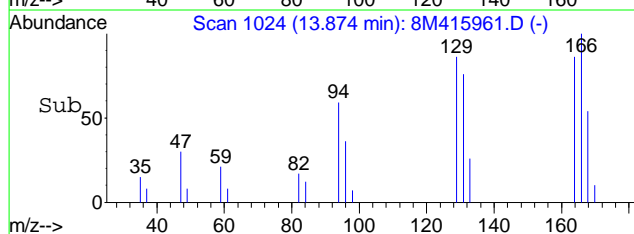
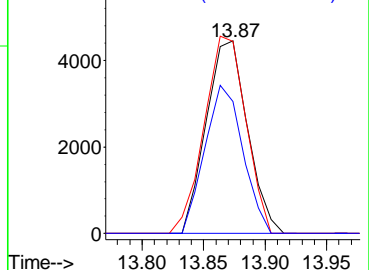


#66
 Tetrachloroethene
 Concen: 1.89 ug/L
 RT: 13.87 min Scan# 1024
 Delta R.T. 0.00 min
 Lab File: 8M415961.D
 Acq: 4 Nov 2016 21:49

Tgt Ion	Resp	Lower	Upper
164	10410		
164	100		
129	103.0	57.2	133.4
94	70.7	39.3	91.7



Abundance Ion 164.00 (163.70 to 164.70):
 Ion 129.00 (128.70 to 129.70):
 Ion 94.00 (93.70 to 94.70): 8N



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415962.D Vial: 19
 Acq On : 4 Nov 2016 22:17 Operator: ADC
 Sample : L16110144-09 A 826-LOW Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:53:25 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

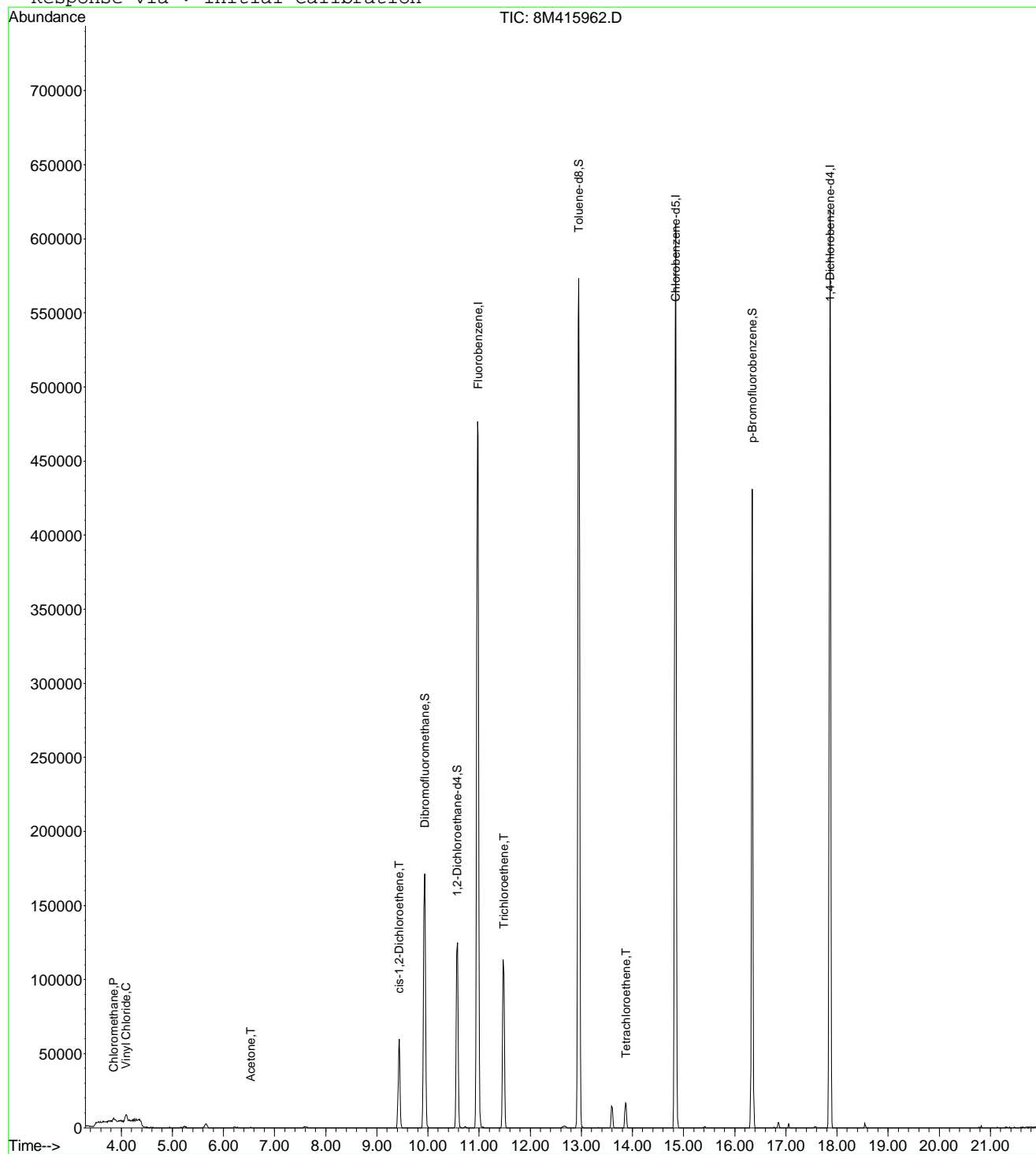
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	620006	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	452453	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	196558	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.93	111	144348	24.3011	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	97.20%	
43) 1,2-Dichloroethane-d4	10.57	65	113841	22.3374	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	89.36%	
58) Toluene-d8	12.95	98	546392	24.0788	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	96.32%	
80) p-Bromofluorobenzene	16.34	95	193592	24.1473	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	96.60%	
Target Compounds						
						Qvalue
3) Chloromethane	3.85	50	3524	0.4404	ug/L	# 76
4) Vinyl Chloride	4.09	62	7837	0.9267	ug/L	98
13) Acetone	6.53	43	589	1.1489	ug/L	# 44
32) cis-1,2-Dichloroethene	9.44	96	37452	5.3691	ug/L	84
47) Trichloroethene	11.48	130	47156	7.0959	ug/L	97
66) Tetrachloroethene	13.87	164	5005	0.9175	ug/L	91

(#) = qualifier out of range (m) = manual integration
 8M415962.D 8260WTR.M Mon Nov 07 09:53:28 2016

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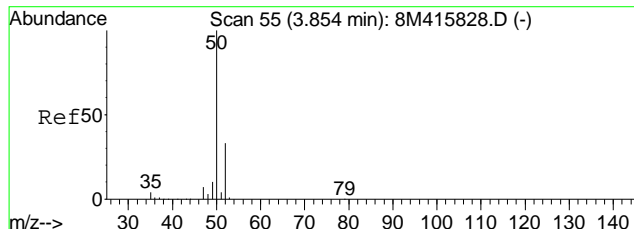
Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415962.D Vial: 19
Acq On : 4 Nov 2016 22:17 Operator: ADC
Sample : L16110144-09 A 826-LOW Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 7 9:53 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



8M415962.D 8260WTR.M Mon Nov 07 09:53:29 2016

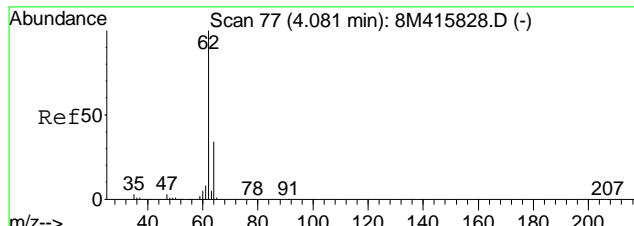
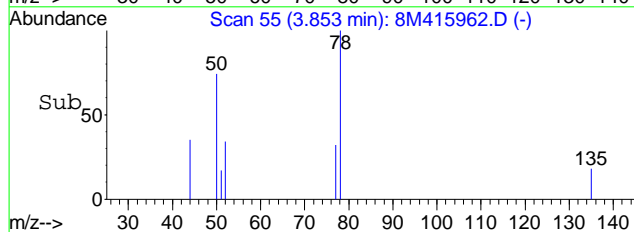
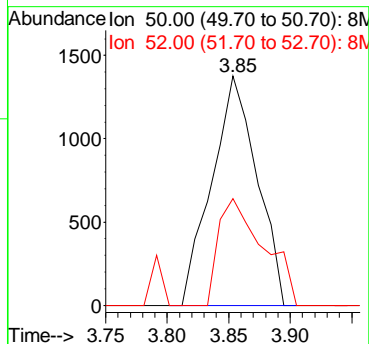
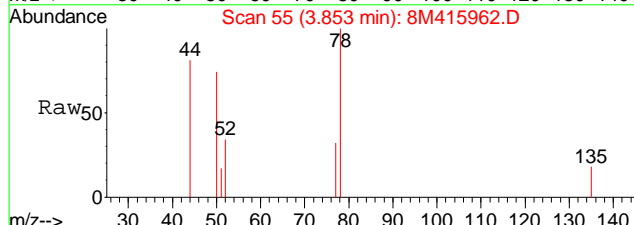
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#3
 Chloromethane
 Concen: 0.44 ug/L
 RT: 3.85 min Scan# 55
 Delta R.T. -0.00 min
 Lab File: 8M415962.D
 Acq: 4 Nov 2016 22:17

Tgt Ion: 50 Resp: 3524

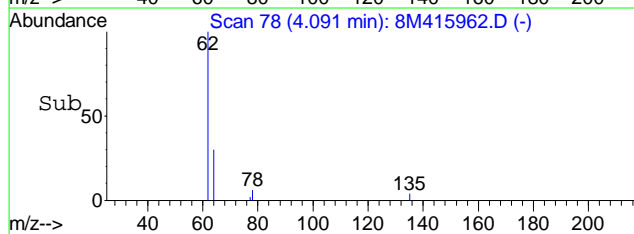
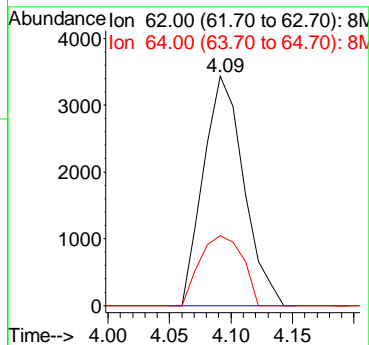
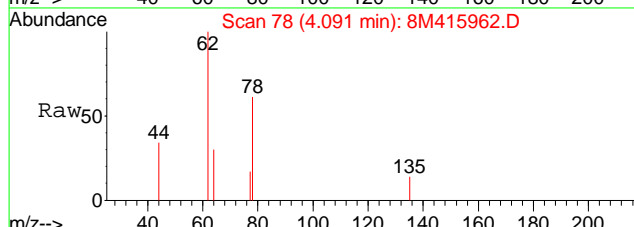
Ion	Ratio	Lower	Upper
50	100		
52	46.6	19.7	46.1#

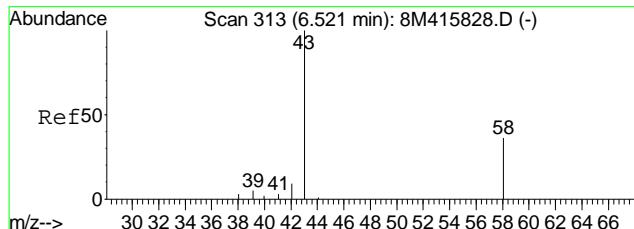


#4
 Vinyl Chloride
 Concen: 0.93 ug/L
 RT: 4.09 min Scan# 78
 Delta R.T. 0.01 min
 Lab File: 8M415962.D
 Acq: 4 Nov 2016 22:17

Tgt Ion: 62 Resp: 7837

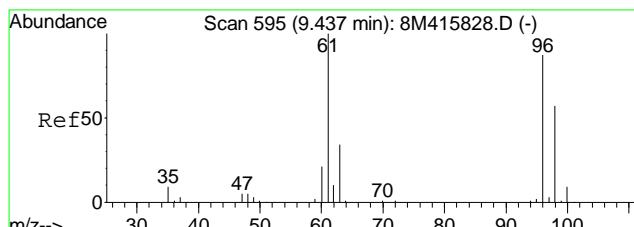
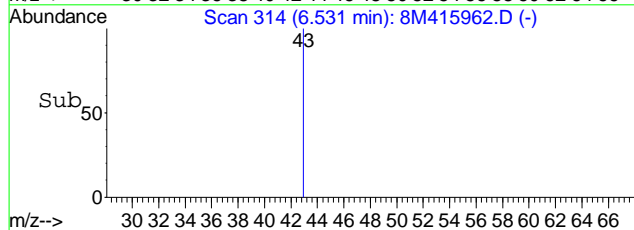
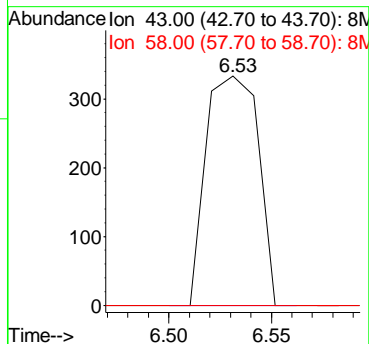
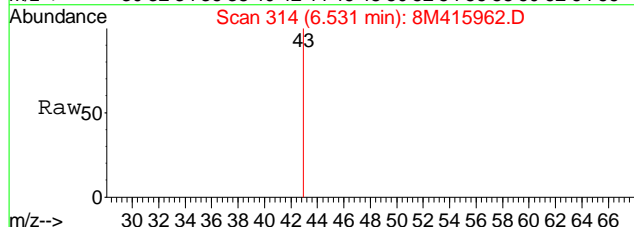
Ion	Ratio	Lower	Upper
62	100		
64	32.2	20.2	47.0





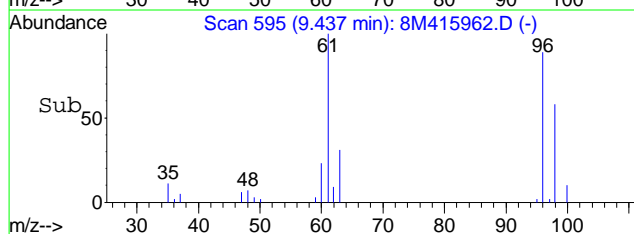
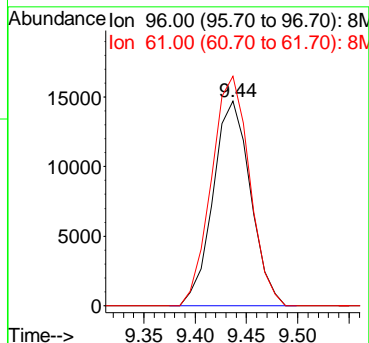
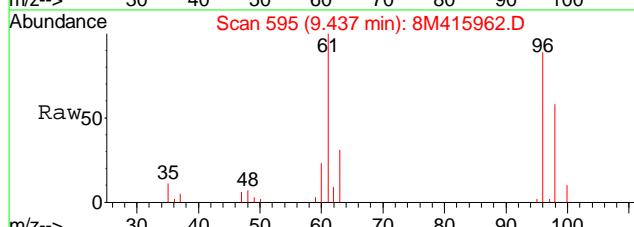
#13
 Acetone
 Concen: 1.15 ug/L
 RT: 6.53 min Scan# 314
 Delta R.T. 0.01 min
 Lab File: 8M415962.D
 Acq: 4 Nov 2016 22:17

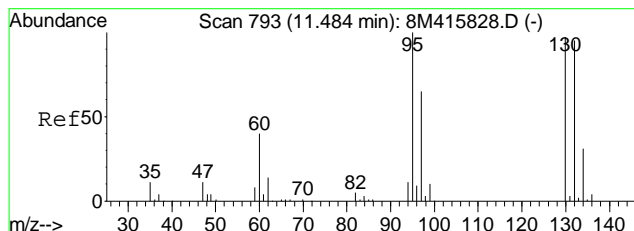
Tgt Ion	Ratio	Lower	Upper
43	100		
58	0.0	18.1	42.3#



#32
 cis-1,2-Dichloroethene
 Concen: 5.37 ug/L
 RT: 9.44 min Scan# 595
 Delta R.T. -0.00 min
 Lab File: 8M415962.D
 Acq: 4 Nov 2016 22:17

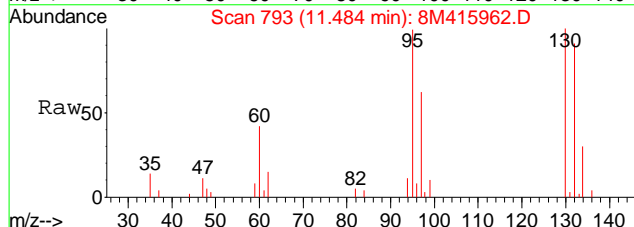
Tgt Ion	Ratio	Lower	Upper
96	100		
61	114.0	79.4	185.2



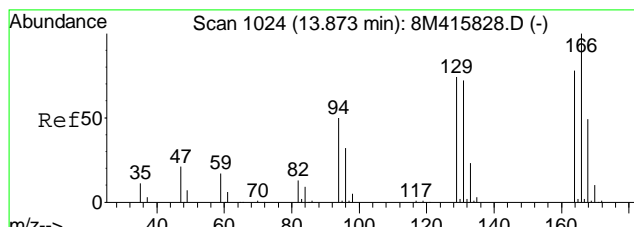
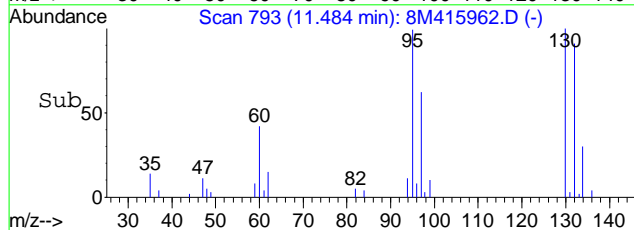
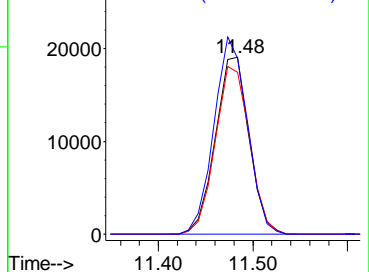


#47
 Trichloroethene
 Concen: 7.10 ug/L
 RT: 11.48 min Scan# 793
 Delta R.T. -0.00 min
 Lab File: 8M415962.D
 Acq: 4 Nov 2016 22:17

Tgt Ion	Resp	Lower	Upper
130	100		
132	96.0	58.1	135.5
95	109.7	62.7	146.3

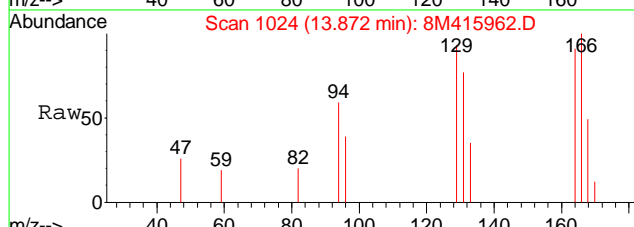


Abundance Ion 130.00 (129.70 to 130.70):
 Ion 132.00 (131.70 to 132.70):
 Ion 95.00 (94.70 to 95.70): 8N

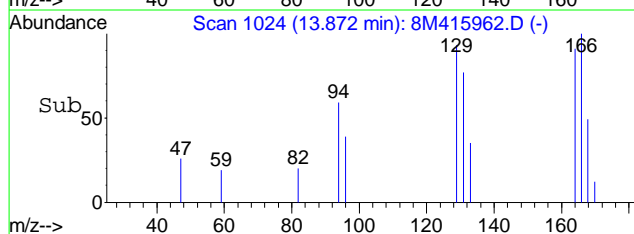
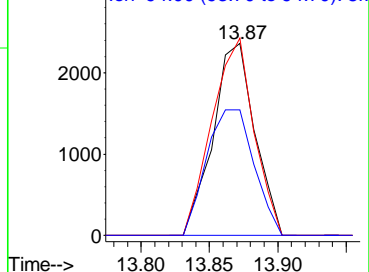


#66
 Tetrachloroethene
 Concen: 0.92 ug/L
 RT: 13.87 min Scan# 1024
 Delta R.T. -0.00 min
 Lab File: 8M415962.D
 Acq: 4 Nov 2016 22:17

Tgt Ion	Resp	Lower	Upper
164	100		
129	103.1	57.2	133.4
94	74.6	39.3	91.7



Abundance Ion 164.00 (163.70 to 164.70):
 Ion 129.00 (128.70 to 129.70):
 Ion 94.00 (93.70 to 94.70): 8N



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415957.D Vial: 14
 Acq On : 4 Nov 2016 19:52 Operator: ADC
 Sample : L16110144-10 A TB 826-LOW Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:52:50 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

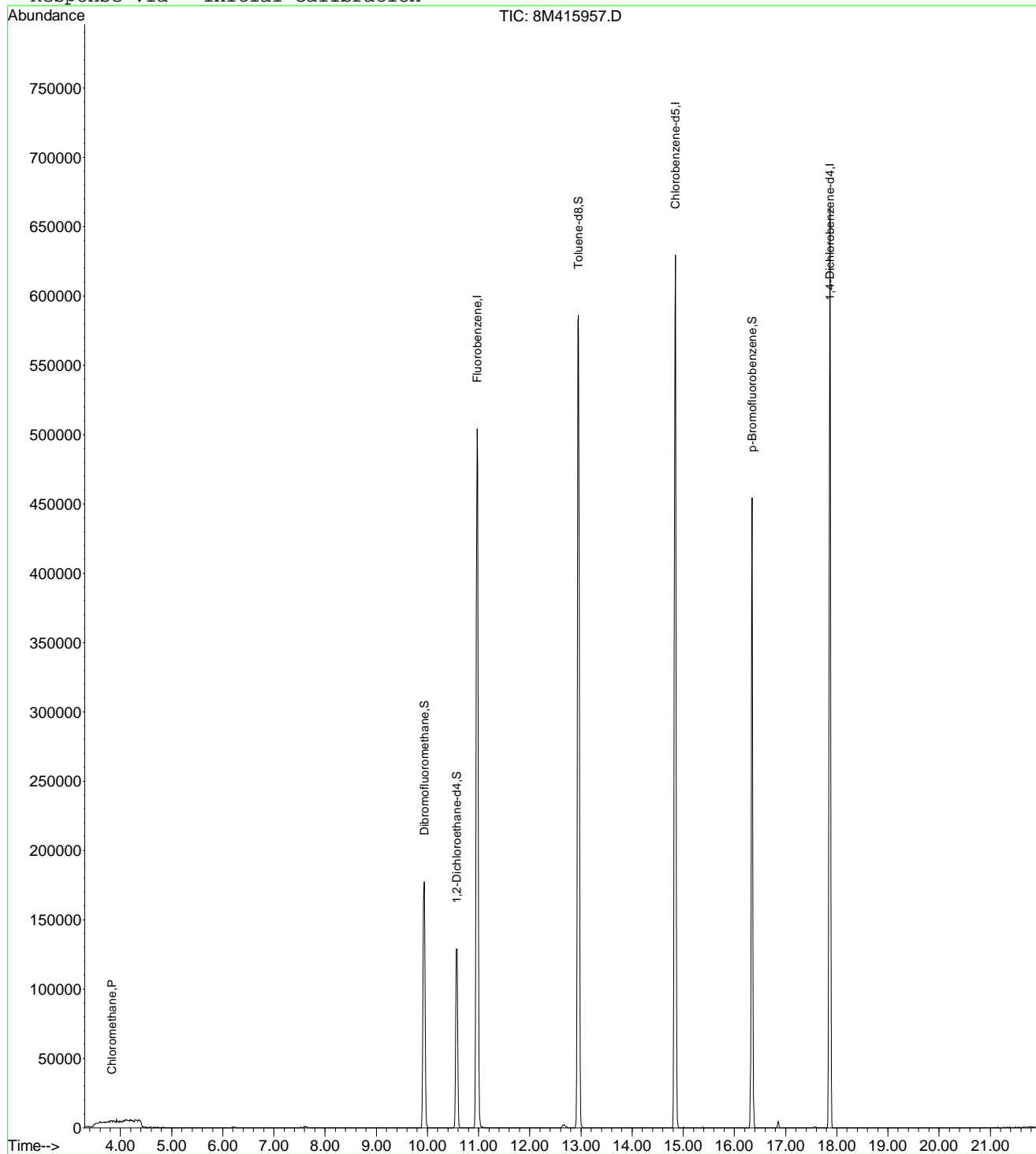
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.97	96	657679	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.85	117	477826	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	208642	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.93	111	151365	24.0227	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	96.08%	
43) 1,2-Dichloroethane-d4	10.58	65	121687	22.5092	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	90.04%	
58) Toluene-d8	12.95	98	575004	23.9942	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	95.96%	
80) p-Bromofluorobenzene	16.34	95	205780	24.1810	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	96.72%	
Target Compounds						
3) Chloromethane	3.83	50	1025	0.1208	ug/L	Qvalue 86
36) Tetrahydrofuran	9.89	42	461	Below Cal	#	23

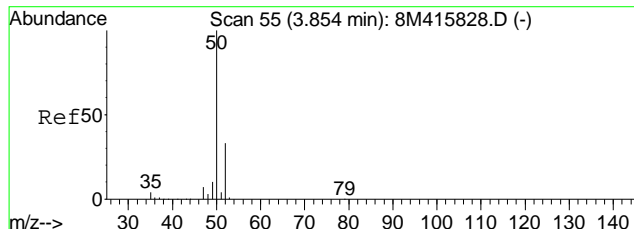
(#) = qualifier out of range (m) = manual integration
 8M415957.D 8260WTR.M Mon Nov 07 09:52:53 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415957.D Vial: 14
 Acq On : 4 Nov 2016 19:52 Operator: ADC
 Sample : L16110144-10 A TB 826-LOW Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 7 9:52 2016 Quant Results File: 8260WTR.RES

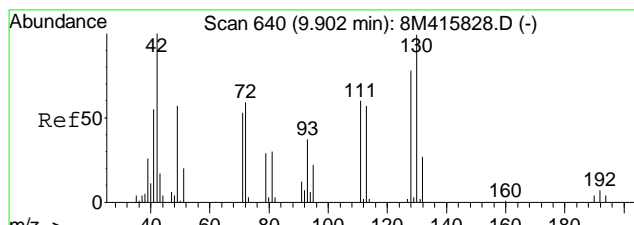
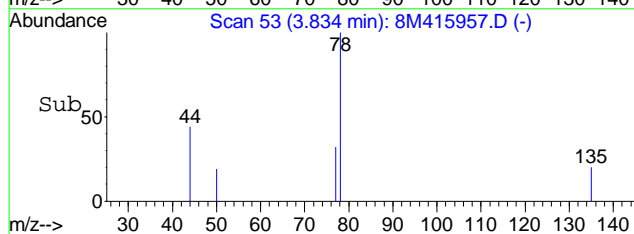
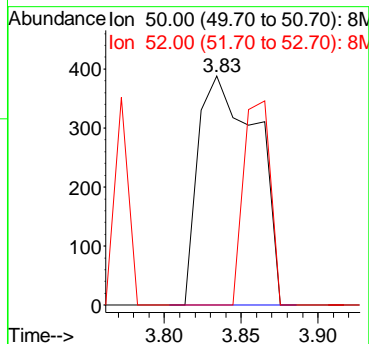
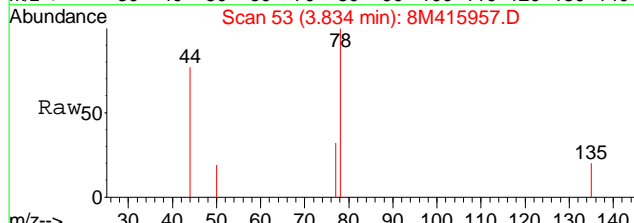
Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration





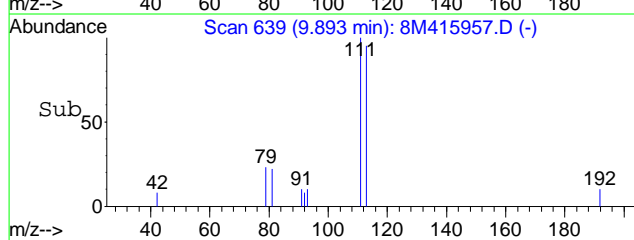
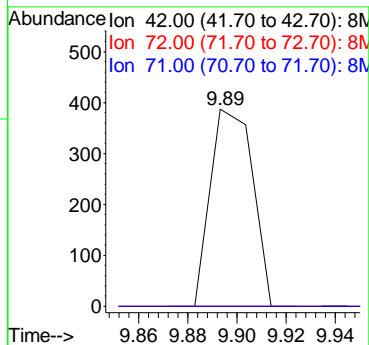
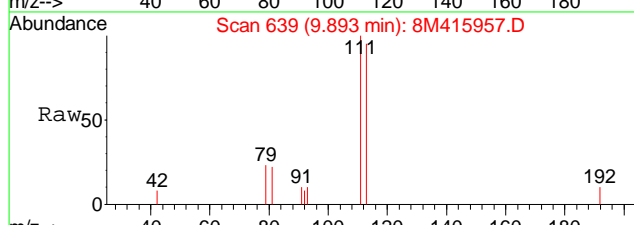
#3
 Chloromethane
 Concen: 0.12 ug/L
 RT: 3.83 min Scan# 53
 Delta R.T. -0.02 min
 Lab File: 8M415957.D
 Acq: 4 Nov 2016 19:52

Tgt Ion	Resp	Lower	Upper
50	1025		
50	100		
52	41.0	19.7	46.1



#36
 Tetrahydrofuran
 Concen: Below Cal
 RT: 9.89 min Scan# 639
 Delta R.T. -0.01 min
 Lab File: 8M415957.D
 Acq: 4 Nov 2016 19:52

Tgt Ion	Resp	Lower	Upper
42	461		
42	100		
72	0.0	34.9	81.3#
71	0.0	31.9	74.5#



2.1.1.4 Standards Data

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412321.D Vial: 3
 Acq On : 17 May 2016 9:47 Operator: TMB
 Sample : WG569079-01 100ug/L A9 CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:01:21 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	709364	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.57	117	505399	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	272922	25.00	ug/L	0.00

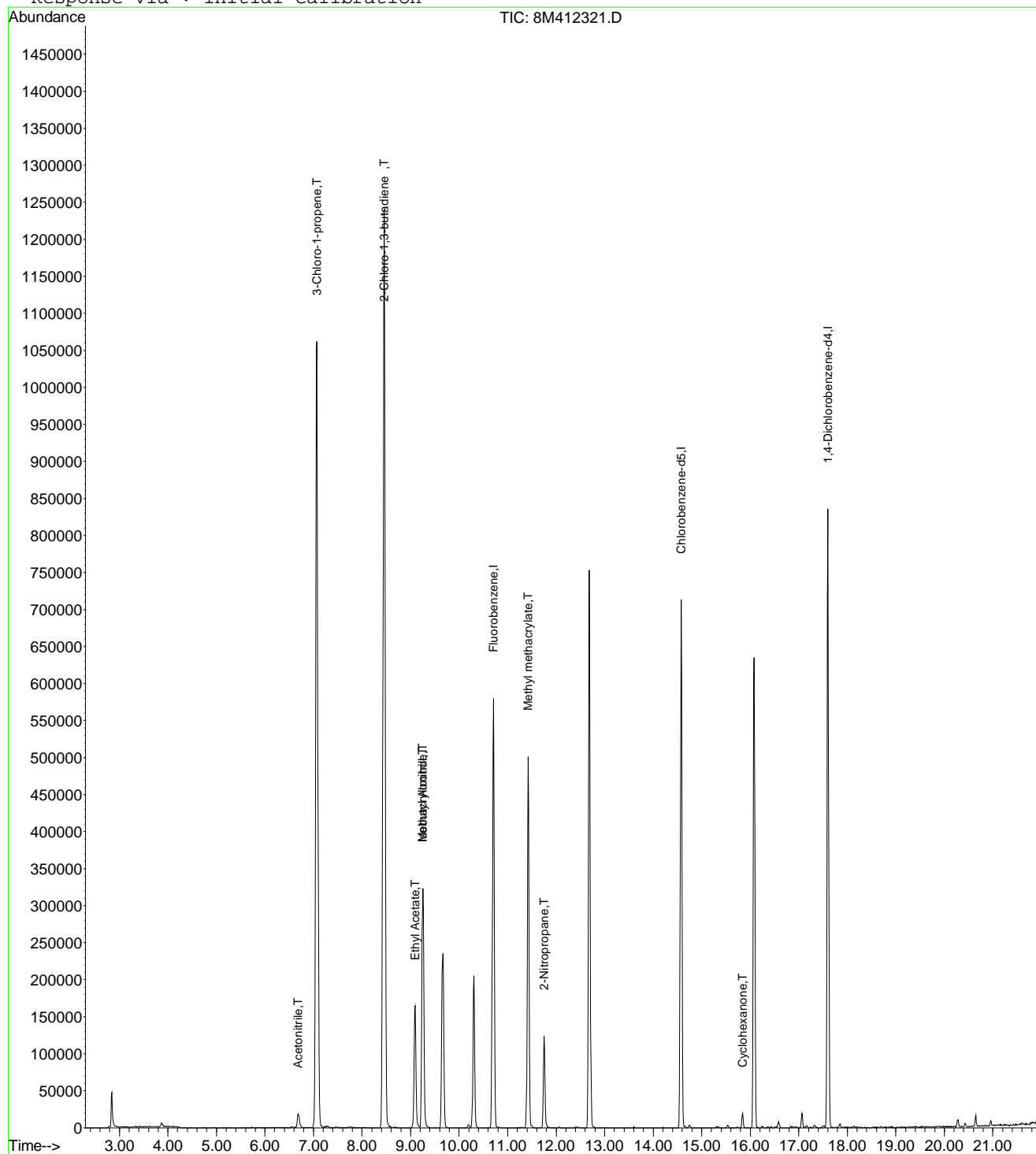
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.69	41	27428	100.2132	ug/L	99
3) 3-Chloro-1-propene	7.07	41	940418	104.3259	ug/L	82
4) 2-Chloro-1,3-butadiene	8.45	53	1188994	104.3183	ug/L	86
5) Ethyl Acetate	9.10	43	283167	104.3264	ug/L	95
6) Methacrylonitrile	9.25	67	155775	104.5365	ug/L #	63
7) Isobutyl Alcohol	9.25	43	17893	197.3629	ug/L #	96
9) Methyl methacrylate	11.42	41	298802	102.0346	ug/L	70
10) 2-Nitropropane	11.75	43	121321	95.8263	ug/L	97
13) Cyclohexanone	15.84	55	11401	102.1363	ug/L #	70

 (#) = qualifier out of range (m) = manual integration
 8M412321.D A9FOOWT.M Thu May 19 09:01:22 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412321.D Vial: 3
Acq On : 17 May 2016 9:47 Operator: TMB
Sample : WG569079-01 100ug/L A9 CCV STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:00 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412321.D A9FOOWT.M Thu May 19 09:01:22 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412321.D Vial: 3
 Acq On : 17 May 2016 9:47 Operator: TMB
 Sample : WG569079-01 100ug/L A9 CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 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	100	0.00
2 T	Acetonitrile	100.0000	100.2132	-0.2	100	0.00
3 T	3-Chloro-1-propene	100.0000	104.3259	-4.3	100	0.00
4 T	2-Chloro-1,3-butadiene	100.0000	104.3183	-4.3	100	0.00
5 T	Ethyl Acetate	100.0000	104.3264	-4.3	100	0.00
6 T	Methacrylonitrile	100.0000	104.5365	-4.5	100	0.00
7 T	Isobutyl Alcohol	200.0000	197.3629	1.3	100	-0.01
8 T	1-Butanol	-1.0000	0.0000	0.0	0	0.02
9 T	Methyl methacrylate	100.0000	102.0346	-2.0	100	0.00
10 T	2-Nitropropane	100.0000	95.8263	4.2	100	0.00
11 I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
12 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
13 T	Cyclohexanone	100.0000	102.1363	-2.1	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M412321.D A9FOOWT.M Thu May 19 09:02:48 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412322.D Vial: 4
 Acq On : 17 May 2016 10:16 Operator: TMB
 Sample : WG569079-03 50ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:20:35 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	677339	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.57	117	488377	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	260939	25.00	ug/L	0.00

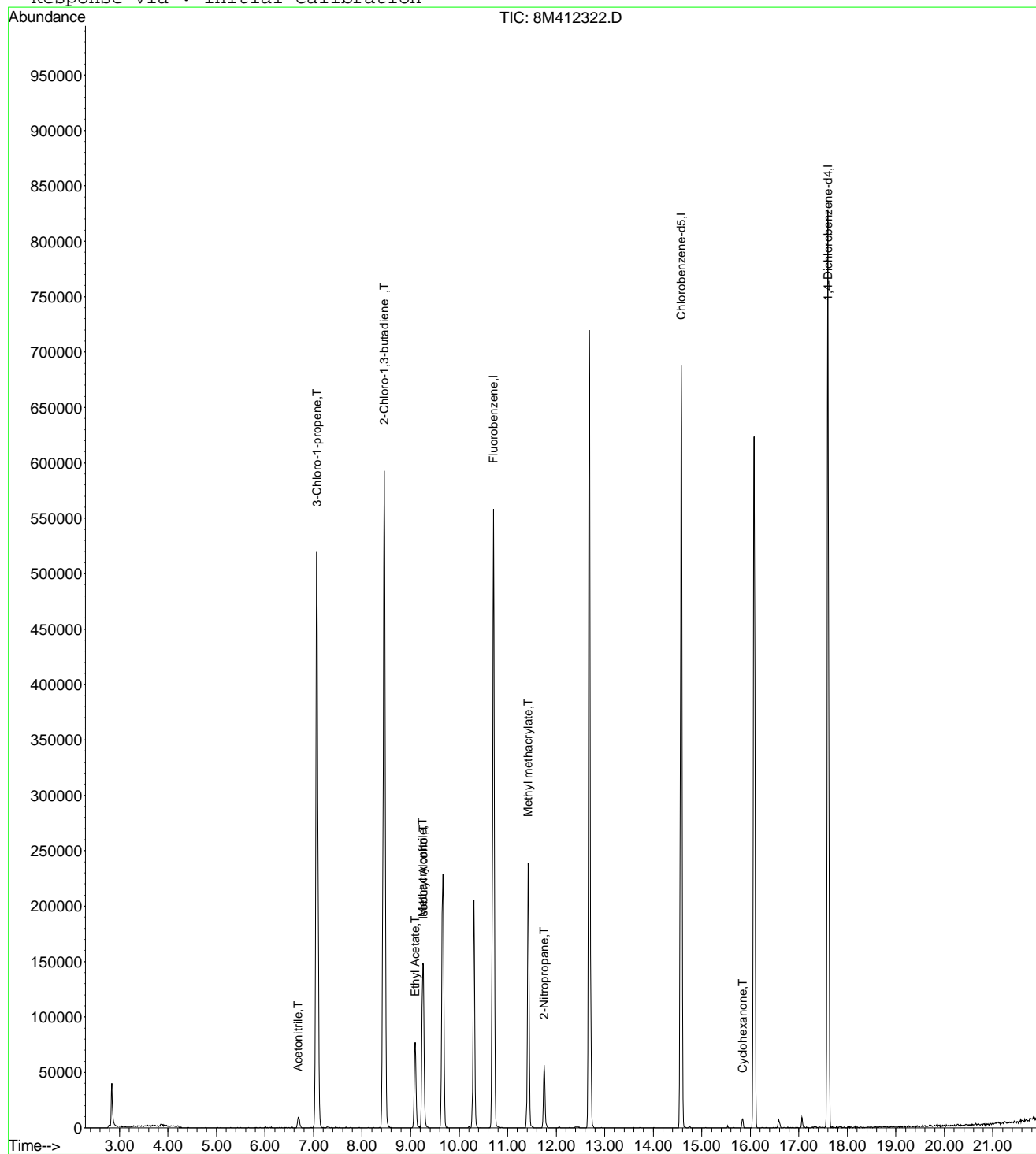
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.69	41	13323	50.9795	ug/L	98
3) 3-Chloro-1-propene	7.07	41	453655	52.7060	ug/L	83
4) 2-Chloro-1,3-butadiene	8.45	53	568765	52.2609	ug/L	87
5) Ethyl Acetate	9.09	43	131636	50.7913	ug/L	97
6) Methacrylonitrile	9.25	67	74064	52.0523	ug/L #	62
7) Isobutyl Alcohol	9.26	43	8483	97.9930	ug/L	95
9) Methyl methacrylate	11.42	41	143892	51.4593	ug/L	70
10) 2-Nitropropane	11.75	43	56559	46.7858	ug/L	95
13) Cyclohexanone	15.84	55	5225	48.9579	ug/L	83

 (#) = qualifier out of range (m) = manual integration
 8M412322.D A9FOOWT.M Thu May 19 09:20:36 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412322.D Vial: 4
Acq On : 17 May 2016 10:16 Operator: TMB
Sample : WG569079-03 50ug/L A9/FOO STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:19 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412322.D A9FOOWT.M Thu May 19 09:20:36 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412322.D Vial: 4
 Acq On : 17 May 2016 10:16 Operator: TMB
 Sample : WG569079-03 50ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 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	100	0.00
2 T	Acetonitrile	50.0000	50.9795	-2.0	100	0.00
3 T	3-Chloro-1-propene	50.0000	52.7060	-5.4	100	0.00
4 T	2-Chloro-1,3-butadiene	50.0000	52.2609	-4.5	100	0.00
5 T	Ethyl Acetate	50.0000	50.7913	-1.6	100	0.00
6 T	Methacrylonitrile	50.0000	52.0523	-4.1	100	0.00
7 T	Isobutyl Alcohol	100.0000	97.9929	2.0	100	0.00
8 T	1-Butanol	-1.0000	0.0000	0.0	0	0.02
9 T	Methyl methacrylate	50.0000	51.4592	-2.9	100	0.00
10 T	2-Nitropropane	50.0000	46.7858	6.4	100	0.00
11 I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
12 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
13 T	Cyclohexanone	50.0000	48.9579	2.1	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M412322.D A9FOOWT.M Thu May 19 09:02:32 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412323.D Vial: 5
 Acq On : 17 May 2016 10:44 Operator: TMB
 Sample : WG569079-04 20ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:22:33 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIion	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	652985	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.57	117	476539	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	256082	25.00	ug/L	0.00

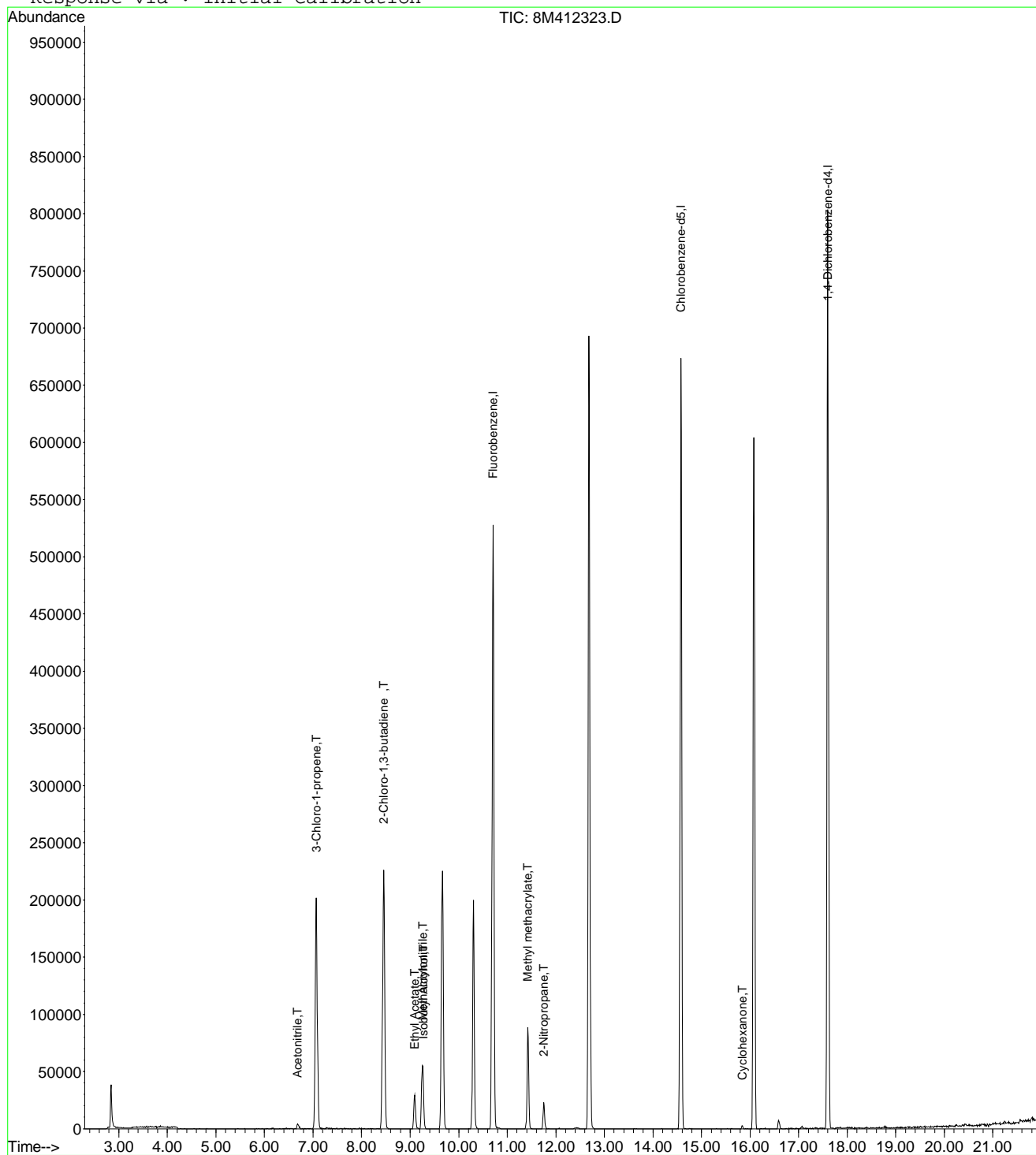
Target Compounds	R.T.	QIion	Response	Conc	Units	Qvalue
2) Acetonitrile	6.69	41	4873	19.3416	ug/L	80
3) 3-Chloro-1-propene	7.07	41	172467	20.7847	ug/L	83
4) 2-Chloro-1,3-butadiene	8.45	53	219296	20.9015	ug/L	87
5) Ethyl Acetate	9.09	43	50385	20.1659	ug/L	100
6) Methacrylonitrile	9.26	67	28119	20.4992	ug/L #	63
7) Isobutyl Alcohol	9.27	43	2774	33.2395	ug/L #	8
9) Methyl methacrylate	11.42	41	55309	20.5176	ug/L	73
10) 2-Nitropropane	11.75	43	21584	18.5202	ug/L	99
13) Cyclohexanone	15.84	55	2230	21.2913	ug/L	87

 (#) = qualifier out of range (m) = manual integration
 8M412323.D A9FOOWT.M Thu May 19 09:22:33 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412323.D Vial: 5
Acq On : 17 May 2016 10:44 Operator: TMB
Sample : WG569079-04 20ug/L A9/FOO STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:21 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412323.D A9FOOWT.M Thu May 19 09:22:34 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412323.D Vial: 5
 Acq On : 17 May 2016 10:44 Operator: TMB
 Sample : WG569079-04 20ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 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	100	0.00
2 T	Acetonitrile	20.0000	19.3416	3.3	100	0.00
3 T	3-Chloro-1-propene	20.0000	20.7847	-3.9	100	0.00
4 T	2-Chloro-1,3-butadiene	20.0000	20.9015	-4.5	100	0.00
5 T	Ethyl Acetate	20.0000	20.1659	-0.8	100	0.00
6 T	Methacrylonitrile	20.0000	20.4992	-2.5	100	0.00
7 T	Isobutyl Alcohol	-1.0000	33.2395	0.0	0	0.00
8 T	1-Butanol	-1.0000	0.0000	0.0	0	-10.18#
9 T	Methyl methacrylate	20.0000	20.5176	-2.6	100	0.00
10 T	2-Nitropropane	20.0000	18.5203	7.4	100	0.00
11 I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
12 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
13 T	Cyclohexanone	20.0000	21.2913	-6.5	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M412323.D A9FOOWT.M Thu May 19 09:02:17 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412324.D Vial: 6
 Acq On : 17 May 2016 11:13 Operator: TMB
 Sample : WG569079-05 5ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:22:43 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	665645	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.58	117	483812	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	257678	25.00	ug/L	0.00

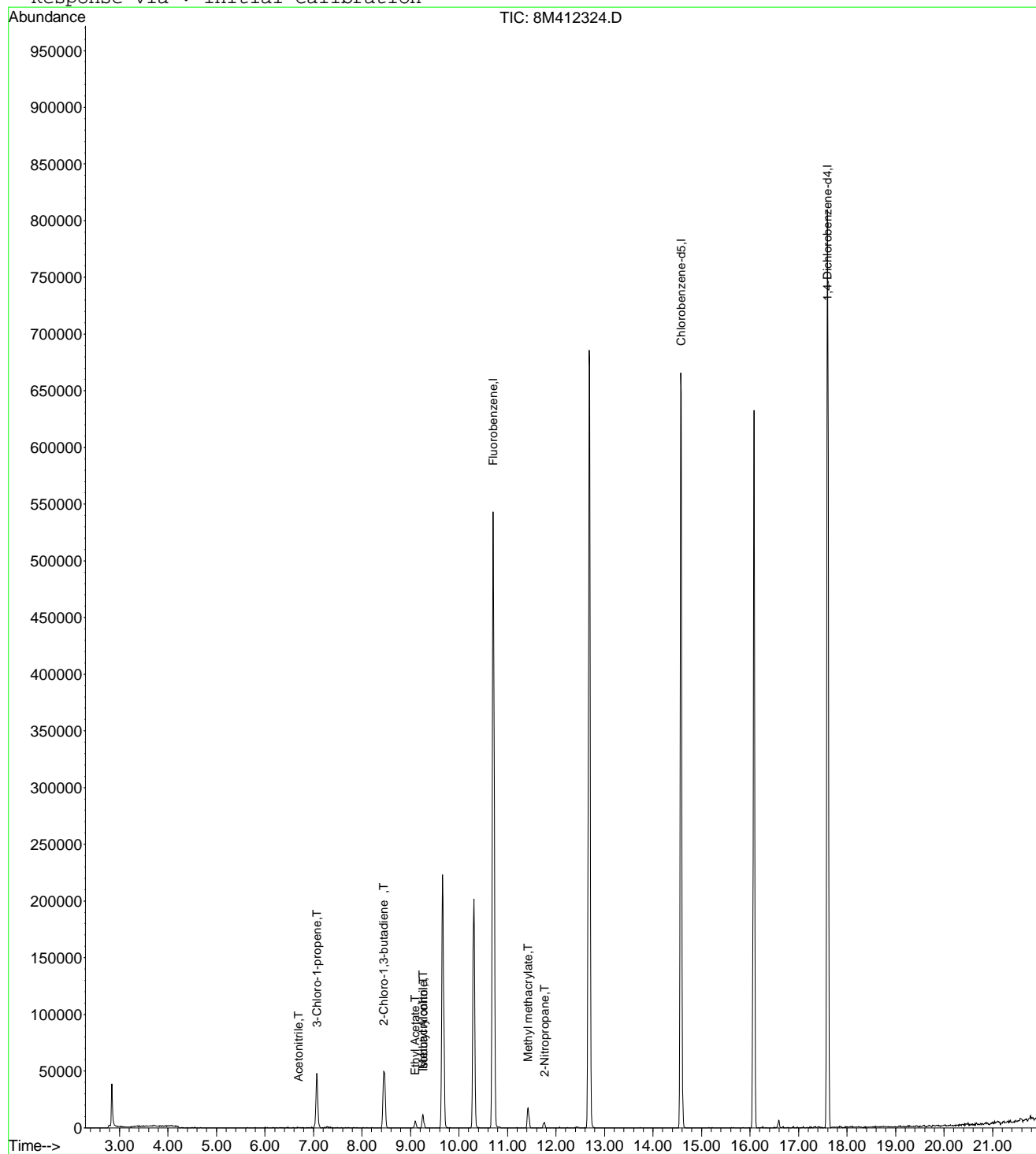
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.70	41	405	1.5769	ug/L #	23
3) 3-Chloro-1-propene	7.07	41	40699	4.8115	ug/L	84
4) 2-Chloro-1,3-butadiene	8.45	53	48973	4.5789	ug/L	81
5) Ethyl Acetate	9.09	43	10675	4.1913	ug/L	95
6) Methacrylonitrile	9.26	67	5417	3.8740	ug/L #	72
7) Isobutyl Alcohol	9.27	43	441	5.1838	ug/L #	8
9) Methyl methacrylate	11.43	41	11811	4.2981	ug/L	65
10) 2-Nitropropane	11.76	43	4170	3.5100	ug/L	98

 (#) = qualifier out of range (m) = manual integration
 8M412324.D A9FOOWT.M Thu May 19 09:22:43 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412324.D Vial: 6
Acq On : 17 May 2016 11:13 Operator: TMB
Sample : WG569079-05 5ug/L A9/FOO STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:21 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412324.D A9FOOWT.M Thu May 19 09:22:43 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412324.D Vial: 6
 Acq On : 17 May 2016 11:13 Operator: TMB
 Sample : WG569079-05 5ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 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	100	0.00
2 T	Acetonitrile	-1.0000	1.5769	0.0	0	0.00
3 T	3-Chloro-1-propene	5.0000	4.8115	3.8	100	0.00
4 T	2-Chloro-1,3-butadiene	5.0000	4.5789	8.4	100	0.00
5 T	Ethyl Acetate	5.0000	4.1913	16.2	100	0.00
6 T	Methacrylonitrile	5.0000	3.8740	22.5	100	0.00
7 T	Isobutyl Alcohol	-1.0000	5.1838	0.0	0	0.00
8 T	1-Butanol	-1.0000	0.0000	0.0	0	-10.18#
9 T	Methyl methacrylate	5.0000	4.2981	14.0	100	0.00
10 T	2-Nitropropane	-1.0000	3.5100	0.0	0	0.00
11 I	Chlorobenzene-d5	25.0000	25.0000	0.0	100	0.00
12 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
13 T	Cyclohexanone	-1.0000	0.0000	0.0	0	-15.84#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M412324.D A9FOOWT.M Thu May 19 09:02:03 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412325.D Vial: 7
 Acq On : 17 May 2016 11:42 Operator: TMB
 Sample : WG569079-06 200ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:01:27 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	682012	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.58	117	491515	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	261877	25.00	ug/L	0.00

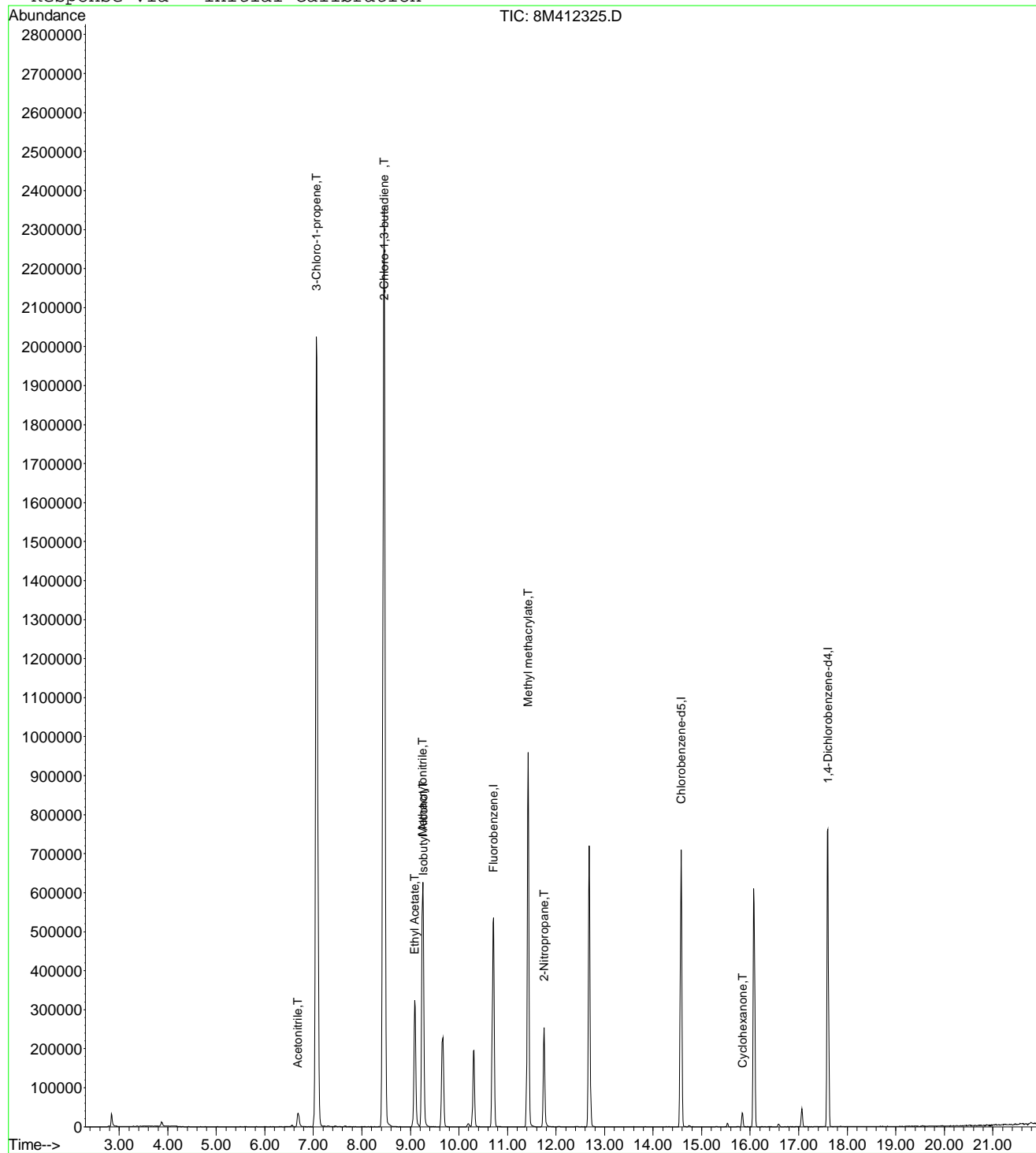
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.68	41	52022	197.6946	ug/L	97
3) 3-Chloro-1-propene	7.06	41	1768403	204.0468	ug/L	83
4) 2-Chloro-1,3-butadiene	8.46	53	2283706	208.4003	ug/L	87
5) Ethyl Acetate	9.09	43	537585	206.0040	ug/L	94
6) Methacrylonitrile	9.25	67	297408	207.5869	ug/L #	63
7) Isobutyl Alcohol	9.26	43	34441	395.1256	ug/L	95
9) Methyl methacrylate	11.42	41	577612	205.1526	ug/L	72
10) 2-Nitropropane	11.75	43	248395	204.0652	ug/L	95
13) Cyclohexanone	15.85	55	19752	184.4122	ug/L #	59

 (#) = qualifier out of range (m) = manual integration
 8M412325.D A9FOOWT.M Thu May 19 09:01:28 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412325.D Vial: 7
Acq On : 17 May 2016 11:42 Operator: TMB
Sample : WG569079-06 200ug/L A9/FOO STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:00 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412325.D A9FOOWT.M Thu May 19 09:01:28 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412326.D Vial: 8
 Acq On : 17 May 2016 12:40 Operator: TMB
 Sample : WG569079-07 300ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:01:29 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	694903	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.57	117	496643	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	267309	25.00	ug/L	0.00

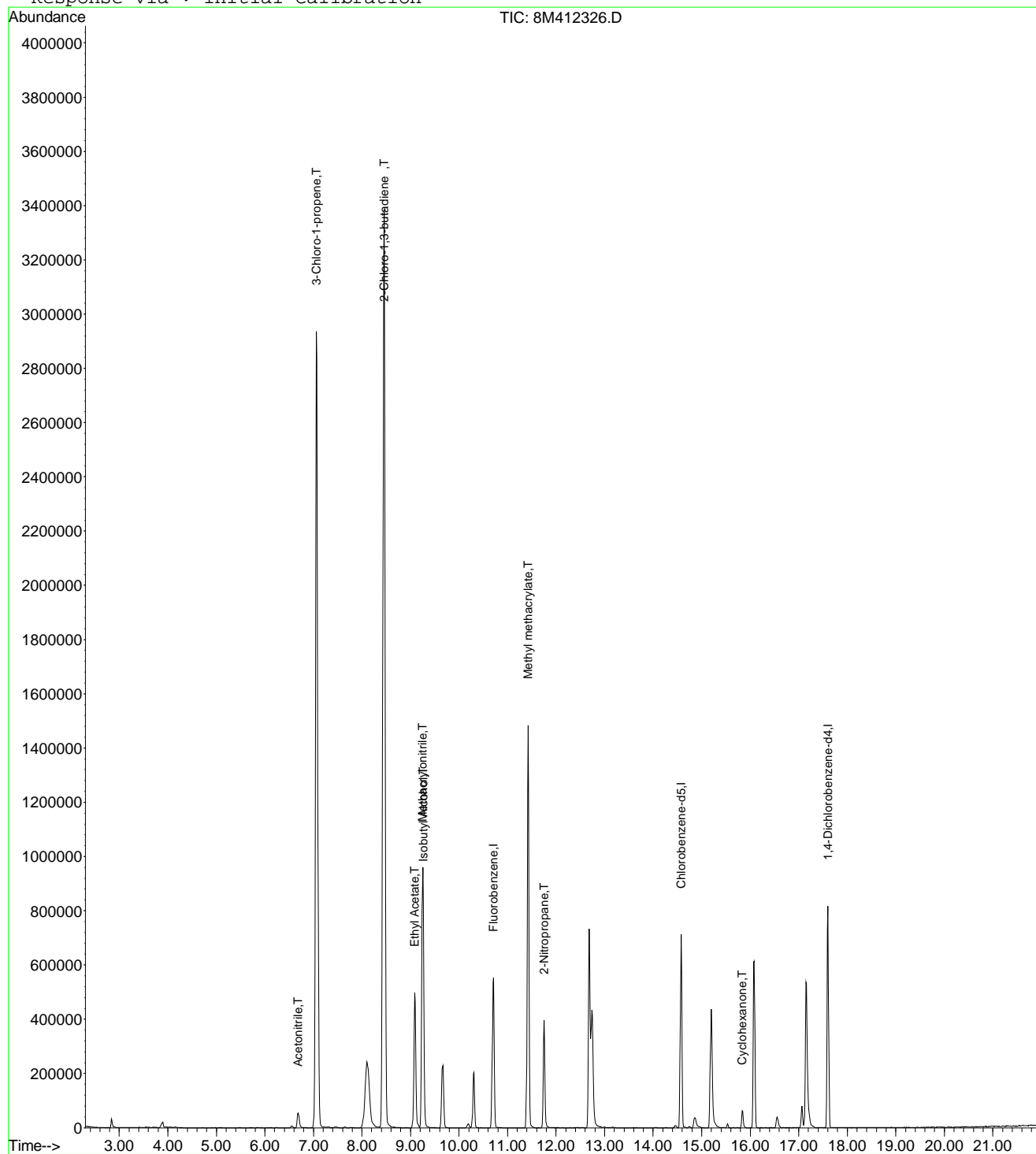
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.69	41	81471	303.8636	ug/L	98
3) 3-Chloro-1-propene	7.06	41	2563559	290.3084	ug/L	83
4) 2-Chloro-1,3-butadiene	8.46	53	3270971	292.9562	ug/L	86
5) Ethyl Acetate	9.09	43	821184	308.8424	ug/L	95
6) Methacrylonitrile	9.25	67	451708	309.4374	ug/L #	62
7) Isobutyl Alcohol	9.26	43	55071	620.0836	ug/L	94
9) Methyl methacrylate	11.42	41	874430	304.8132	ug/L	70
10) 2-Nitropropane	11.75	43	392965	316.8456	ug/L	94
13) Cyclohexanone	15.84	55	33523	306.6233	ug/L #	61

 (#) = qualifier out of range (m) = manual integration
 8M412326.D A9FOOWT.M Thu May 19 09:01:29 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412326.D Vial: 8
Acq On : 17 May 2016 12:40 Operator: TMB
Sample : WG569079-07 300ug/L A9/FOO STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:00 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412326.D A9FOOWT.M Thu May 19 09:01:29 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412327.D Vial: 9
 Acq On : 17 May 2016 13:10 Operator: TMB
 Sample : WG569079-08 400ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:01:30 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	700514	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.57	117	502552	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	270883	25.00	ug/L	0.00

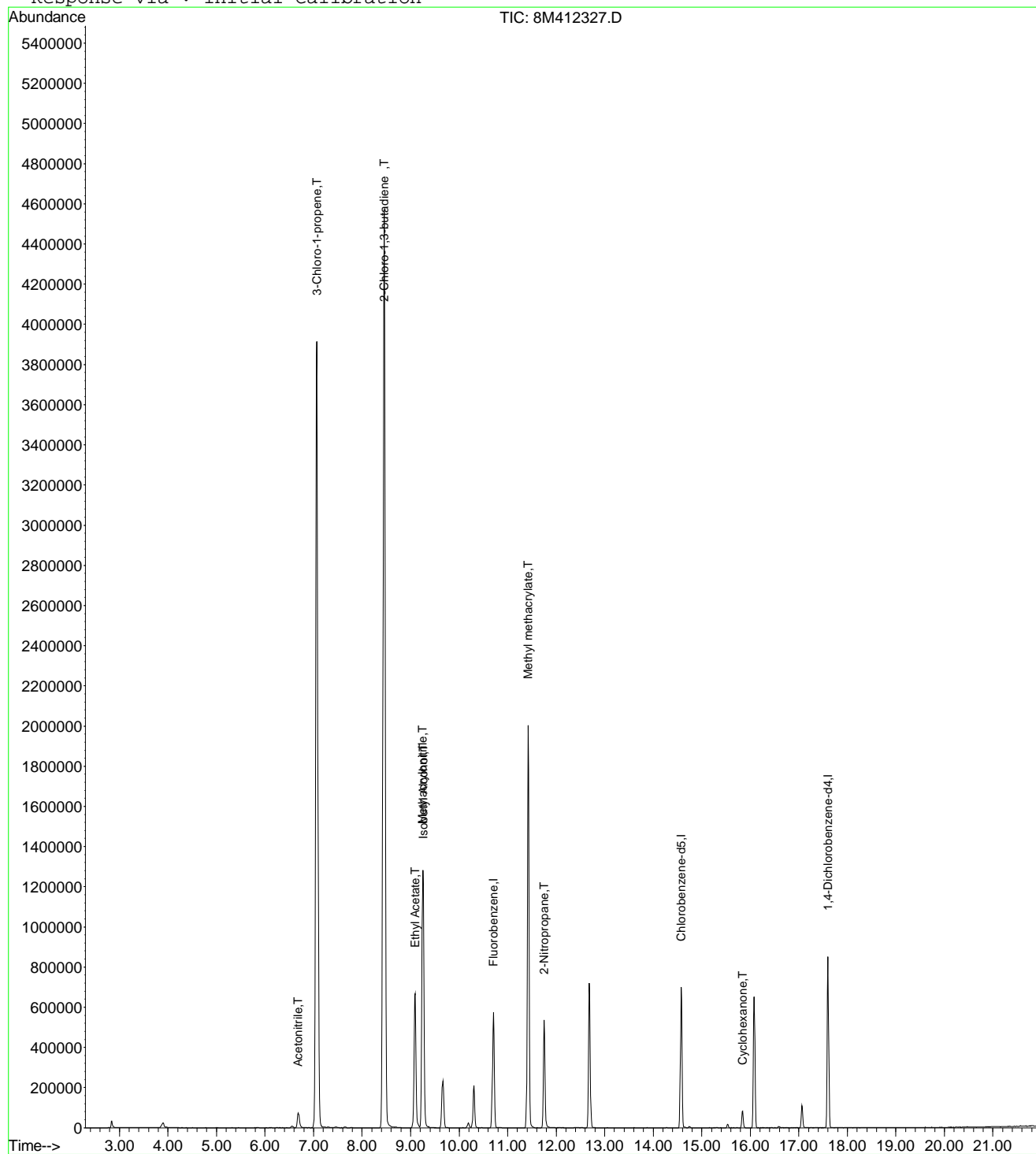
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.69	41	110761	409.7980	ug/L	97
3) 3-Chloro-1-propene	7.07	41	3406131	382.6353	ug/L	82
4) 2-Chloro-1,3-butadiene	8.45	53	4356691	387.0705	ug/L	85
5) Ethyl Acetate	9.09	43	1116818	416.6642	ug/L	94
6) Methacrylonitrile	9.25	67	615482	418.2517	ug/L #	62
7) Isobutyl Alcohol	9.26	43	75472	842.9862	ug/L	97
9) Methyl methacrylate	11.42	41	1199317	414.7153	ug/L	71
10) 2-Nitropropane	11.75	43	538580	430.7760	ug/L	94
13) Cyclohexanone	15.84	55	45874	414.0575	ug/L #	55

 (#) = qualifier out of range (m) = manual integration
 8M412327.D A9FOOWT.M Thu May 19 09:01:31 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412327.D Vial: 9
Acq On : 17 May 2016 13:10 Operator: TMB
Sample : WG569079-08 400ug/L A9/FOO STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:00 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412327.D A9FOOWT.M Thu May 19 09:01:31 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412328.D Vial: 10
 Acq On : 17 May 2016 13:39 Operator: TMB
 Sample : WG569079-09 500ug/L A9/FOO STD 8260 Inst : HPMS8
 Misc : 1,1 STD76072 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:01:31 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	695694	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.57	117	495257	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	266442	25.00	ug/L	0.00

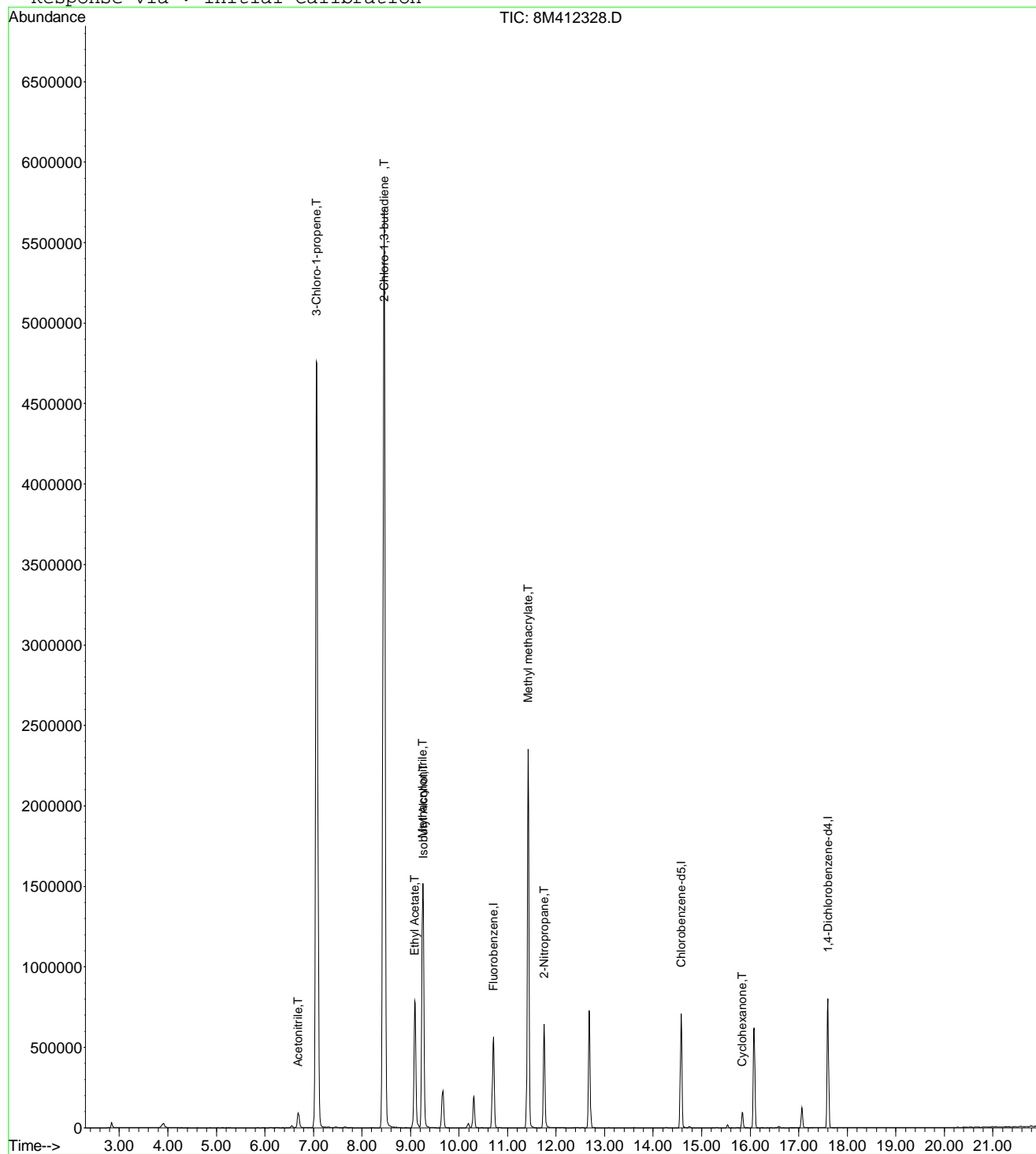
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.69	41	132245	492.6753	ug/L	99
3) 3-Chloro-1-propene	7.06	41	4228273	478.2834	ug/L	82
4) 2-Chloro-1,3-butadiene	8.46	53	5390856	482.2693	ug/L	85
5) Ethyl Acetate	9.09	43	1321922	496.6017	ug/L	95
6) Methacrylonitrile	9.25	67	729852	499.4083	ug/L #	61
7) Isobutyl Alcohol	9.26	43	85200	958.2367	ug/L	96
9) Methyl methacrylate	11.42	41	1416438	493.1877	ug/L	72
10) 2-Nitropropane	11.75	43	637335	513.2956	ug/L	93
13) Cyclohexanone	15.84	55	52070	477.8160	ug/L #	61

 (#) = qualifier out of range (m) = manual integration
 8M412328.D A9FOOWT.M Thu May 19 09:01:32 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412328.D Vial: 10
Acq On : 17 May 2016 13:39 Operator: TMB
Sample : WG569079-09 500ug/L A9/FOO STD 8260 Inst : HPMS8
Misc : 1,1 STD76072 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:00 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412328.D A9FOOWT.M Thu May 19 09:01:32 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412331.D Vial: 13
 Acq On : 17 May 2016 15:06 Operator: TMB
 Sample : WG569079-10 100ug/L ALT SRC STD 8260 Inst : HPMS8
 Misc : 1,1 STD75801 Multiplr: 1.00
 MS Integration Params: rteint.p
 Quant Time: May 19 09:01:32 2016 Quant Results File: A9FOOWT.RES

Quant Method : K:\ORGANICS\V...\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.71	96	676765	25.00	ug/L	0.00
11) Chlorobenzene-d5	14.57	117	486447	25.00	ug/L	0.00
12) 1,4-Dichlorobenzene-d4	17.60	152	263036	25.00	ug/L	0.00

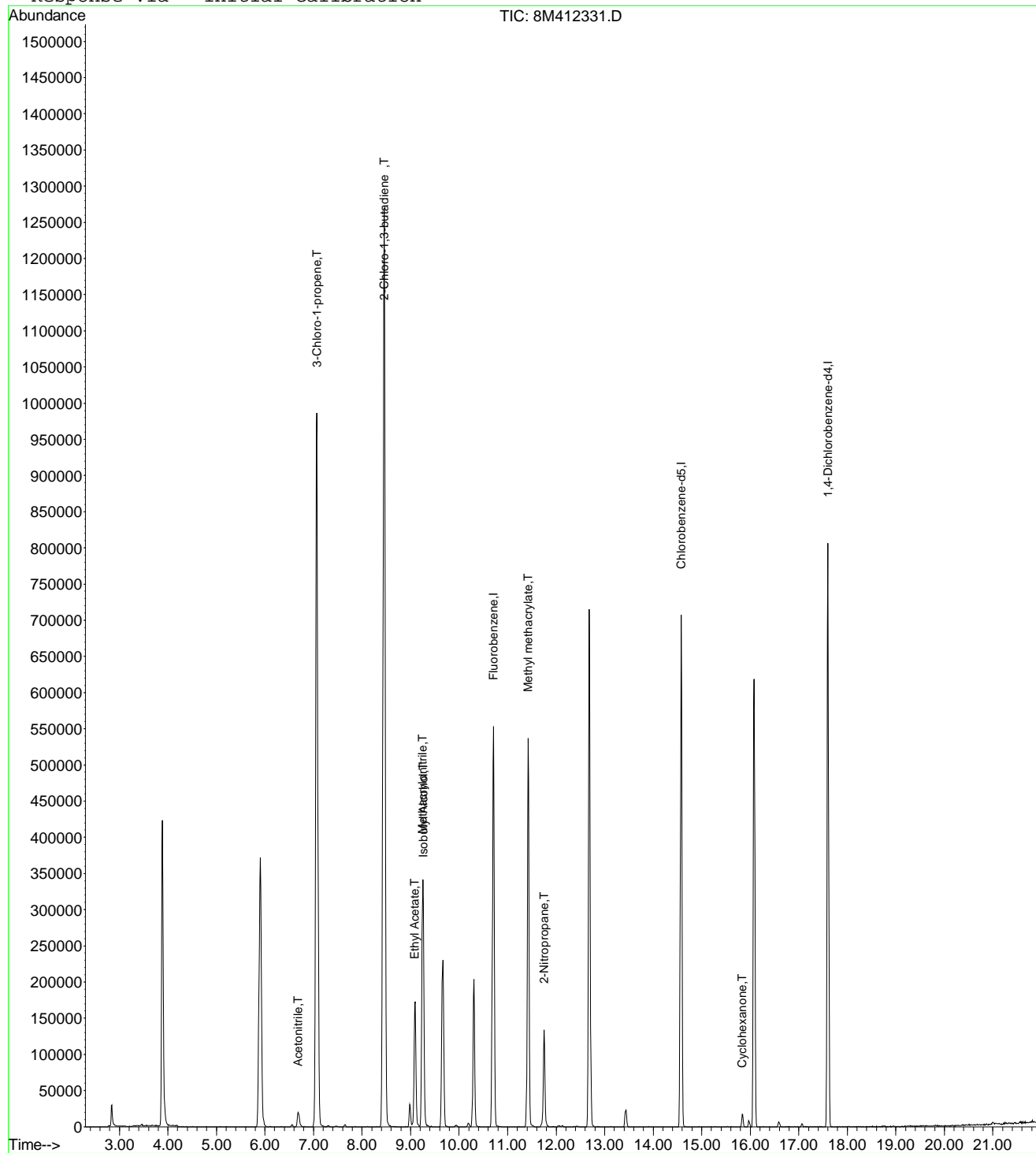
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Acetonitrile	6.69	41	29876	114.4154	ug/L	97
3) 3-Chloro-1-propene	7.07	41	858035	99.7718	ug/L	83
4) 2-Chloro-1,3-butadiene	8.45	53	1224194	112.5803	ug/L	87
5) Ethyl Acetate	9.09	43	295545	114.1317	ug/L	96
6) Methacrylonitrile	9.25	67	161574	113.6509	ug/L #	63
7) Isobutyl Alcohol	9.26	43	19948	230.6285	ug/L	94
9) Methyl methacrylate	11.42	41	326465	116.8508	ug/L	72
10) 2-Nitropropane	11.75	43	131261	108.6716	ug/L	94
13) Cyclohexanone	15.83	55	10459	97.2189	ug/L #	74

 (#) = qualifier out of range (m) = manual integration
 8M412331.D A9FOOWT.M Thu May 19 09:01:33 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412331.D Vial: 13
Acq On : 17 May 2016 15:06 Operator: TMB
Sample : WG569079-10 100ug/L ALT SRC STD 8260 Inst : HPMS8
Misc : 1,1 STD75801 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 19 9:00 2016 Quant Results File: A9FOOWT.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
Last Update : Thu May 19 08:54:31 2016
Response via : Initial Calibration



8M412331.D A9FOOWT.M Thu May 19 09:01:33 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\051716\8M412331.D Vial: 13
 Acq On : 17 May 2016 15:06 Operator: TMB
 Sample : WG569079-10 100ug/L ALT SRC STD 8260 Inst : HPMS8
 Misc : 1,1 STD75801 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\A9FOOWT.M (RTE Integrator)
 Title : A9-FOO Water SOP:MSV01 05-17-16 HPMS8
 Last Update : Thu May 19 08:54:31 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	95	0.00
2 T	Acetonitrile	100.0000	114.4154	-14.4	109	0.00
3 T	3-Chloro-1-propene	100.0000	99.7718	0.2	91	0.00
4 T	2-Chloro-1,3-butadiene	100.0000	112.5803	-12.6	103	0.00
5 T	Ethyl Acetate	100.0000	114.1317	-14.1	104	0.00
6 T	Methacrylonitrile	100.0000	113.6509	-13.7	104	0.00
7 T	Isobutyl Alcohol	200.0000	230.6285	-15.3	111	0.00
8 T	1-Butanol	-1.0000	0.0000	0.0	0	0.01
9 T	Methyl methacrylate	100.0000	116.8508	-16.9	109	0.00
10 T	2-Nitropropane	100.0000	108.6716	-8.7	108	0.00
11 I	Chlorobenzene-d5	25.0000	25.0000	0.0	96	0.00
12 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	96	0.00
13 T	Cyclohexanone	100.0000	97.2189	2.8	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M412331.D A9FOOWT.M Thu May 19 09:03:22 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415822.D Vial: 3
 Acq On : 30 Oct 2016 18:58 Operator: FJB
 Sample : WG589331-02 0.3ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:57:31 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:56:49 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	861775	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	591089	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	263067	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	0.00	65	0	0.0000	ug/L	
Spiked Amount	25.000	Range 80 - 120	Recovery	=	0.00%#	
58) Toluene-d8	12.95	98	677	0.0228	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	0.08%#	
80) p-Bromofluorobenzene	16.34	95	432	0.0403	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	0.16%#	

Target Compounds

						Qvalue
2) Dichlorodifluoromethane	3.38	85	4402	0.3156	ug/L	91
3) Chloromethane	3.85	50	4914	0.4418	ug/L	77
4) Vinyl Chloride	4.09	62	4253	0.3618	ug/L	92
5) 1,3-Butadiene	4.14	54	3985	0.1916	ug/L	93
6) Bromomethane	5.00	94	2463	0.3081	ug/L	99
7) Chloroethane	5.17	64	1767	0.2999	ug/L #	47
8) Trichlorofluoromethane	5.65	101	4784	0.2997	ug/L #	91
10) Isoprene	6.22	67	3970	0.3132	ug/L	95
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	2571	0.2929	ug/L	85
13) Acetone	6.53	43	623	0.8743	ug/L #	44
14) 1,1-Dichloroethene	6.74	61	4011	0.3323	ug/L	91
16) Dimethyl Sulfide	7.02	62	1582	0.2405	ug/L	99
17) Iodomethane	7.25	142	1930	0.2383	ug/L #	66
19) Methylene Chloride	7.52	84	2949	0.3472	ug/L	90
20) Carbon Disulfide	7.57	76	10223	0.3632	ug/L	93
22) Methyl Tert Butyl Ether	7.75	73	3930	0.2573	ug/L #	58
23) trans-1,2-Dichloroethene	7.98	61	3545	0.3093	ug/L	94
24) n-Hexane	8.05	57	4093	0.4215	ug/L	93
26) Vinyl Acetate	8.57	43	1958	0.3236	ug/L #	67
27) 1,1-Dichloroethane	8.59	63	4491	0.3057	ug/L #	78
31) 2,2-Dichloropropane	9.38	77	4976	0.3573	ug/L #	60
32) cis-1,2-Dichloroethene	9.44	96	3022	0.3117	ug/L	92
33) Chloroform	9.64	83	5404	0.3323	ug/L	99
35) Bromochloromethane	9.87	130	1099	0.2426	ug/L	89
36) Tetrahydrofuran	9.90	42	3046	2.1951	ug/L	77
38) 1,1,1-Trichloroethane	10.17	97	4591	0.3083	ug/L	99
39) Cyclohexane	10.21	56	4122	0.3383	ug/L	91
40) 1,1-Dichloropropene	10.38	75	3938	0.3173	ug/L	92
42) Carbon Tetrachloride	10.52	117	4199	0.3140	ug/L	95
45) 1,2-Dichloroethane	10.70	62	2133	0.2510	ug/L #	52
46) Benzene	10.73	78	11750	0.3370	ug/L	93
47) Trichloroethene	11.48	130	2791	0.3022	ug/L	96
48) Methylcyclohexane	11.56	83	5405	0.3656	ug/L	91
49) 1,2-Dichloropropane	11.69	63	2246	0.3003	ug/L	90
50) Bromodichloromethane	12.00	83	3193	0.2881	ug/L #	86
52) Dibromomethane	12.07	93	912	0.2401	ug/L	95
55) cis-1,3-Dichloropropene	12.63	75	3530	0.2902	ug/L	100
56) Dimethyl Disulfide	12.89	79	1449	0.2123	ug/L	77
59) Toluene	13.05	91	12789	0.3596	ug/L	94
60) Ethyl Methacrylate	13.14	69	1692	0.2795	ug/L	86

(#) = qualifier out of range (m) = manual integration
 8M415822.D 8260WTR.M Tue Nov 01 11:07:27 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415822.D Vial: 3
 Acq On : 30 Oct 2016 18:58 Operator: FJB
 Sample : WG589331-02 0.3ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:57:31 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:56:49 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

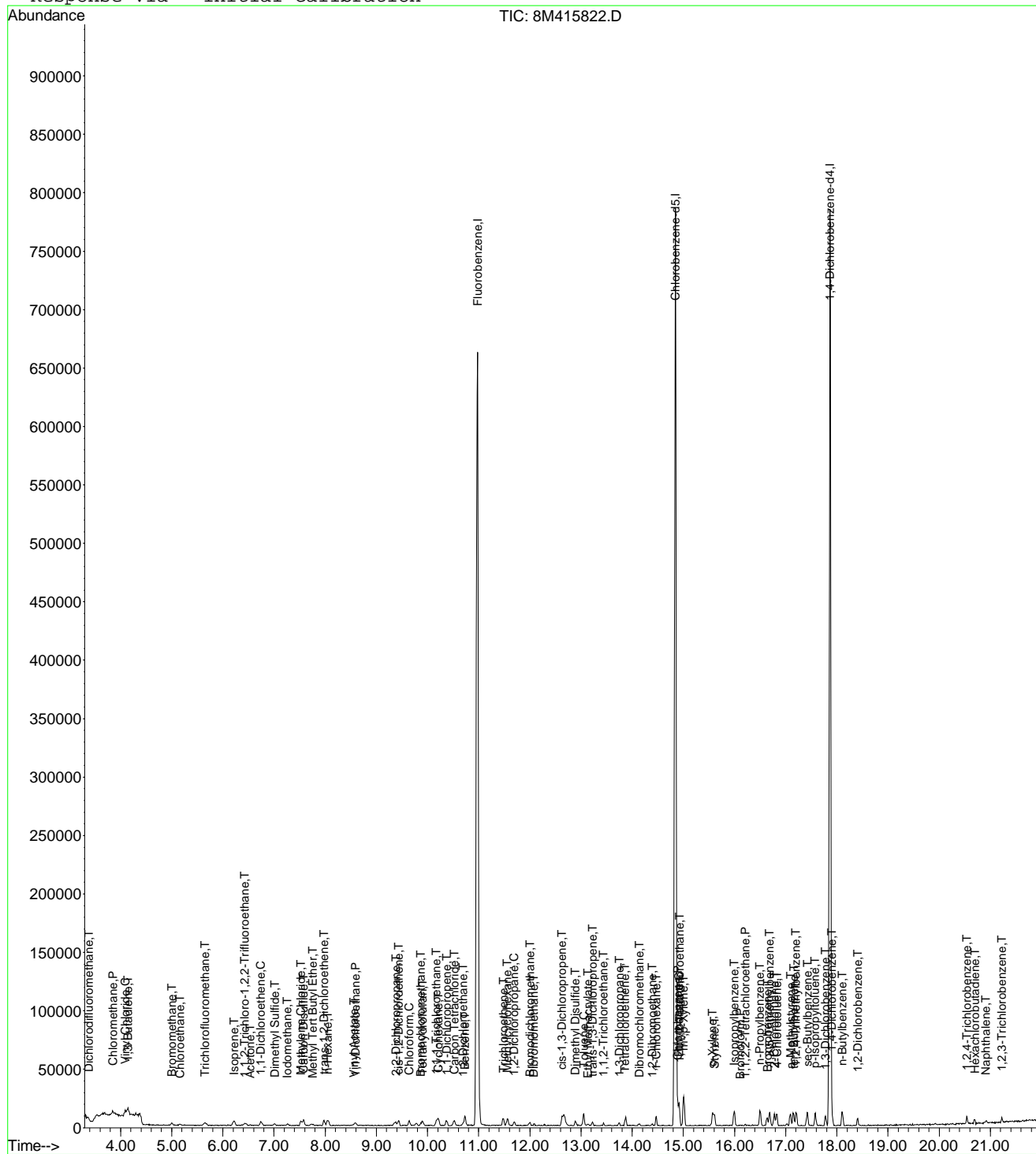
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
62) trans-1,3-Dichloropropene	13.22	75	2630	0.2731	ug/L	97
63) 1,1,2-Trichloroethane	13.44	97	1177	0.2413	ug/L	91
65) 1,3-Dichloropropane	13.75	76	2165	0.2521	ug/L	94
66) Tetrachloroethene	13.86	164	2341	0.3285	ug/L	94
67) Dibromochloromethane	14.14	129	1650	0.2591	ug/L	85
68) 1,2-Dibromoethane	14.39	107	1295	0.2727	ug/L	77
69) 1-Chlorohexane	14.47	91	4616	0.3661	ug/L	95
70) Chlorobenzene	14.90	112	8519	0.3664	ug/L	99
71) 1,1,1,2-Tetrachloroethane	14.93	131	2091	0.2543	ug/L	82
72) Ethylbenzene	14.92	106	4074	0.2958	ug/L	77
73) m-,p-Xylene	15.01	106	10598	0.6739	ug/L	95
74) o-Xylene	15.57	106	4777	0.3067	ug/L	91
75) Styrene	15.61	104	7203	0.2959	ug/L	91
76) Bromoform	16.12	173	458	0.1336	ug/L #	28
77) Isopropylbenzene	15.99	105	13559	0.3609	ug/L	94
79) 1,1,2,2-Tetrachloroethane	16.21	83	1021	0.2128	ug/L #	75
83) n-Propylbenzene	16.50	91	15867	0.3630	ug/L	99
84) Bromobenzene	16.64	156	2526	0.2972	ug/L	84
85) 1,3,5-Trimethylbenzene	16.68	105	10990	0.3598	ug/L	99
86) 2-Chlorotoluene	16.78	91	9941	0.3571	ug/L	95
87) 4-Chlorotoluene	16.83	91	9859	0.3694	ug/L	81
88) a-Methylstyrene	17.10	118	4892	0.2879	ug/L	100
89) tert-Butylbenzene	17.16	134	1718	0.2642	ug/L	74
90) 1,2,4-Trimethylbenzene	17.20	105	11238	0.3631	ug/L	91
91) sec-Butylbenzene	17.43	105	13709	0.3680	ug/L	99
92) p-Isopropyltoluene	17.57	119	10714	0.3650	ug/L	99
93) 1,3-Dichlorobenzene	17.78	146	5639	0.3402	ug/L	100
94) 1,4-Dichlorobenzene	17.90	146	5610	0.3439	ug/L #	1
95) n-Butylbenzene	18.11	91	11170	0.3746	ug/L	98
96) 1,2-Dichlorobenzene	18.41	146	4118	0.3001	ug/L	99
98) 1,2,4-Trichlorobenzene	20.54	180	2984	0.3253	ug/L	96
99) Hexachlorobutadiene	20.70	225	1442	0.3267	ug/L	87
100) Naphthalene	20.91	128	3386	0.2836	ug/L #	68
101) 1,2,3-Trichlorobenzene	21.22	180	2111	0.2975	ug/L	90

(#) = qualifier out of range (m) = manual integration
 8M415822.D 8260WTR.M Tue Nov 01 11:07:27 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415822.D Vial: 3
 Acq On : 30 Oct 2016 18:58 Operator: FJB
 Sample : WG589331-02 0.3ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:57 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415823.D Vial: 4
 Acq On : 30 Oct 2016 19:27 Operator: FJB
 Sample : WG589331-03 0.4ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:01:57 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	846692	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	586449	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.87	152	265741	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	0.00	65	0	0.0000	ug/L	
Spiked Amount	25.000	Range 80 - 120	Recovery	=	0.00%#	
58) Toluene-d8	12.95	98	213	0.0072	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	0.04%#	
80) p-Bromofluorobenzene	0.00	95	0	0.0000	ug/L	
Spiked Amount	25.000	Range 86 - 115	Recovery	=	0.00%#	

Target Compounds

						Qvalue
2) Dichlorodifluoromethane	3.37	85	4493	0.3279	ug/L	88
3) Chloromethane	3.85	50	5925	0.5422	ug/L	78
4) Vinyl Chloride	4.09	62	5334	0.4619	ug/L	97
6) Bromomethane	5.00	94	3033	0.3861	ug/L	97
7) Chloroethane	5.17	64	2129	0.3677	ug/L #	66
8) Trichlorofluoromethane	5.66	101	5678	0.3621	ug/L #	85
10) Isoprene	6.21	67	4117	0.3306	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	2170	0.2516	ug/L	90
13) Acetone	6.52	43	420	0.5999	ug/L #	44
14) 1,1-Dichloroethene	6.74	61	4573	0.3856	ug/L	94
16) Dimethyl Sulfide	7.01	62	2456	0.3800	ug/L	86
17) Iodomethane	7.25	142	2599	0.3266	ug/L	75
18) Methyl acetate	7.25	43	807	0.3434	ug/L #	53
19) Methylene Chloride	7.53	84	3899	0.4673	ug/L	99
20) Carbon Disulfide	7.57	76	11351	0.4104	ug/L	98
22) Methyl Tert Butyl Ether	7.74	73	5106	0.3403	ug/L #	67
23) trans-1,2-Dichloroethene	7.98	61	4516	0.4011	ug/L	89
24) n-Hexane	8.05	57	3262	0.3419	ug/L	89
26) Vinyl Acetate	8.56	43	2300	0.3869	ug/L #	67
27) 1,1-Dichloroethane	8.59	63	5784	0.4007	ug/L #	81
31) 2,2-Dichloropropane	9.37	77	5419	0.3960	ug/L	95
32) cis-1,2-Dichloroethene	9.45	96	3734	0.3920	ug/L	89
33) Chloroform	9.64	83	6808	0.4261	ug/L	93
35) Bromochloromethane	9.88	130	1683	0.3781	ug/L	87
36) Tetrahydrofuran	9.91	42	1994	0.7622	ug/L #	63
38) 1,1,1-Trichloroethane	10.18	97	5309	0.3629	ug/L	97
39) Cyclohexane	10.21	56	3817	0.3189	ug/L	94
40) 1,1-Dichloropropene	10.38	75	4413	0.3619	ug/L	90
42) Carbon Tetrachloride	10.52	117	4562	0.3472	ug/L #	91
45) 1,2-Dichloroethane	10.69	62	3159	0.3783	ug/L #	85
46) Benzene	10.73	78	14534	0.4243	ug/L	93
47) Trichloroethene	11.47	130	3636	0.4006	ug/L	96
48) Methylcyclohexane	11.57	83	5346	0.3681	ug/L	95
49) 1,2-Dichloropropane	11.70	63	2940	0.4001	ug/L	85
50) Bromodichloromethane	12.00	83	4128	0.3791	ug/L #	85
52) Dibromomethane	12.08	93	988	0.2648	ug/L	76
53) 2-Chloroethyl Vinyl Ether	12.28	63	560	0.1960	ug/L #	44
55) cis-1,3-Dichloropropene	12.63	75	4405	0.3686	ug/L	99
56) Dimethyl Disulfide	12.90	79	1881	0.2805	ug/L	85
59) Toluene	13.05	91	14967	0.4241	ug/L	97

(#) = qualifier out of range (m) = manual integration
 8M415823.D 8260WTR.M Tue Nov 01 11:07:31 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415823.D Vial: 4
 Acq On : 30 Oct 2016 19:27 Operator: FJB
 Sample : WG589331-03 0.4ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:01:57 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

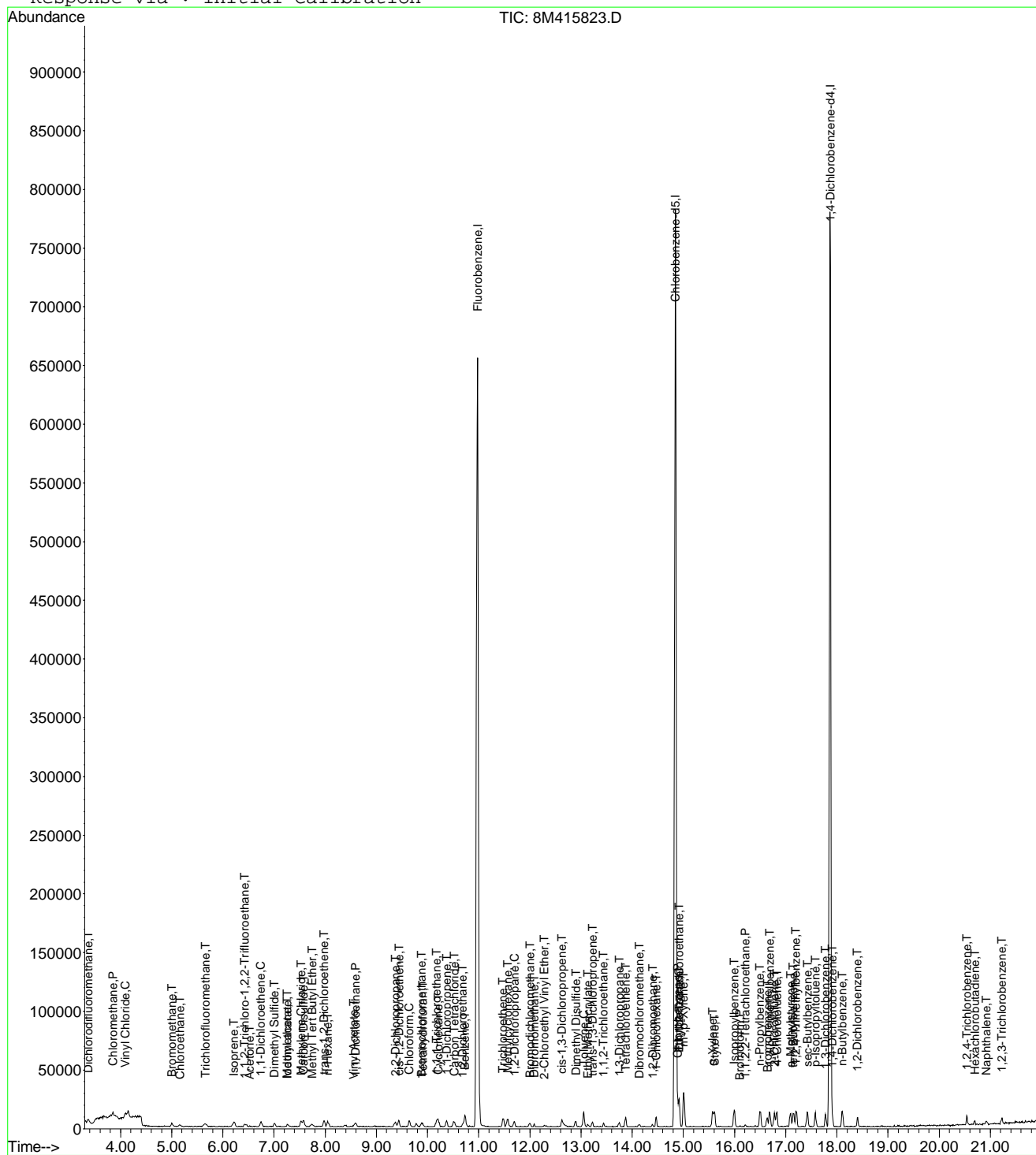
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
60) Ethyl Methacrylate	13.14	69	1957	0.3258	ug/L	90
62) trans-1,3-Dichloropropene	13.22	75	3500	0.3664	ug/L	85
63) 1,1,2-Trichloroethane	13.44	97	1585	0.3275	ug/L	99
65) 1,3-Dichloropropane	13.75	76	3049	0.3578	ug/L	97
66) Tetrachloroethene	13.87	164	2563	0.3625	ug/L	96
67) Dibromochloromethane	14.14	129	2078	0.3289	ug/L	94
68) 1,2-Dibromoethane	14.40	107	1679	0.3564	ug/L	93
69) 1-Chlorohexane	14.47	91	4844	0.3872	ug/L	93
70) Chlorobenzene	14.89	112	9572	0.4150	ug/L	100
71) 1,1,1,2-Tetrachloroethane	14.92	131	2900	0.3555	ug/L	89
72) Ethylbenzene	14.92	106	4667	0.3415	ug/L	72
73) m-,p-Xylene	15.01	106	12540	0.8037	ug/L	100
74) o-Xylene	15.58	106	5585	0.3615	ug/L	87
75) Styrene	15.61	104	8854	0.3665	ug/L	97
76) Bromoform	16.10	173	806	0.2369	ug/L #	28
77) Isopropylbenzene	15.99	105	15275	0.4098	ug/L	97
79) 1,1,2,2-Tetrachloroethane	16.21	83	1628	0.3359	ug/L #	79
83) n-Propylbenzene	16.50	91	17884	0.4050	ug/L	99
84) Bromobenzene	16.64	156	3163	0.3684	ug/L	93
85) 1,3,5-Trimethylbenzene	16.69	105	11986	0.3885	ug/L	96
86) 2-Chlorotoluene	16.78	91	11009	0.3915	ug/L	98
87) 4-Chlorotoluene	16.83	91	11710	0.4344	ug/L	94
88) a-Methylstyrene	17.10	118	5972	0.3480	ug/L	98
89) tert-Butylbenzene	17.15	134	2248	0.3422	ug/L	82
90) 1,2,4-Trimethylbenzene	17.20	105	12381	0.3960	ug/L	85
91) sec-Butylbenzene	17.43	105	14972	0.3979	ug/L	96
92) p-Isopropyltoluene	17.58	119	11714	0.3951	ug/L	91
93) 1,3-Dichlorobenzene	17.78	146	6629	0.3959	ug/L	99
94) 1,4-Dichlorobenzene	17.91	146	6456	0.3918	ug/L #	11
95) n-Butylbenzene	18.11	91	12059	0.4003	ug/L	98
96) 1,2-Dichlorobenzene	18.40	146	5514	0.3978	ug/L	87
98) 1,2,4-Trichlorobenzene	20.54	180	3594	0.3879	ug/L	93
99) Hexachlorobutadiene	20.69	225	1558	0.3495	ug/L	84
100) Naphthalene	20.92	128	4283	0.3551	ug/L #	68
101) 1,2,3-Trichlorobenzene	21.22	180	2678	0.3736	ug/L	92

(#) = qualifier out of range (m) = manual integration
 8M415823.D 8260WTR.M Tue Nov 01 11:07:31 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415823.D Vial: 4
 Acq On : 30 Oct 2016 19:27 Operator: FJB
 Sample : WG589331-03 0.4ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 11:01 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415824.D Vial: 5
 Acq On : 30 Oct 2016 19:56 Operator: FJB
 Sample : WG589331-04 1ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:02:08 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	805426	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	562564	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	260280	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	3572	0.4629	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	1.84%#	
43) 1,2-Dichloroethane-d4	10.57	65	3181	0.4805	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	1.92%#	
58) Toluene-d8	12.95	98	14627	0.5184	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	2.08%#	
80) p-Bromofluorobenzene	16.34	95	5160	0.4861	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	1.96%#	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	12508	0.9596	ug/L	99
3) Chloromethane	3.85	50	11971	1.1517	ug/L	87
4) Vinyl Chloride	4.09	62	12943	1.1782	ug/L	97
5) 1,3-Butadiene	4.15	54	9608	0.8179	ug/L	95
6) Bromomethane	5.00	94	7522	1.0066	ug/L	97
7) Chloroethane	5.16	64	5108	0.9275	ug/L	95
8) Trichlorofluoromethane	5.66	101	15273	1.0239	ug/L	98
9) Diethyl ether	6.18	59	18187	4.9160	ug/L	99
10) Isoprene	6.22	67	11295	0.9535	ug/L	98
11) Acrolein	6.42	56	663	1.6451	ug/L	# 14
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	8182	0.9973	ug/L	98
13) Acetone	6.52	43	535	0.8034	ug/L	# 44
14) 1,1-Dichloroethene	6.75	61	11212	0.9939	ug/L	98
15) Tert-Butyl Alcohol	6.87	59	1385	7.3513	ug/L	# 60
16) Dimethyl Sulfide	7.02	62	6176	1.0044	ug/L	98
17) Iodomethane	7.26	142	6289	0.8307	ug/L	91
18) Methyl acetate	7.27	43	1762	0.7881	ug/L	# 53
19) Methylene Chloride	7.53	84	8468	1.0669	ug/L	99
20) Carbon Disulfide	7.57	76	27202	1.0339	ug/L	100
21) Acrylonitrile	7.70	53	1919	1.9882	ug/L	81
22) Methyl Tert Butyl Ether	7.74	73	14387	1.0079	ug/L	91
23) trans-1,2-Dichloroethene	7.98	61	10865	1.0143	ug/L	96
24) n-Hexane	8.05	57	9434	1.0395	ug/L	97
25) Diisopropyl ether	8.39	45	84575	5.0371	ug/L	99
26) Vinyl Acetate	8.56	43	6924	1.2243	ug/L	# 75
27) 1,1-Dichloroethane	8.60	63	13997	1.0194	ug/L	97
28) Ethyl-Tert-Butyl ether	8.96	59	80271	4.8863	ug/L	100
29) 2-Butanone	9.16	43	857	0.8327	ug/L	# 42
30) Propionitrile	9.26	54	1432	4.8139	ug/L	# 59
31) 2,2-Dichloropropane	9.37	77	13345	1.0252	ug/L	97
32) cis-1,2-Dichloroethene	9.44	96	9144	1.0091	ug/L	99
33) Chloroform	9.64	83	15423	1.0148	ug/L	98
34) 1-Bromopropane	9.79	122	1173	0.8113	ug/L	93
35) Bromochloromethane	9.88	130	4278	1.0103	ug/L	99
36) Tetrahydrofuran	9.91	42	4878	5.2586	ug/L	97
38) 1,1,1-Trichloroethane	10.18	97	14027	1.0079	ug/L	100
39) Cyclohexane	10.20	56	11726	1.0298	ug/L	90
40) 1,1-Dichloropropene	10.37	75	11236	0.9687	ug/L	96
41) Tert-Amyl-Methyl ether	10.47	73	73225	4.8726	ug/L	# 98
42) Carbon Tetrachloride	10.52	117	12629	1.0104	ug/L	97

(#) = qualifier out of range (m) = manual integration
 8M415824.D 8260WTR.M Tue Nov 01 11:07:35 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415824.D Vial: 5
 Acq On : 30 Oct 2016 19:56 Operator: FJB
 Sample : WG589331-04 ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:02:08 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	7984	1.0052	ug/L	95
46) Benzene	10.74	78	35114	1.0776	ug/L	96
47) Trichloroethene	11.48	130	8299	0.9613	ug/L	93
48) Methylcyclohexane	11.57	83	13305	0.9630	ug/L	99
49) 1,2-Dichloropropane	11.70	63	7105	1.0165	ug/L	96
50) Bromodichloromethane	11.99	83	10608	1.0240	ug/L #	96
52) Dibromomethane	12.08	93	3521	0.9920	ug/L	93
53) 2-Chloroethyl Vinyl Ether	12.28	63	2462	0.9056	ug/L	78
54) 4-Methyl-2-Pentanone	12.31	58	799	0.7645	ug/L #	29
55) cis-1,3-Dichloropropene	12.63	75	11569	1.0176	ug/L	98
56) Dimethyl Disulfide	12.90	79	5653	0.8861	ug/L	99
59) Toluene	13.05	91	36466	1.0773	ug/L	99
60) Ethyl Methacrylate	13.14	69	5651	0.9807	ug/L	94
62) trans-1,3-Dichloropropene	13.22	75	8866	0.9674	ug/L	97
63) 1,1,2-Trichloroethane	13.44	97	4590	0.9888	ug/L	93
64) 2-Hexanone	13.37	58	718	0.7664	ug/L #	1
65) 1,3-Dichloropropane	13.75	76	8621	1.0547	ug/L	98
66) Tetrachloroethene	13.87	164	7164	1.0562	ug/L	93
67) Dibromochloromethane	14.14	129	5906	0.9744	ug/L	98
68) 1,2-Dibromoethane	14.40	107	4558	1.0085	ug/L	99
69) 1-Chlorohexane	14.47	91	11753	0.9794	ug/L	96
70) Chlorobenzene	14.89	112	22730	1.0272	ug/L	96
71) 1,1,1,2-Tetrachloroethane	14.93	131	7165	0.9156	ug/L	98
72) Ethylbenzene	14.92	106	12578	0.9595	ug/L	94
73) m-,p-Xylene	15.01	106	30819	2.0592	ug/L	89
74) o-Xylene	15.57	106	14953	1.0088	ug/L	97
75) Styrene	15.61	104	23492	1.0138	ug/L	98
76) Bromoform	16.10	173	2597	0.7957	ug/L	93
77) Isopropylbenzene	15.99	105	38587	1.0792	ug/L	99
79) 1,1,2,2-Tetrachloroethane	16.21	83	5233	1.1024	ug/L #	91
81) 1,2,3-Trichloropropane	16.41	110	1085	0.8401	ug/L #	42
82) trans-1,4-Dichloro-2-Buten	16.45	53	874	0.8429	ug/L #	33
83) n-Propylbenzene	16.50	91	45613	1.0547	ug/L	99
84) Bromobenzene	16.64	156	8471	1.0073	ug/L	83
85) 1,3,5-Trimethylbenzene	16.68	105	32418	1.0728	ug/L	96
86) 2-Chlorotoluene	16.78	91	29797	1.0818	ug/L	94
87) 4-Chlorotoluene	16.82	91	29571	1.1199	ug/L	96
88) a-Methylstyrene	17.10	118	16130	0.9596	ug/L	99
89) tert-Butylbenzene	17.15	134	6152	0.9562	ug/L	91
90) 1,2,4-Trimethylbenzene	17.21	105	32807	1.0713	ug/L	84
91) sec-Butylbenzene	17.42	105	39772	1.0792	ug/L	99
92) p-Isopropyltoluene	17.58	119	30934	1.0652	ug/L	96
93) 1,3-Dichlorobenzene	17.78	146	17324	1.0564	ug/L	99
94) 1,4-Dichlorobenzene	17.91	146	16939	1.0495	ug/L #	70
95) n-Butylbenzene	18.10	91	32467	1.1005	ug/L	96
96) 1,2-Dichlorobenzene	18.41	146	14292	1.0527	ug/L	99
97) 1,2-Dibromo-3-Chloropropan	19.39	75	861	1.1860	ug/L	77
98) 1,2,4-Trichlorobenzene	20.54	180	9642	1.0624	ug/L	92
99) Hexachlorobutadiene	20.69	225	4425	1.0134	ug/L	99
100) Naphthalene	20.91	128	12494	1.0575	ug/L	99
101) 1,2,3-Trichlorobenzene	21.22	180	7311	1.0413	ug/L	97

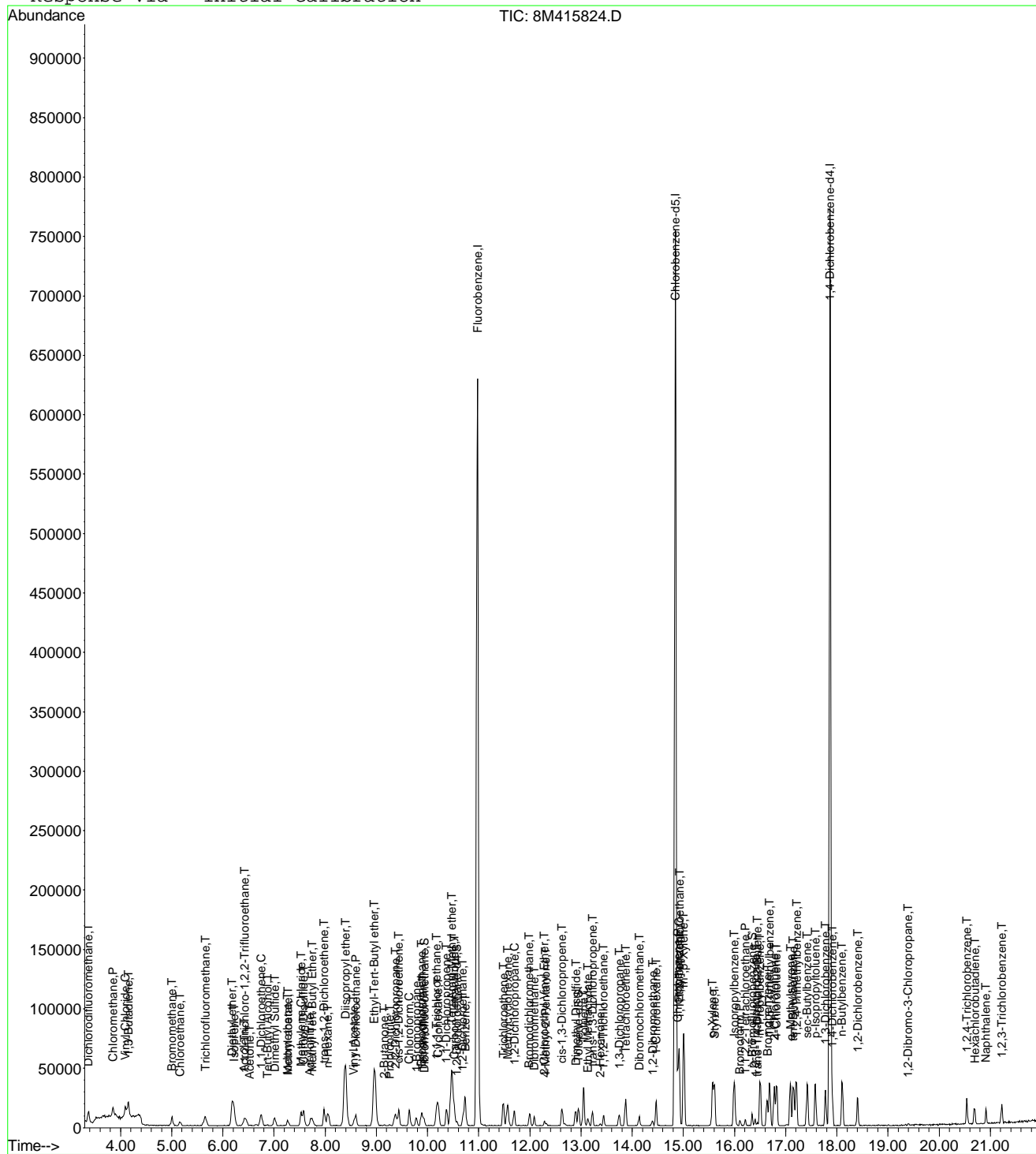
(#) = qualifier out of range (m) = manual integration
 8M415824.D 8260WTR.M Tue Nov 01 11:07:35 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415824.D Vial: 5
Acq On : 30 Oct 2016 19:56 Operator: FJB
Sample : WG589331-04 lug/L STD 8260 Inst : HPMS8
Misc : 1,1 STD78763 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 31 11:02 2016

Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415825.D Vial: 6
 Acq On : 30 Oct 2016 20:25 Operator: FJB
 Sample : WG589331-05 2ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:02:28 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	823689	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	567662	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	256793	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	7262	0.9202	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	3.68%#	
43) 1,2-Dichloroethane-d4	10.57	65	6590	0.9733	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	3.88%#	
58) Toluene-d8	12.95	98	27942	0.9815	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	3.92%#	
80) p-Bromofluorobenzene	16.34	95	10464	0.9990	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	4.00%#	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	24867	1.8655	ug/L	99
3) Chloromethane	3.85	50	22567	2.1230	ug/L	93
4) Vinyl Chloride	4.09	62	25157	2.2392	ug/L	97
5) 1,3-Butadiene	4.14	54	18147	1.8075	ug/L	92
6) Bromomethane	5.00	94	14062	1.8402	ug/L	99
7) Chloroethane	5.16	64	11205	1.9895	ug/L	95
8) Trichlorofluoromethane	5.65	101	30312	1.9870	ug/L	99
9) Diethyl ether	6.18	59	89964	23.7782	ug/L	99
10) Isoprene	6.22	67	22999	1.8985	ug/L	97
11) Acrolein	6.43	56	4885	11.8524	ug/L	92
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	15914	1.8968	ug/L	100
13) Acetone	6.52	43	1398	2.0527	ug/L #	44
14) 1,1-Dichloroethene	6.75	61	22825	1.9785	ug/L	99
15) Tert-Butyl Alcohol	6.85	59	9314	48.3408	ug/L #	86
16) Dimethyl Sulfide	7.01	62	12392	1.9707	ug/L	100
17) Iodomethane	7.27	142	13737	1.7742	ug/L	96
18) Methyl acetate	7.28	43	4615	2.0185	ug/L #	76
19) Methylene Chloride	7.52	84	16518	2.0349	ug/L	99
20) Carbon Disulfide	7.58	76	54487	2.0251	ug/L	100
21) Acrylonitrile	7.71	53	11021	11.1651	ug/L	93
22) Methyl Tert Butyl Ether	7.74	73	28150	1.9283	ug/L	98
23) trans-1,2-Dichloroethene	7.98	61	22154	2.0224	ug/L	97
24) n-Hexane	8.05	57	17802	1.9180	ug/L	97
25) Diisopropyl ether	8.39	45	416199	24.2383	ug/L	99
26) Vinyl Acetate	8.56	43	13683	2.3658	ug/L	88
27) 1,1-Dichloroethane	8.60	63	27693	1.9721	ug/L	99
28) Ethyl-Tert-Butyl ether	8.96	59	402899	23.9815	ug/L	99
29) 2-Butanone	9.15	43	1546	1.4688	ug/L #	42
30) Propionitrile	9.26	54	6711	22.0600	ug/L	97
31) 2,2-Dichloropropane	9.37	77	26844	2.0165	ug/L	97
32) cis-1,2-Dichloroethene	9.44	96	18249	1.9692	ug/L	97
33) Chloroform	9.64	83	30890	1.9874	ug/L	99
34) 1-Bromopropane	9.78	122	2809	1.8998	ug/L	99
35) Bromochloromethane	9.88	130	8181	1.8891	ug/L	96
36) Tetrahydrofuran	9.90	42	17845	24.2194	ug/L	96
38) 1,1,1-Trichloroethane	10.18	97	27880	1.9588	ug/L	97
39) Cyclohexane	10.20	56	23250	1.9965	ug/L	98
40) 1,1-Dichloropropene	10.38	75	23426	1.9749	ug/L	98
41) Tert-Amyl-Methyl ether	10.47	73	365764	23.7992	ug/L	99
42) Carbon Tetrachloride	10.52	117	25363	1.9841	ug/L	97

(#) = qualifier out of range (m) = manual integration
 8M415825.D 8260WTR.M Tue Nov 01 11:07:38 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415825.D Vial: 6
 Acq On : 30 Oct 2016 20:25 Operator: FJB
 Sample : WG589331-05 2ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:02:28 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

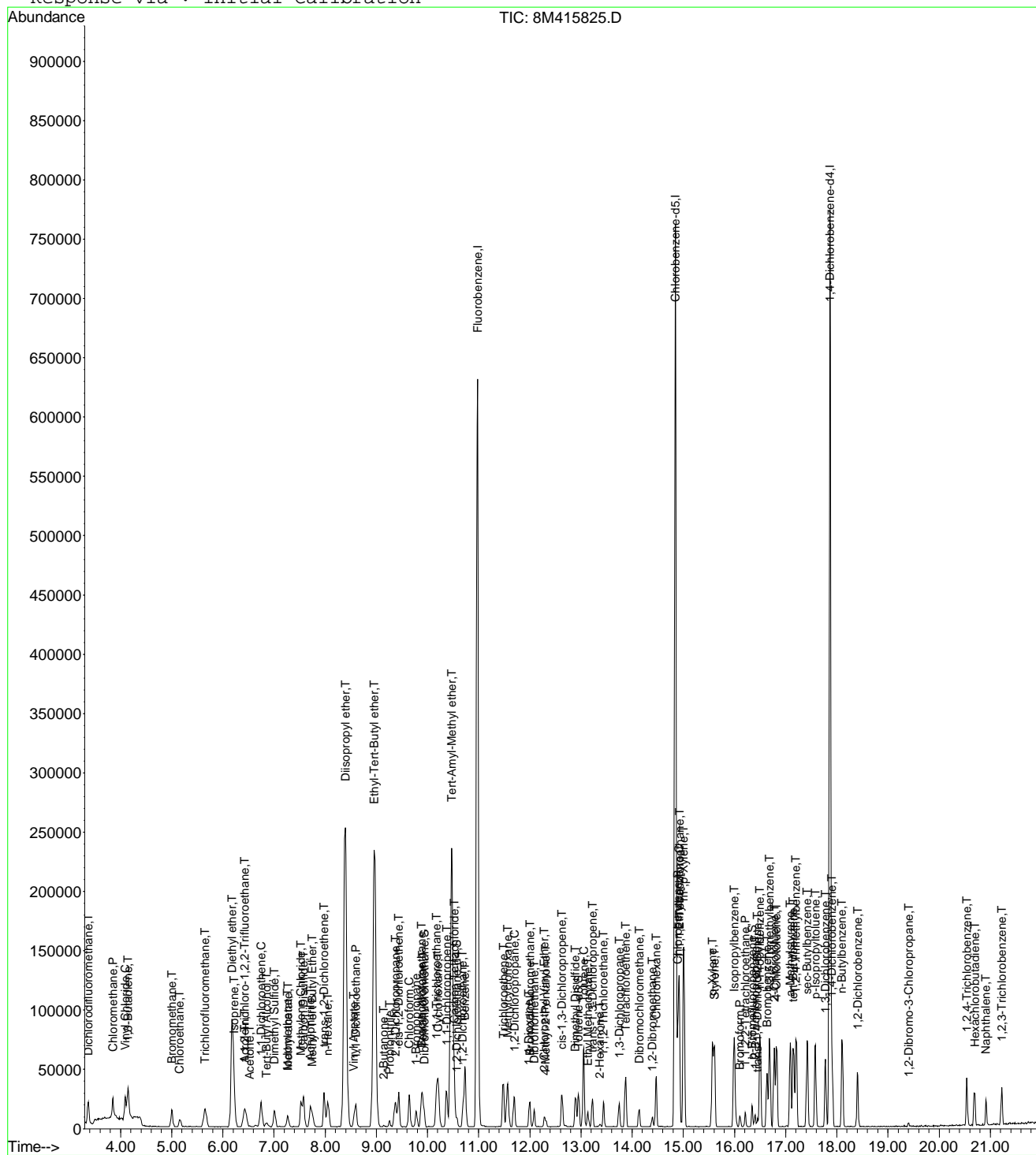
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	16107	1.9829	ug/L	98
46) Benzene	10.73	78	68245	2.0480	ug/L	99
47) Trichloroethene	11.48	130	16871	1.9109	ug/L	99
48) Methylcyclohexane	11.57	83	27869	1.9725	ug/L	97
49) 1,2-Dichloropropane	11.70	63	13367	1.8701	ug/L	100
50) Bromodichloromethane	12.00	83	19891	1.8776	ug/L	99
51) 1,4-Dioxane	11.98	88	637	55.7195	ug/L #	34
52) Dibromomethane	12.08	93	7413	2.0422	ug/L	96
53) 2-Chloroethyl Vinyl Ether	12.28	63	5252	1.8891	ug/L	89
54) 4-Methyl-2-Pentanone	12.31	58	1456	1.3622	ug/L #	72
55) cis-1,3-Dichloropropene	12.63	75	22479	1.9333	ug/L	99
56) Dimethyl Disulfide	12.89	79	10797	1.6548	ug/L	97
59) Toluene	13.06	91	72236	2.1148	ug/L	98
60) Ethyl Methacrylate	13.14	69	10909	1.8763	ug/L	97
62) trans-1,3-Dichloropropene	13.22	75	17442	1.8861	ug/L	98
63) 1,1,2-Trichloroethane	13.44	97	9630	2.0558	ug/L	94
64) 2-Hexanone	13.37	58	1615	1.7084	ug/L #	24
65) 1,3-Dichloropropane	13.75	76	16580	2.0101	ug/L	100
66) Tetrachloroethene	13.87	164	13130	1.9184	ug/L	99
67) Dibromochloromethane	14.14	129	11796	1.9286	ug/L	93
68) 1,2-Dibromoethane	14.39	107	8822	1.9344	ug/L	96
69) 1-Chlorohexane	14.47	91	23952	1.9780	ug/L	96
70) Chlorobenzene	14.90	112	43971	1.9693	ug/L	86
71) 1,1,1,2-Tetrachloroethane	14.93	131	14668	1.8575	ug/L	98
72) Ethylbenzene	14.92	106	25252	1.9090	ug/L	89
73) m-,p-Xylene	15.01	106	60764	4.0235	ug/L	92
74) o-Xylene	15.57	106	28191	1.8849	ug/L	95
75) Styrene	15.61	104	45993	1.9671	ug/L	97
76) Bromoform	16.11	173	5812	1.7648	ug/L	93
77) Isopropylbenzene	15.99	105	75607	2.0956	ug/L	100
79) 1,1,2,2-Tetrachloroethane	16.21	83	9423	2.0121	ug/L #	96
81) 1,2,3-Trichloropropane	16.41	110	2303	1.8073	ug/L	68
82) trans-1,4-Dichloro-2-Butene	16.45	53	1588	1.5523	ug/L #	32
83) n-Propylbenzene	16.50	91	90007	2.1095	ug/L	97
84) Bromobenzene	16.63	156	16634	2.0048	ug/L	99
85) 1,3,5-Trimethylbenzene	16.68	105	62360	2.0918	ug/L	96
86) 2-Chlorotoluene	16.78	91	56831	2.0914	ug/L	98
87) 4-Chlorotoluene	16.82	91	56156	2.1557	ug/L	98
88) a-Methylstyrene	17.09	118	30178	1.8197	ug/L	95
89) tert-Butylbenzene	17.15	134	12151	1.9143	ug/L	96
90) 1,2,4-Trimethylbenzene	17.20	105	62479	2.0680	ug/L	98
91) sec-Butylbenzene	17.42	105	78597	2.1617	ug/L	99
92) p-Isopropyltoluene	17.58	119	58494	2.0417	ug/L	98
93) 1,3-Dichlorobenzene	17.78	146	32575	2.0134	ug/L	98
94) 1,4-Dichlorobenzene	17.90	146	30603	1.9219	ug/L	85
95) n-Butylbenzene	18.10	91	61336	2.1073	ug/L	98
96) 1,2-Dichlorobenzene	18.41	146	26459	1.9754	ug/L	96
97) 1,2-Dibromo-3-Chloropropane	19.40	75	1360	1.8987	ug/L	71
98) 1,2,4-Trichlorobenzene	20.54	180	17279	1.9298	ug/L	96
99) Hexachlorobutadiene	20.70	225	8394	1.9484	ug/L	99
100) Naphthalene	20.91	128	22588	1.9379	ug/L	98
101) 1,2,3-Trichlorobenzene	21.22	180	13803	1.9926	ug/L	98

(#) = qualifier out of range (m) = manual integration
 8M415825.D 8260WTR.M Tue Nov 01 11:07:39 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415825.D Vial: 6
Acq On : 30 Oct 2016 20:25 Operator: FJB
Sample : WG589331-05 2ug/L STD 8260 Inst : HPMS8
Misc : 1,1 STD78763 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 31 11:02 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415826.D Vial: 7
 Acq On : 30 Oct 2016 20:54 Operator: FJB
 Sample : WG589331-06 5ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:02:44 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	816881	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	561426	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	257902	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	19523	2.4946	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	9.96%#	
43) 1,2-Dichloroethane-d4	10.57	65	16999	2.5316	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	10.12%#	
58) Toluene-d8	12.95	98	70253	2.4950	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	10.00%#	
80) p-Bromofluorobenzene	16.34	95	26158	2.4867	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	9.96%#	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	63307	4.7889	ug/L	98
3) Chloromethane	3.85	50	52936	5.0214	ug/L	94
4) Vinyl Chloride	4.09	62	59028	5.2979	ug/L	100
5) 1,3-Butadiene	4.14	54	42371	4.8034	ug/L	90
6) Bromomethane	5.00	94	35256	4.6521	ug/L	99
7) Chloroethane	5.17	64	28552	5.1118	ug/L	98
8) Trichlorofluoromethane	5.65	101	77019	5.0909	ug/L	98
9) Diethyl ether	6.18	59	184313	49.1214	ug/L	99
10) Isoprene	6.22	67	58222	4.8460	ug/L	99
11) Acrolein	6.42	56	9550	23.3642	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.44	101	41553	4.9939	ug/L	98
13) Acetone	6.52	43	3495	5.1745	ug/L #	65
14) 1,1-Dichloroethene	6.75	61	58447	5.1084	ug/L	97
15) Tert-Butyl Alcohol	6.85	59	19636	102.7627	ug/L #	94
16) Dimethyl Sulfide	7.01	62	31078	4.9835	ug/L	100
17) Iodomethane	7.26	142	36105	4.7021	ug/L	99
18) Methyl acetate	7.27	43	12230	5.3936	ug/L #	87
19) Methylene Chloride	7.53	84	39605	4.9197	ug/L	97
20) Carbon Disulfide	7.57	76	136132	5.1016	ug/L	100
21) Acrylonitrile	7.71	53	23123	23.6206	ug/L	88
22) Methyl Tert Butyl Ether	7.74	73	72995	5.0418	ug/L	99
23) trans-1,2-Dichloroethene	7.98	61	54189	4.9881	ug/L	99
24) n-Hexane	8.05	57	46093	5.0076	ug/L	99
25) Diisopropyl ether	8.39	45	856612	50.3025	ug/L	99
26) Vinyl Acetate	8.56	43	32012	5.5811	ug/L	98
27) 1,1-Dichloroethane	8.60	63	69178	4.9673	ug/L	100
28) Ethyl-Tert-Butyl ether	8.96	59	832227	49.9490	ug/L	99
29) 2-Butanone	9.15	43	5054	4.8417	ug/L	85
30) Propionitrile	9.26	54	14926	49.4728	ug/L	98
31) 2,2-Dichloropropane	9.37	77	67068	5.0802	ug/L	100
32) cis-1,2-Dichloroethene	9.44	96	44705	4.8643	ug/L	97
33) Chloroform	9.64	83	75886	4.9230	ug/L	100
34) 1-Bromopropane	9.79	122	7564	5.1585	ug/L	94
35) Bromochloromethane	9.88	130	22130	5.1527	ug/L	96
36) Tetrahydrofuran	9.90	42	34838	49.7091	ug/L	97
38) 1,1,1-Trichloroethane	10.18	97	71409	5.0590	ug/L	100
39) Cyclohexane	10.21	56	57116	4.9455	ug/L	98
40) 1,1-Dichloropropene	10.38	75	59816	5.0848	ug/L	99
41) Tert-Amyl-Methyl ether	10.47	73	763003	50.0602	ug/L	99
42) Carbon Tetrachloride	10.52	117	63409	5.0017	ug/L	97

(#) = qualifier out of range (m) = manual integration
 8M415826.D 8260WTR.M Tue Nov 01 11:07:43 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415826.D Vial: 7
 Acq On : 30 Oct 2016 20:54 Operator: FJB
 Sample : WG589331-06 5ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:02:44 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

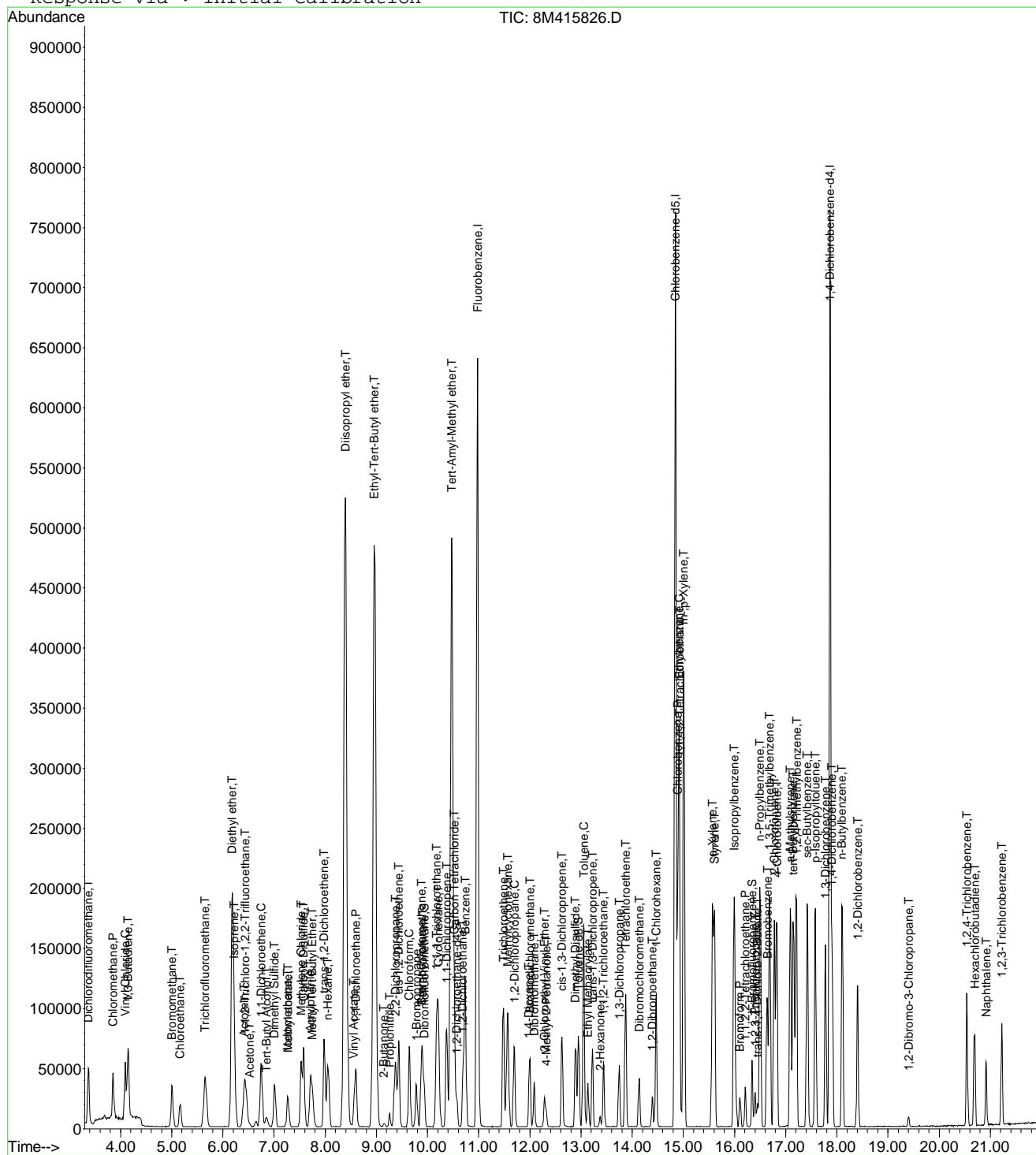
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	40808	5.0656	ug/L	100
46) Benzene	10.74	78	170203	5.1503	ug/L	100
47) Trichloroethene	11.48	130	43031	4.9146	ug/L	99
48) Methylcyclohexane	11.57	83	69047	4.9277	ug/L	98
49) 1,2-Dichloropropane	11.70	63	35825	5.0537	ug/L	95
50) Bromodichloromethane	12.00	83	51537	4.9054	ug/L	100
51) 1,4-Dioxane	11.98	88	1955	99.8113	ug/L	97
52) Dibromomethane	12.08	93	18657	5.1827	ug/L	97
53) 2-Chloroethyl Vinyl Ether	12.29	63	13608	4.9354	ug/L	96
54) 4-Methyl-2-Pentanone	12.32	58	4962	4.6810	ug/L	94
55) cis-1,3-Dichloropropene	12.63	75	58022	5.0318	ug/L	98
56) Dimethyl Disulfide	12.89	79	28195	4.3574	ug/L	94
59) Toluene	13.05	91	179010	5.2989	ug/L	98
60) Ethyl Methacrylate	13.14	69	28031	4.8747	ug/L	95
62) trans-1,3-Dichloropropene	13.22	75	45512	4.9762	ug/L	99
63) 1,1,2-Trichloroethane	13.44	97	23648	5.1045	ug/L	98
64) 2-Hexanone	13.37	58	4511	4.8250	ug/L	92
65) 1,3-Dichloropropane	13.75	76	41902	5.1366	ug/L	100
66) Tetrachloroethene	13.87	164	33337	4.9249	ug/L	99
67) Dibromochloromethane	14.14	129	29474	4.8725	ug/L	99
68) 1,2-Dibromoethane	14.39	107	23462	5.2017	ug/L	99
69) 1-Chlorohexane	14.47	91	60426	5.0456	ug/L	100
70) Chlorobenzene	14.89	112	111766	5.0613	ug/L	97
71) 1,1,1,2-Tetrachloroethane	14.93	131	36904	4.7253	ug/L	99
72) Ethylbenzene	14.92	106	63170	4.8285	ug/L	93
73) m-,p-Xylene	15.01	106	153630	10.2856	ug/L	94
74) o-Xylene	15.57	106	72572	4.9062	ug/L	95
75) Styrene	15.61	104	117919	5.0993	ug/L	99
76) Bromoform	16.10	173	15266	4.6869	ug/L	98
77) Isopropylbenzene	15.99	105	191615	5.3700	ug/L	99
79) 1,1,2,2-Tetrachloroethane	16.21	83	23995	5.1016	ug/L	97
81) 1,2,3-Trichloropropane	16.40	110	6637	5.1862	ug/L	88
82) trans-1,4-Dichloro-2-Butene	16.45	53	5545	5.3970	ug/L	90
83) n-Propylbenzene	16.50	91	228682	5.3365	ug/L	98
84) Bromobenzene	16.64	156	41271	4.9526	ug/L	99
85) 1,3,5-Trimethylbenzene	16.68	105	158109	5.2807	ug/L	99
86) 2-Chlorotoluene	16.78	91	139397	5.1077	ug/L	99
87) 4-Chlorotoluene	16.83	91	139233	5.3217	ug/L	99
88) a-Methylstyrene	17.09	118	80047	4.8059	ug/L	98
89) tert-Butylbenzene	17.15	134	30103	4.7222	ug/L	93
90) 1,2,4-Trimethylbenzene	17.21	105	161645	5.3274	ug/L	97
91) sec-Butylbenzene	17.42	105	198200	5.4277	ug/L	98
92) p-Isopropyltoluene	17.58	119	151320	5.2589	ug/L	99
93) 1,3-Dichlorobenzene	17.78	146	81597	5.0216	ug/L	99
94) 1,4-Dichlorobenzene	17.90	146	79339	4.9612	ug/L	94
95) n-Butylbenzene	18.10	91	154721	5.2927	ug/L	98
96) 1,2-Dichlorobenzene	18.41	146	67575	5.0234	ug/L	99
97) 1,2-Dibromo-3-Chloropropane	19.40	75	3622	5.0350	ug/L	92
98) 1,2,4-Trichlorobenzene	20.54	180	43153	4.7988	ug/L	98
99) Hexachlorobutadiene	20.70	225	21501	4.9694	ug/L	99
100) Naphthalene	20.92	128	56541	4.8300	ug/L	99
101) 1,2,3-Trichlorobenzene	21.22	180	33296	4.7859	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M415826.D 8260WTR.M Tue Nov 01 11:07:43 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415826.D Vial: 7
 Acq On : 30 Oct 2016 20:54 Operator: FJB
 Sample : WG589331-06 5ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 11:02 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415827.D Vial: 8
 Acq On : 30 Oct 2016 21:23 Operator: FJB
 Sample : WG589331-07 20ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	822769	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.85	117	561517	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	258640	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	80515	10.0910	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	40.36%#	
43) 1,2-Dichloroethane-d4	10.58	65	68351	10.7243	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	42.88%#	
58) Toluene-d8	12.95	98	287694	11.4395	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	45.76%#	
80) p-Bromofluorobenzene	16.35	95	105193	13.8801	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	55.52%#	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	291720	22.6567	ug/L	100
3) Chloromethane	3.84	50	217772	19.0521	ug/L	99
4) Vinyl Chloride	4.08	62	233828	18.6960	ug/L	98
5) 1,3-Butadiene	4.14	54	162091	19.5416	ug/L	92
6) Bromomethane	5.00	94	147504	21.7681	ug/L	96
7) Chloroethane	5.16	64	113773	22.0410	ug/L	98
8) Trichlorofluoromethane	5.65	101	305955	21.4885	ug/L	99
9) Diethyl ether	6.18	59	298439	85.4642	ug/L	97
10) Isoprene	6.22	67	235604	21.0281	ug/L	93
11) Acrolein	6.42	56	15718	16378.1254	ug/L	93
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	166058	19.8982	ug/L	94
13) Acetone	6.51	43	13659	20.2255	ug/L	98
14) 1,1-Dichloroethene	6.74	61	228956	21.8104	ug/L	87
15) Tert-Butyl Alcohol	6.84	59	30012	141.7006	ug/L	97
16) Dimethyl Sulfide	7.01	62	124300	19.3918	ug/L	91
17) Iodomethane	7.27	142	158496	20.0534	ug/L	92
18) Methyl acetate	7.27	43	43121	20.6126	ug/L	97
19) Methylene Chloride	7.53	84	154752	18.1957	ug/L	98
20) Carbon Disulfide	7.58	76	543366	20.7439	ug/L	100
21) Acrylonitrile	7.70	53	39215	42.1893	ug/L	99
22) Methyl Tert Butyl Ether	7.73	73	285206	19.7917	ug/L	98
23) trans-1,2-Dichloroethene	7.98	61	214011	21.3892	ug/L	89
24) n-Hexane	8.05	57	182854	20.1250	ug/L	100
25) Diisopropyl ether	8.38	45	1382086	79.8475	ug/L	96
26) Vinyl Acetate	8.56	43	114685	15.7692	ug/L	98
27) 1,1-Dichloroethane	8.60	63	277332	20.7191	ug/L	99
28) Ethyl-Tert-Butyl ether	8.96	59	1350465	82.2169	ug/L	97
29) 2-Butanone	9.15	43	20502	18.6305	ug/L	97
30) Propionitrile	9.25	54	23912	75.2747	ug/L	95
31) 2,2-Dichloropropane	9.37	77	259914	20.0733	ug/L	100
32) cis-1,2-Dichloroethene	9.44	96	180178	19.6028	ug/L	85
33) Chloroform	9.65	83	298635	19.5461	ug/L	96
34) 1-Bromopropane	9.78	122	29768	18.9618	ug/L	98
35) Bromochloromethane	9.87	130	85592	17.7105	ug/L	99
36) Tetrahydrofuran	9.90	42	53796	69.7946	ug/L	99
38) 1,1,1-Trichloroethane	10.17	97	279522	19.8608	ug/L	100
39) Cyclohexane	10.20	56	224975	20.2784	ug/L	98
40) 1,1-Dichloropropene	10.37	75	231425	19.8604	ug/L	95
41) Tert-Amyl-Methyl ether	10.47	73	1213759	74.5361	ug/L	98
42) Carbon Tetrachloride	10.51	117	252676	19.3815	ug/L	98

(#) = qualifier out of range (m) = manual integration
 8M415827.D 8260WTR.M Tue Nov 01 11:07:46 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415827.D Vial: 8
 Acq On : 30 Oct 2016 21:23 Operator: FJB
 Sample : WG589331-07 20ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	159668	19.1252	ug/L	95
46) Benzene	10.73	78	674367	20.4108	ug/L	94
47) Trichloroethene	11.49	130	169466	17.8058	ug/L	98
48) Methylcyclohexane	11.57	83	273672	18.9273	ug/L	97
49) 1,2-Dichloropropane	11.69	63	139723	19.1644	ug/L	85
50) Bromodichloromethane	11.99	83	209622	19.0388	ug/L	97
51) 1,4-Dioxane	11.98	88	3239	99.8905	ug/L	87
52) Dibromomethane	12.09	93	73722	18.0260	ug/L	93
53) 2-Chloroethyl Vinyl Ether	12.28	63	52421	18.3217	ug/L	94
54) 4-Methyl-2-Pentanone	12.31	58	20312	18.0894	ug/L	96
55) cis-1,3-Dichloropropene	12.62	75	229769	19.2579	ug/L	100
56) Dimethyl Disulfide	12.89	79	122511	18.5252	ug/L	91
59) Toluene	13.05	91	704075	22.0815	ug/L	100
60) Ethyl Methacrylate	13.13	69	115100	20.9980	ug/L	95
62) trans-1,3-Dichloropropene	13.22	75	183303	20.5961	ug/L	99
63) 1,1,2-Trichloroethane	13.44	97	94698	20.0160	ug/L	99
64) 2-Hexanone	13.37	58	18493	20.5151	ug/L #	91
65) 1,3-Dichloropropane	13.75	76	165068	20.1578	ug/L	94
66) Tetrachloroethene	13.87	164	130490	16.7166	ug/L	98
67) Dibromochloromethane	14.13	129	122326	18.6644	ug/L	99
68) 1,2-Dibromoethane	14.39	107	91138	19.0904	ug/L	100
69) 1-Chlorohexane	14.46	91	239466	21.6160	ug/L	86
70) Chlorobenzene	14.90	112	430442	18.2281	ug/L	97
71) 1,1,1,2-Tetrachloroethane	14.93	131	151042	17.4597	ug/L	99
72) Ethylbenzene	14.92	106	254704	19.8957	ug/L	91
73) m-,p-Xylene	15.01	106	608828	42.2584	ug/L	90
74) o-Xylene	15.57	106	288615	19.6407	ug/L	89
75) Styrene	15.61	104	473142	21.5635	ug/L	89
76) Bromoform	16.11	173	66095	15.3024	ug/L	98
77) Isopropylbenzene	15.99	105	746159	21.3226	ug/L	99
79) 1,1,2,2-Tetrachloroethane	16.21	83	93673	23.1251	ug/L	96
81) 1,2,3-Trichloropropane	16.41	110	26655	23.9199	ug/L #	28
82) trans-1,4-Dichloro-2-Butene	16.45	53	22712	28.1598	ug/L #	6
83) n-Propylbenzene	16.50	91	887938	26.2192	ug/L	100
84) Bromobenzene	16.63	156	163704	20.2948	ug/L	81
85) 1,3,5-Trimethylbenzene	16.69	105	622819	26.7108	ug/L	99
86) 2-Chlorotoluene	16.78	91	571492	26.4831	ug/L	100
87) 4-Chlorotoluene	16.82	91	516615	25.4686	ug/L	98
88) a-Methylstyrene	17.09	118	324064	22.8688	ug/L	91
89) tert-Butylbenzene	17.15	134	122590	22.2218	ug/L	86
90) 1,2,4-Trimethylbenzene	17.20	105	630560	25.8531	ug/L	98
91) sec-Butylbenzene	17.42	105	772832	26.1287	ug/L	99
92) p-Isopropyltoluene	17.58	119	594691	24.1921	ug/L	97
93) 1,3-Dichlorobenzene	17.78	146	316699	20.6591	ug/L	96
94) 1,4-Dichlorobenzene	17.91	146	309024	20.0786	ug/L	96
95) n-Butylbenzene	18.10	91	608074	24.7491	ug/L	100
96) 1,2-Dichlorobenzene	18.40	146	264215	20.0275	ug/L	94
97) 1,2-Dibromo-3-Chloropropane	19.40	75	13821	22.4729	ug/L	90
98) 1,2,4-Trichlorobenzene	20.54	180	170874	17.2429	ug/L	99
99) Hexachlorobutadiene	20.69	225	82554	15.0996	ug/L	98
100) Naphthalene	20.92	128	231245	21.0293	ug/L	99
101) 1,2,3-Trichlorobenzene	21.23	180	133924	17.5186	ug/L	98

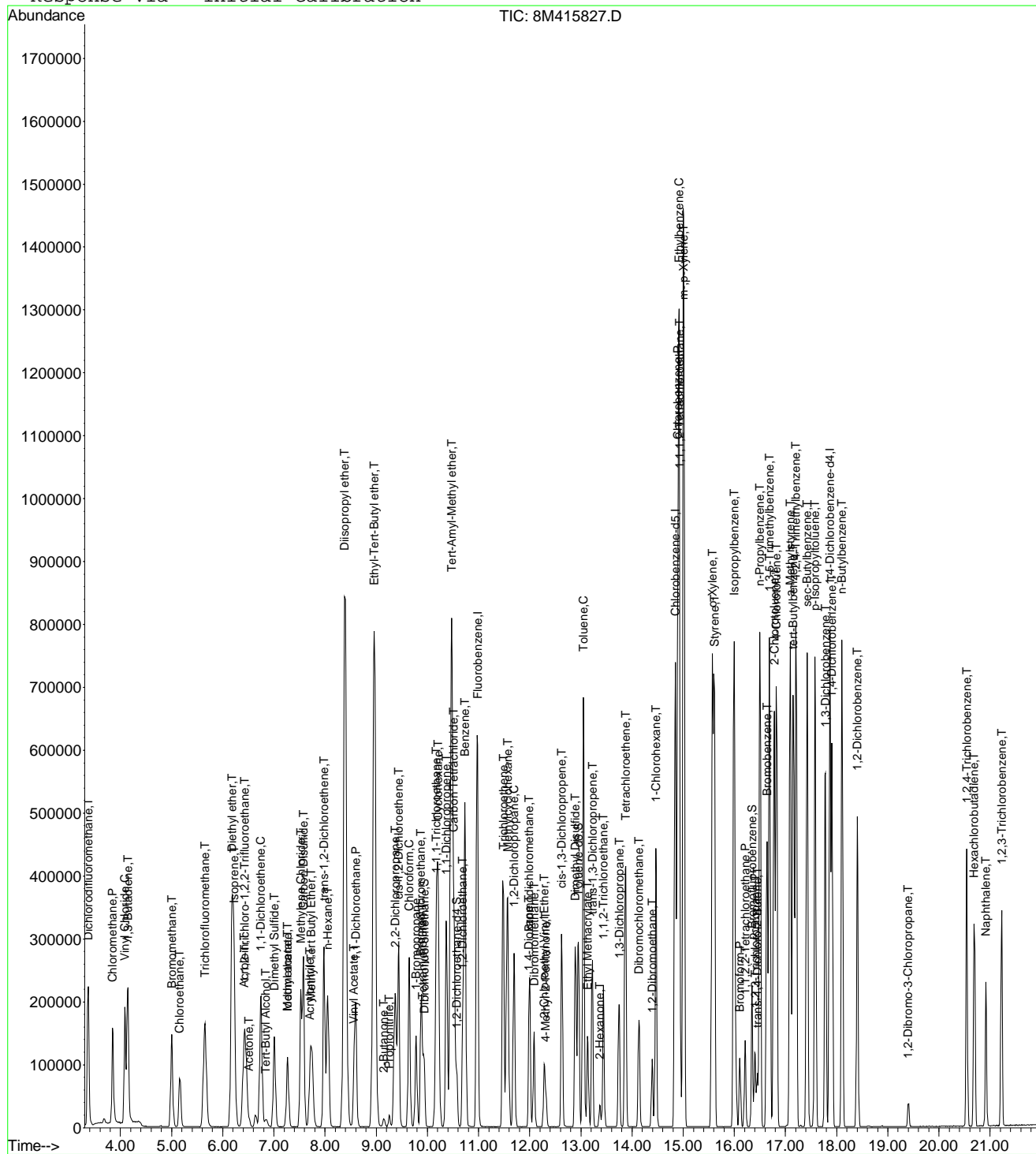
(#) = qualifier out of range (m) = manual integration
 8M415827.D 8260WTR.M Tue Nov 01 11:07:47 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415827.D Vial: 8
 Acq On : 30 Oct 2016 21:23 Operator: FJB
 Sample : WG589331-07 20ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:44 2016

Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415828.D Vial: 9
 Acq On : 30 Oct 2016 21:52 Operator: FJB
 Sample : WG589331-08 50ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	825560	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	566473	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	263212	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	201593	25.1804	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	100.72%	
43) 1,2-Dichloroethane-d4	10.57	65	171738	26.8548	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	107.40%	
58) Toluene-d8	12.95	98	718567	28.3222	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	113.28%#	
80) p-Bromofluorobenzene	16.34	95	267897	34.7348	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	138.92%#	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	717837	55.5629	ug/L	100
3) Chloromethane	3.85	50	519653	45.3088	ug/L	100
4) Vinyl Chloride	4.08	62	540805	43.0946	ug/L	98
5) 1,3-Butadiene	4.14	54	297012	35.6865	ug/L	90
6) Bromomethane	5.00	94	369121	54.2895	ug/L	97
7) Chloroethane	5.16	64	281400	54.3307	ug/L	98
8) Trichlorofluoromethane	5.65	101	756476	52.9510	ug/L	99
9) Diethyl ether	6.18	59	380366	108.5574	ug/L	97
10) Isoprene	6.22	67	599527	53.3280	ug/L	92
11) Acrolein	6.42	56	21335	22155.8712	ug/L	97
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	411460	49.1372	ug/L	95
13) Acetone	6.52	43	35115	51.8207	ug/L	90
14) 1,1-Dichloroethene	6.75	61	565071	53.6468	ug/L	86
15) Tert-Butyl Alcohol	6.85	59	39982	188.1355	ug/L	97
16) Dimethyl Sulfide	7.01	62	312153	48.5338	ug/L	93
17) Iodomethane	7.27	142	402901	50.8040	ug/L	92
18) Methyl acetate	7.27	43	109606	52.2164	ug/L	99
19) Methylene Chloride	7.52	84	390425	45.7509	ug/L	96
20) Carbon Disulfide	7.58	76	1353469	51.4961	ug/L	99
21) Acrylonitrile	7.71	53	53386	57.2410	ug/L	97
22) Methyl Tert Butyl Ether	7.73	73	732148	50.6352	ug/L	98
23) trans-1,2-Dichloroethene	7.98	61	531707	52.9616	ug/L	88
24) n-Hexane	8.05	57	453892	49.7866	ug/L	100
25) Diisopropyl ether	8.39	45	1739151	100.1365	ug/L	96
26) Vinyl Acetate	8.56	43	277149	37.9792	ug/L	96
27) 1,1-Dichloroethane	8.60	63	689969	51.3723	ug/L	99
28) Ethyl-Tert-Butyl ether	8.96	59	1717212	104.1912	ug/L	96
29) 2-Butanone	9.15	43	53706	48.6386	ug/L	91
30) Propionitrile	9.25	54	32081	100.6493	ug/L	92
31) 2,2-Dichloropropane	9.37	77	647587	49.8444	ug/L	100
32) cis-1,2-Dichloroethene	9.44	96	452857	49.1029	ug/L	84
33) Chloroform	9.64	83	746431	48.6897	ug/L	97
34) 1-Bromopropane	9.78	122	75052	47.6455	ug/L	97
35) Bromochloromethane	9.88	130	215979	44.5389	ug/L	99
36) Tetrahydrofuran	9.90	42	70068	90.5984	ug/L	99
38) 1,1,1-Trichloroethane	10.18	97	699775	49.5527	ug/L	99
39) Cyclohexane	10.21	56	559575	50.2675	ug/L	98
40) 1,1-Dichloropropene	10.37	75	579039	49.5238	ug/L	95
41) Tert-Amyl-Methyl ether	10.47	73	1568543	95.9976	ug/L	97
42) Carbon Tetrachloride	10.52	117	638486	48.8093	ug/L	97

(#) = qualifier out of range (m) = manual integration
 8M415828.D 8260WTR.M Tue Nov 01 11:07:50 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415828.D Vial: 9
 Acq On : 30 Oct 2016 21:52 Operator: FJB
 Sample : WG589331-08 50ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

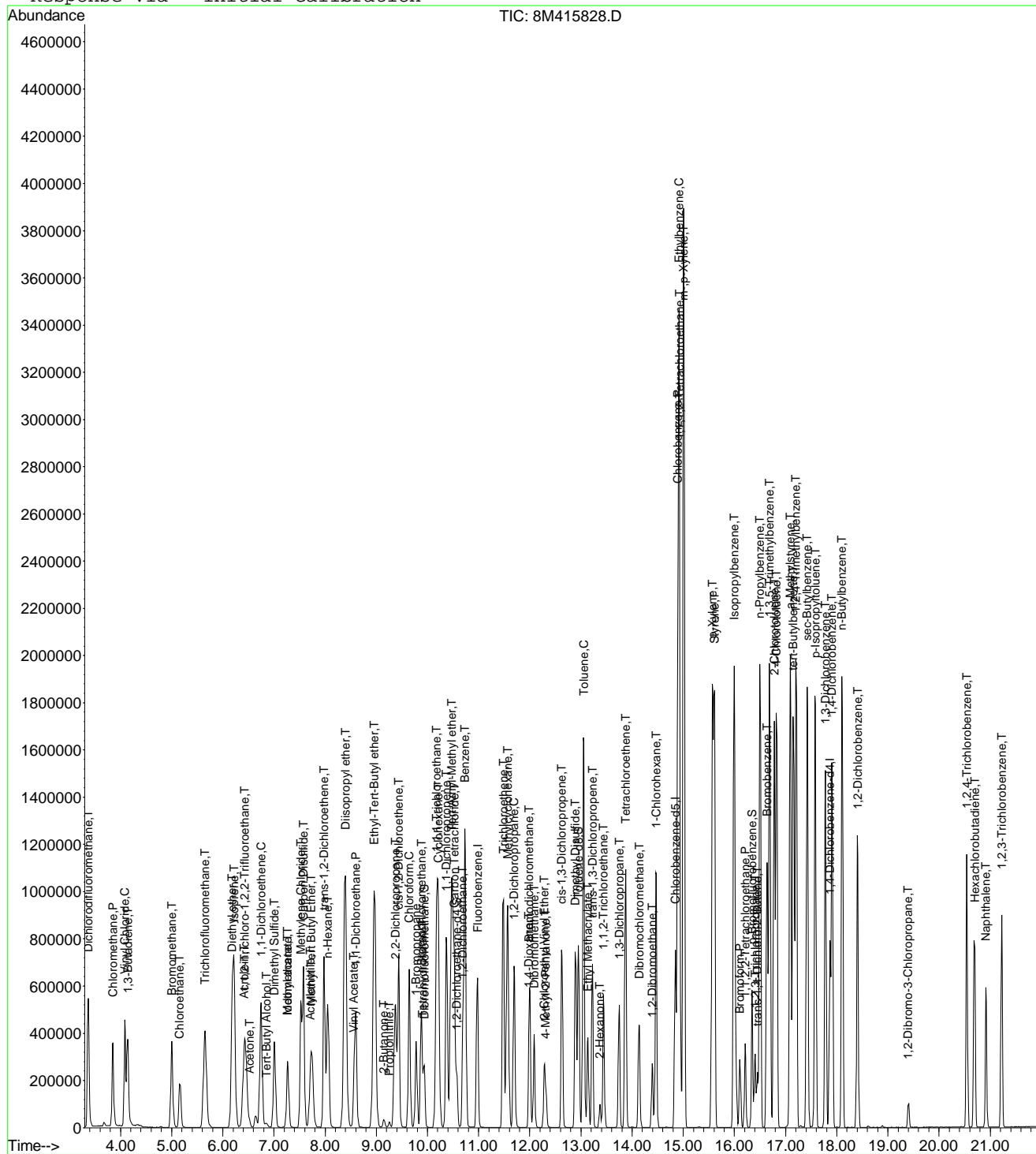
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	409340	48.8655	ug/L	96
46) Benzene	10.73	78	1665446	50.2370	ug/L	95
47) Trichloroethene	11.48	130	428177	44.8364	ug/L	98
48) Methylcyclohexane	11.57	83	690935	47.6238	ug/L	97
49) 1,2-Dichloropropane	11.69	63	349709	47.8039	ug/L	85
50) Bromodichloromethane	11.99	83	534141	48.3490	ug/L	96
51) 1,4-Dioxane	11.98	88	5749	176.6993	ug/L	84
52) Dibromomethane	12.08	93	188461	45.9253	ug/L	93
53) 2-Chloroethyl Vinyl Ether	12.28	63	143247	49.8971	ug/L	94
54) 4-Methyl-2-Pentanone	12.31	58	55337	49.1151	ug/L	95
55) cis-1,3-Dichloropropene	12.62	75	584906	48.8577	ug/L	99
56) Dimethyl Disulfide	12.89	79	322569	48.6116	ug/L	92
59) Toluene	13.06	91	1743417	54.1994	ug/L	99
60) Ethyl Methacrylate	13.14	69	301407	54.5055	ug/L	95
62) trans-1,3-Dichloropropene	13.22	75	473533	52.7411	ug/L	98
63) 1,1,2-Trichloroethane	13.44	97	239958	50.2753	ug/L	100
64) 2-Hexanone	13.37	58	49855	54.8225	ug/L #	93
65) 1,3-Dichloropropane	13.75	76	415865	50.3404	ug/L	95
66) Tetrachloroethene	13.87	164	329485	41.8398	ug/L	98
67) Dibromochloromethane	14.14	129	316725	47.9028	ug/L	100
68) 1,2-Dibromoethane	14.39	107	233165	48.4130	ug/L	100
69) 1-Chlorohexane	14.47	91	599971	53.6840	ug/L	87
70) Chlorobenzene	14.90	112	1114217	46.7714	ug/L	95
71) 1,1,1,2-Tetrachloroethane	14.93	131	399226	45.7448	ug/L	99
72) Ethylbenzene	14.92	106	667395	51.6763	ug/L	86
73) m-,p-Xylene	15.01	106	1570450	108.0504	ug/L	87
74) o-Xylene	15.57	106	739437	49.8796	ug/L	87
75) Styrene	15.61	104	1221969	55.2042	ug/L	89
76) Bromoform	16.11	173	173910	39.9116	ug/L	99
77) Isopropylbenzene	15.99	105	1872895	53.0524	ug/L	98
79) 1,1,2,2-Tetrachloroethane	16.21	83	243287	59.0170	ug/L	97
81) 1,2,3-Trichloropropane	16.41	110	67191	59.2492	ug/L #	27
82) trans-1,4-Dichloro-2-Butene	16.45	53	55200	67.2518	ug/L #	1
83) n-Propylbenzene	16.50	91	2191240	63.5793	ug/L	99
84) Bromobenzene	16.63	156	415993	50.6758	ug/L	98
85) 1,3,5-Trimethylbenzene	16.68	105	1563745	65.8994	ug/L	97
86) 2-Chlorotoluene	16.78	91	1401940	63.8379	ug/L	98
87) 4-Chlorotoluene	16.82	91	1356074	65.6919	ug/L	97
88) a-Methylstyrene	17.09	118	853204	59.1637	ug/L	90
89) tert-Butylbenzene	17.15	134	311019	55.3988	ug/L	86
90) 1,2,4-Trimethylbenzene	17.20	105	1592988	64.1784	ug/L	97
91) sec-Butylbenzene	17.42	105	1924603	63.9386	ug/L	100
92) p-Isopropyltoluene	17.58	119	1495182	59.7677	ug/L	95
93) 1,3-Dichlorobenzene	17.78	146	816638	52.3460	ug/L	96
94) 1,4-Dichlorobenzene	17.90	146	789986	50.4371	ug/L	96
95) n-Butylbenzene	18.10	91	1522395	60.8864	ug/L	99
96) 1,2-Dichlorobenzene	18.41	146	671243	49.9963	ug/L	96
97) 1,2-Dibromo-3-Chloropropane	19.39	75	36740	58.7014	ug/L	88
98) 1,2,4-Trichlorobenzene	20.54	180	440799	43.7085	ug/L	99
99) Hexachlorobutadiene	20.70	225	212044	38.1105	ug/L	98
100) Naphthalene	20.91	128	612609	54.7428	ug/L	99
101) 1,2,3-Trichlorobenzene	21.22	180	349185	44.8834	ug/L	97

(#) = qualifier out of range (m) = manual integration
 8M415828.D 8260WTR.M Tue Nov 01 11:07:51 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415828.D Vial: 9
Acq On : 30 Oct 2016 21:52 Operator: FJB
Sample : WG589331-08 50ug/L STD 8260 Inst : HPMS8
Misc : 1,1 STD78763 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 31 10:44 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415829.D Vial: 10
 Acq On : 30 Oct 2016 22:21 Operator: FJB
 Sample : WG589331-09 100ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Oct 31 09:44:22 2016

Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	839350	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	587927	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	270823	25.00	ug/L	0.00

System Monitoring Compounds

37) Dibromofluoromethane	9.93	111	409595	50.3208	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	201.28%#	
43) 1,2-Dichloroethane-d4	10.57	65	345576	53.1501	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	212.60%#	
58) Toluene-d8	12.95	98	1461354	55.4972	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	222.00%#	
80) p-Bromofluorobenzene	16.34	95	544870	68.6609	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	274.64%#	

Target Compounds

						Qvalue
2) Dichlorodifluoromethane	3.37	85	1445861	110.0757	ug/L	99
3) Chloromethane	3.84	50	1029952	88.3267	ug/L	99
4) Vinyl Chloride	4.08	62	1019929	79.9388	ug/L	97
5) 1,3-Butadiene	4.12	54	351235	41.5081	ug/L	92
6) Bromomethane	5.00	94	785937	113.6947	ug/L	96
7) Chloroethane	5.16	64	577914	109.7462	ug/L	98
8) Trichlorofluoromethane	5.64	101	1552656	106.8955	ug/L	100
9) Diethyl ether	6.17	59	790991	222.0419	ug/L	96
10) Isoprene	6.21	67	1254287	109.7360	ug/L	91
11) Acrolein	6.42	56	43671	44606.1632	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	848488	99.6631	ug/L	96
13) Acetone	6.51	43	68945	100.0734	ug/L	86
14) 1,1-Dichloroethene	6.74	61	1167670	109.0352	ug/L	86
15) Tert-Butyl Alcohol	6.84	59	81677	378.0171	ug/L	98
16) Dimethyl Sulfide	7.01	62	642223	98.2128	ug/L	91
17) Iodomethane	7.27	142	852271	105.7019	ug/L	92
18) Methyl acetate	7.27	43	235050	110.1383	ug/L	99
19) Methylene Chloride	7.52	84	802014	92.4378	ug/L	96
20) Carbon Disulfide	7.58	76	2749539	102.8944	ug/L	99
21) Acrylonitrile	7.70	53	107078	112.9237	ug/L	98
22) Methyl Tert Butyl Ether	7.73	73	1497343	101.8546	ug/L	98
23) trans-1,2-Dichloroethene	7.98	61	1095659	107.3419	ug/L	88
24) n-Hexane	8.05	57	934730	100.8443	ug/L	100
25) Diisopropyl ether	8.38	45	3534561	200.1688	ug/L	96
26) Vinyl Acetate	8.56	43	526775	71.0009	ug/L	95
27) 1,1-Dichloroethane	8.60	63	1417172	103.7833	ug/L	99
28) Ethyl-Tert-Butyl ether	8.96	59	3508994	209.4089	ug/L	95
29) 2-Butanone	9.15	43	109287	97.3491	ug/L	92
30) Propionitrile	9.25	54	65012	200.6142	ug/L	96
31) 2,2-Dichloropropane	9.37	77	1332430	100.8715	ug/L	99
32) cis-1,2-Dichloroethene	9.44	96	938270	100.0644	ug/L	84
33) Chloroform	9.64	83	1529505	98.1306	ug/L	96
34) 1-Bromopropane	9.78	122	153303	95.7229	ug/L	99
35) Bromochloromethane	9.88	130	447399	90.7462	ug/L	98
36) Tetrahydrofuran	9.90	42	139803	177.7964	ug/L	97
38) 1,1,1-Trichloroethane	10.17	97	1460605	101.7296	ug/L	99
39) Cyclohexane	10.20	56	1170377	103.4094	ug/L	97
40) 1,1-Dichloropropene	10.37	75	1204405	101.3175	ug/L	94
41) Tert-Amyl-Methyl ether	10.47	73	3222091	193.9577	ug/L	97
42) Carbon Tetrachloride	10.52	117	1332073	100.1579	ug/L	98

(#) = qualifier out of range (m) = manual integration
 8M415829.D 8260WTR.M Tue Nov 01 11:07:54 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415829.D Vial: 10
 Acq On : 30 Oct 2016 22:21 Operator: FJB
 Sample : WG589331-09 100ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

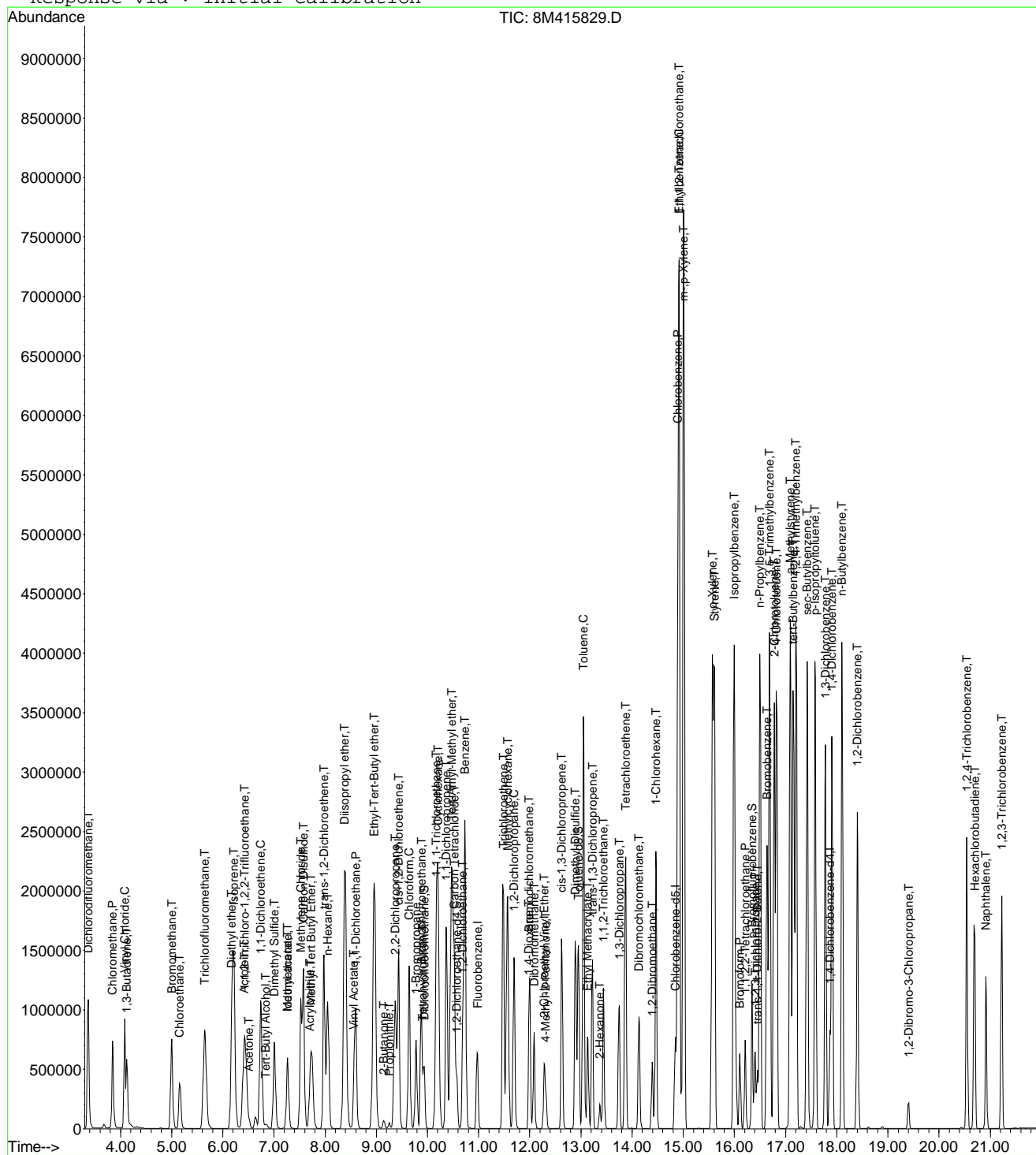
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	835945	98.1525	ug/L	95
46) Benzene	10.73	78	3365295	99.8439	ug/L	95
47) Trichloroethene	11.48	130	898293	92.5190	ug/L	98
48) Methylcyclohexane	11.57	83	1431366	97.0383	ug/L	96
49) 1,2-Dichloropropane	11.69	63	726637	97.6966	ug/L	85
50) Bromodichloromethane	11.99	83	1102145	98.1242	ug/L	96
51) 1,4-Dioxane	11.98	88	11020	333.1422	ug/L	94
52) Dibromomethane	12.08	93	387365	92.8445	ug/L	93
53) 2-Chloroethyl Vinyl Ether	12.28	63	286592	98.1883	ug/L	95
54) 4-Methyl-2-Pentanone	12.31	58	110131	96.1424	ug/L	95
55) cis-1,3-Dichloropropene	12.62	75	1209397	99.3621	ug/L	98
56) Dimethyl Disulfide	12.89	79	678191	100.5253	ug/L	93
59) Toluene	13.05	91	3534443	105.8693	ug/L	96
60) Ethyl Methacrylate	13.13	69	618957	107.8458	ug/L	94
62) trans-1,3-Dichloropropene	13.22	75	983363	105.5282	ug/L	99
63) 1,1,2-Trichloroethane	13.44	97	491952	99.3111	ug/L	99
64) 2-Hexanone	13.37	58	99186	105.0888	ug/L #	94
65) 1,3-Dichloropropane	13.75	76	849395	99.0673	ug/L	94
66) Tetrachloroethene	13.87	164	697886	85.3875	ug/L	97
67) Dibromochloromethane	14.13	129	665978	97.0497	ug/L	100
68) 1,2-Dibromoethane	14.39	107	478588	95.7449	ug/L	99
69) 1-Chlorohexane	14.46	91	1259568	108.5906	ug/L	87
70) Chlorobenzene	14.90	112	2380318	96.2723	ug/L	95
71) 1,1,1,2-Tetrachloroethane	14.92	131	881880	97.3618	ug/L	99
72) Ethylbenzene	14.92	106	1470259	109.6877	ug/L	76
73) m-,p-Xylene	15.01	106	3329273	220.7025	ug/L	73
74) o-Xylene	15.57	106	1583799	102.9385	ug/L	82
75) Styrene	15.61	104	2556025	111.2583	ug/L	91
76) Bromoform	16.11	173	371051	82.0473	ug/L	99
77) Isopropylbenzene	15.99	105	3797693	103.6495	ug/L	95
79) 1,1,2,2-Tetrachloroethane	16.21	83	499505	117.7655	ug/L	96
81) 1,2,3-Trichloropropane	16.41	110	140301	120.2409	ug/L #	28
82) trans-1,4-Dichloro-2-Butene	16.45	53	115123	136.3161	ug/L #	1
83) n-Propylbenzene	16.50	91	4319062	121.7967	ug/L	95
84) Bromobenzene	16.63	156	880117	104.2019	ug/L	99
85) 1,3,5-Trimethylbenzene	16.69	105	3213655	131.6240	ug/L	94
86) 2-Chlorotoluene	16.78	91	2891103	127.9478	ug/L	97
87) 4-Chlorotoluene	16.82	91	2747221	129.3428	ug/L	95
88) a-Methylstyrene	17.09	118	1797029	121.1094	ug/L	91
89) tert-Butylbenzene	17.15	134	673331	116.5634	ug/L	81
90) 1,2,4-Trimethylbenzene	17.20	105	3267176	127.9290	ug/L	94
91) sec-Butylbenzene	17.42	105	3876368	125.1605	ug/L	97
92) p-Isopropyltoluene	17.57	119	3092561	120.1465	ug/L	92
93) 1,3-Dichlorobenzene	17.78	146	1708435	106.4320	ug/L	97
94) 1,4-Dichlorobenzene	17.91	146	1660030	103.0071	ug/L	96
95) n-Butylbenzene	18.10	91	3108992	120.8462	ug/L	97
96) 1,2-Dichlorobenzene	18.40	146	1416576	102.5459	ug/L	96
97) 1,2-Dibromo-3-Chloropropane	19.40	75	78241	121.4965	ug/L	86
98) 1,2,4-Trichlorobenzene	20.54	180	950352	91.5861	ug/L	99
99) Hexachlorobutadiene	20.70	225	459141	80.2019	ug/L	98
100) Naphthalene	20.91	128	1298755	112.7952	ug/L	99
101) 1,2,3-Trichlorobenzene	21.22	180	741872	92.6785	ug/L	98

(#) = qualifier out of range (m) = manual integration
 8M415829.D 8260WTR.M Tue Nov 01 11:07:55 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415829.D Vial: 10
 Acq On : 30 Oct 2016 22:21 Operator: FJB
 Sample : WG589331-09 100ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:44 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415830.D Vial: 11
 Acq On : 30 Oct 2016 22:50 Operator: FJB
 Sample : WG589331-10 200ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Oct 31 09:44:23 2016

Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	842457	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	597622	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	274553	25.00	ug/L	0.00

System Monitoring Compounds

37) Dibromofluoromethane	9.93	111	833141	101.9780	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	407.92%#	
43) 1,2-Dichloroethane-d4	10.57	65	697240	106.8411	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	427.36%#	
58) Toluene-d8	12.95	98	2959406	110.5647	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	442.24%#	
80) p-Bromofluorobenzene	16.34	95	1119024	139.0962	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	556.40%#	

Target Compounds

					Qvalue
2) Dichlorodifluoromethane	3.37	85	2992912	227.0148	ug/L 97
3) Chloromethane	3.85	50	2053059	175.4170	ug/L 98
4) Vinyl Chloride	4.08	62	1939439	151.4465	ug/L 96
5) 1,3-Butadiene	4.12	54	572711	67.4320	ug/L 92
6) Bromomethane	5.00	94	1713229	246.9239	ug/L 96
7) Chloroethane	5.16	64	1227035	232.1554	ug/L 98
8) Trichlorofluoromethane	5.65	101	3287621	225.5077	ug/L 99
10) Isoprene	6.22	67	2560204	223.1629	ug/L 91
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	1817074	212.6457	ug/L 96
13) Acetone	6.52	43	137849	199.3494	ug/L 86
14) 1,1-Dichloroethene	6.75	61	2460631	228.9224	ug/L 84
16) Dimethyl Sulfide	7.01	62	1327136	202.2056	ug/L 90
17) Iodomethane	7.27	142	1758364	217.2748	ug/L 92
18) Methyl acetate	7.27	43	464913	217.0427	ug/L 96
19) Methylene Chloride	7.52	84	1706432	195.9531	ug/L 93
20) Carbon Disulfide	7.58	76	5409769	201.7001	ug/L 97
22) Methyl Tert Butyl Ether	7.73	73	3064974	207.7215	ug/L 97
23) trans-1,2-Dichloroethene	7.98	61	2325306	226.9705	ug/L 86
24) n-Hexane	8.05	57	1953240	209.9502	ug/L 99
26) Vinyl Acetate	8.56	43	1062845	142.7262	ug/L 94
27) 1,1-Dichloroethane	8.60	63	2968033	216.5555	ug/L 99
29) 2-Butanone	9.15	43	214590	190.4444	ug/L 90
31) 2,2-Dichloropropane	9.37	77	2794372	210.7675	ug/L 99
32) cis-1,2-Dichloroethene	9.44	96	2006305	213.1788	ug/L 82
33) Chloroform	9.64	83	3156996	201.8007	ug/L 94
34) 1-Bromopropane	9.78	122	320647	199.4746	ug/L 99
35) Bromochloromethane	9.88	130	924862	186.8984	ug/L 97
38) 1,1,1-Trichloroethane	10.18	97	3125141	216.8601	ug/L 98
39) Cyclohexane	10.21	56	2460150	216.5665	ug/L 95
40) 1,1-Dichloropropene	10.37	75	2542731	213.1118	ug/L 92
42) Carbon Tetrachloride	10.52	117	2773747	207.7875	ug/L 98
45) 1,2-Dichloroethane	10.69	62	1723664	201.6376	ug/L 94
46) Benzene	10.73	78	6526674	192.9238	ug/L 98
47) Trichloroethene	11.48	130	1960924	201.2191	ug/L 97
48) Methylcyclohexane	11.57	83	3001964	202.7651	ug/L 95
49) 1,2-Dichloropropane	11.69	63	1526591	204.4938	ug/L 86
50) Bromodichloromethane	11.99	83	2290598	203.1804	ug/L 95
52) Dibromomethane	12.08	93	814095	194.4046	ug/L 93
53) 2-Chloroethyl Vinyl Ether	12.28	63	586027	200.0362	ug/L 93
54) 4-Methyl-2-Pentanone	12.31	58	224256	195.0494	ug/L 95

(#) = qualifier out of range (m) = manual integration
 8M415830.D 8260WTR.M Tue Nov 01 11:07:58 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415830.D Vial: 11
 Acq On : 30 Oct 2016 22:50 Operator: FJB
 Sample : WG589331-10 200ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:23 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

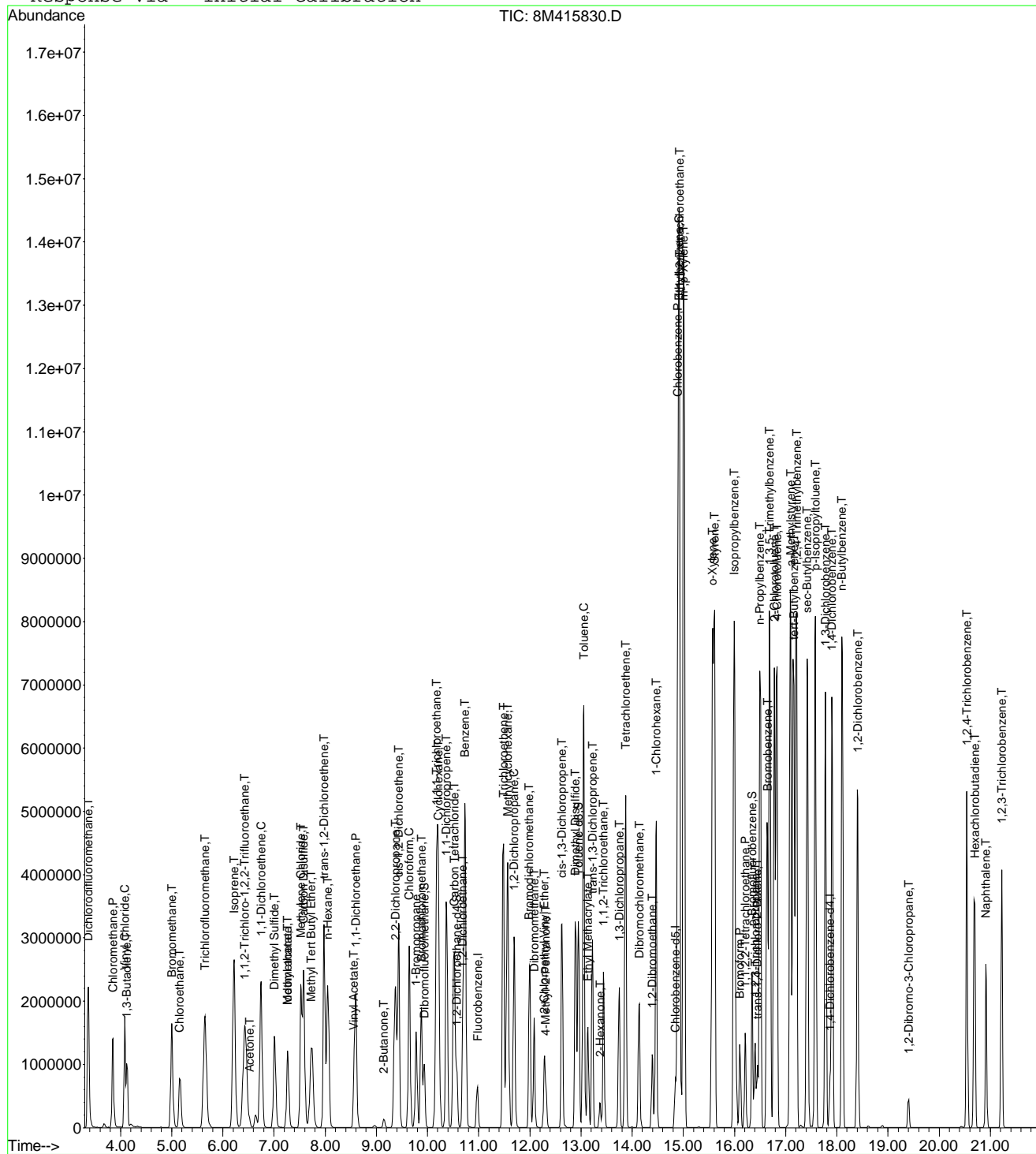
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
55) cis-1,3-Dichloropropene	12.63	75	2499035	204.5595	ug/L	96
56) Dimethyl Disulfide	12.89	79	1436348	212.1183	ug/L	94
59) Toluene	13.06	91	6583635	194.0044	ug/L	88
60) Ethyl Methacrylate	13.14	69	1261614	216.2550	ug/L	93
62) trans-1,3-Dichloropropene	13.22	75	2029576	214.2677	ug/L	97
63) 1,1,2-Trichloroethane	13.44	97	1038126	206.1683	ug/L	100
64) 2-Hexanone	13.38	58	199061	207.4861	ug/L #	92
65) 1,3-Dichloropropane	13.75	76	1769938	203.0838	ug/L	93
66) Tetrachloroethene	13.87	164	1567103	188.6271	ug/L	97
67) Dibromochloromethane	14.14	129	1408407	201.9106	ug/L	100
68) 1,2-Dibromoethane	14.39	107	992155	195.2677	ug/L	100
69) 1-Chlorohexane	14.47	91	2644103	224.2570	ug/L	86
70) Chlorobenzene	14.90	112	4876954	194.0492	ug/L	97
71) 1,1,1,2-Tetrachloroethane	14.93	131	1944273	211.1705	ug/L	100
72) Ethylbenzene	14.92	106	3208558	235.4891	ug/L	50
73) m-,p-Xylene	15.01	106	6315148	411.8492	ug/L	54
74) o-Xylene	15.57	106	3358980	214.7741	ug/L	70
75) Styrene	15.61	104	5098291	218.3176	ug/L	95
76) Bromoform	16.11	173	775273	168.6484	ug/L	99
77) Isopropylbenzene	15.99	105	6935645	186.2220	ug/L	84
79) 1,1,2,2-Tetrachloroethane	16.21	83	1009330	234.7313	ug/L	96
81) 1,2,3-Trichloropropane	16.41	110	286085	241.8500	ug/L #	27
82) trans-1,4-Dichloro-2-Butene	16.45	53	228580	266.9824	ug/L #	1
83) n-Propylbenzene	16.50	91	7442683	207.0309	ug/L #	81
84) Bromobenzene	16.64	156	1881149	219.6937	ug/L	96
85) 1,3,5-Trimethylbenzene	16.68	105	6060557	244.8544	ug/L	84
86) 2-Chlorotoluene	16.78	91	5381911	234.9445	ug/L	89
87) 4-Chlorotoluene	16.83	91	5290029	245.6778	ug/L	85
88) a-Methylstyrene	17.10	118	3677610	244.4826	ug/L	93
89) tert-Butylbenzene	17.16	134	1487247	253.9664	ug/L	69
90) 1,2,4-Trimethylbenzene	17.21	105	6079988	234.8327	ug/L	82
91) sec-Butylbenzene	17.42	105	6993610	222.7425	ug/L	87
92) p-Isopropyltoluene	17.58	119	5881139	225.3791	ug/L	84
93) 1,3-Dichlorobenzene	17.78	146	3522085	216.4378	ug/L	99
94) 1,4-Dichlorobenzene	17.90	146	3407309	208.5556	ug/L	99
95) n-Butylbenzene	18.10	91	5763469	220.9819	ug/L	88
96) 1,2-Dichlorobenzene	18.41	146	2902515	207.2584	ug/L	98
97) 1,2-Dibromo-3-Chloropropane	19.40	75	156476	239.6827	ug/L	85
98) 1,2,4-Trichlorobenzene	20.54	180	2024490	192.4509	ug/L	99
99) Hexachlorobutadiene	20.70	225	996337	171.6739	ug/L	98
100) Naphthalene	20.91	128	2600047	222.7429	ug/L	99
101) 1,2,3-Trichlorobenzene	21.22	180	1555722	191.7086	ug/L	97

(#) = qualifier out of range (m) = manual integration
 8M415830.D 8260WTR.M Tue Nov 01 11:07:59 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415830.D Vial: 11
Acq On : 30 Oct 2016 22:50 Operator: FJB
Sample : WG589331-10 200ug/L STD 8260 Inst : HPMS8
Misc : 1,1 STD78763 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 31 10:52 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415831.D Vial: 12
 Acq On : 30 Oct 2016 23:19 Operator: FJB
 Sample : WG589331-11 300ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:23 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	846186	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	614244	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.87	152	275642	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	1294086	157.7005	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery = 630.80%#			
43) 1,2-Dichloroethane-d4	10.57	65	1065841	162.6036	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery = 650.40%#			
58) Toluene-d8	12.95	98	4490603	163.2309	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery = 652.92%#			
80) p-Bromofluorobenzene	16.34	95	1728854	214.0499	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery = 856.20%#			

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	4099588	309.5867	ug/L	96
3) Chloromethane	3.85	50	2904485	247.0708	ug/L	97
4) Vinyl Chloride	4.08	62	2599111	202.0644	ug/L	94
5) 1,3-Butadiene	4.13	54	777056	91.0887	ug/L	92
6) Bromomethane	5.00	94	2608342	374.2778	ug/L	96
7) Chloroethane	5.15	64	1832622	345.2046	ug/L	97
8) Trichlorofluoromethane	5.65	101	4764356	325.3612	ug/L	99
9) Diethyl ether	6.18	59	1244472	346.5179	ug/L	95
10) Isoprene	6.22	67	4000170	347.1425	ug/L	92
11) Acrolein	6.42	56	69227	70138.1817	ug/L	95
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	2676297	311.8173	ug/L	97
13) Acetone	6.52	43	199290	286.9318	ug/L	87
14) 1,1-Dichloroethene	6.75	61	3642141	337.3498	ug/L	82
15) Tert-Butyl Alcohol	6.86	59	113502	521.0657	ug/L	97
16) Dimethyl Sulfide	7.01	62	2033885	308.5219	ug/L	90
17) Iodomethane	7.26	142	2596734	319.4552	ug/L	91
18) Methyl acetate	7.26	43	717173	333.3338	ug/L	96
19) Methylene Chloride	7.52	84	2552846	291.8567	ug/L	92
20) Carbon Disulfide	7.57	76	7735605	287.1465	ug/L	94
21) Acrylonitrile	7.71	53	186883	195.4934	ug/L	91
22) Methyl Tert Butyl Ether	7.74	73	4535416	306.0227	ug/L	97
23) trans-1,2-Dichloroethene	7.98	61	3404324	330.8278	ug/L	83
24) n-Hexane	8.05	57	2915867	312.0400	ug/L	99
25) Diisopropyl ether	8.39	45	5234939	294.0693	ug/L	95
26) Vinyl Acetate	8.56	43	1710876	228.7359	ug/L	93
27) 1,1-Dichloroethane	8.60	63	4357208	316.5123	ug/L	97
28) Ethyl-Tert-Butyl ether	8.96	59	5248464	310.6863	ug/L	93
29) 2-Butanone	9.14	43	331814	293.1808	ug/L	91
30) Propionitrile	9.26	54	97862	299.5433	ug/L	96
31) 2,2-Dichloropropane	9.37	77	4118630	309.2816	ug/L	97
32) cis-1,2-Dichloroethene	9.43	96	3007747	318.1781	ug/L	80
33) Chloroform	9.64	83	4576550	291.2520	ug/L	92
34) 1-Bromopropane	9.79	122	505189	312.8933	ug/L	98
35) Bromochloromethane	9.88	130	1370800	275.7940	ug/L	95
36) Tetrahydrofuran	9.90	42	211995	267.4295	ug/L	93
38) 1,1,1-Trichloroethane	10.18	97	4601998	317.9351	ug/L	96
39) Cyclohexane	10.21	56	3725380	326.4992	ug/L	93
40) 1,1-Dichloropropene	10.38	75	3772122	314.7565	ug/L	90
41) Tert-Amyl-Methyl ether	10.47	73	4910363	293.1974	ug/L	97
42) Carbon Tetrachloride	10.52	117	4175162	311.3922	ug/L	98

(#) = qualifier out of range (m) = manual integration
 8M415831.D 8260WTR.M Tue Nov 01 11:08:02 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415831.D Vial: 12
 Acq On : 30 Oct 2016 23:19 Operator: FJB
 Sample : WG589331-11 300ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 09:44:23 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 09:42:53 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

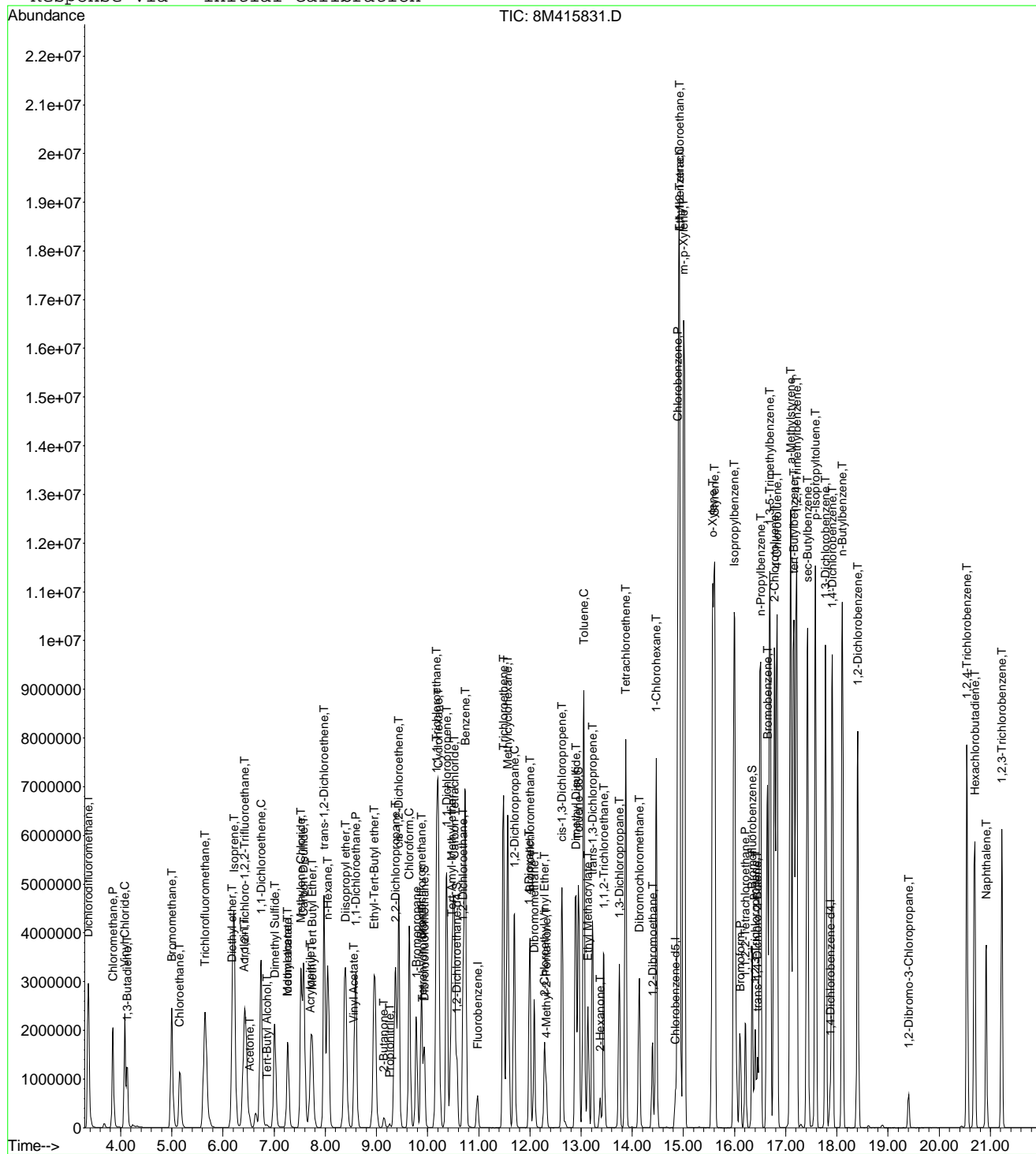
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.70	62	2522664	293.8057	ug/L	94
46) Benzene	10.74	78	8715641	256.4928	ug/L	97
47) Trichloroethene	11.48	130	2954496	301.8379	ug/L	97
48) Methylcyclohexane	11.56	83	4512138	303.4255	ug/L	94
49) 1,2-Dichloropropane	11.70	63	2293147	305.8238	ug/L	86
50) Bromodichloromethane	12.00	83	3375411	298.0859	ug/L	94
51) 1,4-Dioxane	11.99	88	17641	528.9913	ug/L	81
52) Dibromomethane	12.08	93	1221649	290.4422	ug/L	95
53) 2-Chloroethyl Vinyl Ether	12.29	63	903425	307.0188	ug/L	94
54) 4-Methyl-2-Pentanone	12.32	58	343488	297.4364	ug/L	94
55) cis-1,3-Dichloropropene	12.63	75	3667898	298.9142	ug/L	94
56) Dimethyl Disulfide	12.90	79	2223518	326.9197	ug/L	97
59) Toluene	13.05	91	8492512	243.4824	ug/L	81
60) Ethyl Methacrylate	13.14	69	1902826	317.3397	ug/L	93
62) trans-1,3-Dichloropropene	13.22	75	2992702	307.3976	ug/L	95
63) 1,1,2-Trichloroethane	13.45	97	1563775	302.1564	ug/L	99
64) 2-Hexanone	13.37	58	299490	303.7183	ug/L #	91
65) 1,3-Dichloropropane	13.75	76	2631571	293.7772	ug/L	92
66) Tetrachloroethene	13.87	164	2428150	284.3595	ug/L	96
67) Dibromochloromethane	14.14	129	2126041	296.5434	ug/L	99
68) 1,2-Dibromoethane	14.40	107	1497943	286.8348	ug/L	100
69) 1-Chlorohexane	14.47	91	4010757	330.9631	ug/L	86
70) Chlorobenzene	14.89	112	6501884	251.7029	ug/L	100
71) 1,1,1,2-Tetrachloroethane	14.92	131	2805029	296.4141	ug/L	99
72) Ethylbenzene	14.92	106	4538532	324.0872	ug/L	36
73) m-,p-Xylene	15.01	106	7972686	505.8771	ug/L	48
74) o-Xylene	15.58	106	4913813	305.6883	ug/L	58
75) Styrene	15.61	104	6868531	286.1632	ug/L	98
76) Bromoform	16.11	173	1182189	250.2074	ug/L	99
77) Isopropylbenzene	15.99	105	8893542	232.3296	ug/L #	72
79) 1,1,2,2-Tetrachloroethane	16.21	83	1516484	351.2824	ug/L	95
81) 1,2,3-Trichloropropane	16.40	110	434034	365.4732	ug/L	94
82) trans-1,4-Dichloro-2-Butene	16.44	53	340831	396.5193	ug/L	74
83) n-Propylbenzene	16.51	91	9223981	255.5670	ug/L #	67
84) Bromobenzene	16.64	156	2844407	330.8773	ug/L	91
85) 1,3,5-Trimethylbenzene	16.69	105	7876626	316.9687	ug/L	74
86) 2-Chlorotoluene	16.78	91	7757268	337.3015	ug/L	78
87) 4-Chlorotoluene	16.83	91	5890136	272.4670	ug/L #	70
88) a-Methylstyrene	17.10	118	5342888	353.7847	ug/L	98
89) tert-Butylbenzene	17.16	134	2300811	391.3405	ug/L	57
90) 1,2,4-Trimethylbenzene	17.21	105	7857923	302.3044	ug/L #	70
91) sec-Butylbenzene	17.43	105	8851513	280.8018	ug/L #	76
92) p-Isopropyltoluene	17.58	119	7657150	292.2807	ug/L #	73
93) 1,3-Dichlorobenzene	17.78	146	5037968	308.3681	ug/L	97
94) 1,4-Dichlorobenzene	17.91	146	4875001	297.2117	ug/L	97
95) n-Butylbenzene	18.11	91	7413138	283.1102	ug/L #	78
96) 1,2-Dichlorobenzene	18.41	146	4255606	302.6773	ug/L	99
97) 1,2-Dibromo-3-Chloropropane	19.40	75	237003	361.5959	ug/L	84
98) 1,2,4-Trichlorobenzene	20.54	180	3089038	292.4882	ug/L	98
99) Hexachlorobutadiene	20.69	225	1582865	271.6582	ug/L	98
100) Naphthalene	20.92	128	3790054	323.4066	ug/L	98
101) 1,2,3-Trichlorobenzene	21.22	180	2388197	293.1301	ug/L	97

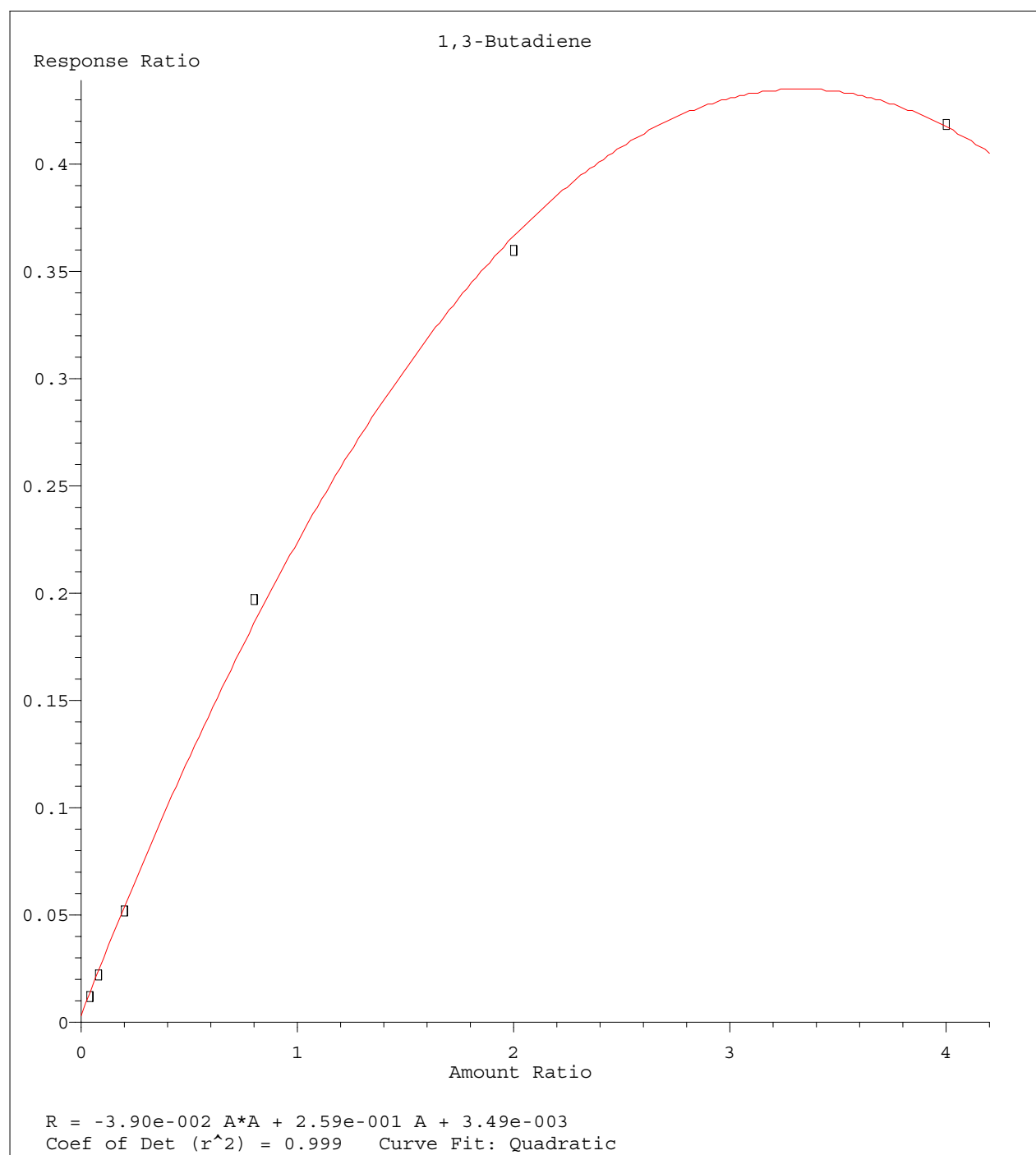
(#) = qualifier out of range (m) = manual integration
 8M415831.D 8260WTR.M Tue Nov 01 11:08:02 2016

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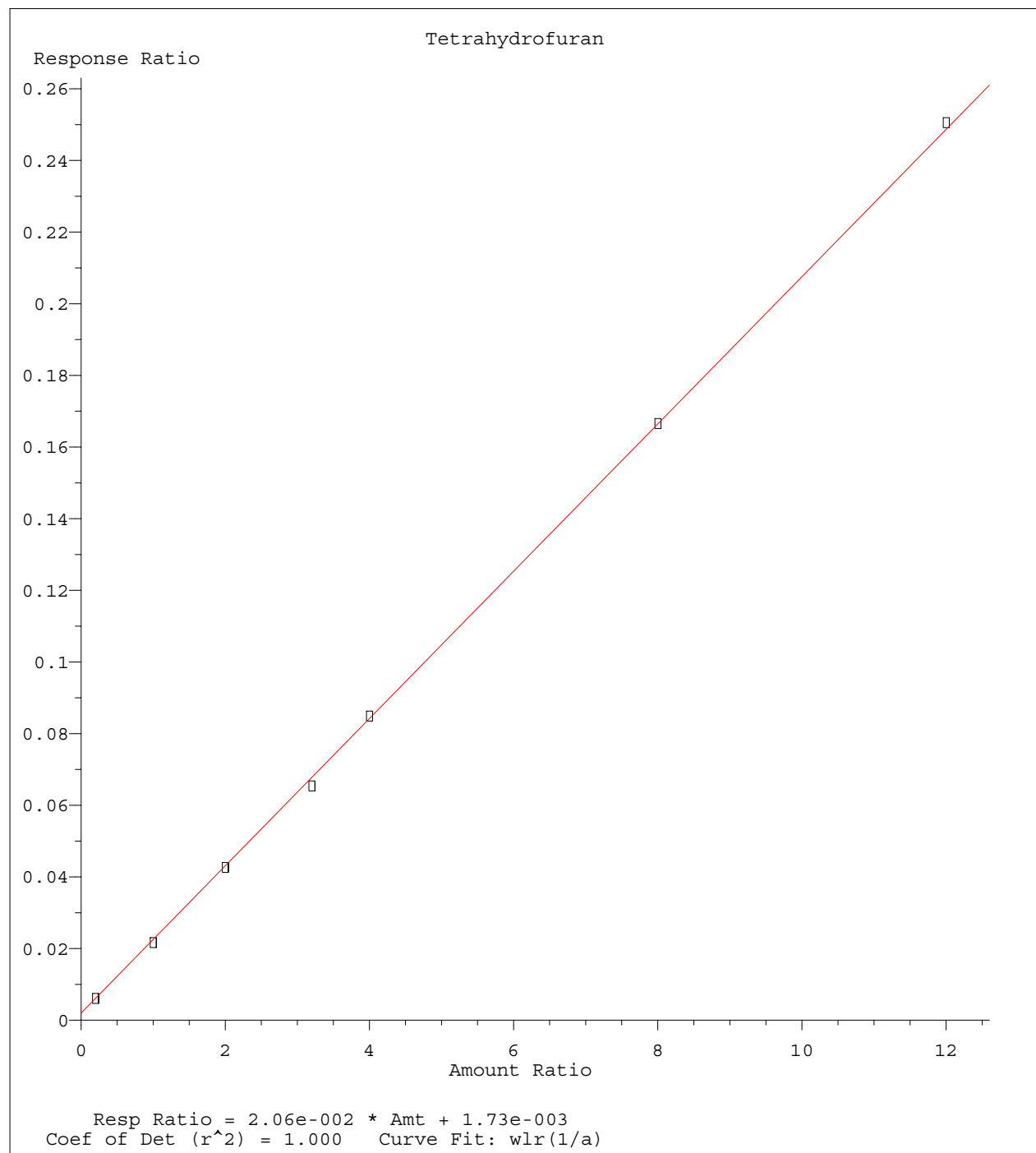
Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415831.D Vial: 12
 Acq On : 30 Oct 2016 23:19 Operator: FJB
 Sample : WG589331-11 300ug/L STD 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 10:44 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration

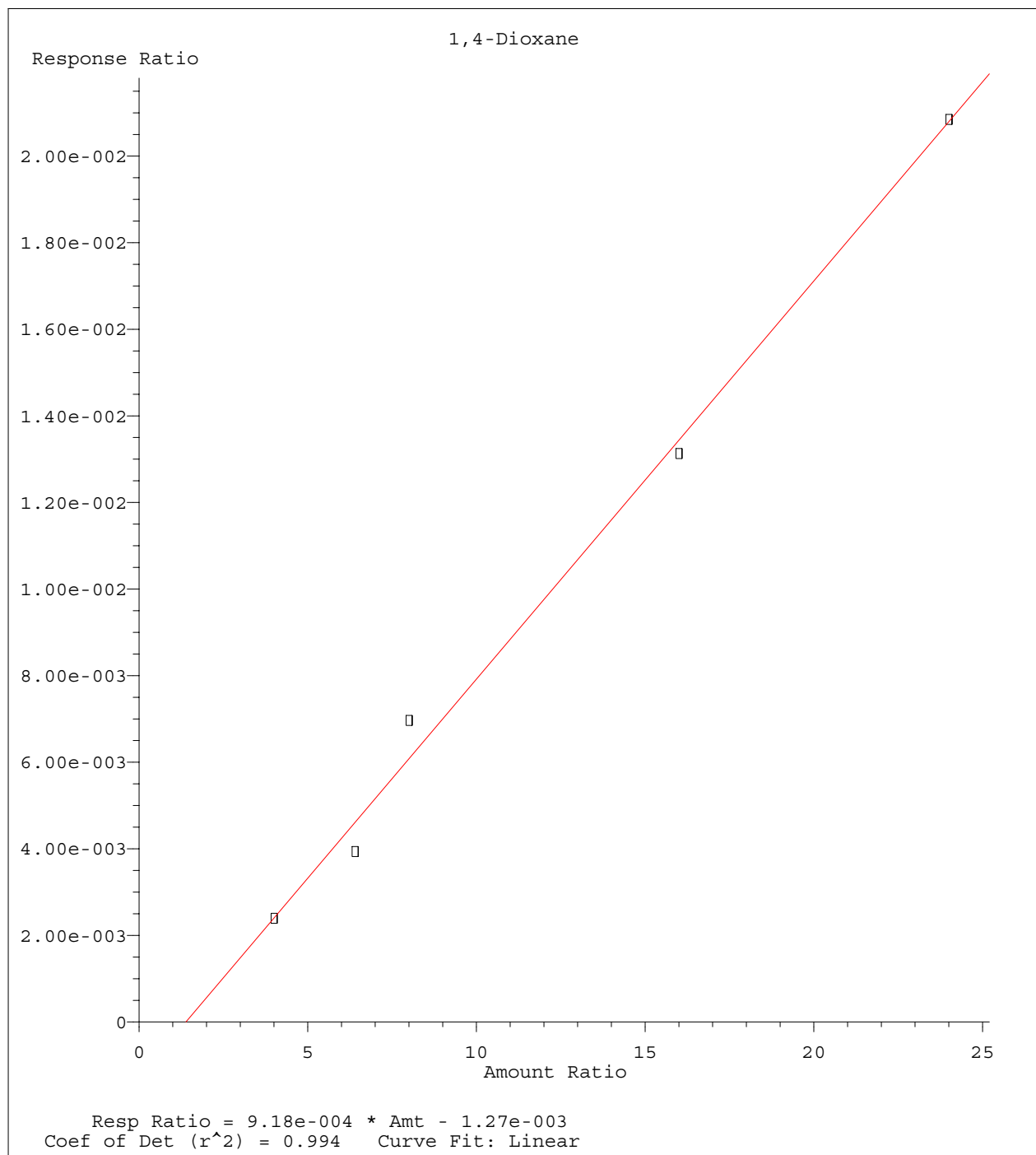




Method Name: K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M
Calibration Table Last Updated: Mon Oct 31 10:01:52 2016



Method Name: K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M
Calibration Table Last Updated: Mon Oct 31 10:01:52 2016



Method Name: K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M
Calibration Table Last Updated: Mon Oct 31 10:01:52 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103116\8M415839.D Vial: 6
 Acq On : 31 Oct 2016 13:12 Operator: FJB
 Sample : WG589331-12 50ug/L ICV 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 13:34:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	773865	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.85	117	583770	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	279778	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	182127	24.5652	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	98.28%	
43) 1,2-Dichloroethane-d4	10.58	65	147446	23.1792	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	92.72%	
58) Toluene-d8	12.95	98	675871	23.0848	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	92.32%	
80) p-Bromofluorobenzene	16.35	95	261213	22.8904	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	91.56%	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	581059	46.3976	ug/L	99
3) Chloromethane	3.84	50	474367	47.4985	ug/L	99
4) Vinyl Chloride	4.08	62	468826	44.4174	ug/L	100
5) 1,3-Butadiene	4.12	54	167135	23.9283	ug/L	98
6) Bromomethane	5.00	94	363102	50.5748	ug/L	100
7) Chloroethane	5.16	64	289921	54.7911	ug/L	100
8) Trichlorofluoromethane	5.64	101	748612	52.2329	ug/L	99
9) Diethyl ether	6.18	59	386101	108.6200	ug/L	100
10) Isoprene	6.21	67	645421	56.7067	ug/L	100
11) Acrolein	6.42	56	42469	109.6763	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	442272	56.1077	ug/L	99
13) Acetone	6.52	43	33588	52.4924	ug/L	99
14) 1,1-Dichloroethene	6.74	61	588943	54.3367	ug/L	100
15) Tert-Butyl Alcohol	6.85	59	39226	216.6955	ug/L	98
16) Dimethyl Sulfide	7.01	62	393901	66.6752	ug/L	98
17) Iodomethane	7.27	142	553974	76.1564	ug/L	99
18) Methyl acetate	7.27	43	96564	44.9531	ug/L	97
19) Methylene Chloride	7.53	84	429855	56.3644	ug/L	99
20) Carbon Disulfide	7.58	76	1240022	49.0538	ug/L	100
21) Acrylonitrile	7.70	53	51424	55.4506	ug/L	99
22) Methyl Tert Butyl Ether	7.73	73	782458	57.0491	ug/L	99
23) trans-1,2-Dichloroethene	7.98	61	581259	56.4789	ug/L	99
24) n-Hexane	8.05	57	452855	51.9331	ug/L	100
25) Diisopropyl ether	8.39	45	1800695	111.6193	ug/L	100
26) Vinyl Acetate	8.56	43	366632	67.4735	ug/L	100
27) 1,1-Dichloroethane	8.59	63	755312	57.2500	ug/L	100
28) Ethyl-Tert-Butyl ether	8.96	59	1691874	107.1880	ug/L	100
29) 2-Butanone	9.15	43	53730	54.3339	ug/L	98
30) Propionitrile	9.25	54	32044	112.1149	ug/L	98
31) 2,2-Dichloropropane	9.37	77	769605	61.5355	ug/L	100
32) cis-1,2-Dichloroethene	9.44	96	513609	58.9916	ug/L	99
33) Chloroform	9.65	83	861740	59.0111	ug/L	99
34) 1-Bromopropane	9.78	122	96345	69.3575	ug/L	100
35) Bromochloromethane	9.88	130	244851	60.1799	ug/L	98
36) Tetrahydrofuran	9.90	42	67532	103.9108	ug/L	99
38) 1,1,1-Trichloroethane	10.17	97	815400	60.9781	ug/L	100
39) Cyclohexane	10.20	56	450848	41.2075	ug/L	99
40) 1,1-Dichloropropene	10.37	75	660252	59.2456	ug/L	99
41) Tert-Amyl-Methyl ether	10.47	73	1635422	113.2634	ug/L	98
42) Carbon Tetrachloride	10.51	117	735746	61.2621	ug/L	100

(#) = qualifier out of range (m) = manual integration
 8M415839.D 8260WTR.M Tue Nov 01 11:30:58 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103116\8M415839.D Vial: 5
 Acq On : 31 Oct 2016 13:12 Operator: FJB
 Sample : WG589331-12 50ug/L ICV 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Oct 31 13:34:22 2016 Quant Results File: 8260WTR.RES

Quant Method : C:\MSDCHEM\2\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-29-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

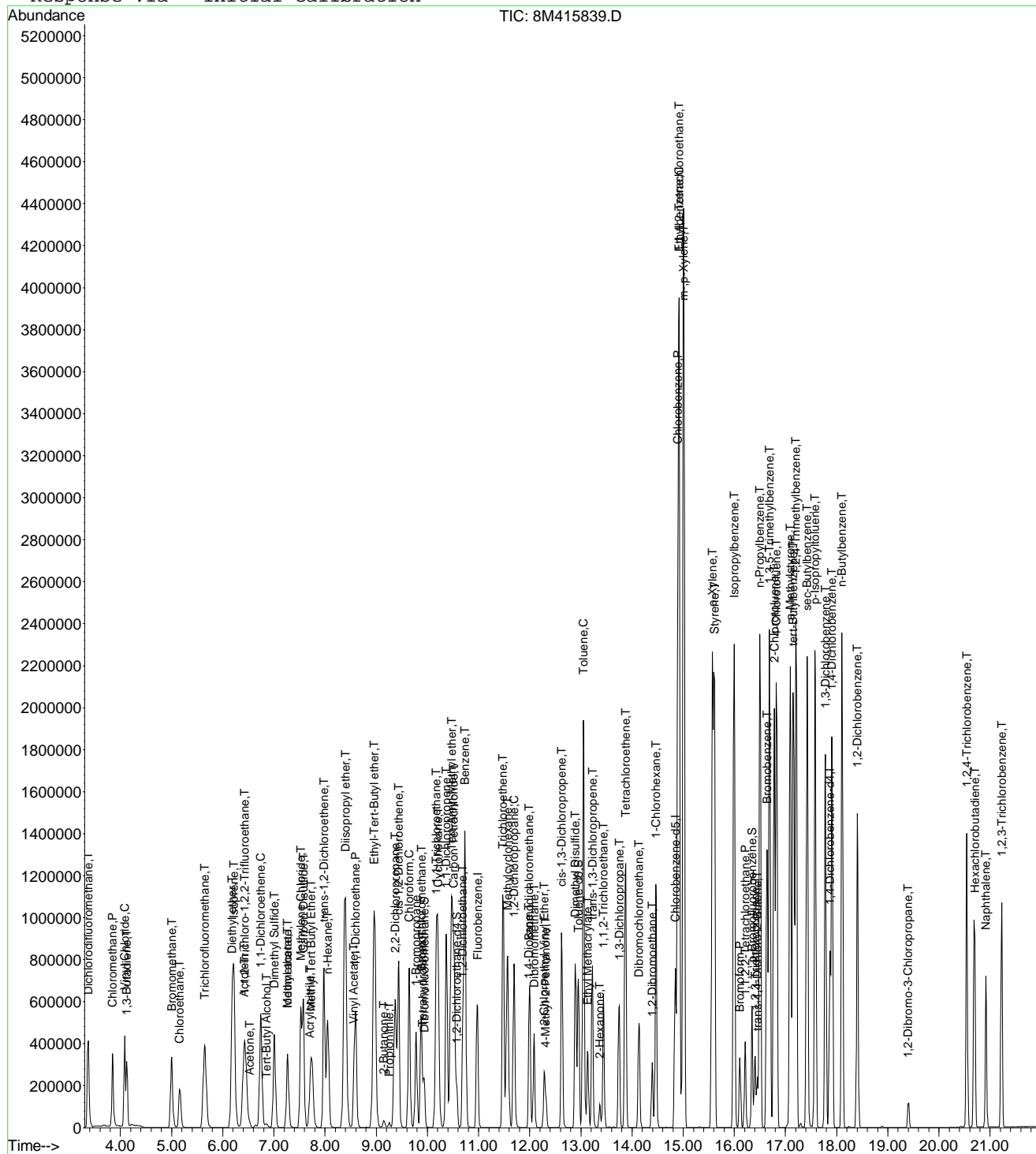
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	449119	58.8497	ug/L	99
46) Benzene	10.73	78	1858707	59.3700	ug/L	100
47) Trichloroethene	11.48	130	489413	59.0032	ug/L	100
48) Methylcyclohexane	11.57	83	612316	46.1281	ug/L	100
49) 1,2-Dichloropropane	11.69	63	397255	59.1545	ug/L	99
50) Bromodichloromethane	11.99	83	601604	60.4445	ug/L	100
51) 1,4-Dioxane	11.98	88	4761	202.1266	ug/L	93
52) Dibromomethane	12.09	93	212542	62.3237	ug/L	98
53) 2-Chloroethyl Vinyl Ether	12.28	63	139233	53.3046	ug/L	100
54) 4-Methyl-2-Pentanone	12.31	58	52329	52.1093	ug/L	96
55) cis-1,3-Dichloropropene	12.62	75	701375	64.2058	ug/L	100
56) Dimethyl Disulfide	12.89	79	338868	55.2818	ug/L	100
59) Toluene	13.05	91	1994442	56.7781	ug/L	99
60) Ethyl Methacrylate	13.13	69	304031	50.8481	ug/L	98
62) trans-1,3-Dichloropropene	13.22	75	533459	56.0952	ug/L	99
63) 1,1,2-Trichloroethane	13.44	97	270297	56.1116	ug/L	100
64) 2-Hexanone	13.37	58	48105	49.4839	ug/L	98
65) 1,3-Dichloropropane	13.75	76	487505	57.4739	ug/L	99
66) Tetrachloroethene	13.87	164	397630	56.4940	ug/L	99
67) Dibromochloromethane	14.13	129	365089	58.0448	ug/L	99
68) 1,2-Dibromoethane	14.39	107	263766	56.2402	ug/L	99
69) 1-Chlorohexane	14.46	91	630980	50.6707	ug/L	99
70) Chlorobenzene	14.90	112	1292942	56.3096	ug/L	99
71) 1,1,1,2-Tetrachloroethane	14.92	131	462356	56.9349	ug/L	99
72) Ethylbenzene	14.92	106	792239	58.2385	ug/L	97
73) m-,p-Xylene	15.01	106	1871517	120.5035	ug/L	97
74) o-Xylene	15.57	106	881605	57.3189	ug/L	98
75) Styrene	15.61	104	1449924	60.3011	ug/L	100
76) Bromoform	16.11	173	201701	59.5557	ug/L	99
77) Isopropylbenzene	15.99	105	2185662	58.9084	ug/L	99
79) 1,1,2,2-Tetrachloroethane	16.21	83	277449	54.3764	ug/L	99
81) 1,2,3-Trichloropropane	16.41	110	77583	55.8832	ug/L	96
82) trans-1,4-Dichloro-2-Butene	16.45	53	61844	55.4866	ug/L	97
83) n-Propylbenzene	16.50	91	2592956	55.7778	ug/L	98
84) Bromobenzene	16.63	156	497826	55.0695	ug/L	99
85) 1,3,5-Trimethylbenzene	16.69	105	1869241	57.5492	ug/L	99
86) 2-Chlorotoluene	16.78	91	1679505	56.7281	ug/L	100
87) 4-Chlorotoluene	16.82	91	1576305	55.5384	ug/L	99
88) a-Methylstyrene	17.09	118	943043	52.1921	ug/L	100
89) tert-Butylbenzene	17.15	134	378074	54.6706	ug/L	97
90) 1,2,4-Trimethylbenzene	17.20	105	1890688	57.4395	ug/L	99
91) sec-Butylbenzene	17.42	105	2276950	57.4786	ug/L	99
92) p-Isopropyltoluene	17.58	119	1827816	58.5562	ug/L	100
93) 1,3-Dichlorobenzene	17.78	146	969167	54.9800	ug/L	100
94) 1,4-Dichlorobenzene	17.91	146	948201	54.6560	ug/L	100
95) n-Butylbenzene	18.10	91	1823958	57.5157	ug/L	99
96) 1,2-Dichlorobenzene	18.40	146	809117	55.4452	ug/L	99
97) 1,2-Dibromo-3-Chloropropane	19.40	75	43094	55.2214	ug/L	96
98) 1,2,4-Trichlorobenzene	20.54	180	540692	55.4263	ug/L	100
99) Hexachlorobutadiene	20.70	225	265657	56.5993	ug/L	99
100) Naphthalene	20.92	128	726339	57.1953	ug/L	100
101) 1,2,3-Trichlorobenzene	21.23	180	422740	56.0130	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M415839.D 8260WTR.M Tue Nov 01 11:30:58 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103116\8M415839.D Vial: 5
Acq On : 31 Oct 2016 13:12 Operator: FJB
Sample : WG589331-12 50ug/L ICV 8260 Inst : HPMS8
Misc : 1,1 STD78759 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 31 14:34 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103116\8M415839.D Vial: 5
 Acq On : 31 Oct 2016 13:12 Operator: FJB
 Sample : WG589331-12 50ug/L ICV 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	94	0.00
2 T	Dichlorodifluoromethane	50.0000	46.3976	7.2	81	0.00
3 P	Chloromethane	50.0000	47.4985	5.0	91	0.00
4 C	Vinyl Chloride	50.0000	44.4174	11.2	87	0.00
5 T	1,3-Butadiene	50.0000	23.9283	52.1#	56	-0.02
6 T	Bromomethane	50.0000	50.5748	-1.1	98	0.00
7 T	Chloroethane	50.0000	54.7911	-9.6	103	0.00
8 T	Trichlorofluoromethane	50.0000	52.2328	-4.5	99	0.00
9 T	Diethyl ether	100.0000	108.6200	-8.6	102	0.00
10 T	Isoprene	50.0000	56.7067	-13.4	108	0.00
11 T	Acrolein	50.0000	109.6763	-119.4#	199	0.00
12 T	1,1,2-Trichloro-1,2,2-Trifl	50.0000	56.1077	-12.2	107	0.00
13 T	Acetone	50.0000	52.4924	-5.0	96	0.00
14 C	1,1-Dichloroethene	50.0000	54.3367	-8.7	104	0.00
15 T	Tert-Butyl Alcohol	200.0000	216.6955	-8.3	98	0.00
16 T	Dimethyl Sulfide	50.0000	66.6752	-33.4#	126	0.00
17 T	Iodomethane	50.0000	76.1564	-52.3#	137	0.00
18 T	Methyl acetate	50.0000	44.9531	10.1	88	0.00
19 T	Methylene Chloride	50.0000	56.3644	-12.7	110	0.00
20 T	Carbon Disulfide	50.0000	49.0538	1.9	92	0.00
21 T	Acrylonitrile	50.0000	55.4506	-10.9	96	0.00
22 T	Methyl Tert Butyl Ether	50.0000	57.0491	-14.1	107	0.00
23 T	trans-1,2-Dichloroethene	50.0000	56.4789	-13.0	109	0.00
24 T	n-Hexane	50.0000	51.9331	-3.9	100	0.00
25 T	Diisopropyl ether	100.0000	111.6193	-11.6	104	0.00
26 T	Vinyl Acetate	50.0000	67.4735	-34.9#	132	0.00
27 P	1,1-Dichloroethane	50.0000	57.2500	-14.5	109	0.00
28 T	Ethyl-Tert-Butyl ether	100.0000	107.1880	-7.2	99	0.00
29 T	2-Butanone	50.0000	54.3339	-8.7	100	0.00
30 T	Propionitrile	100.0000	112.1149	-12.1	100	0.00
31 T	2,2-Dichloropropane	50.0000	61.5355	-23.1	119	0.00
32 T	cis-1,2-Dichloroethene	50.0000	58.9916	-18.0	113	0.00
33 C	Chloroform	50.0000	59.0111	-18.0	115	0.00
34	1-Bromopropane	50.0000	69.3575	-38.7#	128	0.00
35 T	Bromochloromethane	50.0000	60.1799	-20.4	113	0.00
36 T	Tetrahydrofuran	100.0000	103.9108	-3.9	96	0.00
37 S	Dibromofluoromethane	25.0000	24.5652	1.7	90	0.00
38 T	1,1,1-Trichloroethane	50.0000	60.9781	-22.0	117	0.00
39 T	Cyclohexane	50.0000	41.2075	17.6	81	0.00
40 T	1,1-Dichloropropene	50.0000	59.2456	-18.5	114	0.00
41 T	Tert-Amyl-Methyl ether	100.0000	113.2634	-13.3	104	0.00
42 T	Carbon Tetrachloride	50.0000	61.2621	-22.5	115	0.00
43 S	1,2-Dichloroethane-d4	25.0000	23.1792	7.3	86	0.00
44	Heptane	-1.0000	0.0000	0.0	0	-2.61#
45 T	1,2-Dichloroethane	50.0000	58.8497	-17.7	110	0.00
46 T	Benzene	50.0000	59.3700	-18.7	112	0.00
47 T	Trichloroethene	50.0000	59.0032	-18.0	114	0.00
48 T	Methylcyclohexane	50.0000	46.1281	7.7	89	0.00
49 C	1,2-Dichloropropane	50.0000	59.1545	-18.3	114	0.00
50 T	Bromodichloromethane	50.0000	60.4445	-20.9	113	0.00
51 T	1,4-Dioxane	200.0000	202.1266	-1.1	83	0.00
52 T	Dibromomethane	50.0000	62.3237	-24.6	113	0.00
53 T	2-Chloroethyl Vinyl Ether	50.0000	53.3046	-6.6	97	0.00
54 T	4-Methyl-2-Pentanone	50.0000	52.1093	-4.2	95	0.00

(#) = Out of Range

8M415839.D 8260WTR.M

Tue Nov 01 13:52:11 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103116\8M415839.D Vial: 5
 Acq On : 31 Oct 2016 13:12 Operator: FJB
 Sample : WG589331-12 50ug/L ICV 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	cis-1,3-Dichloropropene	50.0000	64.2058	-28.4#	120	0.00
56 T	Dimethyl Disulfide	50.0000	55.2818	-10.6	105	0.00
57 I	Chlorobenzene-d5	25.0000	25.0000	0.0	103	0.00
58 S	Toluene-d8	25.0000	23.0848	7.7	94	0.00
59 C	Toluene	50.0000	56.7781	-13.6	114	0.00
60 T	Ethyl Methacrylate	50.0000	50.8481	-1.7	101	0.00
61	Paraldehyde	-1.0000	0.0000	0.0	0	-13.40#
62 T	trans-1,3-Dichloropropene	50.0000	56.0952	-12.2	113	0.00
63 T	1,1,2-Trichloroethane	50.0000	56.1116	-12.2	113	0.00
64 T	2-Hexanone	50.0000	49.4840	1.0	96	0.00
65 T	1,3-Dichloropropane	50.0000	57.4739	-14.9	117	0.00
66 T	Tetrachloroethene	50.0000	56.4940	-13.0	121	0.00
67 T	Dibromochloromethane	50.0000	58.0448	-16.1	115	0.00
68 T	1,2-Dibromoethane	50.0000	56.2402	-12.5	113	0.00
69 T	1-Chlorohexane	50.0000	50.6707	-1.3	105	0.00
70 P	Chlorobenzene	50.0000	56.3096	-12.6	116	0.00
71 T	1,1,1,2-Tetrachloroethane	50.0000	56.9349	-13.9	116	0.00
72 C	Ethylbenzene	50.0000	58.2385	-16.5	119	0.00
73 T	m-,p-Xylene	100.0000	120.5035	-20.5	119	0.00
74 T	o-Xylene	50.0000	57.3190	-14.6	119	0.00
75 T	Styrene	50.0000	60.3011	-20.6	119	0.00
76 P	Bromoform	50.0000	59.5557	-19.1	116	0.00
77 T	Isopropylbenzene	50.0000	58.9084	-17.8	117	0.00
78 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	106	0.00
79 P	1,1,2,2-Tetrachloroethane	50.0000	54.3764	-8.8	114	0.00
80 S	p-Bromofluorobenzene	25.0000	22.8904	8.4	98	0.00
81 T	1,2,3-Trichloropropane	50.0000	55.8832	-11.8	115	0.00
82 T	trans-1,4-Dichloro-2-Butene	50.0000	55.4866	-11.0	112	0.00
83 T	n-Propylbenzene	50.0000	55.7778	-11.6	118	0.00
84 T	Bromobenzene	50.0000	55.0695	-10.1	120	0.00
85 T	1,3,5-Trimethylbenzene	50.0000	57.5492	-15.1	120	0.00
86 T	2-Chlorotoluene	50.0000	56.7281	-13.5	120	0.00
87 T	4-Chlorotoluene	50.0000	55.5384	-11.1	116	0.00
88 T	a-Methylstyrene	50.0000	52.1921	-4.4	111	0.00
89 T	tert-Butylbenzene	50.0000	54.6706	-9.3	122	0.00
90 T	1,2,4-Trimethylbenzene	50.0000	57.4395	-14.9	119	0.00
91 T	sec-Butylbenzene	50.0000	57.4786	-15.0	118	0.00
92 T	p-Isopropyltoluene	50.0000	58.5562	-17.1	122	0.00
93 T	1,3-Dichlorobenzene	50.0000	54.9800	-10.0	119	0.00
94 T	1,4-Dichlorobenzene	50.0000	54.6560	-9.3	120	0.00
95 T	n-Butylbenzene	50.0000	57.5157	-15.0	120	0.00
96 T	1,2-Dichlorobenzene	50.0000	55.4453	-10.9	121	0.00
97 T	1,2-Dibromo-3-Chloropropane	50.0000	55.2214	-10.4	117	0.00
98 T	1,2,4-Trichlorobenzene	50.0000	55.4263	-10.9	123	0.00
99 T	Hexachlorobutadiene	50.0000	56.5993	-13.2	125	0.00
100 T	Naphthalene	50.0000	57.1953	-14.4	119	0.00
101 T	1,2,3-Trichlorobenzene	50.0000	56.0130	-12.0	121	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M415839.D 8260WTR.M Tue Nov 01 13:52:11 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415945.D Vial: 2
 Acq On : 4 Nov 2016 14:00 Operator: ADC
 Sample : WG590442-02 50ug/L CCV 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:23:48 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	783922	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	570476	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	264137	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	181378	24.1503	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	96.60%	
43) 1,2-Dichloroethane-d4	10.57	65	137525	21.3422	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	85.36%	
58) Toluene-d8	12.95	98	684185	23.9134	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	95.64%	
80) p-Bromofluorobenzene	16.34	95	246176	22.8501	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	91.40%	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	749779	59.1019	ug/L	100
3) Chloromethane	3.85	50	550481	54.4127	ug/L	99
4) Vinyl Chloride	4.09	62	635517	59.4375	ug/L	100
5) 1,3-Butadiene	4.14	54	462062	Below Cal		99
6) Bromomethane	5.00	94	331622	45.5975	ug/L	99
7) Chloroethane	5.16	64	279677	52.1770	ug/L	99
8) Trichlorofluoromethane	5.65	101	797597	54.9367	ug/L	99
9) Diethyl ether	6.18	59	330154	91.6891	ug/L	98
10) Isoprene	6.22	67	582708	50.5399	ug/L	100
11) Acrolein	6.42	56	12942	32.9940	ug/L	93
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	435159	54.4971	ug/L	97
13) Acetone	6.52	43	27552	42.5068	ug/L	99
14) 1,1-Dichloroethene	6.75	61	579195	52.7518	ug/L	100
15) Tert-Butyl Alcohol	6.85	59	28094	153.2081	ug/L	93
16) Dimethyl Sulfide	7.00	62	293607	49.0609	ug/L	98
17) Iodomethane	7.26	142	352944	47.8977	ug/L	97
18) Methyl acetate	7.26	43	93332	42.8911	ug/L	100
19) Methylene Chloride	7.52	84	390966	50.6074	ug/L	97
20) Carbon Disulfide	7.57	76	1364615	53.2900	ug/L	100
21) Acrylonitrile	7.71	53	43769	46.5907	ug/L	97
22) Methyl Tert Butyl Ether	7.73	73	661892	47.6395	ug/L	100
23) trans-1,2-Dichloroethene	7.98	61	541013	51.8939	ug/L	97
24) n-Hexane	8.05	57	470188	53.2291	ug/L	97
25) Diisopropyl ether	8.39	45	1594576	97.5746	ug/L	98
26) Vinyl Acetate	8.56	43	288642	52.4390	ug/L	98
27) 1,1-Dichloroethane	8.60	63	693390	51.8822	ug/L	99
28) Ethyl-Tert-Butyl ether	8.96	59	1547051	96.7554	ug/L	99
29) 2-Butanone	9.14	43	43697	43.6212	ug/L	99
30) Propionitrile	9.25	54	26223	90.5714	ug/L	97
31) 2,2-Dichloropropane	9.37	77	725856	57.2929	ug/L	100
32) cis-1,2-Dichloroethene	9.43	96	470403	53.3359	ug/L	98
33) Chloroform	9.64	83	764911	51.7084	ug/L	99
34) 1-Bromopropane	9.78	122	75132	53.3926	ug/L	98
35) Bromochloromethane	9.88	130	205238	49.7966	ug/L	98
36) Tetrahydrofuran	9.90	42	65565	99.5027	ug/L	96
38) 1,1,1-Trichloroethane	10.18	97	744071	54.9300	ug/L	100
39) Cyclohexane	10.21	56	554036	49.9892	ug/L	97
40) 1,1-Dichloropropene	10.37	75	599602	53.1131	ug/L	99
41) Tert-Amyl-Methyl ether	10.47	73	1435041	98.1107	ug/L	99
42) Carbon Tetrachloride	10.52	117	681864	56.0472	ug/L	100

(#) = qualifier out of range (m) = manual integration
 8M415945.D 8260WTR.M Mon Nov 07 09:23:51 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415945.D Vial: 2
 Acq On : 4 Nov 2016 14:00 Operator: ADC
 Sample : WG590442-02 50ug/L CCV 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:23:48 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

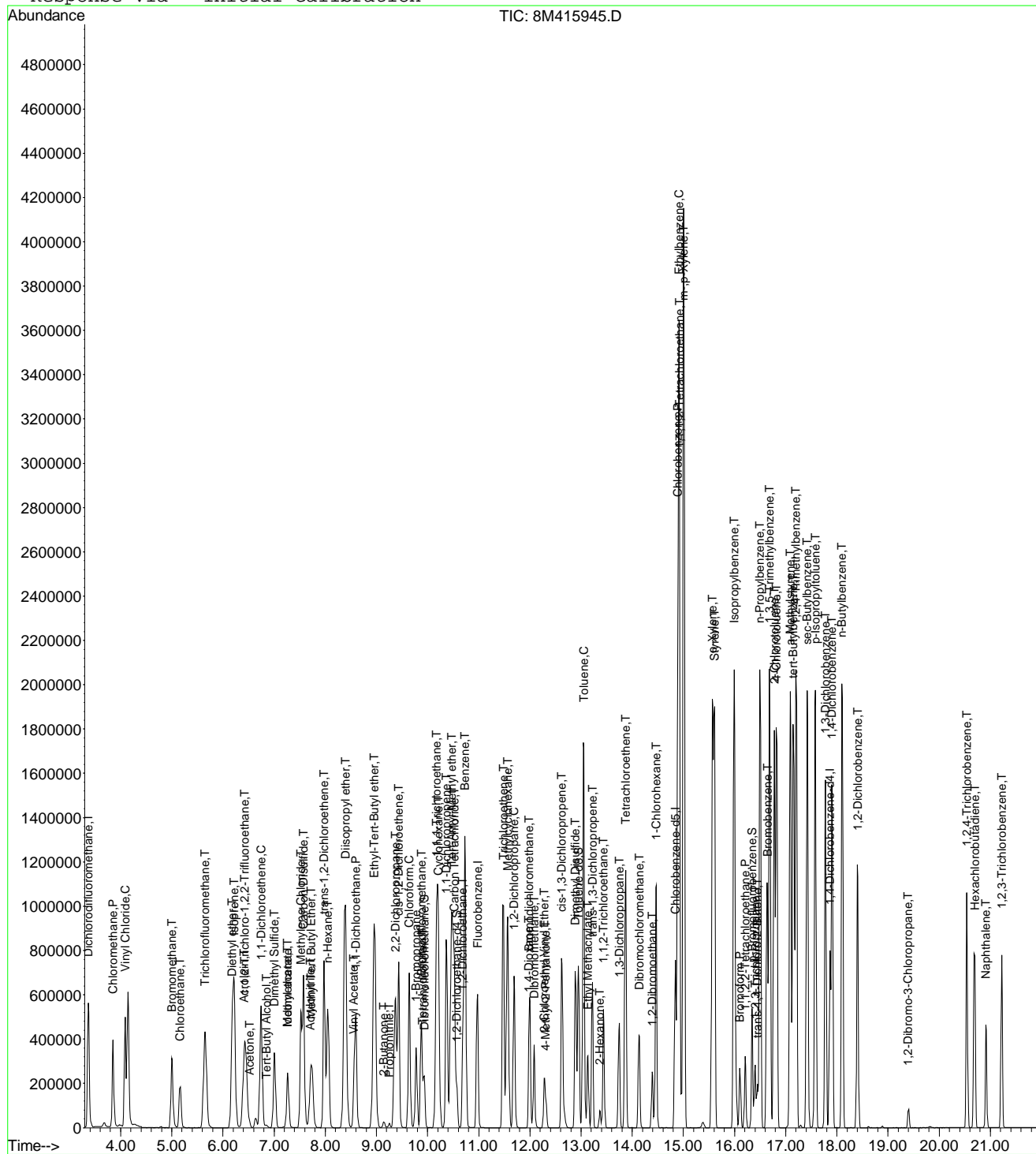
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	386697	50.0203	ug/L	99
46) Benzene	10.73	78	1717376	54.1519	ug/L	99
47) Trichloroethene	11.48	130	439265	52.2780	ug/L	99
48) Methylcyclohexane	11.56	83	707276	52.5982	ug/L	98
49) 1,2-Dichloropropane	11.69	63	339316	49.8787	ug/L	98
50) Bromodichloromethane	11.99	83	525324	52.1033	ug/L	100
51) 1,4-Dioxane	11.98	88	2914	135.8479	ug/L	90
52) Dibromomethane	12.08	93	178728	51.7361	ug/L	98
53) 2-Chloroethyl Vinyl Ether	12.28	63	117803	44.5217	ug/L	99
54) 4-Methyl-2-Pentanone	12.31	58	44331	43.5786	ug/L	96
55) cis-1,3-Dichloropropene	12.62	75	572259	51.7141	ug/L	100
56) Dimethyl Disulfide	12.89	79	300465	48.3880	ug/L	99
59) Toluene	13.05	91	1832901	53.3953	ug/L	100
60) Ethyl Methacrylate	13.14	69	262904	44.9944	ug/L	96
62) trans-1,3-Dichloropropene	13.22	75	446672	48.0638	ug/L	99
63) 1,1,2-Trichloroethane	13.44	97	224785	47.7511	ug/L	100
64) 2-Hexanone	13.36	58	39143	41.2034	ug/L	98
65) 1,3-Dichloropropane	13.75	76	384746	46.4163	ug/L	96
66) Tetrachloroethene	13.87	164	344498	50.0858	ug/L	98
67) Dibromochloromethane	14.14	129	300830	48.9430	ug/L	100
68) 1,2-Dibromoethane	14.39	107	213804	46.6497	ug/L	98
69) 1-Chlorohexane	14.47	91	615849	50.6081	ug/L	98
70) Chlorobenzene	14.89	112	1157467	51.5842	ug/L	99
71) 1,1,1,2-Tetrachloroethane	14.92	131	409343	51.5815	ug/L	99
72) Ethylbenzene	14.91	106	709908	53.4023	ug/L	99
73) m-,p-Xylene	15.01	106	1673503	110.2647	ug/L	99
74) o-Xylene	15.57	106	768819	51.1508	ug/L	100
75) Styrene	15.61	104	1246196	53.0360	ug/L	100
76) Bromoform	16.10	173	157637	47.6297	ug/L	100
77) Isopropylbenzene	15.99	105	1985061	54.7486	ug/L	100
79) 1,1,2,2-Tetrachloroethane	16.21	83	217957	45.2462	ug/L	98
81) 1,2,3-Trichloropropane	16.40	110	60487	46.1489	ug/L	94
82) trans-1,4-Dichloro-2-Butene	16.44	53	46317	44.0165	ug/L	95
83) n-Propylbenzene	16.50	91	2312653	52.6940	ug/L	100
84) Bromobenzene	16.64	156	409869	48.0245	ug/L	99
85) 1,3,5-Trimethylbenzene	16.68	105	1653207	53.9120	ug/L	99
86) 2-Chlorotoluene	16.78	91	1444919	51.6945	ug/L	100
87) 4-Chlorotoluene	16.82	91	1409750	52.6114	ug/L	100
88) a-Methylstyrene	17.09	118	852364	49.9669	ug/L	100
89) tert-Butylbenzene	17.15	134	326168	49.9577	ug/L	99
90) 1,2,4-Trimethylbenzene	17.20	105	1661547	53.4673	ug/L	100
91) sec-Butylbenzene	17.42	105	2042470	54.6126	ug/L	100
92) p-Isopropyltoluene	17.58	119	1588252	53.8944	ug/L	99
93) 1,3-Dichlorobenzene	17.78	146	823012	49.4535	ug/L	99
94) 1,4-Dichlorobenzene	17.90	146	793942	48.4742	ug/L	100
95) n-Butylbenzene	18.10	91	1608865	53.7372	ug/L	99
96) 1,2-Dichlorobenzene	18.41	146	652534	47.3631	ug/L	99
97) 1,2-Dibromo-3-Chloropropane	19.39	75	30322	41.1560	ug/L	95
98) 1,2,4-Trichlorobenzene	20.54	180	397276	43.1363	ug/L	100
99) Hexachlorobutadiene	20.69	225	208140	46.9710	ug/L	99
100) Naphthalene	20.91	128	486290	40.5602	ug/L	100
101) 1,2,3-Trichlorobenzene	21.22	180	291880	40.9642	ug/L	100

(#) = qualifier out of range (m) = manual integration
 8M415945.D 8260WTR.M Mon Nov 07 09:23:51 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415945.D Vial: 2
 Acq On : 4 Nov 2016 14:00 Operator: ADC
 Sample : WG590442-02 50ug/L CCV 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 7 9:23 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Continuing Calibration Area and RT check

Instrument: HPMS8
Initial cal date: 30 Oct 2016 21:52
CCV date: 4 Nov 2016 14:00
CCV Filename: 8M415945.D

	Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
	<u>Amount</u>	<u>RT</u>	<u>Amount</u>	<u>RT</u>	<u>Amount</u>	<u>RT</u>
InitCal	825560	10.98	566473	14.84	263212	17.86
CCV	783922	10.98	570476	14.84	264137	17.86

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415945.D Vial: 2
 Acq On : 4 Nov 2016 14:00 Operator: ADC
 Sample : WG590442-02 50ug/L CCV 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	95	0.00
2 T	Dichlorodifluoromethane	0.4046	0.4782	-18.2	104	0.00
3 P	Chloromethane	0.3226	0.3511	-8.8	106	0.00
4 C	Vinyl Chloride	0.3410	0.4053	-18.9	118	0.00
5 T	1,3-Butadiene	0.2273	0.2947	-29.7#	156#	0.00
6 T	Bromomethane	0.2319	0.2115	8.8	90	0.00
7 T	Chloroethane	0.1709	0.1784	-4.4	99	0.00
8 T	Trichlorofluoromethane	0.4630	0.5087	-9.9	105	0.00
9 T	Diethyl ether	0.1148	0.1053	8.3	87	0.00
10 T	Isoprene	0.3677	0.3717	-1.1	97	0.00
11 T	Acrolein	0.0125	0.0083	34.1#	61	0.00
12 T	1,1,2-Trichloro-1,2,2-Trifl	0.2546	0.2776	-9.0	106	0.00
13 T	Acetone	0.0207	0.0176	15.0	78	0.00
14 C	1,1-Dichloroethene	0.3502	0.3694	-5.5	102	0.00
15 T	Tert-Butyl Alcohol	0.0059	0.0045	23.4	70	0.00
16 T	Dimethyl Sulfide	0.1908	0.1873	1.9	94	0.00
17 T	Iodomethane	0.2350	0.2251	4.2	88	0.00
18 T	Methyl acetate	0.0694	0.0595	14.2	85	0.00
19 T	Methylene Chloride	0.2464	0.2494	-1.2	100	0.00
20 T	Carbon Disulfide	0.8166	0.8704	-6.6	101	0.00
21 T	Acrylonitrile	0.0300	0.0279	6.8	82	0.00
22 T	Methyl Tert Butyl Ether	0.4431	0.4222	4.7	90	0.00
23 T	trans-1,2-Dichloroethene	0.3325	0.3451	-3.8	102	0.00
24 T	n-Hexane	0.2817	0.2999	-6.5	104	0.00
25 T	Diisopropyl ether	0.5212	0.5085	2.4	92	0.00
26 T	Vinyl Acetate	0.1755	0.1841	-4.9	104	0.00
27 P	1,1-Dichloroethane	0.4262	0.4423	-3.8	100	0.00
28 T	Ethyl-Tert-Butyl ether	0.5099	0.4934	3.2	90	0.00
29 T	2-Butanone	0.0319	0.0279	12.8	81	0.00
30 T	Propionitrile	0.0092	0.0084	9.4	82	0.00
31 T	2,2-Dichloropropane	0.4040	0.4630	-14.6	112	0.00
32 T	cis-1,2-Dichloroethene	0.2813	0.3000	-6.7	104	0.00
33 C	Chloroform	0.4718	0.4879	-3.4	102	0.00
34	1-Bromopropane	0.0449	0.0479	-6.8	100	0.00
35 T	Bromochloromethane	0.1314	0.1309	0.4	95	0.00
36 T	Tetrahydrofuran	0.0224	0.0209	6.5	94	0.00
37 S	Dibromofluoromethane	0.2395	0.2314	3.4	90	0.00
38 T	1,1,1-Trichloroethane	0.4320	0.4746	-9.9	106	0.00
39 T	Cyclohexane	0.3534	0.3534	0.0	99	0.00
40 T	1,1-Dichloropropene	0.3600	0.3824	-6.2	104	0.00
41 T	Tert-Amyl-Methyl ether	0.4665	0.4577	1.9	91	0.00
42 T	Carbon Tetrachloride	0.3880	0.4349	-12.1	107	0.00
43 S	1,2-Dichloroethane-d4	0.2055	0.1754	14.6	80	0.00
44	Heptane	0.0000	0.0000	0.0	0#	-2.61#
45 T	1,2-Dichloroethane	0.2465	0.2466	-0.0	94	0.00
46 T	Benzene	1.0114	1.0954	-8.3	103	0.00
47 T	Trichloroethene	0.2680	0.2802	-4.6	103	0.00
48 T	Methylcyclohexane	0.4288	0.4511	-5.2	102	0.00
49 C	1,2-Dichloropropane	0.2170	0.2164	0.2	97	0.00
50 T	Bromodichloromethane	0.3215	0.3351	-4.2	98	0.00
51 T	1,4-Dioxane	0.0008	0.0005	38.7#	51	0.00
52 T	Dibromomethane	0.1102	0.1140	-3.5	95	0.00
53 T	2-Chloroethyl Vinyl Ether	0.0844	0.0751	11.0	82	0.00
54 T	4-Methyl-2-Pentanone	0.0324	0.0283	12.8	80	0.00

(#) = Out of Range

8M415945.D 8260WTR.M

Mon Nov 07 09:30:40 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415945.D Vial: 2
 Acq On : 4 Nov 2016 14:00 Operator: ADC
 Sample : WG590442-02 50ug/L CCV 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	cis-1,3-Dichloropropene	0.3529	0.3650	-3.4	98	0.00
56 T	Dimethyl Disulfide	0.1980	0.1916	3.2	93	0.00
57 I	Chlorobenzene-d5	1.0000	1.0000	0.0	101	0.00
58 S	Toluene-d8	1.2538	1.1993	4.3	95	0.00
59 C	Toluene	1.5043	1.6065	-6.8	105	0.00
60 T	Ethyl Methacrylate	0.2561	0.2304	10.0	87	0.00
61	Paraldehyde	0.0000	0.0000	0.0	0#	-13.40#
62 T	trans-1,3-Dichloropropene	0.4073	0.3915	3.9	94	0.00
63 T	1,1,2-Trichloroethane	0.2063	0.1970	4.5	94	0.00
64 T	2-Hexanone	0.0416	0.0343	17.6	79	0.00
65 T	1,3-Dichloropropane	0.3633	0.3372	7.2	93	0.00
66 T	Tetrachloroethene	0.3014	0.3019	-0.2	105	0.00
67 T	Dibromochloromethane	0.2694	0.2637	2.1	95	0.00
68 T	1,2-Dibromoethane	0.2009	0.1874	6.7	92	0.00
69 T	1-Chlorohexane	0.5333	0.5398	-1.2	103	0.00
70 P	Chlorobenzene	0.9833	1.0145	-3.2	104	0.00
71 T	1,1,1,2-Tetrachloroethane	0.3478	0.3588	-3.2	103	0.00
72 C	Ethylbenzene	0.5826	0.6222	-6.8	106	0.00
73 T	m-,p-Xylene	0.6651	0.7334	-10.3	107	0.00
74 T	o-Xylene	0.6587	0.6738	-2.3	104	0.00
75 T	Styrene	1.0297	1.0922	-6.1	102	0.00
76 P	Bromoform	0.1450	0.1382	4.7	91	0.00
77 T	Isopropylbenzene	1.5889	1.7398	-9.5	106	0.00
78 I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	100	0.00
79 P	1,1,2,2-Tetrachloroethane	0.4559	0.4126	9.5	90	0.00
80 S	p-Bromofluorobenzene	1.0197	0.9320	8.6	92	0.00
81 T	1,2,3-Trichloropropane	0.1240	0.1145	7.7	90	0.00
82 T	trans-1,4-Dichloro-2-Butene	0.0996	0.0877	12.0	84	0.00
83 T	n-Propylbenzene	4.1539	4.3777	-5.4	106	0.00
84 T	Bromobenzene	0.8078	0.7759	4.0	99	0.00
85 T	1,3,5-Trimethylbenzene	2.9024	3.1294	-7.8	106	0.00
86 T	2-Chlorotoluene	2.6455	2.7352	-3.4	103	0.00
87 T	4-Chlorotoluene	2.5361	2.6686	-5.2	104	0.00
88 T	a-Methylstyrene	1.6146	1.6135	0.1	100	0.00
89 T	tert-Butylbenzene	0.6179	0.6174	0.1	105	0.00
90 T	1,2,4-Trimethylbenzene	2.9413	3.1452	-6.9	104	0.00
91 T	sec-Butylbenzene	3.5398	3.8663	-9.2	106	0.00
92 T	p-Isopropyltoluene	2.7892	3.0065	-7.8	106	0.00
93 T	1,3-Dichlorobenzene	1.5751	1.5579	1.1	101	0.00
94 T	1,4-Dichlorobenzene	1.5502	1.5029	3.1	101	0.00
95 T	n-Butylbenzene	2.8337	3.0455	-7.5	106	0.00
96 T	1,2-Dichlorobenzene	1.3040	1.2352	5.3	97	0.00
97 T	1,2-Dibromo-3-Chloropropane	0.0697	0.0574	17.7	83	0.00
98 T	1,2,4-Trichlorobenzene	0.8717	0.7520	13.7	90	0.00
99 T	Hexachlorobutadiene	0.4194	0.3940	6.1	98	0.00
100 T	Naphthalene	1.1348	0.9205	18.9	79	0.00
101 T	1,2,3-Trichlorobenzene	0.6744	0.5525	18.1	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M415945.D 8260WTR.M Mon Nov 07 09:30:40 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415945.D Vial: 2
 Acq On : 4 Nov 2016 14:00 Operator: ADC
 Sample : WG590442-02 50ug/L CCV 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	95	0.00
2 T	Dichlorodifluoromethane	50.0000	59.1019	-18.2	104	0.00
3 P	Chloromethane	50.0000	54.4127	-8.8	106	0.00
4 C	Vinyl Chloride	50.0000	59.4375	-18.9	118	0.00
5 T	1,3-Butadiene	50.0000	-25.0000	150.0#	156	0.00
6 T	Bromomethane	50.0000	45.5975	8.8	90	0.00
7 T	Chloroethane	50.0000	52.1770	-4.4	99	0.00
8 T	Trichlorofluoromethane	50.0000	54.9367	-9.9	105	0.00
9 T	Diethyl ether	100.0000	91.6891	8.3	87	0.00
10 T	Isoprene	50.0000	50.5399	-1.1	97	0.00
11 T	Acrolein	50.0000	32.9940	34.0#	61	0.00
12 T	1,1,2-Trichloro-1,2,2-Trifl	50.0000	54.4971	-9.0	106	0.00
13 T	Acetone	50.0000	42.5067	15.0	78	0.00
14 C	1,1-Dichloroethene	50.0000	52.7518	-5.5	102	0.00
15 T	Tert-Butyl Alcohol	200.0000	153.2081	23.4	70	0.00
16 T	Dimethyl Sulfide	50.0000	49.0609	1.9	94	0.00
17 T	Iodomethane	50.0000	47.8977	4.2	88	0.00
18 T	Methyl acetate	50.0000	42.8911	14.2	85	0.00
19 T	Methylene Chloride	50.0000	50.6074	-1.2	100	0.00
20 T	Carbon Disulfide	50.0000	53.2900	-6.6	101	0.00
21 T	Acrylonitrile	50.0000	46.5907	6.8	82	0.00
22 T	Methyl Tert Butyl Ether	50.0000	47.6395	4.7	90	0.00
23 T	trans-1,2-Dichloroethene	50.0000	51.8939	-3.8	102	0.00
24 T	n-Hexane	50.0000	53.2291	-6.5	104	0.00
25 T	Diisopropyl ether	100.0000	97.5746	2.4	92	0.00
26 T	Vinyl Acetate	50.0000	52.4390	-4.9	104	0.00
27 P	1,1-Dichloroethane	50.0000	51.8822	-3.8	100	0.00
28 T	Ethyl-Tert-Butyl ether	100.0000	96.7554	3.2	90	0.00
29 T	2-Butanone	50.0000	43.6212	12.8	81	0.00
30 T	Propionitrile	100.0000	90.5714	9.4	82	0.00
31 T	2,2-Dichloropropane	50.0000	57.2929	-14.6	112	0.00
32 T	cis-1,2-Dichloroethene	50.0000	53.3359	-6.7	104	0.00
33 C	Chloroform	50.0000	51.7084	-3.4	102	0.00
34	1-Bromopropane	50.0000	53.3926	-6.8	100	0.00
35 T	Bromochloromethane	50.0000	49.7966	0.4	95	0.00
36 T	Tetrahydrofuran	100.0000	99.5027	0.5	94	0.00
37 S	Dibromofluoromethane	25.0000	24.1503	3.4	90	0.00
38 T	1,1,1-Trichloroethane	50.0000	54.9300	-9.9	106	0.00
39 T	Cyclohexane	50.0000	49.9892	0.0	99	0.00
40 T	1,1-Dichloropropene	50.0000	53.1131	-6.2	104	0.00
41 T	Tert-Amyl-Methyl ether	100.0000	98.1107	1.9	91	0.00
42 T	Carbon Tetrachloride	50.0000	56.0472	-12.1	107	0.00
43 S	1,2-Dichloroethane-d4	25.0000	21.3422	14.6	80	0.00
44	Heptane	-1.0000	0.0000	0.0	0	-2.61#
45 T	1,2-Dichloroethane	50.0000	50.0203	-0.0	94	0.00
46 T	Benzene	50.0000	54.1519	-8.3	103	0.00
47 T	Trichloroethene	50.0000	52.2780	-4.6	103	0.00
48 T	Methylcyclohexane	50.0000	52.5982	-5.2	102	0.00
49 C	1,2-Dichloropropane	50.0000	49.8787	0.2	97	0.00
50 T	Bromodichloromethane	50.0000	52.1033	-4.2	98	0.00
51 T	1,4-Dioxane	200.0000	135.8479	32.1#	51	0.00
52 T	Dibromomethane	50.0000	51.7361	-3.5	95	0.00
53 T	2-Chloroethyl Vinyl Ether	50.0000	44.5217	11.0	82	0.00
54 T	4-Methyl-2-Pentanone	50.0000	43.5786	12.8	80	0.00

(#) = Out of Range

8M415945.D 8260WTR.M

Mon Nov 07 09:30:43 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415945.D Vial: 2
 Acq On : 4 Nov 2016 14:00 Operator: ADC
 Sample : WG590442-02 50ug/L CCV 8260 Inst : HPMS8
 Misc : 1,1 STD78763 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	cis-1,3-Dichloropropene	50.0000	51.7141	-3.4	98	0.00
56 T	Dimethyl Disulfide	50.0000	48.3880	3.2	93	0.00
57 I	Chlorobenzene-d5	25.0000	25.0000	0.0	101	0.00
58 S	Toluene-d8	25.0000	23.9134	4.3	95	0.00
59 C	Toluene	50.0000	53.3953	-6.8	105	0.00
60 T	Ethyl Methacrylate	50.0000	44.9944	10.0	87	0.00
61	Paraldehyde	-1.0000	0.0000	0.0	0	-13.40#
62 T	trans-1,3-Dichloropropene	50.0000	48.0638	3.9	94	0.00
63 T	1,1,2-Trichloroethane	50.0000	47.7511	4.5	94	0.00
64 T	2-Hexanone	50.0000	41.2034	17.6	79	0.00
65 T	1,3-Dichloropropane	50.0000	46.4163	7.2	93	0.00
66 T	Tetrachloroethene	50.0000	50.0858	-0.2	105	0.00
67 T	Dibromochloromethane	50.0000	48.9430	2.1	95	0.00
68 T	1,2-Dibromoethane	50.0000	46.6497	6.7	92	0.00
69 T	1-Chlorohexane	50.0000	50.6081	-1.2	103	0.00
70 P	Chlorobenzene	50.0000	51.5842	-3.2	104	0.00
71 T	1,1,1,2-Tetrachloroethane	50.0000	51.5815	-3.2	103	0.00
72 C	Ethylbenzene	50.0000	53.4023	-6.8	106	0.00
73 T	m-,p-Xylene	100.0000	110.2647	-10.3	107	0.00
74 T	o-Xylene	50.0000	51.1508	-2.3	104	0.00
75 T	Styrene	50.0000	53.0360	-6.1	102	0.00
76 P	Bromoform	50.0000	47.6297	4.7	91	0.00
77 T	Isopropylbenzene	50.0000	54.7486	-9.5	106	0.00
78 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	100	0.00
79 P	1,1,2,2-Tetrachloroethane	50.0000	45.2463	9.5	90	0.00
80 S	p-Bromofluorobenzene	25.0000	22.8501	8.6	92	0.00
81 T	1,2,3-Trichloropropane	50.0000	46.1489	7.7	90	0.00
82 T	trans-1,4-Dichloro-2-Butene	50.0000	44.0165	12.0	84	0.00
83 T	n-Propylbenzene	50.0000	52.6940	-5.4	106	0.00
84 T	Bromobenzene	50.0000	48.0245	4.0	99	0.00
85 T	1,3,5-Trimethylbenzene	50.0000	53.9121	-7.8	106	0.00
86 T	2-Chlorotoluene	50.0000	51.6945	-3.4	103	0.00
87 T	4-Chlorotoluene	50.0000	52.6114	-5.2	104	0.00
88 T	a-Methylstyrene	50.0000	49.9669	0.1	100	0.00
89 T	tert-Butylbenzene	50.0000	49.9577	0.1	105	0.00
90 T	1,2,4-Trimethylbenzene	50.0000	53.4673	-6.9	104	0.00
91 T	sec-Butylbenzene	50.0000	54.6126	-9.2	106	0.00
92 T	p-Isopropyltoluene	50.0000	53.8944	-7.8	106	0.00
93 T	1,3-Dichlorobenzene	50.0000	49.4535	1.1	101	0.00
94 T	1,4-Dichlorobenzene	50.0000	48.4742	3.1	101	0.00
95 T	n-Butylbenzene	50.0000	53.7373	-7.5	106	0.00
96 T	1,2-Dichlorobenzene	50.0000	47.3631	5.3	97	0.00
97 T	1,2-Dibromo-3-Chloropropane	50.0000	41.1560	17.7	83	0.00
98 T	1,2,4-Trichlorobenzene	50.0000	43.1363	13.7	90	0.00
99 T	Hexachlorobutadiene	50.0000	46.9710	6.1	98	0.00
100 T	Naphthalene	50.0000	40.5602	18.9	79	0.00
101 T	1,2,3-Trichlorobenzene	50.0000	40.9642	18.1	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M415945.D 8260WTR.M Mon Nov 07 09:30:43 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416004.D Vial: 3
 Acq On : 8 Nov 2016 10:37 Operator: TMB
 Sample : WG590742-02 50ug/L CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD78876 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 08 11:41:30 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	709223	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	530930	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	246721	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	165339	24.3334	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	97.32%	
43) 1,2-Dichloroethane-d4	10.57	65	127749	21.9131	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	87.64%	
58) Toluene-d8	12.95	98	627428	23.5630	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	94.24%	
80) p-Bromofluorobenzene	16.34	95	231458	23.0006	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	92.00%	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	673906	58.7161	ug/L	100
3) Chloromethane	3.85	50	523254	57.1690	ug/L	99
4) Vinyl Chloride	4.09	62	566066	58.5181	ug/L	99
5) 1,3-Butadiene	4.13	54	292125	63.9796	ug/L	99
6) Bromomethane	5.00	94	320717	48.7427	ug/L	100
7) Chloroethane	5.17	64	257251	53.0481	ug/L	99
8) Trichlorofluoromethane	5.65	101	725551	55.2379	ug/L	100
9) Diethyl ether	6.18	59	330535	101.4632	ug/L	98
10) Isoprene	6.22	67	567234	54.3796	ug/L	98
11) Acrolein	6.42	56	12669	35.6998	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	403021	55.7883	ug/L	95
13) Acetone	6.52	43	29579	50.4404	ug/L	97
14) 1,1-Dichloroethene	6.75	61	519758	52.3243	ug/L	97
15) Tert-Butyl Alcohol	6.85	59	44633	269.0385	ug/L	94
16) Dimethyl Sulfide	7.01	62	278042	51.3535	ug/L	96
17) Iodomethane	7.26	142	215964	32.3952	ug/L	97
18) Methyl acetate	7.26	43	90354	45.8959	ug/L	98
19) Methylene Chloride	7.52	84	365587	52.3066	ug/L	96
20) Carbon Disulfide	7.58	76	1294130	55.8603	ug/L	100
21) Acrylonitrile	7.71	53	44776	52.6827	ug/L	97
22) Methyl Tert Butyl Ether	7.73	73	648775	51.6136	ug/L	98
23) trans-1,2-Dichloroethene	7.98	61	488837	51.8278	ug/L	97
24) n-Hexane	8.05	57	430935	53.9237	ug/L	97
25) Diisopropyl ether	8.39	45	1536948	103.9539	ug/L	97
26) Vinyl Acetate	8.56	43	271317	54.4831	ug/L	97
27) 1,1-Dichloroethane	8.60	63	638020	52.7674	ug/L	100
28) Ethyl-Tert-Butyl ether	8.96	59	1540368	106.4842	ug/L	98
29) 2-Butanone	9.15	43	47279	52.1680	ug/L	99
30) Propionitrile	9.25	54	28086	107.2232	ug/L	96
31) 2,2-Dichloropropane	9.37	77	655505	57.1895	ug/L	100
32) cis-1,2-Dichloroethene	9.44	96	432737	54.2330	ug/L	97
33) Chloroform	9.64	83	703205	52.5438	ug/L	99
34) 1-Bromopropane	9.78	122	83152	65.3159	ug/L	98
35) Bromochloromethane	9.88	130	193233	51.8219	ug/L	97
36) Tetrahydrofuran	9.90	42	56918	95.3929	ug/L	93
38) 1,1,1-Trichloroethane	10.18	97	671664	54.8072	ug/L	100
39) Cyclohexane	10.21	56	507697	50.6329	ug/L	97
40) 1,1-Dichloropropene	10.37	75	547667	53.6223	ug/L	99
41) Tert-Amyl-Methyl ether	10.47	73	1436962	108.5894	ug/L	98
42) Carbon Tetrachloride	10.52	117	617400	56.0935	ug/L	100

(#) = qualifier out of range (m) = manual integration
 8M416004.D 8260WTR.M Tue Nov 08 11:41:33 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416004.D Vial: 3
 Acq On : 8 Nov 2016 10:37 Operator: TMB
 Sample : WG590742-02 50ug/L CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD78876 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 08 11:41:30 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

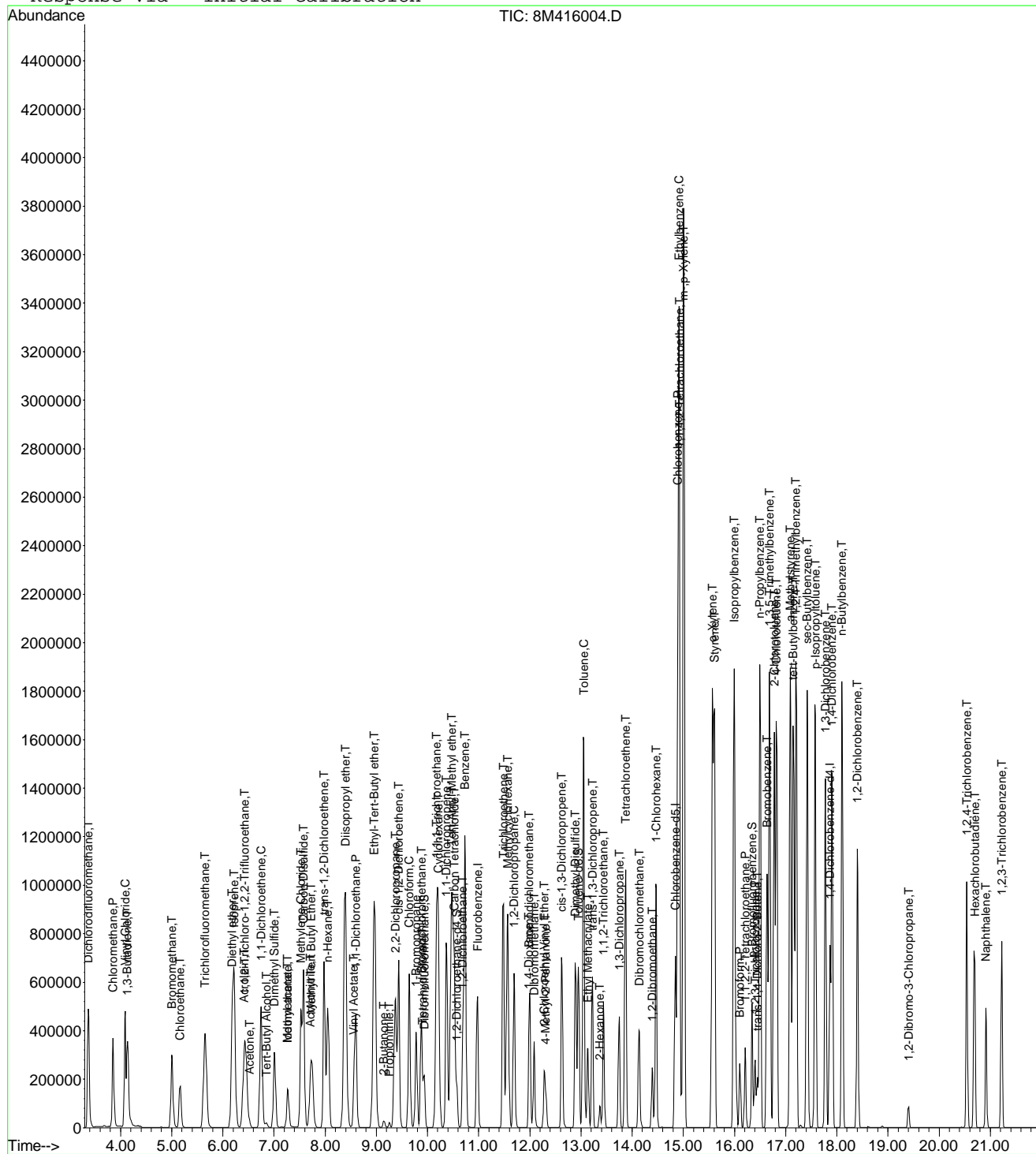
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	357894	51.1705	ug/L	99
46) Benzene	10.73	78	1582797	55.1650	ug/L	99
47) Trichloroethene	11.48	130	398600	52.4348	ug/L	99
48) Methylcyclohexane	11.57	83	648562	53.3118	ug/L	98
49) 1,2-Dichloropropane	11.69	63	318790	51.7971	ug/L	100
50) Bromodichloromethane	11.99	83	490354	53.7574	ug/L	100
51) 1,4-Dioxane	11.98	88	6279	275.6478	ug/L	99
52) Dibromomethane	12.08	93	171738	54.9487	ug/L	97
53) 2-Chloroethyl Vinyl Ether	12.28	63	123056	51.4053	ug/L	100
54) 4-Methyl-2-Pentanone	12.31	58	49934	54.2565	ug/L	99
55) cis-1,3-Dichloropropene	12.62	75	531612	53.1008	ug/L	100
56) Dimethyl Disulfide	12.89	79	291460	51.8815	ug/L	99
59) Toluene	13.06	91	1699947	53.2108	ug/L	99
60) Ethyl Methacrylate	13.14	69	268150	49.3104	ug/L	94
62) trans-1,3-Dichloropropene	13.22	75	426366	49.2960	ug/L	100
63) 1,1,2-Trichloroethane	13.44	97	218028	49.7655	ug/L	100
64) 2-Hexanone	13.37	58	45931	51.9499	ug/L	95
65) 1,3-Dichloropropane	13.75	76	370716	48.0549	ug/L	94
66) Tetrachloroethene	13.87	164	308520	48.1960	ug/L	97
67) Dibromochloromethane	14.14	129	286188	50.0289	ug/L	100
68) 1,2-Dibromoethane	14.39	107	207842	48.7266	ug/L	99
69) 1-Chlorohexane	14.47	91	575858	50.8466	ug/L	96
70) Chlorobenzene	14.90	112	1076843	51.5657	ug/L	99
71) 1,1,1,2-Tetrachloroethane	14.93	131	383114	51.8722	ug/L	100
72) Ethylbenzene	14.92	106	647518	52.3372	ug/L	99
73) m-,p-Xylene	15.01	106	1530301	108.3396	ug/L	100
74) o-Xylene	15.57	106	709352	50.7096	ug/L	99
75) Styrene	15.61	104	1153342	52.7403	ug/L	99
76) Bromoform	16.11	173	153933	49.9748	ug/L	99
77) Isopropylbenzene	15.99	105	1815253	53.7943	ug/L	99
79) 1,1,2,2-Tetrachloroethane	16.21	83	219640	48.8142	ug/L	98
81) 1,2,3-Trichloropropane	16.41	110	59454	48.5628	ug/L	99
82) trans-1,4-Dichloro-2-Butene	16.45	53	47782	48.6141	ug/L	95
83) n-Propylbenzene	16.50	91	2122828	51.7831	ug/L	99
84) Bromobenzene	16.63	156	379173	47.5640	ug/L	99
85) 1,3,5-Trimethylbenzene	16.68	105	1491609	52.0759	ug/L	99
86) 2-Chlorotoluene	16.78	91	1336739	51.2001	ug/L	99
87) 4-Chlorotoluene	16.82	91	1280189	51.1487	ug/L	100
88) a-Methylstyrene	17.09	118	813037	51.0259	ug/L	99
89) tert-Butylbenzene	17.15	134	289622	47.4915	ug/L	96
90) 1,2,4-Trimethylbenzene	17.20	105	1525786	52.5644	ug/L	98
91) sec-Butylbenzene	17.42	105	1852273	53.0231	ug/L	99
92) p-Isopropyltoluene	17.58	119	1430034	51.9510	ug/L	99
93) 1,3-Dichlorobenzene	17.78	146	760484	48.9220	ug/L	100
94) 1,4-Dichlorobenzene	17.90	146	734256	47.9946	ug/L	99
95) n-Butylbenzene	18.10	91	1449898	51.8461	ug/L	99
96) 1,2-Dichlorobenzene	18.40	146	611739	47.5364	ug/L	100
97) 1,2-Dibromo-3-Chloropropane	19.40	75	30405	44.1818	ug/L	99
98) 1,2,4-Trichlorobenzene	20.54	180	372956	43.3542	ug/L	99
99) Hexachlorobutadiene	20.70	225	183073	44.2305	ug/L	98
100) Naphthalene	20.91	128	502190	44.8432	ug/L	100
101) 1,2,3-Trichlorobenzene	21.22	180	284941	42.8132	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M416004.D 8260WTR.M Tue Nov 08 11:41:33 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416004.D Vial: 3
 Acq On : 8 Nov 2016 10:37 Operator: TMB
 Sample : WG590742-02 50ug/L CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD78876 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 8 11:41 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Continuing Calibration Area and RT check

Instrument: HPMS8
Initial cal date: 30 Oct 2016 21:52
CCV date: 8 Nov 2016 10:37
CCV Filename: 8M416004.D

	Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
	<u>Amount</u>	<u>RT</u>	<u>Amount</u>	<u>RT</u>	<u>Amount</u>	<u>RT</u>
InitCal	825560	10.98	566473	14.84	263212	17.86
CCV	709223	10.98	530930	14.84	246721	17.86

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416004.D Vial: 3
 Acq On : 8 Nov 2016 10:37 Operator: TMB
 Sample : WG590742-02 50ug/L CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD78876 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	86	0.00
2 T	Dichlorodifluoromethane	0.4046	0.4751	-17.4	94	0.00
3 P	Chloromethane	0.3226	0.3689	-14.3	101	0.00
4 C	Vinyl Chloride	0.3410	0.3991	-17.0	105	0.00
5 T	1,3-Butadiene	0.2273	0.2059	9.4	98	-0.01
6 T	Bromomethane	0.2319	0.2261	2.5	87	0.00
7 T	Chloroethane	0.1709	0.1814	-6.1	91	0.00
8 T	Trichlorofluoromethane	0.4630	0.5115	-10.5	96	0.00
9 T	Diethyl ether	0.1148	0.1165	-1.5	87	0.00
10 T	Isoprene	0.3677	0.3999	-8.8	95	0.00
11 T	Acrolein	0.0125	0.0089	28.6#	59	0.00
12 T	1,1,2-Trichloro-1,2,2-Trifl	0.2546	0.2841	-11.6	98	0.00
13 T	Acetone	0.0207	0.0209	-0.9	84	0.00
14 C	1,1-Dichloroethene	0.3502	0.3664	-4.6	92	0.00
15 T	Tert-Butyl Alcohol	0.0059	0.0079	-34.5#	112	0.00
16 T	Dimethyl Sulfide	0.1908	0.1960	-2.7	89	0.00
17 T	Iodomethane	0.2350	0.1523	35.2#	54	0.00
18 T	Methyl acetate	0.0694	0.0637	8.2	82	0.00
19 T	Methylene Chloride	0.2464	0.2577	-4.6	94	0.00
20 T	Carbon Disulfide	0.8166	0.9124	-11.7	96	0.00
21 T	Acrylonitrile	0.0300	0.0316	-5.4	84	0.00
22 T	Methyl Tert Butyl Ether	0.4431	0.4574	-3.2	89	0.00
23 T	trans-1,2-Dichloroethene	0.3325	0.3446	-3.7	92	0.00
24 T	n-Hexane	0.2817	0.3038	-7.8	95	0.00
25 T	Diisopropyl ether	0.5212	0.5418	-4.0	88	0.00
26 T	Vinyl Acetate	0.1755	0.1913	-9.0	98	0.00
27 P	1,1-Dichloroethane	0.4262	0.4498	-5.5	92	0.00
28 T	Ethyl-Tert-Butyl ether	0.5099	0.5430	-6.5	90	0.00
29 T	2-Butanone	0.0319	0.0333	-4.3	88	0.00
30 T	Propionitrile	0.0092	0.0099	-7.3	88	0.00
31 T	2,2-Dichloropropane	0.4040	0.4621	-14.4	101	0.00
32 T	cis-1,2-Dichloroethene	0.2813	0.3051	-8.5	96	0.00
33 C	Chloroform	0.4718	0.4958	-5.1	94	0.00
34	1-Bromopropane	0.0449	0.0586	-30.6#	111	0.00
35 T	Bromochloromethane	0.1314	0.1362	-3.6	89	0.00
36 T	Tetrahydrofuran	0.0224	0.0201	10.3	81	0.00
37 S	Dibromofluoromethane	0.2395	0.2331	2.7	82	0.00
38 T	1,1,1-Trichloroethane	0.4320	0.4735	-9.6	96	0.00
39 T	Cyclohexane	0.3534	0.3579	-1.3	91	0.00
40 T	1,1-Dichloropropene	0.3600	0.3861	-7.2	95	0.00
41 T	Tert-Amyl-Methyl ether	0.4665	0.5065	-8.6	92	0.00
42 T	Carbon Tetrachloride	0.3880	0.4353	-12.2	97	0.00
43 S	1,2-Dichloroethane-d4	0.2055	0.1801	12.3	74	0.00
44	Heptane	0.0000	0.0000	0.0	0#	-2.61#
45 T	1,2-Dichloroethane	0.2465	0.2523	-2.3	87	0.00
46 T	Benzene	1.0114	1.1159	-10.3	95	0.00
47 T	Trichloroethene	0.2680	0.2810	-4.9	93	0.00
48 T	Methylcyclohexane	0.4288	0.4572	-6.6	94	0.00
49 C	1,2-Dichloropropane	0.2170	0.2248	-3.6	91	0.00
50 T	Bromodichloromethane	0.3215	0.3457	-7.5	92	0.00
51 T	1,4-Dioxane	0.0008	0.0011	-48.0#	109	0.00
52 T	Dibromomethane	0.1102	0.1211	-9.9	91	0.00
53 T	2-Chloroethyl Vinyl Ether	0.0844	0.0867	-2.8	86	0.00
54 T	4-Methyl-2-Pentanone	0.0324	0.0352	-8.5	90	0.00

(#) = Out of Range

8M416004.D 8260WTR.M

Tue Nov 08 11:41:51 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416004.D Vial: 3
 Acq On : 8 Nov 2016 10:37 Operator: TMB
 Sample : WG590742-02 50ug/L CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD78876 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	cis-1,3-Dichloropropene	0.3529	0.3748	-6.2	91	0.00
56 T	Dimethyl Disulfide	0.1980	0.2055	-3.8	90	0.00
57 I	Chlorobenzene-d5	1.0000	1.0000	0.0	94	0.00
58 S	Toluene-d8	1.2538	1.1818	5.7	87	0.00
59 C	Toluene	1.5043	1.6009	-6.4	98	0.00
60 T	Ethyl Methacrylate	0.2561	0.2525	1.4	89	0.00
61	Paraldehyde	0.0000	0.0000	0.0	0#	-13.40#
62 T	trans-1,3-Dichloropropene	0.4073	0.4015	1.4	90	0.00
63 T	1,1,2-Trichloroethane	0.2063	0.2053	0.5	91	0.00
64 T	2-Hexanone	0.0416	0.0433	-3.9	92	0.00
65 T	1,3-Dichloropropane	0.3633	0.3491	3.9	89	0.00
66 T	Tetrachloroethene	0.3014	0.2905	3.6	94	0.00
67 T	Dibromochloromethane	0.2694	0.2695	-0.1	90	0.00
68 T	1,2-Dibromoethane	0.2009	0.1957	2.5	89	0.00
69 T	1-Chlorohexane	0.5333	0.5423	-1.7	96	0.00
70 P	Chlorobenzene	0.9833	1.0141	-3.1	97	0.00
71 T	1,1,1,2-Tetrachloroethane	0.3478	0.3608	-3.7	96	0.00
72 C	Ethylbenzene	0.5826	0.6098	-4.7	97	0.00
73 T	m-,p-Xylene	0.6651	0.7206	-8.3	97	0.00
74 T	o-Xylene	0.6587	0.6680	-1.4	96	0.00
75 T	Styrene	1.0297	1.0861	-5.5	94	0.00
76 P	Bromoform	0.1450	0.1450	0.0	89	0.00
77 T	Isopropylbenzene	1.5889	1.7095	-7.6	97	0.00
78 I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	94	0.00
79 P	1,1,2,2-Tetrachloroethane	0.4559	0.4451	2.4	90	0.00
80 S	p-Bromofluorobenzene	1.0197	0.9381	8.0	86	0.00
81 T	1,2,3-Trichloropropane	0.1240	0.1205	2.9	88	0.00
82 T	trans-1,4-Dichloro-2-Butene	0.0996	0.0968	2.8	87	0.00
83 T	n-Propylbenzene	4.1539	4.3021	-3.6	97	0.00
84 T	Bromobenzene	0.8078	0.7684	4.9	91	0.00
85 T	1,3,5-Trimethylbenzene	2.9024	3.0229	-4.2	95	0.00
86 T	2-Chlorotoluene	2.6455	2.7090	-2.4	95	0.00
87 T	4-Chlorotoluene	2.5361	2.5944	-2.3	94	0.00
88 T	a-Methylstyrene	1.6146	1.6477	-2.1	95	0.00
89 T	tert-Butylbenzene	0.6179	0.5869	5.0	93	0.00
90 T	1,2,4-Trimethylbenzene	2.9413	3.0921	-5.1	96	0.00
91 T	sec-Butylbenzene	3.5398	3.7538	-6.0	96	0.00
92 T	p-Isopropyltoluene	2.7892	2.8981	-3.9	96	0.00
93 T	1,3-Dichlorobenzene	1.5751	1.5412	2.2	93	0.00
94 T	1,4-Dichlorobenzene	1.5502	1.4880	4.0	93	0.00
95 T	n-Butylbenzene	2.8337	2.9383	-3.7	95	0.00
96 T	1,2-Dichlorobenzene	1.3040	1.2397	4.9	91	-0.01
97 T	1,2-Dibromo-3-Chloropropane	0.0697	0.0616	11.6	83	0.00
98 T	1,2,4-Trichlorobenzene	0.8717	0.7558	13.3	85	0.00
99 T	Hexachlorobutadiene	0.4194	0.3710	11.5	86	0.00
100 T	Naphthalene	1.1348	1.0177	10.3	82	0.00
101 T	1,2,3-Trichlorobenzene	0.6744	0.5775	14.4	82	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 8M416004.D 8260WTR.M Tue Nov 08 11:41:52 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416004.D Vial: 3
 Acq On : 8 Nov 2016 10:37 Operator: TMB
 Sample : WG590742-02 50ug/L CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD78876 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	86	0.00
2 T	Dichlorodifluoromethane	50.0000	58.7161	-17.4	94	0.00
3 P	Chloromethane	50.0000	57.1690	-14.3	101	0.00
4 C	Vinyl Chloride	50.0000	58.5181	-17.0	105	0.00
5 T	1,3-Butadiene	50.0000	63.9796	-28.0#	98	-0.01
6 T	Bromomethane	50.0000	48.7427	2.5	87	0.00
7 T	Chloroethane	50.0000	53.0481	-6.1	91	0.00
8 T	Trichlorofluoromethane	50.0000	55.2379	-10.5	96	0.00
9 T	Diethyl ether	100.0000	101.4632	-1.5	87	0.00
10 T	Isoprene	50.0000	54.3796	-8.8	95	0.00
11 T	Acrolein	50.0000	35.6998	28.6#	59	0.00
12 T	1,1,2-Trichloro-1,2,2-Trifl	50.0000	55.7883	-11.6	98	0.00
13 T	Acetone	50.0000	50.4404	-0.9	84	0.00
14 C	1,1-Dichloroethene	50.0000	52.3243	-4.6	92	0.00
15 T	Tert-Butyl Alcohol	200.0000	269.0385	-34.5#	112	0.00
16 T	Dimethyl Sulfide	50.0000	51.3535	-2.7	89	0.00
17 T	Iodomethane	50.0000	32.3952	35.2#	54	0.00
18 T	Methyl acetate	50.0000	45.8959	8.2	82	0.00
19 T	Methylene Chloride	50.0000	52.3066	-4.6	94	0.00
20 T	Carbon Disulfide	50.0000	55.8603	-11.7	96	0.00
21 T	Acrylonitrile	50.0000	52.6827	-5.4	84	0.00
22 T	Methyl Tert Butyl Ether	50.0000	51.6136	-3.2	89	0.00
23 T	trans-1,2-Dichloroethene	50.0000	51.8278	-3.7	92	0.00
24 T	n-Hexane	50.0000	53.9237	-7.8	95	0.00
25 T	Diisopropyl ether	100.0000	103.9539	-4.0	88	0.00
26 T	Vinyl Acetate	50.0000	54.4831	-9.0	98	0.00
27 P	1,1-Dichloroethane	50.0000	52.7674	-5.5	92	0.00
28 T	Ethyl-Tert-Butyl ether	100.0000	106.4842	-6.5	90	0.00
29 T	2-Butanone	50.0000	52.1680	-4.3	88	0.00
30 T	Propionitrile	100.0000	107.2232	-7.2	88	0.00
31 T	2,2-Dichloropropane	50.0000	57.1895	-14.4	101	0.00
32 T	cis-1,2-Dichloroethene	50.0000	54.2330	-8.5	96	0.00
33 C	Chloroform	50.0000	52.5438	-5.1	94	0.00
34	1-Bromopropane	50.0000	65.3159	-30.6#	111	0.00
35 T	Bromochloromethane	50.0000	51.8219	-3.6	89	0.00
36 T	Tetrahydrofuran	100.0000	95.3929	4.6	81	0.00
37 S	Dibromofluoromethane	25.0000	24.3334	2.7	82	0.00
38 T	1,1,1-Trichloroethane	50.0000	54.8072	-9.6	96	0.00
39 T	Cyclohexane	50.0000	50.6330	-1.3	91	0.00
40 T	1,1-Dichloropropene	50.0000	53.6223	-7.2	95	0.00
41 T	Tert-Amyl-Methyl ether	100.0000	108.5894	-8.6	92	0.00
42 T	Carbon Tetrachloride	50.0000	56.0936	-12.2	97	0.00
43 S	1,2-Dichloroethane-d4	25.0000	21.9132	12.3	74	0.00
44	Heptane	-1.0000	0.0000	0.0	0	-2.61#
45 T	1,2-Dichloroethane	50.0000	51.1705	-2.3	87	0.00
46 T	Benzene	50.0000	55.1650	-10.3	95	0.00
47 T	Trichloroethene	50.0000	52.4348	-4.9	93	0.00
48 T	Methylcyclohexane	50.0000	53.3118	-6.6	94	0.00
49 C	1,2-Dichloropropane	50.0000	51.7971	-3.6	91	0.00
50 T	Bromodichloromethane	50.0000	53.7574	-7.5	92	0.00
51 T	1,4-Dioxane	200.0000	275.6478	-37.8#	109	0.00
52 T	Dibromomethane	50.0000	54.9487	-9.9	91	0.00
53 T	2-Chloroethyl Vinyl Ether	50.0000	51.4053	-2.8	86	0.00
54 T	4-Methyl-2-Pentanone	50.0000	54.2565	-8.5	90	0.00

(#) = Out of Range

8M416004.D 8260WTR.M

Tue Nov 08 11:41:54 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416004.D Vial: 3
 Acq On : 8 Nov 2016 10:37 Operator: TMB
 Sample : WG590742-02 50ug/L CCV STD 8260 Inst : HPMS8
 Misc : 1,1 STD78876 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 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	cis-1,3-Dichloropropene	50.0000	53.1008	-6.2	91	0.00
56 T	Dimethyl Disulfide	50.0000	51.8815	-3.8	90	0.00
57 I	Chlorobenzene-d5	25.0000	25.0000	0.0	94	0.00
58 S	Toluene-d8	25.0000	23.5630	5.7	87	0.00
59 C	Toluene	50.0000	53.2108	-6.4	98	0.00
60 T	Ethyl Methacrylate	50.0000	49.3105	1.4	89	0.00
61	Paraldehyde	-1.0000	0.0000	0.0	0	-13.40#
62 T	trans-1,3-Dichloropropene	50.0000	49.2960	1.4	90	0.00
63 T	1,1,2-Trichloroethane	50.0000	49.7655	0.5	91	0.00
64 T	2-Hexanone	50.0000	51.9499	-3.9	92	0.00
65 T	1,3-Dichloropropane	50.0000	48.0549	3.9	89	0.00
66 T	Tetrachloroethene	50.0000	48.1960	3.6	94	0.00
67 T	Dibromochloromethane	50.0000	50.0289	-0.1	90	0.00
68 T	1,2-Dibromoethane	50.0000	48.7266	2.5	89	0.00
69 T	1-Chlorohexane	50.0000	50.8466	-1.7	96	0.00
70 P	Chlorobenzene	50.0000	51.5657	-3.1	97	0.00
71 T	1,1,1,2-Tetrachloroethane	50.0000	51.8722	-3.7	96	0.00
72 C	Ethylbenzene	50.0000	52.3372	-4.7	97	0.00
73 T	m-,p-Xylene	100.0000	108.3396	-8.3	97	0.00
74 T	o-Xylene	50.0000	50.7096	-1.4	96	0.00
75 T	Styrene	50.0000	52.7403	-5.5	94	0.00
76 P	Bromoform	50.0000	49.9748	0.1	89	0.00
77 T	Isopropylbenzene	50.0000	53.7943	-7.6	97	0.00
78 I	1,4-Dichlorobenzene-d4	25.0000	25.0000	0.0	94	0.00
79 P	1,1,2,2-Tetrachloroethane	50.0000	48.8142	2.4	90	0.00
80 S	p-Bromofluorobenzene	25.0000	23.0006	8.0	86	0.00
81 T	1,2,3-Trichloropropane	50.0000	48.5628	2.9	88	0.00
82 T	trans-1,4-Dichloro-2-Butene	50.0000	48.6141	2.8	87	0.00
83 T	n-Propylbenzene	50.0000	51.7831	-3.6	97	0.00
84 T	Bromobenzene	50.0000	47.5640	4.9	91	0.00
85 T	1,3,5-Trimethylbenzene	50.0000	52.0759	-4.2	95	0.00
86 T	2-Chlorotoluene	50.0000	51.2001	-2.4	95	0.00
87 T	4-Chlorotoluene	50.0000	51.1487	-2.3	94	0.00
88 T	a-Methylstyrene	50.0000	51.0259	-2.1	95	0.00
89 T	tert-Butylbenzene	50.0000	47.4915	5.0	93	0.00
90 T	1,2,4-Trimethylbenzene	50.0000	52.5644	-5.1	96	0.00
91 T	sec-Butylbenzene	50.0000	53.0231	-6.0	96	0.00
92 T	p-Isopropyltoluene	50.0000	51.9510	-3.9	96	0.00
93 T	1,3-Dichlorobenzene	50.0000	48.9220	2.2	93	0.00
94 T	1,4-Dichlorobenzene	50.0000	47.9946	4.0	93	0.00
95 T	n-Butylbenzene	50.0000	51.8461	-3.7	95	0.00
96 T	1,2-Dichlorobenzene	50.0000	47.5364	4.9	91	-0.01
97 T	1,2-Dibromo-3-Chloropropane	50.0000	44.1818	11.6	83	0.00
98 T	1,2,4-Trichlorobenzene	50.0000	43.3542	13.3	85	0.00
99 T	Hexachlorobutadiene	50.0000	44.2305	11.5	86	0.00
100 T	Naphthalene	50.0000	44.8432	10.3	82	0.00
101 T	1,2,3-Trichlorobenzene	50.0000	42.8132	14.4	82	0.00

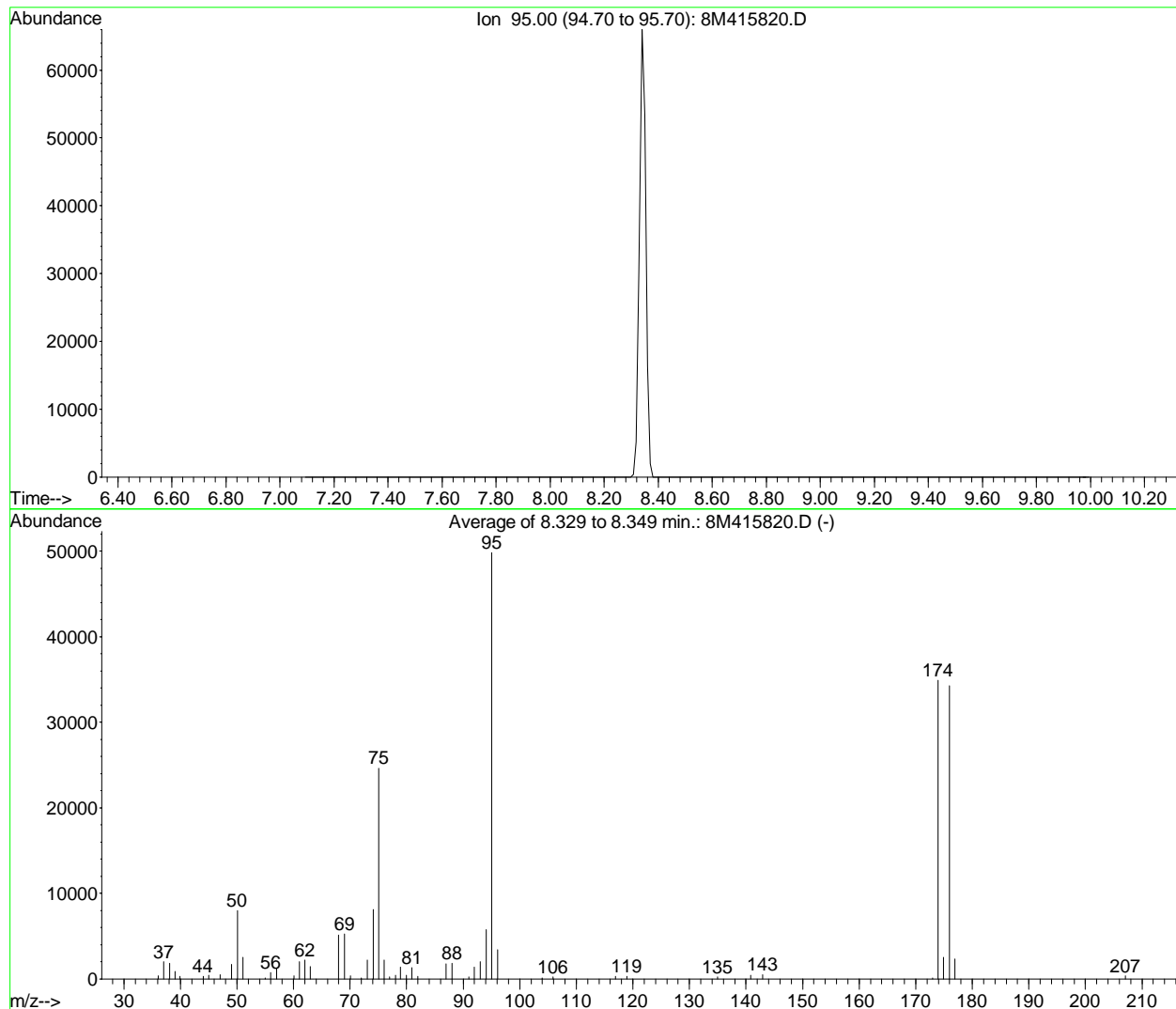
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 8M416004.D 8260WTR.M Tue Nov 08 11:41:55 2016

Page 2

2.1.1.5 Raw QC Data

BFB

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\103016\8M415820.D Vial: 1
 Acq On : 30 Oct 2016 17:15 Operator: FJB
 Sample : WG589331-01 BFB 50ng 8260 Inst : HPMS8
 Misc : 1,1 STD78474 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8



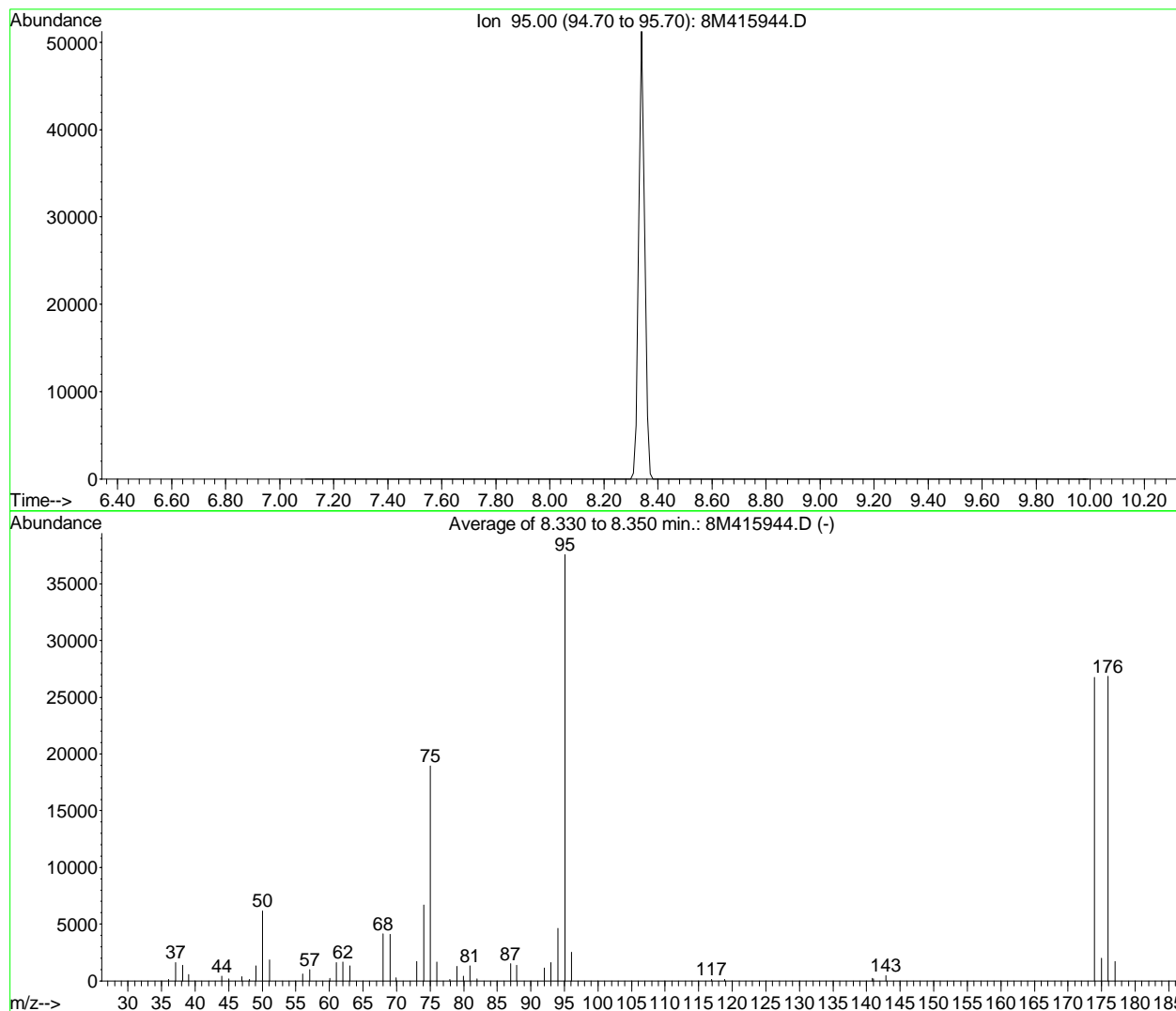
AutoFind: Scans 122, 123, 124; Background Corrected with Scan 117

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.0	7994	PASS
75	95	30	60	49.4	24645	PASS
95	95	100	100	100.0	49845	PASS
96	95	5	9	6.8	3402	PASS
173	174	0.00	2	0.3	115	PASS
174	95	50	100	70.0	34901	PASS
175	174	5	9	7.1	2490	PASS
176	174	95	101	98.3	34293	PASS
177	176	5	9	6.7	2297	PASS

8M415820.D 8260WTR.M Tue Nov 01 11:10:39 2016

BFB

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415944.D Vial: 1
 Acq On : 4 Nov 2016 13:36 Operator: ADC
 Sample : WG590442-01 BFB 50ng 8260 Inst : HPMS8
 Misc : 1,1 STD78474 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8



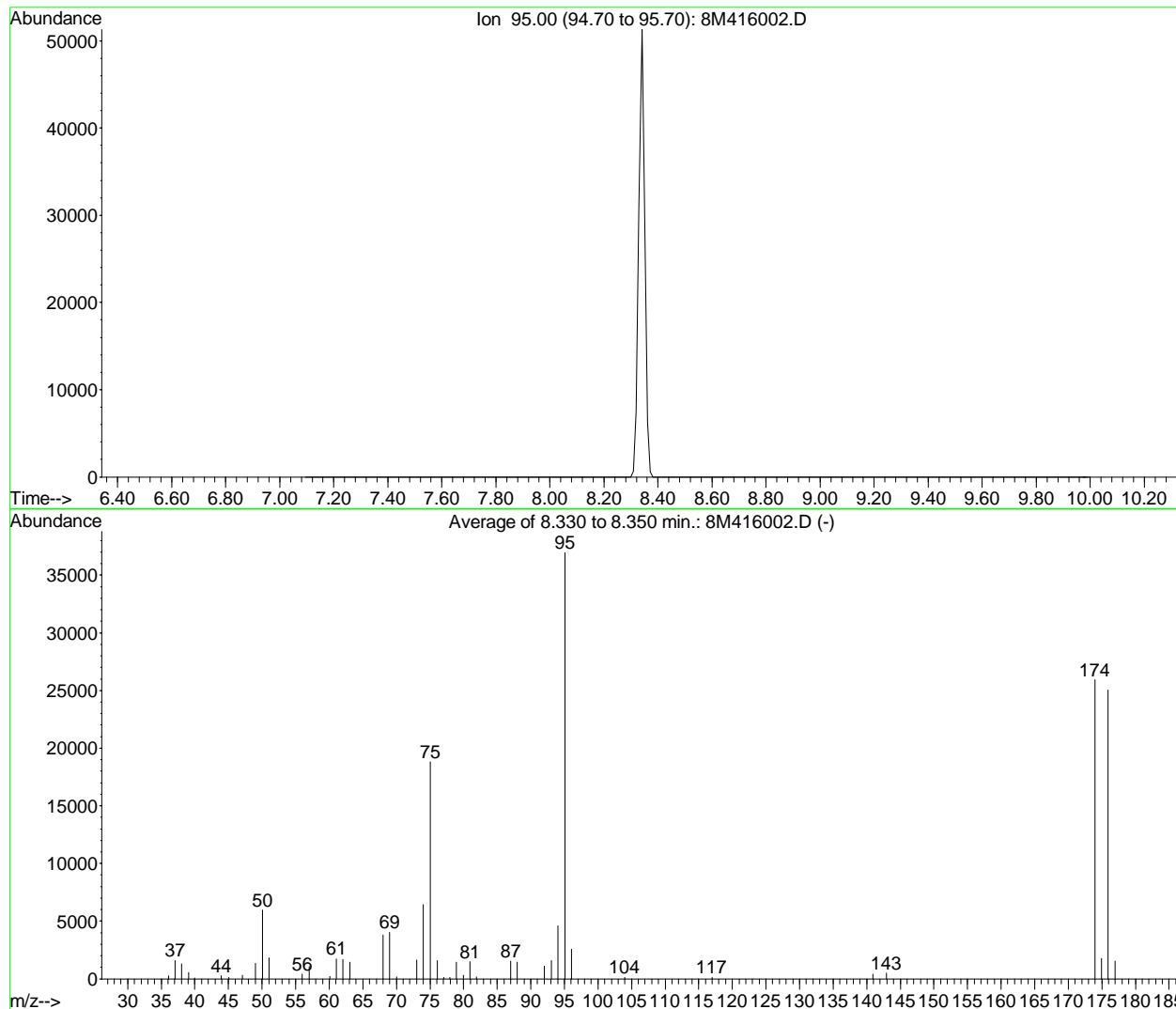
AutoFind: Scans 122, 123, 124; Background Corrected with Scan 117

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.3	6135	PASS
75	95	30	60	50.4	18929	PASS
95	95	100	100	100.0	37592	PASS
96	95	5	9	6.7	2512	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	71.2	26760	PASS
175	174	5	9	7.5	1997	PASS
176	174	95	101	100.4	26873	PASS
177	176	5	9	6.3	1703	PASS

8M415944.D 8260WTR.M Mon Nov 07 09:23:30 2016

BFB

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416002.D Vial: 1
 Acq On : 8 Nov 2016 9:43 Operator: TMB
 Sample : WG590742-01 50ng BFB STD 8260 Inst : HPMS8
 Misc : 1,1 STD78474 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8



AutoFind: Scans 122, 123, 124; Background Corrected with Scan 117

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.1	5943	PASS
75	95	30	60	50.9	18825	PASS
95	95	100	100	100.0	36962	PASS
96	95	5	9	7.0	2587	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	70.2	25947	PASS
175	174	5	9	6.8	1758	PASS
176	174	95	101	96.6	25059	PASS
177	176	5	9	6.1	1518	PASS

8M416002.D 8260WTR.M Tue Nov 08 11:41:05 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415947.D Vial: 4
 Acq On : 4 Nov 2016 14:59 Operator: ADC
 Sample : WG590443-01 BLANK 8260 Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:51:47 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

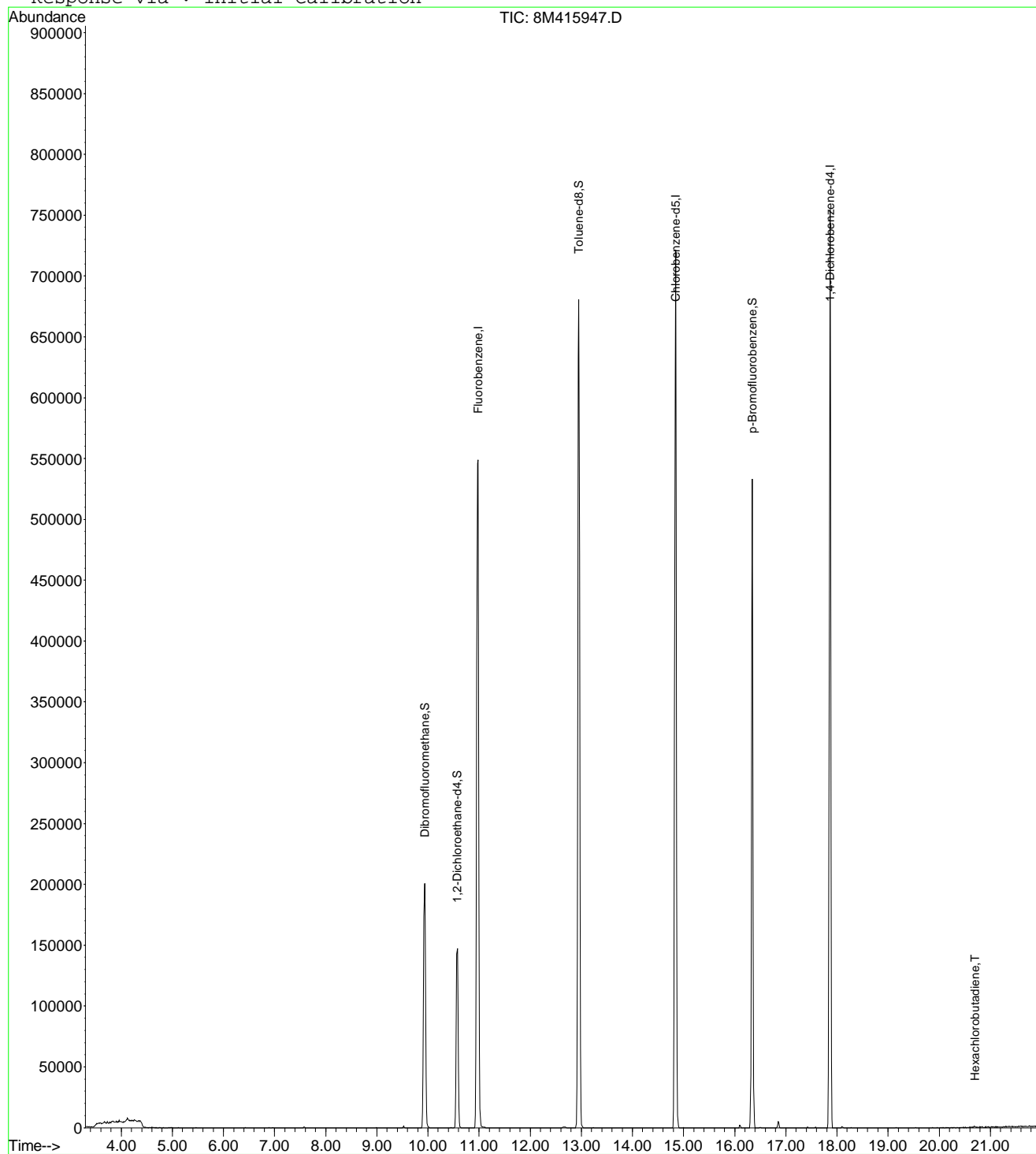
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	737550	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	546376	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	244909	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.93	111	171162	24.2229	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	96.88%	
43) 1,2-Dichloroethane-d4	10.57	65	140917	23.2435	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	92.96%	
58) Toluene-d8	12.95	98	649878	23.7162	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	94.88%	
80) p-Bromofluorobenzene	16.34	95	237932	23.8188	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	95.28%	
Target Compounds						
36) Tetrahydrofuran	9.90	42	1120	Below Cal	# 48	Qvalue
99) Hexachlorobutadiene	20.70	225	931	0.2266	ug/L # 23	

(#) = qualifier out of range (m) = manual integration
 8M415947.D 8260WTR.M Mon Nov 07 09:51:50 2016

Page 1

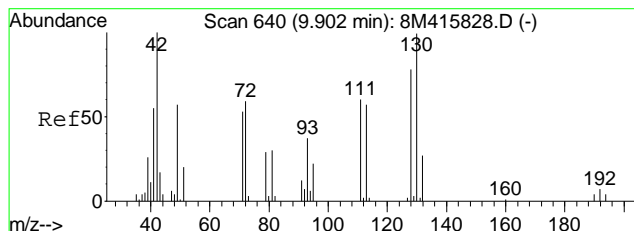
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Acq On : 4 Nov 2016 14:59 Operator: ADC
Sample : WG590443-01 BLANK 8260 Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 7 9:51 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



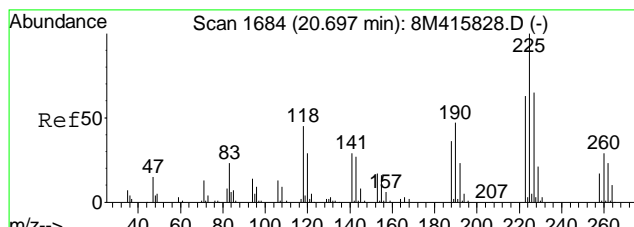
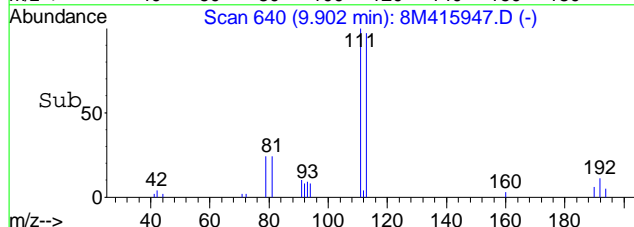
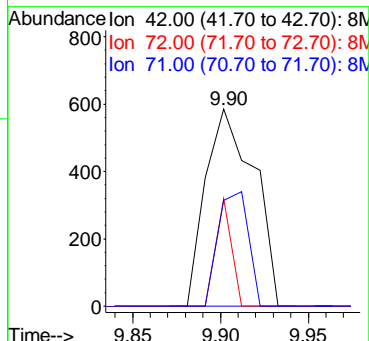
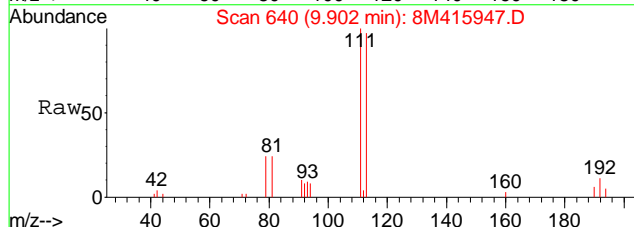
8M415947.D 8260WTR.M Mon Nov 07 09:51:51 2016

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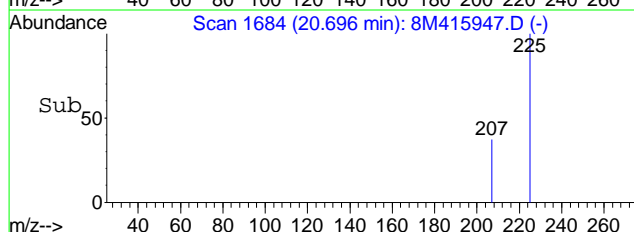
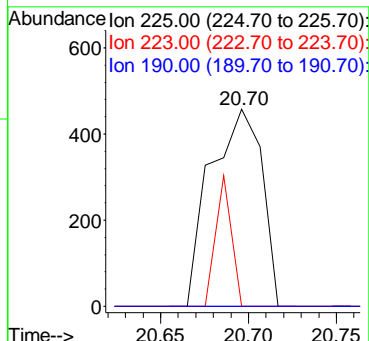
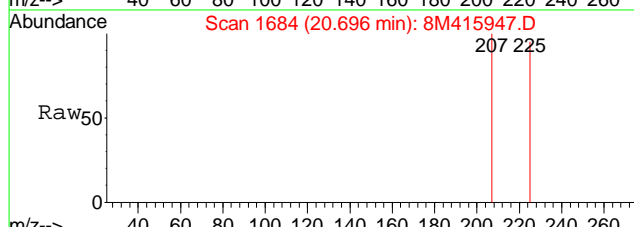
#36
 Tetrahydrofuran
 Concen: Below Cal
 RT: 9.90 min Scan# 640
 Delta R.T. -0.00 min
 Lab File: 8M415947.D
 Acq: 4 Nov 2016 14:59

Tgt Ion	Ratio	Lower	Upper
42	100		
72	0.0	34.9	81.3#
71	36.3	31.9	74.5



#99
 Hexachlorobutadiene
 Concen: 0.23 ug/L
 RT: 20.70 min Scan# 1684
 Delta R.T. -0.00 min
 Lab File: 8M415947.D
 Acq: 4 Nov 2016 14:59

Tgt Ion	Ratio	Lower	Upper
225	100		
223	0.0	37.6	87.8#
190	0.0	29.1	67.9#



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416006.D Vial: 5
 Acq On : 8 Nov 2016 11:40 Operator: TMB
 Sample : WG590743-01 VBLK1108 BLANK STD 8260 Inst : HPMS8
 Misc : 1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 09 08:42:43 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

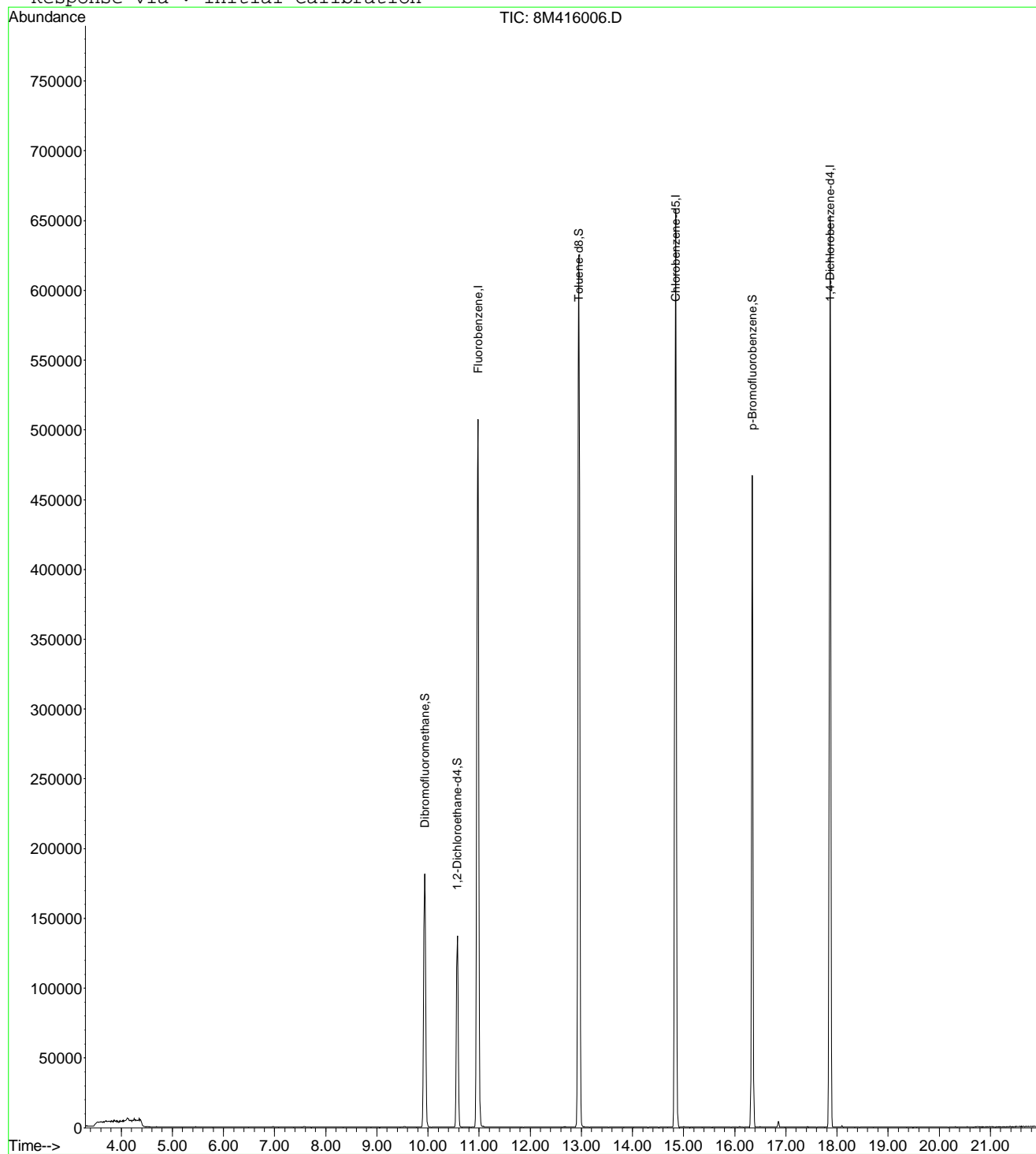
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	663591	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	487617	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	208759	25.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.93	111	153418	24.1316	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	96.52%	
43) 1,2-Dichloroethane-d4	10.57	65	120905	22.1653	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	88.68%	
58) Toluene-d8	12.95	98	584346	23.8944	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	95.56%	
80) p-Bromofluorobenzene	16.34	95	209775	24.6366	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	98.56%	
Target Compounds						
36) Tetrahydrofuran	9.90	42	638	Below Cal	Qvalue #	23

(#) = qualifier out of range (m) = manual integration
 8M416006.D 8260WTR.M Wed Nov 09 08:42:46 2016

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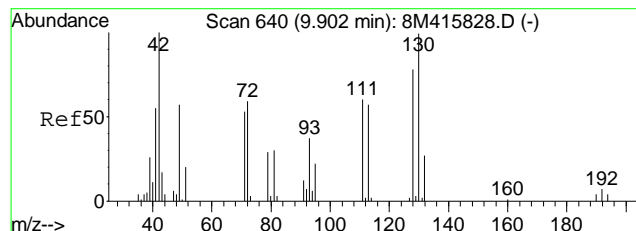
Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416006.D Vial: 5
Acq On : 8 Nov 2016 11:40 Operator: TMB
Sample : WG590743-01 VBLK1108 BLANK STD 8260 Inst : HPMS8
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 9 8:42 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



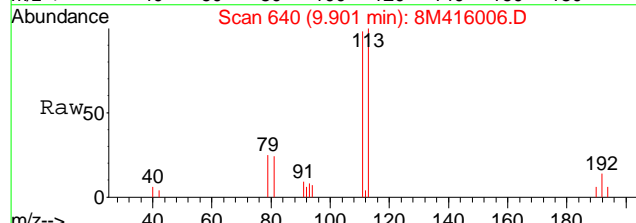
8M416006.D 8260WTR.M Wed Nov 09 08:42:47 2016

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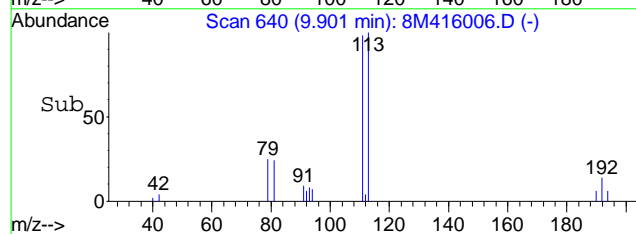
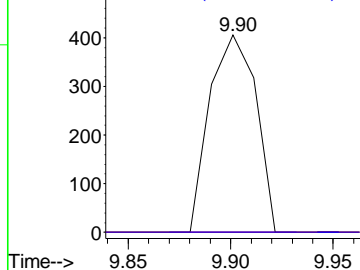


#36
 Tetrahydrofuran
 Concen: Below Cal
 RT: 9.90 min Scan# 640
 Delta R.T. -0.00 min
 Lab File: 8M416006.D
 Acq: 8 Nov 2016 11:40

Tgt Ion	Ratio	Lower	Upper
42	100		
72	0.0	34.9	81.3#
71	0.0	31.9	74.5#



Abundance Ion 42.00 (41.70 to 42.70): 8N
 Ion 72.00 (71.70 to 72.70): 8N
 Ion 71.00 (70.70 to 71.70): 8N



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415953.D Vial: 10
 Acq On : 4 Nov 2016 17:54 Operator: ADC
 Sample : WG590443-02 20ug/L LCS 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Nov 07 09:24:33 2016

Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	697146	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	516757	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	242852	25.00	ug/L	0.00

System Monitoring Compounds

37) Dibromofluoromethane	9.93	111	164171	24.5801	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	98.32%	
43) 1,2-Dichloroethane-d4	10.57	65	130613	22.7925	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	91.16%	
58) Toluene-d8	12.95	98	612594	23.6369	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	94.56%	
80) p-Bromofluorobenzene	16.34	95	228910	23.1098	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	92.44%	

Target Compounds

						Qvalue
2) Dichlorodifluoromethane	3.37	85	188325	16.6926	ug/L	100
3) Chloromethane	3.85	50	192455	21.3913	ug/L	99
4) Vinyl Chloride	4.09	62	235759	24.7942	ug/L	99
5) 1,3-Butadiene	4.14	54	208162	36.4286	ug/L	100
6) Bromomethane	5.00	94	120723	18.6654	ug/L	97
7) Chloroethane	5.16	64	98954	20.7589	ug/L	100
8) Trichlorofluoromethane	5.65	101	264474	20.4838	ug/L	100
9) Diethyl ether	6.18	59	343134	107.1554	ug/L	99
10) Isoprene	6.22	67	224848	21.9291	ug/L	98
11) Acrolein	6.42	56	20659	59.2232	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	156826	22.0848	ug/L	97
13) Acetone	6.52	43	8411	14.5916	ug/L	94
14) 1,1-Dichloroethene	6.75	61	204220	20.9151	ug/L	100
15) Tert-Butyl Alcohol	6.85	59	15418	94.5465	ug/L #	62
16) Dimethyl Sulfide	7.01	62	134694	25.3085	ug/L	97
17) Iodomethane	7.26	142	101328	15.4628	ug/L	98
18) Methyl acetate	7.26	43	28720	14.8412	ug/L	98
19) Methylene Chloride	7.52	84	150812	21.9513	ug/L	98
20) Carbon Disulfide	7.57	76	433914	19.0541	ug/L	100
21) Acrylonitrile	7.71	53	16544	19.8026	ug/L	98
22) Methyl Tert Butyl Ether	7.74	73	269812	21.8369	ug/L	98
23) trans-1,2-Dichloroethene	7.98	61	198355	21.3944	ug/L	97
24) n-Hexane	8.05	57	148814	18.9440	ug/L	98
25) Diisopropyl ether	8.39	45	1615035	111.1277	ug/L	98
26) Vinyl Acetate	8.56	43	119673	24.4478	ug/L	99
27) 1,1-Dichloroethane	8.60	63	265918	22.3737	ug/L	100
28) Ethyl-Tert-Butyl ether	8.96	59	1517954	106.7526	ug/L	99
29) 2-Butanone	9.15	43	14905	16.7312	ug/L	98
30) Propionitrile	9.25	54	21417	83.1796	ug/L	95
31) 2,2-Dichloropropane	9.37	77	252604	22.4202	ug/L	99
32) cis-1,2-Dichloroethene	9.44	96	180825	23.0546	ug/L	98
33) Chloroform	9.64	83	309928	23.5592	ug/L	99
34) 1-Bromopropane	9.78	122	32480	25.9550	ug/L	100
35) Bromochloromethane	9.88	130	82753	22.5775	ug/L	98
36) Tetrahydrofuran	9.90	42	51461	87.5729	ug/L	95
38) 1,1,1-Trichloroethane	10.18	97	288867	23.9796	ug/L	99
39) Cyclohexane	10.21	56	155477	15.7744	ug/L	97
40) 1,1-Dichloropropene	10.37	75	229529	22.8626	ug/L	100
41) Tert-Amyl-Methyl ether	10.47	73	1489610	114.5180	ug/L	99
42) Carbon Tetrachloride	10.52	117	262880	24.2976	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M415953.D 8260WTR.M Mon Nov 07 09:24:36 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415953.D Vial: 10
 Acq On : 4 Nov 2016 17:54 Operator: ADC
 Sample : WG590443-02 20ug/L LCS 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:24:33 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

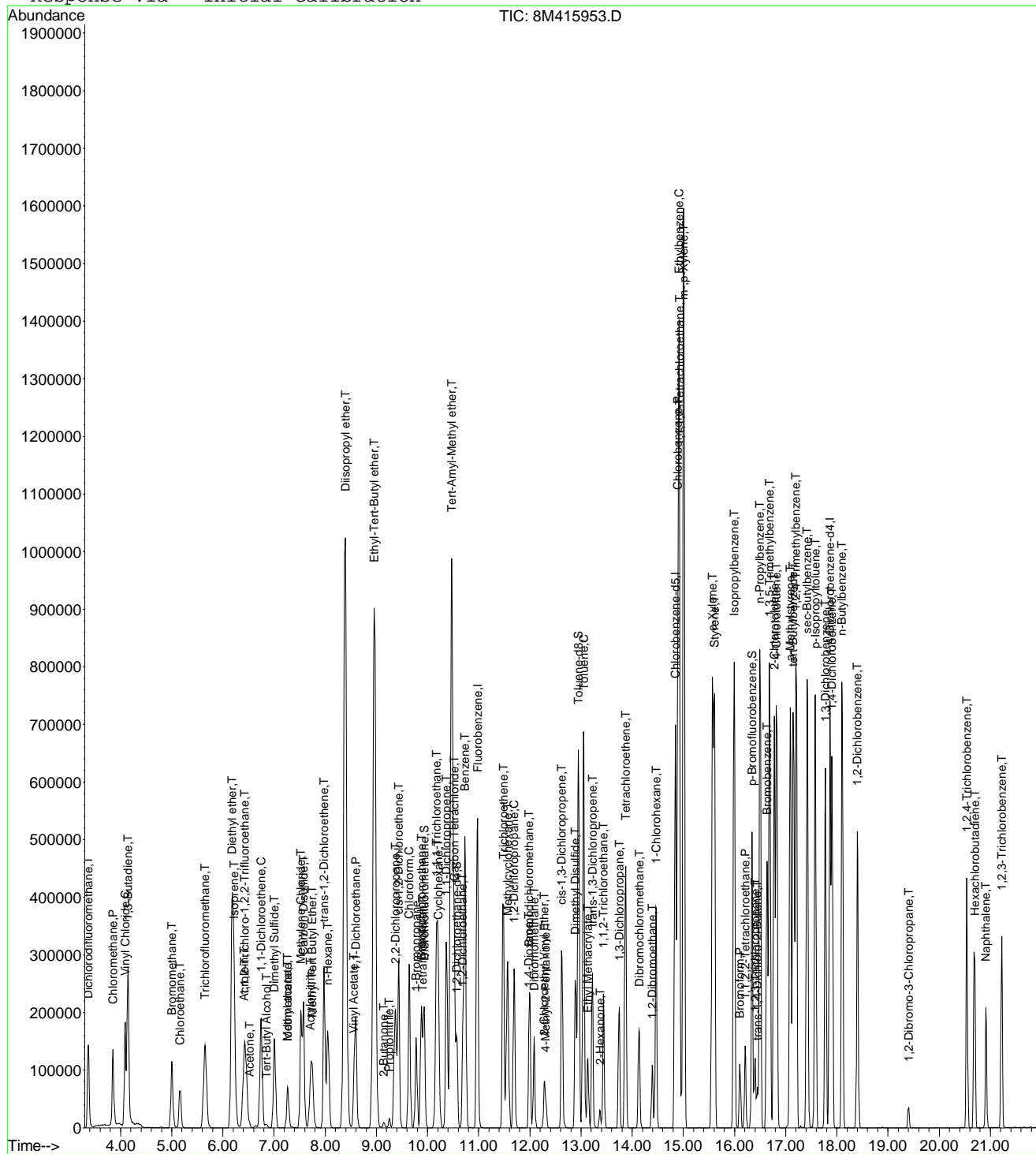
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	155722	22.6503	ug/L	99
46) Benzene	10.73	78	672071	23.8294	ug/L	98
47) Trichloroethene	11.48	130	168693	22.5756	ug/L	99
48) Methylcyclohexane	11.56	83	216503	18.1049	ug/L	98
49) 1,2-Dichloropropane	11.69	63	137107	22.6631	ug/L	100
50) Bromodichloromethane	11.99	83	210086	23.4307	ug/L	99
51) 1,4-Dioxane	11.98	88	648	59.9699	ug/L #	34
52) Dibromomethane	12.08	93	76225	24.8112	ug/L	98
53) 2-Chloroethyl Vinyl Ether	12.28	63	43074	18.3054	ug/L	100
54) 4-Methyl-2-Pentanone	12.31	58	15926	17.6044	ug/L	96
55) cis-1,3-Dichloropropene	12.62	75	240566	24.4455	ug/L	100
56) Dimethyl Disulfide	12.89	79	109315	19.7958	ug/L	94
59) Toluene	13.05	91	736213	23.6766	ug/L	98
60) Ethyl Methacrylate	13.14	69	101534	19.1833	ug/L	95
62) trans-1,3-Dichloropropene	13.22	75	183362	21.7816	ug/L	99
63) 1,1,2-Trichloroethane	13.44	97	96335	22.5918	ug/L	99
64) 2-Hexanone	13.37	58	14843	17.2485	ug/L	96
65) 1,3-Dichloropropane	13.75	76	171038	22.7793	ug/L	96
66) Tetrachloroethene	13.87	164	132903	21.3311	ug/L	97
67) Dibromochloromethane	14.14	129	121869	21.8884	ug/L	98
68) 1,2-Dibromoethane	14.39	107	91388	22.0127	ug/L	100
69) 1-Chlorohexane	14.47	91	221798	20.1212	ug/L	97
70) Chlorobenzene	14.89	112	451292	22.2033	ug/L	100
71) 1,1,1,2-Tetrachloroethane	14.93	131	154867	21.5435	ug/L	100
72) Ethylbenzene	14.91	106	269338	22.3670	ug/L	95
73) m-,p-Xylene	15.01	106	648944	47.2029	ug/L	96
74) o-Xylene	15.57	106	302320	22.2048	ug/L	97
75) Styrene	15.61	104	499832	23.4833	ug/L	99
76) Bromoform	16.10	173	65165	21.7363	ug/L	98
77) Isopropylbenzene	15.99	105	784012	23.8711	ug/L	98
79) 1,1,2,2-Tetrachloroethane	16.21	83	96890	21.8765	ug/L	97
81) 1,2,3-Trichloropropane	16.40	110	27179	22.5538	ug/L	85
82) trans-1,4-Dichloro-2-Butene	16.45	53	16881	17.4486	ug/L	71
83) n-Propylbenzene	16.50	91	943922	23.3924	ug/L	98
84) Bromobenzene	16.63	156	167554	21.3531	ug/L	99
85) 1,3,5-Trimethylbenzene	16.68	105	652683	23.1499	ug/L	99
86) 2-Chlorotoluene	16.78	91	585183	22.7709	ug/L	99
87) 4-Chlorotoluene	16.82	91	572421	23.2349	ug/L	98
88) a-Methylstyrene	17.09	118	314567	20.0566	ug/L	99
89) tert-Butylbenzene	17.15	134	127318	21.2099	ug/L	96
90) 1,2,4-Trimethylbenzene	17.20	105	666761	23.3364	ug/L	98
91) sec-Butylbenzene	17.42	105	814557	23.6890	ug/L	98
92) p-Isopropyltoluene	17.58	119	626465	23.1211	ug/L	98
93) 1,3-Dichlorobenzene	17.78	146	329796	21.5538	ug/L	100
94) 1,4-Dichlorobenzene	17.90	146	324206	21.5293	ug/L	99
95) n-Butylbenzene	18.10	91	627538	22.7973	ug/L	98
96) 1,2-Dichlorobenzene	18.40	146	274231	21.6492	ug/L	99
97) 1,2-Dibromo-3-Chloropropane	19.40	75	13154	19.4187	ug/L	91
98) 1,2,4-Trichlorobenzene	20.54	180	161158	19.0322	ug/L	100
99) Hexachlorobutadiene	20.69	225	78665	19.3083	ug/L	99
100) Naphthalene	20.91	128	213575	19.3751	ug/L	100
101) 1,2,3-Trichlorobenzene	21.22	180	125582	19.1697	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M415953.D 8260WTR.M Mon Nov 07 09:24:37 2016

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Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415953.D Vial: 10
 Acq On : 4 Nov 2016 17:54 Operator: ADC
 Sample : WG590443-02 20ug/L LCS 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 7 9:24 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416008.D Vial: 7
 Acq On : 8 Nov 2016 12:39 Operator: TMB
 Sample : WG590743-02 20ug/L LCS STD 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 08 14:15:59 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.97	96	670737	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.85	117	499914	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	233197	25.00	ug/L	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) Dibromofluoromethane	9.93	111	155039	24.1268	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	96.52%	
43) 1,2-Dichloroethane-d4	10.57	65	120874	21.9235	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	87.68%	
58) Toluene-d8	12.95	98	590127	23.5372	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	94.16%	
80) p-Bromofluorobenzene	16.35	95	221461	23.2834	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	93.12%	

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	3.37	85	129351	11.9168	ug/L	99
3) Chloromethane	3.84	50	160761	18.5720	ug/L	98
4) Vinyl Chloride	4.08	62	187638	20.5104	ug/L	99
5) 1,3-Butadiene	4.12	54	59097	8.6035	ug/L	99
6) Bromomethane	5.00	94	109256	17.5575	ug/L	99
7) Chloroethane	5.16	64	89578	19.5319	ug/L	99
8) Trichlorofluoromethane	5.65	101	236947	19.0744	ug/L	99
9) Diethyl ether	6.18	59	316371	102.6877	ug/L	98
10) Isoprene	6.21	67	199049	20.1774	ug/L	99
11) Acrolein	6.41	56	23047	68.6702	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	141291	20.6805	ug/L	96
13) Acetone	6.52	43	9548	17.2162	ug/L	94
14) 1,1-Dichloroethene	6.75	61	186474	19.8496	ug/L	99
15) Tert-Butyl Alcohol	6.85	59	37046	236.1186	ug/L	92
16) Dimethyl Sulfide	7.01	62	123600	24.1384	ug/L	97
17) Iodomethane	7.27	142	55361	8.7808	ug/L	97
18) Methyl acetate	7.27	43	27271	14.6473	ug/L	95
19) Methylene Chloride	7.53	84	142049	21.4899	ug/L	98
20) Carbon Disulfide	7.58	76	388644	17.7381	ug/L	99
21) Acrylonitrile	7.70	53	14993	18.6527	ug/L	92
22) Methyl Tert Butyl Ether	7.74	73	246913	20.7704	ug/L	98
23) trans-1,2-Dichloroethene	7.98	61	185180	20.7598	ug/L	97
24) n-Hexane	8.05	57	136693	18.0861	ug/L	96
25) Diisopropyl ether	8.38	45	1488452	106.4503	ug/L	97
26) Vinyl Acetate	8.56	43	111533	23.6820	ug/L	99
27) 1,1-Dichloroethane	8.60	63	247466	21.6410	ug/L	99
28) Ethyl-Tert-Butyl ether	8.96	59	1420227	103.8123	ug/L	98
29) 2-Butanone	9.14	43	16073	18.7527	ug/L	98
30) Propionitrile	9.25	54	26401	106.5736	ug/L	99
31) 2,2-Dichloropropane	9.37	77	242558	22.3762	ug/L	99
32) cis-1,2-Dichloroethene	9.44	96	171975	22.7895	ug/L	83
33) Chloroform	9.65	83	294811	23.2924	ug/L	100
34) 1-Bromopropane	9.78	122	31005	25.7519	ug/L	99
35) Bromochloromethane	9.87	130	77372	21.9405	ug/L	98
36) Tetrahydrofuran	9.89	42	52008	92.0942	ug/L	93
38) 1,1,1-Trichloroethane	10.17	97	270867	23.3707	ug/L	99
39) Cyclohexane	10.20	56	140180	14.7824	ug/L	96
40) 1,1-Dichloropropene	10.37	75	214773	22.2351	ug/L	100
41) Tert-Amyl-Methyl ether	10.47	73	1380898	110.3403	ug/L	99
42) Carbon Tetrachloride	10.51	117	242867	23.3316	ug/L	100

(#) = qualifier out of range (m) = manual integration
 8M416008.D 8260WTR.M Tue Nov 08 14:16:02 2016

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416008.D Vial: 7
 Acq On : 8 Nov 2016 12:39 Operator: TMB
 Sample : WG590743-02 20ug/L LCS STD 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 08 14:15:59 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

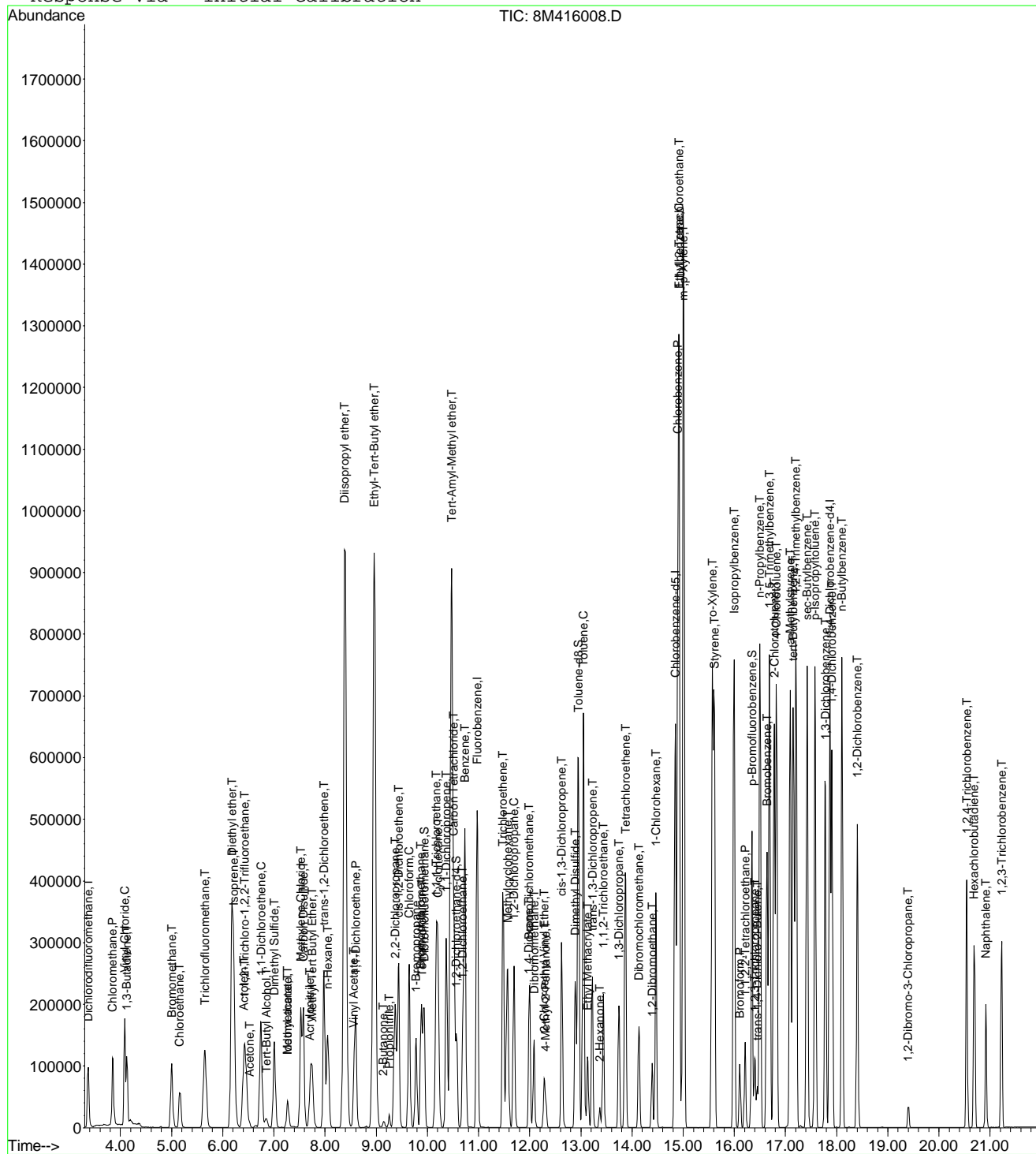
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	146156	22.0959	ug/L	99
46) Benzene	10.73	78	636135	23.4433	ug/L	98
47) Trichloroethene	11.48	130	158730	22.0786	ug/L	98
48) Methylcyclohexane	11.57	83	199275	17.3203	ug/L	97
49) 1,2-Dichloropropane	11.69	63	131007	22.5074	ug/L	100
50) Bromodichloromethane	11.99	83	197501	22.8943	ug/L	100
51) 1,4-Dioxane	11.98	88	3909	193.2990	ug/L	82
52) Dibromomethane	12.09	93	71062	24.0414	ug/L	95
53) 2-Chloroethyl Vinyl Ether	12.28	63	42656	18.8415	ug/L	100
54) 4-Methyl-2-Pentanone	12.31	58	16439	18.8869	ug/L	97
55) cis-1,3-Dichloropropene	12.62	75	223103	23.5636	ug/L	99
56) Dimethyl Disulfide	12.89	79	103140	19.4129	ug/L	95
59) Toluene	13.05	91	696842	23.1654	ug/L	98
60) Ethyl Methacrylate	13.13	69	95385	18.6287	ug/L	94
62) trans-1,3-Dichloropropene	13.22	75	167930	20.6205	ug/L	99
63) 1,1,2-Trichloroethane	13.44	97	89767	21.7608	ug/L	99
64) 2-Hexanone	13.37	58	15238	18.3041	ug/L	95
65) 1,3-Dichloropropane	13.74	76	160093	22.0400	ug/L	94
66) Tetrachloroethene	13.87	164	124346	20.6301	ug/L	98
67) Dibromochloromethane	14.13	129	114183	21.1989	ug/L	100
68) 1,2-Dibromoethane	14.39	107	84549	21.0515	ug/L	97
69) 1-Chlorohexane	14.46	91	206207	19.3371	ug/L	96
70) Chlorobenzene	14.90	112	425262	21.6275	ug/L	100
71) 1,1,1,2-Tetrachloroethane	14.92	131	145844	20.9719	ug/L	99
72) Ethylbenzene	14.92	106	256523	22.0205	ug/L	95
73) m-,p-Xylene	15.00	106	617436	46.4242	ug/L	97
74) o-Xylene	15.57	106	286815	21.7757	ug/L	98
75) Styrene	15.61	104	473731	23.0069	ug/L	99
76) Bromoform	16.11	173	59684	20.5788	ug/L	99
77) Isopropylbenzene	15.99	105	744323	23.4262	ug/L	98
79) 1,1,2,2-Tetrachloroethane	16.21	83	93944	22.0896	ug/L	100
81) 1,2,3-Trichloropropane	16.40	110	25849	22.3382	ug/L	85
82) trans-1,4-Dichloro-2-Butene	16.45	53	15460	16.6414	ug/L	64
83) n-Propylbenzene	16.50	91	892287	23.0283	ug/L	98
84) Bromobenzene	16.63	156	156813	20.8116	ug/L	98
85) 1,3,5-Trimethylbenzene	16.69	105	619896	22.8973	ug/L	98
86) 2-Chlorotoluene	16.78	91	576523	23.3627	ug/L	98
87) 4-Chlorotoluene	16.82	91	515047	21.7716	ug/L	99
88) a-Methylstyrene	17.09	118	297780	19.7724	ug/L	98
89) tert-Butylbenzene	17.15	134	119769	20.7784	ug/L	96
90) 1,2,4-Trimethylbenzene	17.20	105	626594	22.8385	ug/L	98
91) sec-Butylbenzene	17.42	105	767539	23.2458	ug/L	98
92) p-Isopropyltoluene	17.58	119	593117	22.7967	ug/L	98
93) 1,3-Dichlorobenzene	17.78	146	312230	21.2506	ug/L	99
94) 1,4-Dichlorobenzene	17.91	146	306939	21.2266	ug/L	99
95) n-Butylbenzene	18.10	91	596740	22.5760	ug/L	98
96) 1,2-Dichlorobenzene	18.40	146	254560	20.9283	ug/L	99
97) 1,2-Dibromo-3-Chloropropane	19.40	75	12794	19.6692	ug/L	97
98) 1,2,4-Trichlorobenzene	20.54	180	150880	18.5562	ug/L	100
99) Hexachlorobutadiene	20.69	225	72547	18.5439	ug/L	98
100) Naphthalene	20.92	128	200184	18.9121	ug/L	100
101) 1,2,3-Trichlorobenzene	21.23	180	115799	18.4082	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M416008.D 8260WTR.M Tue Nov 08 14:16:02 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110816\8M416008.D Vial: 7
Acq On : 8 Nov 2016 12:39 Operator: TMB
Sample : WG590743-02 20ug/L LCS STD 8260 Inst : HPMS8
Misc : 1,1 STD78759 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 8 14:16 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
Last Update : Mon Oct 31 10:01:52 2016
Response via : Initial Calibration



Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415954.D Vial: 11
 Acq On : 4 Nov 2016 18:24 Operator: ADC
 Sample : WG590443-03 20ug/L LCS2 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Nov 07 09:24:39 2016

Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.98	96	706900	25.00	ug/L	0.00
57) Chlorobenzene-d5	14.84	117	526440	25.00	ug/L	0.00
78) 1,4-Dichlorobenzene-d4	17.86	152	246118	25.00	ug/L	0.00

System Monitoring Compounds

37) Dibromofluoromethane	9.93	111	166336	24.5606	ug/L	0.00
Spiked Amount	25.000	Range 86 - 118	Recovery	=	98.24%	
43) 1,2-Dichloroethane-d4	10.57	65	134006	23.0620	ug/L	0.00
Spiked Amount	25.000	Range 80 - 120	Recovery	=	92.24%	
58) Toluene-d8	12.95	98	618288	23.4178	ug/L	0.00
Spiked Amount	25.000	Range 88 - 110	Recovery	=	93.68%	
80) p-Bromofluorobenzene	16.34	95	234671	23.3770	ug/L	0.00
Spiked Amount	25.000	Range 86 - 115	Recovery	=	93.52%	

Target Compounds

						Qvalue
2) Dichlorodifluoromethane	3.37	85	198030	17.3107	ug/L	99
3) Chloromethane	3.85	50	197630	21.6634	ug/L	99
4) Vinyl Chloride	4.08	62	223207	23.1503	ug/L	100
5) 1,3-Butadiene	4.12	54	86099	12.3190	ug/L	98
6) Bromomethane	5.00	94	127250	19.4031	ug/L	97
7) Chloroethane	5.16	64	108019	22.3479	ug/L	100
8) Trichlorofluoromethane	5.65	101	281451	21.4979	ug/L	100
9) Diethyl ether	6.18	59	354837	109.2810	ug/L	98
10) Isoprene	6.22	67	236035	22.7026	ug/L	98
11) Acrolein	6.42	56	24115	68.1766	ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.43	101	166942	23.1849	ug/L	97
13) Acetone	6.52	43	9990	17.0917	ug/L	97
14) 1,1-Dichloroethene	6.75	61	217264	21.9440	ug/L	100
15) Tert-Butyl Alcohol	6.85	59	26863	162.4567	ug/L	94
16) Dimethyl Sulfide	7.01	62	140966	26.1215	ug/L	98
17) Iodomethane	7.27	142	127807	19.2344	ug/L	98
18) Methyl acetate	7.27	43	29752	15.1624	ug/L	96
19) Methylene Chloride	7.52	84	158356	22.7313	ug/L	98
20) Carbon Disulfide	7.58	76	459112	19.8824	ug/L	99
21) Acrylonitrile	7.71	53	17028	20.1007	ug/L	95
22) Methyl Tert Butyl Ether	7.74	73	280481	22.3871	ug/L	97
23) trans-1,2-Dichloroethene	7.98	61	206268	21.9409	ug/L	96
24) n-Hexane	8.05	57	157820	19.8132	ug/L	97
25) Diisopropyl ether	8.39	45	1671979	113.4585	ug/L	98
26) Vinyl Acetate	8.56	43	124689	25.1211	ug/L	100
27) 1,1-Dichloroethane	8.60	63	274104	22.7442	ug/L	99
28) Ethyl-Tert-Butyl ether	8.96	59	1568440	108.7811	ug/L	98
29) 2-Butanone	9.15	43	16494	18.2594	ug/L	100
30) Propionitrile	9.25	54	23590	90.3549	ug/L	99
31) 2,2-Dichloropropane	9.36	77	267519	23.4164	ug/L	100
32) cis-1,2-Dichloroethene	9.44	96	190720	23.9806	ug/L	95
33) Chloroform	9.64	83	324180	24.3025	ug/L	100
34) 1-Bromopropane	9.78	122	35062	27.6317	ug/L	98
35) Bromochloromethane	9.88	130	85789	23.0828	ug/L	99
36) Tetrahydrofuran	9.90	42	53435	89.7278	ug/L	96
38) 1,1,1-Trichloroethane	10.18	97	302186	24.7391	ug/L	100
39) Cyclohexane	10.20	56	162841	16.2936	ug/L	96
40) 1,1-Dichloropropene	10.37	75	242460	23.8174	ug/L	100
41) Tert-Amyl-Methyl ether	10.47	73	1527497	115.8103	ug/L	99
42) Carbon Tetrachloride	10.52	117	278711	25.4054	ug/L	99

(#) = qualifier out of range (m) = manual integration
 8M415954.D 8260WTR.M Mon Nov 07 09:24:42 2016

Page 1

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415954.D Vial: 11
 Acq On : 4 Nov 2016 18:24 Operator: ADC
 Sample : WG590443-03 20ug/L LCS2 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 07 09:24:39 2016 Quant Results File: 8260WTR.RES

Quant Method : K:\ORGANICS\V...\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration
 DataAcq Meth : 8260WTR

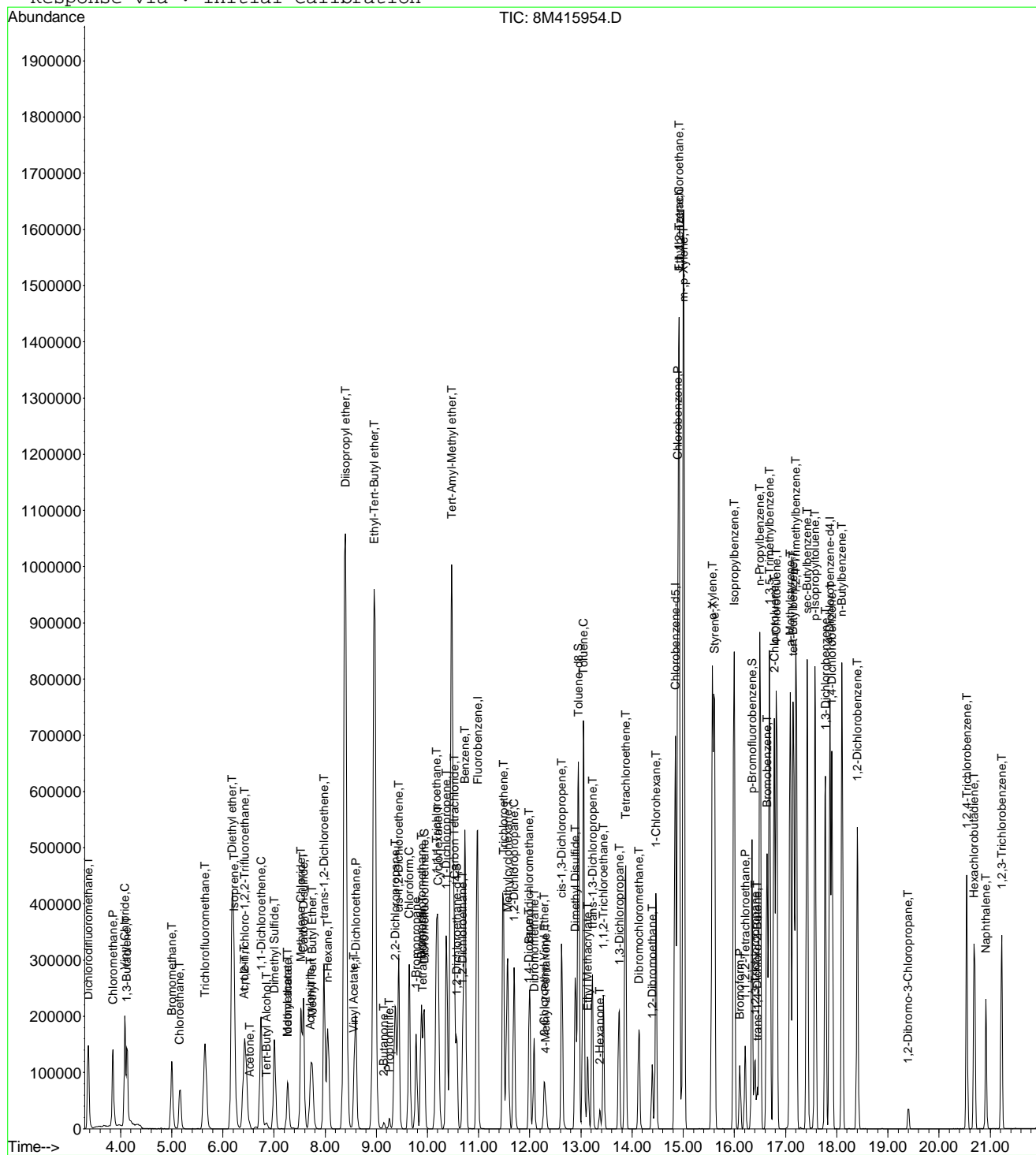
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
45) 1,2-Dichloroethane	10.69	62	161245	23.1300	ug/L	99
46) Benzene	10.73	78	705147	24.6572	ug/L	98
47) Trichloroethene	11.48	130	179304	23.6645	ug/L	99
48) Methylcyclohexane	11.57	83	226044	18.6419	ug/L	98
49) 1,2-Dichloropropane	11.69	63	143302	23.3603	ug/L	100
50) Bromodichloromethane	11.99	83	217096	23.8784	ug/L	100
51) 1,4-Dioxane	11.98	88	3834	182.2962	ug/L	98
52) Dibromomethane	12.08	93	79037	25.3715	ug/L	96
53) 2-Chloroethyl Vinyl Ether	12.28	63	45267	18.9719	ug/L	99
54) 4-Methyl-2-Pentanone	12.31	58	17211	18.7623	ug/L	98
55) cis-1,3-Dichloropropene	12.62	75	247941	24.8473	ug/L	100
56) Dimethyl Disulfide	12.89	79	112564	20.1029	ug/L	91
59) Toluene	13.05	91	769331	24.2865	ug/L	98
60) Ethyl Methacrylate	13.13	69	106384	19.7299	ug/L	96
62) trans-1,3-Dichloropropene	13.22	75	189348	22.0789	ug/L	100
63) 1,1,2-Trichloroethane	13.44	97	98835	22.7518	ug/L	98
64) 2-Hexanone	13.37	58	15637	17.8369	ug/L	95
65) 1,3-Dichloropropane	13.75	76	175332	22.9217	ug/L	95
66) Tetrachloroethene	13.87	164	140617	22.1541	ug/L	98
67) Dibromochloromethane	14.13	129	125929	22.2016	ug/L	100
68) 1,2-Dibromoethane	14.39	107	93734	22.1625	ug/L	99
69) 1-Chlorohexane	14.46	91	232383	20.6937	ug/L	96
70) Chlorobenzene	14.90	112	463670	22.3927	ug/L	99
71) 1,1,1,2-Tetrachloroethane	14.92	131	161730	22.0844	ug/L	99
72) Ethylbenzene	14.92	106	281018	22.9077	ug/L	94
73) m-,p-Xylene	15.01	106	675374	48.2217	ug/L	96
74) o-Xylene	15.57	106	316578	22.8243	ug/L	98
75) Styrene	15.61	104	517414	23.8622	ug/L	99
76) Bromoform	16.11	173	66654	21.8240	ug/L	99
77) Isopropylbenzene	15.99	105	820208	24.5138	ug/L	99
79) 1,1,2,2-Tetrachloroethane	16.21	83	99519	22.1719	ug/L	98
81) 1,2,3-Trichloropropane	16.41	110	27238	22.3028	ug/L	88
82) trans-1,4-Dichloro-2-Butene	16.45	53	19545	19.9341	ug/L	91
83) n-Propylbenzene	16.50	91	985281	24.0933	ug/L	98
84) Bromobenzene	16.63	156	173828	21.8586	ug/L	98
85) 1,3,5-Trimethylbenzene	16.68	105	681904	23.8653	ug/L	99
86) 2-Chlorotoluene	16.78	91	621215	23.8522	ug/L	98
87) 4-Chlorotoluene	16.82	91	581239	23.2797	ug/L	99
88) a-Methylstyrene	17.09	118	331630	20.8640	ug/L	99
89) tert-Butylbenzene	17.15	134	133539	21.9510	ug/L	97
90) 1,2,4-Trimethylbenzene	17.20	105	693353	23.9450	ug/L	98
91) sec-Butylbenzene	17.42	105	851536	24.4358	ug/L	98
92) p-Isopropyltoluene	17.57	119	656488	23.9077	ug/L	99
93) 1,3-Dichlorobenzene	17.78	146	343080	22.1244	ug/L	100
94) 1,4-Dichlorobenzene	17.90	146	338323	22.1687	ug/L	99
95) n-Butylbenzene	18.10	91	657888	23.5827	ug/L	98
96) 1,2-Dichlorobenzene	18.40	146	285664	22.2525	ug/L	100
97) 1,2-Dibromo-3-Chloropropane	19.39	75	13333	19.4218	ug/L	97
98) 1,2,4-Trichlorobenzene	20.54	180	171207	19.9507	ug/L	100
99) Hexachlorobutadiene	20.69	225	82314	19.9358	ug/L	98
100) Naphthalene	20.91	128	228575	20.4607	ug/L	99
101) 1,2,3-Trichlorobenzene	21.22	180	132756	19.9959	ug/L	98

(#) = qualifier out of range (m) = manual integration
 8M415954.D 8260WTR.M Mon Nov 07 09:24:42 2016

Page 2

Data File : K:\ORGANICS\VOLATILE\HPMS8\DATA\110416\8M415954.D Vial: 11
 Acq On : 4 Nov 2016 18:24 Operator: ADC
 Sample : WG590443-03 20ug/L LCS2 8260 Inst : HPMS8
 Misc : 1,1 STD78759 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Nov 7 9:24 2016 Quant Results File: 8260WTR.RES

Method : K:\ORGANICS\VOLATILE\HPMS8\METHODS\8260WTR.M (RTE Integrator)
 Title : Method 8260B/624 WTR-SOP:OVLMSV01 10-30-16 HPMS 8
 Last Update : Mon Oct 31 10:01:52 2016
 Response via : Initial Calibration



2.1.2 RSK 175

2.1.2.1 Summary Data

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW08-110216	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 18:07
Collect Date: 11/02/2016 08:15	Dilution: 1	File ID: 16G50951
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	6.61		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.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW08-110216	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 18:27
Collect Date: 11/02/2016 08:15	Dilution: 10	File ID: 16G50972
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	529000		100000	50000	25000
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW22-110216	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 18:18
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: 16G50952
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.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW22-110216	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 18:15
Collect Date: 11/02/2016 09:25	Dilution: 10	File ID: 16G50971
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	828000		100000	50000	25000
U	Analyte was not detected. The concentration is below the reported LOD.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05

PrePrep Method: N/A

Instrument: HP16

Client ID: 50WW16-110216

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 18:30

Collect Date: 11/02/2016 10:40

Dilution: 1

File ID: 16G50953

Sample Tag: 01

Units: ug/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Methane	74-82-8	15.3		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.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: HP16
Client ID: 50WW16-110216	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 18:03
Collect Date: 11/02/2016 10:40	Dilution: 10	File ID: 16G50970
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Carbon Dioxide	124-38-9	599000		100000	50000	25000
U	Analyte was not detected. The concentration is below the reported LOD.					

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

a = average RF (or Agilent regression constant)

Cx = y/a

1157414
10433.00
110.9377935

3.0 Calculate the concentration in sample**Cs = Cx (MW/Tf) (HS/S) (DF)**

Where:

Cx = Concentration in extract

MW = molecular weight of analyte

TF = temperature factor = (22.4)(313/273)

HS = headspace volume

S = sample volume remaining after headspace removal

DF = dilution factor

Cs = calculated sample concentration

110.9377935 umol/mol
16.04 ug/umol
25.68 L/mol
0.015 L
0.00547 L
2
380.034301 ug/L

RSK-175 - Example Calculation for Carbon DioxideICAL Plot - Quadratic Regression ($y = Ax^2 + Bx + C$)

$$Ax^2 + Bx + (C - y) = 0$$

Step 1 - Calculate the concentration in extract, CxData 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

$$C_s = C_x (MW/T_f) (HS/S) (DF)$$

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: **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

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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:

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

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Sarah Vandenberg

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

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Sarah Vandenberg

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

Page: 1

Wade D. D.

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: _____

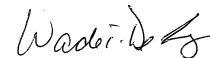
Internal Standard: NA Surrogate Standard: NA
 CCV: STD75351 LCS: STD68250 MS/MSD: STD68250
 Column 1 ID: RTQBOND Column 2 ID: RTQBOND
 Workgroups: WG590416

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

Page: 2




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



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



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



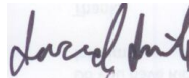
Microbac Laboratories Inc.

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 Req 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



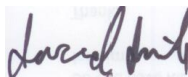

Microbac Laboratories Inc.

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



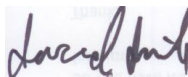

Microbac Laboratories Inc.

Data Checklist

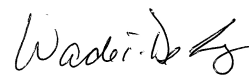
Date: 04-NOV-2016
 Analyst: JDS
 Analyst: NA
 Method: RSK175
 Instrument: HP16
 Curve Workgroup: NA
 Runlog ID: 78528
 Analytical Workgroups: WG590416

Initial Calibration	X
Average RF	X
Linear Req 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




Analytical Method:RSK175
Login Number:L16110144

AAB#:WG590198

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
50WW08-110216	01	11/02/16					11/03/2016	1.4	7		11/03/16	1.4	7	
50WW22-110216	03	11/02/16					11/03/2016	1.4	7		11/03/16	1.4	7	
50WW16-110216	05	11/02/16					11/03/2016	1.3	7		11/03/16	1.3	7	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5008547
Report generated 11/08/2016 09:50



Analytical Method: RSK175
Login Number: L16110144

AAB#: WG590416

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
50WW08-110216	01	11/02/16					11/04/2016	2.4	7		11/04/16	2.4	7	
50WW22-110216	03	11/02/16					11/04/2016	2.4	7		11/04/16	2.4	7	
50WW16-110216	05	11/02/16					11/04/2016	2.3	7		11/04/16	2.3	7	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5008547
Report generated 11/08/2016 09:50



Login Number: L16110144 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: 5008549
 08-NOV-2016 09:50



Login Number: L16110144 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: 5008549
 08-NOV-2016 09:50



Login Number: L16110144 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: 5012883
Report generated: 11/08/2016 09:50



Login Number: L16110144 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: 5008550
 Report generated: 11/08/2016 09:50



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

Compound	16G49626. 16G49627. 16G49628. 16G49629. 16G49630. 16G49631. 16G49632.D							Avg	%RSD	Linear
	0.67	1.67	33.3	66.7	133	333	533			
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

Login Number: L16110144 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



Login Number: L16110144 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



Login Number: L16110144 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



Login Number: L16110144 Run Date: 11/03/2016 Sample ID: WG590196-03
 Instrument ID: HP16 Run Time: 19:05 Method: RSK175
 File ID: 16G50956 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	217	ug/L	173000	4.73	15	
ethene	398	358	ug/L	281000	10.1	15	
ethane	427	385	ug/L	288000	9.85	15	

* Exceeds %D Criteria



Login Number: L16110144 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



Login Number: L16110144 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



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590415-03
Instrument ID: HP16 Run Time: 19:51 Method: RSK175
File ID: 16G50979 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	55200	ug/L	4660	11.7	15	

* Exceeds %D Criteria



2.1.2.3 Sample Data

Signal #1 : C:\MSDchem\1\DATA\110316\16G50951.D\FID1A.CH Vial: 18
 Signal #2 : C:\MSDchem\1\DATA\110316\16G50951.D\TCD2B.CH
 Acq On : 03 Nov 2016 18:07 Operator: JDS
 Sample : L16110144-01 A RSK175 Inst : HP16
 Misc : 1,1 Multiplr: 1.00
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
 Quant Time: Nov 03 18:13:32 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 13:38:01 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	981818	3.857 umol/
2) T ethene	1.06	9301	0.030 umol/
3) T acetylene	0.00	0	N.D. umol/
4) T ethane	1.40	12243	0.038 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	771277767	146116.160 umol/

(f)=RT Delta > 1/2 Window

16G50951.D RSKEXT1.M

Thu Nov 03 18:13:32 2016

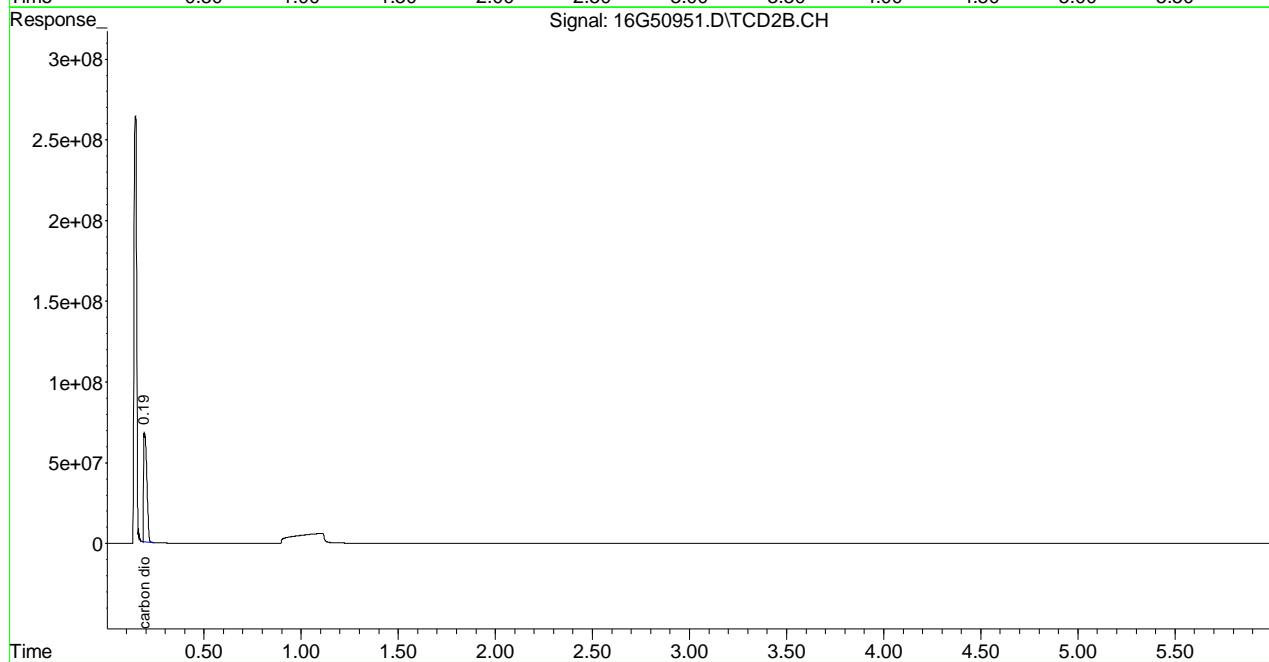
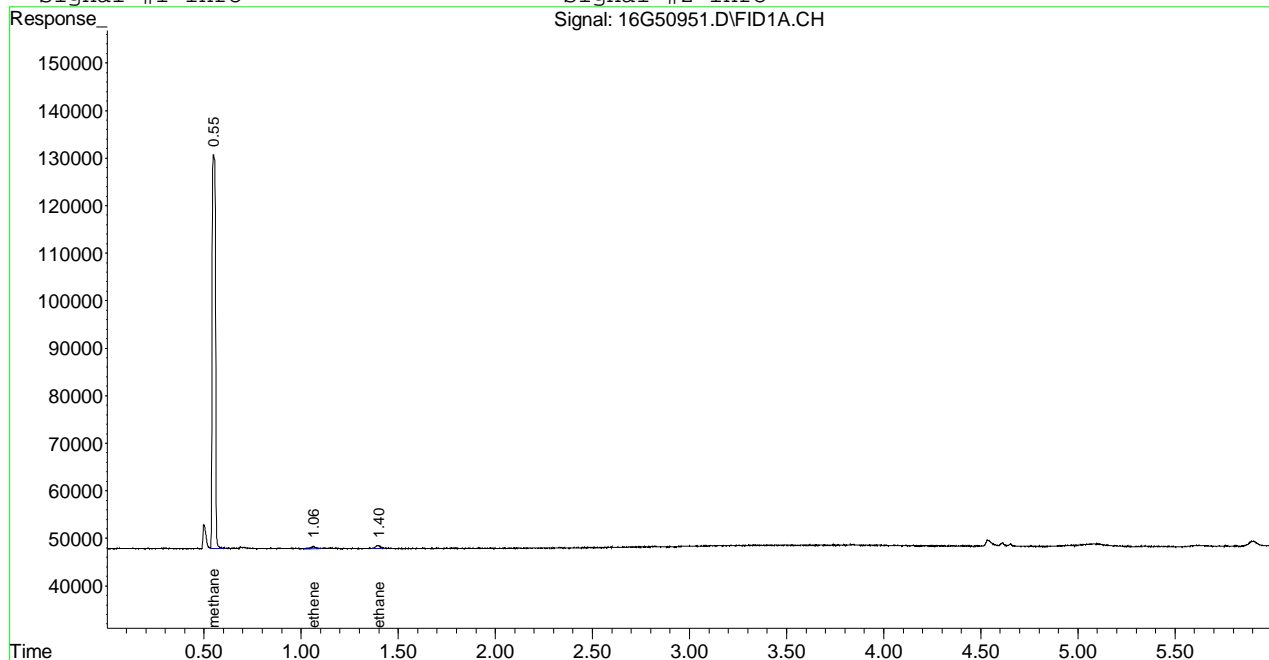
(m)=manual int.

Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50951.D\FID1A.CH Vial: 18
 Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50951.D\TCD2B.CH
 Acq On : 03 Nov 2016 18:07 Operator: JDS
 Sample : L16110144-01 A RSK175 Inst : HP16
 Misc : 1,1 Multiplr: 1.00
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
 Quant Time: Nov 3 18:13 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\16G50972.D\FID1A.CH Vial: 16
 Signal #2 : C:\MSDchem\1\DATA\110416\16G50972.D\TCD2B.CH
 Acq On : 04 Nov 2016 18:27 Operator: JDS
 Sample : L16110144-01 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 18:33:30 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	327806	0.205 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	59451908	11262.978 umol/

(f)=RT Delta > 1/2 Window
 16G50972.D RSKEXT1.M Fri Nov 04 18:33:30 2016

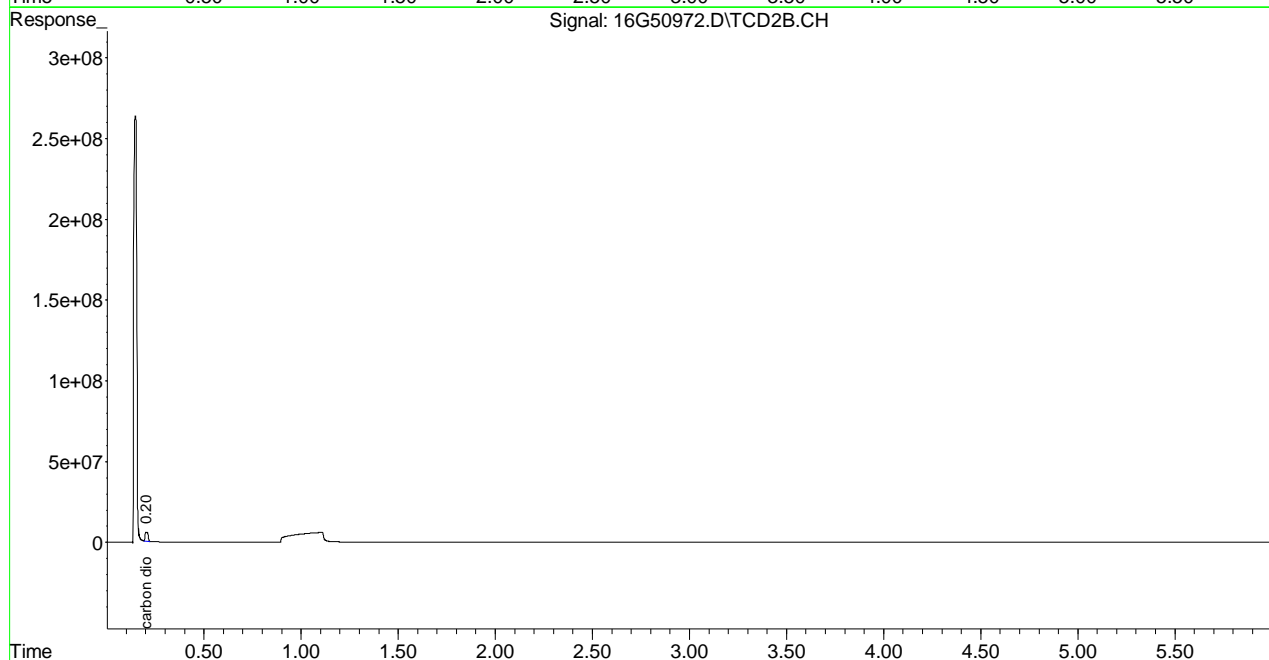
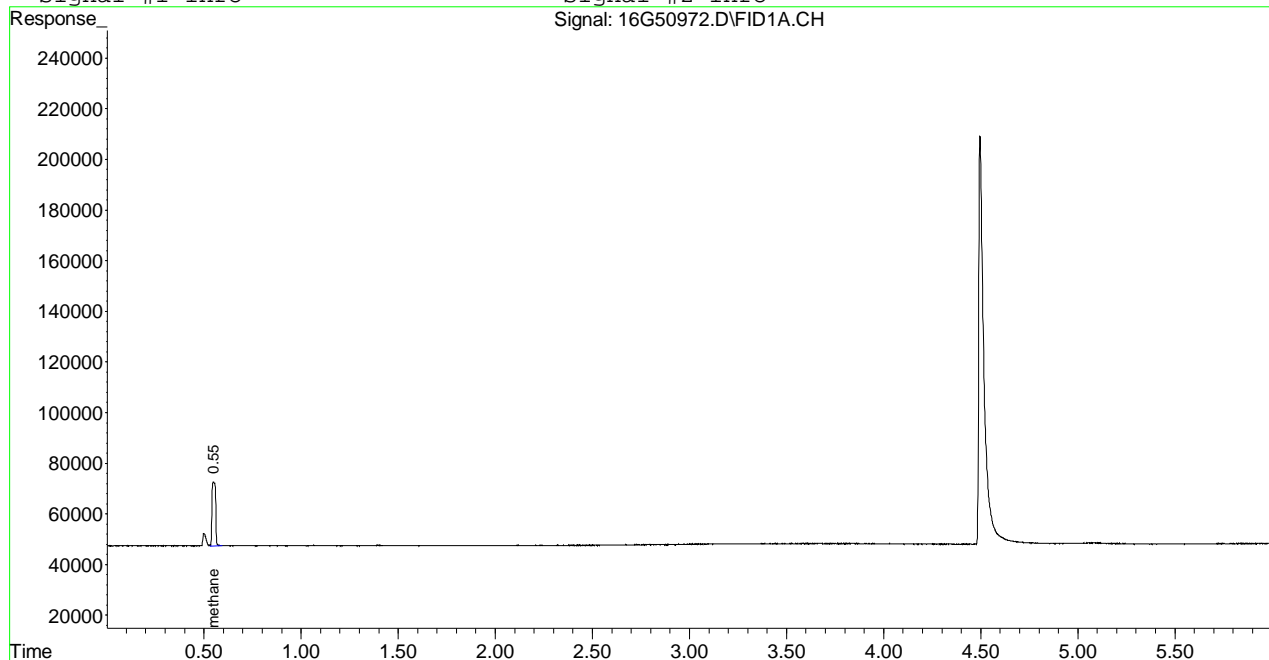
(m)=manual int.

Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50972.D\FID1A.CH Vial: 16
 Signal #2 : C:\MSDchem\1\DATA\110416\16G50972.D\TCD2B.CH
 Acq On : 04 Nov 2016 18:27 Operator: JDS
 Sample : L16110144-01 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 18:33 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 13:38:01 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\16G50952.D\FID1A.CH Vial: 19
 Signal #2 : C:\MSDchem\1\DATA\110316\16G50952.D\TCD2B.CH
 Acq On : 03 Nov 2016 18:18 Operator: JDS
 Sample : L16110144-03 A RSK175 Inst : HP16
 Misc : 1,1 Multiplr: 1.00
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
 Quant Time: Nov 03 18:24:38 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 : 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	300803	0.054 umol/
2) T ethene	0.00	0	N.D. umol/
3) T acetylene	0.00	0	N.D. umol/
4) T ethane	1.40	14872	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	1160668876	219885.088 umol/

(f)=RT Delta > 1/2 Window

16G50952.D RSKEXT1.M

Thu Nov 03 18:24:38 2016

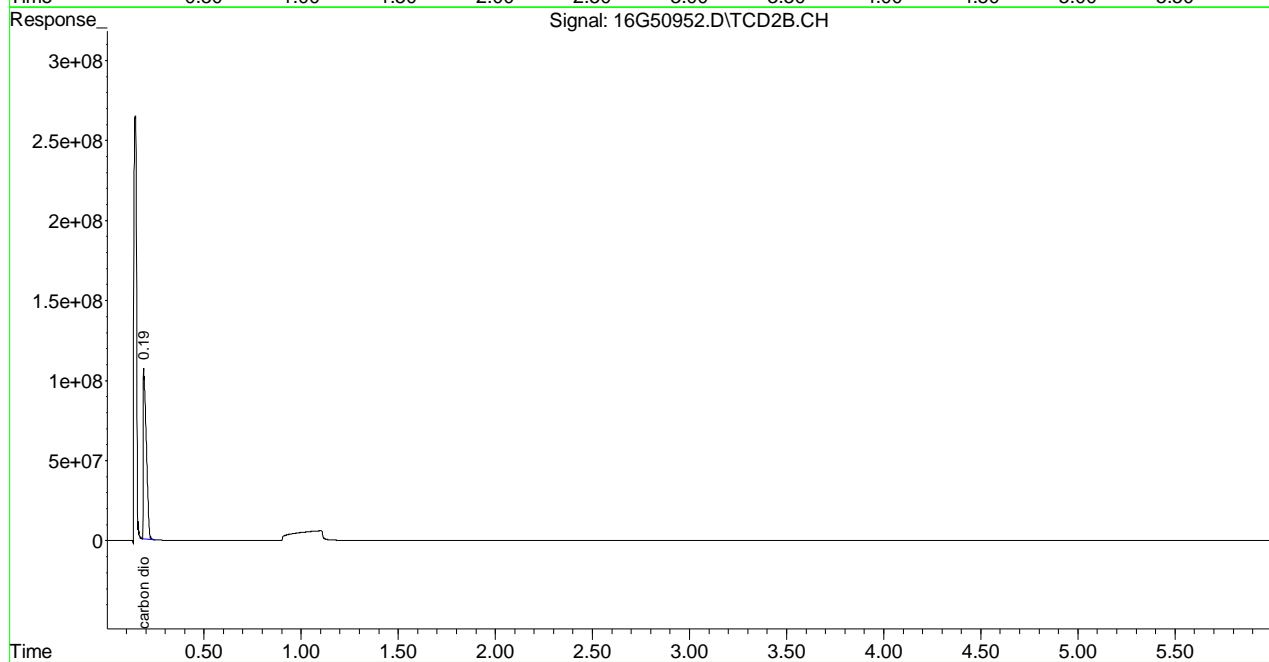
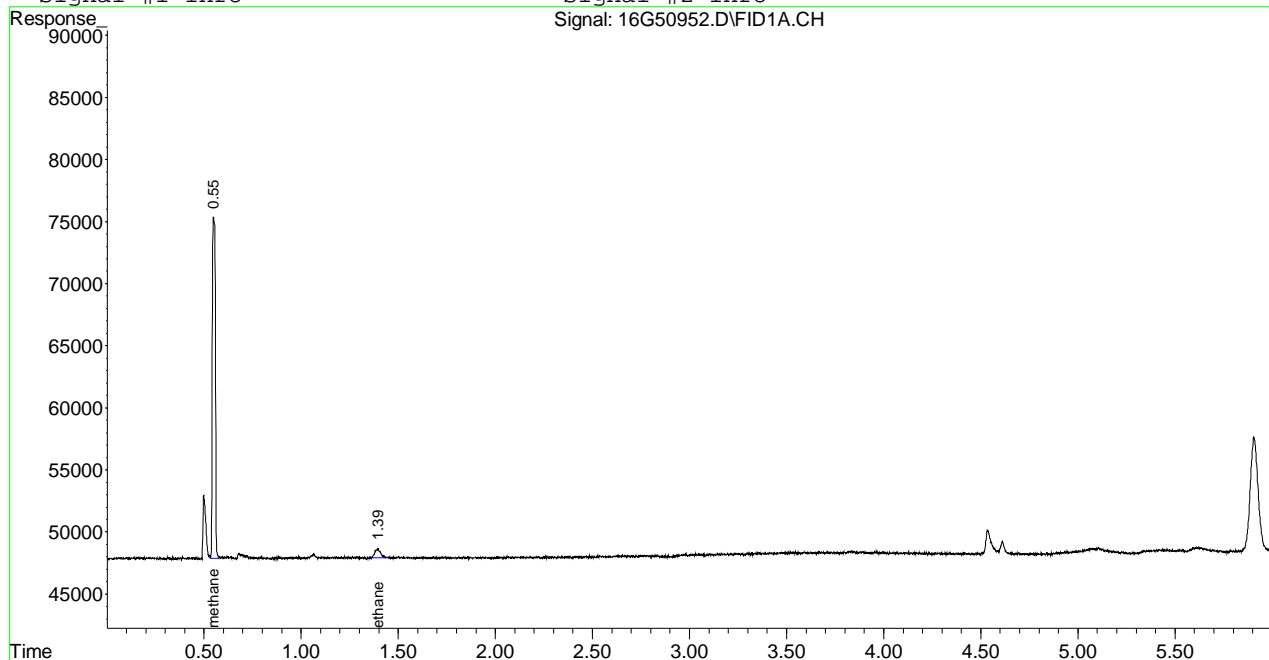
(m)=manual int.

Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50952.D\FID1A.CH Vial: 19
 Signal #2 : C:\MSDchem\1\DATA\110316\16G50952.D\TCD2B.CH
 Acq On : 03 Nov 2016 18:18 Operator: JDS
 Sample : L16110144-03 A RSK175 Inst : HP16
 Misc : 1,1 Multiplr: 1.00
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
 Quant Time: Nov 3 18:24 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\16G50971.D\FID1A.CH Vial: 15
 Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50971.D\TCD2B.CH
 Acq On : 04 Nov 2016 18:15 Operator: JDS
 Sample : L16110144-03 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 18:21:09 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	280762	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	93061801	17630.267	umol/

(f)=RT Delta > 1/2 Window

16G50971.D RSKEXT1.M Mon Nov 07 09:41:35 2016

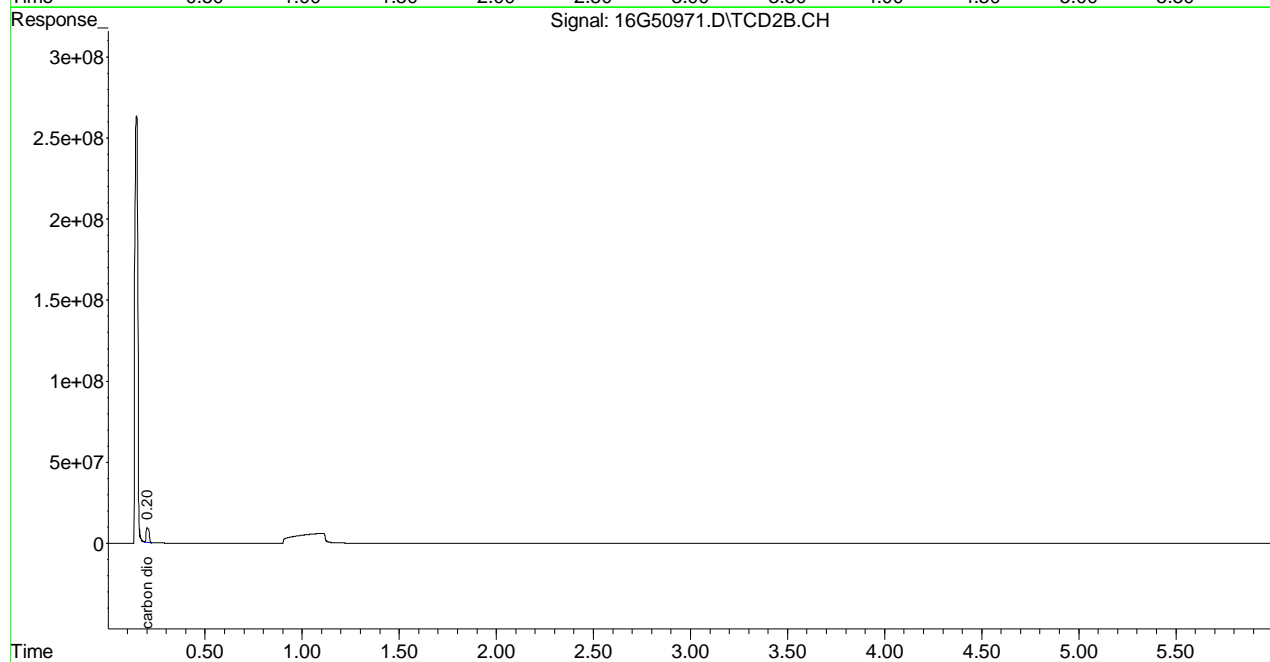
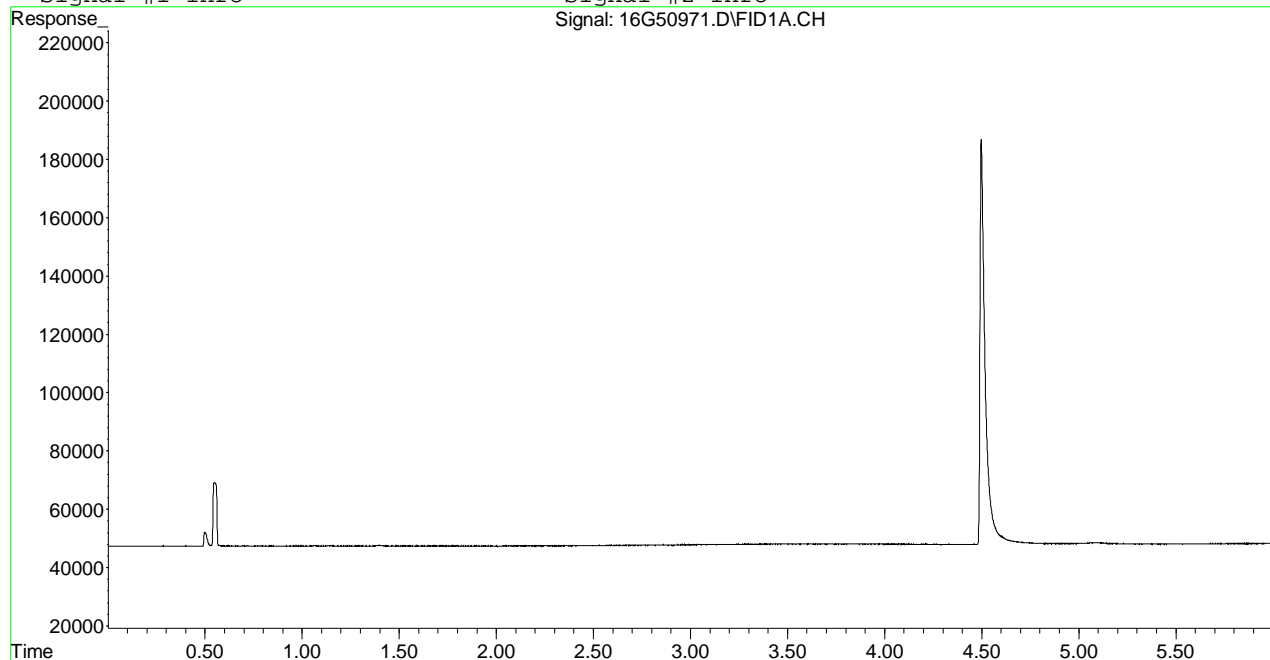
(m)=manual int.

Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50971.D\FID1A.CH Vial: 15
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50971.D\TCD2B.CH
Acq On : 04 Nov 2016 18:15 Operator: JDS
Sample : L16110144-03 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 17:21 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\16G50953.D\FID1A.CH Vial: 20
 Signal #2 : C:\MSDchem\1\DATA\110316\16G50953.D\TCD2B.CH
 Acq On : 03 Nov 2016 18:30 Operator: JDS
 Sample : L16110144-05 A RSK175 Inst : HP16
 Misc : 1,1 Multiplr: 1.00
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
 Quant Time: Nov 03 18:36:45 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	1889163	8.924 umol/
2) T ethene	1.07	6140	0.020 umol/
3) T acetylene	0.00	0	N.D. umol/
4) T ethane	1.39	15759	0.049 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	753731506	142792.076 umol/

(f)=RT Delta > 1/2 Window

16G50953.D RSKEXT1.M

Thu Nov 03 18:36:46 2016

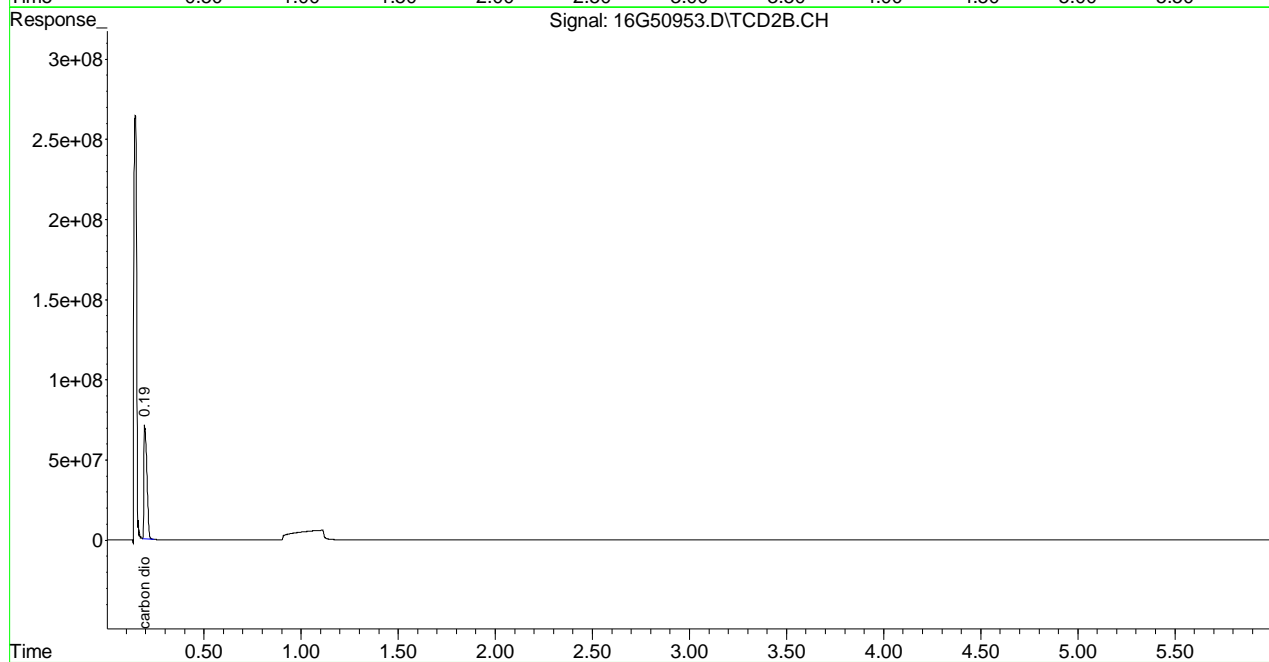
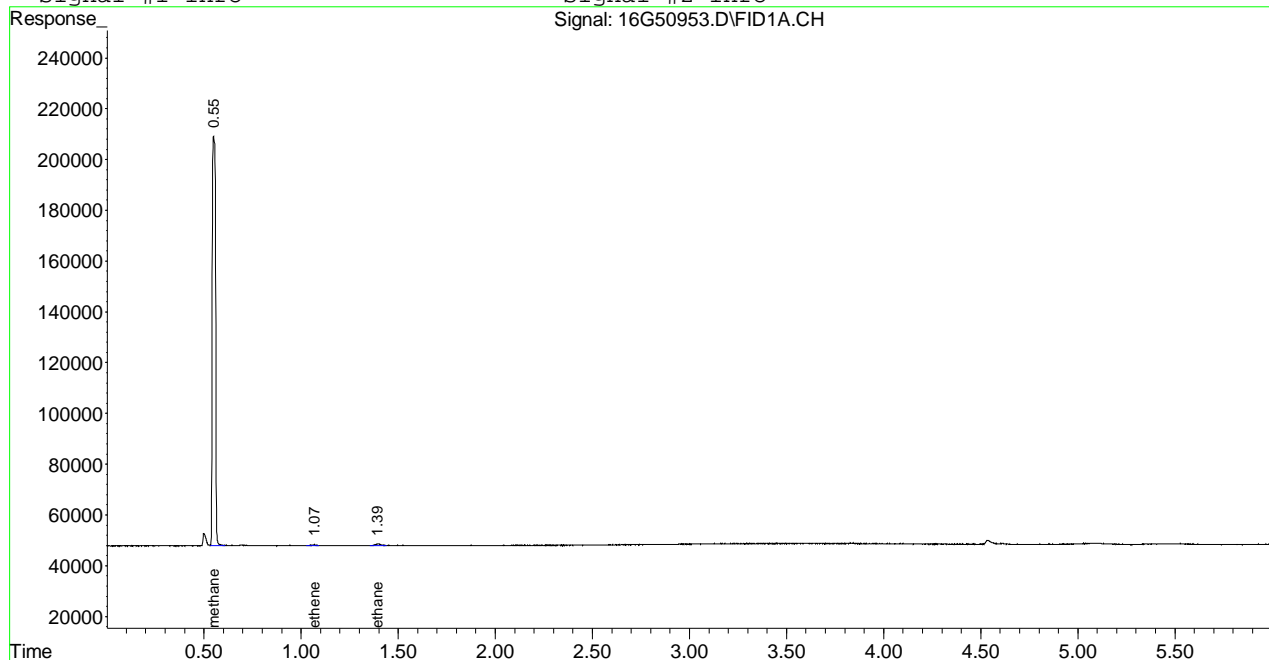
(m)=manual int.

Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50953.D\FID1A.CH Vial: 20
 Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50953.D\TCD2B.CH
 Acq On : 03 Nov 2016 18:30 Operator: JDS
 Sample : L16110144-05 A RSK175 Inst : HP16
 Misc : 1,1 Multiplr: 1.00
 IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
 Quant Time: Nov 3 18:36 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\110416\16G50970.D\FID1A.CH Vial: 14
 Signal #2 : C:\MSDchem\1\DATA\110416\16G50970.D\TCD2B.CH
 Acq On : 04 Nov 2016 18:03 Operator: JDS
 Sample : L16110144-05 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 18:09:09 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	379467	0.493 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	67323300	12754.189 umol/

(f)=RT Delta > 1/2 Window
 16G50970.D RSKEXT1.M Fri Nov 04 18:09:10 2016

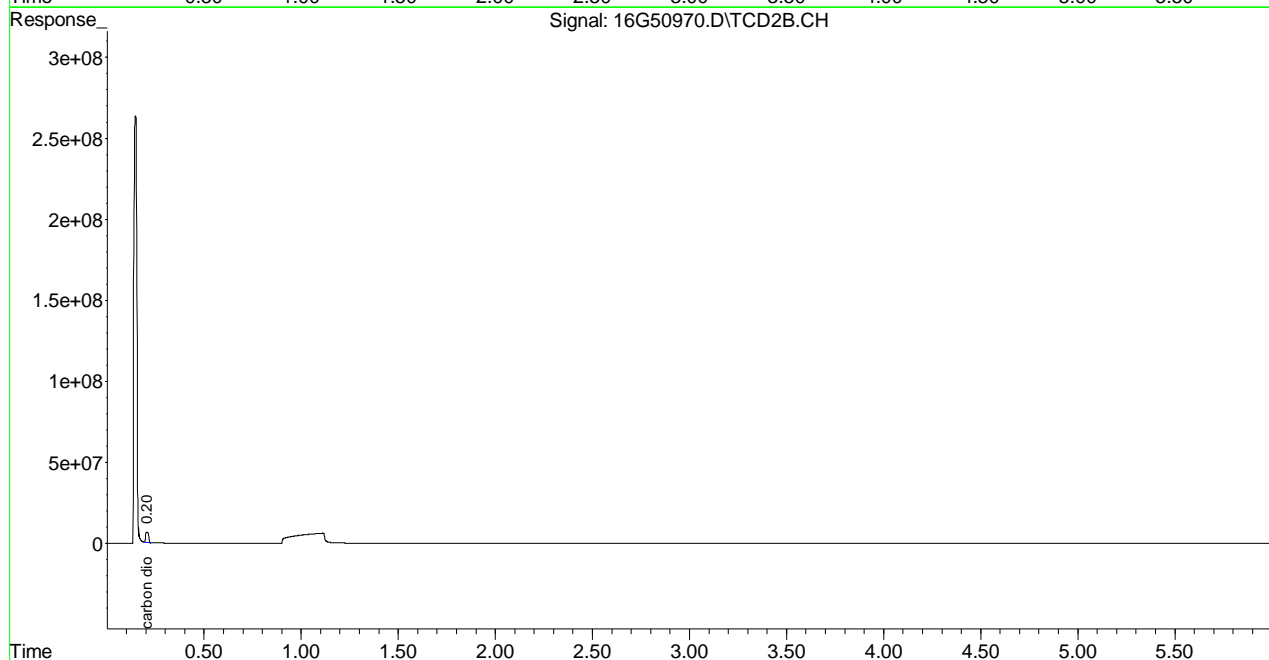
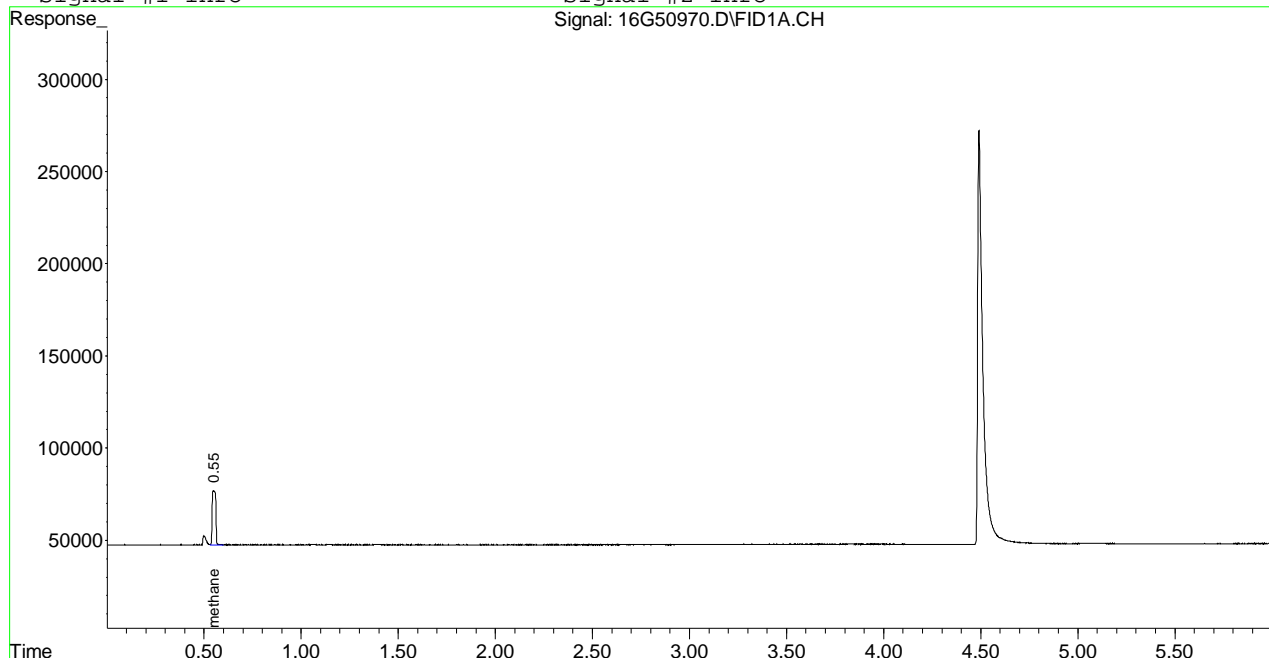
(m)=manual int.

Page 1

Signal #1 : C:\MSDchem\1\DATA\110416\16G50970.D\FID1A.CH Vial: 14
 Signal #2 : C:\MSDchem\1\DATA\110416\16G50970.D\TCD2B.CH
 Acq On : 04 Nov 2016 18:03 Operator: JDS
 Sample : L16110144-05 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 18:09 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 : 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

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/

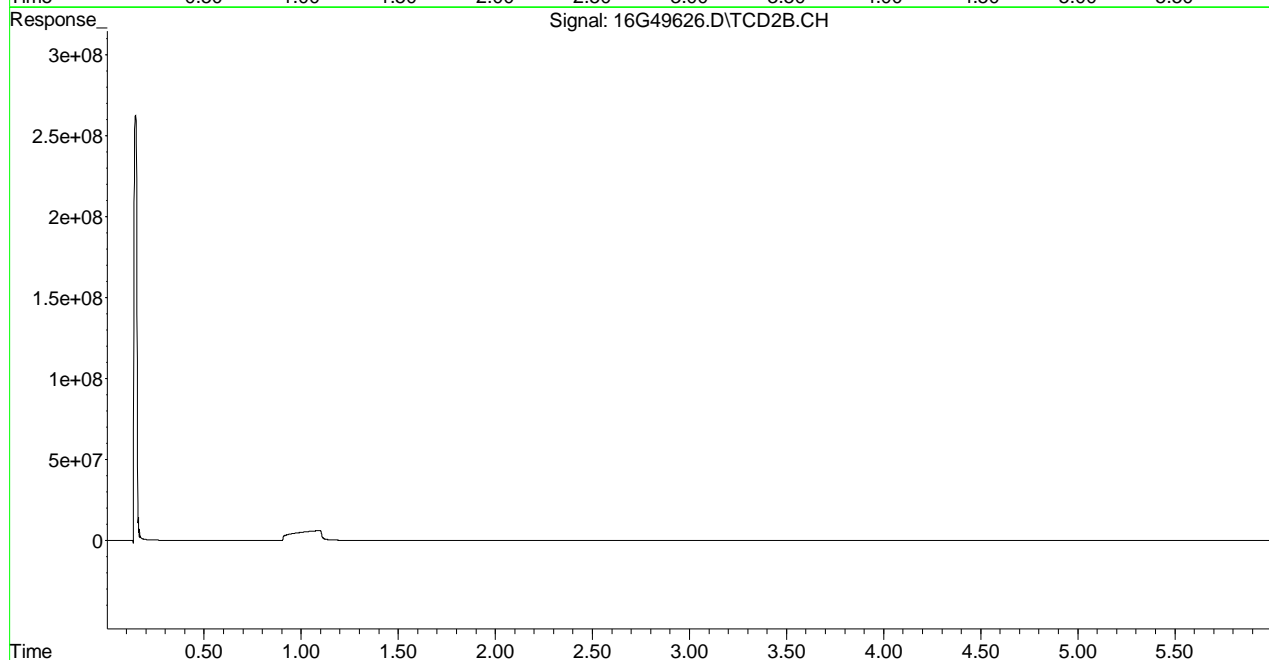
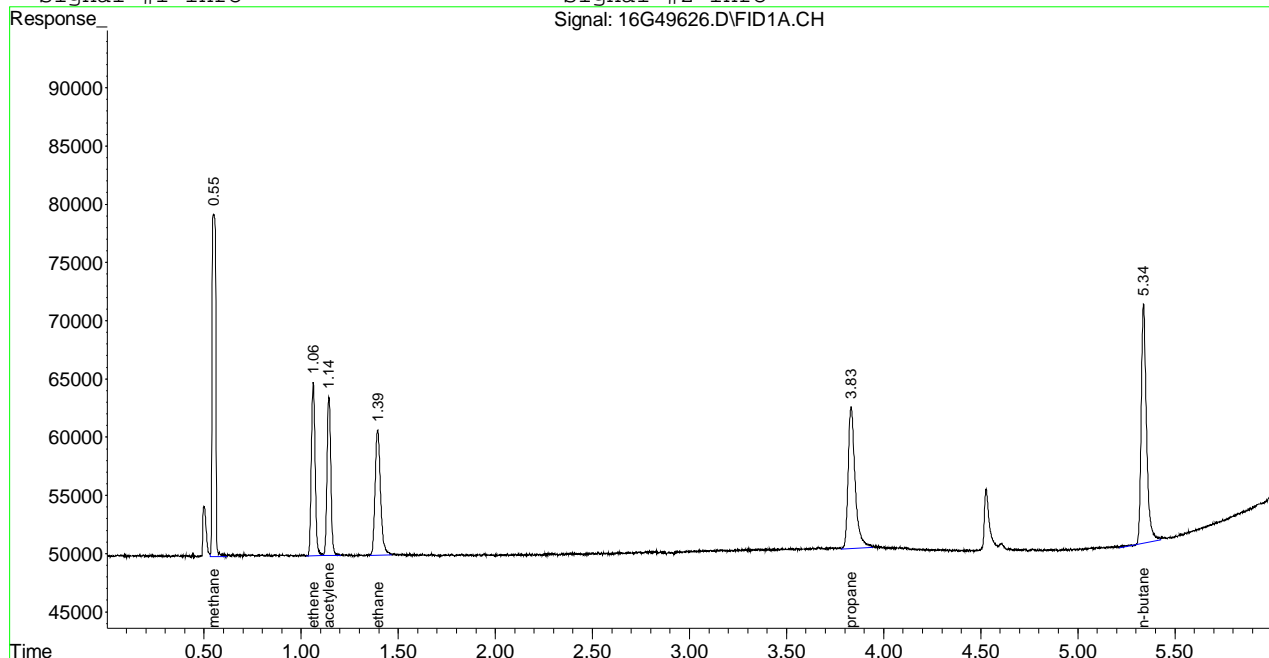
 (f)=RT Delta > 1/2 Window (m)=manual int.
 16G49626.D RSKEXT1.M Fri Mar 25 13:33:07 2016

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/

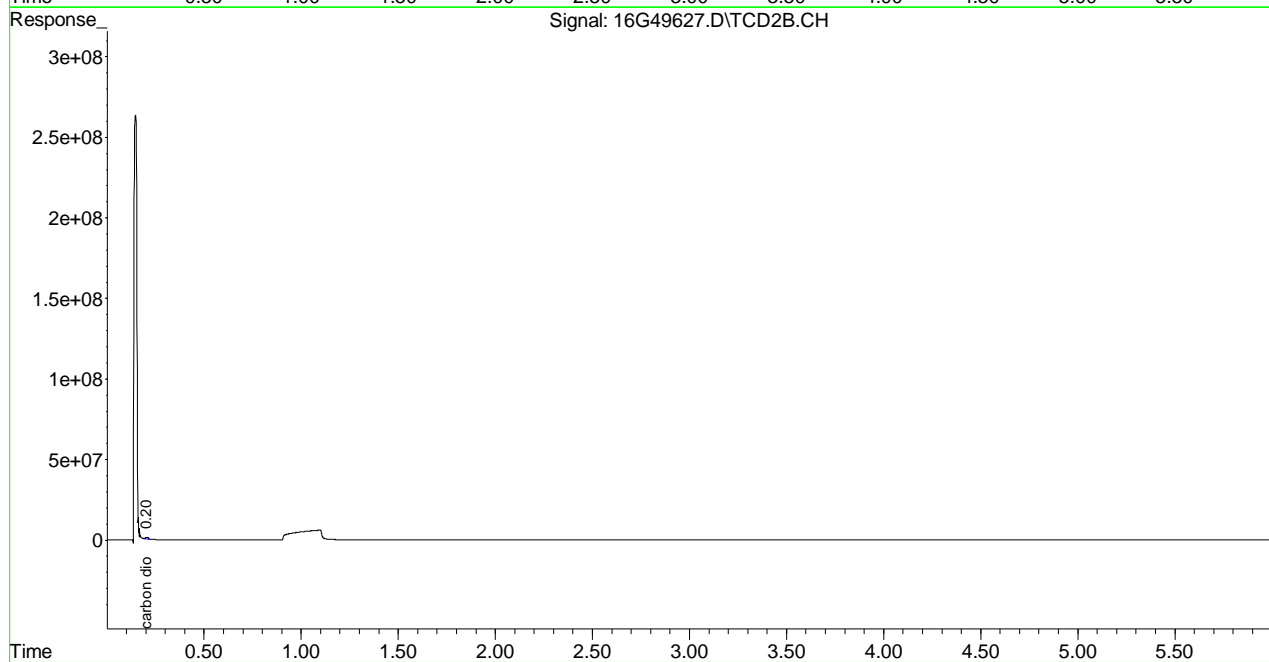
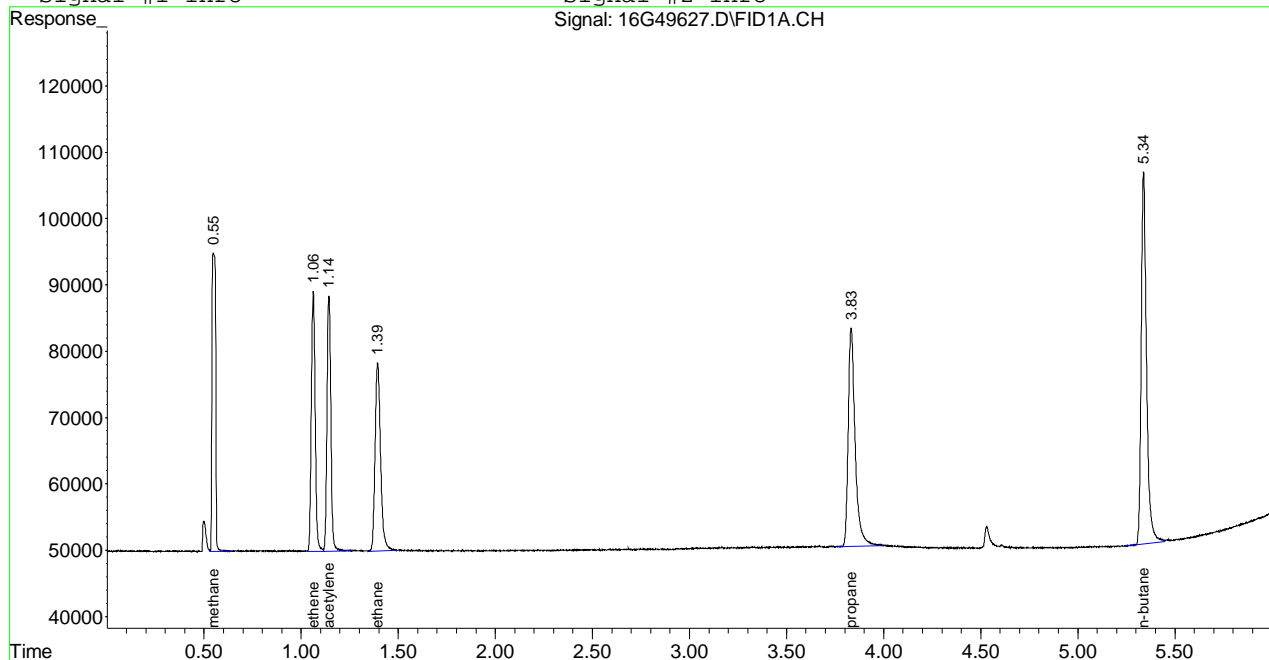
 (f)=RT Delta > 1/2 Window (m)=manual int.
 16G49627.D RSKEXT1.M Fri Mar 25 13:38:12 2016

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

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
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)
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Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G49627.D RSKEXT1.M Fri Mar 25 13:38:22 2016

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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/

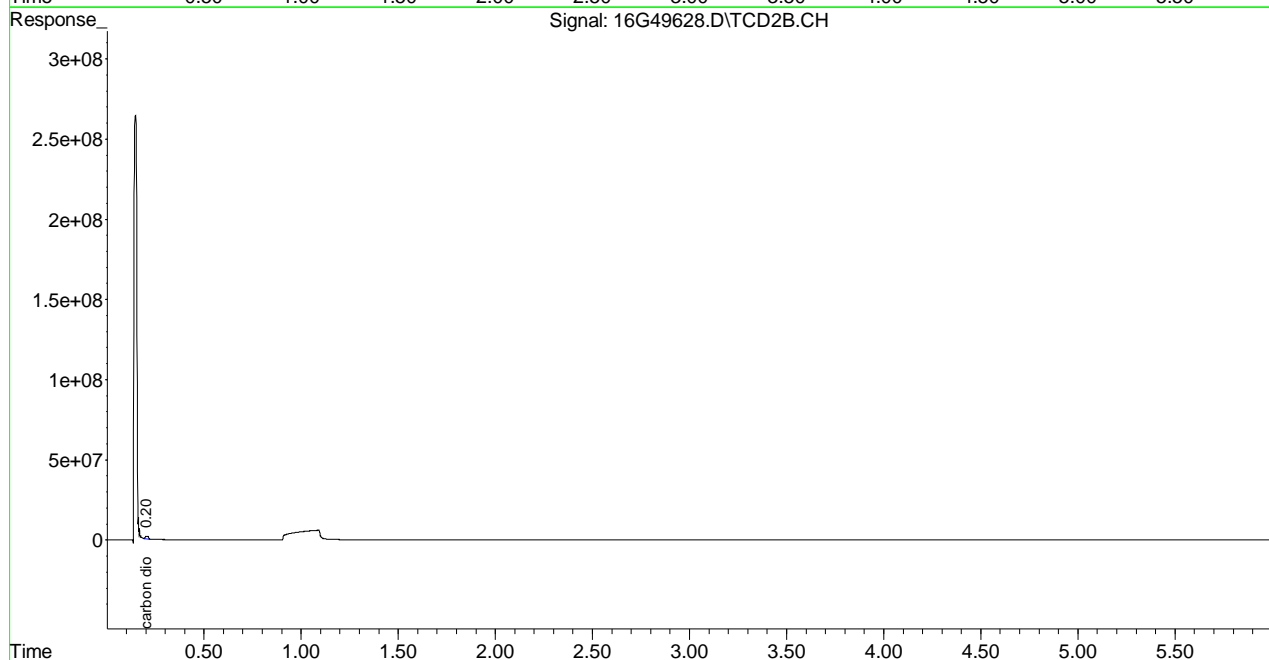
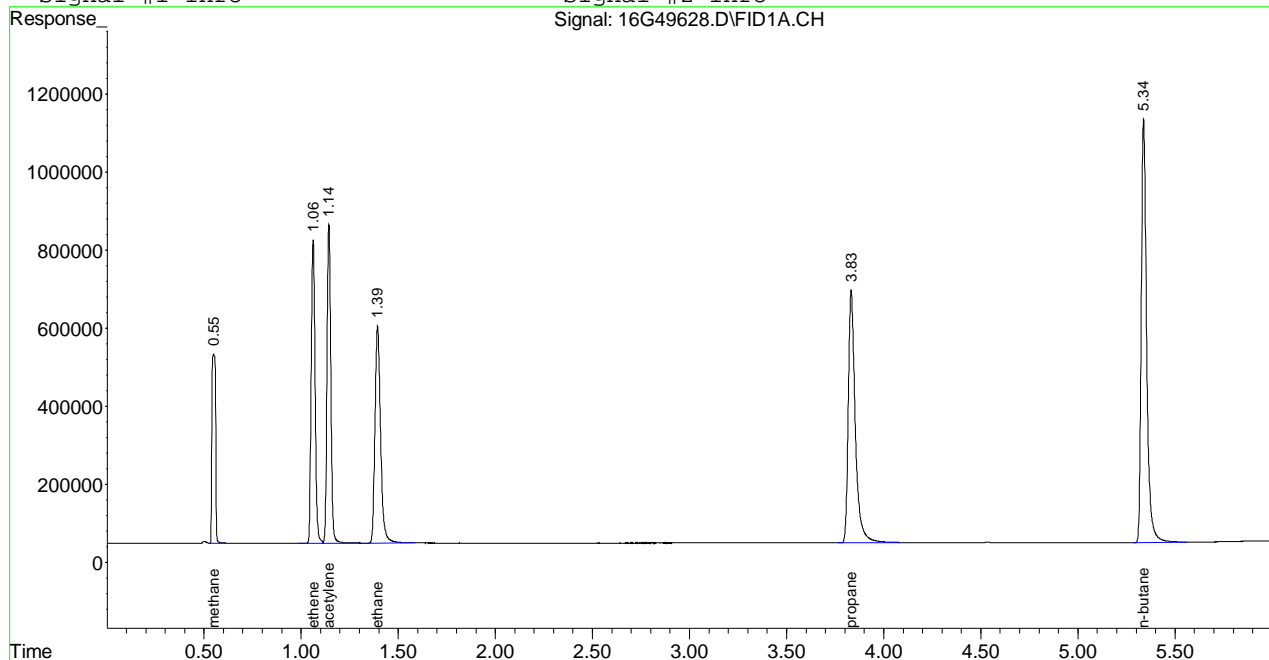
 (f)=RT Delta > 1/2 Window (m)=manual int.
 16G49628.D RSKEXT1.M Fri Mar 25 13:33:26 2016

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/

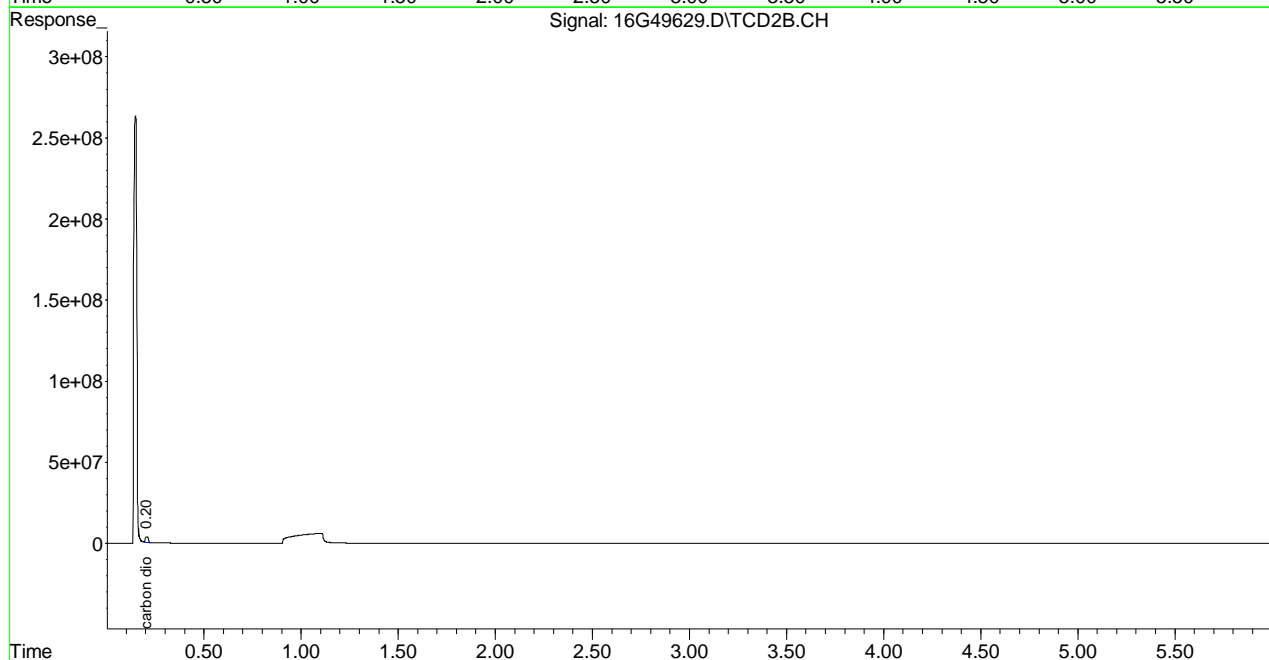
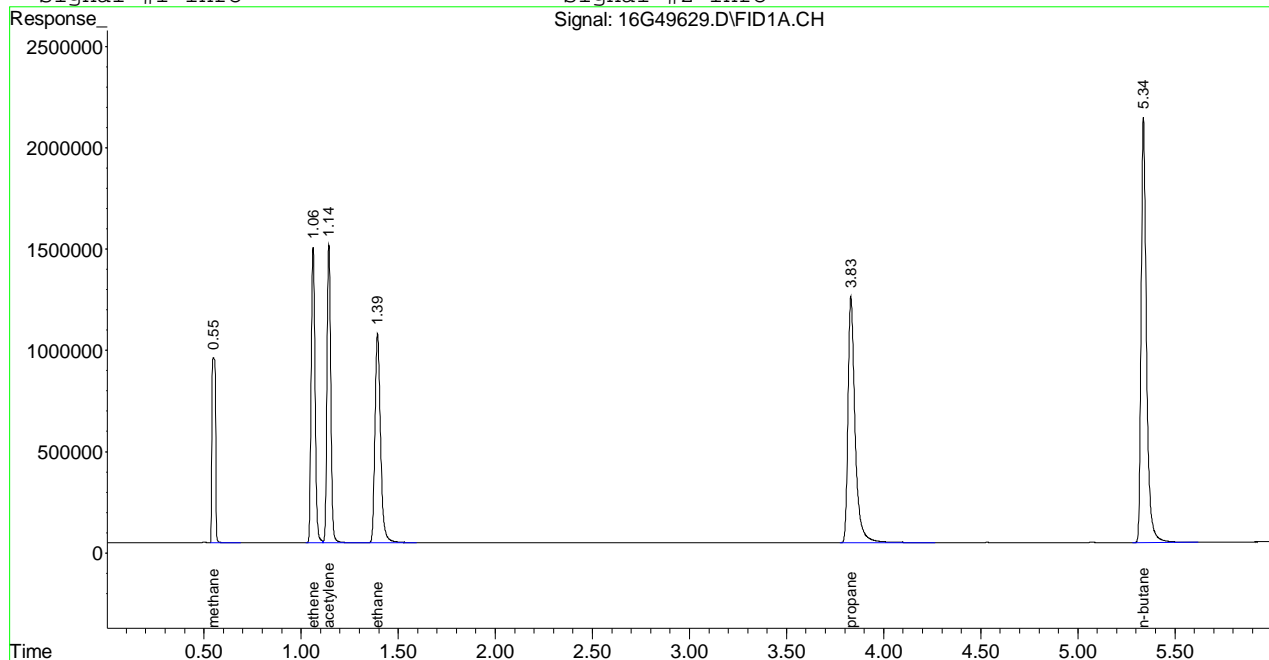
 (f)=RT Delta > 1/2 Window (m)=manual int.
 16G49629.D RSKEXT1.M Fri Mar 25 13:33:27 2016

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

16G49630.D RSKEXT1.M Fri Mar 25 13:33:27 2016

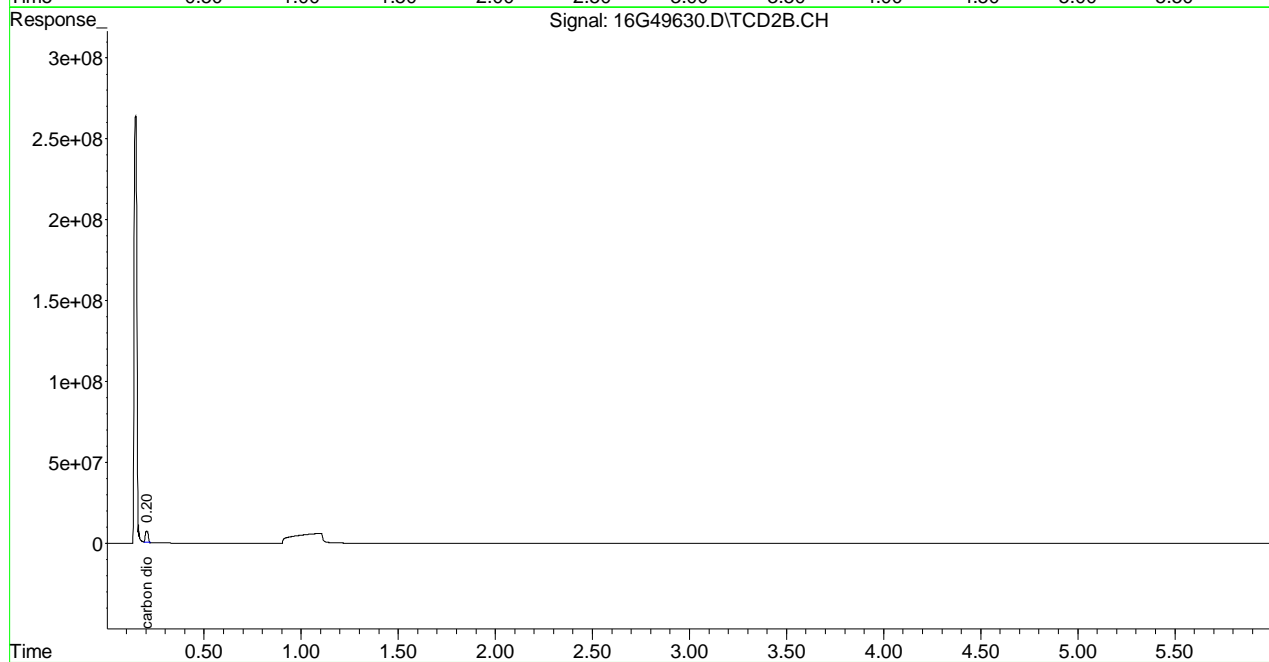
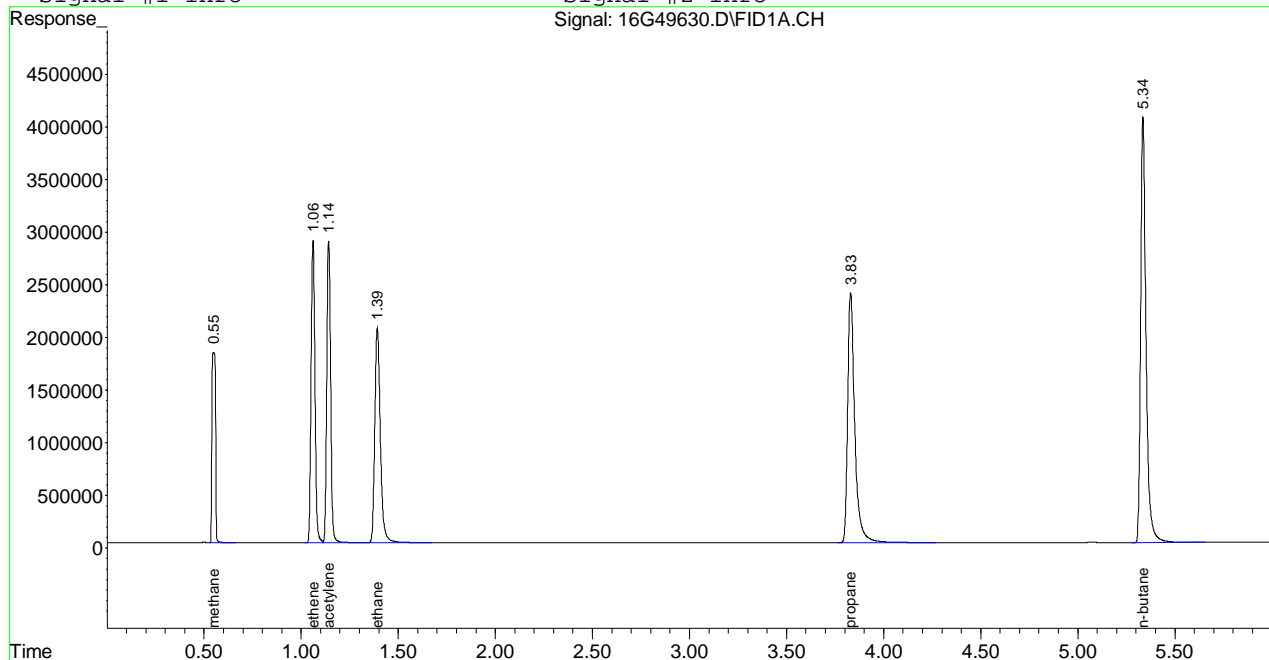
(m)=manual int.

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/

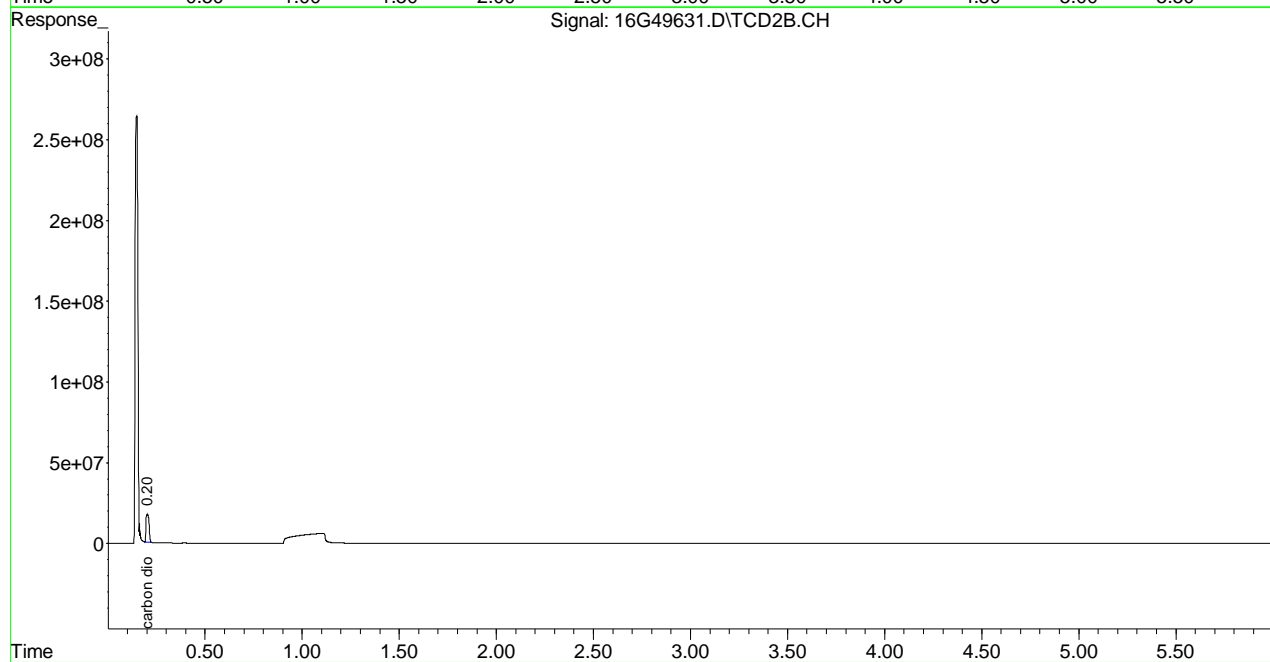
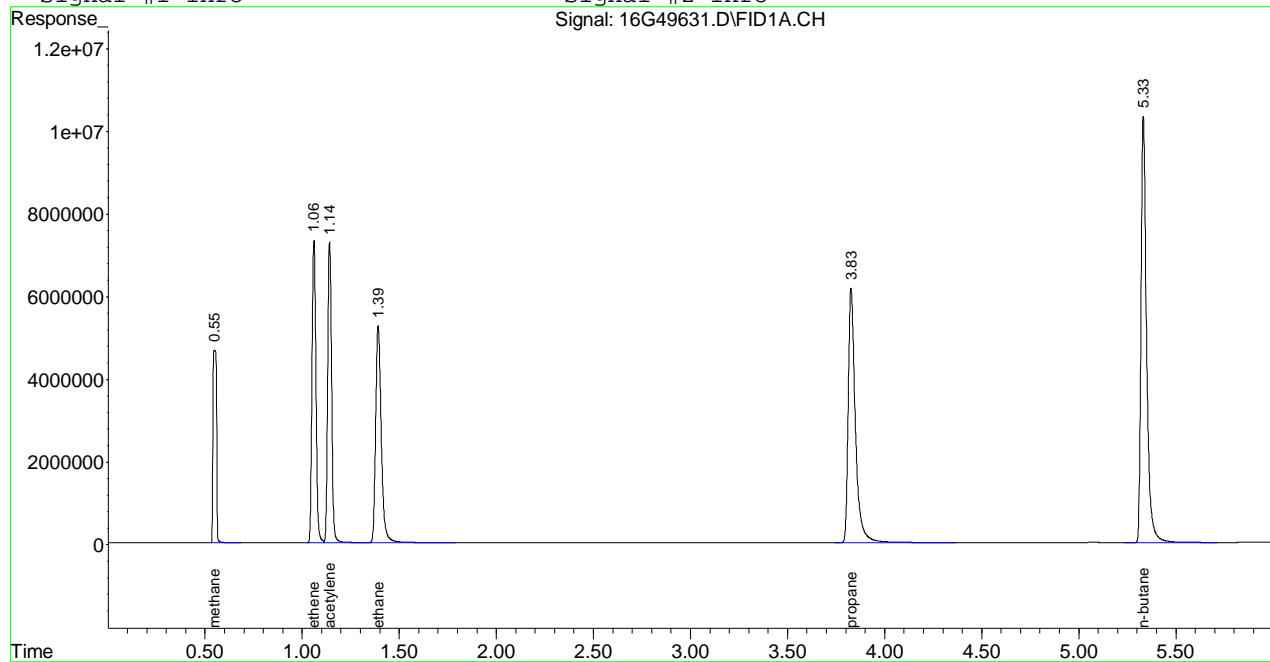
 (f)=RT Delta > 1/2 Window (m)=manual int.
 16G49631.D RSKEXT1.M Fri Mar 25 13:33:28 2016

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/

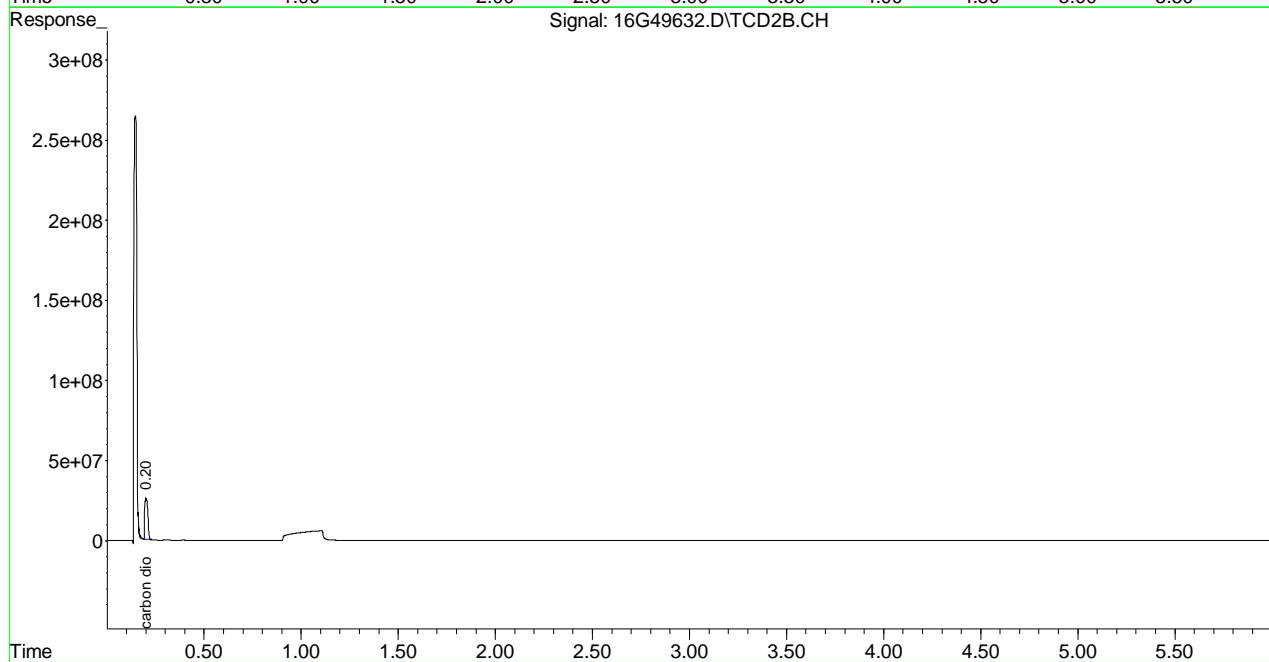
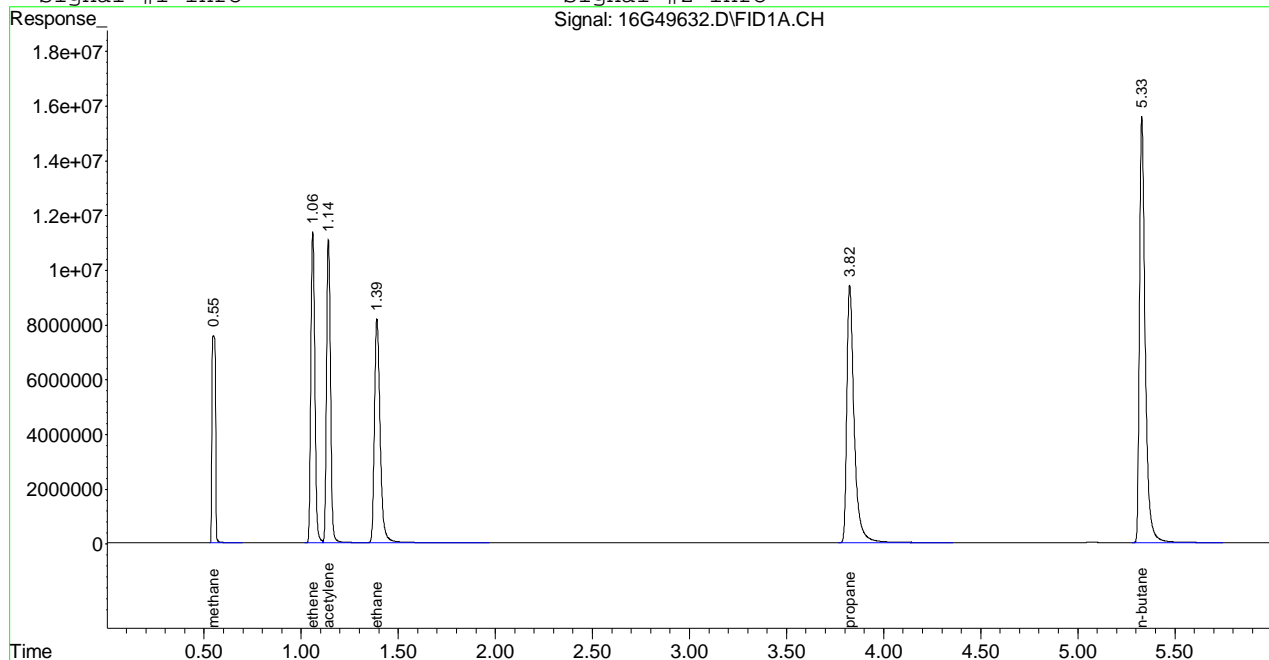
 (f)=RT Delta > 1/2 Window (m)=manual int.
 16G49632.D RSKEXT1.M Fri Mar 25 13:33:29 2016

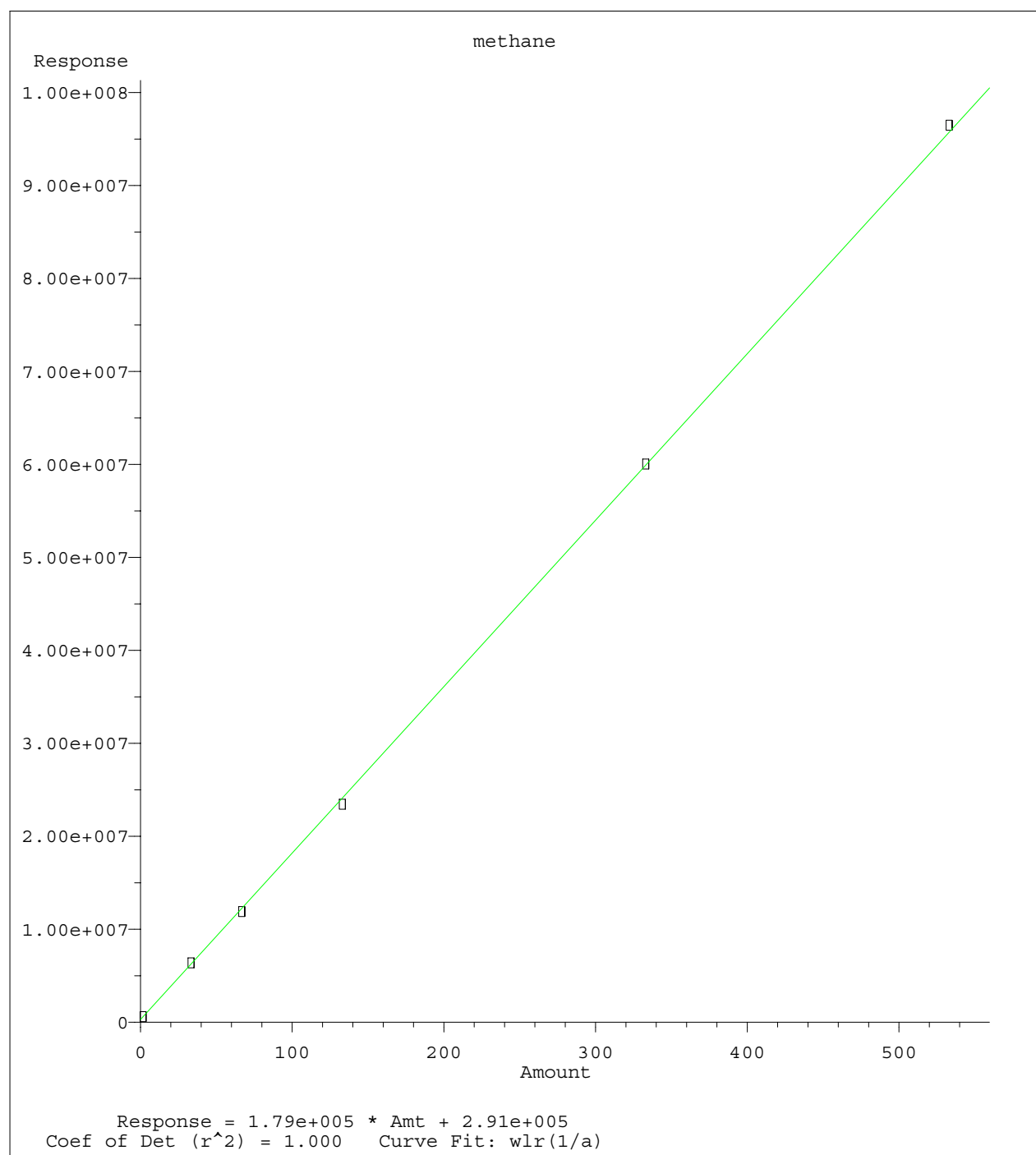
Page 1

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
 16G49635.D RSKEXT1.M Fri Mar 25 18:32:35 2016

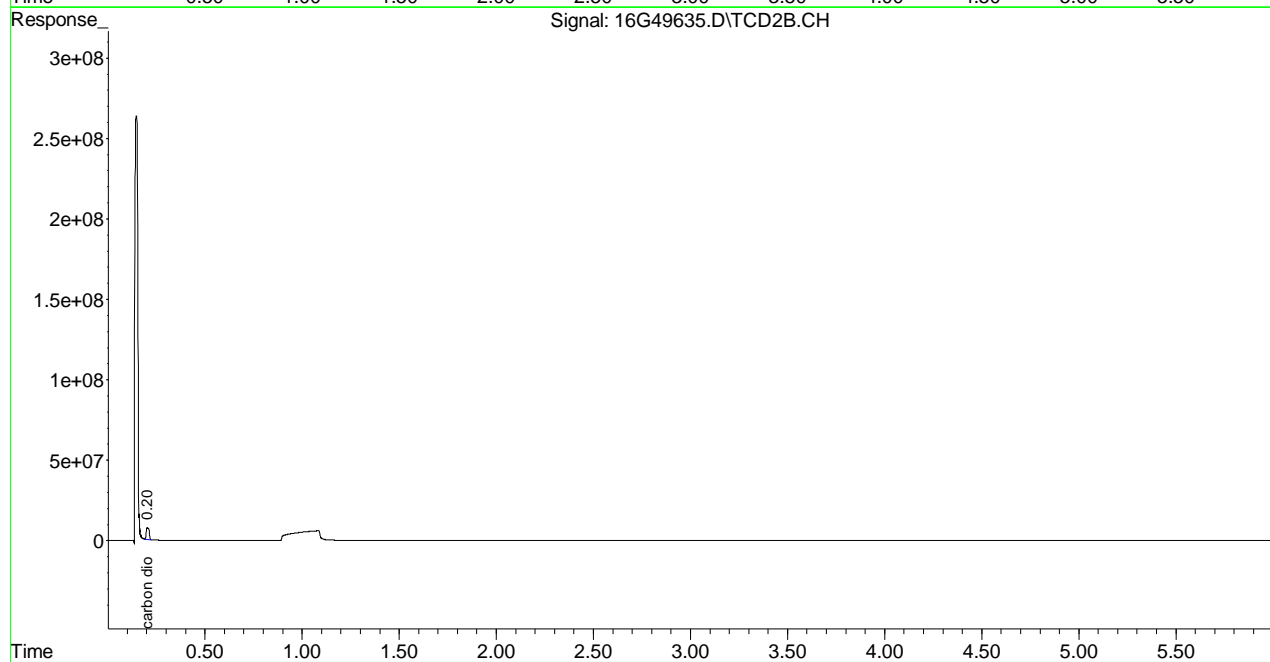
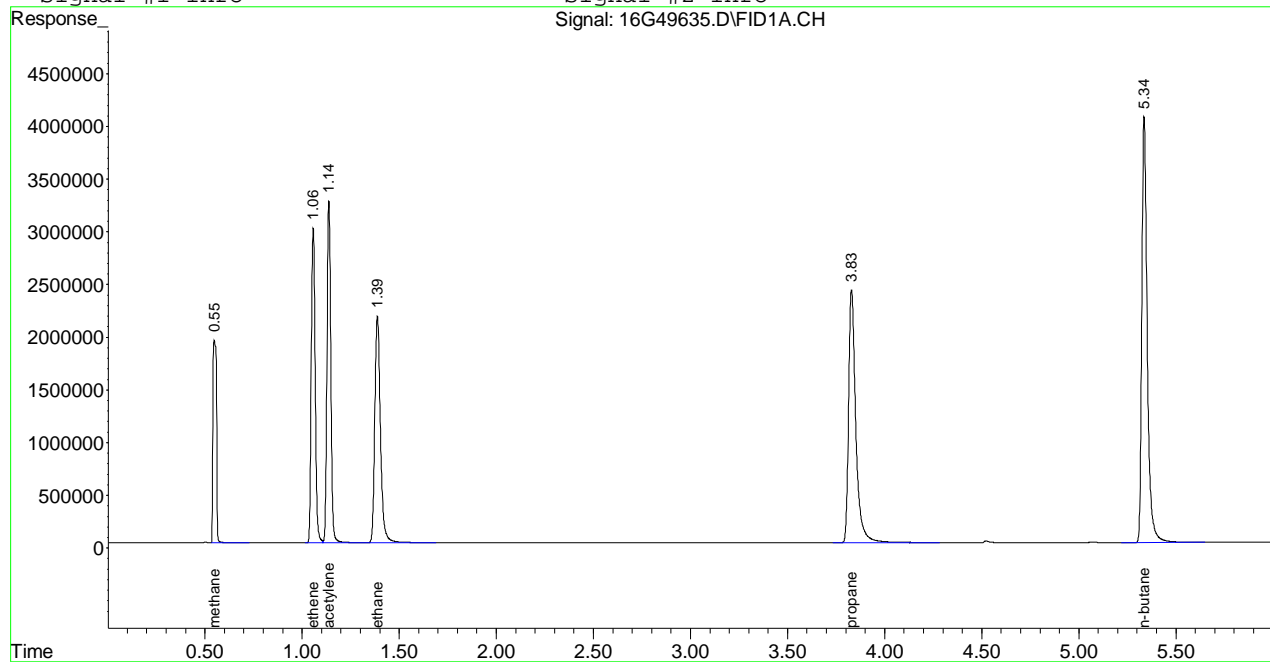
(m)=manual int.

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)
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Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G49635.D RSKEXT1.M Mon Mar 28 09:35:32 2016

Page 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
 16G50934.D RSKEXT1.M Fri Nov 04 08:58:09 2016

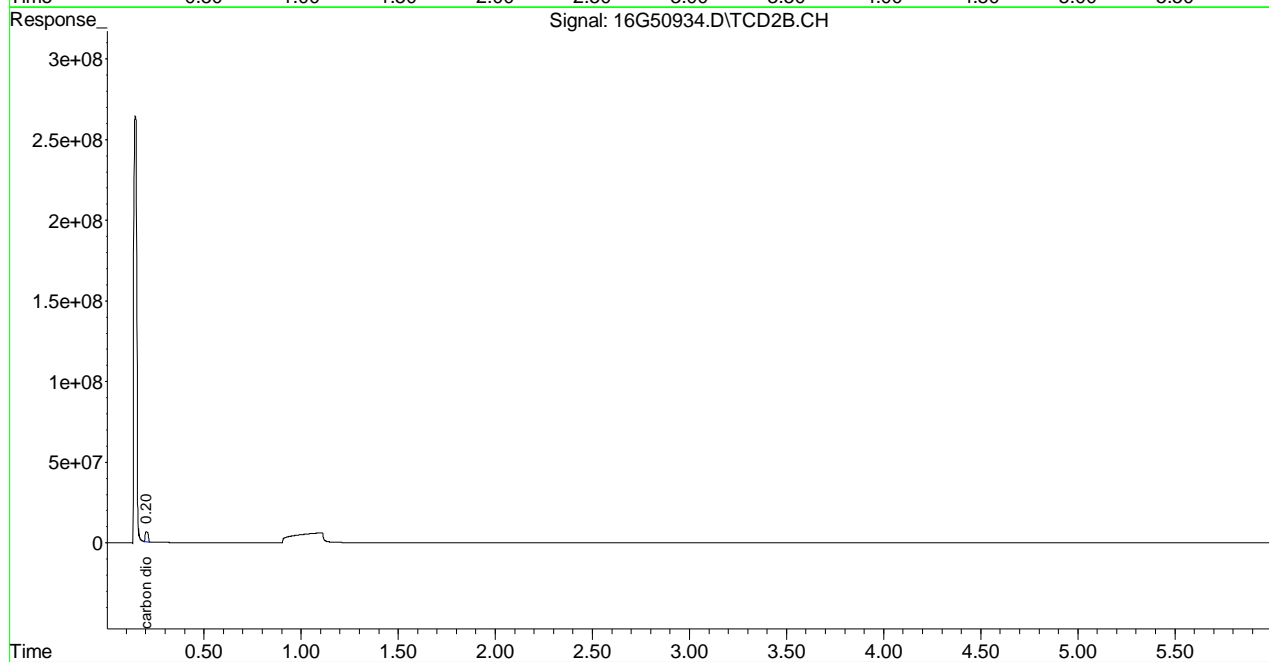
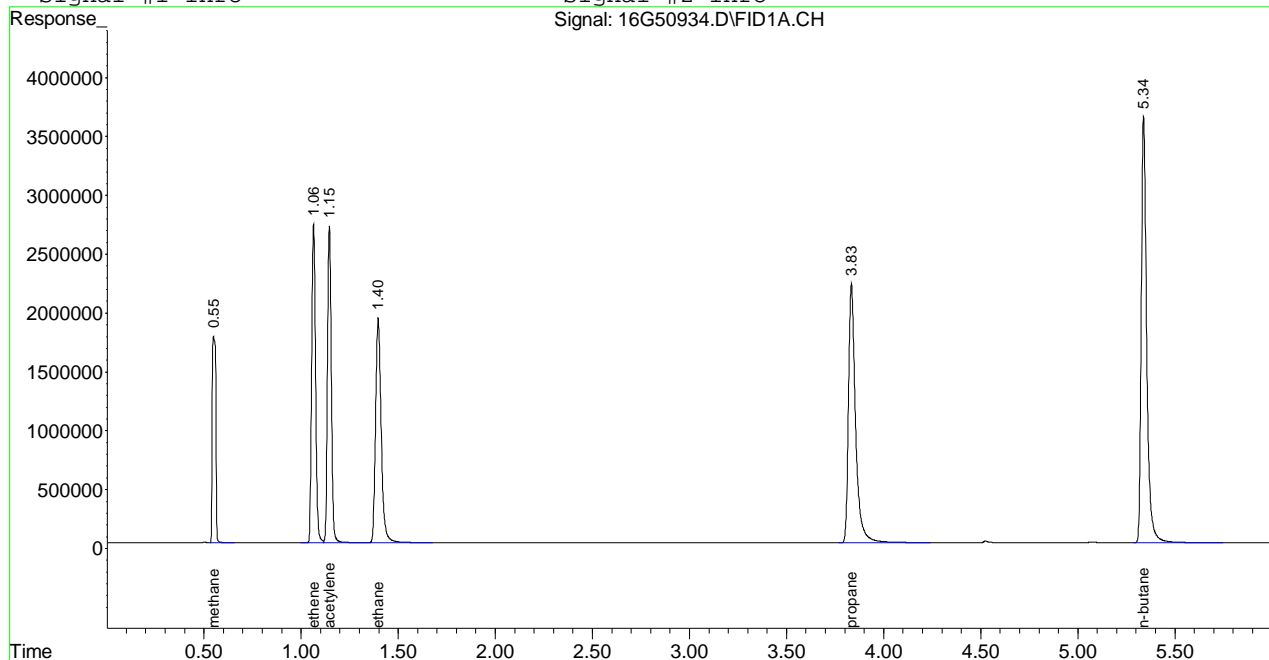
(m)=manual int.

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

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
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)
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Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50934.D RSKEXT1.M Fri Nov 04 08:54:34 2016

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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

16G50945.D RSKEXT1.M

Thu Nov 03 17:03:35 2016

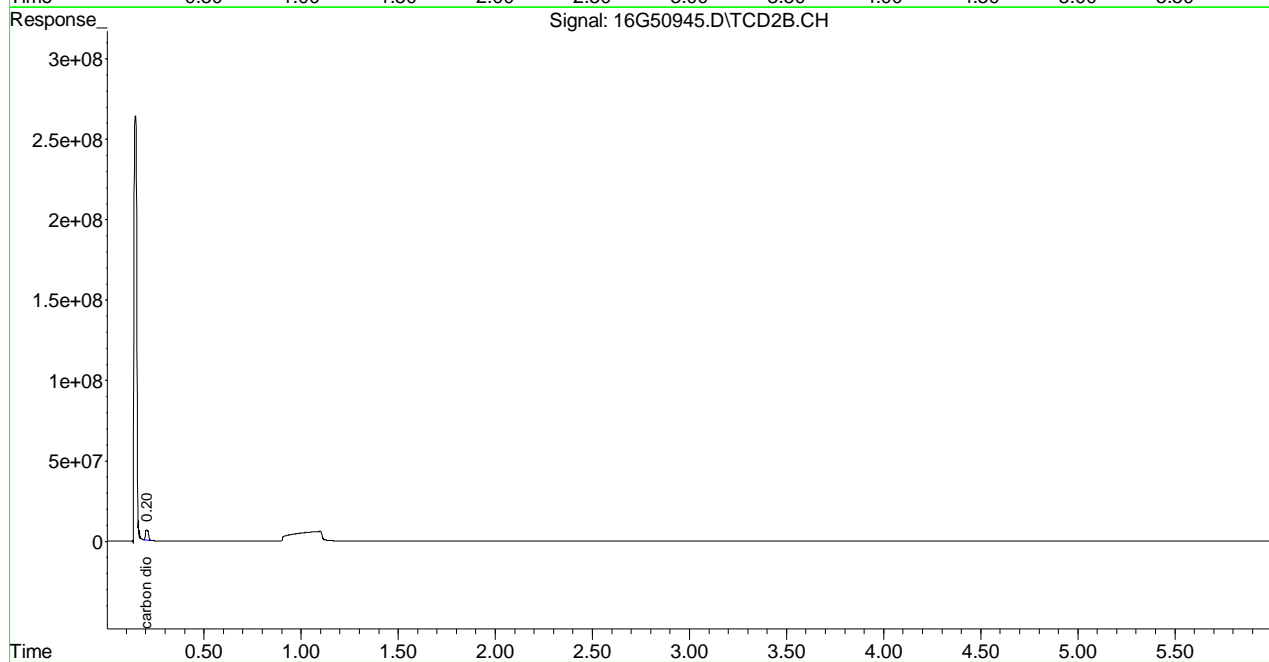
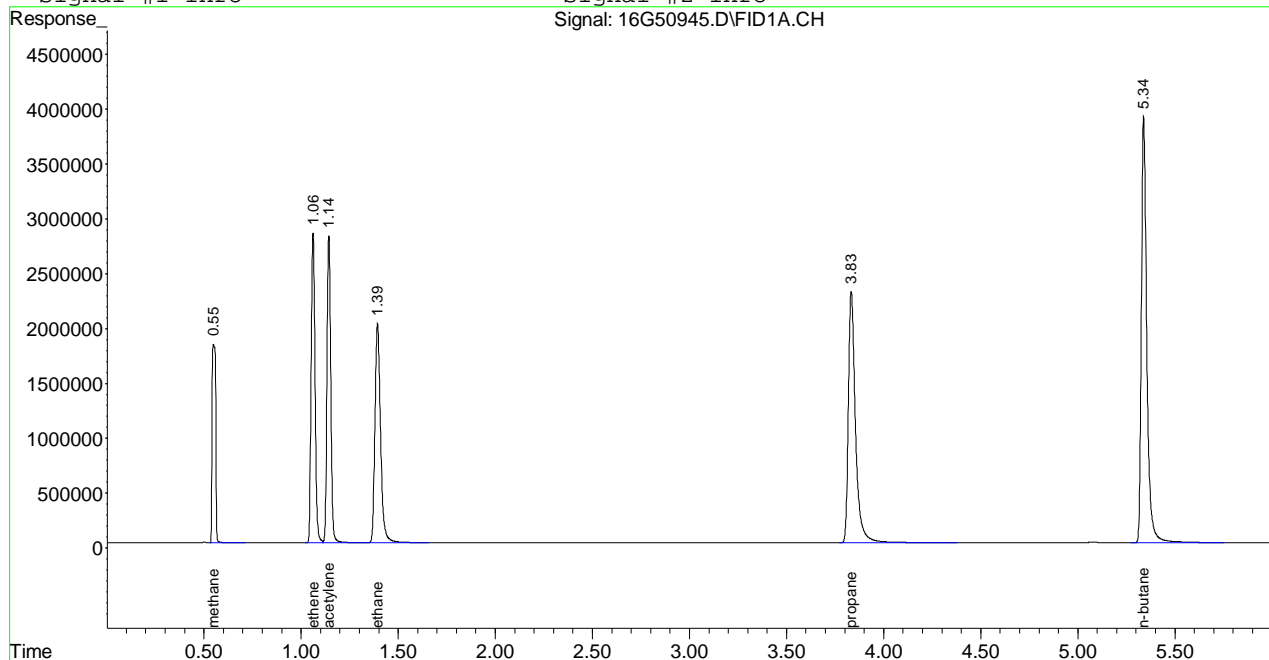
(m)=manual int.

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

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
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)
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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\110316\16G50956.D\FID1A.CH Vial: 23
 Signal #2 : C:\MSDchem\1\DATA\110316\16G50956.D\TCD2B.CH
 Acq On : 03 Nov 2016 19:05 Operator: JDS
 Sample : WG590196-03 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 19:11:39 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	22981255	126.705 umol/
2) T ethene	1.06	37322966	119.601 umol/
3) T acetylene	1.15	34371936	110.072 umol/
4) T ethane	1.40	38240345	119.902 umol/
5) T propane	3.83	65514933	138.873 umol/
6) T n-butane	5.34	69915174	114.352 umol/
8) T carbon dioxide	0.20	59812756	11331.340 umol/

(f)=RT Delta > 1/2 Window

16G50956.D RSKEXT1.M

Thu Nov 03 19:11:40 2016

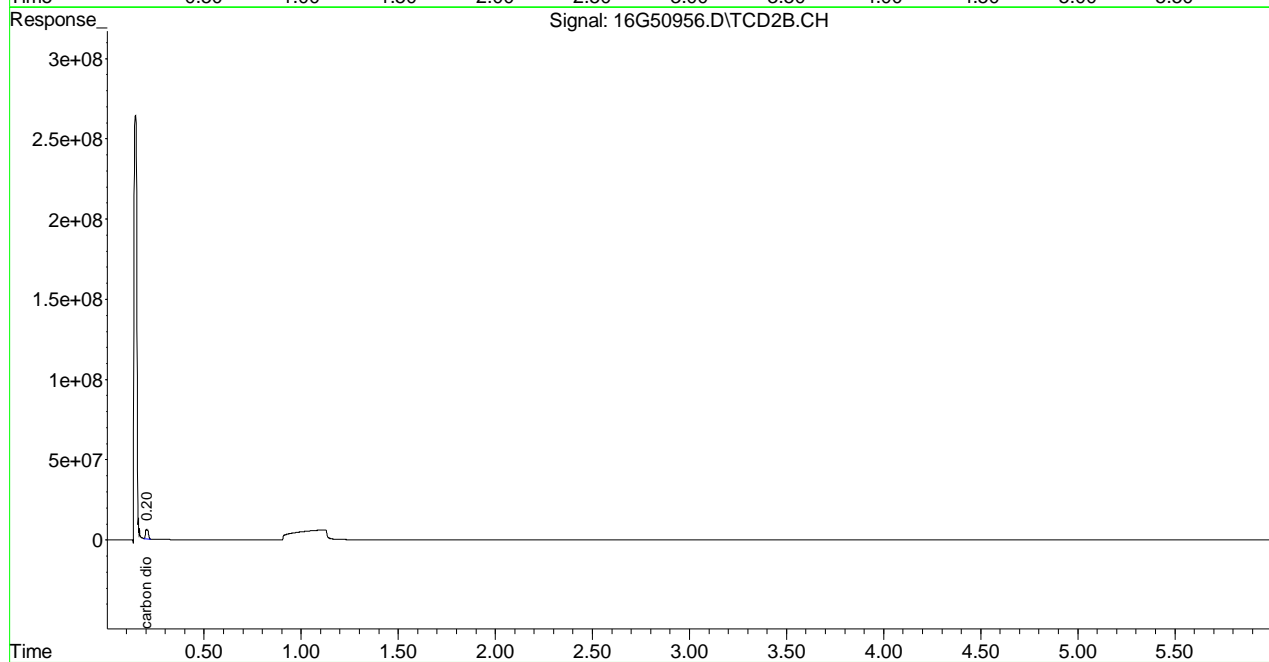
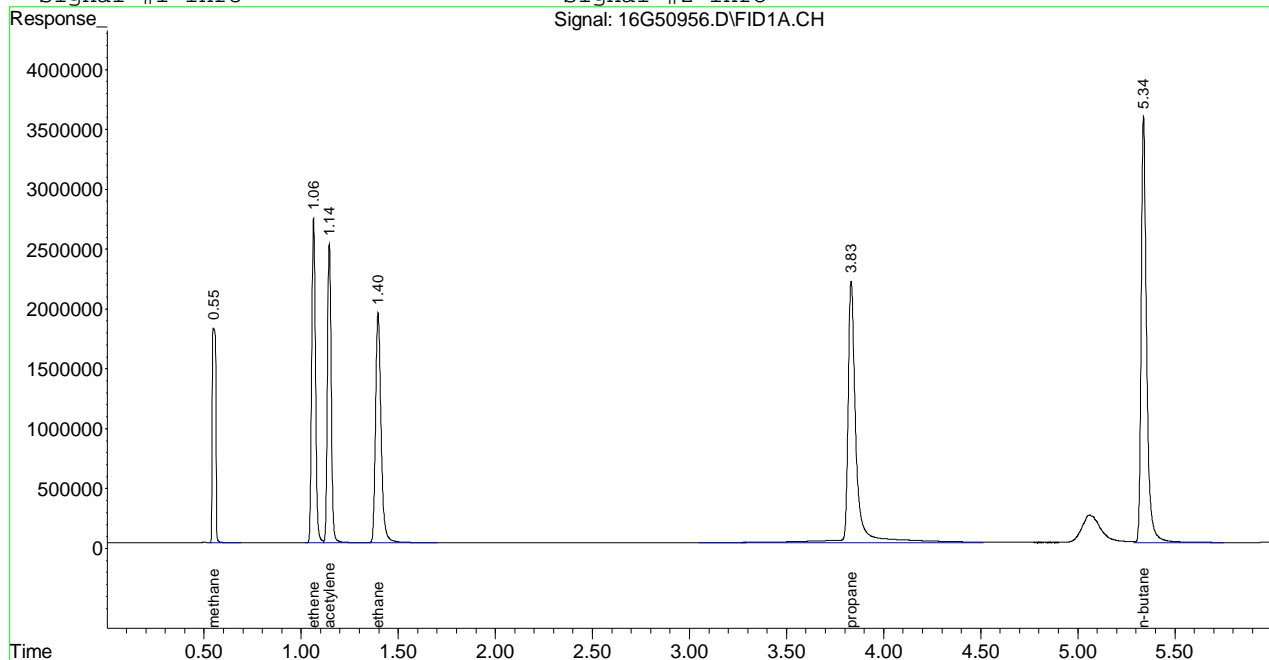
(m)=manual int.

Page 1

Signal #1 : C:\MSDchem\1\DATA\110316\16G50956.D\FID1A.CH Vial: 23
 Signal #2 : C:\MSDchem\1\DATA\110316\16G50956.D\TCD2B.CH
 Acq On : 03 Nov 2016 19:05 Operator: JDS
 Sample : WG590196-03 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 19:11 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 : 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\16G50956.D\FID1A.CH Vial: 23
 Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50956.D\TCD2B.CH
 Acq On : 03 Nov 2016 19:05 Operator: JDS
 Sample : WG590196-03 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	126.705	4.7	98	0.00
2 T	ethene	133.000	119.601	10.1	93	0.00
3 T	acetylene	133.000	110.072	17.2#	86	0.00
4 T	ethane	133.000	119.902	9.8	94	0.00
5 T	propane	133.000	138.873	-4.4	108	0.00
6 T	n-butane	133.000	114.352	14.0	89	0.00

Signal #2
 8 T carbon dioxide 13300.000 11331.340 14.8 84 0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 16G50956.D RSKEXT1.M Fri Nov 04 08:55:04 2016

Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110316\16G50956.D\FID1A.CH Vial: 23
Signal #2 : C:\MSDCHEM\1\DATA\110316\16G50956.D\TCD2B.CH
Acq On : 03 Nov 2016 19:05 Operator: JDS
Sample : WG590196-03 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)
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Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50956.D RSKEXT1.M Fri Nov 04 08:55:04 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
 16G50957.D RSKEXT1.M Fri Nov 04 14:51:13 2016

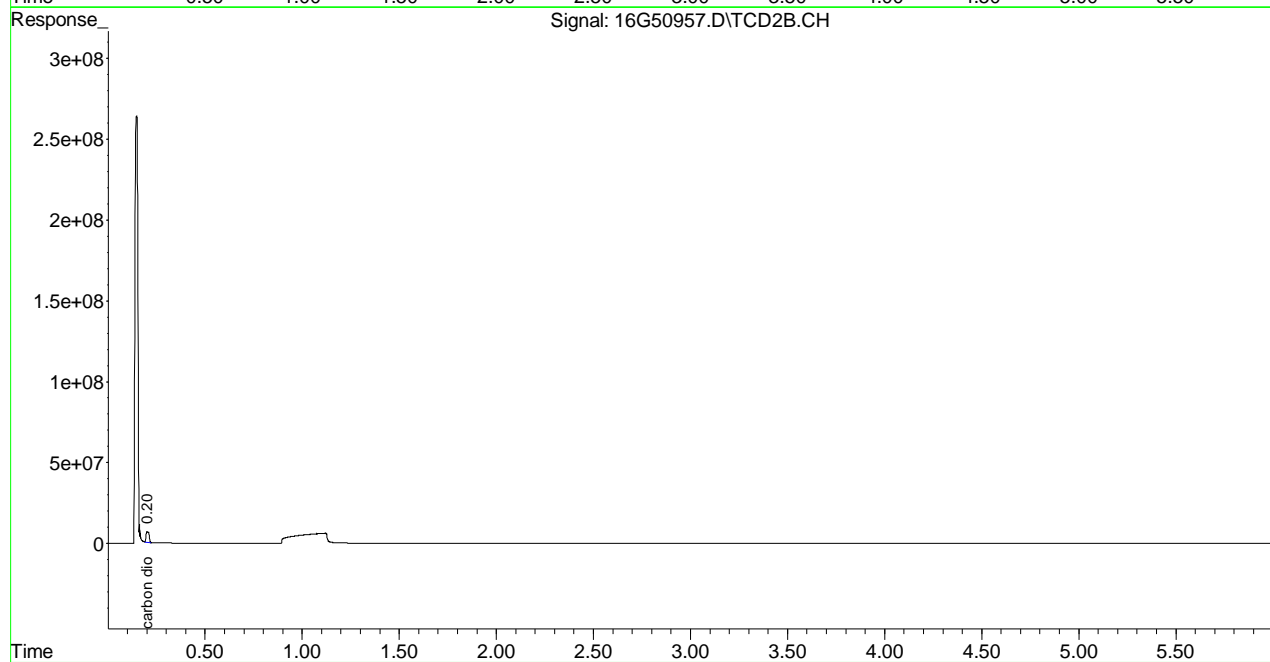
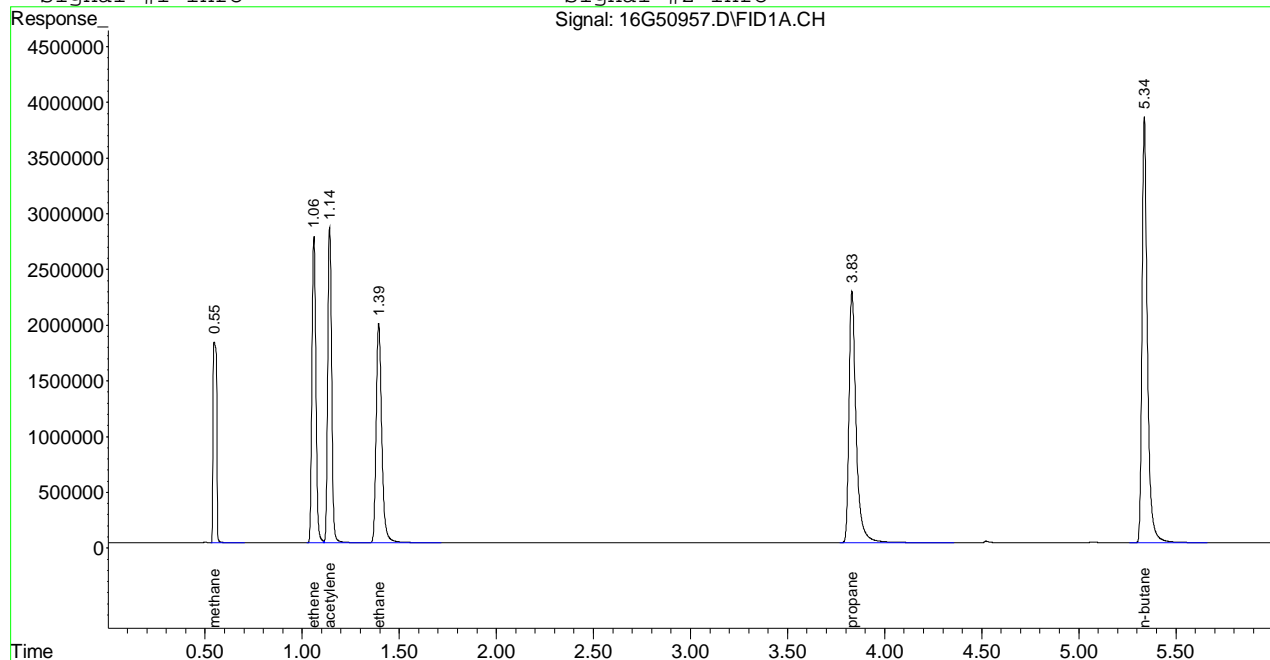
(m)=manual int.

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)
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Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50957.D RSKEXT1.M Mon Nov 07 09:33:08 2016

Page 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
 16G50968.D RSKEXT1.M Fri Nov 04 17:45:58 2016

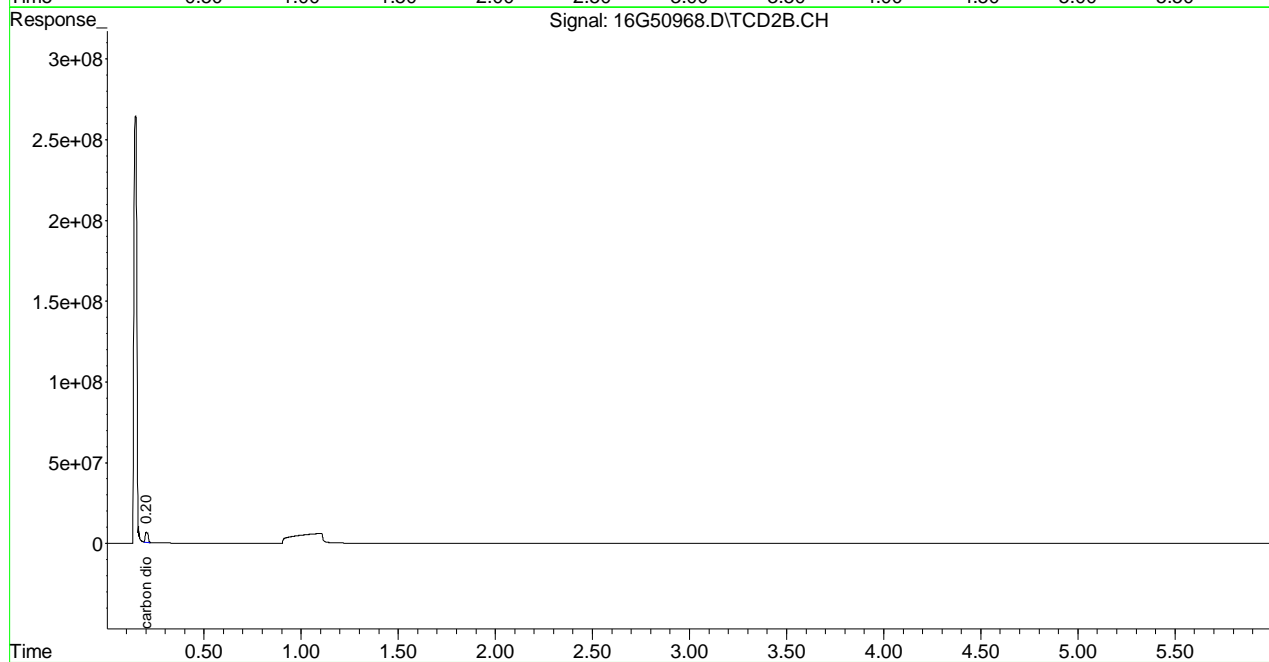
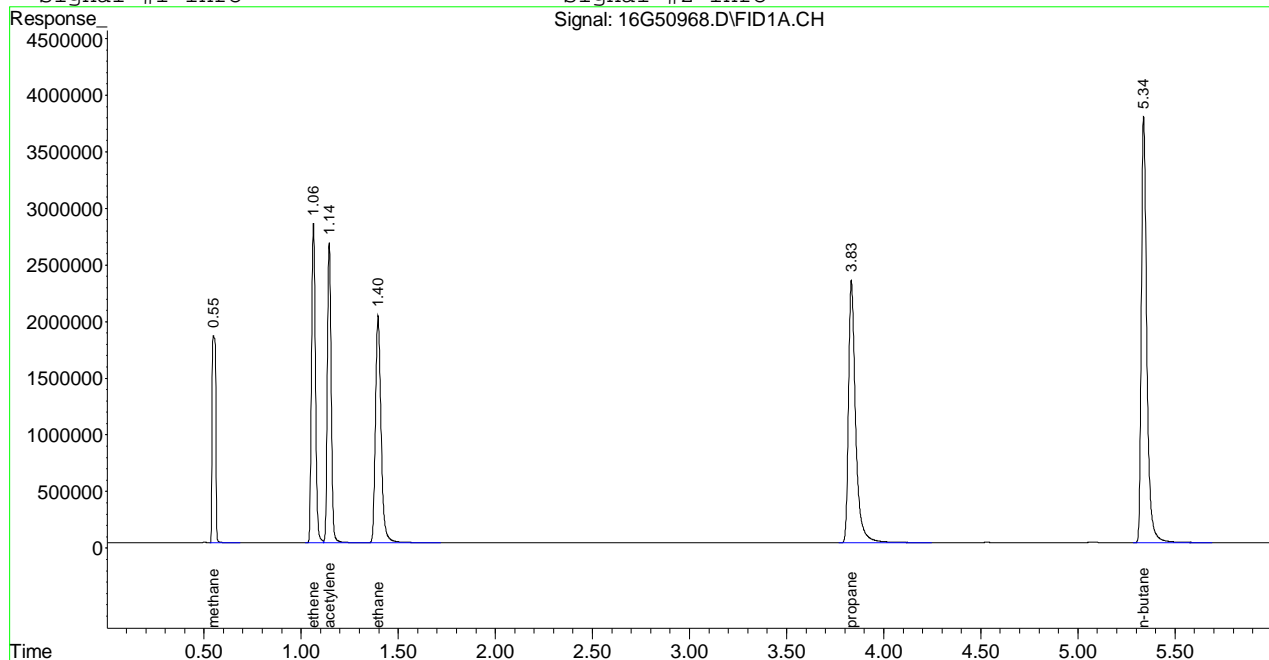
(m)=manual int.

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)
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Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50968.D RSKEXT1.M Mon Nov 07 09:33:15 2016

Page 2

Signal #1 : C:\MSDchem\1\DATA\110416\16G50979.D\FID1A.CH Vial: 23
 Signal #2 : C:\MSDchem\1\DATA\110416\16G50979.D\TCD2B.CH
 Acq On : 04 Nov 2016 19:51 Operator: JDS
 Sample : WG590415-03 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 19:57:20 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	23493211	129.564 umol/
2) T ethene	1.06	38507039	123.395 umol/
3) T acetylene	1.14	35440833	113.495 umol/
4) T ethane	1.40	39523608	123.926 umol/
5) T propane	3.83	57475791	121.833 umol/
6) T n-butane	5.34	71074298	116.248 umol/
8) T carbon dioxide	0.20	62004355	11746.531 umol/

(f)=RT Delta > 1/2 Window
 16G50979.D RSKEXT1.M Fri Nov 04 19:57:20 2016

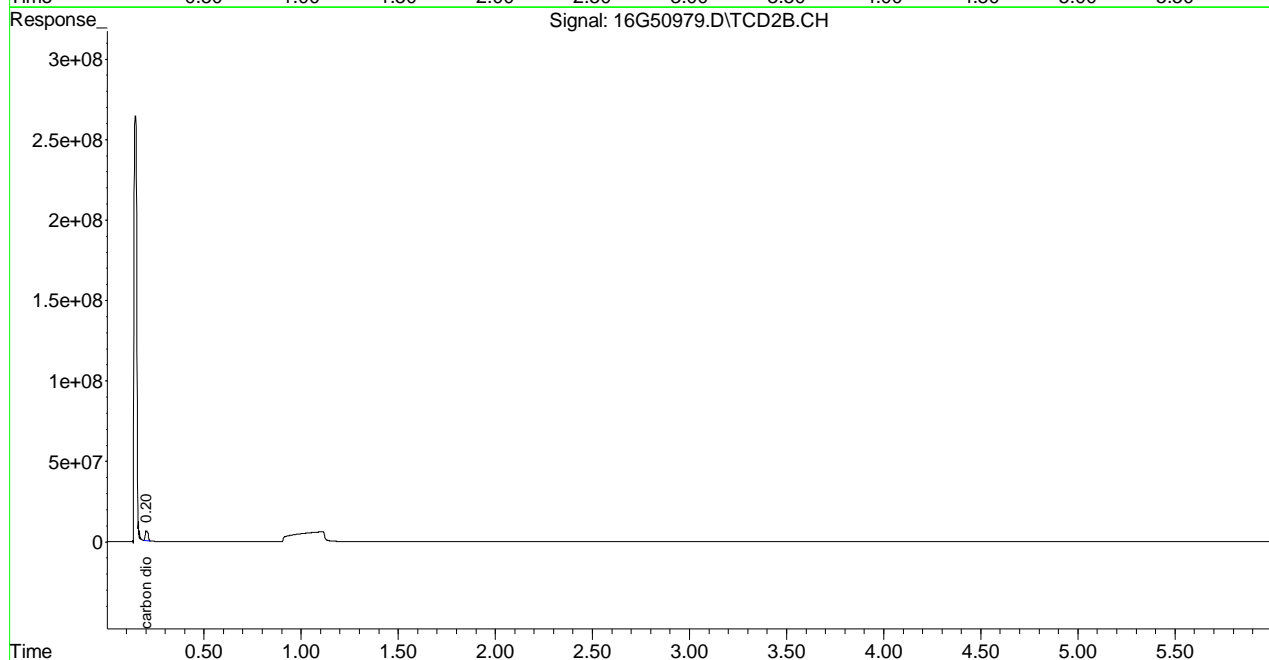
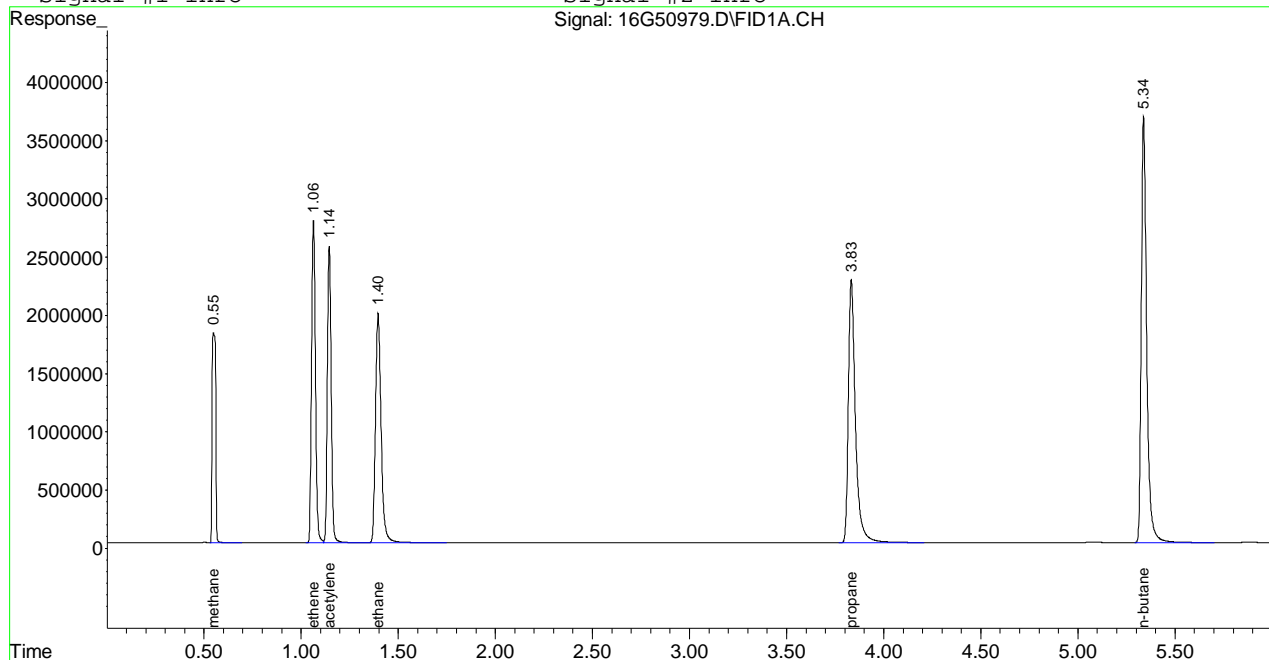
(m)=manual int.

Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50979.D\FID1A.CH Vial: 23
 Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50979.D\TCD2B.CH
 Acq On : 04 Nov 2016 19:51 Operator: JDS
 Sample : WG590415-03 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 19:57 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\16G50979.D\FID1A.CH Vial: 23
 Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50979.D\TCD2B.CH
 Acq On : 04 Nov 2016 19:51 Operator: JDS
 Sample : WG590415-03 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	129.564	2.6	100	0.00
2 T	ethene	133.000	123.395	7.2	96	0.00
3 T	acetylene	133.000	113.495	14.7	89	0.00
4 T	ethane	133.000	123.926	6.8	97	0.00
5 T	propane	133.000	121.833	8.4	94	0.00
6 T	n-butane	133.000	116.248	12.6	91	0.00

Signal #2
 8 T carbon dioxide 13300.000 11746.531 11.7 87 0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 16G50979.D RSKEXT1.M Mon Nov 07 09:33:22 2016

Page 1

Signal #1 : C:\MSDCHEM\1\DATA\110416\16G50979.D\FID1A.CH Vial: 23
Signal #2 : C:\MSDCHEM\1\DATA\110416\16G50979.D\TCD2B.CH
Acq On : 04 Nov 2016 19:51 Operator: JDS
Sample : WG590415-03 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)
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Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
16G50979.D RSKEXT1.M Mon Nov 07 09:33:23 2016

Page 2

Login #: L16110144 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: 5012882
 Report generated 11/08/2016 09:50



Login #: L16110144 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: 5012882
 Report generated 11/08/2016 09:50



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/

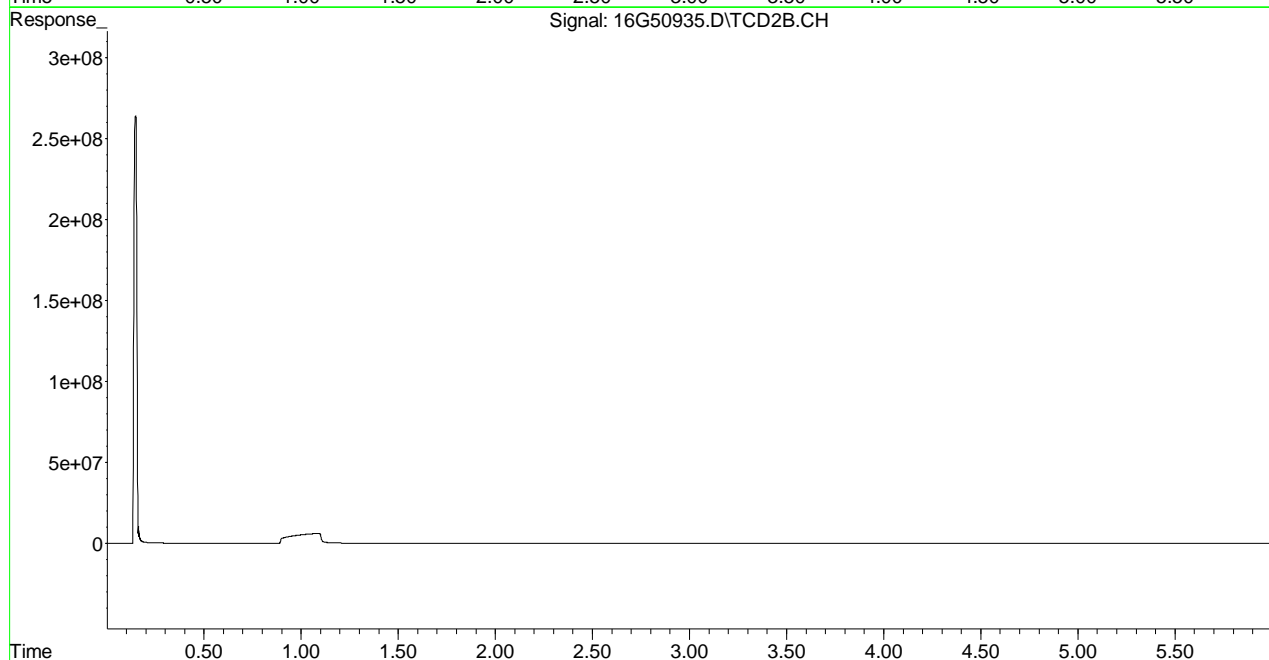
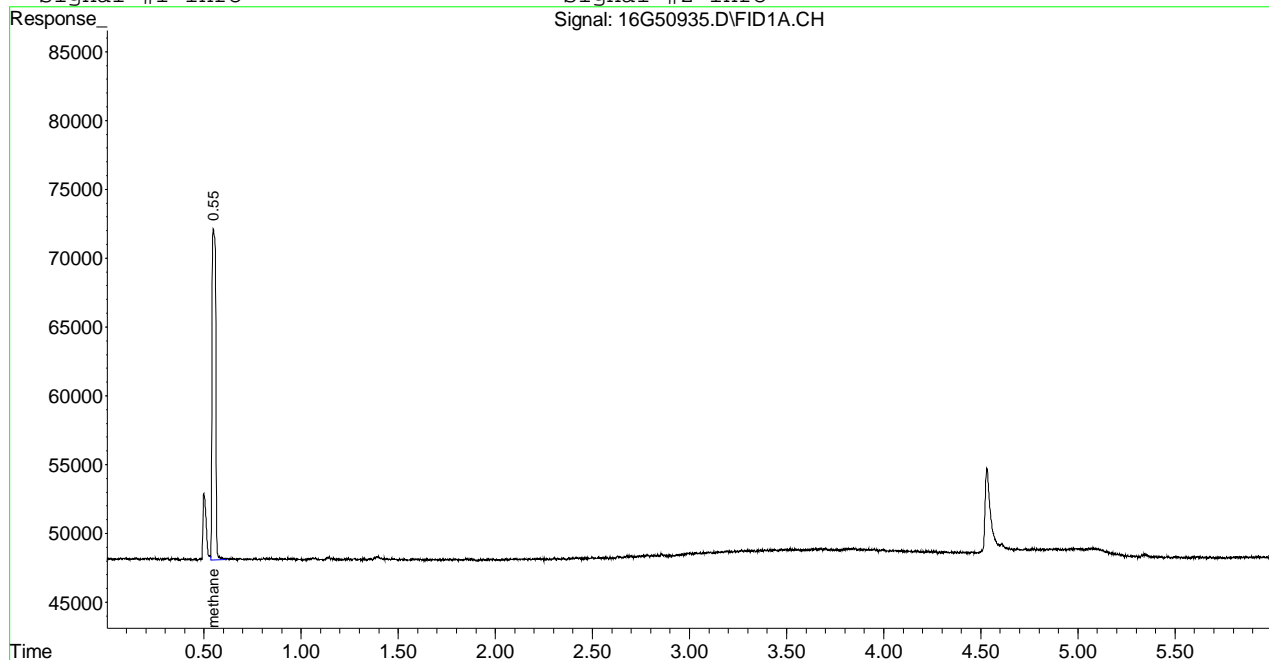
 (f)=RT Delta > 1/2 Window (m)=manual int.
 16G50935.D RSKEXT1.M Fri Nov 04 08:58:15 2016

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

16G50958.D RSKEXT1.M Mon Nov 07 09:36:56 2016

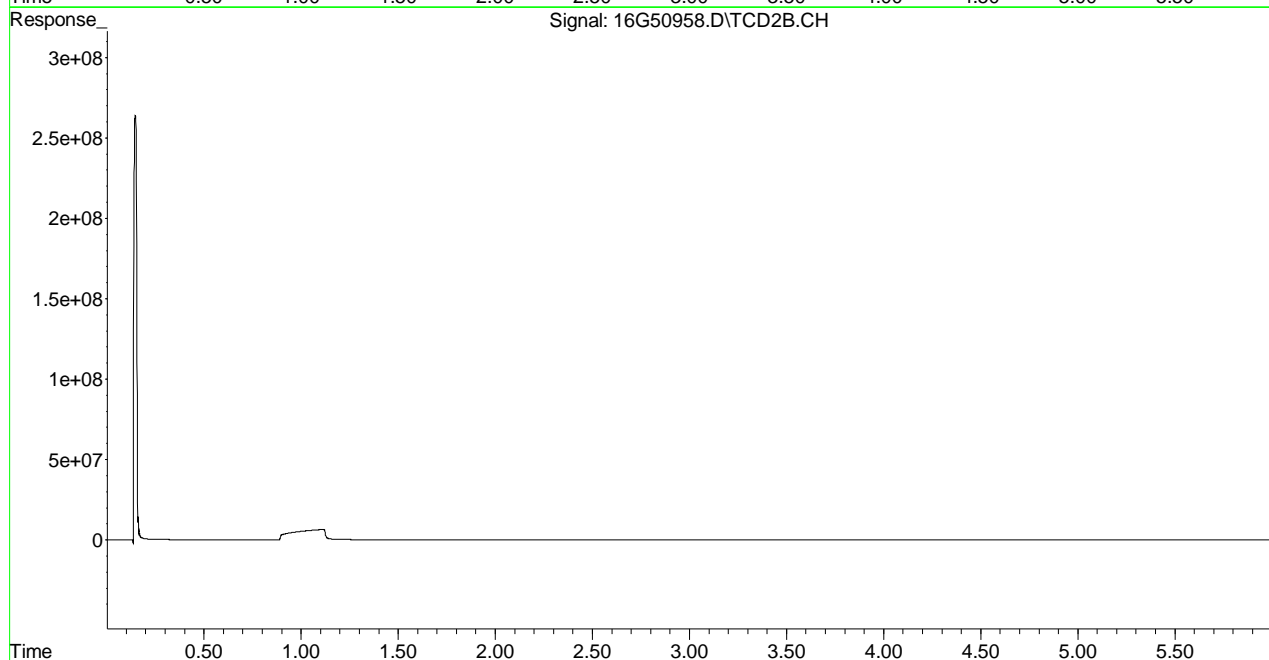
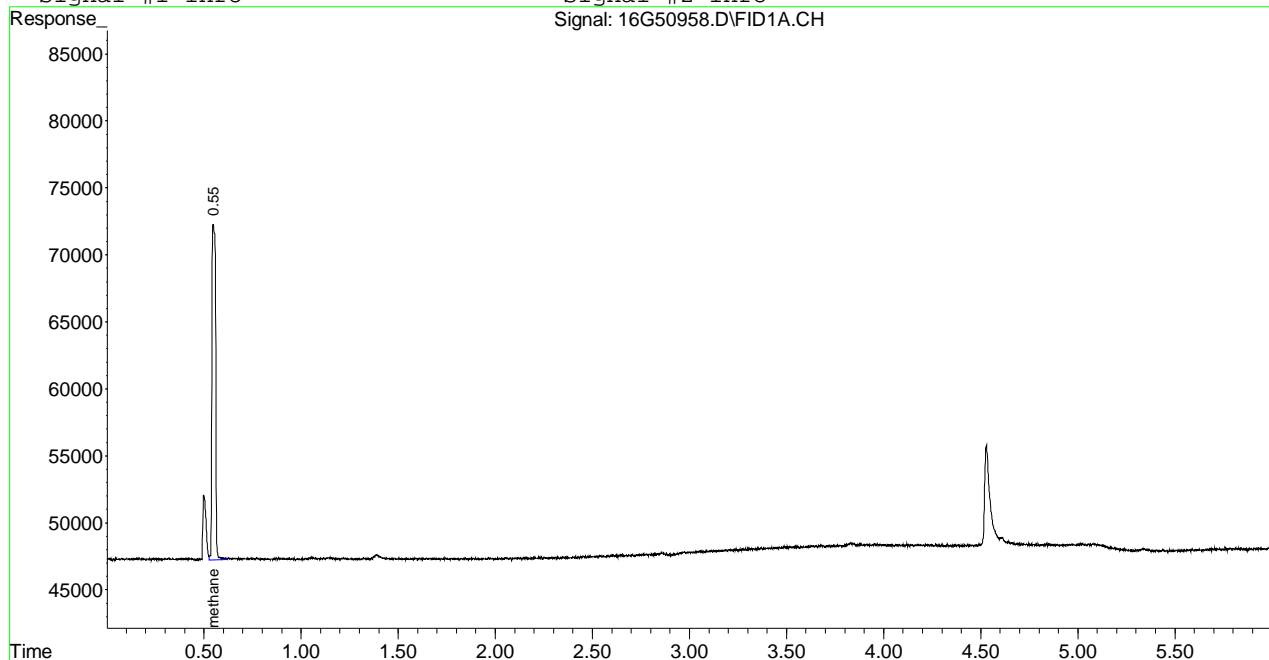
(m)=manual int.

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

16G50936.D RSKEXT1.M

Thu Nov 03 14:57:19 2016

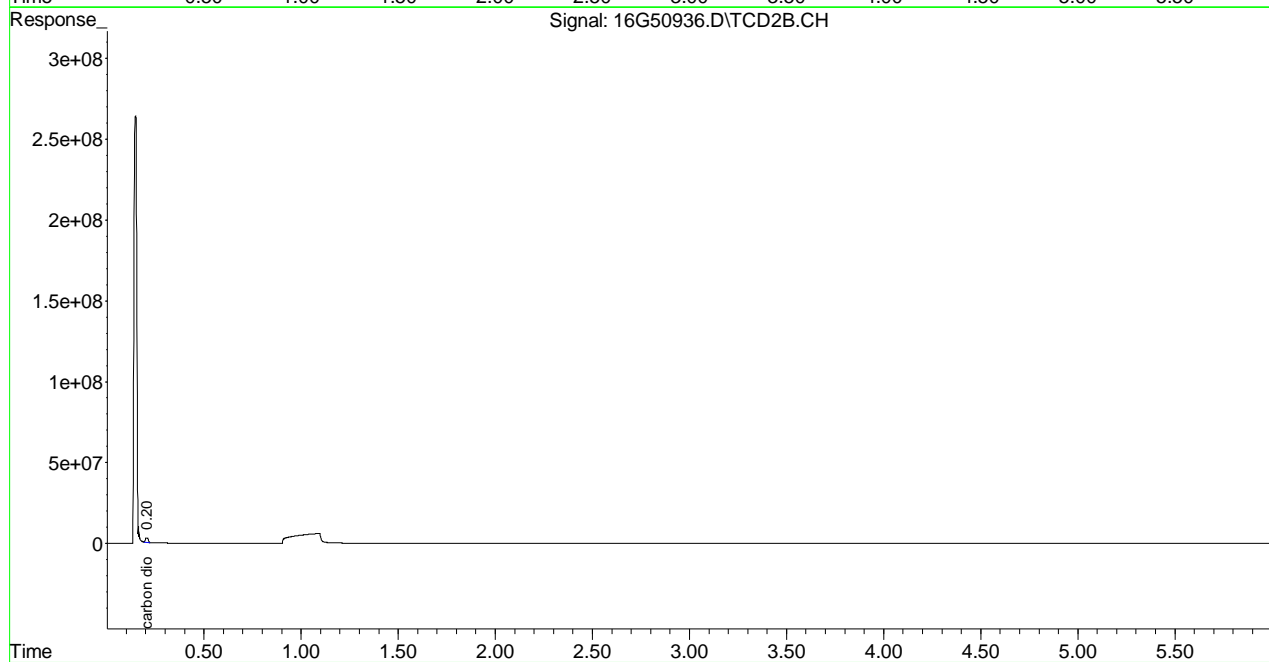
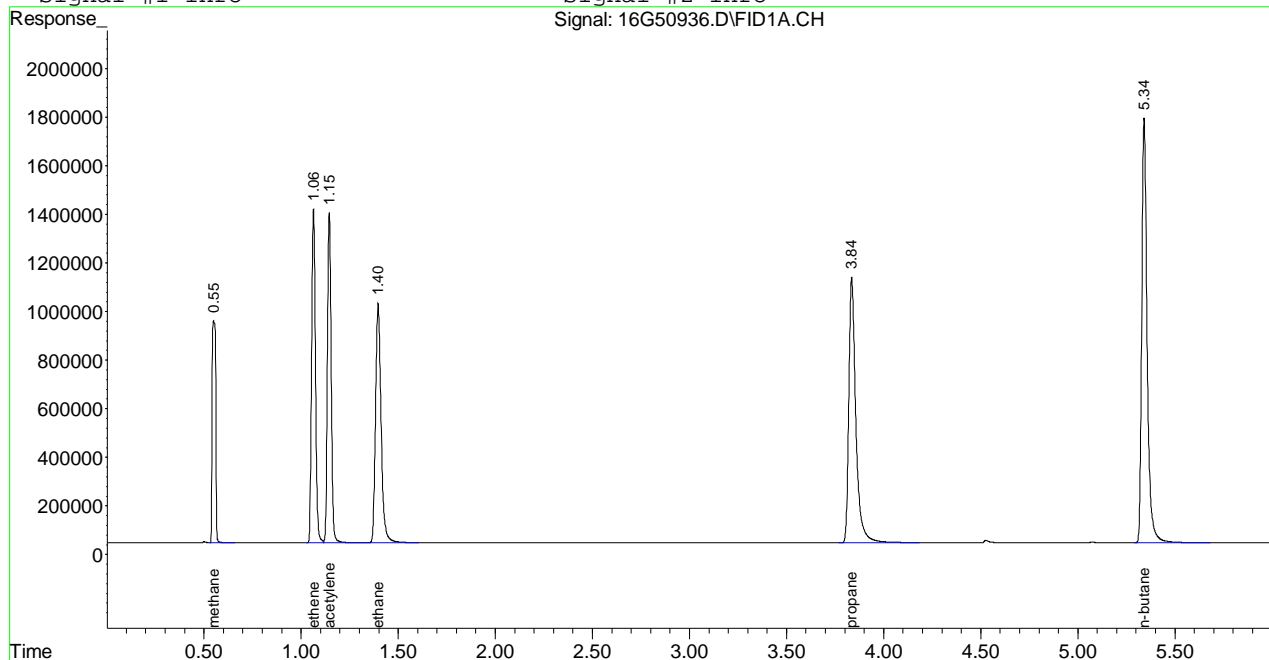
(m)=manual int.

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
 16G50959.D RSKEXT1.M Fri Nov 04 16:00:45 2016

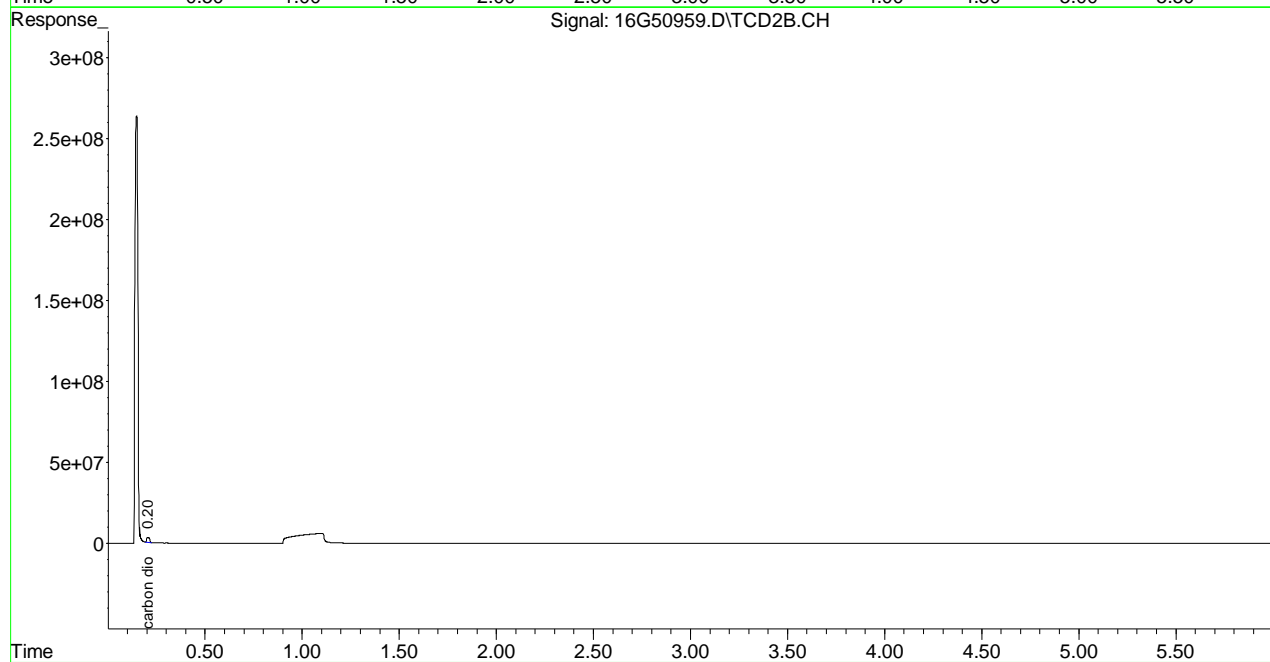
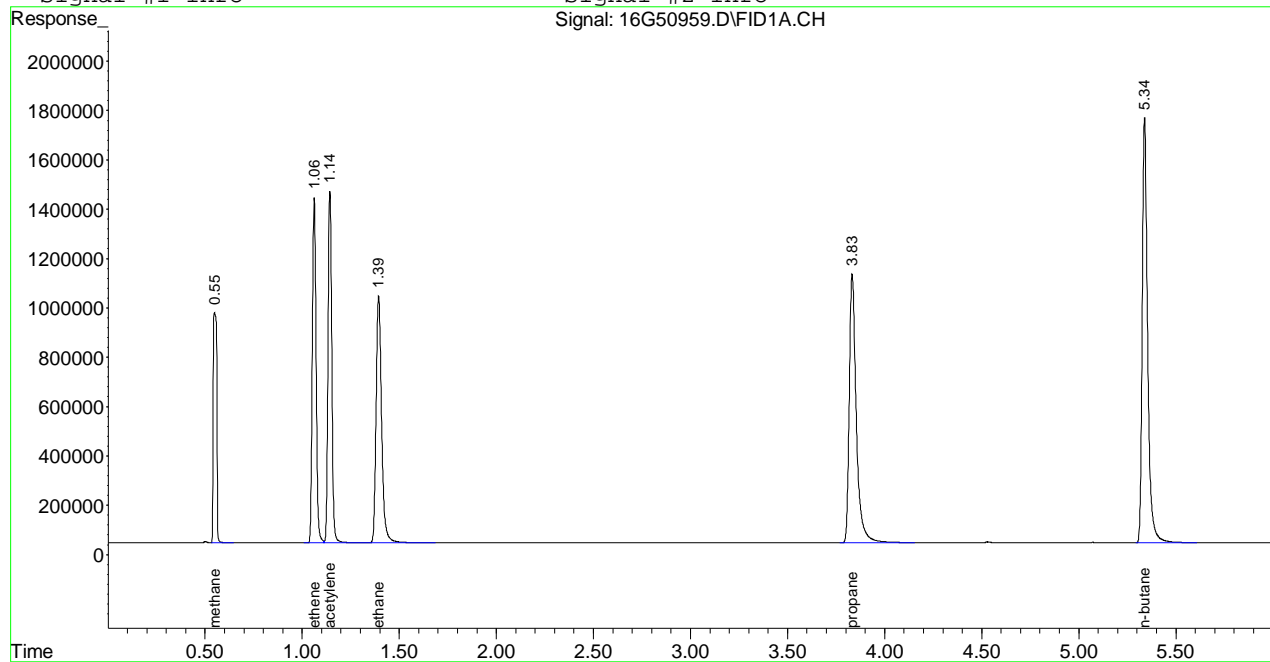
(m)=manual int.

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

16G50937.D RSKEXT1.M

Thu Nov 03 15:08:41 2016

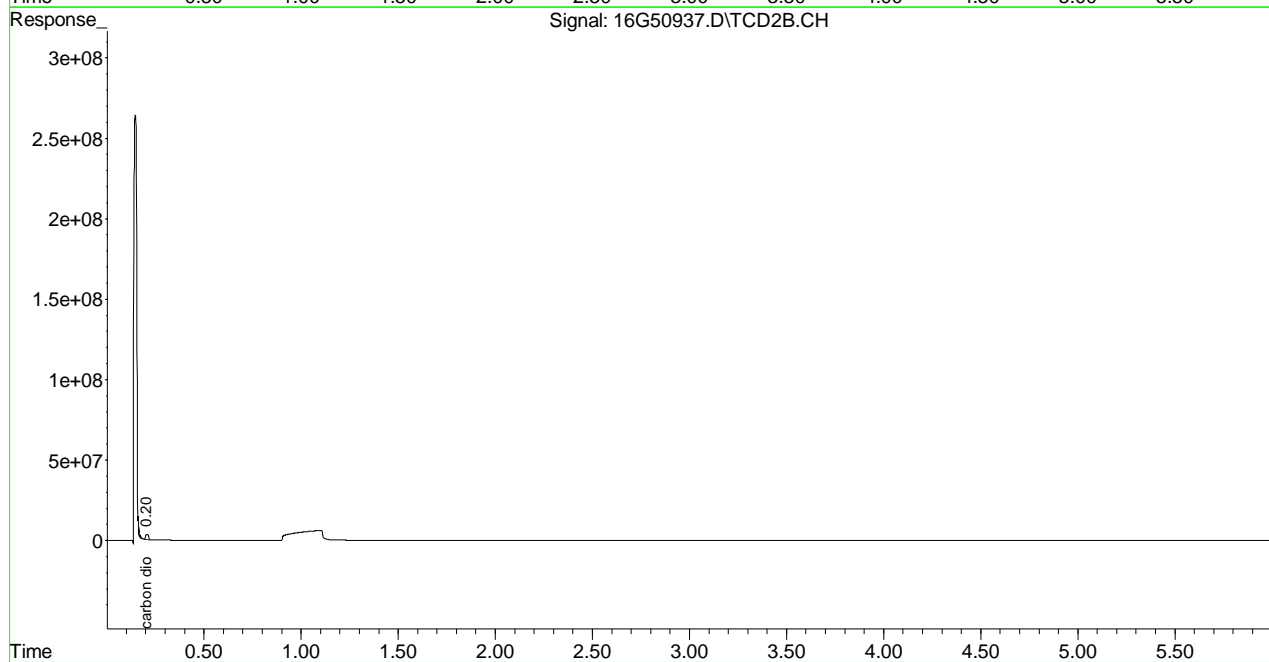
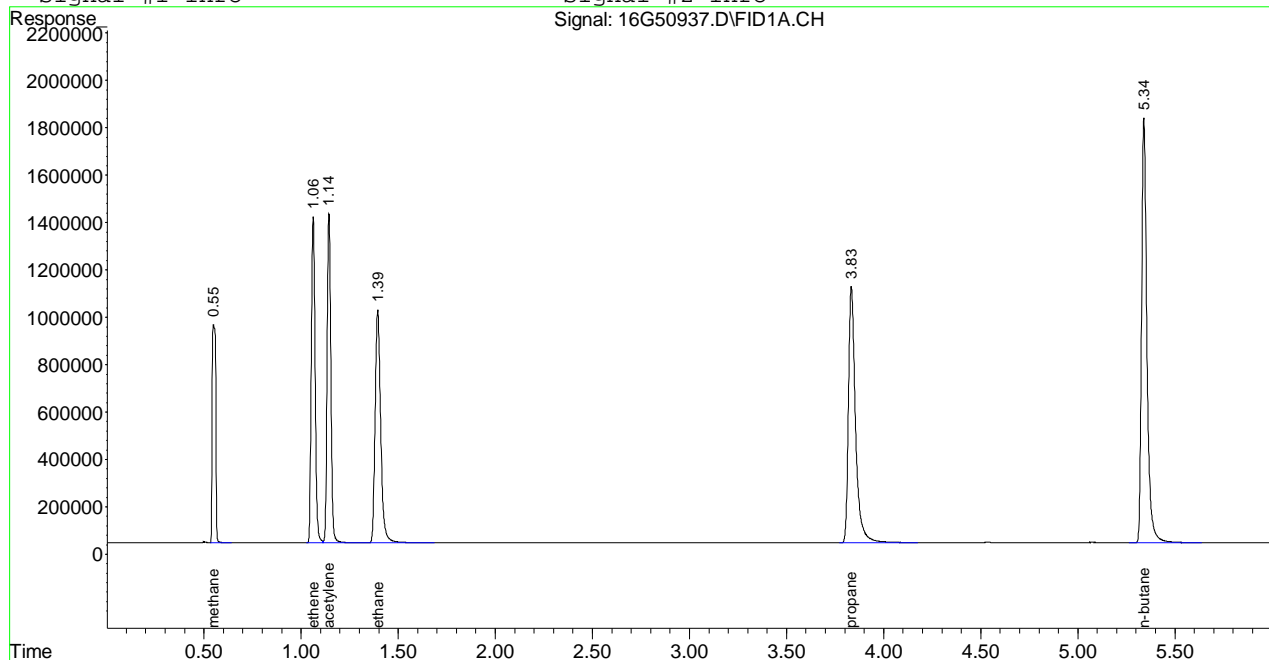
(m)=manual int.

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

Certificate of Analysis

Sample #: L16110144-01	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW08-110216	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 20:40
Collect Date: 11/02/2016 08:15	Dilution: 100	File ID: 1LM.LM37564
Sample Tag: DL01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	126		40.0	20.0	10.0

Certificate of Analysis

Sample #: L16110144-03	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW22-110216	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 20:59
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: 1LM.LM37565
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	1.02		0.400	0.200	0.100

Certificate of Analysis

Sample #: L16110144-05	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW16-110216	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 21:18
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: 1LM.LM37566
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.846		0.400	0.200	0.100

Certificate of Analysis

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Sample #: L16110144-07	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW27-110216	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 21:37
Collect Date: 11/02/2016 13:20	Dilution: 1	File ID: 1LM.LM37567
Sample Tag: 01	Units: ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Perchlorate	14797-73-0	0.124	J	0.400	0.200	0.100
J	Estimated value ; the analyte concentration was less than the LOQ.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-08	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW15-110216	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 21:56
Collect Date: 11/02/2016 14:15	Dilution: 1	File ID: 1LM.LM37568
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.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-09	PrePrep Method: N/A	Instrument: LCMS1
Client ID: 50WW15FD-110216	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 22:15
Collect Date: 11/02/2016 14:15	Dilution: 1	File ID: 1LM.LM37569
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.					

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) = R_x/R_{istd}

x = amount ratio = concentration analyte/concentration internal standard (IS) = C_x / C_{istd}

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 C_x

$C_x = (C_{is})(x) = (5 \text{ ug/L})(0.0040119) = 0.200594 \text{ ug/L}$

Example Calculation - Water:

Slope from curve, m :	1.45
Intercept from curve, b :	-0.00242
Response of analyte, R_x :	12600
Response of Internal Standard, R_{istd} :	226000
Concentration of IS, C_{istd} (ug/L):	5.00
Response Ratio:	0.05575
Amount Ratio:	0.04012
Analyte Concentration, C_x (ug/L) :	0.200594

Example Calculation - Soil:

Analyte Concentration, C_x (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



Wade D. S.

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



Secondary Reviewer:
09-NOV-2016




Analytical Method:6850
Login Number:L16110144

AAB#:WG590828

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
50WW08-110216	01	11/02/16					11/08/2016	6.3	28		11/08/16	.2	28	
50WW22-110216	03	11/02/16					11/08/2016	6.2	28		11/08/16	.2	28	
50WW16-110216	05	11/02/16					11/08/2016	6.2	28		11/08/16	.3	28	
50WW27-110216	07	11/02/16					11/08/2016	6.1	28		11/08/16	.3	28	
50WW15-110216	08	11/02/16					11/08/2016	6	28		11/08/16	.3	28	
50WW15FD-110216	09	11/02/16					11/08/2016	6	28		11/08/16	.3	28	

* = SEE PROJECT QAPP REQUIREMENTS



METHOD BLANK SUMMARY

Login Number: L16110144 Work Group: WG590828
 Blank File ID: 1LM.LM37552 Blank Sample ID: WG590828-02
 Prep Date: 11/08/16 15:00 Instrument ID: LCMS1
 Analyzed Date: 11/08/16 16:53 Method: 6850
 Analyst: JWR

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
QCMRL	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
QCMRL	WG590828-06	1LM.LM37562	11/08/16 20:03	01
50WW08-110216	L16110144-01	1LM.LM37564	11/08/16 20:40	DL01
50WW22-110216	L16110144-03	1LM.LM37565	11/08/16 20:59	01
50WW16-110216	L16110144-05	1LM.LM37566	11/08/16 21:18	01
50WW27-110216	L16110144-07	1LM.LM37567	11/08/16 21:37	01
50WW15-110216	L16110144-08	1LM.LM37568	11/08/16 21:56	01
50WW15FD-110216	L16110144-09	1LM.LM37569	11/08/16 22:15	01
QCMRL	WG590828-07	1LM.LM37572	11/08/16 23:12	01

Report Name: BLANK_SUMMARY
 PDF File ID: 5014411
 Report generated 11/09/2016 16:38



Login Number: L16110144 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: 5014412
09-NOV-2016 16:38



Login Number: L16110144 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: 5014413
 Report generated: 11/09/2016 16:38



Login Number: L16110144
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
R² = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 5016017
Report generated 11/09/2016 16:38



Login Number: L16110144
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: 5016017
Report generated 11/09/2016 16:38



Login Number: L16110144
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: 5016017
Report generated 11/09/2016 16:38



Login Number: L16110144
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: 5016017
Report generated 11/09/2016 16:38



Login Number: L16110144 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



Login Number: L16110144 Run Date: 11/08/2016 Sample ID: WG590829-01
Instrument ID: LCMS1 Run Time: 15:37 Method: 6850
File ID: LLM.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.



Login Number: L16110144 Run Date: 11/08/2016 Sample ID: WG590829-04
Instrument ID: LCMS1 Run Time: 20:22 Method: 6850
File ID: LLM.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.



Login Number: L16110144 Run Date: 11/08/2016 Sample ID: WG590829-06
Instrument ID: LCMS1 Run Time: 23:31 Method: 6850
File ID: LLM.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.



Login Number: L16110144 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: 5014415
 Report generated 11/09/2016 16:38



Login Number: L16110144 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



Login Number: L16110144 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



Login Number: L16110144 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	



Login Number: L16110144 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	



Login Number: L16110144 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	



Login Number: L16110144
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
<u>L16110144-01</u>	100	DL01	464000
L16110144-03	1.00	01	346000
L16110144-05	1.00	01	459000
L16110144-07	1.00	01	357000
L16110144-08	1.00	01	351000
L16110144-09	1.00	01	358000
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



Perchlorate Ion Ratios
Microbac Laboratories Inc.



Login #: L16110144	Prep Method: 6850	Samplenum: L16110144-01
Instrument: LCMS1	Prep Date: 11/08/2016 15:00	File ID: 1LM.LM37564
Analyst: JWR	Anal Method: 6850	Matrix: Water
Worknum: WG590828	Analysis Date: 11/08/2016 20:40	Units: ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	198000	68900	2.87	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.



Login #: L16110144	Prep Method: 6850	Samplenum: L16110144-03
Instrument: LCMS1	Prep Date: 11/08/2016 15:00	File ID: 1LM.LM37565
Analyst: JWR	Anal Method: 6850	Matrix: Water
Worknum: WG590828	Analysis Date: 11/08/2016 20:59	Units: ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	119000	40800	2.92	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.



Login #: L16110144	Prep Method: 6850	Samplenum: L16110144-05
Instrument: LCMS1	Prep Date: 11/08/2016 15:00	File ID: 1LM.LM37566
Analyst: JWR	Anal Method: 6850	Matrix: Water
Worknum: WG590828	Analysis Date: 11/08/2016 21:18	Units: ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	131000	44900	2.92	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.



Login #: L16110144	Prep Method: 6850	Samplenum: L16110144-07
Instrument: LCMS1	Prep Date: 11/08/2016 15:00	File ID: 1LM.LM37567
Analyst: JWR	Anal Method: 6850	Matrix: Water
Worknum: WG590828	Analysis Date: 11/08/2016 21:37	Units: ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15400	5460	2.82	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.



Login #: L16110144	Prep Method: 6850	Samplenum: L16110144-08
Instrument: LCMS1	Prep Date: 11/08/2016 15:00	File ID: 1LM.LM37568
Analyst: JWR	Anal Method: 6850	Matrix: Water
Worknum: WG590828	Analysis Date: 11/08/2016 21:56	Units: ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	9770	4000	2.44	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.



Login #: L16110144	Prep Method: 6850	Samplenum: L16110144-09
Instrument: LCMS1	Prep Date: 11/08/2016 15:00	File ID: 1LM.LM37569
Analyst: JWR	Anal Method: 6850	Matrix: Water
Worknum: WG590828	Analysis Date: 11/08/2016 22:15	Units: ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	10200	3790	2.69	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.



Login #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144
Instrument: LCMS1
Analyst: WTD
Worknum: WG590828

Prep Method:
Prep Date: 05/03/2016 16:40
Anal Method: 6850
Analysis Date: 05/03/2016 16:40

Samplenum: WG567320-06
File ID: 1LM.LM34691
Matrix: Water
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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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 #: L16110144	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	*

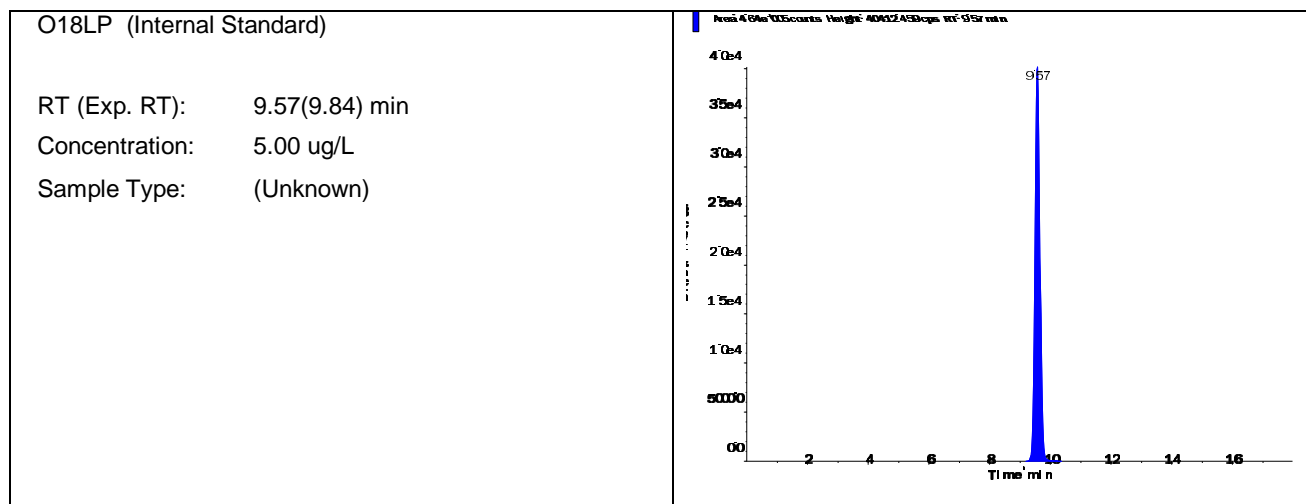
2.2.1.3 Sample Data

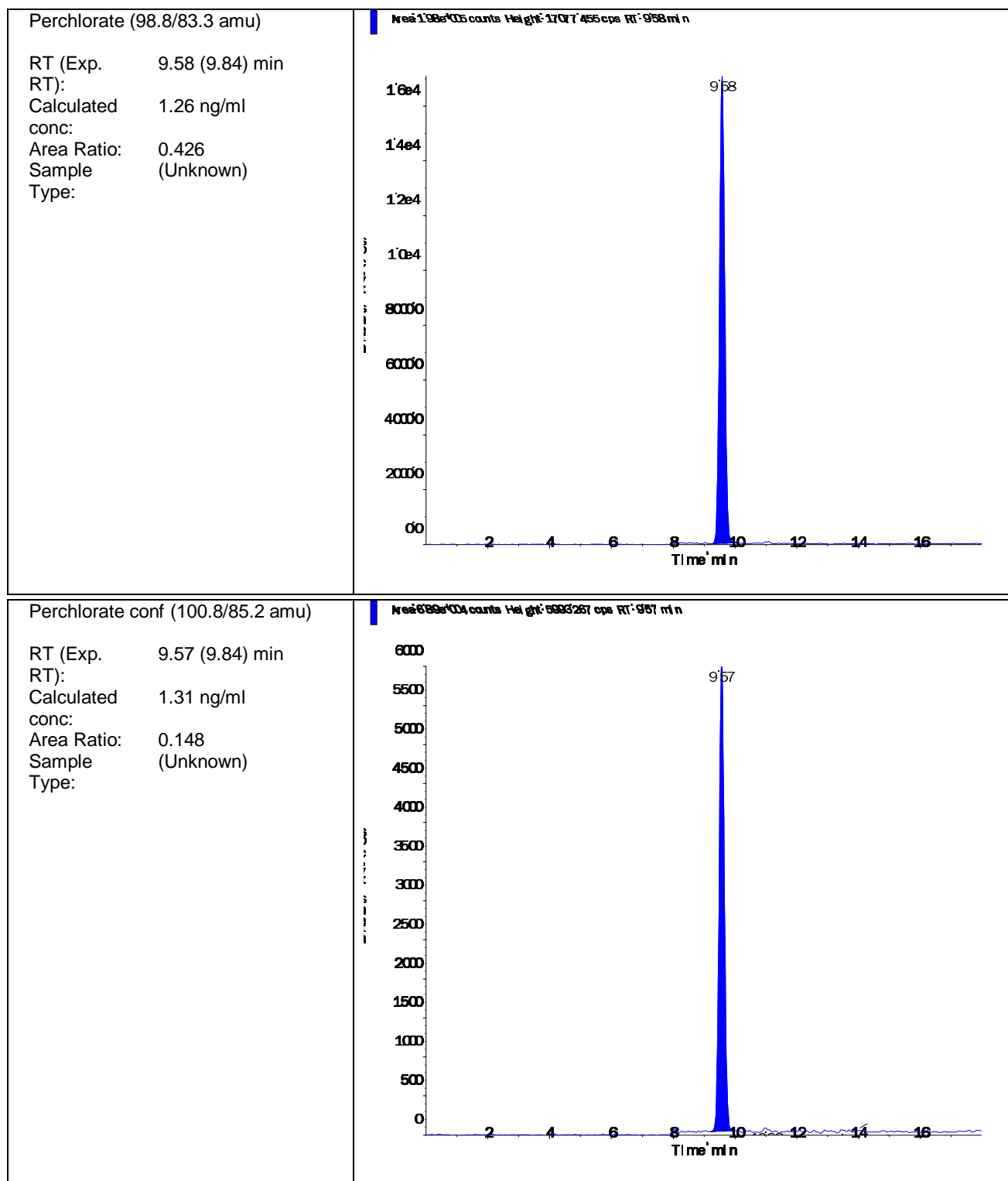
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L16110144-01 (100x)	Injection Vial	14.00
Data File	LM37564.wiff	Injection Volume	10.00
Acquisition Date	11/8/2016 8:40:57 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	L16110144-01	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	4.640e+05	9.57	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.980e+05	9.58	N/A	1.26
Perchlorate conf	6.890e+04	9.57	N/A	1.31



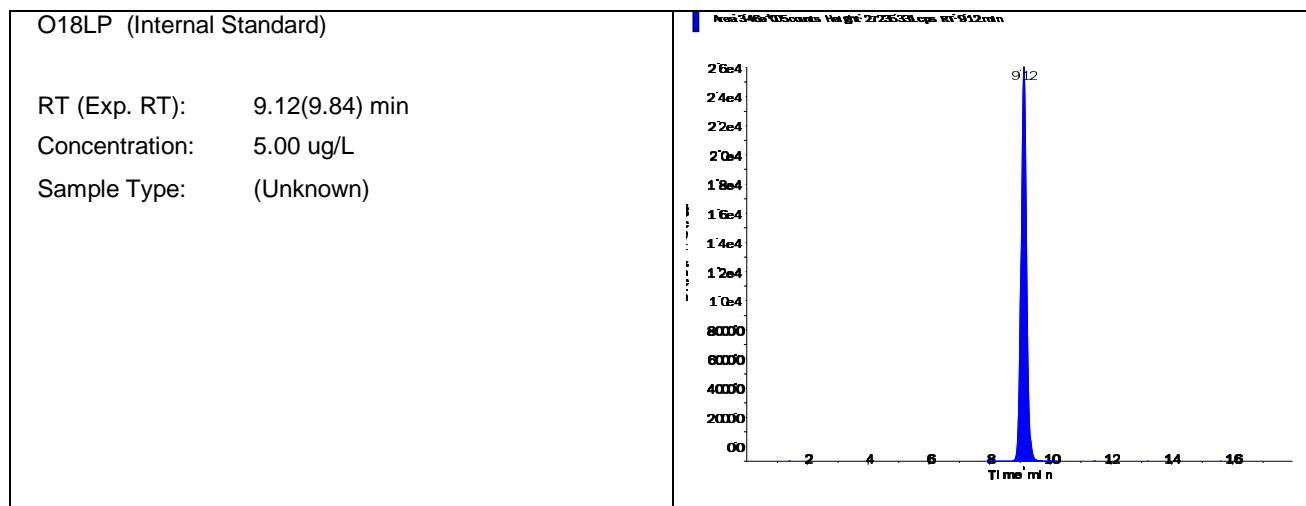


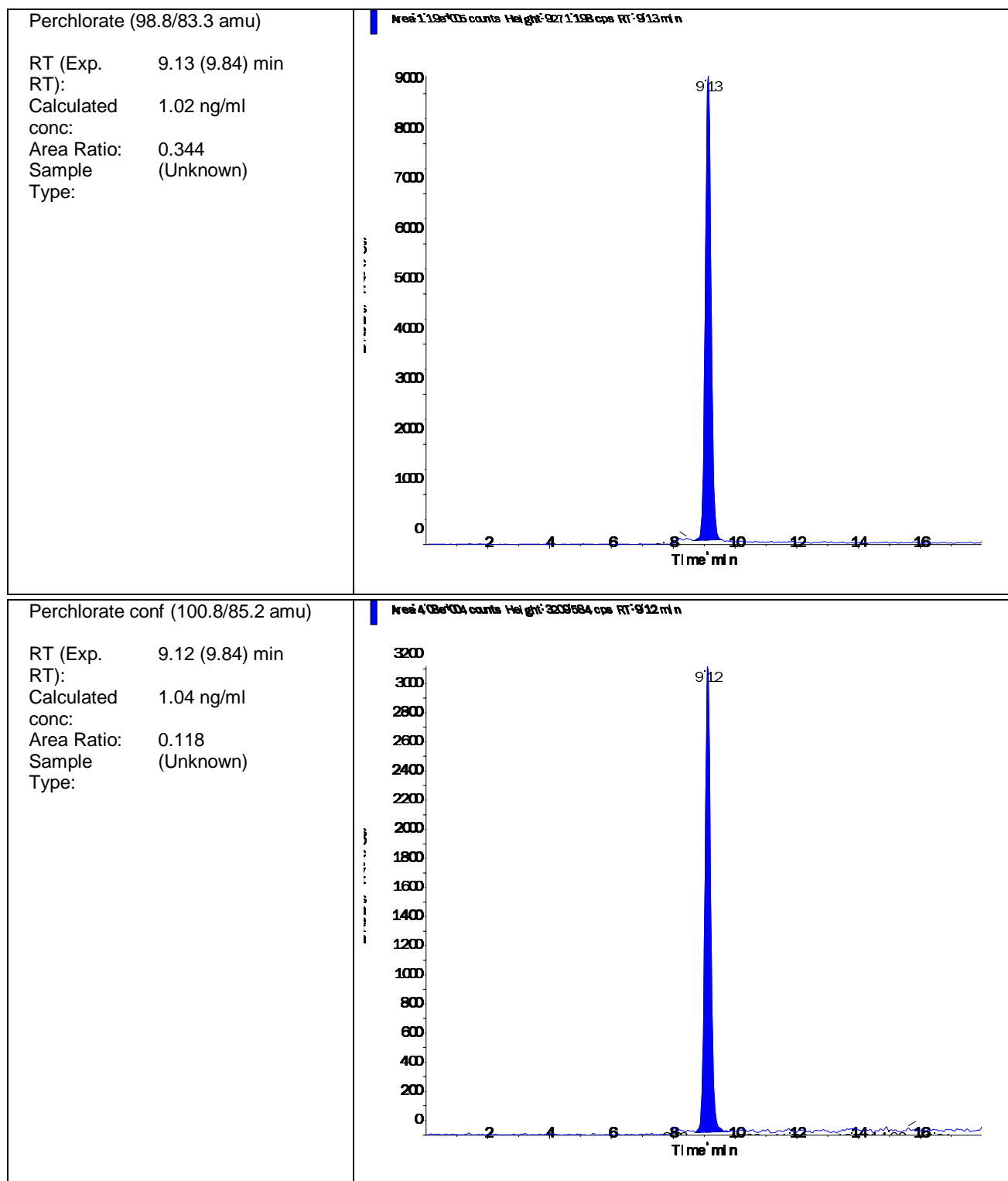
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L16110144-03	Injection Vial	15.00
Data File	LM37565.wiff	Injection Volume	10.00
Acquisition Date	11/8/2016 8:59:53 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	L16110144-03	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	3.460e+05	9.12	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.190e+05	9.13	N/A	1.02
Perchlorate conf	4.080e+04	9.12	N/A	1.04



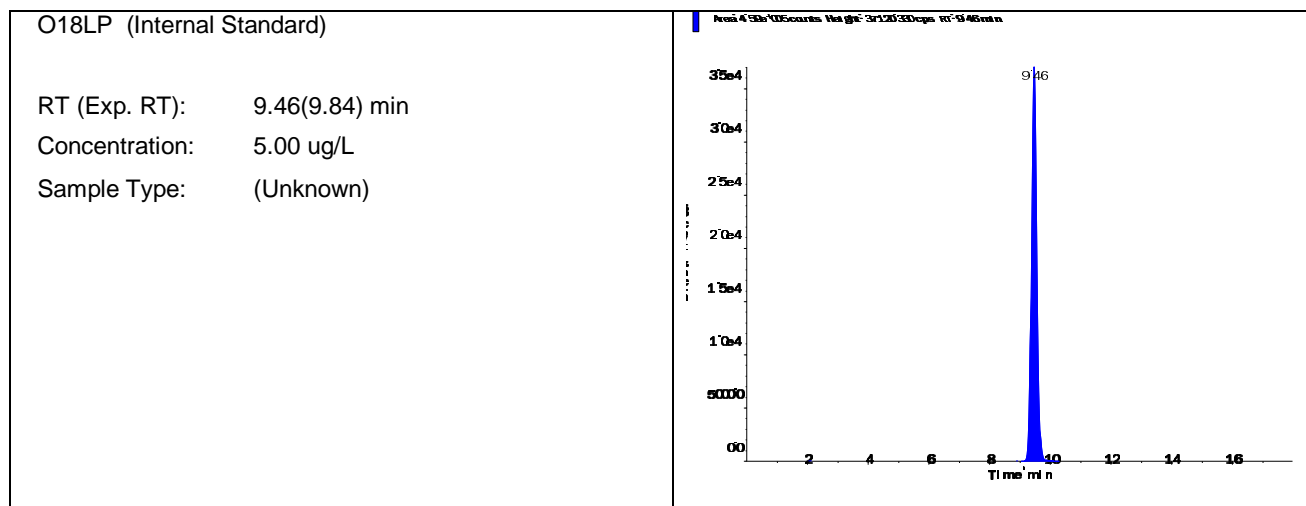


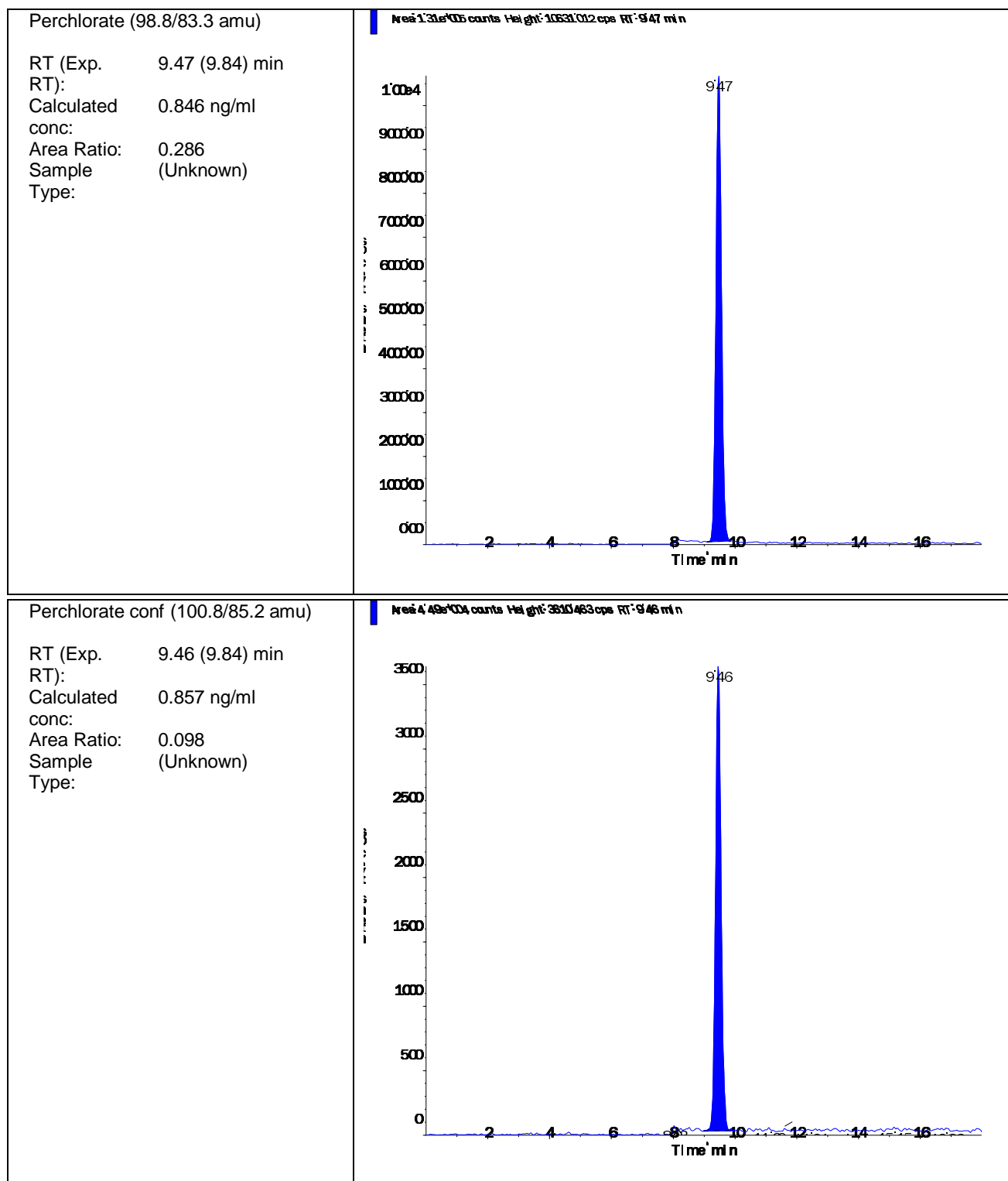
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L16110144-05	Injection Vial	16.00
Data File	LM37566.wiff	Injection Volume	10.00
Acquisition Date	11/8/2016 9:18:49 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	L16110144-05	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	4.590e+05	9.46	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.310e+05	9.47	N/A	0.846
Perchlorate conf	4.490e+04	9.46	N/A	0.857





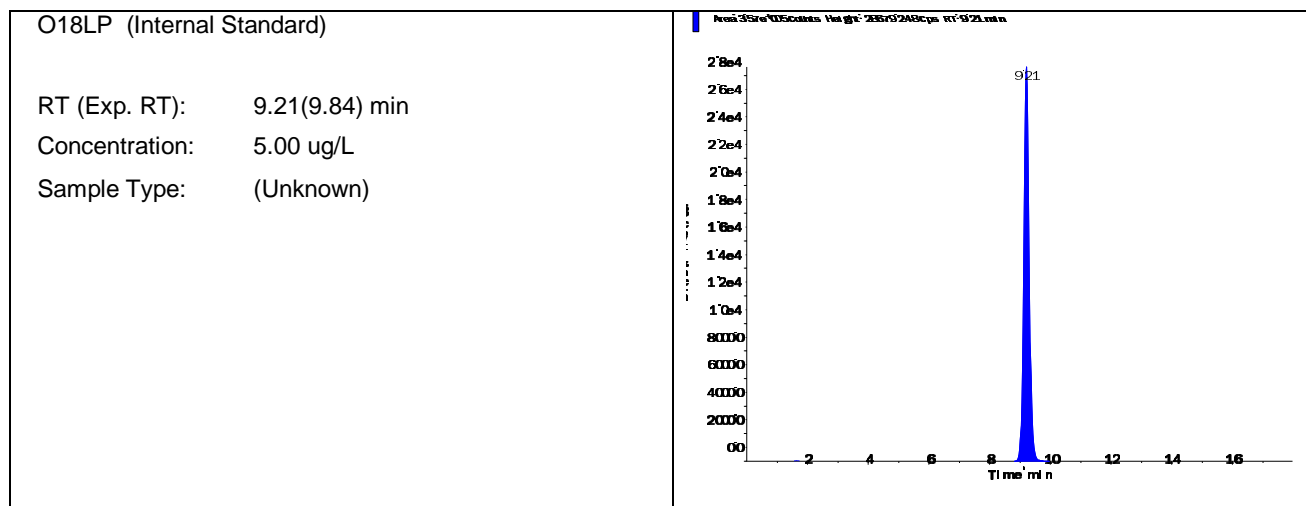
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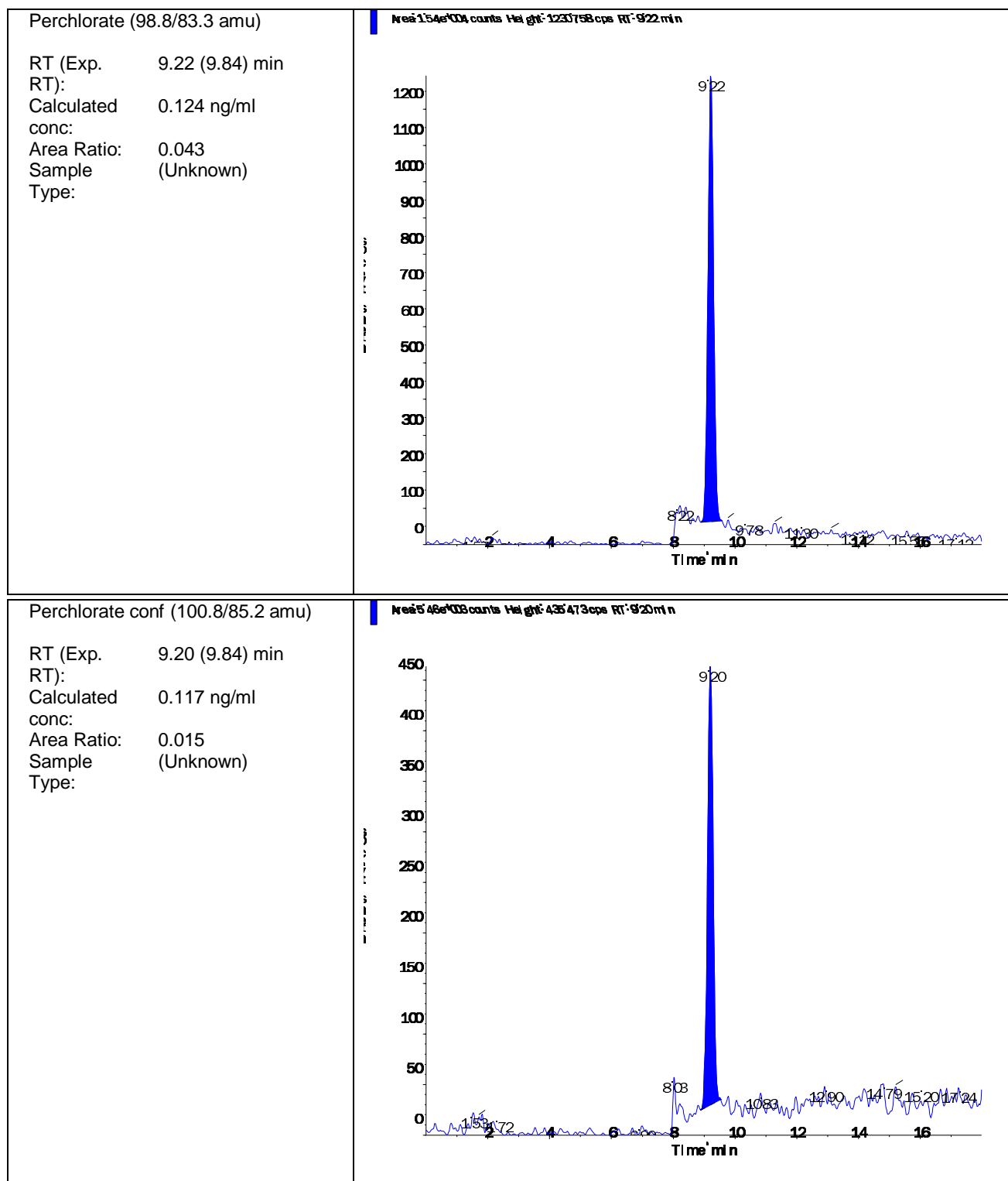
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L16110144-07	Injection Vial	17.00
Data File	LM37567.wiff	Injection Volume	10.00
Acquisition Date	11/8/2016 9:37:45 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	L16110144-07	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	3.570e+05	9.21	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.540e+04	9.22	N/A	0.124
Perchlorate conf	5.460e+03	9.20	N/A	0.117





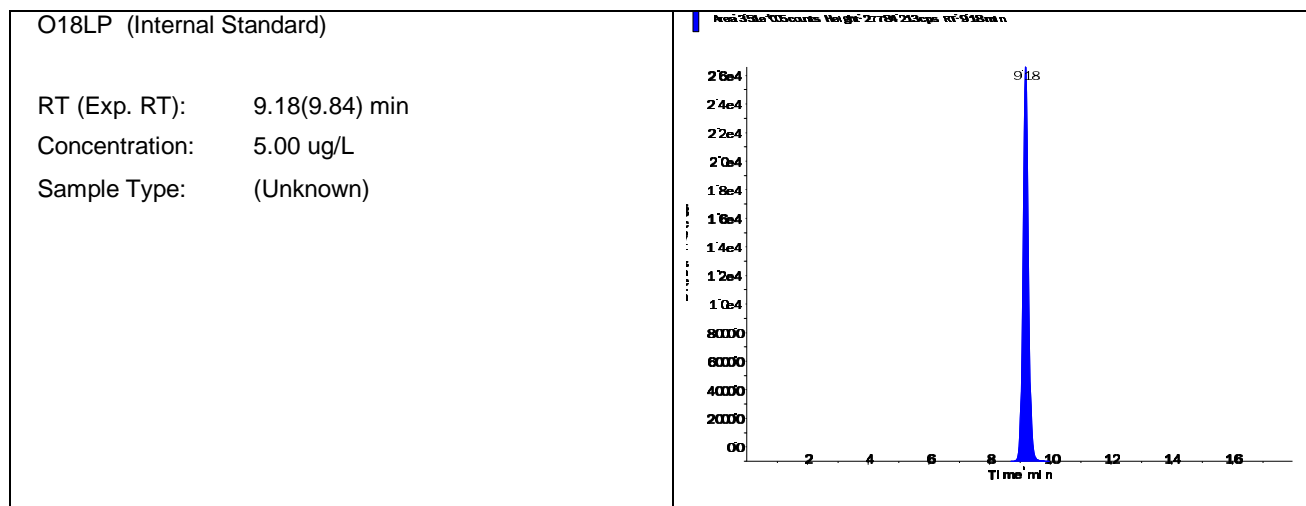
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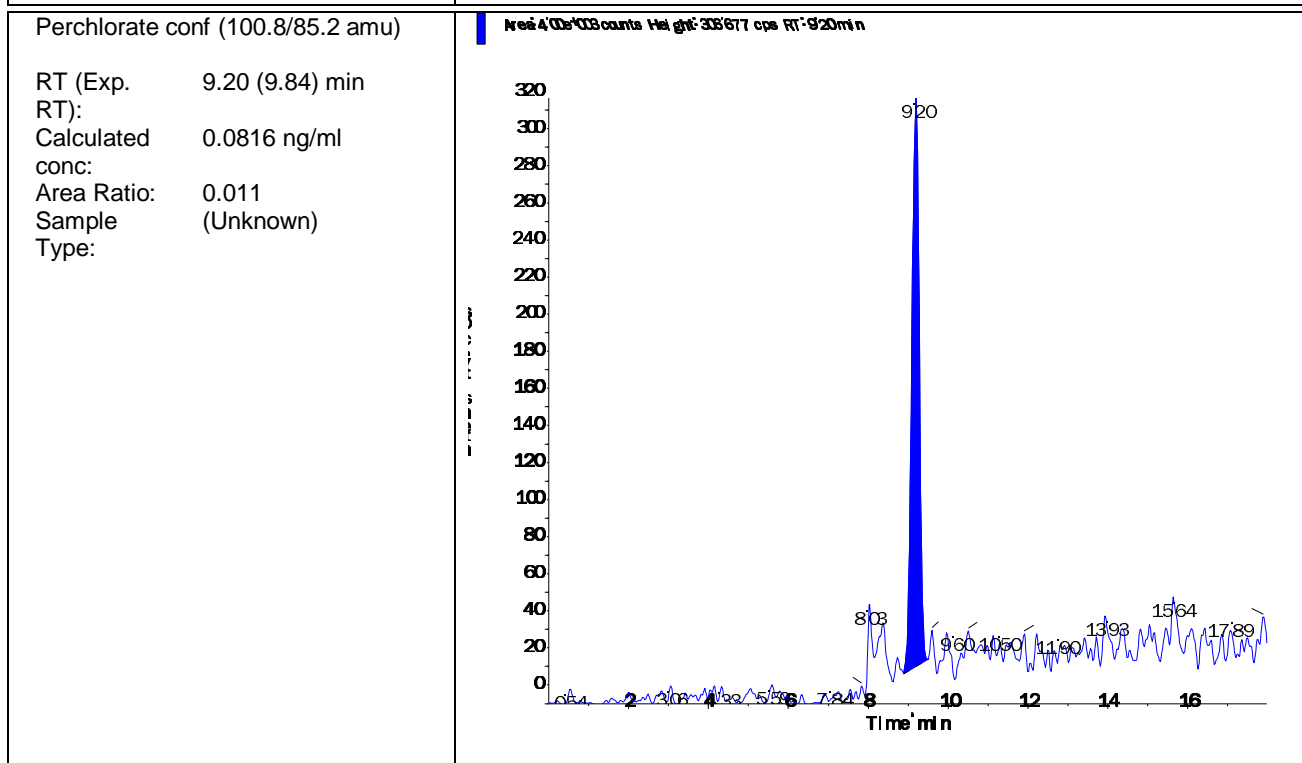
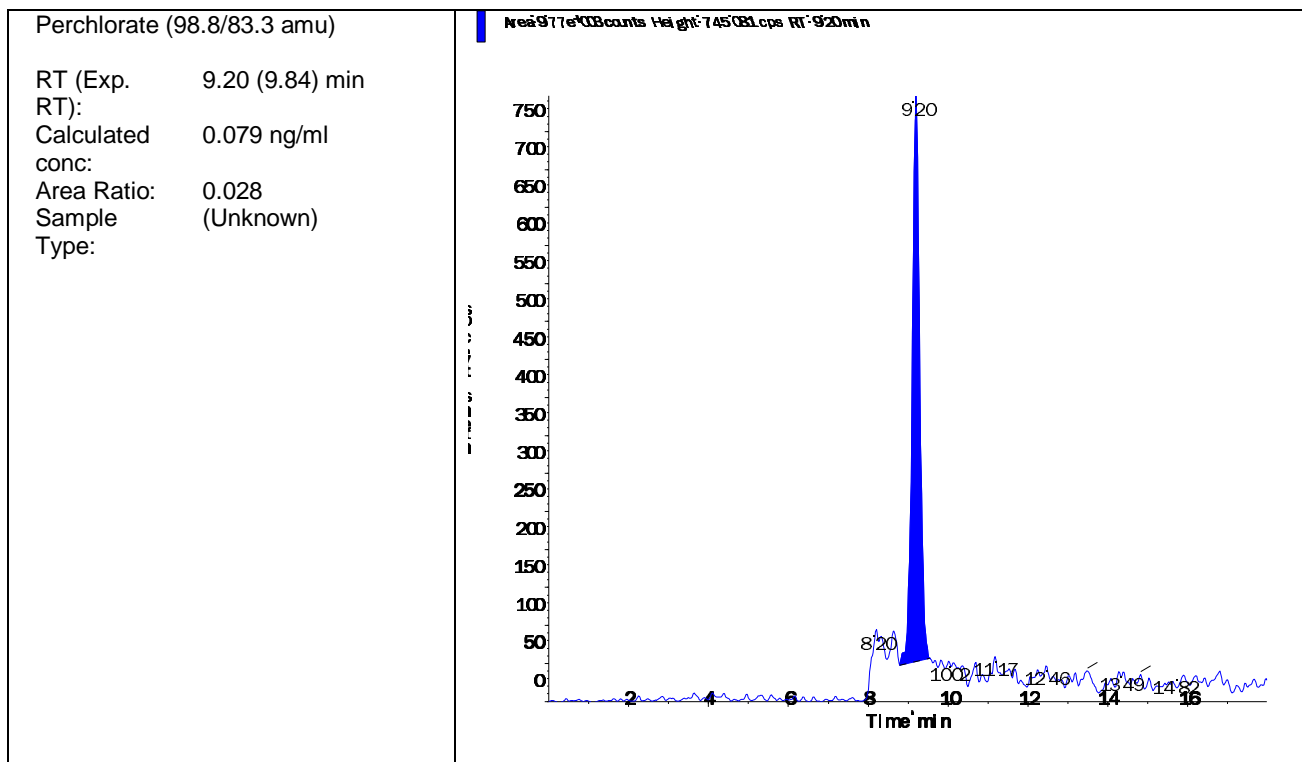
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Acquisition Date	11/8/2016 9:56:40 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L16110144-08	Injection Vial	18.00
Data File	LM37568.wiff	Injection Volume	10.00
Acquisition Date	11/8/2016 9:56:40 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	L16110144-08	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	3.510e+05	9.18	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	9.770e+03	9.20	N/A	0.079
Perchlorate conf	4.000e+03	9.20	N/A	0.0816



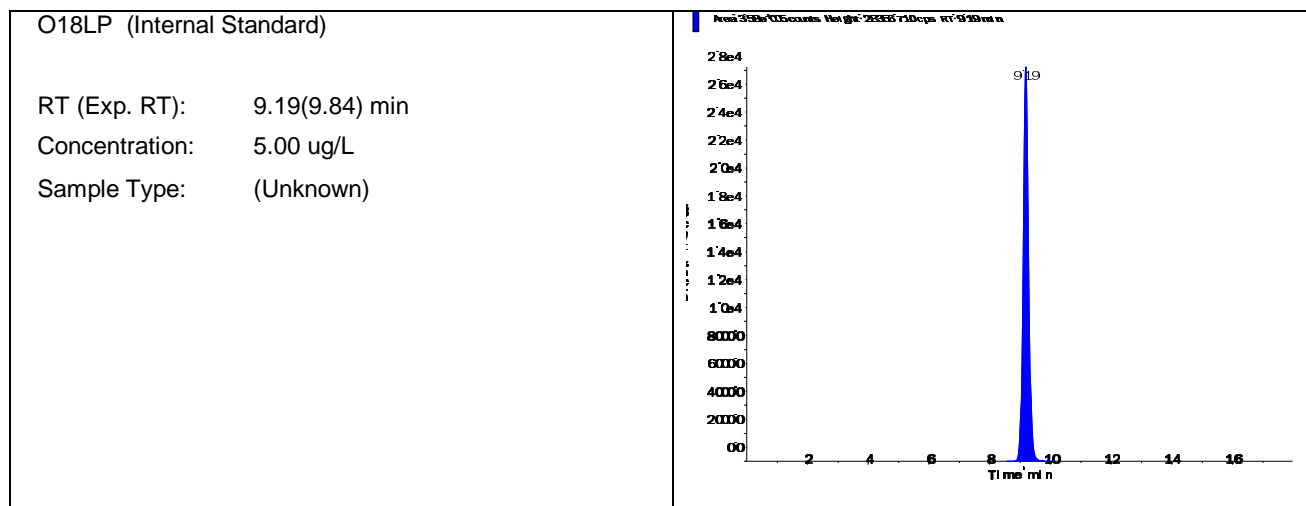


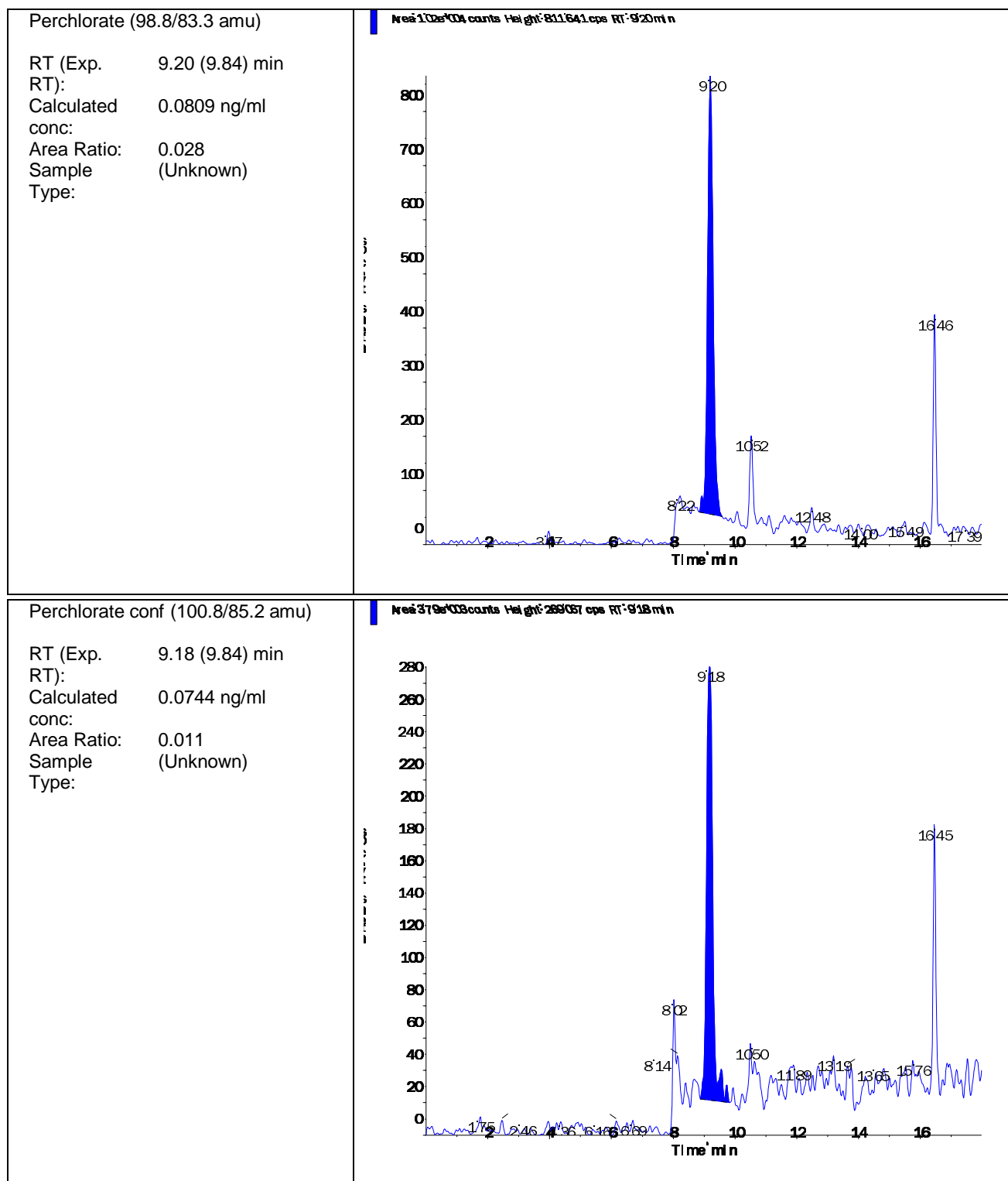
Data File	LM37569.wiff	Result Table	110816_JWR.rdb
Acquisition Date	11/8/2016 10:15:39 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L16110144-09	Injection Vial	19.00
Data File	LM37569.wiff	Injection Volume	10.00
Acquisition Date	11/8/2016 10:15:39 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	L16110144-09	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	3.580e+05	9.19	5.00	-

Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.020e+04	9.20	N/A	0.0809
Perchlorate conf	3.790e+03	9.18	N/A	0.0744





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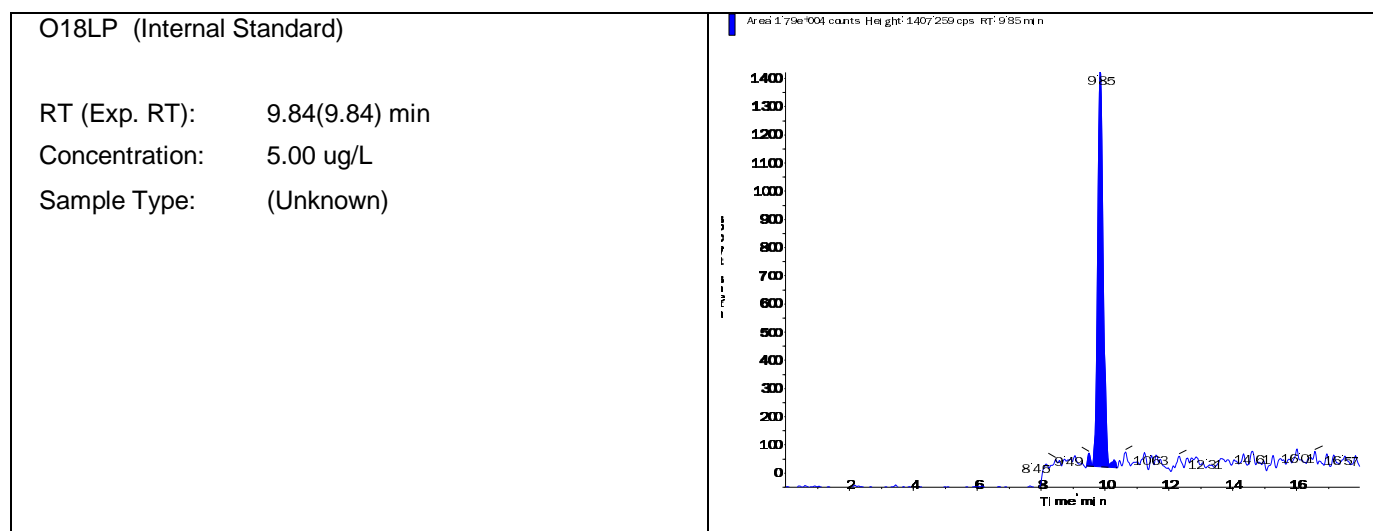
2.2.1.4 Standards Data

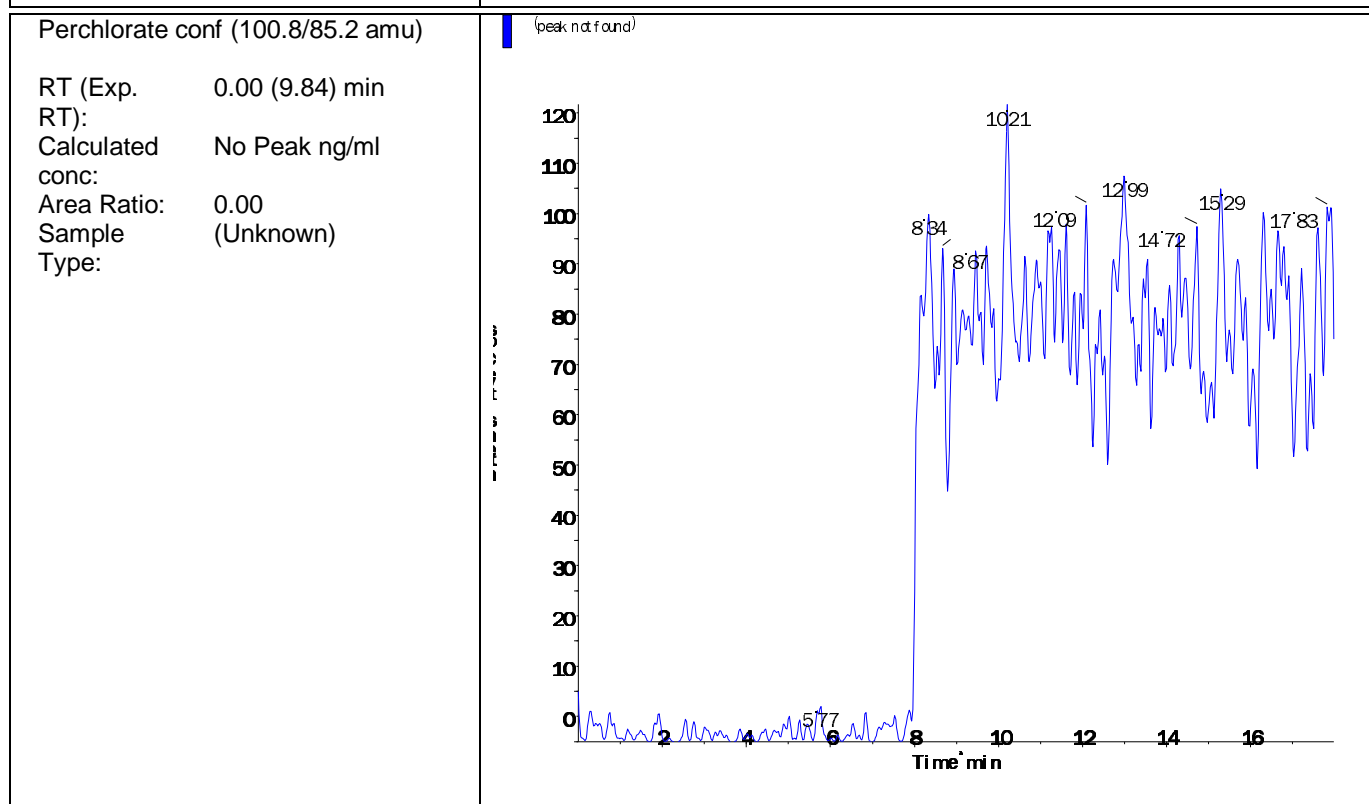
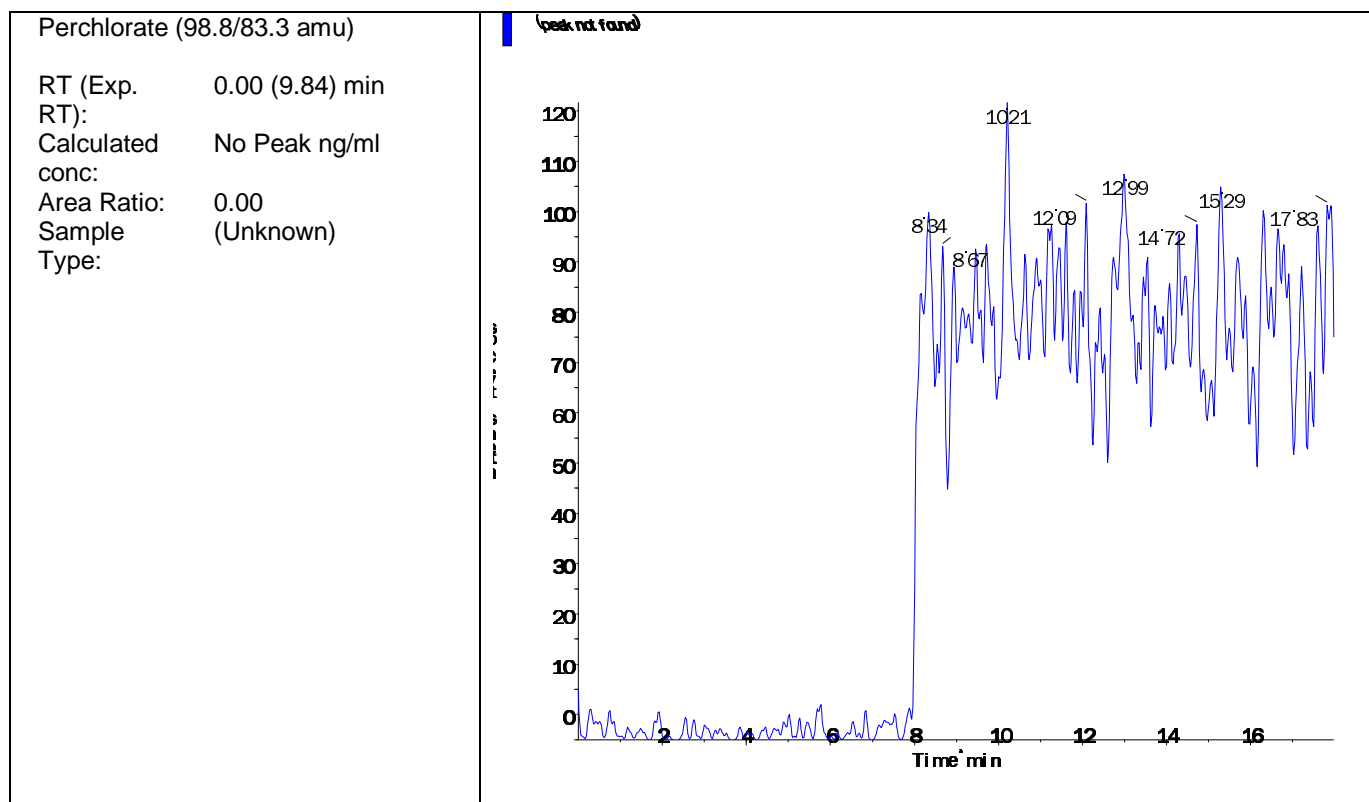
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Acquisition Date	5/3/2016 3:06:05 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





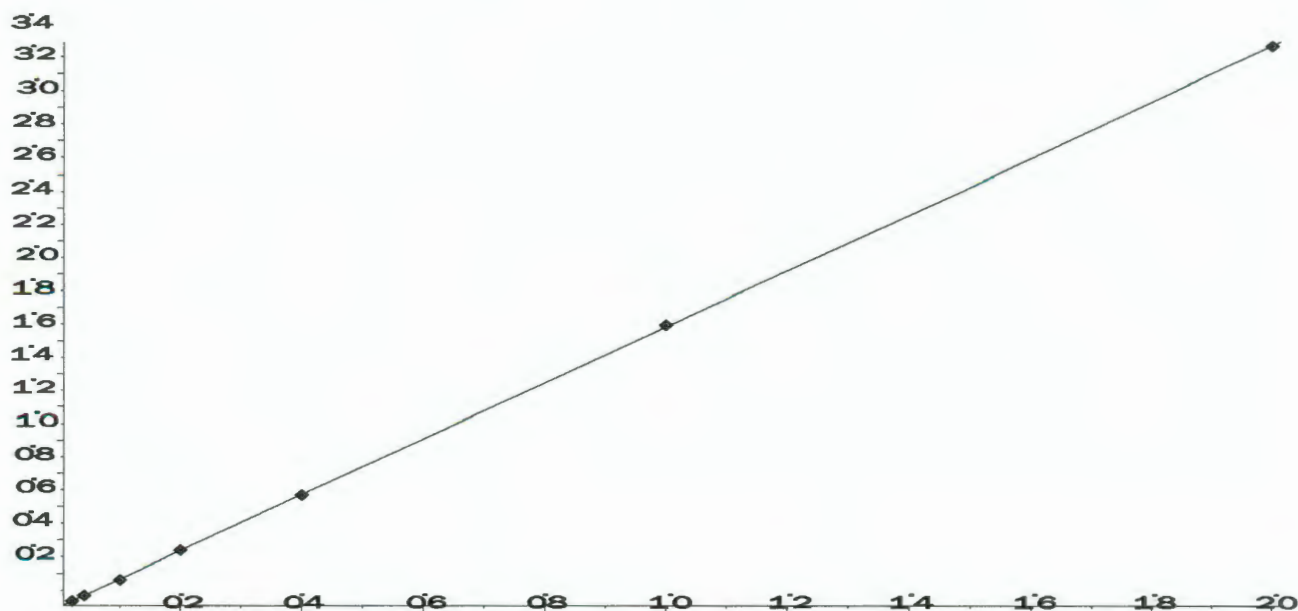
Analyte Name: **Perchlorate**
Internal Standard: **O18LP**

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: $y = 1.68x + 0.00128$ ($r = 1.0000$)

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

$$y = 1.68x + 0.00128 \quad (r = 1.0000)$$



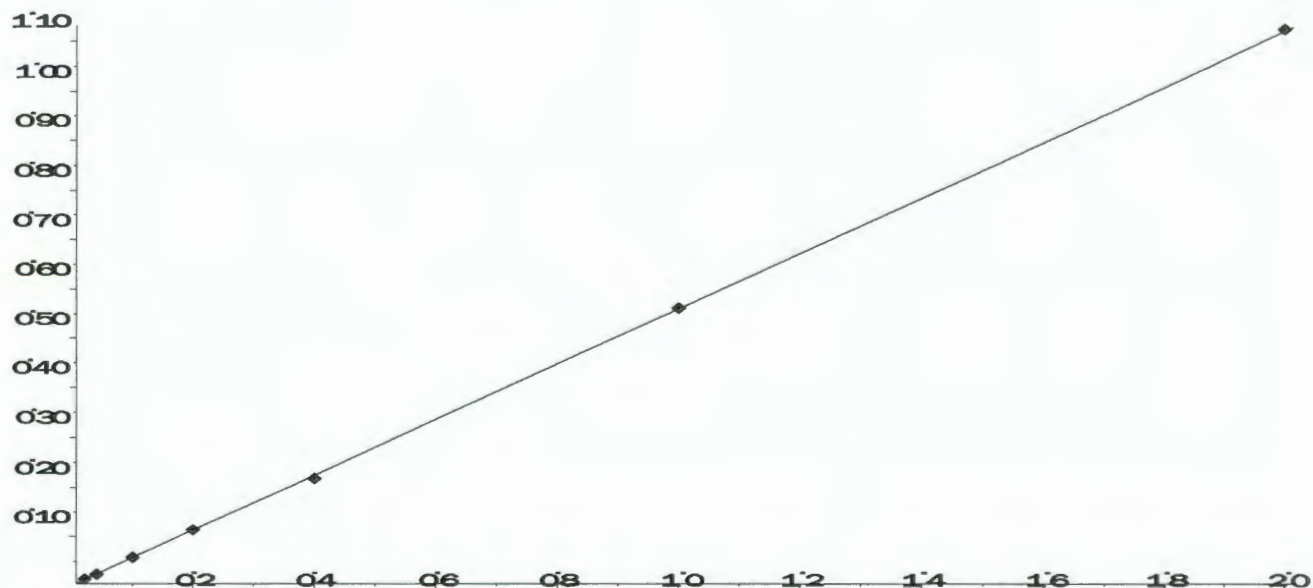
Analyte Name: Perchlorate conf
Internal Standard: O18LP

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: $y = 0.558x + 0.00228$ ($r = 0.9999$)

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

$$y = 0.558x + 0.00228 \quad (r = 0.9999)$$

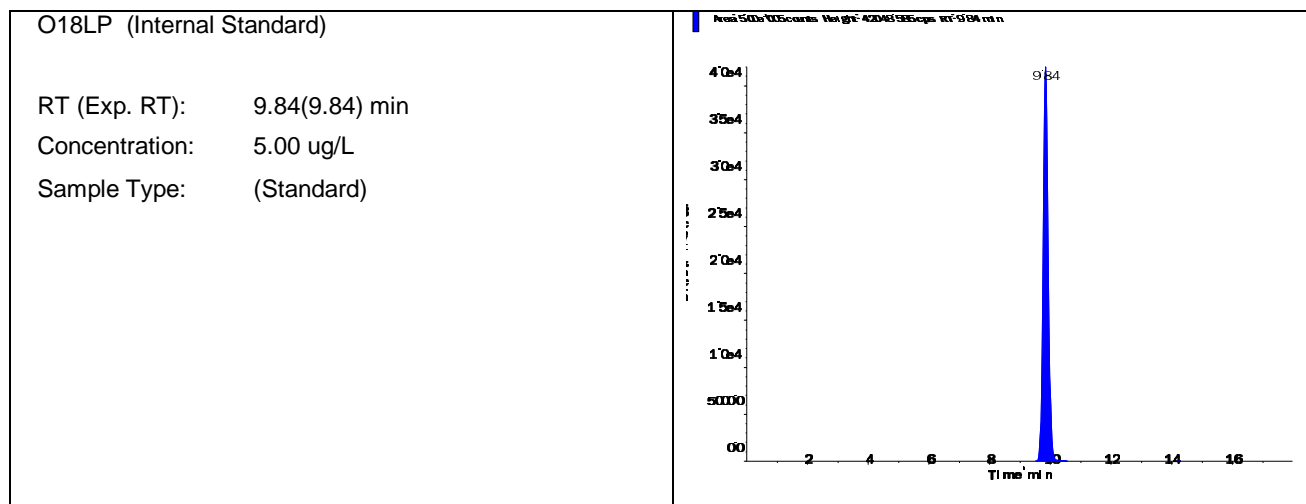


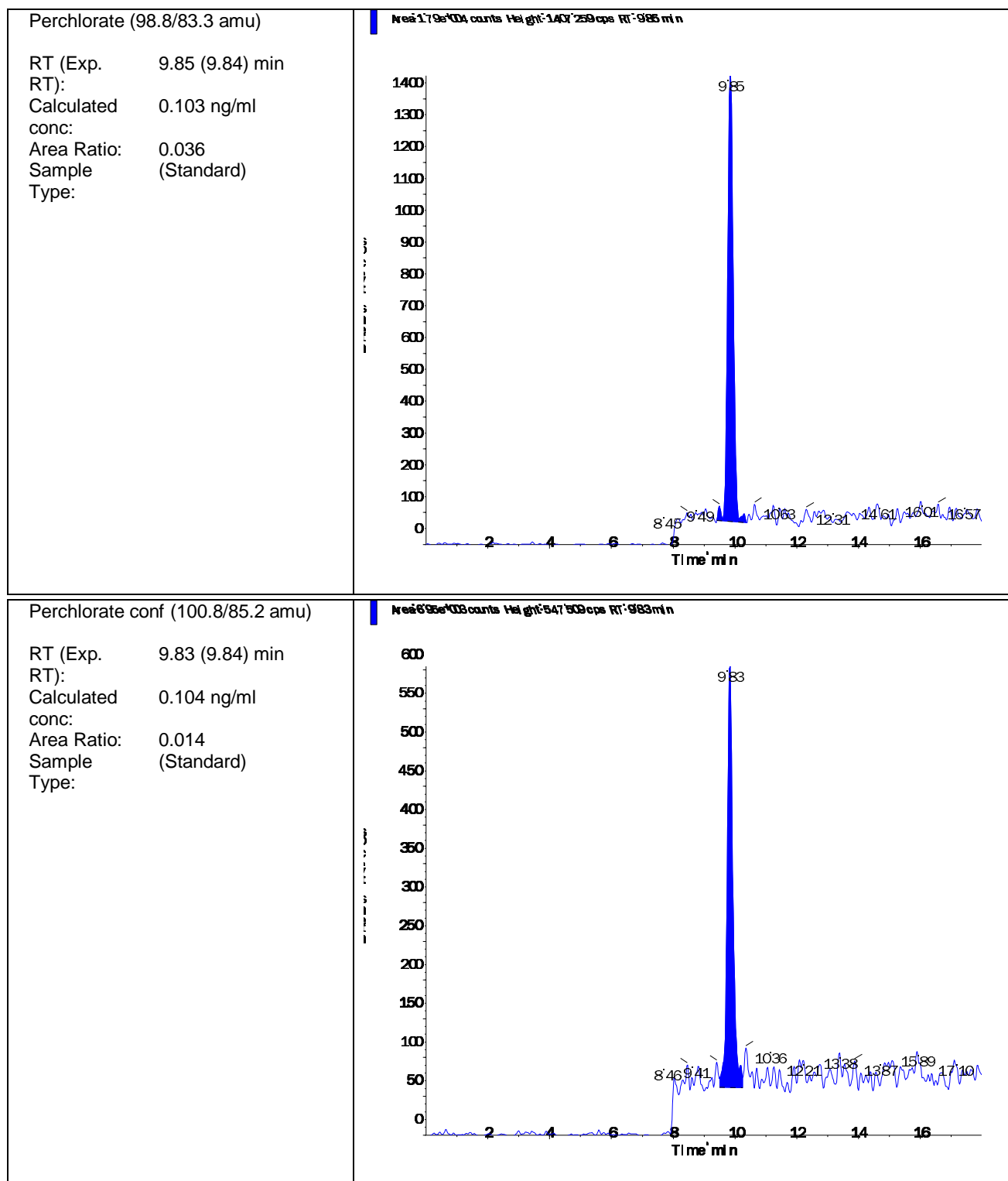
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Acquisition Date	5/3/2016 3:25:04 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





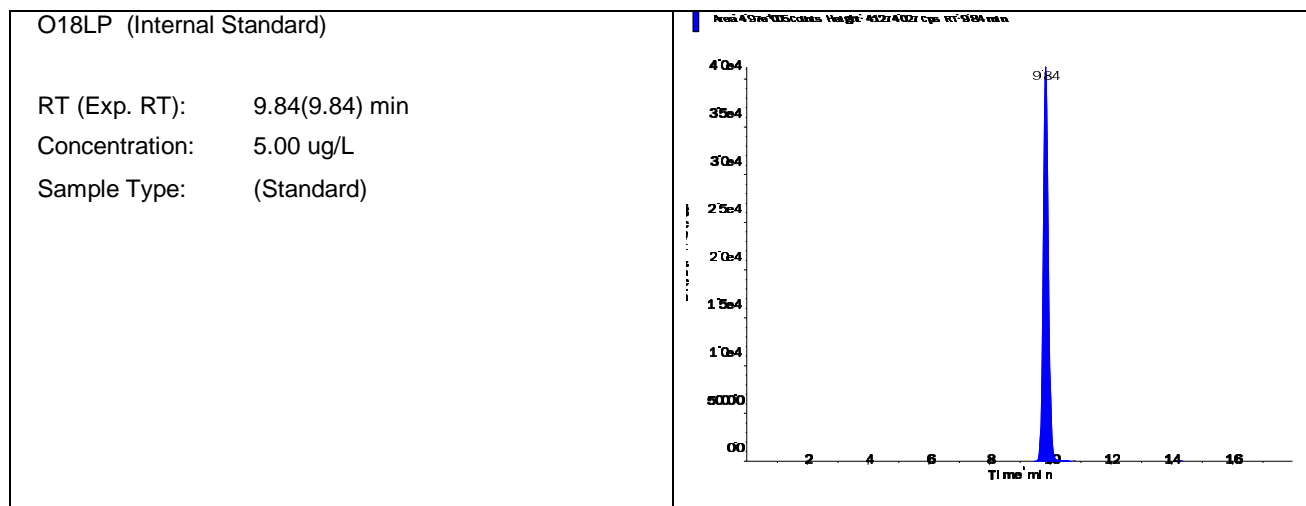
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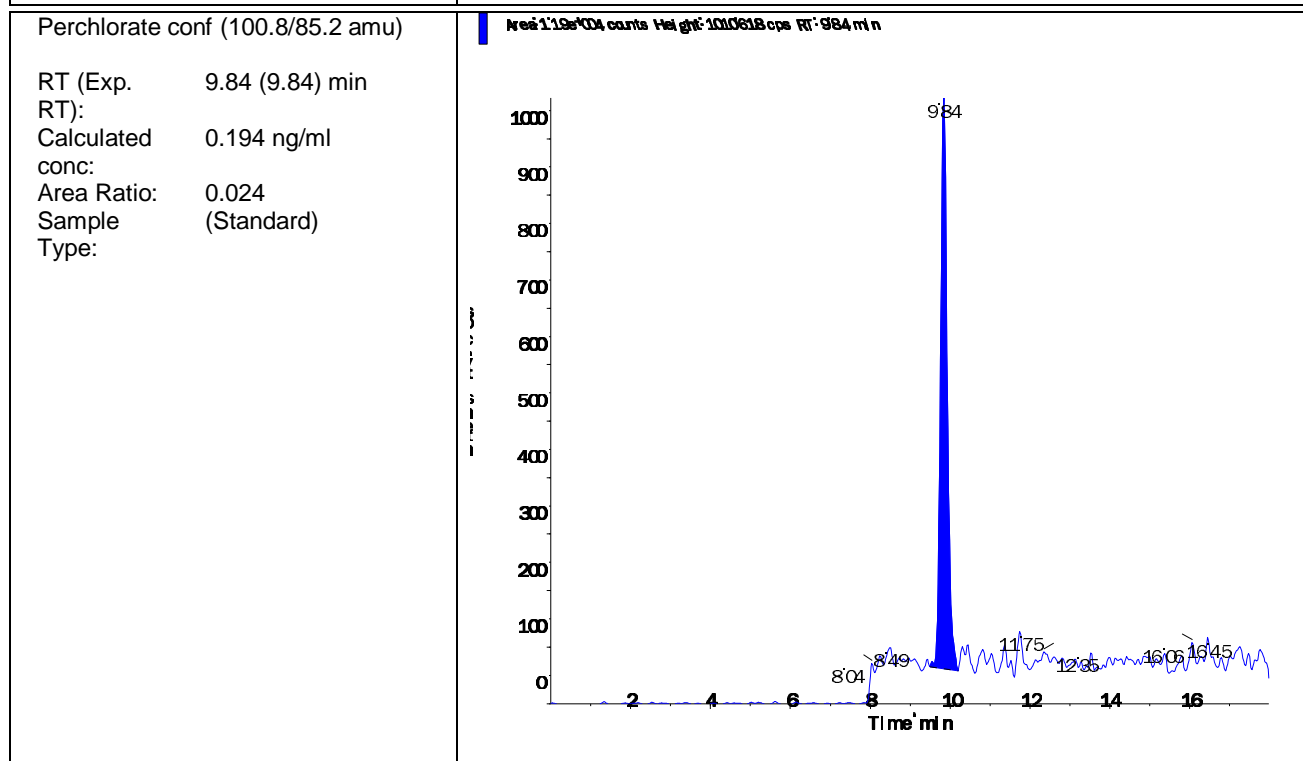
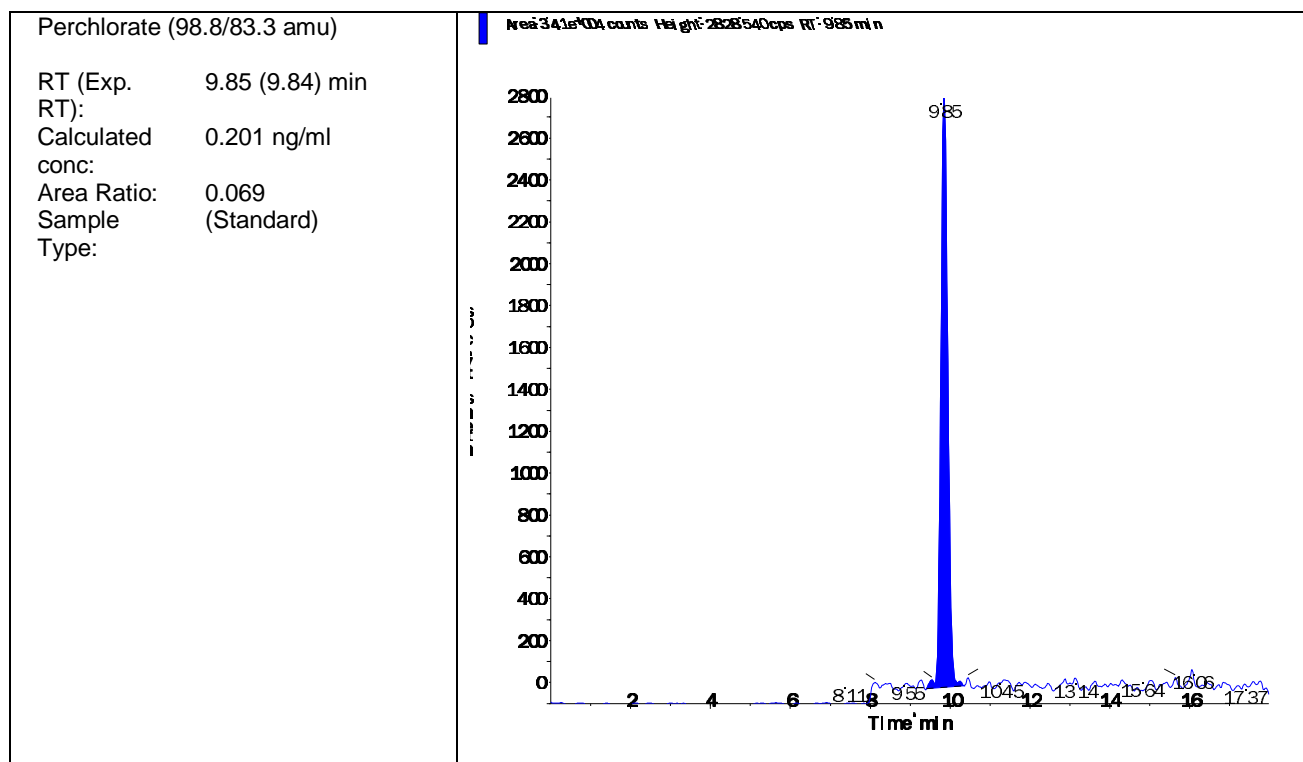
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Acquisition Date	5/3/2016 3:43:59 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



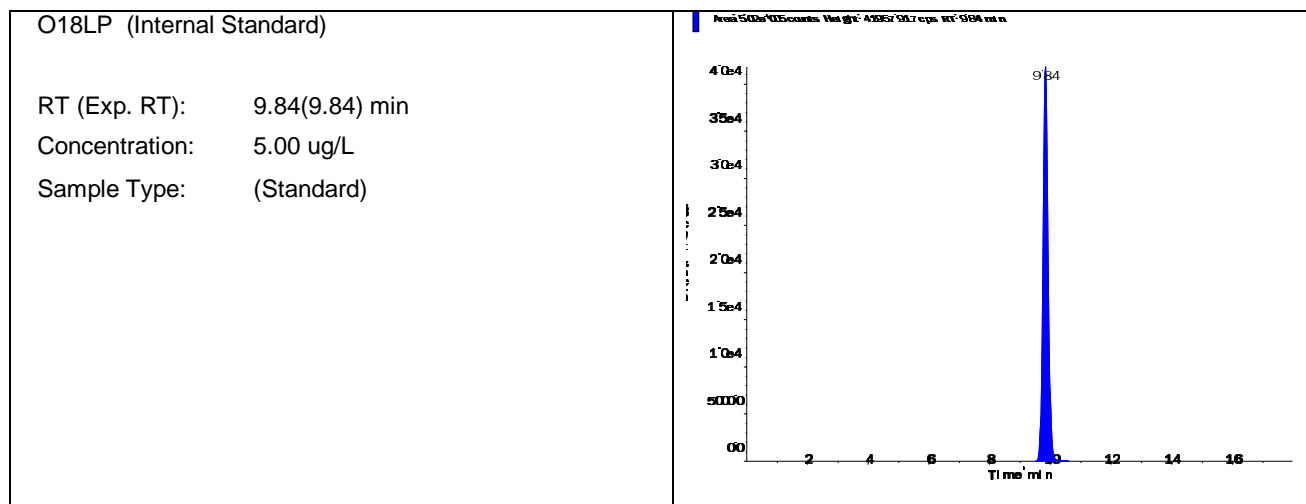


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Acquisition Date	5/3/2016 4:02:52 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

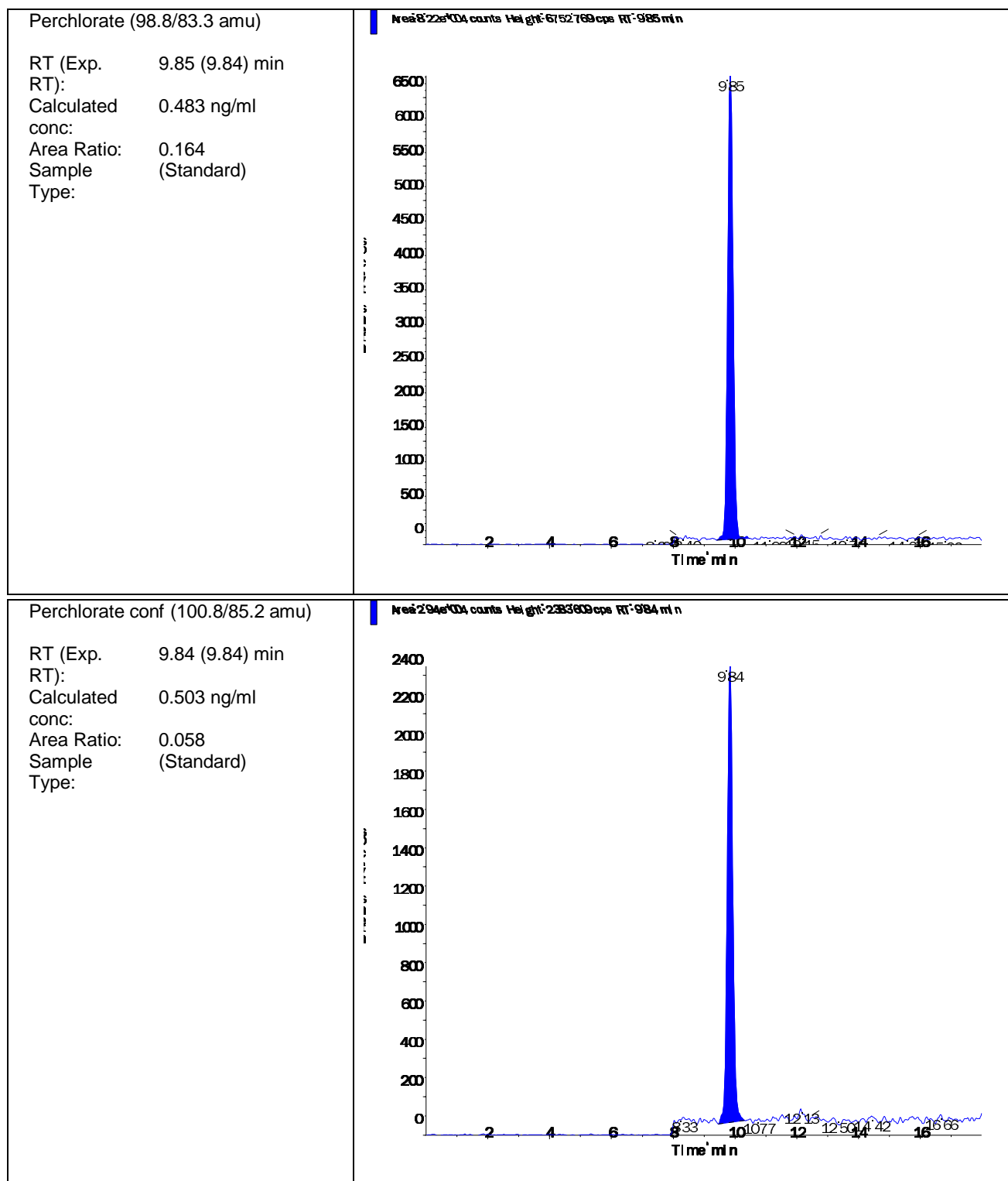
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Data File	LM34689.wiff	Injection Volume	10.00
Acquisition Date	5/3/2016 4:02:52 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Sample Type	Standard
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	WG567320-04	Dilution 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



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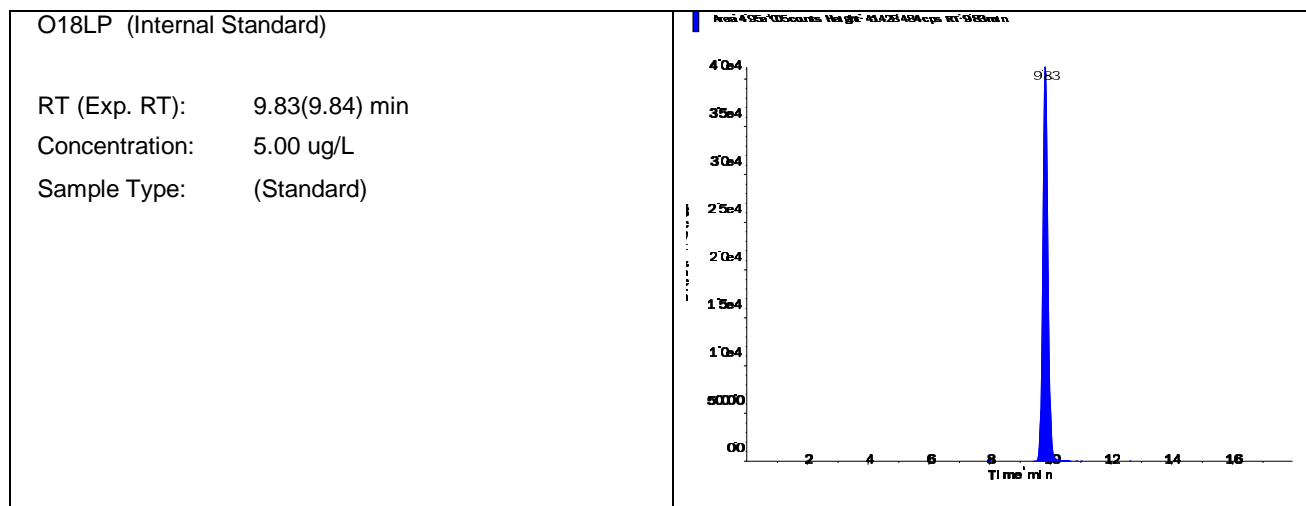
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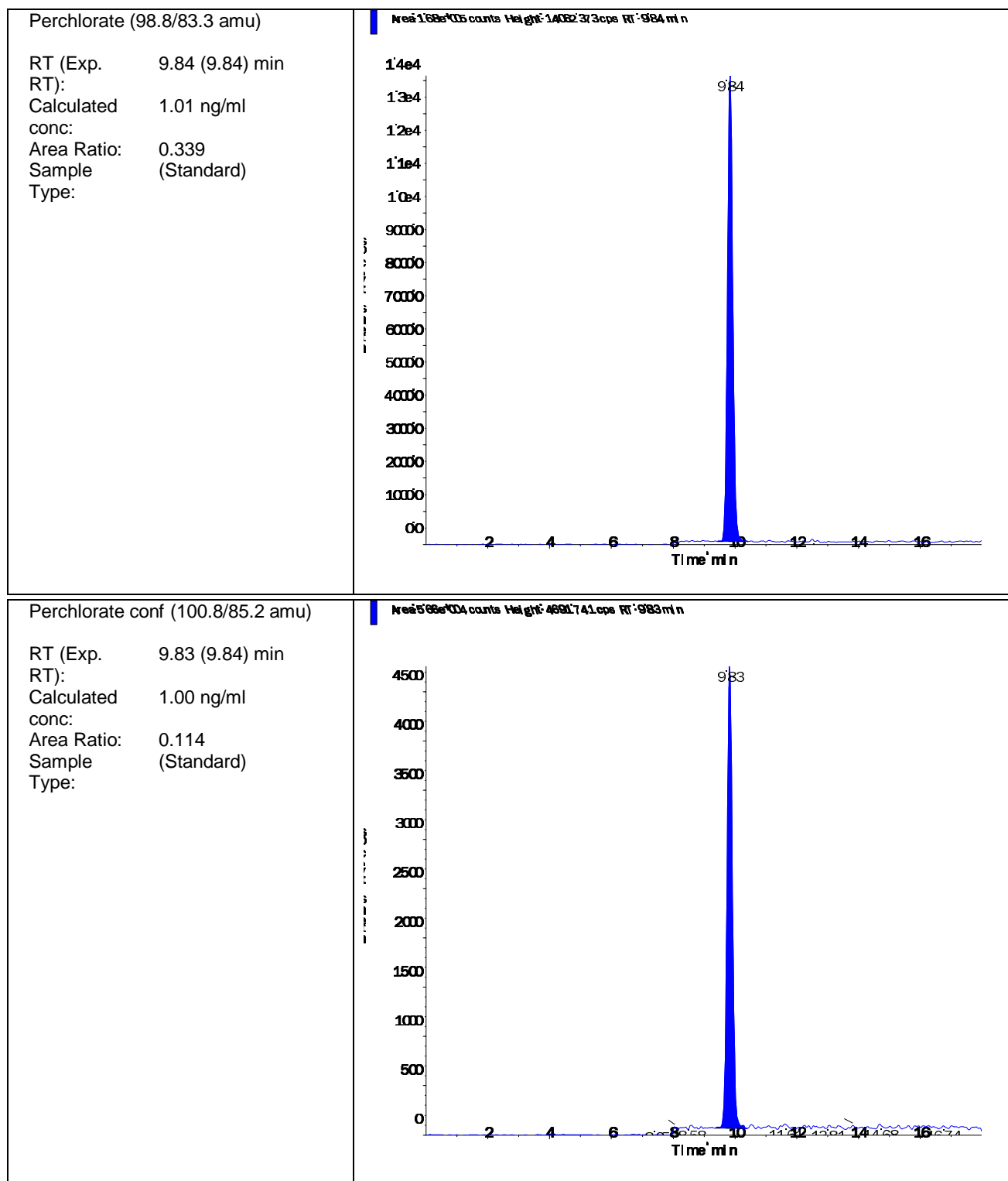
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



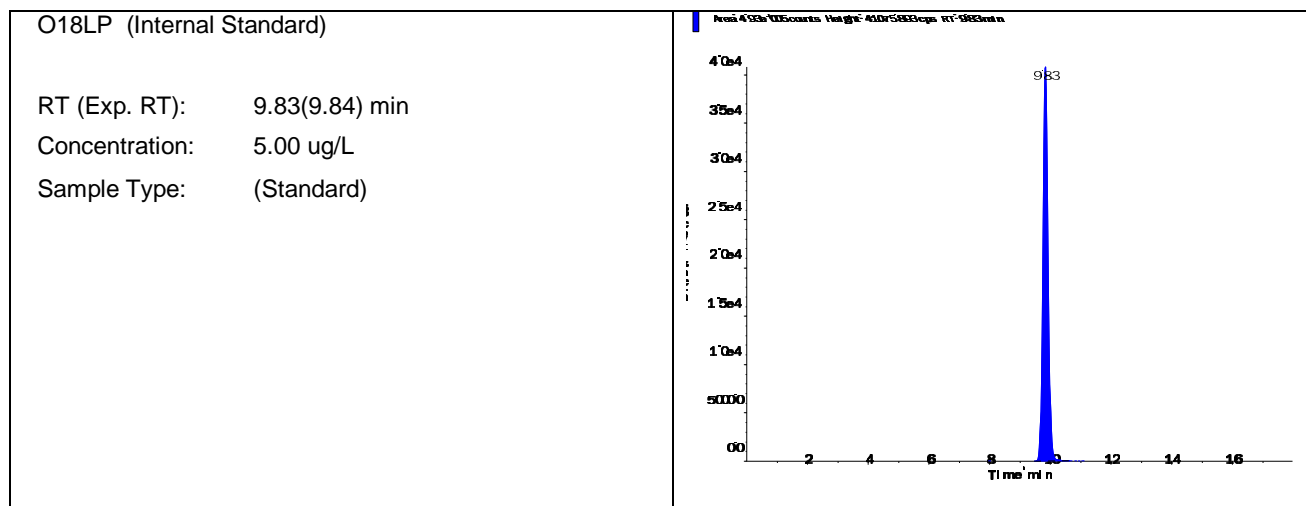


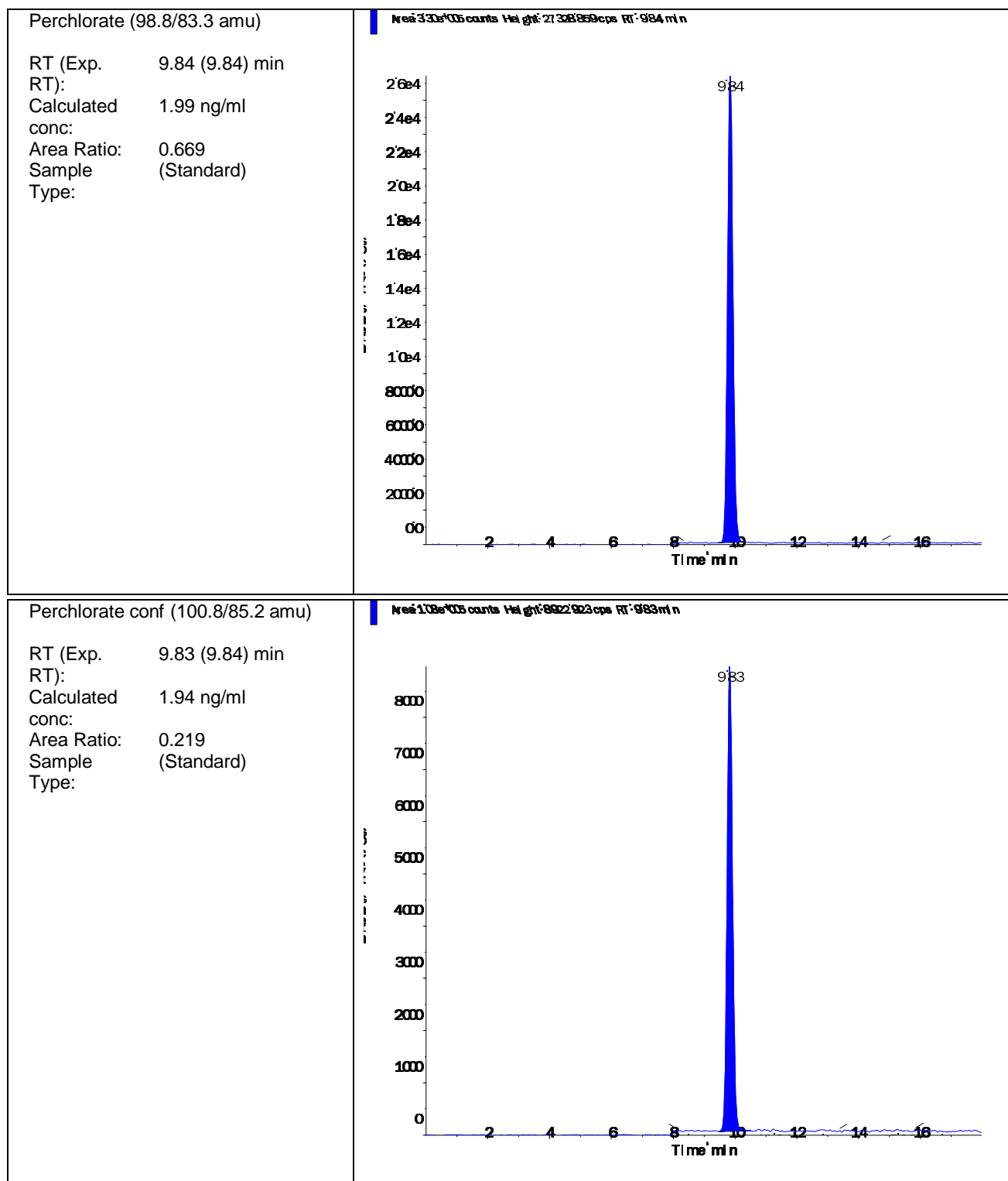
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



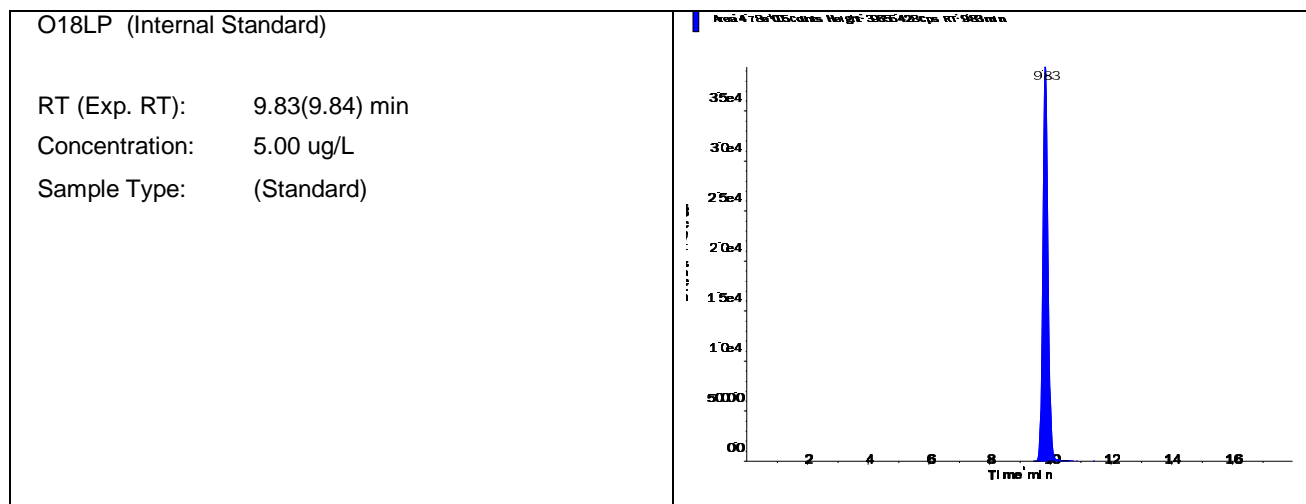


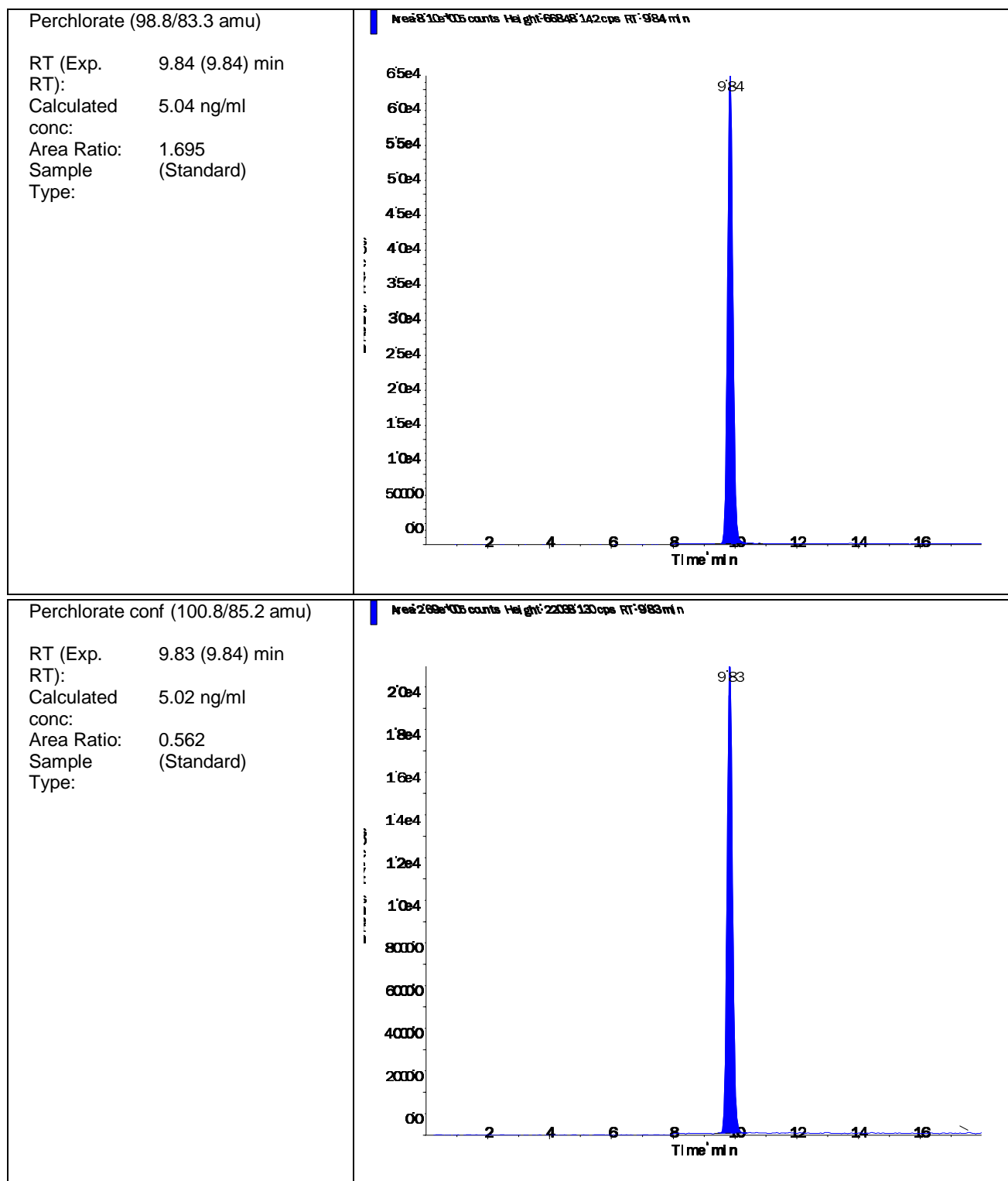
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



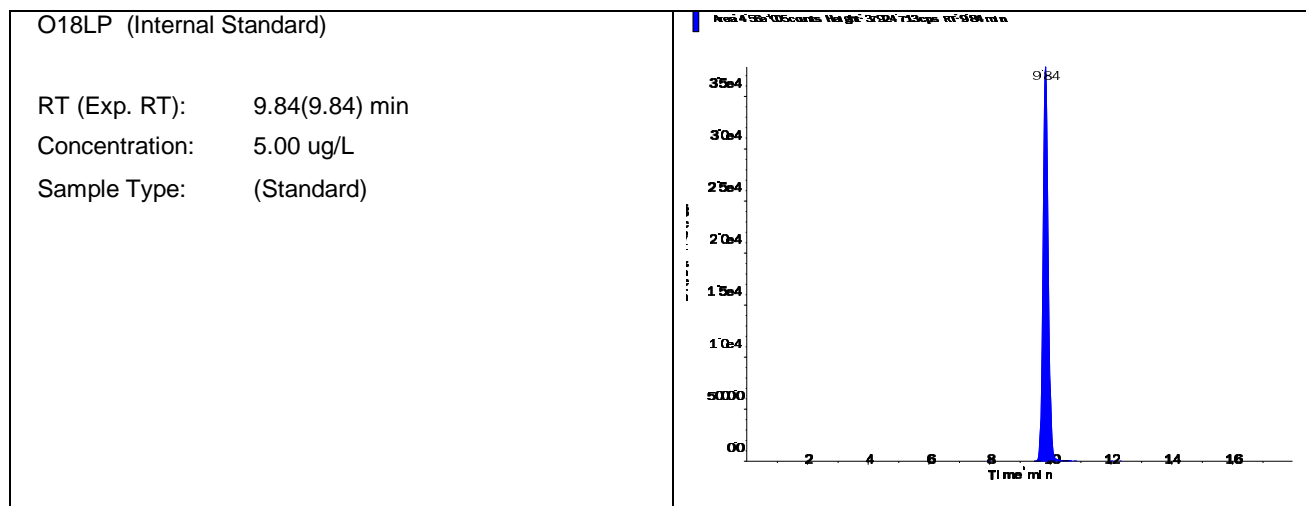


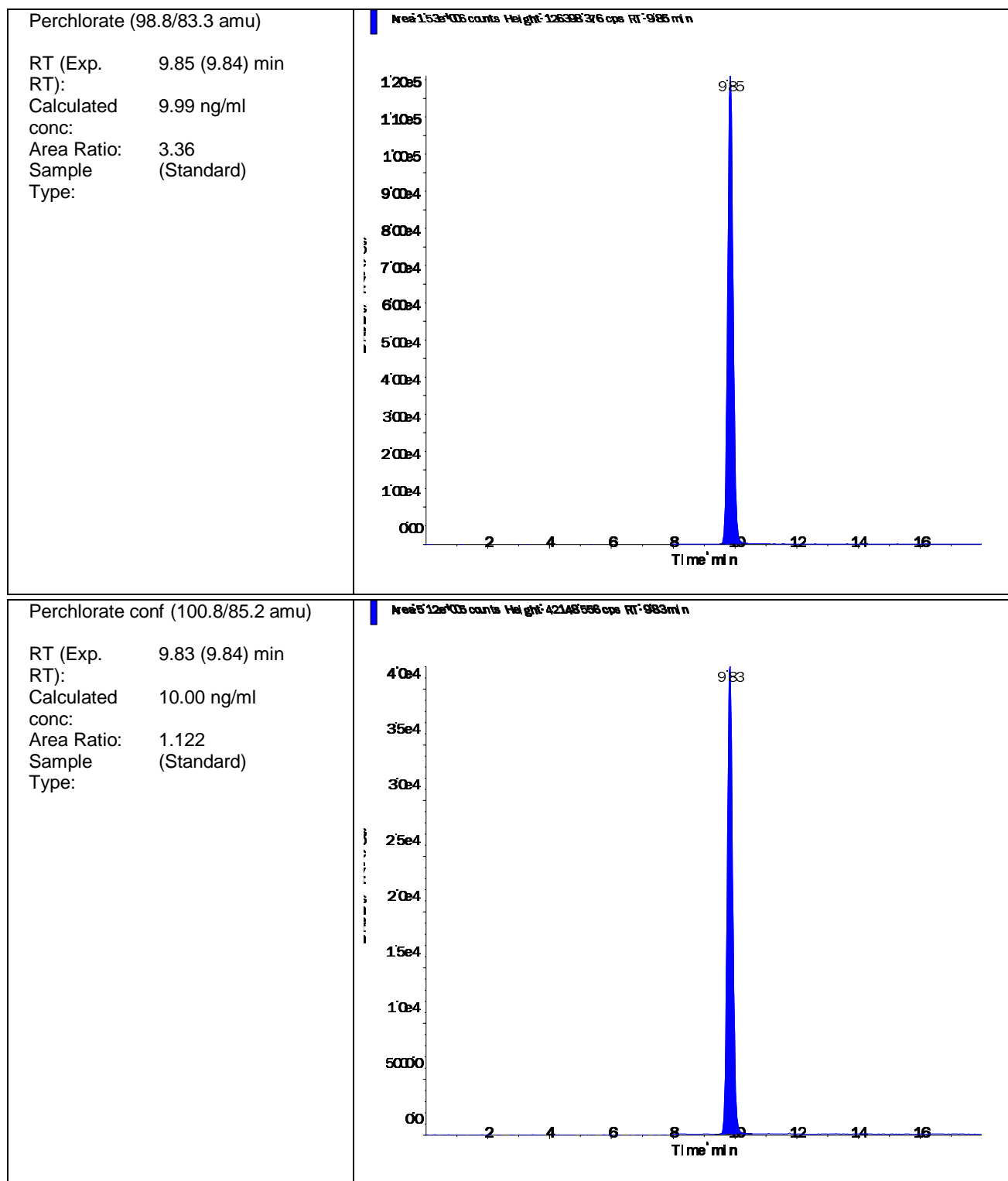
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





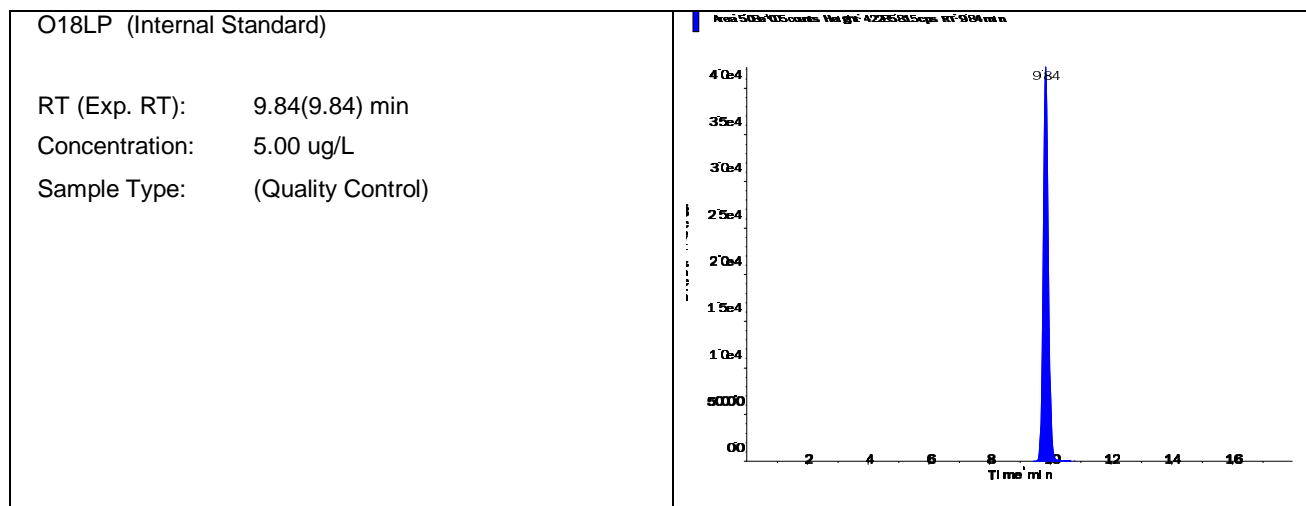
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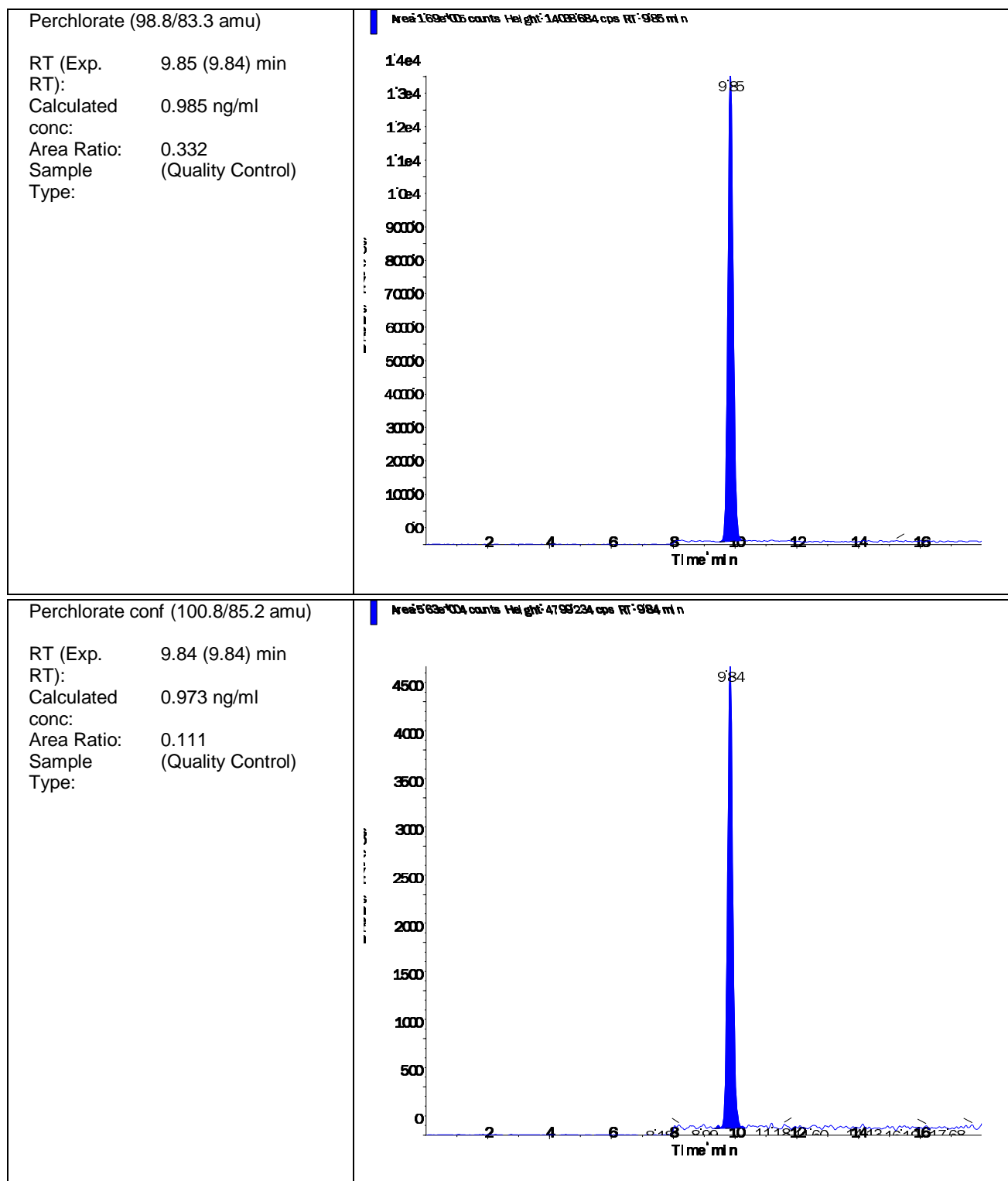
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



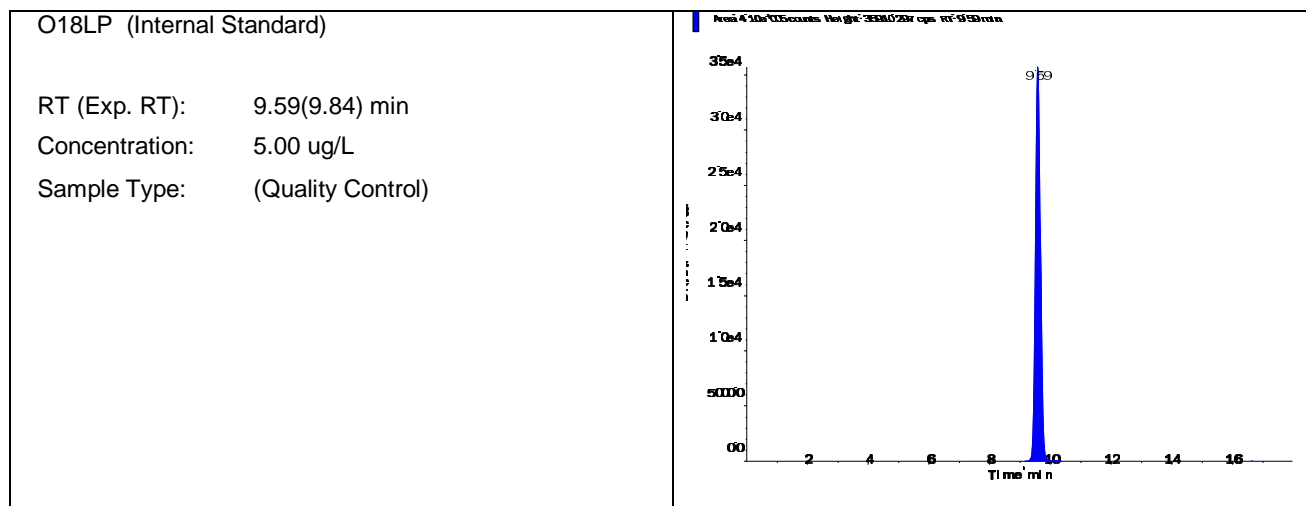


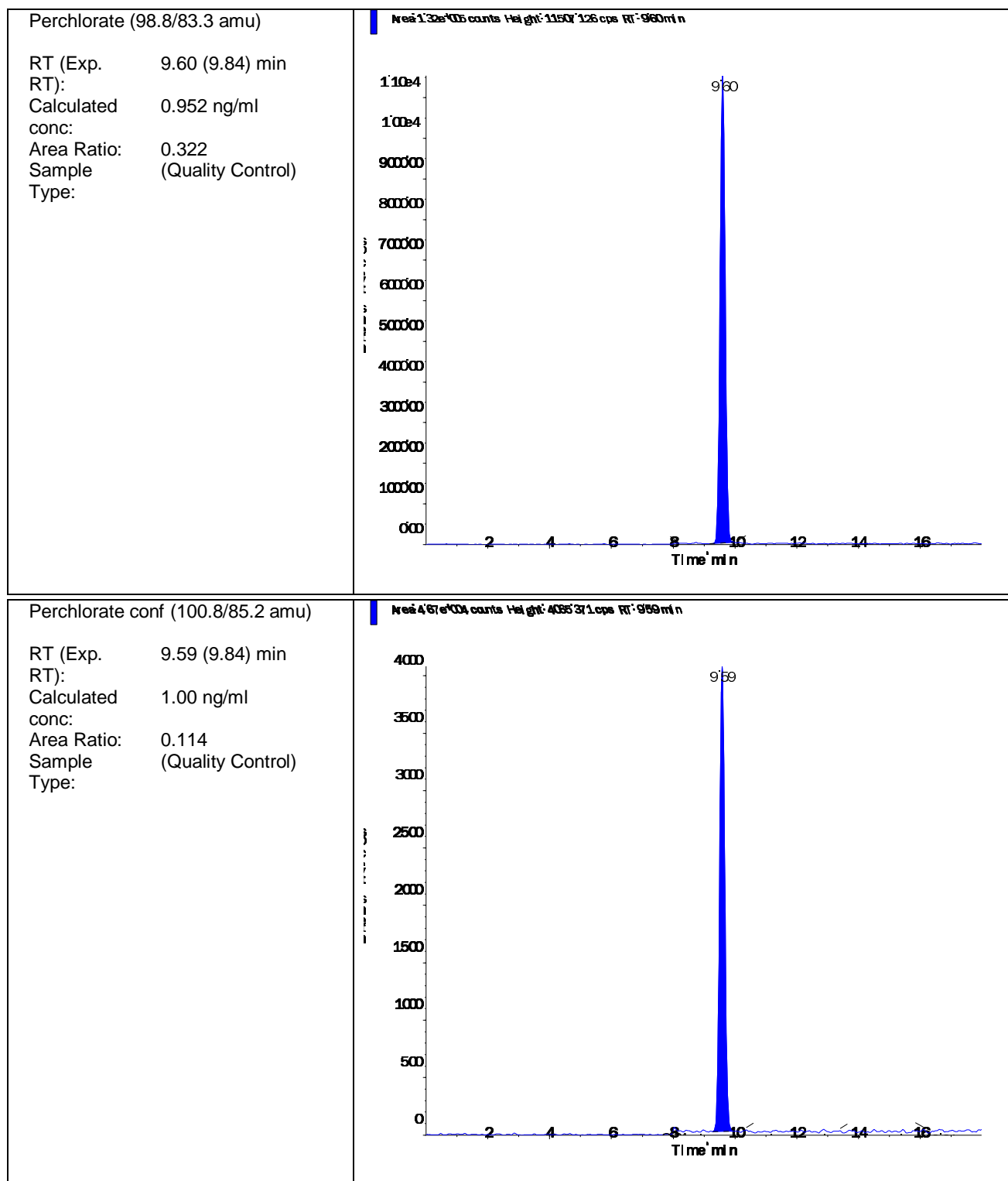
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





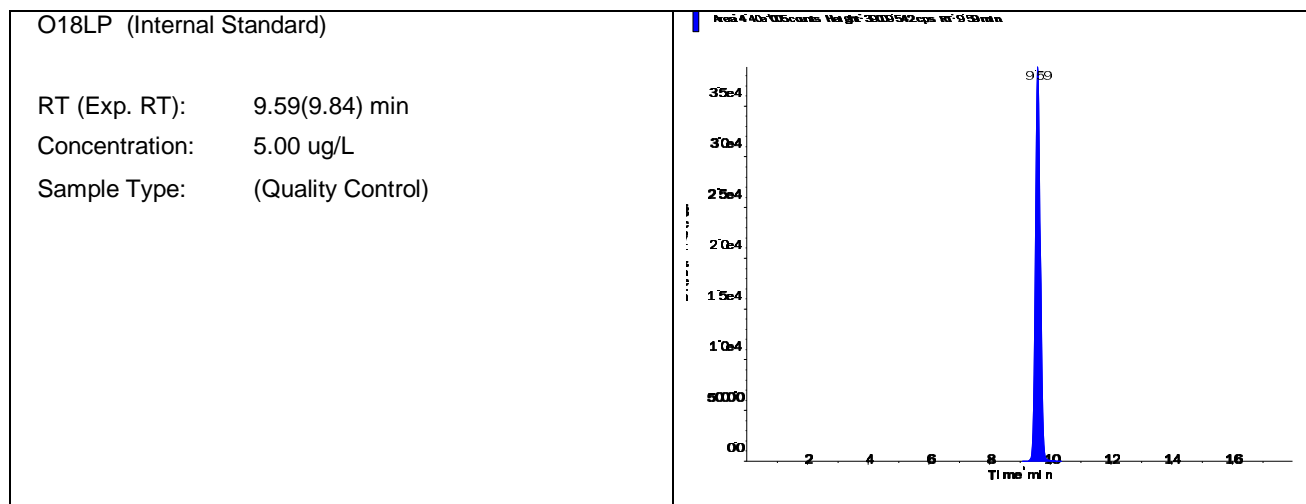
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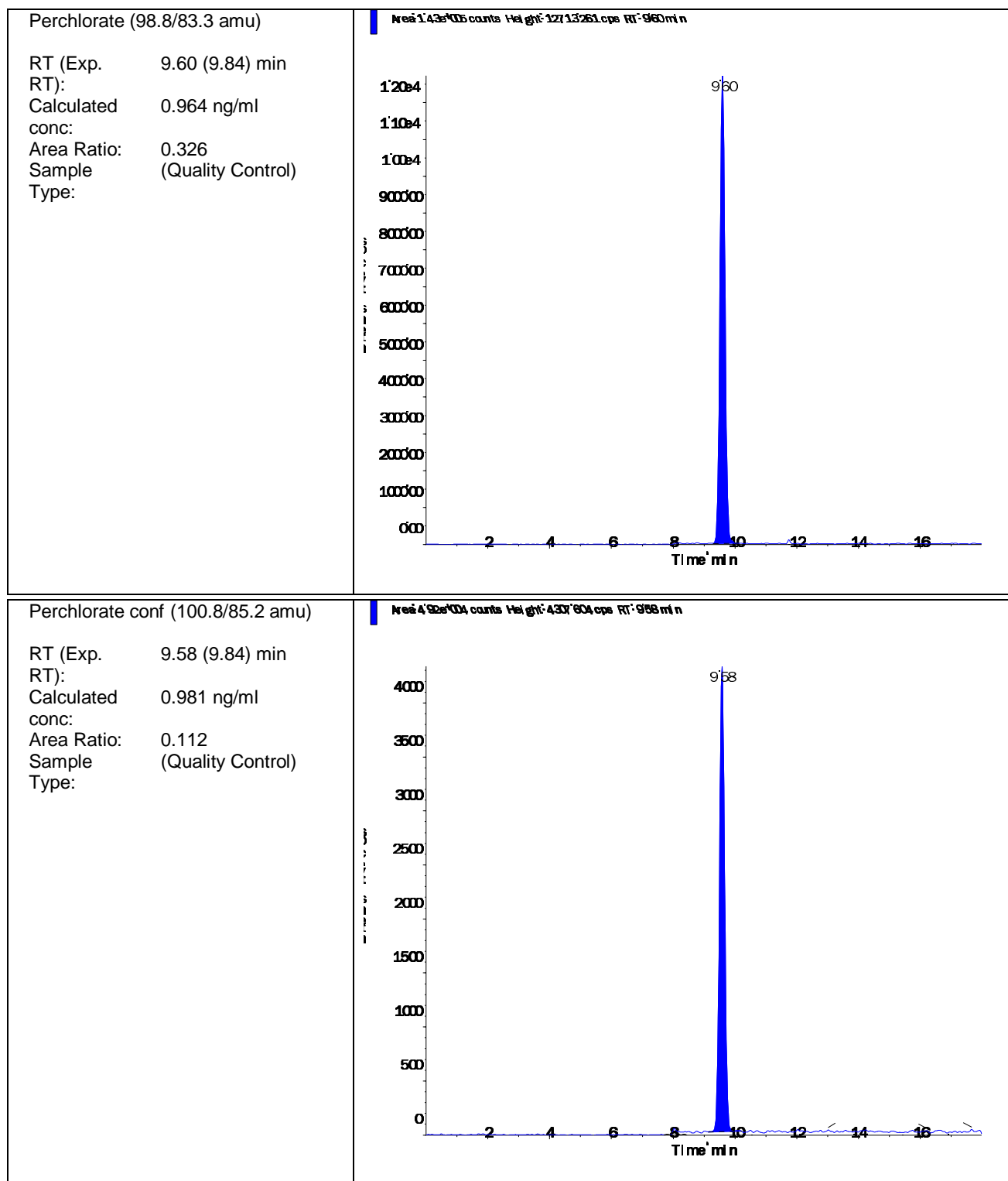
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



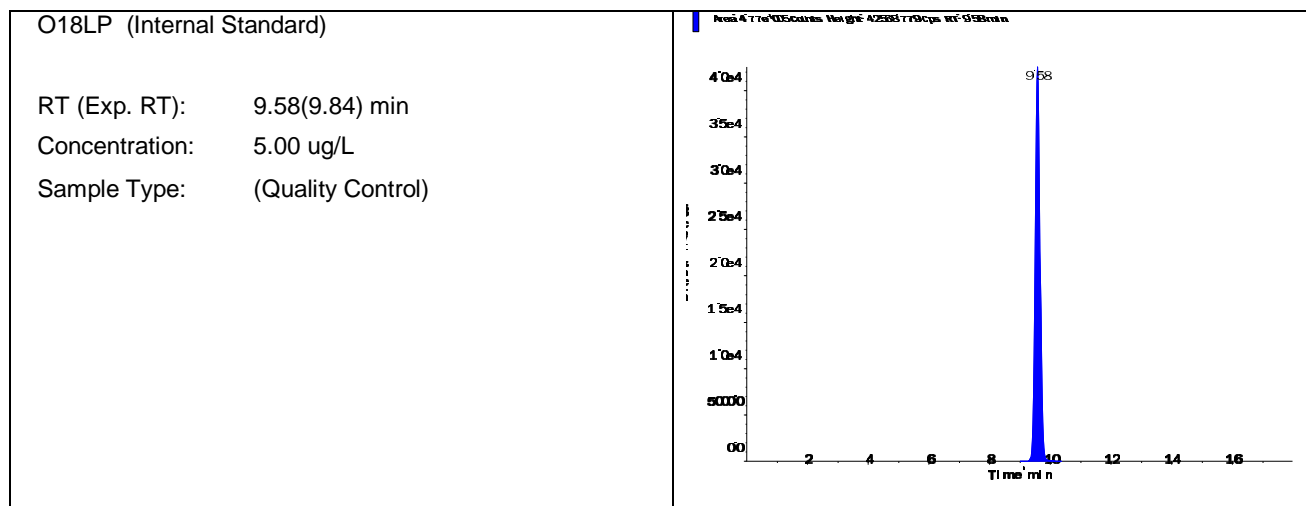


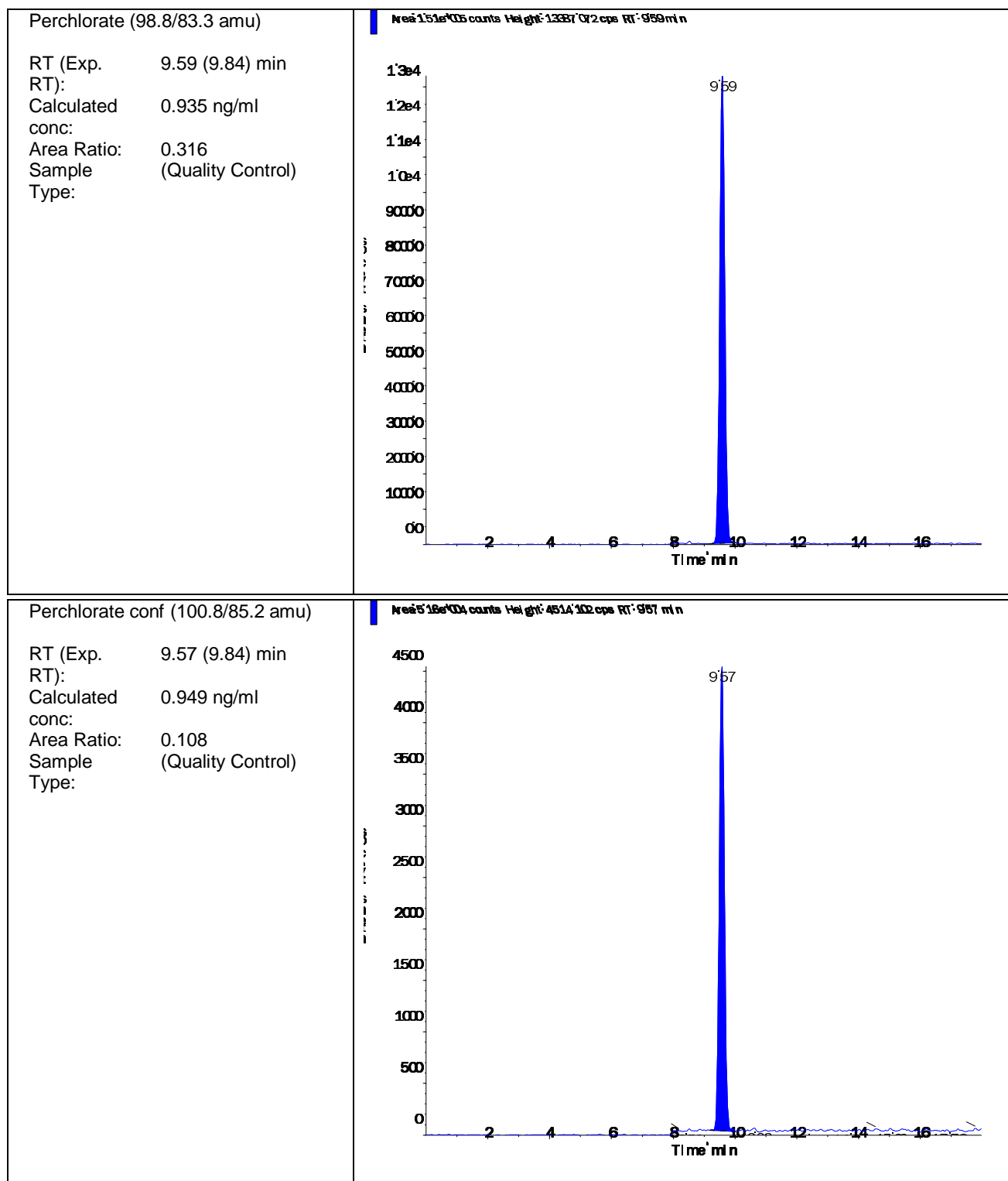
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





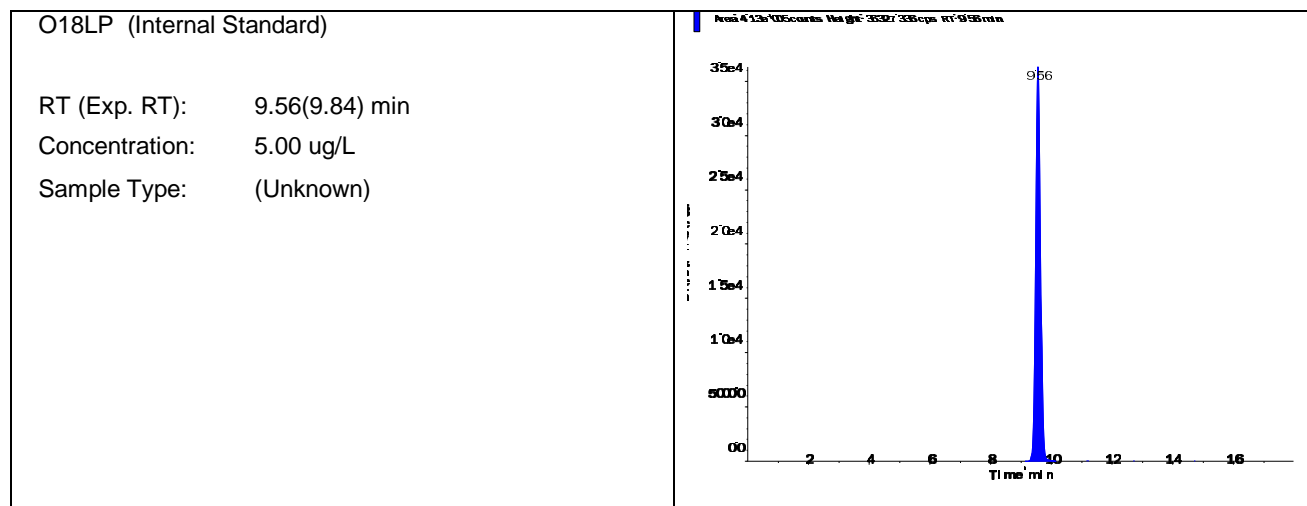
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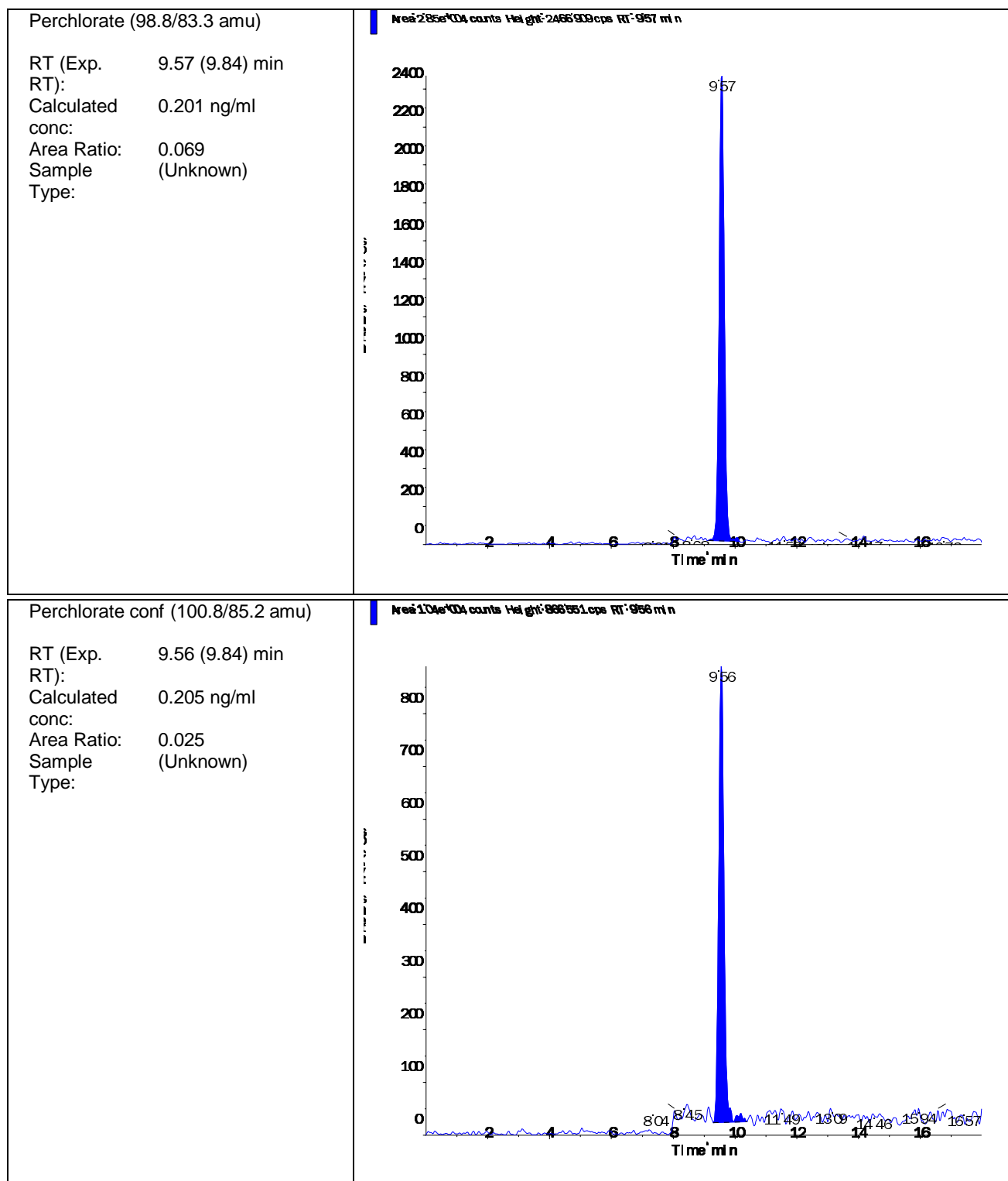
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Acquisition Date	11/8/2016 4:15:49 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





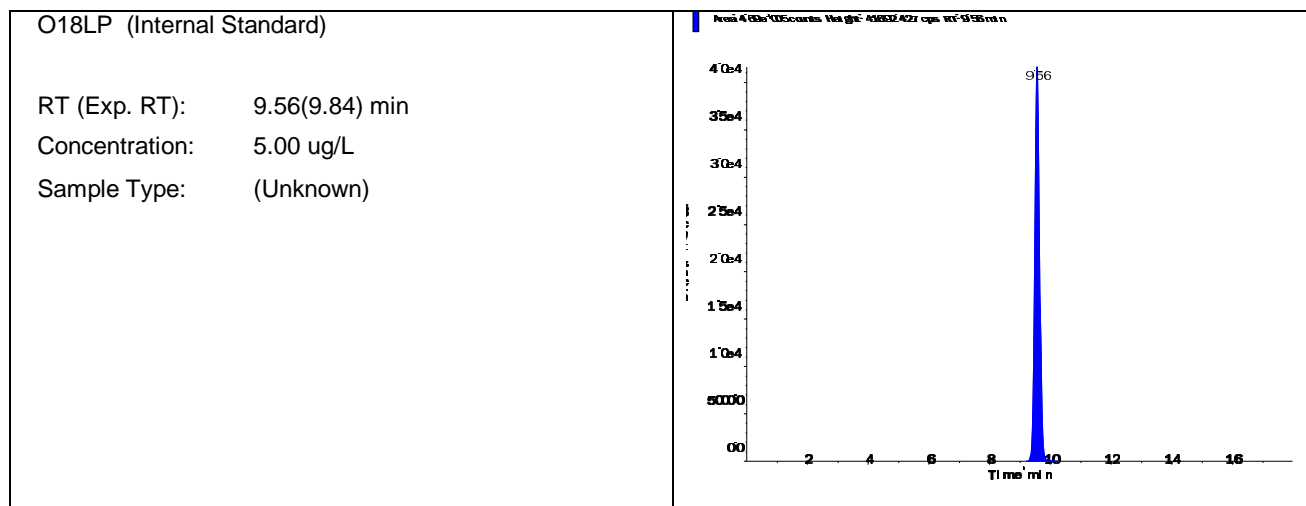
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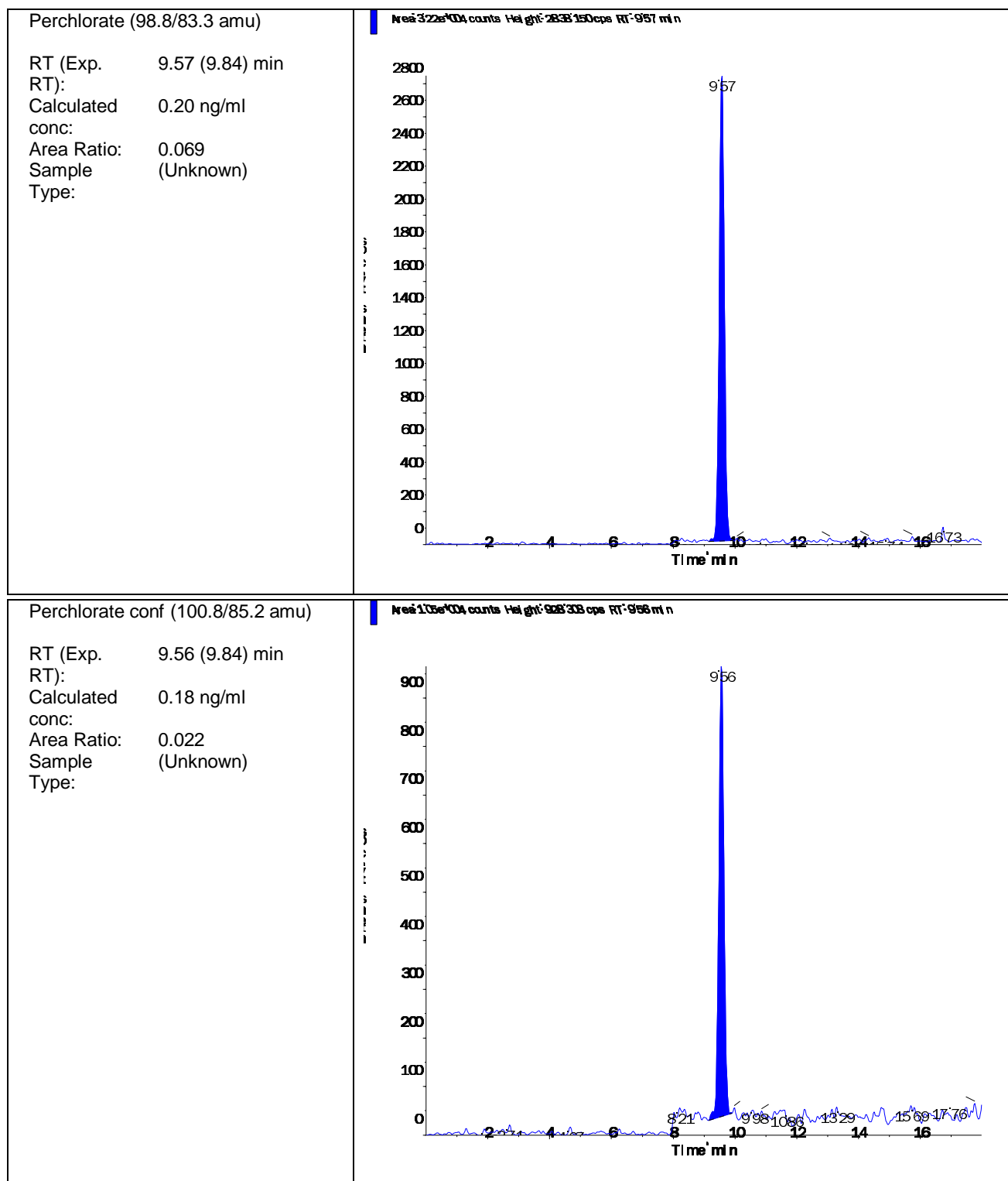
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



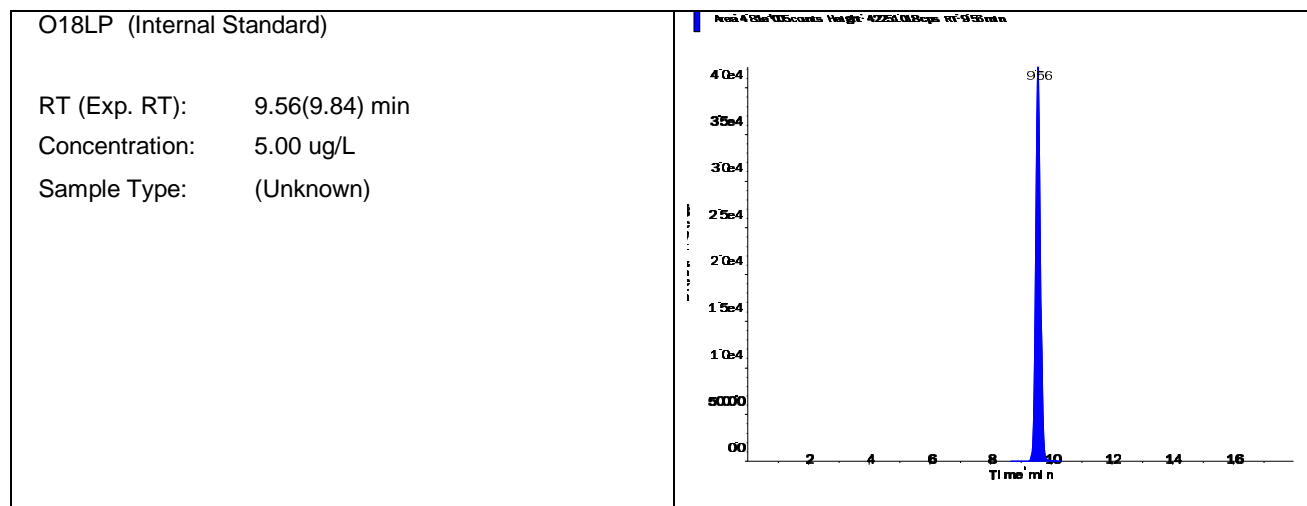


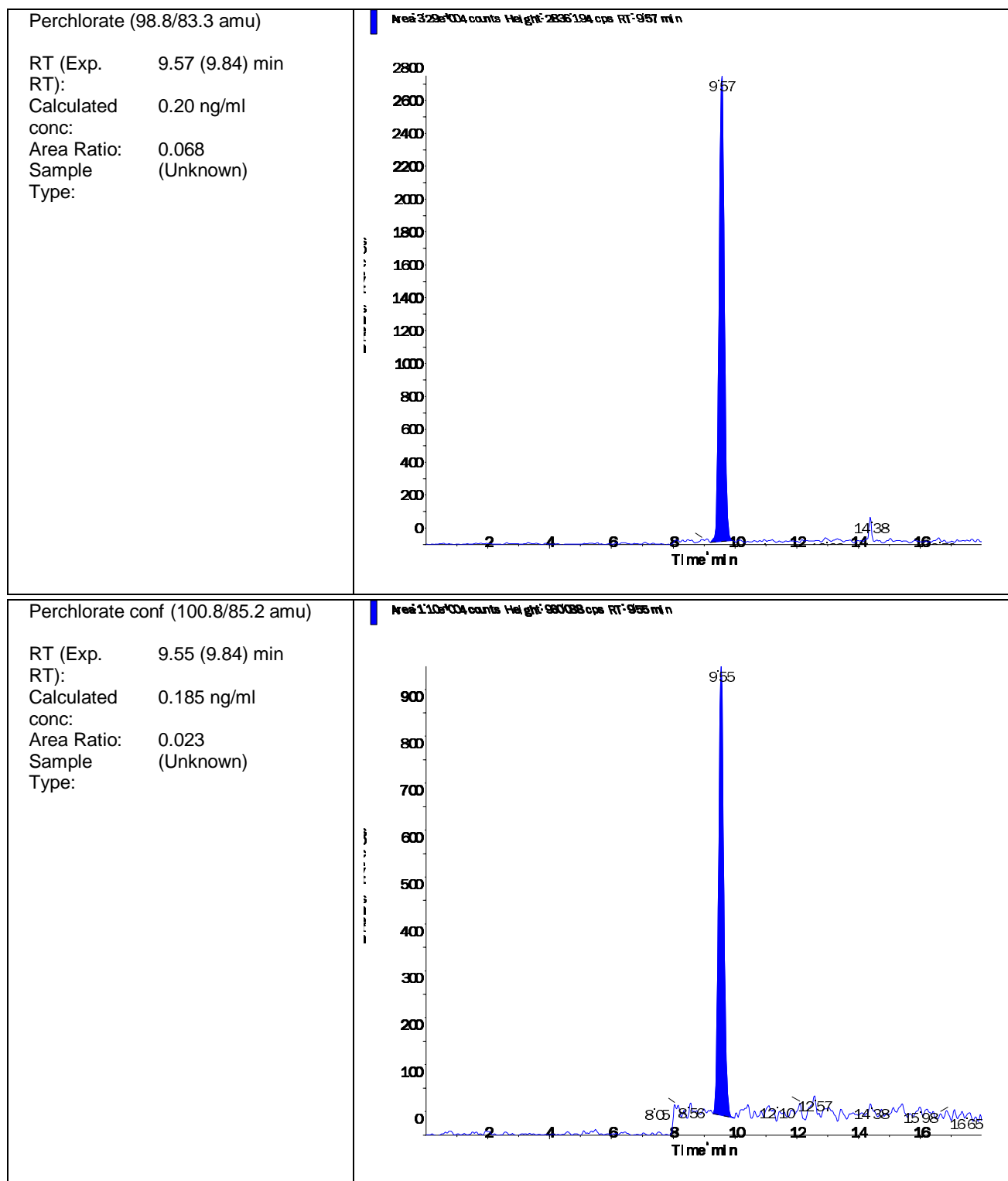
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





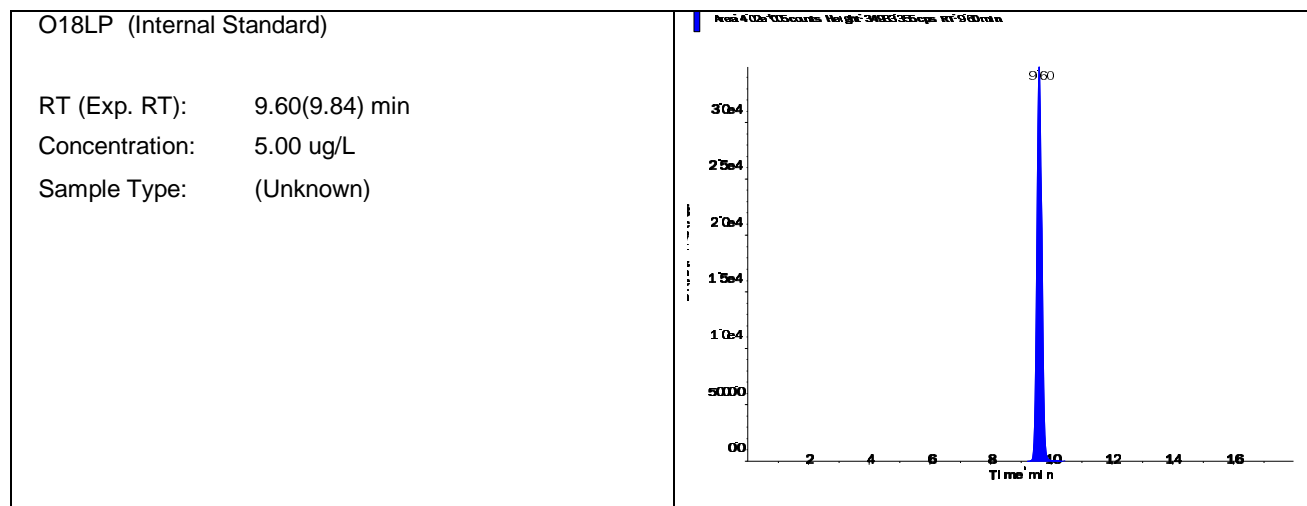
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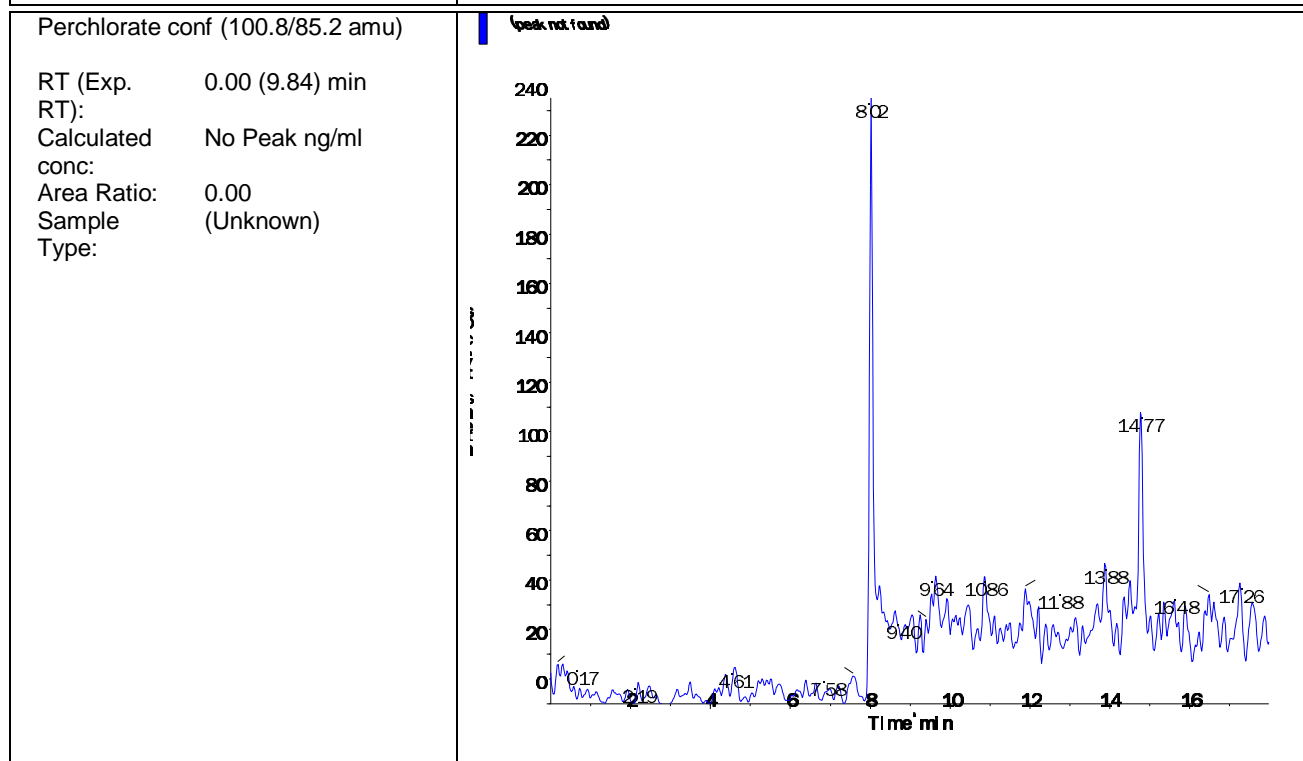
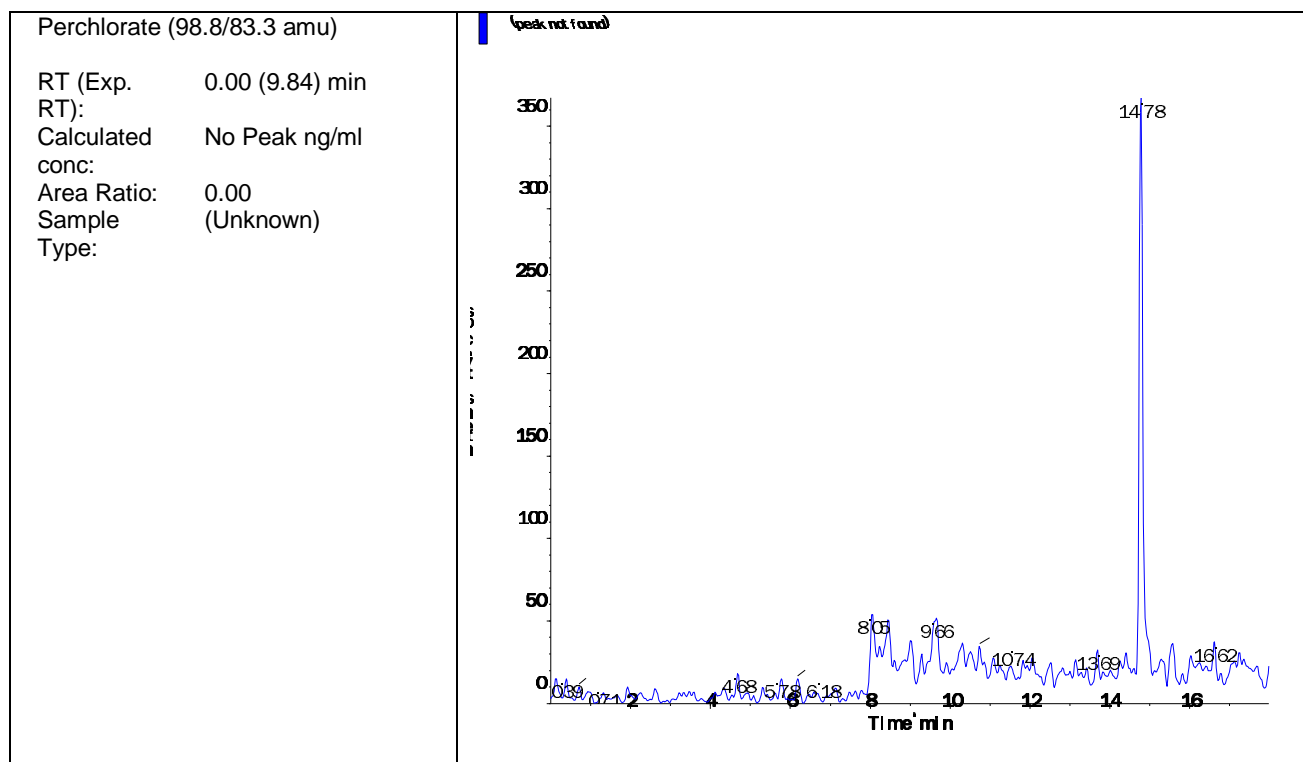
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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



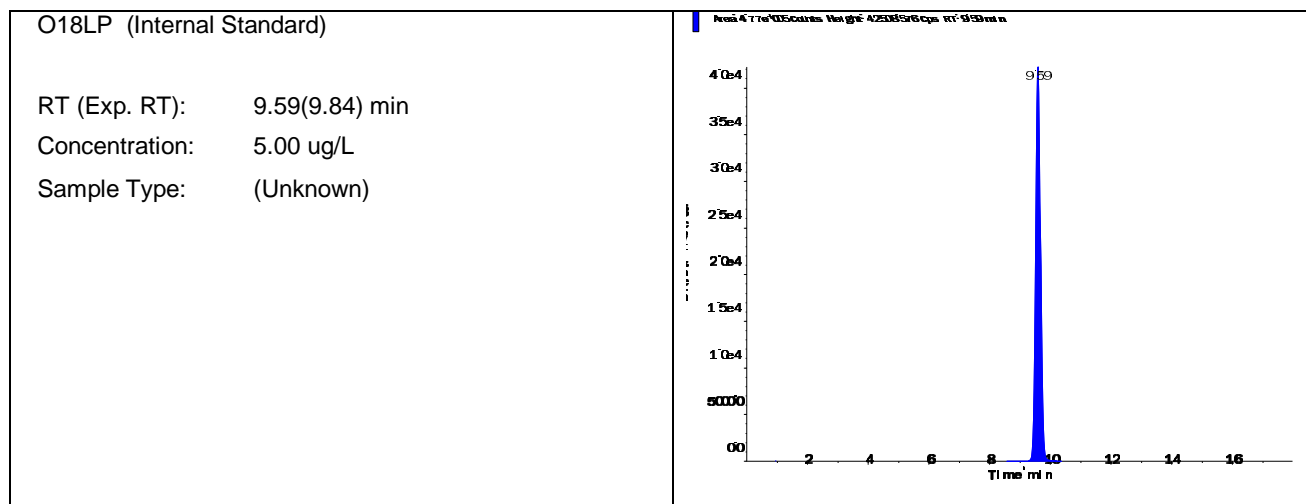


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Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

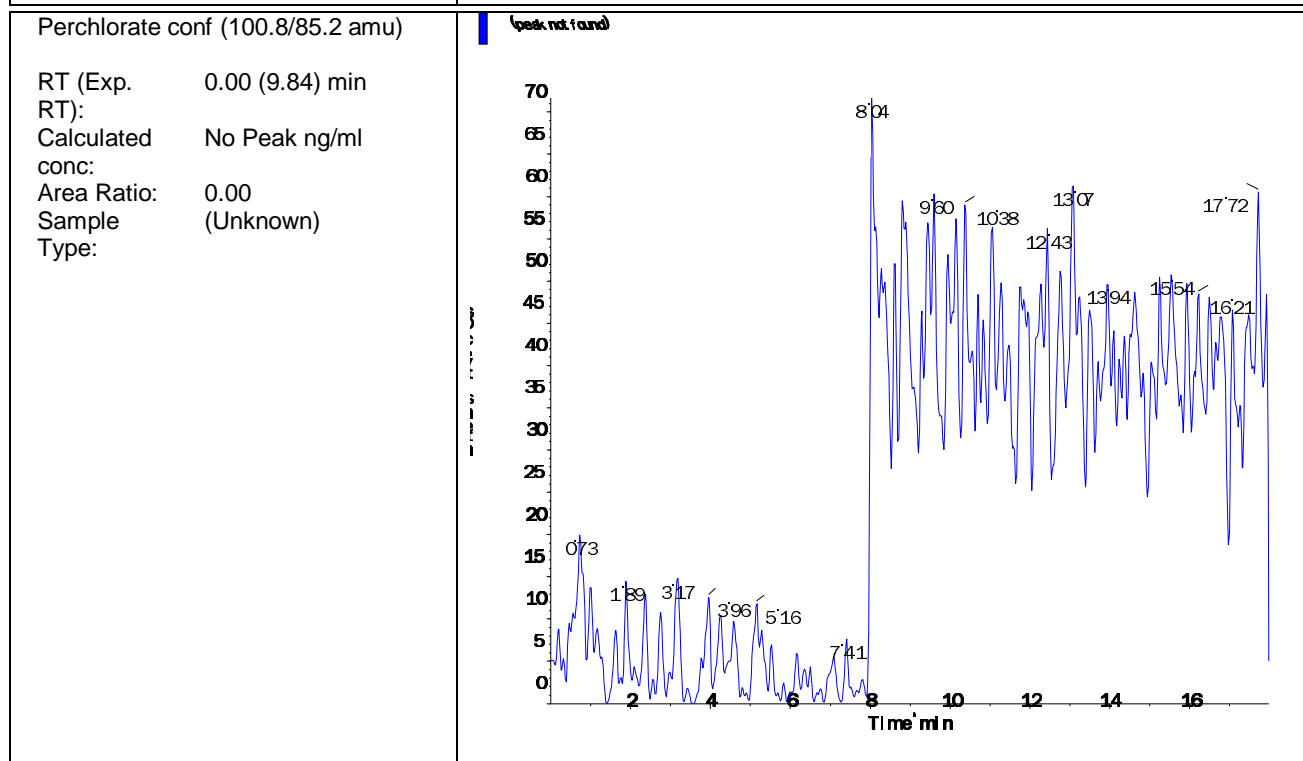
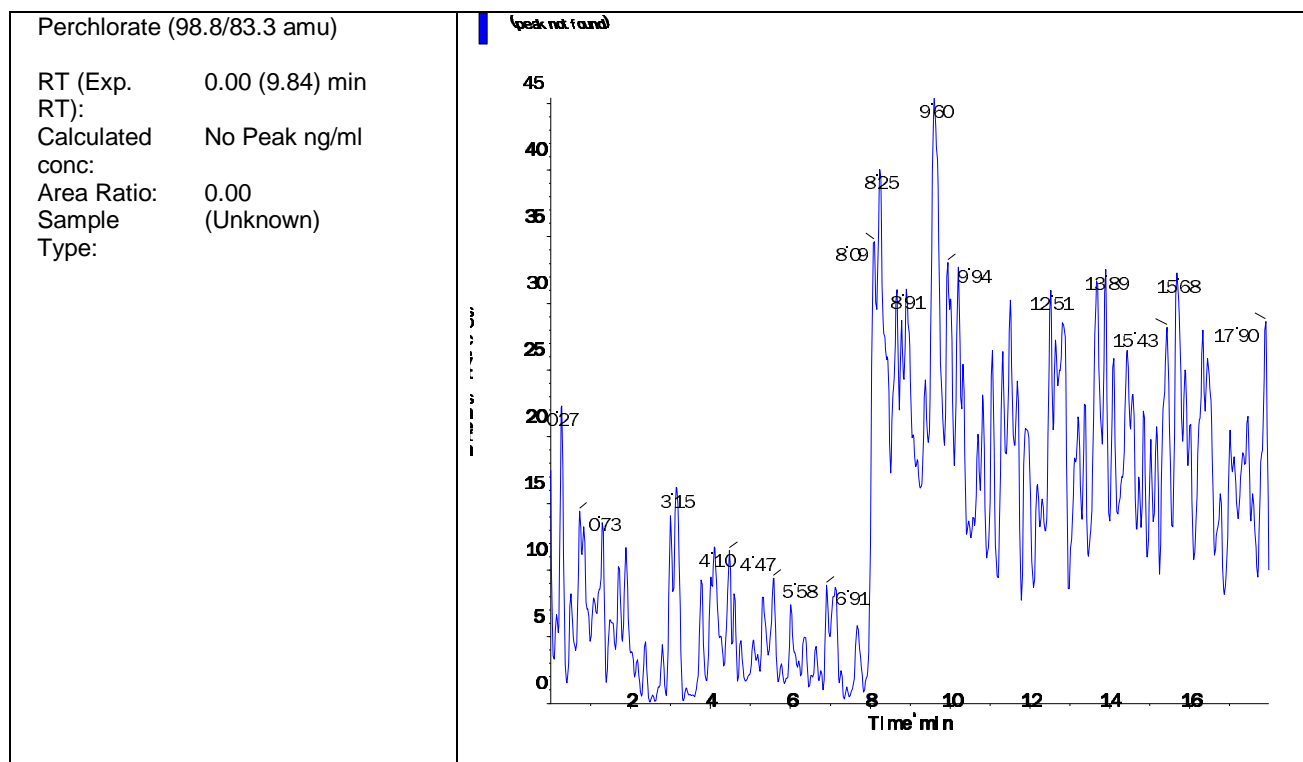
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Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	WG590829-04	Dilution Factor	1.00
Sample Comment	11.00	Weight to Volume	0.00

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



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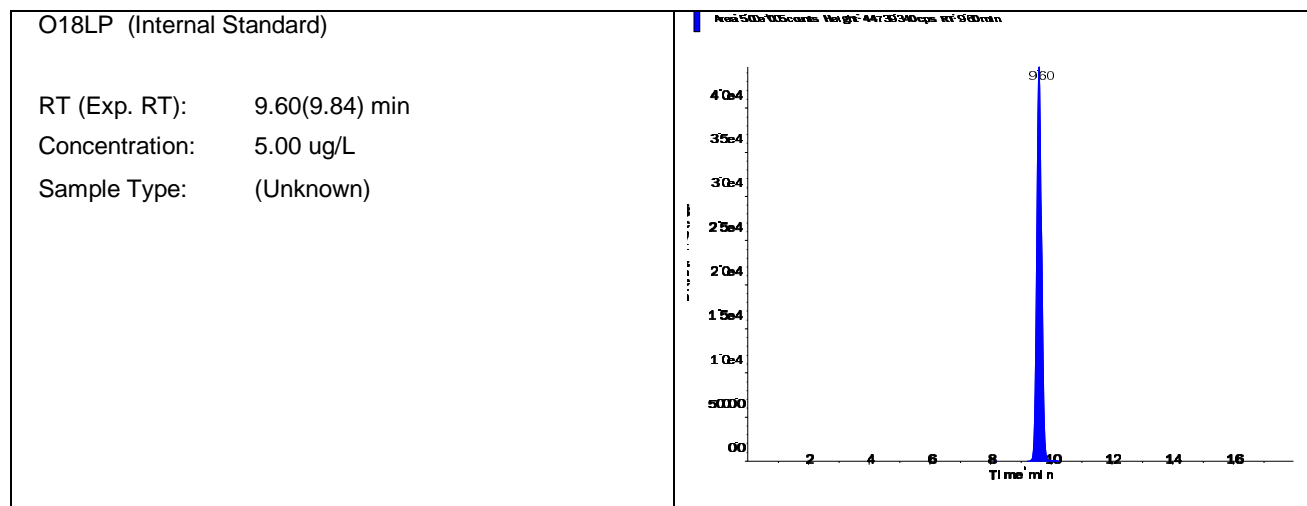


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Project	Perchlorate\2009_07_22		

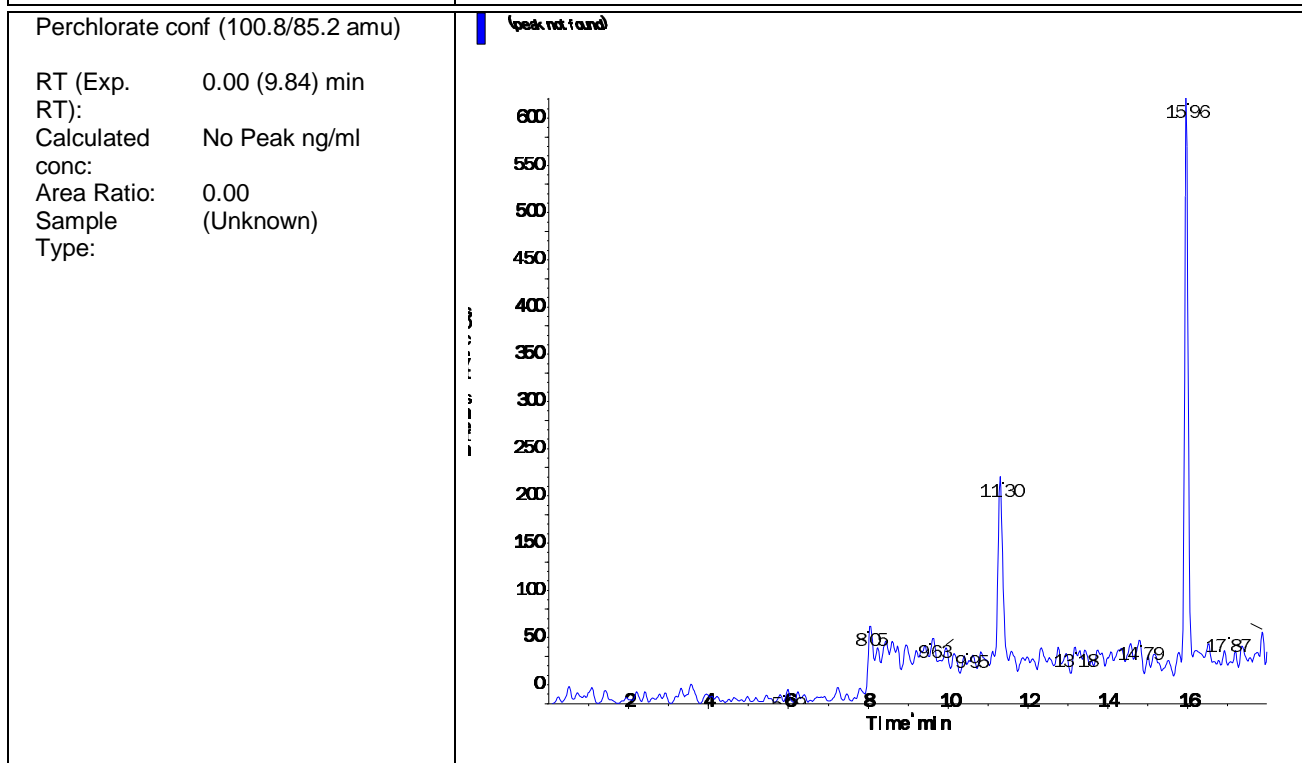
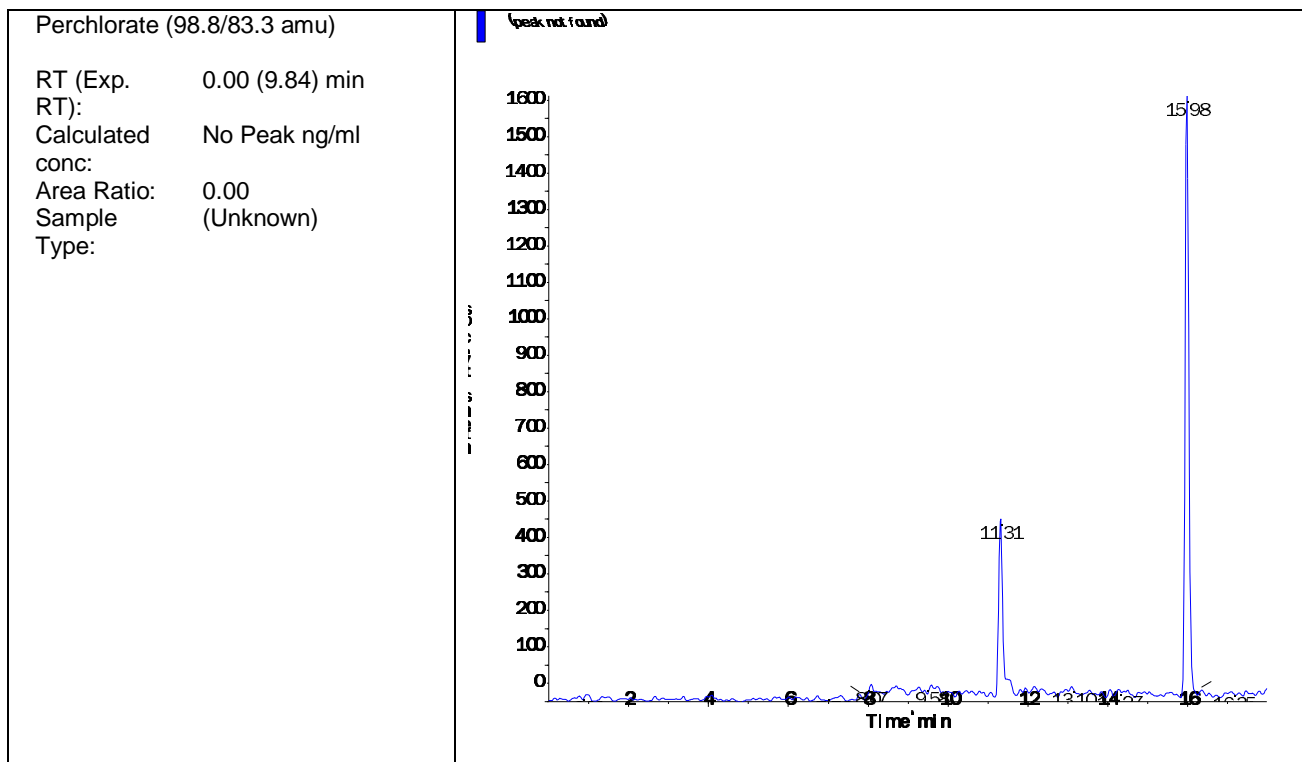
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Acquisition Method	062911.dam	Sample Type	Unknown
Instrument Name	API 4000	Result Table	110816_JWR.rdb
Sample ID	WG590829-06	Dilution Factor	1.00
Sample Comment	11.00	Weight to Volume	0.00

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



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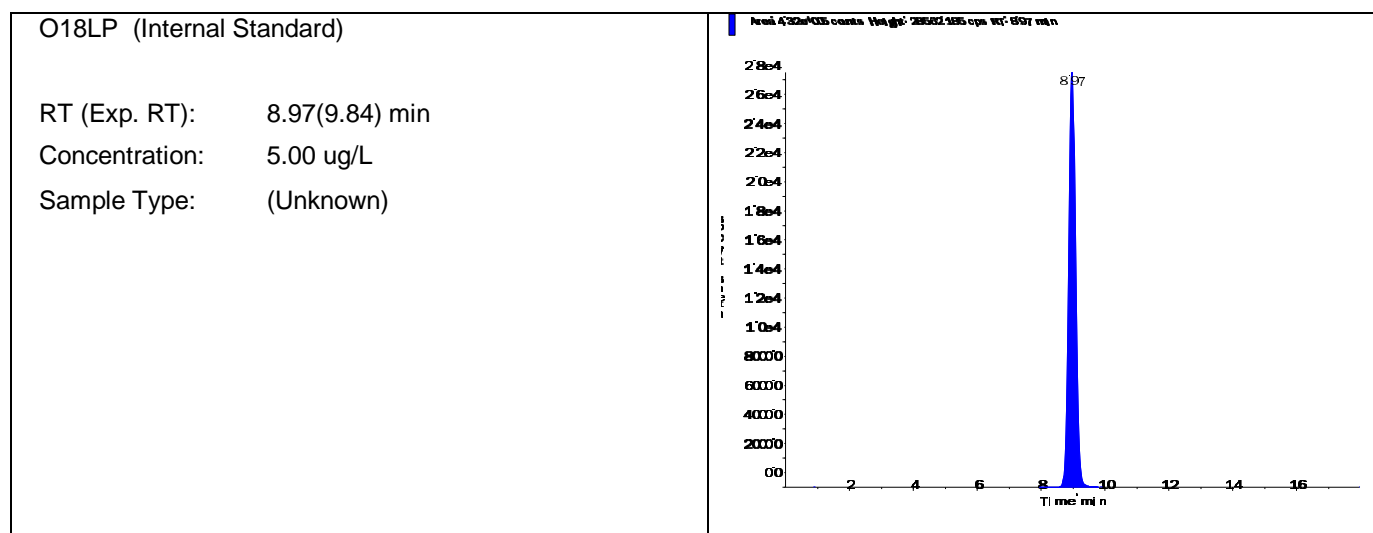


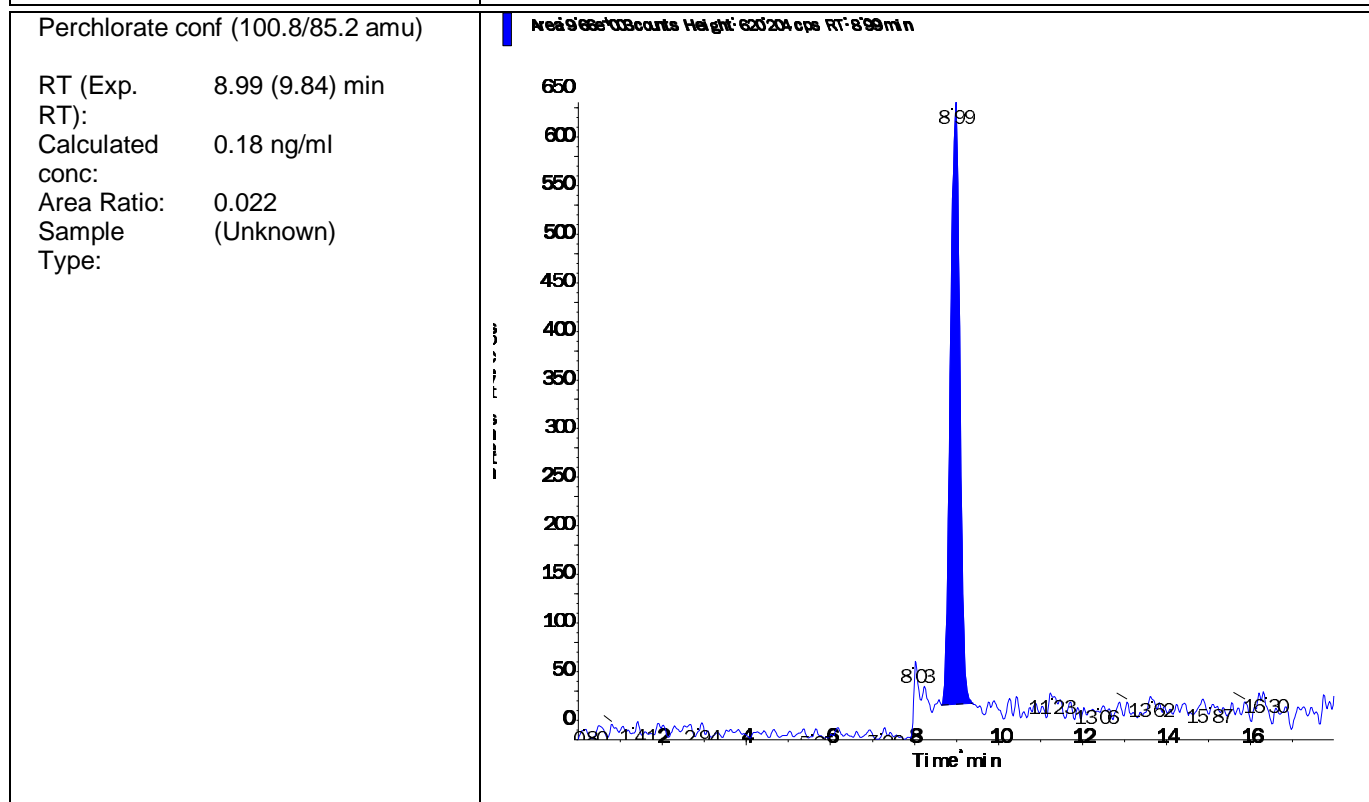
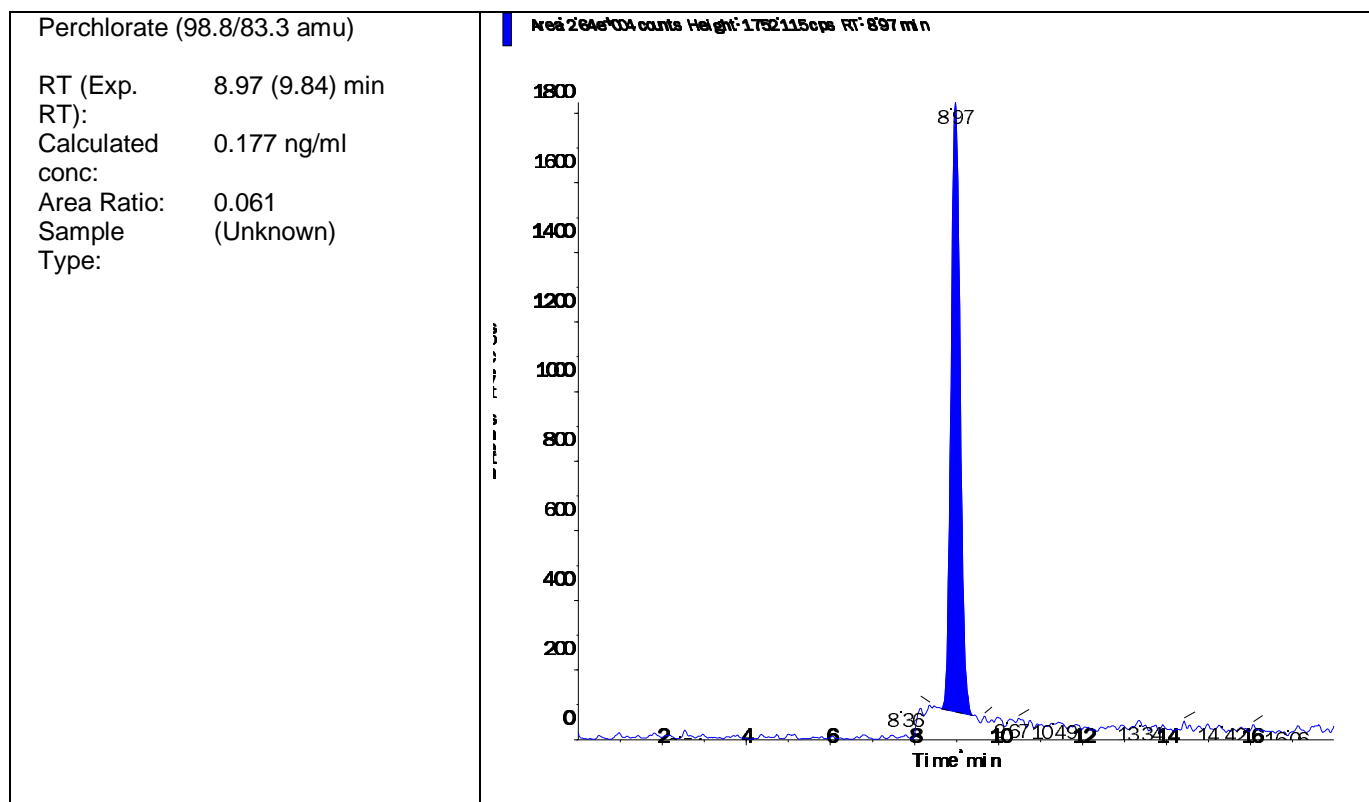
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Acquisition Date	11/8/2016 4:34:47 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





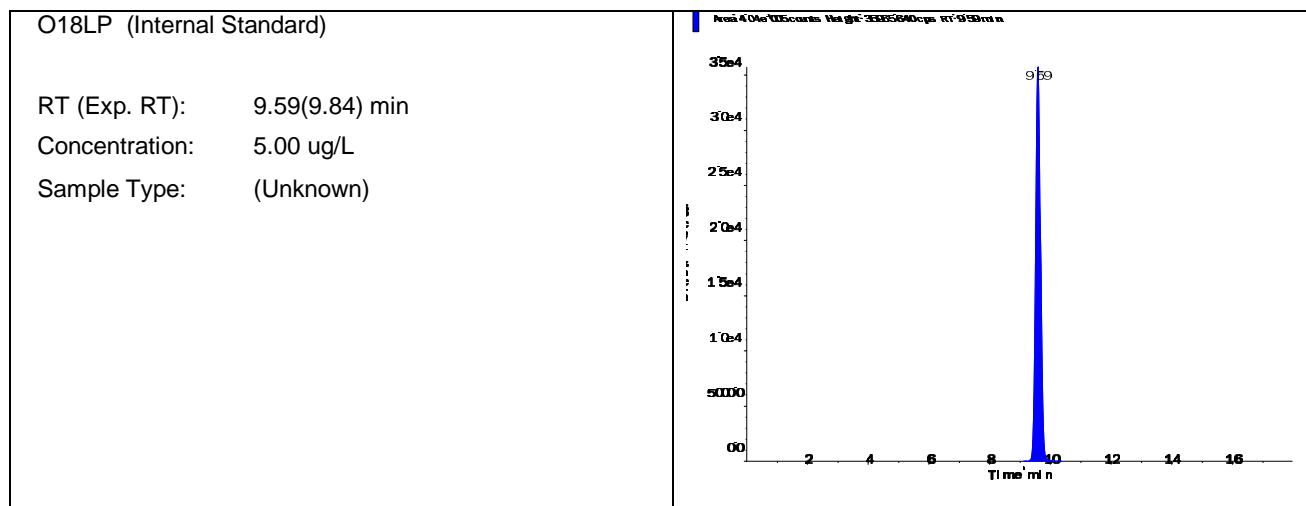
2.2.1.5 Raw QC Data

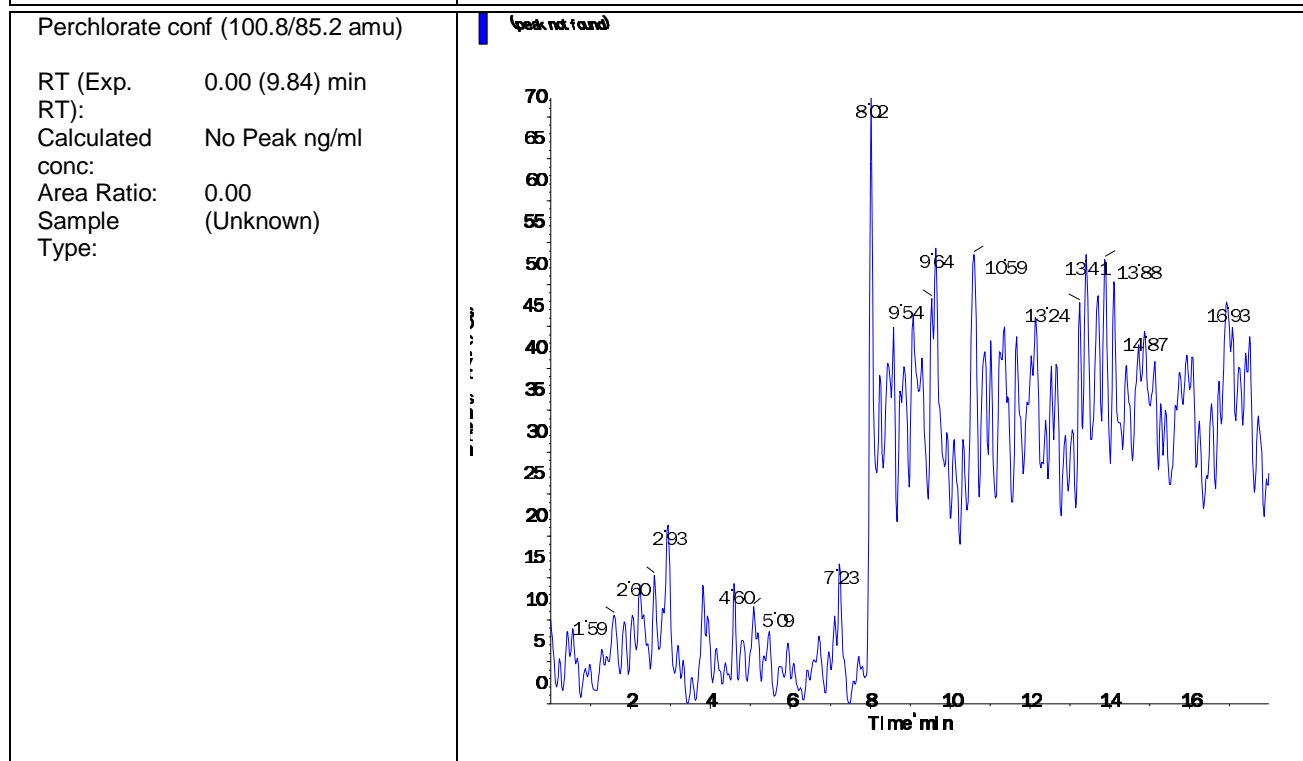
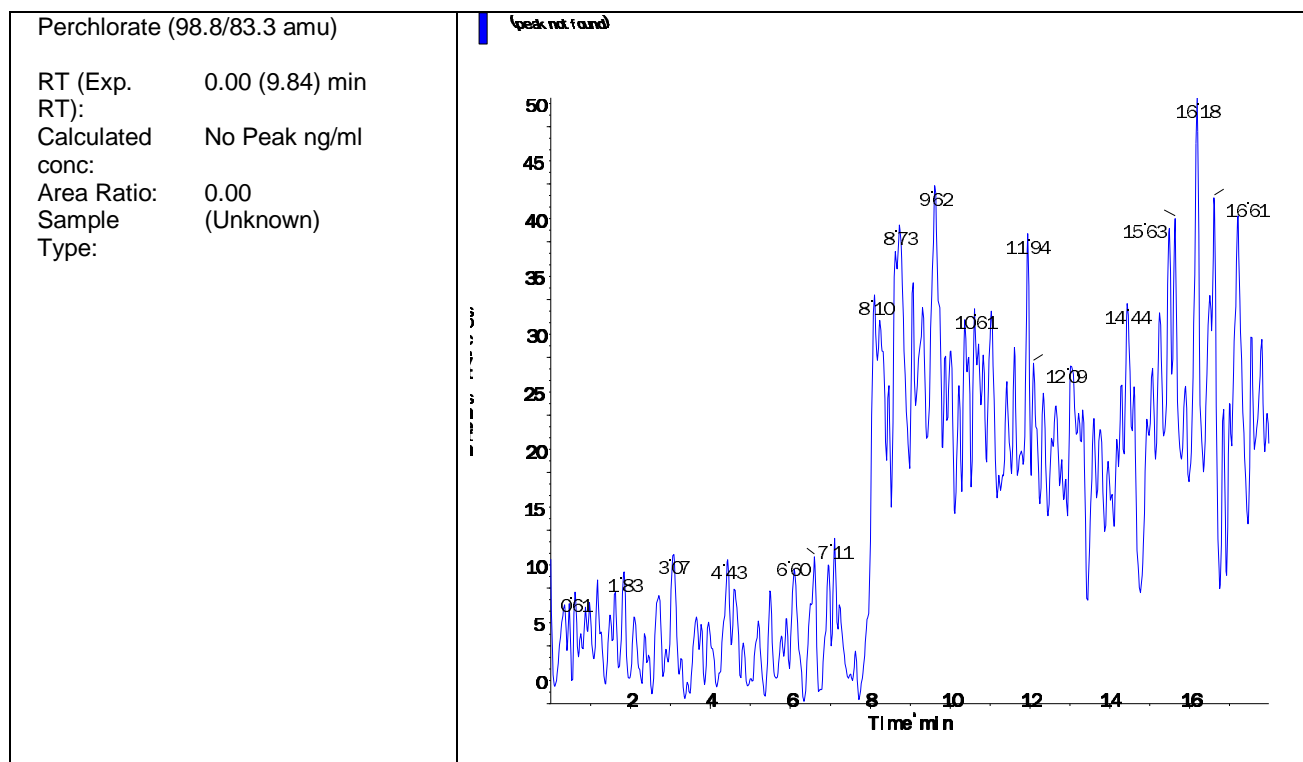
Data File	LM37552.wiff	Result Table	110816_JWR.rdb
Acquisition Date	11/8/2016 4:53:43 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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



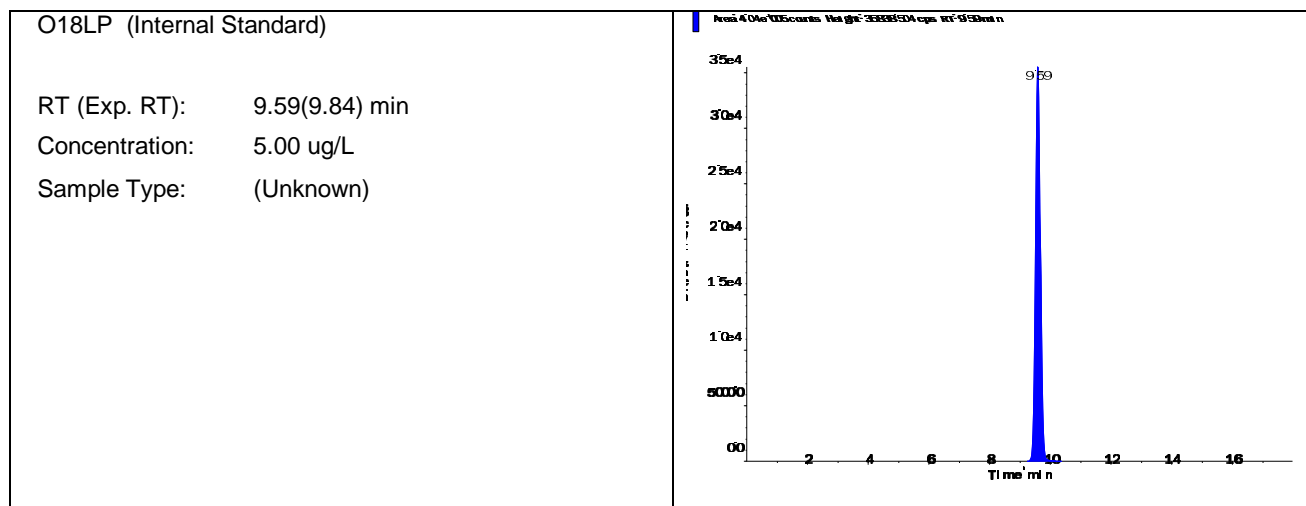


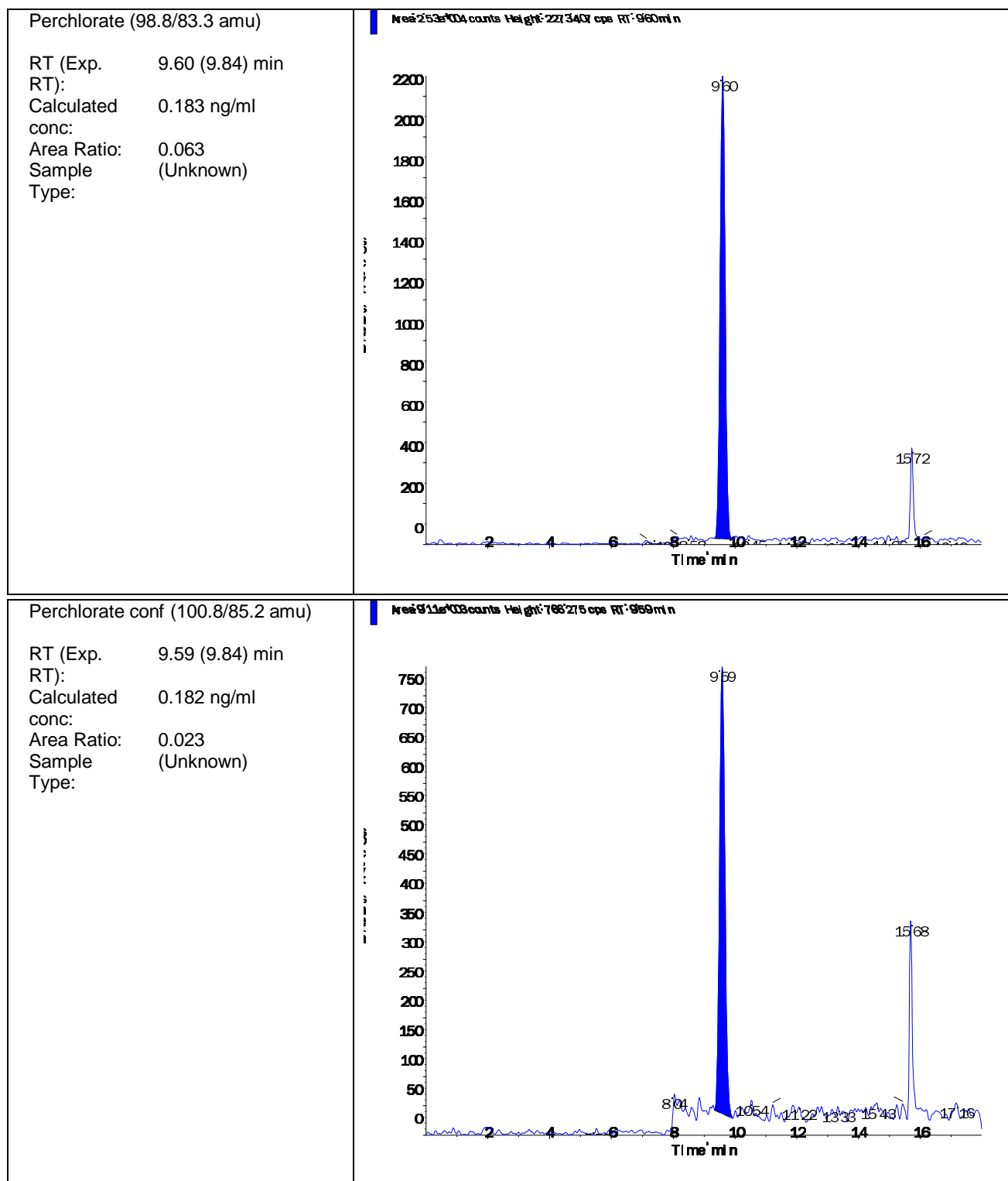
Data File	LM37553.wiff	Result Table	110816_JWR.rdb
Acquisition Date	11/8/2016 5:12:39 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





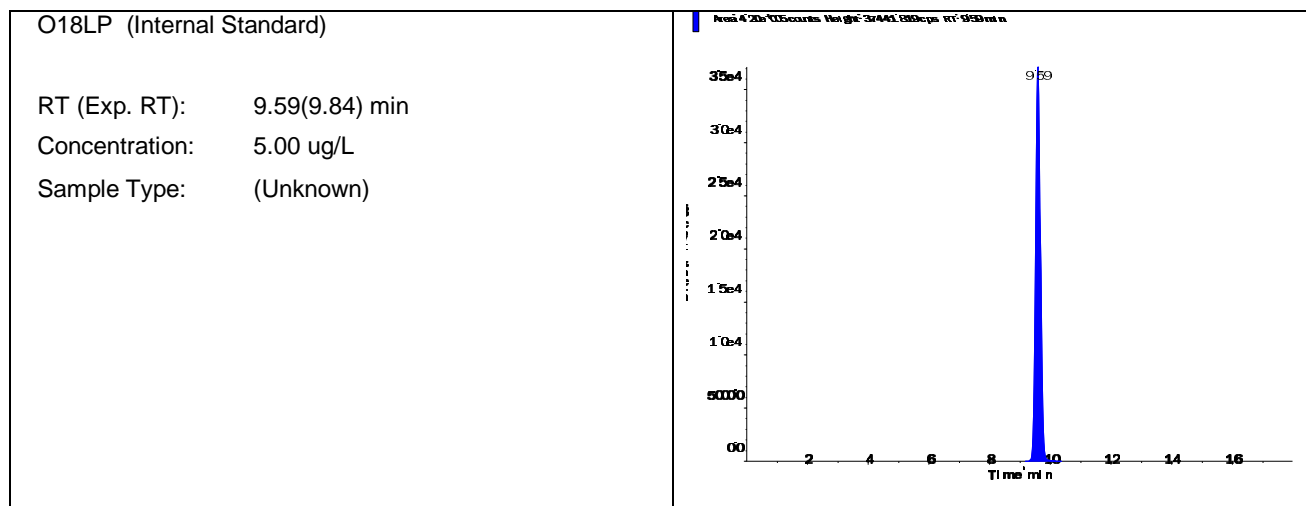
s.dataFile Page 2 of 2

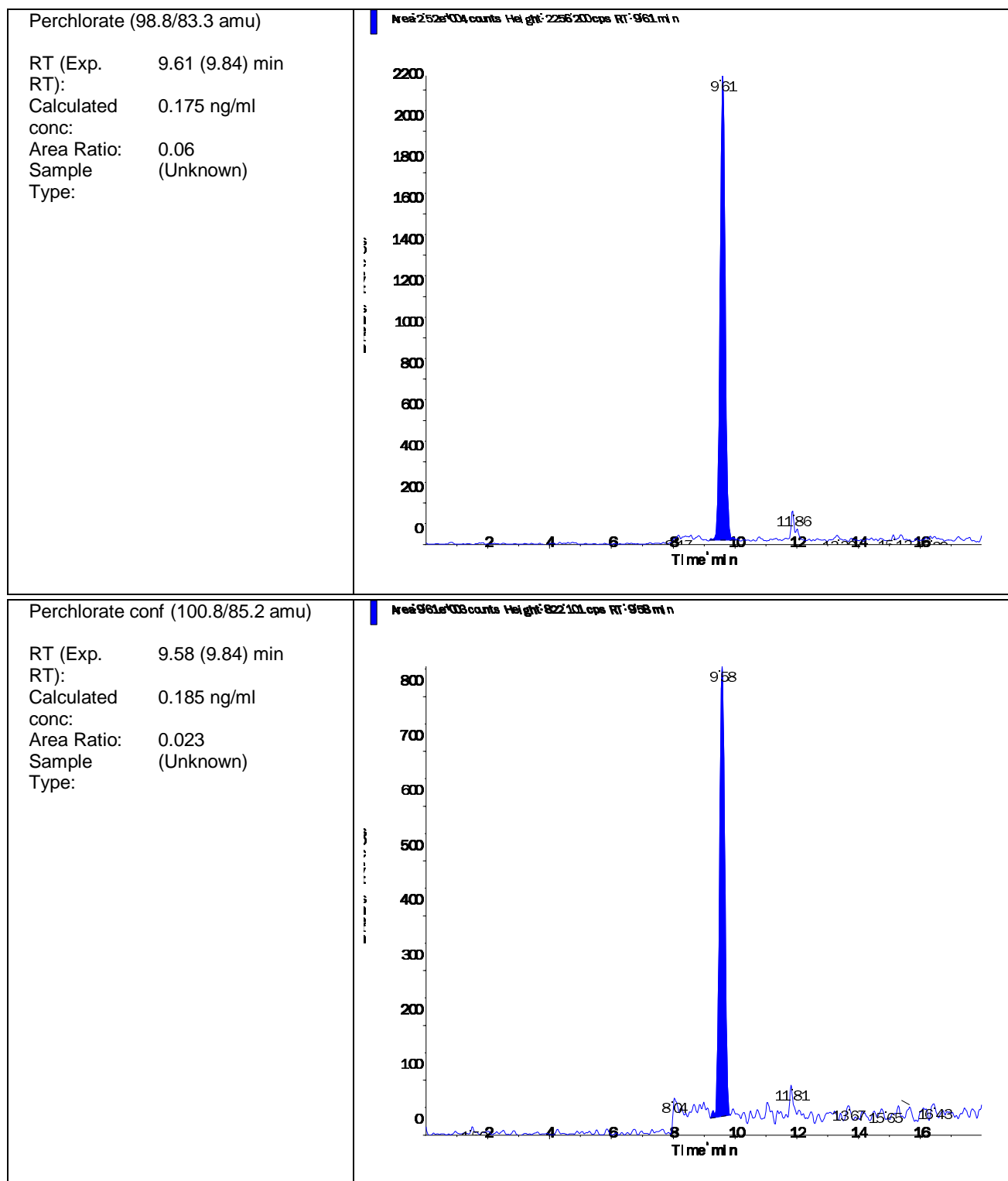
Data File	LM37554.wiff	Result Table	110816_JWR.rdb
Acquisition Date	11/8/2016 5:31:36 PM	Algorithm Used	Analyst Classic
Acquisition Method	062911.dam	Instrument Name	API 4000
Project	Perchlorate\2009_07_22		

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





2.3 Metals Data

2.3.1 Metals I C P Data

2.3.1.1 Summary Data

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-02	PrePrep Method: N/A	Instrument: ICP-THERMO4
Client ID: 50WW08FF-110216	Prep Method: 3015	Prep Date: 11/03/2016 12:36
Matrix: Water	Analytical Method: 6010C	Cal Date: 11/04/2016 10:50
Workgroup #: WG590393	Analyst: KKB	Run Date: 11/04/2016 14:23
Collect Date: 11/02/2016 08:15	Dilution: 1	File ID: T4.110416.142314
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.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-04

PrePrep Method: N/A

Instrument: ICP-THERMO4

Client ID: 50WW22FF-110216

Prep Method: 3015

Prep Date: 11/03/2016 12:36

Matrix: Water

Analytical Method: 6010C

Cal Date: 11/04/2016 10:50

Workgroup #: WG590393

Analyst: KKB

Run Date: 11/04/2016 14:26

Collect Date: 11/02/2016 09:25

Dilution: 1

File ID: T4.110416.142659

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.					

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-06	PrePrep Method: N/A	Instrument: ICP-THERMO4
Client ID: 50WW16FF-110216	Prep Method: 3015	Prep Date: 11/03/2016 12:36
Matrix: Water	Analytical Method: 6010C	Cal Date: 11/04/2016 10:50
Workgroup #: WG590393	Analyst: KKB	Run Date: 11/04/2016 14:30
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: T4.110416.143052
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Iron, Dissolved	7439-89-6	4.45		0.100	0.100	0.0500

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:

Cs = Concentration computed by the data system in ug/mL (ppm)

Vf = Final volume (mL)

Vi = Initial volume (mL)

D = Dilution factor as a multiplier (10X = 10)

Cx = Concentration of element in ug/mL (mg/L)

Example:

0.1

50

50

1

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:

Cs = Concentration computed by the data system (mg/L) (ppm)

Vf = Final volume (mL)

Vi = Initial weight (g)

D = Dilution factor as a multiplier (10X = 10)

Cx = Concentration of element in ug/g (mg/kg)

Example:

0.1

50

1

1

5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:

Cx = Concentration calculated as received (wet basis)

Px = Percent solids of sample (%wt)

$Cdry$ = Concentration calculated as dry weight (mg/kg)

Example:

5

80

6.25

Workgroup: WG590228
 Analyst: ERP
 Spike Analyst: ERP
 Run Date: 11/03/2016 10:53
 Method: 3015
 Balance: BAL019
 Instrument: MW-1
 Instrument Start: 11/03/2016 11:04

SOP: ME407 Revision 19
 Spike Solution: STD78692
 Spike Witness: VC
 HNO3 Lot #: COA19196
 HCL Lot #: COA19265
 40 & 50 ML. DIGESTION TU COA18987
 ICP FILTERS LOT# R6BA1587RGT37256

SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG590228-02	BLANK	1	40 mL	50 mL	206.52 g	206.513 g	
2	WG590228-03	LCS	1	40 mL	50 mL	212.064 g	212.061 g	5 mL
3	L16110098-02	SAMP	1	40 mL	50 mL	206.621 g	206.57 g	11/16/16
4	L16110098-05	SAMP	1	40 mL	50 mL	205.828 g	205.823 g	11/16/16
5	L16110098-08	SAMP	1	40 mL	50 mL	206.223 g	206.182 g	11/16/16
6	WG590228-01	REF	1	40 mL	50 mL	205.484 g	205.453 g	
7	L16110098-13	RS02	1	40 mL	50 mL	205.484 g	205.453 g	11/16/16
8	WG590228-04	MS	1	40 mL	50 mL	210.298 g	210.291 g	5 mL
9	L16110098-14	MS02	1	40 mL	50 mL	210.298 g	210.291 g	5 mL 11/16/16
10	WG590228-05	MSD	1	40 mL	50 mL	209.071 g	209.055 g	5 mL
11	L16110098-15	SD02	1	40 mL	50 mL	209.071 g	209.055 g	5 mL 11/16/16
12	L16110098-20	SAMP	1	40 mL	50 mL	205.474 g	205.475 g	11/16/16
13	L16110098-23	SAMP	1	40 mL	50 mL	205.073 g	205.052 g	11/16/16
14	L16110134-01	SAMP	1	40 mL	50 mL	207.009 g	207.002 g	11/10/16
15	L16110134-02	SAMP	1	40 mL	50 mL	207.05 g	207.041 g	11/10/16
16	L16110134-03	SAMP	1	40 mL	50 mL	204.966 g	204.955 g	11/10/16
17	L16110134-04	SAMP	1	40 mL	50 mL	206.35 g	206.332 g	11/10/16
18	L16110134-05	SAMP	1	40 mL	50 mL	208.473 g	208.467 g	11/10/16
19	L16110134-06	SAMP	1	40 mL	50 mL	205.761 g	205.733 g	11/10/16
20	L16110134-07	SAMP	1	40 mL	50 mL	206.818 g	206.812 g	11/10/16
21	L16110143-01	SAMP	12	1 mL	50 mL	205.441 g	205.434 g	11/04/16
22	L16110144-02	SAMP	1	40 mL	50 mL	204.856 g	204.828 g	11/14/16
23	L16110144-04	SAMP	1	40 mL	50 mL	204.808 g	204.787 g	11/14/16
24	L16110144-06	SAMP	1	40 mL	50 mL	204.527 g	204.518 g	11/14/16
25	L16110145-01	SAMP	1	40 mL	50 mL	206.722 g	206.706 g	11/14/16
26	L16110145-02	SAMP	1	40 mL	50 mL	204.168 g	204.158 g	11/14/16

L16110143-01	FILTERED DIGESTATE
L16110144-04	FILTERED DIGESTATE

Analyst: Evan Poston

Reviewer: Verche Collier



Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 110416T4.1R.TXT
 Analyst1: KKB Analyst2: N/A
 Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
 Maintenance Log ID: _____
 Calibration Std: STD78528 ICV Std: STD78527 Post Spike: STD77492
 ICSA: STD78682 ICSAB: STD78784 Int. Std: RGT37691
 CCV: STD78785 LLCCV: COA19158 Tuning Sol : _____
 Stannous : _____ Hydroxylamine : _____

Workgroups: 590393,590254,590252,586389

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	T4.110416.103521	WG590492-01	Calibration Point		1		11/04/16 10:35
2	T4.110416.103909	WG590492-02	Calibration Point		1		11/04/16 10:39
3	T4.110416.104258	WG590492-03	Calibration Point		1		11/04/16 10:42
4	T4.110416.104647	WG590492-04	Calibration Point		1		11/04/16 10:46
5	T4.110416.105019	WG590492-05	Calibration Point		1		11/04/16 10:50
6	T4.110416.105348	WG590492-06	Initial Calibration Verification		1		11/04/16 10:53
7	T4.110416.105721	WG590492-07	Initial Calib Blank		1		11/04/16 10:57
8	T4.110416.110109	WG590492-08	Low Level Initial Calibration V		1		11/04/16 11:01
9	T4.110416.110456	WG590492-09	Low Level Initial Calibration V		1		11/04/16 11:04
10	T4.110416.110841	WG590492-10	Interference Check		1		11/04/16 11:08
11	T4.110416.111235	WG590492-11	Interference Check		1		11/04/16 11:12
12	T4.110416.111621	WG590492-12	CCV		1		11/04/16 11:16
13	T4.110416.111953	WG590492-13	CCB		1		11/04/16 11:19
14	T4.110416.125348	WG590492-14	CCV		1		11/04/16 12:53
15	T4.110416.125719	WG590492-15	CCB		1		11/04/16 12:57
16	T4.110416.130109	WG590228-02	Method/Prep Blank	40/50	1		11/04/16 13:01
17	T4.110416.130458	WG590228-03	Laboratory Control S	40/50	1		11/04/16 13:04
18	T4.110416.130833	L16110098-02	SW1A-325-14	40/50	1		11/04/16 13:08
19	T4.110416.131219	L16110098-05	SW1B-325-14	40/50	1		11/04/16 13:12
20	T4.110416.131605	L16110098-08	SW2A-325-14	40/50	1		11/04/16 13:16
21	T4.110416.131951	WG590228-01	Reference Sample		1	L16110098-13	11/04/16 13:19
22	T4.110416.132339	WG590228-04	Matrix Spike	40/50	1	L16110098-13	11/04/16 13:23
23	T4.110416.132715	WG590228-05	Matrix Spike Duplica	40/50	1	L16110098-13	11/04/16 13:27
24	T4.110416.133051	L16110098-20	SW4A-325-14	40/50	1		11/04/16 13:30
25	T4.110416.133439	L16110098-23	SW5A-325-14	40/50	1		11/04/16 13:34
26	T4.110416.133828	WG590492-16	CCV		1		11/04/16 13:38
27	T4.110416.134159	WG590492-17	CCB		1		11/04/16 13:41
28	T4.110416.134550	L16110134-01	15-13-13 S1	40/50	1		11/04/16 13:45
29	T4.110416.134934	L16110134-02	15-13-13 P1	40/50	1		11/04/16 13:49
30	T4.110416.135318	L16110134-03	15-13-19 W2	40/50	1		11/04/16 13:53
31	T4.110416.135703	L16110134-04	15-13-19 W1	40/50	1		11/04/16 13:57
32	T4.110416.140049	L16110134-05	15-13-12 W1	40/50	1		11/04/16 14:00
33	T4.110416.140434	L16110134-06	15-13-23.2 W1	40/50	1		11/04/16 14:04
34	T4.110416.140819	L16110134-07	2212-113 W1	40/50	1		11/04/16 14:08

Page: 1 Approved: November 07, 2016

Sam H. Rhodes

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 110416T4.1R.TXT
 Analyst1: KKB Analyst2: N/A
 Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
 Maintenance Log ID: _____
 Calibration Std: STD78528 ICV Std: STD78527 Post Spike: STD77492
 ICSA: STD78682 ICSAB: STD78784 Int. Std: RGT37691
 CCV: STD78785 LLCCV: COA19158 Tuning Sol: _____
 Stannous: _____ Hydroxylamine: _____

Workgroups: 590393,590254,590252,586389

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	T4.110416.141204	L16110143-01	553-111A	1/50	1		11/04/16 14:12
36	T4.110416.141553	WG590492-18	CCV		1		11/04/16 14:15
37	T4.110416.141924	WG590492-19	CCB		1		11/04/16 14:19
38	T4.110416.142314	L16110144-02	50WW08FF-110216	40/50	1		11/04/16 14:23
39	T4.110416.142659	L16110144-04	50WW22FF-110216	40/50	1		11/04/16 14:26
40	T4.110416.143052	L16110144-06	50WW16FF-110216	40/50	1		11/04/16 14:30
41	T4.110416.143436	L16110145-01	PS-SW-108	40/50	1		11/04/16 14:34
42	T4.110416.143816	L16110145-02	PS-SW-108	40/50	1		11/04/16 14:38
43	T4.110416.144157	WG590393-01	Post Digestion Spike		1	L16110145-02	11/04/16 14:41
44	T4.110416.144530	WG590393-02	Serial Dilution		5	L16110145-02	11/04/16 14:45
45	T4.110416.144914	WG590492-20	CCV		1		11/04/16 14:49
46	T4.110416.145245	WG590492-21	CCB		1		11/04/16 14:52
47	T4.110416.145634	WG590492-22	Low Level Continuing Calibra		1		11/04/16 14:56
48	T4.110416.150020	WG590492-23	Low Level Continuing Calibra		1		11/04/16 15:00
49	T4.110416.151954	L16110016-01	V6J0297-01	5/50	5	WG590088-01	11/04/16 15:19
50	T4.110416.152337	L001601+.25p-pm	001601+.25ppm		1		11/04/16 15:23
51	T4.110416.152713	L001601+.50p-pm	001601+.50ppm		1		11/04/16 15:27
52	T4.110416.153043	L001601+.75p-pm	001601+.75ppm		1		11/04/16 15:30
53	T4.110416.153412	WG590492-24	CCV		1		11/04/16 15:34
54	T4.110416.153744	WG590492-25	CCB		1		11/04/16 15:37
55	T4.110416.154133	WG590492-26	Low Level Continuing Calibra		1		11/04/16 15:41
56	T4.110416.154519	WG590492-27	Low Level Continuing Calibra		1		11/04/16 15:45
57	T4.110416.154906	WG589732-02	Method/Prep Blank	40/50	1		11/04/16 15:49
58	T4.110416.155253	WG589732-03	Laboratory Control S	40/50	1		11/04/16 15:52
59	T4.110416.155631	L16101402-02	SCF-WL01-102616	40/50	1		11/04/16 15:56
60	T4.110416.160011	WG590252-03	Post Digestion Spike		1	L16101402-02	11/04/16 16:00
61	T4.110416.160345	WG590252-04	Serial Dilution		5	L16101402-02	11/04/16 16:03
62	T4.110416.160726	L16101402-03	SCF-WL02-102616	40/50	1		11/04/16 16:07
63	T4.110416.161114	L16101456-03	B122MW2LS18	40/50	10		11/04/16 16:11
64	T4.110416.161501	L16101543-06	59-11-11.07 P1		1	WG589732-01	11/04/16 16:15
65	T4.110416.161846	WG589732-04	Matrix Spike	40/50	1	L16101543-06	11/04/16 16:18
66	T4.110416.162223	WG589732-05	Matrix Spike Duplica	40/50	1	L16101543-06	11/04/16 16:22
67	T4.110416.162559	WG590492-28	CCV		1		11/04/16 16:25
68	T4.110416.162930	WG590492-29	CCB		1		11/04/16 16:29

Page: 2 Approved: November 07, 2016

Sam H. Rhodes

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 110416T4.1R.TXT
 Analyst1: KKB Analyst2: N/A
 Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
 Maintenance Log ID: _____
 Calibration Std: STD78528 ICV Std: STD78527 Post Spike: STD77492
 ICSA: STD78682 ICSAB: STD78784 Int. Std: RGT37691
 CCV: STD78785 LLCCV: COA19158 Tuning Sol: _____
 Stannous: _____ Hydroxylamine: _____

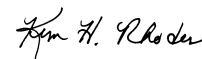
Workgroups: 590393,590254,590252,586389

Comments:

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Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
69	T4.110416.163321	WG590492-30	Interference Check		1		11/04/16 16:33
70	T4.110416.163713	WG590492-31	Interference Check		1		11/04/16 16:37
71	T4.110416.164059	WG590492-32	CCV		1		11/04/16 16:40
72	T4.110416.164431	WG590492-33	CCB		1		11/04/16 16:44
73	T4.110416.164821	L16100010-52	T4	40/50	1		11/04/16 16:48
74	T4.110416.165209	L16100010-52	T4		1		11/04/16 16:52
75	T4.110416.165558	WG590492-34	CCV		1		11/04/16 16:55
76	T4.110416.165931	WG590492-35	CCB		1		11/04/16 16:59

Page: 3 Approved: November 07, 2016




Microbac Laboratories Inc.

Data Checklist

Date: 04-NOV-2016
 Analyst: KKB
 Analyst: NA
 Method: 6010B/6010C
 Instrument: ICP-THERMO4
 Curve Workgroup: 590492
 Runlog ID: 78505
 Analytical Workgroups: 590393,590254,590252,586389

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	
Level 4	0144
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:
07-NOV-2016

Secondary Reviewer:
07-NOV-2016

Ki K Beck

Tom H. Rhodes



Analytical Method:6010C
 Login Number:L16110144

AAB#:WG590393

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
50WW08FF-110216	02	11/02/16					11/03/2016	1.2	180		11/04/16	2.3	180	
50WW22FF-110216	04	11/02/16					11/03/2016	1.1	180		11/04/16	2.2	180	
50WW16FF-110216	06	11/02/16					11/03/2016	1.1	180		11/04/16	2.2	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
 PDF File ID: 5010071
 Report generated 11/04/2016 15:42



METHOD BLANK SUMMARY

Login Number: L16110144
 Blank File ID: T4.110416.130109
 Prep Date: 11/03/16 10:53
 Analyzed Date: 11/04/16 13:01
 Analyst: KKB

Work Group: WG590393
 Blank Sample ID: WG590228-02
 Instrument ID: ICP-THERMO4
 Method: 6010C

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590228-03	T4.110416.130458	11/04/16 13:04	01
50WW08FF-110216	L16110144-02	T4.110416.142314	11/04/16 14:23	01
50WW22FF-110216	L16110144-04	T4.110416.142659	11/04/16 14:26	01
50WW16FF-110216	L16110144-06	T4.110416.143052	11/04/16 14:30	01

Report Name: BLANK_SUMMARY
 PDF File ID: 5010072
 Report generated 11/04/2016 15:45



Login Number: L16110144 Prep Date: 11/03/16 10:53 Sample ID: WG590228-02
 Instrument ID: ICP-THERMO4 Run Date: 11/04/16 13:01 Prep Method: 3015
 File ID: T4.110416.130109 Analyst: KKB Method: 6010C
 Workgroup (AAB#): WG590393 Matrix: Water Units: mg/L
 Contract #: _____ Cal ID: ICP-TH-04-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: 5010073
 04-NOV-2016 15:42



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590228-03
Instrument ID: ICP-THERMO4 Run Time: 13:04 Prep Method: 3015
File ID: T4.110416.130458 Analyst: KKB Method: 6010C
Workgroup (AAB#): WG590393 Matrix: Water Units: mg/L
QC Key: DOD4 Lot#: STD78692 Cal ID: ICP-TH-04-NOV-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Iron, Dissolved	2.50	2.50	99.9	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 5010074
Report generated: 11/04/2016 15:42



Loginum: L16110144 Cal ID: ICP-THERMO4- Worknum: WG590393
 Instrument ID: ICP-THERMO4 Contract #: _____ Method: 6010C
 Parent ID: WG590228-01 File ID: T4.110416.131951 Dil: 1 Matrix: WATER
 Sample ID: WG590228-04 MS File ID: T4.110416.132339 Dil: 1 Units: mg/L
 Sample ID: WG590228-05 MSD File ID: T4.110416.132715 Dil: 1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Iron	0.303	2.50	2.83	101	2.50	2.71	96.1	4.29	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

Microbac Laboratories Inc.
Serial Dilution Report

Login: L16110144 **Worknum:** WG590393
Instrument: ICP-THERMO4 **Method:** 6010C
Serial Dil: WG590393-02 **File ID:** T4.110416.144530 **Dil:** 5 **Units:** ug/L
Sample: L16110145-02 **File ID:** T4.110416.143816 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Iron	23.8		93.8		294.00	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 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: 5010069

11/04/2016 15:42



Sample Login ID: L16110144 Worknum: WG590393
 Instrument ID: ICP-THERMO4 Method: 6010C
 Post Spike ID: WG590393-01 File ID: T4.110416.144157 Dil: 1 Units: ug/L
 Sample ID: L16110145-02 File ID: T4.110416.143816 Dil: 1 Matrix: Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
IRON	1980		0	U	2000	98.9	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



Login: L16110144 Workgroup (AAB#): WG590393
 Analytical Method: 6010C Instrument ID: ICP-THERMO4
 ICAL Worknum: WG590492 Initial Calibration Date: 04-NOV-2016 10:50

	WG590492-01		WG590492-02		WG590492-03		WG590492-04		WG590492-05		R	Q
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	Conc	INT		
IRON	0	-0.0000700	.04	0.000230	.08	0.000460	4	0.0325	8	0.0652	.999966	

INT = Instrument intensity
 R = Coefficient of correlation
 Q = Data Qualifier
 * = Out of Compliance; R < 0.995



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-07
Instrument ID: ICP-THERMO4 Run Time: 10:57 Method: 6010C
File ID: T4.110416.105721 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG590393 Cal ID: ICP-THERM - 04-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



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-13
 Instrument ID: ICP-THERMO4 Run Time: 11:19 Method: 6010C
 File ID: T4.110416.111953 Analyst: KKB Units: mg/L
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-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: 5010083
 Report generated 11/04/2016 15:42



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-15
 Instrument ID: ICP-THERMO4 Run Time: 12:57 Method: 6010C
 File ID: T4.110416.125719 Analyst: KKB Units: mg/L
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-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.



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-17
 Instrument ID: ICP-THERMO4 Run Time: 13:41 Method: 6010C
 File ID: T4.110416.134159 Analyst: KKB Units: mg/L
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-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.



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-19
Instrument ID: ICP-THERMO4 Run Time: 14:19 Method: 6010C
File ID: T4.110416.141924 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-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: 5010083
Report generated 11/04/2016 15:42



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-21
 Instrument ID: ICP-THERMO4 Run Time: 14:52 Method: 6010C
 File ID: T4.110416.145245 Analyst: KKB Units: mg/L
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-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: 5010083
 Report generated 11/04/2016 15:42



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-06
Instrument ID: ICP-THERMO4 Run Time: 10:53 Method: 6010C
File ID: T4.110416.105348 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
QC Key: DOD4

Analyte	Expected	Found	%REC	LIMITS	Q
Iron	4	3.94	98.6	90 - 110	

* Exceeds LIMITS Limit



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-12
Instrument ID: ICP-THERMO4 Run Time: 11:16 Method: 6010C
File ID: T4.110416.111621 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Iron	4.00	4.02	mg/L	100	90 - 110	

* Exceeds LIMITS Criteria



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-14
Instrument ID: ICP-THERMO4 Run Time: 12:53 Method: 6010C
File ID: T4.110416.125348 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Iron	4.00	3.99	mg/L	99.7	90 - 110	

* Exceeds LIMITS Criteria



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-16
 Instrument ID: ICP-THERMO4 Run Time: 13:38 Method: 6010C
 File ID: T4.110416.133828 Analyst: KKB QC Key: DOD4
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Iron	4.00	3.99	mg/L	99.9	90 - 110	

* Exceeds LIMITS Criteria



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-18
Instrument ID: ICP-THERMO4 Run Time: 14:15 Method: 6010C
File ID: T4.110416.141553 Analyst: KKB QC Key: DOD4
Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Iron	4.00	4.03	mg/L	101	90 - 110	

* Exceeds LIMITS Criteria



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-20
 Instrument ID: ICP-THERMO4 Run Time: 14:49 Method: 6010C
 File ID: T4.110416.144914 Analyst: KKB QC Key: DOD4
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Iron	4.00	4.01	mg/L	100	90 - 110	

* Exceeds LIMITS Criteria



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-09
 Instrument ID: ICP-THERMO4 Run Time: 11:04 Method: 6010C
 File ID: T4.110416.110456 Analyst: KKB QC Key: DOD4
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Iron	0.100	0.0969	mg/L	96.9	70 - 130	

* Exceeds LIMITS Criteria



Login Number: L16110144 Run Date: 11/04/2016 Sample ID: WG590492-23
 Instrument ID: ICP-THERMO4 Run Time: 15:00 Method: 6010C
 File ID: T4.110416.150020 Analyst: KKB QC Key: DOD4
 Workgroup (AAB#): WG590393 Cal ID: ICP-TH - 04-NOV-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Iron	0.100	0.101	mg/L	101	70 - 130	

* Exceeds LIMITS Criteria



Login number: L16110144
 Instrument ID: ICP-THERMO4
 Sol. A: WG590492-10
 Sol. AB: WG590492-11

File ID: T4.110416.110841
 File ID: T4.110416.111235

Workgroup (AAB#): WG590393
 Method: 6010C
 Units: mg/L
 Matrix: Water

ANALYTE	Sol. A			Sol. AB			Q
	True	Found	%Recovery	True	Found	%Recovery	
Iron	100	96.5	96.5	100	96.9	96.9	

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.



Login Number: L16110144
 Instrument ID: ICP-THERMO4

Date: 07/25/2016
 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: 5010077
 Report generated: 11/04/2016 15:42



Login Number: L16110144
 Instrument ID: ICP-THERMO4

Date: 07/25/2016
 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: 5010077
 Report generated: 11/04/2016 15:42



Login Number: L16110144
 Instrument ID: ICP-THERMO4

Date: 07/25/2016
 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
 PDF File ID: 5010077
 Report generated: 11/04/2016 15:42



Login Number: L16110144
 Instrument ID: ICP-THERMO4

Date: 07/25/2016
 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
 PDF File ID: 5010077
 Report generated: 11/04/2016 15:42



Login Number: L16110144
 Instrument ID: ICP-THERMO4

Date: 07/25/2016
 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
 PDF File ID: 5010077
 Report generated: 11/04/2016 15:42



Login Number: L16110144
 Instrument ID: ICP-THERMO4

Date: 07/25/2016
 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: 5010077
 Report generated: 11/04/2016 15:42



Login Number: L16110144
 Instrument ID: ICP-THERMO4

Date: 07/25/2016
 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: 5010077
 Report generated: 11/04/2016 15:42



Login Number: L16110144 Date: 10/25/0016
 Instrument 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	9.0
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: 5010076
 Report generated: 11/04/2016 15:42



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}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000167	0.049103	0.000000	1.000000
Al 308.215 {109}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.001451	0.008667	0.000000	1.000000
As 189.042 {478}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000070	0.023969	0.000000	1.000000
B 249.678 {135}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000181	0.014725	0.000000	1.000000
Ba 455.403 {74}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.007489	1.280249	0.000000	1.000000
Be 313.107 {108}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000079	0.643160	0.000000	1.000000
Ca 422.673 {80}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000027	0.029910	0.000000	1.000000
Cd 228.802 {447}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000504	0.394391	0.000000	1.000000
Co 228.616 {447}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000015	0.305092	0.000000	1.000000
Cr 267.716 {126}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000005	0.039657	0.000000	1.000000
Cu 224.700 {450}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000664	0.095649	0.000000	1.000000
Fe 261.187 {129}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000073	0.008155	0.000000	1.000000
K 766.490 {44}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.003495	0.017636	0.000000	1.000000
Li 670.784 {50}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.001826	0.340401	0.000000	1.000000
Mg 279.079 {121}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000226	0.002189	0.000000	1.000000
Mn 257.610 {131}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000548	0.088810	0.000000	1.000000
Mo 202.030 {467}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000062	0.118048	0.000000	1.000000
Na 589.592 {57}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.002440	0.049825	0.000000	1.000000
Ni 231.604 {446}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000788	0.082101	0.000000	1.000000
P 214.914 {457}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000042	0.011006	0.000000	1.000000
Pb 220.353 {453}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000475	0.054257	0.000000	1.000000
Sb 206.833 {463}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000322	0.023774	0.000000	1.000000
Se 196.090 {472}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000206	0.012246	0.000000	1.000000
Si 212.412 {459}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000303	0.026617	0.000000	1.000000
Sn 189.989 {477}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000332	0.075788	0.000000	1.000000
Sr 407.771 {83}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.002097	2.313742	0.000000	1.000000
Tl 337.280 {100}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.001013	0.067683	0.000000	1.000000
Tl 190.856 {477}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000200	0.018540	0.000000	1.000000
V 292.402 {115}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	-0.000025	0.051731	0.000000	1.000000
Y 224.306 {450}* Y 360.073 {94}* Y 377.433 {89}*	<not fit> <not fit> <not fit>	<Never Calibrated> <Never Calibrated> <Never Calibrated>	Linear Linear Linear	1/Conc 1/Conc 1/Conc	0.000000 0.000000 0.000000	0.000000 0.000000 0.000000	0.000000 0.000000 0.000000	1.000000 1.000000 1.000000
Zn 206.200 {463}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.000261	0.424958	0.000000	1.000000
Zr 339.198 {99}	11/4/2016 10:53:44	11/4/2016 10:53:44	Linear	1/Conc	0.003906	1.730571	0.000000	1.000000

Approved: November 07, 2016

K: K Beck

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}	0.999923	0.000002	0.001644	0.005479	OK.	1.000000	0.000000	1	0
Al 308.215 {109}	0.999867	0.000009	0.006324	0.021080	OK.	1.000000	0.000000	1	0
As 189.042 {478}	0.999849	0.000002	0.003662	0.012208	OK.	1.000000	0.000000	1	0
B 249.678 {135}	0.999996	0.000000	0.002642	0.008806	OK.	1.000000	0.000000	1	0
Ba 455.403 {74}	0.999972	0.000061	0.000668	0.002226	OK.	1.000000	0.000000	1	0
Be 313.107 {108}	0.999972	0.000002	0.000076	0.000252	OK.	1.000000	0.000000	1	0
Ca 422.673 {80}	0.999948	0.000019	0.022149	0.073829	OK.	1.000000	0.000000	1	0
Cd 228.802 {447}	0.999879	0.000002	0.000347	0.001157	OK.	1.000000	0.000000	1	0
Co 228.616 {447}	0.999873	0.000006	0.000523	0.001742	OK.	1.000000	0.000000	1	0
Cr 267.716 {126}	0.999954	0.000001	0.001176	0.003921	OK.	1.000000	0.000000	1	0
Cu 224.700 {450}	0.999858	0.000005	0.001876	0.006254	OK.	1.000000	0.000000	1	0
Fe 261.187 {129}	0.999966	0.000002	0.020478	0.068261	OK.	1.000000	0.000000	1	0
K 766.490 {44}	0.999897	0.000080	0.090237	0.300790	OK.	1.000000	0.000000	1	0
Li 670.784 {50}	0.999996	0.000009	0.004916	0.016388	OK.	1.000000	0.000000	1	0
Mg 279.079 {121}	0.999995	0.000001	0.083656	0.278854	OK.	1.000000	0.000000	1	0
Mn 257.610 {131}	0.999858	0.000005	0.002376	0.007919	OK.	1.000000	0.000000	1	0
Mo 202.030 {467}	0.999959	0.000007	0.000680	0.002265	OK.	1.000000	0.000000	1	0
Na 589.592 {57}	0.999971	0.000120	0.031746	0.105820	OK.	1.000000	0.000000	1	0
Ni 231.604 {446}	0.999726	0.000006	0.001794	0.005980	OK.	1.000000	0.000000	1	0
P 214.914 {457}	0.999936	0.000008	0.009031	0.030103	OK.	1.000000	0.000000	1	0
Pb 220.353 {453}	0.999844	0.000003	0.004322	0.014406	OK.	1.000000	0.000000	1	0
Sb 206.833 {463}	0.999961	0.000002	0.005931	0.019770	OK.	1.000000	0.000000	1	0
Se 196.090 {472}	0.998756	0.000002	0.009305	0.031016	OK.	1.000000	0.000000	1	0
Si 212.412 {459}	0.999955	0.000008	0.003536	0.011786	OK.	1.000000	0.000000	1	0
Sn 189.989 {477}	0.999979	0.000003	0.000969	0.003231	OK.	1.000000	0.000000	1	0
Sr 407.771 {83}	0.999986	0.000078	0.000295	0.000984	OK.	1.000000	0.000000	1	0
Ti 337.280 {100}	0.999968	0.000003	0.005304	0.017679	OK.	1.000000	0.000000	1	0
Tl 190.856 {477}	0.999432	0.000003	0.005073	0.016910	OK.	1.000000	0.000000	1	0
V 292.402 {115}	0.999953	0.000003	0.000985	0.003284	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}	0.999977	0.000018	0.000230	0.000767	OK.	1.000000	0.000000	1	0
Zr 339.198 {99}	0.999886	0.000166	0.000338	0.001128	OK.	1.000000	0.000000	1	0

Approved: November 07, 2016

K: K Buck

Sample Name: S0 Acquired: 11/4/2016 10:35:21 Type: Cal
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	-.00017	.00145	.00007	.00018	.00749	.00008	-.00003
Stddev	.00002	.00004	.00004	.00002	.00077	.00003	.00025
%RSD	14.240	2.9476	53.440	9.3691	10.348	39.900	910.52

#1	-.00019	.00143	.00003	.00019	.00821	.00011	-.00002
#2	-.00015	.00143	.00011	.00020	.00758	.00005	.00022
#3	-.00015	.00150	.00007	.00016	.00667	.00008	-.00028

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	.00050	.00002	.00001	-.00066	-.00007	.00349	-.00183
Stddev	.00013	.00006	.00004	.00011	.00011	.00126	.00145
%RSD	26.637	372.57	824.78	15.908	156.37	36.174	79.461

#1	.00040	.00005	-.00003	-.00061	-.00002	.00494	-.00275
#2	.00045	-.00005	-.00000	-.00060	-.00021	.00261	-.00258
#3	.00066	.00004	.00005	-.00079	.00000	.00293	-.00015

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	-.00023	.00055	.00006	-.00244	-.00079	-.00004	-.00048
Stddev	.00014	.00009	.00006	.00196	.00012	.00010	.00015
%RSD	62.439	16.948	91.518	80.428	15.657	231.79	31.648

#1	-.00009	.00054	-.00000	-.00108	-.00090	-.00014	-.00043
#2	-.00023	.00065	.00011	-.00156	-.00065	.00006	-.00035
#3	-.00037	.00046	.00008	-.00469	-.00081	-.00005	-.00064

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00032	-.00021	.00030	.00033	.00210	-.00101	-.00020
Stddev	.00012	.00007	.00008	.00002	.00010	.00005	.00011
%RSD	36.491	33.478	26.598	4.9400	4.8270	5.1231	54.259

#1	.00032	-.00021	.00023	.00032	.00217	-.00098	-.00031
#2	.00044	-.00027	.00029	.00035	.00214	-.00099	-.00019
#3	.00021	-.00014	.00039	.00033	.00198	-.00107	-.00010

Approved: November 07, 2016

K: K Buck

Sample Name: S0 Acquired: 11/4/2016 10:35:21 Type: Cal
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	-0.00003	.00026	-0.00391
Stddev	.00006	.00007	.00014
%RSD	229.14	27.079	3.6461

#1	-0.00007	.00034	-0.00407
#2	-0.00004	.00020	-0.00383
#3	.00004	.00024	-0.00382

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	7822.3	97525.	10736.
Stddev	17.7	502.	29.
%RSD	.22678	.51431	.26867

#1	7803.9	97005.	10709.
#2	7823.7	98006.	10766.
#3	7839.2	97564.	10733.

Approved: November 07, 2016

K: K Buck

Sample Name: S1 Acquired: 11/4/2016 10:39:09 Type: Cal
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00001	.00221	.01868	.00032	.00280	.00066	.00063
Stddev	.00003	.00003	.00062	.00004	.00015	.00006	.00005
%RSD	433.93	1.3643	3.3295	13.454	5.2373	8.6714	8.4751

#1	-.00002	.00218	.01838	.00035	.00291	.00071	.00063
#2	-.00000	.00220	.01940	.00033	.00264	.00068	.00057
#3	.00005	.00224	.01827	.00027	.00287	.00059	.00068

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	.00018	-.00017	.00023	.01184	.00098	.00100	.01956
Stddev	.00003	.00029	.00013	.00102	.00019	.00003	.00113
%RSD	13.676	172.31	57.997	8.6418	19.041	3.4081	5.7732

#1	.00016	-.00019	.00023	.01156	.00103	.00103	.01844
#2	.00018	-.00045	.00036	.01298	.00078	.00096	.02069
#3	.00021	.00013	.00010	.01100	.00114	.00101	.01955

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	-.00040	.00082	-.00030	.00057	.00150	.00096	.02086
Stddev	.00008	.00009	.00008	.00002	.00006	.00003	.00004
%RSD	19.583	10.771	27.095	3.1840	3.9748	3.5190	.20458

#1	-.00045	.00085	-.00028	.00059	.00147	.00100	.02090
#2	-.00045	.00072	-.00024	.00056	.00157	.00094	.02081
#3	-.00031	.00089	-.00040	.00056	.00146	.00094	.02086

Elem	Ti3372	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00052	.00037	.00376	.00975
Stddev	.00022	.00002	.00004	.00046
%RSD	42.112	5.7189	1.1627	4.6908

#1	-.00033	.00038	.00380	.00991
#2	-.00047	.00034	.00372	.01010
#3	-.00077	.00037	.00378	.00923

Approved: November 07, 2016

K: K Buck

Sample Name: S1 Acquired: 11/4/2016 10:39:09 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	7855.4	97822.	10703.
Stddev	19.2	331.	64.
%RSD	.24405	.33806	.59349
#1	7836.6	98192.	10774.
#2	7854.8	97720.	10681.
#3	7874.9	97555.	10653.

Approved: November 07, 2016

K: K Buck

Sample Name: S2 Acquired: 11/4/2016 10:42:58 Type: Cal
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00010	.00310	.00019	.00030	.02888	.00062	.00476
Stddev	.00004	.00001	.00004	.00000	.00044	.00003	.00024
%RSD	43.935	.38666	19.130	.59730	1.5332	4.6181	4.9692

#1	.00015	.00310	.00016	.00030	.02918	.00063	.00490
#2	.00006	.00311	.00023	.00030	.02837	.00058	.00448
#3	.00010	.00309	.00019	.00030	.02909	.00063	.00489

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	.00079	.00110	.00033	.00019	.00046	.01948	.00353
Stddev	.00008	.00009	.00006	.00016	.00028	.00106	.00125
%RSD	9.7561	7.8338	19.333	81.603	60.835	5.4171	35.550

#1	.00079	.00103	.00031	.00004	.00038	.01826	.00497
#2	.00086	.00119	.00027	.00035	.00023	.02009	.00292
#3	.00071	.00108	.00039	.00018	.00076	.02009	.00269

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	.00011	.00137	.00195	.04012	.00006	.00171	.00004
Stddev	.00009	.00025	.00006	.00168	.00001	.00020	.00017
%RSD	85.310	17.930	2.8252	4.1793	18.830	11.451	414.61

#1	.00000	.00131	.00200	.04179	.00007	.00183	-.00015
#2	.00017	.00164	.00189	.03844	.00006	.00182	.00012
#3	.00015	.00115	.00196	.04012	.00005	.00148	.00016

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00076	-.00018	.00252	.00161	.04060	.00011	-.00000
Stddev	.00006	.00001	.00004	.00003	.00034	.00007	.00002
%RSD	7.6890	5.1005	1.5373	2.0503	.84279	63.603	547.11

#1	.00071	-.00019	.00249	.00164	.04071	.00016	-.00002
#2	.00073	-.00017	.00252	.00157	.04022	.00015	-.00001
#3	.00082	-.00018	.00256	.00162	.04088	.00003	.00002

Approved: November 07, 2016

K: K Buck

Sample Name: S2 Acquired: 11/4/2016 10:42:58 Type: Cal
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00075	.00721	.02407
Stddev	.00004	.00004	.00066
%RSD	4.7113	.58492	2.7232

#1	.00079	.00724	.02333
#2	.00073	.00716	.02428
#3	.00073	.00723	.02458

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	7952.2	98124.	10850.
Stddev	12.6	205.	20.
%RSD	.15856	.20899	.18801

#1	7939.7	98210.	10828.
#2	7964.9	97890.	10868.
#3	7952.0	98273.	10854.

Approved: November 07, 2016

K: K Buck

Sample Name: S3 Acquired: 11/4/2016 10:46:47 Type: Cal
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.01931	.08986	.00946	.00750	1.2784	.03261	.29732	.02183
Stddev	.00010	.00023	.00007	.00005	.0010	.00021	.00081	.00010
%RSD	.52324	.26040	.78144	.64939	.07724	.64609	.27332	.47896

#1	.01941	.08983	.00954	.00753	1.2793	.03286	.29826	.02180
#2	.01921	.08965	.00939	.00745	1.2773	.03248	.29682	.02195
#3	.01932	.09011	.00944	.00753	1.2785	.03250	.29690	.02175

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	.06052	.01964	.04728	.03248	.87838	.33738	.02157	.04461
Stddev	.00012	.00005	.00010	.00032	.00223	.00097	.00017	.00028
%RSD	.19805	.25581	.21477	.99341	.25381	.28805	.77404	.63236

#1	.06063	.01969	.04739	.03252	.87743	.33775	.02166	.04461
#2	.06055	.01959	.04720	.03214	.87679	.33627	.02138	.04489
#3	.06039	.01965	.04724	.03278	.88093	.33811	.02167	.04433

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	.11659	2.4798	.04000	.10855	.02666	.02806	.00461	.13256
Stddev	.00034	.0039	.00019	.00031	.00038	.00004	.00004	.00041
%RSD	.28822	.15644	.48467	.28641	1.4388	.12768	.79758	.30706

#1	.11688	2.4841	.04019	.10890	.02679	.02809	.00463	.13299
#2	.11667	2.4787	.03981	.10846	.02696	.02802	.00463	.13249
#3	.11622	2.4765	.03998	.10829	.02623	.02805	.00457	.13219

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.07544	2.3011	.06608	.00839	.05102	.42103	1.6894
Stddev	.00019	.0020	.00020	.00003	.00006	.00125	.0075
%RSD	.24729	.08730	.29823	.31978	.11920	.29807	.44418

#1	.07550	2.2988	.06610	.00836	.05099	.42170	1.6865
#2	.07559	2.3024	.06588	.00841	.05109	.42181	1.6837
#3	.07523	2.3020	.06627	.00840	.05099	.41958	1.6979

Approved: November 07, 2016

K: K Buck

Sample Name: S3 Acquired: 11/4/2016 10:46:47 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	7731.0	94535.	10753.
Stddev	23.3	433.	94.
%RSD	.30172	.45794	.87110
#1	7757.3	94487.	10776.
#2	7722.9	94990.	10833.
#3	7712.8	94128.	10650.

Approved: November 07, 2016

K: K Buck

Sample Name: S4 Acquired: 11/4/2016 10:50:19 Type: Cal
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.03907	.17502	.01929	.01488	2.5755	.06592	.59947	.04395
Stddev	.00026	.00076	.00011	.00005	.0083	.00027	.00211	.00031
%RSD	.65896	.43183	.54812	.36406	.32286	.41563	.35233	.70072

#1	.03936	.17589	.01933	.01495	2.5751	.06619	.59889	.04361
#2	.03887	.17449	.01937	.01486	2.5840	.06594	.60181	.04421
#3	.03897	.17470	.01917	.01485	2.5674	.06564	.59771	.04402

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	.12203	.03988	.09577	.06517	1.7708	.68027	.04347	.08953
Stddev	.00018	.00007	.00011	.00006	.0033	.00224	.00045	.00028
%RSD	.14751	.16528	.11982	.09898	.18415	.32997	1.0371	.31549

#1	.12189	.03980	.09586	.06522	1.7690	.68118	.04325	.08980
#2	.12196	.03991	.09581	.06519	1.7745	.68191	.04399	.08924
#3	.12223	.03992	.09564	.06510	1.7688	.67771	.04317	.08956

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	.23765	4.9843	.08133	.22244	.05426	.05663	.00975	.26859
Stddev	.00046	.0247	.00033	.00052	.00004	.00011	.00004	.00024
%RSD	.19330	.49552	.40225	.23526	.07517	.19485	.43890	.09092

#1	.23712	4.9910	.08150	.22184	.05430	.05668	.00971	.26833
#2	.23787	5.0049	.08154	.22265	.05422	.05651	.00980	.26881
#3	.23795	4.9569	.08095	.22282	.05426	.05671	.00974	.26863

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.15207	4.6429	.13475	.01662	.10383	.85337	3.4938
Stddev	.00024	.0123	.00086	.00012	.00007	.00134	.0375
%RSD	.15963	.26519	.63942	.70986	.07018	.15672	1.0731

#1	.15180	4.6327	.13498	.01656	.10377	.85206	3.5330
#2	.15212	4.6566	.13548	.01676	.10391	.85473	3.4903
#3	.15228	4.6396	.13380	.01655	.10381	.85331	3.4583

Approved: November 07, 2016

K: K Buck

Sample Name: S4 Acquired: 11/4/2016 10:50:19 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	7489.2	92330.	10345.
Stddev	33.6	289.	78.
%RSD	.44827	.31334	.75613
#1	7528.0	92613.	10257.
#2	7471.0	92343.	10374.
#3	7468.7	92035.	10406.

Approved: November 07, 2016

K: K Buck

Sample Name: ICV Acquired: 11/4/2016 10:53:48 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	F .37416	10.086	.41332	.49604	1.0031	.05104	10.188
Stddev	.00243	.036	.00097	.00207	.0015	.00012	.036
%RSD	.64954	.35445	.23430	.41646	.15331	.24174	.34885

#1	.37690	10.104	.41286	.49691	1.0033	.05111	10.188
#2	.37226	10.044	.41266	.49368	1.0046	.05090	10.223
#3	.37331	10.108	.41443	.49753	1.0015	.05112	10.152

Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.40000						
Range	-5.0000%						

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.05126	.20377	.49910	.50737	3.9424	50.523	1.0166
Stddev	.00018	.00011	.00222	.00248	.0197	.034	.0089
%RSD	.35360	.05500	.44417	.48906	.49850	.06788	.87357

#1	.05120	.20390	.49957	.50458	3.9417	50.484	1.0220
#2	.05147	.20373	.49669	.50933	3.9231	50.540	1.0215
#3	.05112	.20368	.50105	.50819	3.9624	50.546	1.0064

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	10.073	.50308	.96019	50.809	.50062	10.373	.50842
Stddev	.191	.00439	.00131	.267	.00234	.015	.00205
%RSD	1.8974	.87275	.13656	.52616	.46743	.14202	.40412

#1	10.137	.50248	.95929	50.933	.49809	10.380	.50762
#2	9.8577	.50775	.95959	50.993	.50270	10.382	.50689
#3	10.223	.49903	.96170	50.503	.50107	10.356	.51076

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: ICV Acquired: 11/4/2016 10:53:48 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2332	.40625	5.0280	.96216	1.0043	1.0020	.51305
Stddev	.0030	.00600	.0050	.00025	.0025	.0083	.00146
%RSD	.24591	1.4763	.10050	.02576	.24944	.82308	.28483

#1	1.2361	.40793	5.0302	.96207	1.0049	1.0064	.51150
#2	1.2334	.39960	5.0316	.96243	1.0064	1.0071	.51441
#3	1.2301	.41124	5.0222	.96196	1.0015	.99247	.51323

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	.99299	1.0098	1.0077
Stddev	.00209	.0014	.0048
%RSD	.21078	.13503	.47366

#1	.99337	1.0094	1.0128
#2	.99073	1.0113	1.0068
#3	.99486	1.0086	1.0034

Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	7641.8	93925.	10759.
Stddev	71.9	417.	35.
%RSD	.94070	.44429	.32736

#1	7624.9	94134.	10727.
#2	7579.9	94198.	10797.
#3	7720.7	93445.	10754.

Approved: November 07, 2016

K: K Buck

Sample Name: ICB Acquired: 11/4/2016 10:57:21 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00052	.00128	-0.00355	.00115	.00042	.00006	.00244	-0.00013
Stddev	.00245	.00389	.00087	.00075	.00059	.00003	.01437	.00032
%RSD	470.30	304.88	24.435	65.271	141.67	50.100	588.37	241.19

#1	-0.00326	-0.00107	-0.00290	.00084	.00105	.00004	-0.00739	-0.00028
#2	.00021	-0.00088	-0.00453	.00200	.00033	.00009	-0.00421	.00024
#3	.00148	.00577	-0.00322	.00060	-0.00013	.00005	.01893	-0.00036

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	.00050	-0.00046	-0.00062	.01463	.17811	-0.00412	.00711	-0.00239
Stddev	.00014	.00081	.00117	.00653	.03544	.00235	.08361	.00156
%RSD	28.577	176.19	188.40	44.651	19.896	56.972	1175.5	65.088

#1	.00051	.00032	.00021	.02102	.19694	-0.00142	-0.05941	-0.00392
#2	.00035	-0.00041	-0.00197	.00796	.13724	-0.00563	.10097	-0.00080
#3	.00064	-0.00129	-0.00012	.01492	.20016	-0.00533	-0.02023	-0.00246

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	.02920	.00083	.00394	.00043	-0.00384	-0.00746	.00291
Stddev	.00019	.02568	.00161	.00255	.00263	.00250	.00533	.00260
%RSD	37.647	87.961	194.13	64.730	611.47	65.070	71.524	89.518

#1	.00065	.05862	.00247	.00488	.00154	-0.00648	-0.00245	.00213
#2	.00029	.01132	.00076	.00589	-0.00258	-0.00152	-0.00685	.00581
#3	.00054	.01764	-0.00075	.00105	.00233	-0.00352	-0.01307	.00078

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: ICB Acquired: 11/4/2016 10:57:21 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00022	-.00004	-.00179	-.00238	-.00028	.00056	.00013
Stddev	.00078	.00039	.00175	.00174	.00132	.00009	.00005
%RSD	345.83	932.74	97.471	72.874	480.87	15.203	41.402

#1	.00012	-.00029	-.00039	-.00038	-.00038	.00065	.00010
#2	.00105	.00041	-.00124	-.00327	-.00154	.00056	.00009
#3	-.00050	-.00024	-.00375	-.00350	.00110	.00048	.00019

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	7841.4	97485.	10667.
Stddev	26.2	376.	69.
%RSD	.33354	.38577	.64295

#1	7828.1	97889.	10592.
#2	7871.5	97146.	10726.
#3	7824.6	97418.	10683.

Approved: November 07, 2016

K: K Buck

Sample Name: LLICV Acquired: 11/4/2016 11:01:09 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00747	.18973	.00735	.07993	.00911	.00155	.40920	.00074
Stddev	.00196	.00626	.00220	.00155	.00040	.00002	.01061	.00035
%RSD	26.292	3.2987	29.923	1.9438	4.3932	1.0825	2.5929	46.934

#1	.00947	.19389	.00858	.07858	.00938	.00157	.40556	.00045
#2	.00555	.18253	.00867	.07959	.00865	.00154	.42116	.00065
#3	.00738	.19277	.00481	.08163	.00931	.00156	.40090	.00112

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	.00426	.00433	.00411	.09414	1.0001	.08400	.44205	.00464
Stddev	.00044	.00020	.00155	.00801	.0393	.00700	.04052	.00494
%RSD	10.243	4.5862	37.703	8.5107	3.9255	8.3388	9.1669	106.58

#1	.00459	.00445	.00232	.10054	.96338	.07850	.47236	.00537
#2	.00377	.00410	.00496	.09672	1.0415	.09189	.45775	.00917
#3	.00442	.00444	.00506	.08515	.99555	.08162	.39602	-.00063

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	.00770	.44211	.01686	.79313	.00518	.08377	.00816	.80541
Stddev	.00082	.01079	.00122	.01154	.00358	.00315	.00354	.00036
%RSD	10.596	2.4402	7.2320	1.4548	69.156	3.7581	43.398	.04464

#1	.00824	.43841	.01815	.78053	.00904	.08097	.01001	.80554
#2	.00676	.43365	.01572	.79571	.00195	.08718	.00408	.80569
#3	.00810	.45426	.01672	.80317	.00456	.08317	.01040	.80501

Check ? **Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LLICV Acquired: 11/4/2016 11:01:09 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.38260	.04160	.02721	.16762	.00825	.01802	.03938
Stddev	.00113	.00025	.00295	.00187	.00062	.00006	.00030
%RSD	.29524	.59075	10.836	1.1180	7.5213	.34960	.76762
#1	.38161	.04157	.02426	.16557	.00873	.01808	.03973
#2	.38383	.04187	.03015	.16804	.00755	.01802	.03917
#3	.38236	.04138	.02722	.16925	.00846	.01796	.03925

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	7881.4	97887.	10846.
Stddev	18.2	340.	29.
%RSD	.23041	.34697	.26584
#1	7860.6	98262.	10861.
#2	7889.6	97796.	10864.
#3	7894.0	97602.	10813.

Approved: November 07, 2016

K: K Buck

Sample Name: LLICV Acquired: 11/4/2016 11:04:56 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00918	.23144	.00703	.09781	.01040	.00208	.54491	.00107
Stddev	.00011	.00263	.00101	.00216	.00051	.00008	.00701	.00032
%RSD	1.2463	1.1372	14.346	2.2085	4.9123	3.7220	1.2863	29.787

#1	.00907	.23251	.00786	.09942	.01033	.00216	.55272	.00096
#2	.00917	.23337	.00731	.09865	.01095	.00201	.53917	.00143
#3	.00930	.22845	.00591	.09535	.00993	.00205	.54285	.00082

Check ? **Chk Pass** **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	.00543	.00512	.00517	.09693	1.0685	.10616	.49932	.00993
Stddev	.00031	.00047	.00066	.00859	.0396	.00163	.05930	.00396
%RSD	5.7515	9.1503	12.845	8.8623	3.7048	1.5337	11.876	39.910

#1	.00552	.00458	.00477	.09660	1.0519	.10671	.56521	.01362
#2	.00508	.00543	.00480	.10568	1.0400	.10433	.48251	.01043
#3	.00568	.00535	.00594	.08851	1.1137	.10745	.45025	.00574

Check ? **Chk Pass** **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	.00979	.54694	.02192	1.0109	.00847	.11074	.01241	1.0215
Stddev	.00030	.02373	.00166	.0093	.00210	.00413	.00471	.0027
%RSD	3.0676	4.3388	7.5779	.92246	24.755	3.7307	37.961	.26393

#1	.00969	.57426	.02051	1.0038	.00839	.11551	.01627	1.0185
#2	.00954	.53511	.02152	1.0075	.00642	.10845	.00716	1.0222
#3	.01012	.53145	.02375	1.0215	.01061	.10827	.01380	1.0238

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LLICV Acquired: 11/4/2016 11:04:56 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.48515	.05228	.02566	.21269	.00993	.02234	.04964
Stddev	.00033	.00023	.00547	.00620	.00074	.00007	.00032
%RSD	.06896	.44497	21.311	2.9153	7.4702	.29436	.65024
#1	.48482	.05221	.03191	.21956	.00927	.02227	.05002
#2	.48515	.05209	.02175	.21103	.00977	.02240	.04943
#3	.48549	.05254	.02331	.20749	.01073	.02233	.04948

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	7999.6	98848.	10972.
Stddev	18.7	169.	60.
%RSD	.23423	.17115	.54631
#1	8015.2	98741.	10918.
#2	8004.8	98760.	10962.
#3	7978.8	99043.	11036.

Approved: November 07, 2016

K: K Buck

Sample Name: ICSA Acquired: 11/4/2016 11:08:41 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00245	248.46	.00323	-.00218	.00055	.00004	224.38	.00000
Stddev	.00158	1.61	.00434	.00052	.00009	.00003	.53	.00032
%RSD	64.549	.64923	134.28	23.751	16.448	65.459	.23817	11014.

#1	.00068	250.01	.00463	-.00256	.00050	.00004	225.00	-.00036
#2	.00293	248.58	.00670	-.00238	.00065	.00007	224.03	.00016
#3	.00374	246.79	-.00163	-.00159	.00049	.00001	224.12	.00021

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	-.00030	-.00161	-.00017	96.484	.17587	.00863	248.87	.00091
Stddev	.00013	.00138	.00105	.096	.07015	.00223	.36	.00239
%RSD	43.018	85.749	602.37	.09915	39.888	25.811	.14591	262.97

#1	-.00045	-.00320	-.00091	96.394	.25307	.00732	249.01	.00180
#2	-.00023	-.00068	-.00065	96.585	.11603	.00737	249.13	.00273
#3	-.00022	-.00096	.00103	96.474	.15851	.01120	248.45	-.00180

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	-.00077	.06844	-.00302	.04403	.00065	.00395	.00002	.17049
Stddev	.00071	.03341	.00297	.01306	.00399	.00378	.00305	.00135
%RSD	92.469	48.812	98.304	29.672	610.95	95.663	13413.	.79361

#1	-.00157	.06127	-.00612	.05878	-.00226	.00402	.00213	.17204
#2	-.00022	.03920	-.00274	.03940	.00521	.00014	-.00347	.16956
#3	-.00051	.10485	-.00020	.03391	-.00099	.00769	.00141	.16986

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: ICSA Acquired: 11/4/2016 11:08:41 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00390	.00107	-0.01613	-0.00086	-0.00489	-0.00631	-0.00261
Stddev	.00062	.00026	.00137	.00241	.00157	.00025	.00020
%RSD	15.942	24.679	8.5060	280.64	32.121	3.9114	7.6461

#1	-0.00357	.00077	-0.01539	.00037	-0.00435	-0.00616	-0.00241
#2	-0.00461	.00128	-0.01771	.00069	-0.00366	-0.00660	-0.00281
#3	-0.00350	.00114	-0.01528	-0.00364	-0.00666	-0.00618	-0.00260

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	7321.2	88278.	10653.
Stddev	10.9	305.	67.
%RSD	.14893	.34587	.62421

#1	7331.6	88618.	10674.
#2	7309.8	88188.	10579.
#3	7322.2	88028.	10707.

Approved: November 07, 2016

K: K Buck

Sample Name: ICSAB Acquired: 11/4/2016 11:12:35 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.47009	247.32	.25596	-.01819	.25082	.25720	225.44	.47003
Stddev	.00190	2.56	.00276	.00123	.00080	.00014	.33	.00038
%RSD	.40448	1.0369	1.0783	6.7525	.31964	.05444	.14743	.08137

#1	.47066	245.27	.25874	-.01826	.25174	.25722	225.16	.47020
#2	.46797	246.50	.25592	-.01939	.25026	.25733	225.35	.47030
#3	.47164	250.20	.25322	-.01693	.25046	.25705	225.80	.46959

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	.23943	.24690	.24634	96.874	5.4872	.00877	248.61	.24670
Stddev	.00058	.00051	.00031	.100	.0655	.00133	.58	.00199
%RSD	.24294	.20725	.12751	.10322	1.1931	15.227	.23474	.80553

#1	.23961	.24749	.24611	96.939	5.4431	.00801	248.00	.24722
#2	.23991	.24658	.24670	96.924	5.5624	.00798	249.16	.24837
#3	.23878	.24663	.24620	96.759	5.4561	.01031	248.68	.24450

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	5.3012	.47643	-.01361	.48204	.48900	.23451	.01178
Stddev	.00045	.0338	.00251	.01107	.00580	.00533	.01859	.00333
%RSD	893.15	.63665	.52619	81.352	1.2042	1.0892	7.9269	28.251

#1	-.00043	5.2626	.47930	-.01968	.48816	.48742	.24650	.01279
#2	.00045	5.3251	.47530	-.02031	.47661	.48464	.24394	.01448
#3	-.00018	5.3160	.47468	-.00083	.48135	.49493	.21310	.00806

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: ICSAB Acquired: 11/4/2016 11:12:35 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.00000(
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00326	.00126	-0.01035	.44727	.24769	.47752	-0.00248
Stddev	.00106	.00016	.00281	.00223	.00139	.00088	.00027
%RSD	32.527	12.451	27.101	.49861	.56244	.18452	11.043

#1	-0.00446	.00112	-0.00944	.44859	.24836	.47773	-0.00240
#2	-0.00288	.00123	-0.00812	.44852	.24609	.47655	-0.00278
#3	-0.00244	.00143	-0.01350	.44469	.24862	.47827	-0.00225

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	7278.4	88275.	10635.
Stddev	24.6	190.	38.
%RSD	.33843	.21538	.35479

#1	7250.0	88492.	10629.
#2	7292.5	88138.	10601.
#3	7292.8	88195.	10675.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 11:16:21 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36583	10.249	.40268	.50180	1.0123	.05068	10.100
Stddev	.00132	.025	.00196	.00360	.0004	.00009	.021
%RSD	.36187	.23967	.48790	.71795	.03562	.17120	.20878

#1	.36465	10.268	.40293	.50333	1.0125	.05060	10.077
#2	.36558	10.221	.40451	.50438	1.0119	.05077	10.117
#3	.36726	10.257	.40060	.49769	1.0126	.05067	10.108

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	.05085	.20346	.50471	.50998	4.0161	50.779	1.0220
Stddev	.00031	.00058	.00072	.00120	.0052	.032	.0050
%RSD	.60533	.28467	.14291	.23473	.12885	.06325	.49433

#1	.05079	.20339	.50474	.50894	4.0183	50.751	1.0263
#2	.05058	.20407	.50397	.51129	4.0102	50.773	1.0164
#3	.05118	.20292	.50541	.50972	4.0198	50.814	1.0233

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	10.211	.50613	1.0049	51.030	.50640	10.038	.50888
Stddev	.036	.00425	.0007	.113	.00240	.025	.00520
%RSD	.35374	.83920	.07387	.22209	.47487	.24748	1.0224

#1	10.174	.51096	1.0051	51.065	.50506	10.021	.51460
#2	10.212	.50448	1.0040	51.122	.50496	10.028	.50761
#3	10.247	.50296	1.0055	50.904	.50917	10.067	.50442

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 11:16:21 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.40336	5.0229	.92654	1.0147	.99185	.52153
Stddev	.0024	.00934	.0099	.00119	.0007	.00228	.00242
%RSD	.20027	2.3160	.19740	.12809	.07101	.22967	.46439

#1	1.2065	.39369	5.0209	.92709	1.0148	.99383	.51927
#2	1.2113	.40404	5.0337	.92518	1.0139	.98936	.52409
#3	1.2083	.41234	5.0142	.92736	1.0153	.99234	.52123

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	1.0123	1.0165	F .00060
Stddev	.0012	.0006	.00018
%RSD	.11401	.06043	30.335

#1	1.0110	1.0158	.00076
#2	1.0131	1.0166	.00064
#3	1.0127	1.0170	.00040

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	7670.6	93774.	10662.
Stddev	9.9	350.	96.
%RSD	.12911	.37363	.89975

#1	7676.7	93975.	10559.
#2	7676.0	93977.	10749.
#3	7659.2	93369.	10679.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 11:19:53 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00067	.00442	.00107	.00098	.00114	.00001	-.01194	-0.00005
Stddev	.00058	.00679	.00149	.00118	.00024	.00005	.01000	.00007
%RSD	86.183	153.75	139.74	120.13	20.553	314.04	83.747	140.06

#1	-0.00002	.00068	-0.00056	.00093	.00094	-0.00001	-.01886	-0.00006
#2	-0.00085	.01225	.00139	-.00017	.00140	.00007	-.00047	-0.00011
#3	-.00114	.00031	.00237	.00219	.00109	-0.00001	-.01649	.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	.00041	-.00054	-.00021	.01772	.19564	-.00017	.02804	.00034
Stddev	.00042	.00121	.00028	.02584	.04918	.00628	.06823	.00063
%RSD	102.04	222.49	134.45	145.83	25.141	3655.3	243.36	183.45

#1	.00087	-.00158	-.00053	.00047	.24449	.00263	.03532	.00103
#2	.00028	-.00084	-.00003	.00526	.14612	.00422	.09234	-.00021
#3	.00007	.00079	-.00006	.04743	.19630	-.00736	-.04354	.00022

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	.00003	.00394	.00191	-.00153	.00054	.00116	-.00999	.00169
Stddev	.00009	.01510	.00111	.00363	.00310	.00790	.00513	.00194
%RSD	295.94	383.28	58.002	236.76	577.42	682.19	51.352	114.91

#1	.00005	.00842	.00093	-.00566	.00207	.00251	-.00676	.00394
#2	.00011	.01630	.00310	.00115	.00257	-.00733	-.01590	.00053
#3	-.00007	-.01289	.00169	-.00009	-.00303	.00829	-.00730	.00061

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 11:19:53 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00013	.00001	-.00137	-.00014	-.00031	.00037	-.00034
Stddev	.00043	.00006	.00376	.00353	.00077	.00023	.00016
%RSD	328.79	603.38	274.13	2510.3	245.21	62.563	48.456

#1	-.00001	-.00004	-.00079	-.00085	.00005	.00048	-.00016
#2	.00062	-.00001	-.00538	.00369	-.00119	.00053	-.00048
#3	-.00021	.00007	.00206	-.00326	.00021	.00011	-.00037

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	7790.9	96793.	10600.
Stddev	8.6	197.	162.
%RSD	.11066	.20355	1.5297

#1	7790.5	96907.	10760.
#2	7782.4	96907.	10605.
#3	7799.7	96566.	10436.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 12:53:48 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.36688	10.325	.40129	.50037	1.0187	.05068	10.137
Stddev	.00177	.045	.00516	.00437	.0032	.00018	.003
%RSD	.48352	.43234	1.2859	.87243	.31859	.35419	.02837

#1	.36751	10.371	.39952	.49694	1.0155	.05088	10.140
#2	.36488	10.282	.39725	.50528	1.0186	.05065	10.134
#3	.36826	10.322	.40710	.49888	1.0220	.05052	10.138

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	.20354	.50324	.50903	3.9882	50.574	1.0218
Stddev	.00010	.00066	.00288	.00200	.0310	.073	.0019
%RSD	.19250	.32304	.57227	.39378	.77709	.14445	.18624

#1	.05076	.20375	.50654	.51131	3.9926	50.579	1.0236
#2	.05059	.20281	.50124	.50757	4.0167	50.644	1.0198
#3	.05076	.20407	.50194	.50820	3.9552	50.498	1.0220

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	10.232	.50696	1.0071	51.403	.50843	10.016	.51099
Stddev	.080	.00266	.0002	.087	.00064	.014	.00217
%RSD	.78606	.52423	.02335	.16905	.12565	.13888	.42440

#1	10.260	.50576	1.0069	51.352	.50911	10.002	.51255
#2	10.295	.51001	1.0074	51.354	.50784	10.016	.50851
#3	10.141	.50512	1.0071	51.504	.50835	10.030	.51191

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 12:53:48 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2004	.40121	5.0063	.92777	1.0144	.98668	.51639
Stddev	.0076	.00553	.0070	.00251	.0026	.00622	.00275
%RSD	.63345	1.3771	.13960	.27016	.25684	.63043	.53168

#1	1.1984	.39532	5.0124	.92865	1.0120	.99384	.51722
#2	1.1940	.40627	5.0079	.92494	1.0142	.98260	.51333
#3	1.2088	.40204	4.9987	.92971	1.0172	.98360	.51863

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	1.0065	1.0129	F .00021
Stddev	.0016	.0016	.00019
%RSD	.16314	.16035	91.392

#1	1.0048	1.0145	-0.0001
#2	1.0067	1.0130	.00036
#3	1.0080	1.0112	.00029

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	7637.2	93693.	10715.
Stddev	42.2	365.	62.
%RSD	.55228	.39006	.57945

#1	7636.0	93633.	10755.
#2	7595.6	93361.	10643.
#3	7680.0	94085.	10746.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 12:57:19 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00037	.00001	.00011	.00038	.00081	-0.00004	.00165	-0.00010
Stddev	.00094	.00282	.00415	.00080	.00072	.00005	.00333	.00013
%RSD	255.00	35623.	3670.3	211.41	89.255	148.88	201.21	120.94

#1	.00071	-.00285	.00101	.00064	.00140	-.00003	-.00145	.00004
#2	-.00083	.00008	.00374	.00102	.00000	.00002	.00125	-.00015
#3	-.00100	.00279	-.00441	-.00052	.00102	-.00009	.00517	-.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	.00054	.00006	-.00004	.01271	.22809	.00122	-.03755	-.00165
Stddev	.00026	.00079	.00095	.01735	.02074	.00374	.03723	.00101
%RSD	47.528	1310.6	2375.9	136.49	9.0937	307.26	99.151	61.303

#1	.00026	.00031	-.00094	.02627	.21871	.00485	-.00478	-.00198
#2	.00061	-.00082	.00095	-.00684	.21370	.00141	-.07803	-.00245
#3	.00077	.00070	-.00012	.01871	.25187	-.00261	-.02984	-.00051

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	.00051	-.02735	.00002	-.00193	-.00311	.00332	-.00786	.00133
Stddev	.00040	.00454	.00159	.00187	.00413	.00480	.01207	.00095
%RSD	79.633	16.600	9797.8	97.012	132.91	144.64	153.60	71.395

#1	.00048	-.02520	-.00176	.00016	-.00085	.00853	.00387	.00024
#2	.00012	-.03256	.00129	-.00249	-.00787	.00235	-.02024	.00180
#3	.00093	-.02428	.00051	-.00346	-.00060	-.00092	-.00720	.00196

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 12:57:19 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00049	.00006	-0.00094	-0.00219	-0.00008	.00017	.00010
Stddev	.00010	.00007	.00687	.00212	.00029	.00028	.00015
%RSD	19.696	105.53	730.11	96.799	375.03	163.81	148.55

#1	.00059	-0.00001	.00669	-0.00093	-0.00033	.00007	-0.00003
#2	.00040	.00010	-0.00665	-0.00464	-0.00015	-0.00004	.00007
#3	.00049	.00010	-0.00287	-0.00101	.00024	.00049	.00026

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	7770.8	96227.	10751.
Stddev	13.7	149.	45.
%RSD	.17671	.15528	.42020

#1	7759.3	96332.	10803.
#2	7786.0	96056.	10732.
#3	7767.1	96293.	10720.

Approved: November 07, 2016

K: K Buck

Sample Name: PBW 74 Acquired: 11/4/2016 13:01:09 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.00113	.00908	-.00389	.00209	.00026	-.00007	.01209
Stddev	.00184	.00280	.00199	.00190	.00059	.00005	.04043
%RSD	162.76	30.877	51.189	91.075	225.49	82.114	334.53

#1	-.00111	.01092	-.00610	.00107	.00091	-.00009	-.02125
#2	-.00297	.00585	-.00224	.00428	-.00025	-.00000	.05706
#3	.00070	.01046	-.00332	.00091	.00013	-.00010	.00045

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	.00008	-.00009	.00033	.00042	.01173	.13369	.00062
Stddev	.00013	.00039	.00039	.00109	.00352	.09301	.00320
%RSD	168.40	448.34	119.98	256.76	30.019	69.573	515.52

#1	.00008	.00032	.00021	-.00006	.01014	.02710	-.00121
#2	-.00005	-.00013	.00076	-.00034	.01577	.17560	-.00124
#3	.00022	-.00046	.00001	.00167	.00929	.19838	.00431

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	.03585	-.00003	.00066	.04953	.00261	-.00390	F -.00504
Stddev	.03872	.00127	.00038	.01970	.00174	.00198	.00308
%RSD	108.00	4079.3	58.002	39.768	66.821	50.742	61.223

#1	.06589	-.00108	.00089	.02894	.00123	-.00318	-.00818
#2	-.00785	-.00040	.00087	.05146	.00202	-.00614	-.00201
#3	.04952	.00139	.00022	.06819	.00457	-.00238	-.00492

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							225.00
Low Limit							-.00500

Approved: November 07, 2016

K: K Buck

Sample Name: PBW 74 Acquired: 11/4/2016 13:01:09 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-02

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00113	-0.00046	.00406	-0.00289	.00071	.00015	.00220
Stddev	.00556	.00273	.00367	.00026	.00024	.00240	.00089
%RSD	493.20	595.91	90.407	9.1048	32.936	1653.8	40.521

#1	-0.00700	-0.00338	.00826	-0.00320	.00091	.00252	.00194
#2	-0.00044	.00204	.00144	-0.00274	.00078	-0.00229	.00147
#3	.00405	-0.00003	.00249	-0.00274	.00045	.00020	.00320

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	-0.00027	.00155	.00001
Stddev	.00029	.00012	.00032
%RSD	107.62	7.6477	2202.8

#1	-0.00035	.00143	.00001
#2	.00005	.00166	.00034
#3	-0.00050	.00156	-0.00031

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	7717.1	97186.	10742.
Stddev	68.2	203.	34.
%RSD	.88366	.20932	.31571

#1	7639.3	97279.	10780.
#2	7745.3	96953.	10715.
#3	7766.6	97327.	10731.

Approved: November 07, 2016

K: K Buck

Sample Name: LCSW 74 Acquired: 11/4/2016 13:04:58 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.00000(
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.17934	5.1532	.19364	.92717	.50303	.02426	5.0002	.02467
Stddev	.00161	.0141	.00303	.00680	.00120	.00003	.0216	.00040
%RSD	.89592	.27439	1.5667	.73299	.23822	.11287	.43090	1.6280

#1	.17755	5.1559	.19367	.92818	.50169	.02424	4.9780	.02513
#2	.17979	5.1379	.19666	.91993	.50341	.02429	5.0210	.02450
#3	.18067	5.1658	.19059	.93341	.50399	.02424	5.0016	.02438

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	.10017	.24725	.25196	1.9982	24.808	.50435	5.0490	.25039
Stddev	.00064	.00057	.00202	.0284	.120	.00282	.0966	.00227
%RSD	.63695	.22855	.80104	1.4225	.48432	.55891	1.9124	.90588

#1	.10024	.24675	.24963	1.9789	24.675	.50527	5.1539	.25193
#2	.09950	.24713	.25314	2.0308	24.842	.50119	4.9639	.25147
#3	.10077	.24786	.25310	1.9848	24.908	.50660	5.0293	.24779

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	.50130	25.322	.25409	4.7163	.25129	.58660	.18006	2.4699
Stddev	.00021	.020	.00175	.0045	.00470	.00369	.01484	.0053
%RSD	.04285	.07798	.69064	.09465	1.8695	.62828	8.2432	.21426

#1	.50106	25.299	.25566	4.7157	.25588	.58234	.16356	2.4755
#2	.50143	25.333	.25220	4.7122	.24649	.58860	.19234	2.4692
#3	.50142	25.334	.25440	4.7211	.25149	.58885	.18428	2.4650

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LCSW 74 Acquired: 11/4/2016 13:04:58 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-03

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.45786	.50196	.48098	.25596	.49585	.49334	.00012
Stddev	.00060	.00202	.00261	.00632	.00034	.00041	.00014
%RSD	.13116	.40317	.54172	2.4707	.06950	.08339	122.64
#1	.45814	.49963	.47822	.26245	.49550	.49296	-.00005
#2	.45827	.50303	.48340	.24981	.49619	.49329	.00018
#3	.45717	.50323	.48132	.25563	.49586	.49377	.00021

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	7702.7	95802.	10900.
Stddev	30.6	425.	57.
%RSD	.39777	.44406	.52279
#1	7733.8	96225.	10965.
#2	7672.5	95374.	10863.
#3	7701.9	95807.	10870.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009802 Acquired: 11/4/2016 13:08:33 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00008	.22230	-0.00335	.00523	.00857	-0.00001	1.7032	.00028
Stddev	.00107	.00471	.00188	.00134	.00009	.00003	.0049	.00019
%RSD	1348.7	2.1187	56.195	25.663	1.0878	355.12	.29006	68.179

#1	-0.00092	.22489	-0.00197	.00590	.00847	-0.00003	1.7039	.00035
#2	-0.00044	.22514	-0.00549	.00610	.00857	.00002	1.7078	.00042
#3	.00112	.21686	-0.00258	.00368	.00866	-0.00002	1.6980	.00006

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	.00037	.00076	.00088	.31811	.49709	.00571	.80073	.00916
Stddev	.00024	.00013	.00067	.02821	.01975	.00501	.01588	.00278
%RSD	65.875	17.760	75.594	8.8670	3.9723	87.674	1.9826	30.397

#1	.00064	.00091	.00041	.35068	.49309	.00753	.81892	.01147
#2	.00026	.00069	.00059	.30139	.51853	.00005	.78970	.00607
#3	.00020	.00067	.00164	.30227	.47965	.00957	.79356	.00994

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	1.4851	.00162	.00412	-0.00226	.00087	.00079	3.8753
Stddev	.00021	.0283	.00010	.00829	.00474	.00515	.00574	.0106
%RSD	66.593	1.9050	6.4523	201.06	209.75	592.74	724.58	.27447

#1	.00035	1.4528	.00168	-0.00117	-0.00229	-0.00168	-0.00452	3.8840
#2	.00050	1.4969	.00169	-0.00014	-0.00698	.00680	.00688	3.8634
#3	.00009	1.5056	.00150	.01367	.00250	-0.00251	.00002	3.8785

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009802 Acquired: 11/4/2016 13:08:33 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00279	.01157	-0.00021	-0.00051	-0.00003	.00379	.00006
Stddev	.00109	.00008	.00118	.00108	.00170	.00015	.00026
%RSD	39.073	.67058	576.24	209.92	5130.3	3.9848	403.82

#1	-0.00391	.01165	-0.00053	-0.00040	-0.00094	.00363	-0.00023
#2	-0.00271	.01150	.00111	.00050	-0.00109	.00393	.00018
#3	-0.00173	.01156	-0.00119	-0.00165	.00193	.00381	.00024

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	7892.2	98584.	10914.
Stddev	25.1	195.	50.
%RSD	.31757	.19790	.45714

#1	7906.9	98774.	10856.
#2	7863.3	98594.	10945.
#3	7906.4	98384.	10940.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009805 Acquired: 11/4/2016 13:12:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00121	.09593	-0.00182	.00432	.00843	.00004	1.7020	.00053
Stddev	.00123	.00593	.00179	.00158	.00009	.00004	.0185	.00028
%RSD	101.58	6.1792	98.325	36.550	1.1213	99.571	1.0884	52.609

#1	-0.00123	.10139	-0.00252	.00456	.00851	.00006	1.6989	.00028
#2	.00003	.09677	.00021	.00263	.00833	-.00001	1.7219	.00048
#3	-0.00243	.08962	-0.00315	.00576	.00845	.00007	1.6852	.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	.00018	-0.00032	.00006	.19001	.50917	.00356	.79276	.00545
Stddev	.00045	.00011	.00071	.01002	.04267	.00288	.01263	.00291
%RSD	248.08	35.695	1286.7	5.2710	8.3802	80.920	1.5929	53.442

#1	.00008	-0.00032	.00012	.18350	.54981	.00035	.80732	.00229
#2	-0.00021	-0.00043	-0.00069	.20154	.51297	.00439	.78625	.00802
#3	.00067	-0.00020	.00074	.18499	.46473	.00592	.78472	.00605

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	.00025	1.4916	.00147	-0.00381	.00017	.00058	-0.00554	3.8268
Stddev	.00040	.0234	.00053	.00713	.00309	.00245	.00291	.0280
%RSD	158.32	1.5674	35.610	187.16	1796.6	423.95	52.455	.73300

#1	.00005	1.5155	.00133	-.01009	.00372	-.00216	-.00736	3.8592
#2	-0.00001	1.4907	.00206	-.00528	-.00124	.00135	-.00219	3.8112
#3	.00072	1.4688	.00104	.00394	-.00196	.00254	-.00707	3.8100

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009805 Acquired: 11/4/2016 13:12:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00284	.01194	-0.00172	-0.00194	.00042	.00341	.00028
Stddev	.00029	.00021	.00443	.00289	.00085	.00005	.00008
%RSD	10.108	1.7860	257.11	149.35	202.27	1.4675	27.398

#1	-0.00262	.01202	-0.00676	-0.00354	-0.00010	.00342	.00033
#2	-0.00272	.01211	.00156	.00140	.00139	.00345	.00019
#3	-0.00316	.01170	.00004	-0.00366	-0.00004	.00336	.00032

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	7910.6	98667.	10926.
Stddev	19.5	222.	52.
%RSD	.24624	.22486	.47167

#1	7891.2	98712.	10880.
#2	7910.4	98864.	10917.
#3	7930.2	98427.	10982.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009808 Acquired: 11/4/2016 13:16:05 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.0052	.06861	.00036	.00095	.00767	.00002	1.4394	.00033
Stddev	.00156	.00469	.00433	.00123	.00018	.00003	.0358	.00019
%RSD	297.97	6.8425	1200.8	130.46	2.3798	110.65	2.4870	57.716

#1	-0.00222	.07018	-0.00226	-0.00047	.00751	.00005	1.3980	.00026
#2	.00086	.07231	-0.00202	.00150	.00786	.00003	1.4603	.00018
#3	-0.00022	.06333	.00536	.00181	.00763	-0.00000	1.4597	.00055

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	.00019	.00049	.14156	.50858	-.00187	.84852	.06222
Stddev	.00064	.00030	.00079	.01989	.00160	.00078	.06161	.00240
%RSD	18512.	159.09	162.22	14.049	.31405	41.845	7.2606	38.549

#1	-0.00038	-0.00013	.00069	.14756	.50675	-.00188	.90109	.00596
#2	-0.00036	.00045	-0.00038	.15775	.50930	-.00108	.86374	.00874
#3	.00075	.00024	.00116	.11936	.50969	-.00264	.78073	.00397

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	-0.00007	1.5485	.00083	-.00414	.00027	-.00158	-.00680	3.9130
Stddev	.00064	.0221	.00104	.01197	.00299	.00344	.00387	.0038
%RSD	893.85	1.4297	125.15	289.07	1102.5	218.61	56.955	.09655

#1	.00037	1.5683	-0.00032	-.01792	-.00184	-.00551	-.00994	3.9091
#2	.00022	1.5246	.00110	.00176	.00369	-.00013	-.00797	3.9167
#3	-0.00080	1.5527	.00171	.00373	-.00104	.00091	-.00247	3.9131

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009808 Acquired: 11/4/2016 13:16:05 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00290	.01092	-0.00139	.00085	-0.00044	.00330	-0.00009
Stddev	.00022	.00026	.00622	.00075	.00013	.00008	.00014
%RSD	7.6443	2.4049	448.33	87.958	29.281	2.3145	160.64

#1	-0.00270	.01107	.00431	.00019	-0.00047	.00338	.00003
#2	-0.00314	.01108	-0.00044	.00069	-0.00030	.00329	-0.00005
#3	-0.00286	.01062	-0.00803	.00166	-0.00055	.00322	-0.00024

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	7900.2	98512.	10899.
Stddev	20.4	35.	104.
%RSD	.25804	.03573	.95350

#1	7881.9	98550.	10972.
#2	7896.6	98505.	10945.
#3	7922.2	98481.	10780.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009813 Acquired: 11/4/2016 13:19:51 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00001	.06143	-0.00149	.00246	.00896	.00006	1.8363	.00014
Stddev	.00126	.00315	.00286	.00103	.00024	.00003	.0145	.00030
%RSD	19553.	5.1334	192.38	41.712	2.6570	58.294	.78905	207.21

#1	.00070	.06229	-0.00360	.00128	.00871	.00002	1.8229	-0.00017
#2	.00074	.06406	-0.00264	.00301	.00918	.00009	1.8342	.00018
#3	-0.00146	.05793	.00177	.00310	.00899	.00006	1.8517	.00042

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	.00003	-0.00086	.00102	.24237	.59835	.00095	.99854	.00791
Stddev	.00031	.00042	.00030	.02467	.09227	.00189	.11678	.00138
%RSD	958.19	48.354	29.506	10.180	15.420	199.76	11.695	17.419

#1	.00018	-0.00133	.00126	.24297	.59550	-0.00116	1.0702	.00632
#2	-0.00032	-0.00075	.00111	.21740	.69201	.00249	1.0616	.00863
#3	.00024	-0.00052	.00068	.26673	.50754	.00151	.86379	.00877

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	-0.00001	1.9776	.00091	-0.00114	-0.00239	.00179	-0.00878	4.6713
Stddev	.00015	.0167	.00101	.00636	.00167	.00522	.00535	.0070
%RSD	1194.7	.84282	110.96	557.02	69.625	291.31	60.995	.14891

#1	-0.00004	1.9589	.00158	-0.00593	-0.00150	.00355	-0.01030	4.6679
#2	-0.00014	1.9828	-0.00025	.00608	-0.00137	-0.00408	-0.01321	4.6667
#3	.00015	1.9910	.00141	-0.00357	-0.00432	.00590	-0.00283	4.6793

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009813 Acquired: 11/4/2016 13:19:51 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-01

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00313	.01444	-0.00287	-0.00152	-0.00008	.00191	.00006
Stddev	.00091	.00037	.00069	.00096	.00041	.00012	.00021
%RSD	29.128	2.5736	23.918	63.112	521.70	6.3173	357.31

#1	-0.00220	.01428	-0.00228	-0.00173	.00021	.00203	.00014
#2	-0.00403	.01416	-0.00362	-0.00237	.00011	.00179	.00021
#3	-0.00317	.01486	-0.00270	-0.00048	-0.00055	.00191	-0.00018

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	7933.8	98784.	11023.
Stddev	13.3	250.	8.
%RSD	.16798	.25305	.07095

#1	7925.4	98660.	11015.
#2	7949.1	99072.	11031.
#3	7926.8	98621.	11022.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009814MS Acquired: 11/4/2016 13:23:39 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.18217	5.3095	.20097	.94012	.52654	.02489	7.0456	.02532
Stddev	.00123	.0245	.00390	.00304	.00034	.00002	.0181	.00028
%RSD	.67674	.46196	1.9390	.32306	.06531	.08187	.25668	1.0876

#1	.18178	5.2811	.19892	.93741	.52646	.02487	7.0664	.02552
#2	.18119	5.3237	.19852	.94340	.52624	.02491	7.0356	.02544
#3	.18356	5.3235	.20546	.93955	.52692	.02488	7.0346	.02501

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	.10196	.25255	.25671	2.2600	25.989	.51718	6.1972	.26653
Stddev	.00079	.00047	.00217	.0178	.038	.00491	.1011	.00198
%RSD	.77615	.18528	.84630	.78578	.14659	.95015	1.6308	.74358

#1	.10107	.25272	.25650	2.2685	25.947	.51923	6.1660	.26604
#2	.10224	.25202	.25465	2.2396	26.021	.52075	6.1154	.26871
#3	.10258	.25290	.25898	2.2720	25.997	.51158	6.3101	.26484

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	.50926	28.272	.25598	4.7984	.25826	.59799	.19152	7.3940
Stddev	.00129	.053	.00037	.0230	.00237	.00518	.00441	.0156
%RSD	.25345	.18621	.14500	.47917	.91730	.86692	2.3022	.21046

#1	.50892	28.330	.25560	4.7724	.25564	.59328	.19167	7.3778
#2	.50818	28.226	.25601	4.8070	.25886	.59716	.19585	7.3954
#3	.51069	28.261	.25634	4.8159	.26026	.60354	.18704	7.4088

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009814MS Acquired: 11/4/2016 13:23:39 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-04

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.46497	.52857	.50040	.25663	.50712	.50622	-.00040
Stddev	.00162	.00099	.00218	.00481	.00120	.00083	.00032
%RSD	.34879	.18705	.43470	1.8741	.23577	.16466	79.133

#1	.46423	.52864	.50231	.25271	.50835	.50602	-.00075
#2	.46386	.52952	.50085	.25518	.50704	.50551	-.00031
#3	.46683	.52755	.49803	.26199	.50596	.50714	-.00014

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	7632.2	94768.	10824.
Stddev	8.2	364.	42.
%RSD	.10782	.38424	.38808

#1	7635.4	95172.	10777.
#2	7638.3	94466.	10837.
#3	7622.8	94665.	10858.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009815MSD Acquired: 11/4/2016 13:27:15 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.17676	5.1667	.19425	.91764	.51103	.02426	6.7517	.02437
Stddev	.00217	.0448	.00169	.00199	.00111	.00012	.0233	.00006
%RSD	1.2250	.86732	.86852	.21694	.21749	.48236	.34556	.26547

#1	.17882	5.2160	.19253	.91877	.51227	.02440	6.7785	.02430
#2	.17696	5.1555	.19432	.91881	.51013	.02419	6.7407	.02443
#3	.17450	5.1285	.19591	.91534	.51069	.02419	6.7359	.02437

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	.09919	.24799	.24886	2.1650	25.390	.50431	5.9728	.25641
Stddev	.00026	.00065	.00131	.0321	.097	.00252	.0959	.00271
%RSD	.26072	.26032	.52837	1.4817	.38373	.50051	1.6057	1.0569

#1	.09929	.24801	.24836	2.1346	25.401	.50713	5.8636	.25626
#2	.09890	.24734	.25035	2.1985	25.288	.50226	6.0118	.25920
#3	.09939	.24863	.24786	2.1618	25.482	.50355	6.0431	.25378

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	.49660	27.432	.24921	4.6812	.25087	.57755	.18868	7.0545
Stddev	.00050	.098	.00181	.0028	.00206	.00167	.00559	.0083
%RSD	.10002	.35706	.72797	.05984	.82154	.28907	2.9615	.11737

#1	.49611	27.496	.24712	4.6844	.24906	.57945	.18431	7.0625
#2	.49659	27.481	.25036	4.6798	.25042	.57631	.18675	7.0459
#3	.49711	27.320	.25015	4.6794	.25311	.57688	.19497	7.0550

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009815MSD Acquired: 11/4/2016 13:27:15 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590228-05

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.45383	.51367	.48823	.25863	.49333	.48999	-.00003
Stddev	.00116	.00060	.00519	.00231	.00021	.00098	.00072
%RSD	.25634	.11765	1.0630	.89168	.04193	.19953	2230.1
#1	.45496	.51369	.49389	.25862	.49330	.49092	-.00086
#2	.45390	.51427	.48712	.26094	.49355	.49008	.00046
#3	.45264	.51306	.48369	.25633	.49314	.48897	.00030

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	7624.2	94573.	10829.
Stddev	17.9	401.	90.
%RSD	.23449	.42423	.82673
#1	7606.7	94625.	10744.
#2	7623.6	94149.	10923.
#3	7642.4	94946.	10821.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009820 Acquired: 11/4/2016 13:30:51 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00098	.01111	-0.00256	.00301	.00142	.00009	.01664	.00022
Stddev	.00071	.00513	.00379	.00083	.00031	.00002	.01114	.00034
%RSD	72.397	46.170	147.89	27.707	21.779	23.292	66.901	153.21

#1	-0.00017	.00773	-0.00605	.00233	.00174	.00012	.02782	.00011
#2	-0.00150	.01701	-0.00309	.00394	.00112	.00007	.01656	.00060
#3	-0.00127	.00859	.00146	.00275	.00142	.00009	.00555	-0.00004

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	-0.00000	.00006	.00097	.01213	.14323	-0.00104	.02257	.00017
Stddev	.00029	.00055	.00065	.00848	.06020	.00522	.02460	.00250
%RSD	1893800.	854.82	67.405	69.945	42.030	503.30	108.99	1509.2

#1	-0.00032	-0.00020	.00151	.01002	.16361	.00272	.03756	-0.00207
#2	.00025	-0.00031	.00024	.00490	.19059	-0.00699	.03597	.00287
#3	.00007	.00070	.00115	.02147	.07549	.00116	-0.00582	-0.00030

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	1.3829	-0.00039	.00239	.00274	-0.00345	.00218	.45120
Stddev	.00035	.0335	.00124	.00385	.00152	.00220	.00622	.00095
%RSD	2571.7	2.4255	319.46	161.13	55.554	63.810	284.93	.20982

#1	.00041	1.4203	-0.00130	.00098	.00430	-0.00095	.00623	.45117
#2	-0.00012	1.3733	-0.00090	-0.00056	.00268	-0.00430	.00530	.45027
#3	-0.00025	1.3553	.00103	.00674	.00125	-0.00510	-0.00498	.45216

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009820 Acquired: 11/4/2016 13:30:51 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00271	.00047	.00053	.00209	-0.00022	.00220	-0.00001
Stddev	.00032	.00008	.00331	.00317	.00105	.00002	.00023
%RSD	11.698	16.105	627.21	151.91	473.82	1.0308	1679.6

#1	-0.00265	.00039	-0.00165	-0.00152	-0.00069	.00222	.00011
#2	-0.00243	.00047	-0.00111	.00334	-0.00096	.00219	-0.00028
#3	-0.00306	.00054	.00434	.00444	.00098	.00218	.00013

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	7899.1	98446.	10997.
Stddev	8.6	569.	56.
%RSD	.10877	.57815	.51088

#1	7894.5	97976.	11059.
#2	7909.0	98284.	10949.
#3	7893.8	99079.	10984.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009823 Acquired: 11/4/2016 13:34:39 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00158	.00423	-0.00335	.00269	.00165	-0.00006	.09697	-0.00006
Stddev	.00203	.00134	.00182	.00394	.00023	.00006	.03173	.00029
%RSD	127.93	31.577	54.133	146.48	14.202	88.173	32.725	483.85

#1	-0.00354	.00277	-0.00139	-0.00171	.00168	-0.00013	.07724	-0.00028
#2	.00051	.00452	-0.00369	.00387	.00140	-0.00004	.13358	.00026
#3	-0.00172	.00540	-0.00498	.00589	.00187	-0.00002	.08010	-0.00016

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	.00021	-0.00033	-0.00052	.00808	.15675	-0.00299	.02886	-0.00003
Stddev	.00021	.00069	.00077	.00635	.07388	.00266	.09574	.00217
%RSD	99.189	207.95	148.98	78.624	47.129	88.952	331.70	7413.0

#1	.00044	.00001	.00035	.00291	.22450	.00008	-.06235	.00247
#2	.00015	.00012	-.00076	.01517	.16777	-.00451	.12856	-.00144
#3	.00004	-.00113	-.00114	.00615	.07799	-.00455	.02038	-.00111

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	.00057	1.3917	.00020	-0.00205	-0.00180	-0.00296	-0.00724	.45891
Stddev	.00024	.0150	.00157	.00218	.00337	.00137	.00866	.00149
%RSD	41.956	1.0774	804.10	106.64	187.00	46.199	119.73	.32575

#1	.00056	1.3809	-0.00109	-0.00457	-0.00432	-0.00224	-.00126	.46032
#2	.00082	1.4088	.00195	-0.00076	.00203	-0.00210	-.00328	.45907
#3	.00034	1.3854	-0.00027	-0.00081	-0.00311	-0.00454	-.01717	.45735

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611009823 Acquired: 11/4/2016 13:34:39 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00357	.00078	-0.00497	-0.00169	.00011	.00595	.00014
Stddev	.00021	.00037	.00383	.00049	.00100	.00001	.00033
%RSD	5.9606	46.731	77.044	29.069	905.87	.21425	234.55

#1	-0.00334	.00098	-0.00468	-0.00170	.00108	.00594	.00032
#2	-0.00376	.00036	-0.00130	-0.00119	.00018	.00596	.00033
#3	-0.00361	.00101	-0.00894	-0.00217	-0.00093	.00595	-0.00024

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	7947.1	98671.	11082.
Stddev	15.8	411.	17.
%RSD	.19861	.41619	.15347

#1	7949.2	99110.	11068.
#2	7930.4	98604.	11077.
#3	7961.8	98297.	11101.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 13:38:28 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36720	10.343	.40328	.50345	1.0290	.05105	10.268
Stddev	.00293	.021	.00334	.00305	.0018	.00004	.026
%RSD	.79750	.20210	.82763	.60554	.17423	.07319	.25278

#1	.36492	10.320	.39991	.50145	1.0283	.05104	10.253
#2	.36618	10.347	.40336	.50195	1.0277	.05101	10.253
#3	.37050	10.361	.40658	.50696	1.0311	.05109	10.298

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	.05129	.20458	.50583	.51094	3.9942	51.245	1.0328
Stddev	.00030	.00055	.00127	.00161	.0483	.115	.0038
%RSD	.58160	.26796	.25128	.31595	1.2079	.22461	.36440

#1	.05162	.20463	.50545	.51273	3.9427	51.294	1.0336
#2	.05104	.20401	.50725	.51049	4.0015	51.114	1.0361
#3	.05120	.20510	.50479	.50960	4.0384	51.328	1.0287

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	10.268	.50986	1.0129	52.174	.51112	10.078	.51601
Stddev	.130	.00246	.0017	.198	.00018	.012	.00196
%RSD	1.2667	.48246	.16328	.37925	.03479	.11671	.37972

#1	10.142	.50763	1.0143	51.976	.51103	10.083	.51623
#2	10.402	.50946	1.0132	52.372	.51102	10.086	.51395
#3	10.259	.51250	1.0111	52.173	.51133	10.064	.51785

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 13:38:28 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2177	.41099	5.0549	.92961	1.0239	.99582	.52531
Stddev	.0039	.00812	.0027	.00344	.0026	.00506	.00341
%RSD	.32143	1.9761	.05315	.36988	.25140	.50781	.64906

#1	1.2179	.41220	5.0548	.93224	1.0224	.99101	.52858
#2	1.2138	.40233	5.0576	.93088	1.0224	.99536	.52557
#3	1.2216	.41844	5.0522	.92572	1.0268	1.0011	.52178

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	1.0165	1.0176	F .00024
Stddev	.0011	.0004	.00021
%RSD	.10892	.03701	86.141

#1	1.0155	1.0175	.00000
#2	1.0177	1.0172	.00039
#3	1.0162	1.0180	.00033

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	7667.1	93819.	10822.
Stddev	13.6	201.	107.
%RSD	.17746	.21404	.98895

#1	7681.0	93795.	10925.
#2	7666.6	93632.	10830.
#3	7653.8	94031.	10711.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 13:41:59 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.0097	.01021	-0.0192	.00174	.00143	.00005	-0.01222	-0.00005
Stddev	.00014	.00652	.00139	.00167	.00051	.00006	.00509	.00013
%RSD	14.504	63.893	72.770	96.157	35.374	122.35	41.633	256.85

#1	-0.00111	.00289	-0.00222	.00191	.00145	.00010	-0.00936	.00001
#2	-0.00083	.01540	-0.00313	-0.00001	.00092	.00005	-0.01809	-0.00020
#3	-0.00098	.01234	-0.00039	.00332	.00194	-0.00001	-0.00920	.00004

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	.00029	.00075	-0.00236	.15755	-0.00050	-0.06056	-0.00021
Stddev	.00032	.00034	.00129	.00233	.12975	.00441	.03599	.00256
%RSD	94.885	116.30	173.62	98.519	82.356	878.06	59.429	1227.3

#1	.00055	.00006	.00193	-0.00296	.02110	-0.00504	-0.07057	-0.00313
#2	-0.00003	.00013	-0.00063	-0.00433	.17218	.00378	-0.09048	.00086
#3	.00049	.00069	.00094	.00021	.27937	-0.00025	-0.02062	.00164

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	-0.00312	.00020	-0.00144	-0.00394	.00517	-0.00332	.00221
Stddev	.00058	.01238	.00108	.00881	.00325	.00335	.00646	.00188
%RSD	509.66	396.53	532.53	613.54	82.523	64.850	194.54	85.395

#1	-0.00018	.00836	.00082	.00872	-0.00769	.00576	.00362	.00021
#2	-0.00026	-.01624	.00083	-0.00600	-0.00186	.00156	-0.00443	.00247
#3	.00079	-.00148	-0.00104	-0.00704	-0.00228	.00819	-0.00915	.00395

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 13:41:59 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00011	.00002	-0.00084	.00046	.00005	.00035	-0.00016
Stddev	.00051	.00012	.00330	.00313	.00092	.00009	.00012
%RSD	443.28	724.08	391.76	674.90	1863.5	24.812	71.303

#1	-0.00065	.00015	-0.00155	.00236	.00022	.00026	-0.00004
#2	.00035	-0.00000	-0.00372	.00218	.00088	.00043	-0.00017
#3	-0.00005	-0.00009	.00275	-0.00315	-0.00095	.00037	-0.00028

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	7666.8	95629.	10823.
Stddev	55.9	109.	40.
%RSD	.72892	.11353	.36633

#1	7676.6	95737.	10822.
#2	7717.1	95519.	10863.
#3	7606.6	95631.	10784.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013401 Acquired: 11/4/2016 13:45:50 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00080	.11766	.00009	.00638	.10328	.00007	51.483	-0.00001
Stddev	.00134	.00098	.00394	.00117	.00051	.00009	.086	.00018
%RSD	167.64	.83623	4320.4	18.260	.49855	137.02	.16677	1507.6

#1	.00063	.11783	-.00400	.00769	.10378	.00009	51.413	-.00016
#2	-.00202	.11854	.00041	.00547	.10332	-.00003	51.579	-.00008
#3	-.00101	.11660	.00386	.00598	.10275	.00014	51.458	.00019

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	-0.00000	.00036	.00193	.14233	.86855	.00049	3.0652	.02564
Stddev	.00040	.00090	.00048	.00406	.06808	.00088	.0960	.00348
%RSD	8552.0	249.00	25.098	2.8508	7.8380	181.43	3.1322	13.592

#1	-.00023	.00118	.00243	.13768	.86191	-.00022	3.0957	.02393
#2	-.00024	-.00060	.00146	.14519	.80403	.00021	2.9577	.02334
#3	.00046	.00051	.00190	.14411	.93970	.00148	3.1423	.02965

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	.00065	1.9548	.00006	-.00108	.00067	-.00232	.00391	3.7439
Stddev	.00069	.0012	.00042	.00718	.00354	.00755	.00771	.0109
%RSD	106.84	.06071	652.61	663.78	528.98	325.59	197.13	.29116

#1	.00129	1.9542	.00053	.00446	-.00027	-.00285	.00833	3.7429
#2	.00074	1.9542	-.00027	.00148	-.00230	-.00959	-.00499	3.7552
#3	-.00009	1.9562	-.00008	-.00918	.00459	.00549	.00840	3.7334

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013401 Acquired: 11/4/2016 13:45:50 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00338	.09852	-0.00359	.00242	-0.00021	.00182	.00045
Stddev	.00041	.00009	.00397	.00268	.00047	.00020	.00016
%RSD	12.113	.08694	110.43	110.87	220.96	10.992	35.080

#1	-0.00292	.09845	-0.00341	.00193	.00019	.00182	.00028
#2	-0.00350	.09849	.00028	.00531	-0.00010	.00162	.00048
#3	-0.00372	.09861	-0.00765	.00002	-0.00072	.00202	.00059

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	7755.4	96067.	10959.
Stddev	17.7	210.	45.
%RSD	.22829	.21829	.41455

#1	7736.6	95825.	11010.
#2	7757.8	96199.	10924.
#3	7771.8	96175.	10943.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013402 Acquired: 11/4/2016 13:49:34 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00079	.15516	.00171	.01695	.03394	.00001	19.703	.00014
Stddev	.00127	.00415	.00190	.00111	.00039	.00004	.111	.00022
%RSD	160.67	2.6754	110.52	6.5308	1.1597	347.53	.56364	156.23

#1	-.00126	.15192	.00390	.01768	.03439	.00004	19.579	.00032
#2	.00065	.15984	.00052	.01749	.03366	-.00004	19.795	-.00010
#3	-.00175	.15373	.00072	.01568	.03378	.00003	19.735	.00021

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	.00023	.00056	.00040	.15539	1.4338	-.00233	3.5677	.01493
Stddev	.00014	.00064	.00292	.01397	.0614	.00474	.1101	.00228
%RSD	59.464	113.79	729.26	8.9886	4.2849	203.83	3.0857	15.263

#1	.00024	.00022	-.00269	.14175	1.4046	-.00672	3.4439	.01671
#2	.00036	.00017	.00078	.16966	1.5044	-.00297	3.6547	.01236
#3	.00009	.00131	.00311	.15475	1.3924	.00271	3.6044	.01573

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	.00058	2.2911	.00151	.02777	-.00088	-.00393	-.00085	3.0507
Stddev	.00037	.0176	.00123	.00674	.00169	.00665	.00417	.0060
%RSD	63.265	.76967	81.164	24.282	193.53	169.11	488.52	.19636

#1	.00031	2.2838	.00144	.03061	-.00085	-.00362	-.00101	3.0445
#2	.00100	2.2782	.00032	.03262	-.00258	-.01073	-.00495	3.0564
#3	.00043	2.3112	.00277	.02007	.00080	.00255	.00340	3.0513

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013402 Acquired: 11/4/2016 13:49:34 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00272	.07281	-0.00043	-0.00046	.00072	.00256	.00003
Stddev	.00054	.00043	.00145	.00510	.00017	.00015	.00040
%RSD	19.921	.59679	336.69	1107.2	23.615	5.7699	1293.0

#1	-0.00273	.07253	.00054	-.00631	.00065	.00265	.00028
#2	-0.00326	.07331	-.00209	.00189	.00059	.00239	-.00043
#3	-0.00218	.07259	.00027	.00304	.00091	.00263	.00025

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	7837.8	97782.	10977.
Stddev	12.1	192.	89.
%RSD	.15492	.19658	.81364

#1	7834.8	97957.	11067.
#2	7827.5	97576.	10889.
#3	7851.2	97811.	10974.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013403 Acquired: 11/4/2016 13:53:18 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00030	.03543	-0.00178	.02305	.08618	-0.00002	30.347	-0.00003
Stddev	.00117	.00214	.00216	.00136	.00042	.00003	.108	.00009
%RSD	384.61	6.0313	120.83	5.8953	.48703	149.39	.35740	284.66

#1	.00076	.03739	-.00167	.02272	.08570	-.00001	30.268	.00000
#2	-.00155	.03576	-.00400	.02188	.08645	-.00005	30.303	-.00013
#3	-.00012	.03316	.00031	.02454	.08640	.00000	30.471	.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	-0.00004	.00082	.00175	.02719	1.7473	-0.00056	6.7352	.00327
Stddev	.00029	.00055	.00115	.02489	.1681	.00156	.0687	.00062
%RSD	706.58	67.387	65.750	91.517	9.6177	276.22	1.0199	19.013

#1	-.00037	.00018	.00142	.05279	1.6969	-.00006	6.7784	.00257
#2	.00004	.00111	.00303	.00308	1.6102	.00068	6.6560	.00377
#3	.00020	.00117	.00080	.02571	1.9348	-.00232	6.7712	.00347

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	.00017	2.4476	.00007	.01765	-.00101	-.00192	.00105	3.5990
Stddev	.00056	.0285	.00116	.00478	.00308	.00165	.00207	.0069
%RSD	336.99	1.1643	1660.0	27.097	305.96	85.922	196.06	.19073

#1	.00061	2.4726	.00140	.02037	-.00189	-.00245	.00306	3.6062
#2	-.00046	2.4535	-.00073	.01213	-.00355	-.00324	.00117	3.5983
#3	.00035	2.4166	-.00046	.02045	.00242	-.00007	-.00107	3.5925

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013403 Acquired: 11/4/2016 13:53:18 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00253	.12885	-0.00533	.00077	.00019	.00711	-0.00002
Stddev	.00048	.00045	.00380	.00334	.00029	.00011	.00018
%RSD	18.809	.34567	71.321	432.17	155.16	1.5517	970.13

#1	-0.00242	.12886	-0.00178	-0.00143	-0.00005	.00724	-0.00022
#2	-0.00212	.12840	-0.00934	.00461	.00010	.00705	.00011
#3	-0.00306	.12929	-0.00487	-0.00086	.00052	.00704	.00006

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	7798.9	96926.	10859.
Stddev	16.6	116.	200.
%RSD	.21314	.11970	1.8416

#1	7782.6	97019.	10896.
#2	7815.9	96796.	11038.
#3	7798.3	96964.	10643.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013404 Acquired: 11/4/2016 13:57:03 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00211	.01784	-0.00234	.05920	.66738	-0.00003	13.728	.00026
Stddev	.00076	.00633	.00381	.00058	.00191	.00003	.019	.00008
%RSD	35.927	35.508	162.60	.97340	.28578	72.367	.14065	28.828

#1	-0.00155	.02095	-0.00388	.05876	.66958	-0.00002	13.746	.00033
#2	-0.00182	.02201	.00200	.05899	.66616	-0.00003	13.707	.00027
#3	-0.00298	.01055	-0.00515	.05985	.66641	-0.00006	13.729	.00018

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	.00031	.00014	.00249	.56914	1.0763	.00773	3.1477	.02775
Stddev	.00071	.00100	.00117	.02769	.1077	.00351	.0310	.00242
%RSD	226.46	740.15	46.879	4.8657	10.005	45.423	.98620	8.7396

#1	-0.00025	.00125	.00246	.56159	1.0489	.00435	3.1125	.02863
#2	.00008	-0.00070	.00367	.59982	.98498	.01137	3.1711	.02500
#3	.00111	-0.00014	.00134	.54600	1.1950	.00748	3.1595	.02961

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	.00077	41.649	.00176	.01687	-0.00062	.00170	-0.00294	4.7346
Stddev	.00034	.086	.00143	.00472	.00025	.00201	.01290	.0155
%RSD	44.554	.20629	81.649	27.985	40.294	118.38	438.89	.32806

#1	.00061	41.708	.00018	.01394	-0.00077	.00379	.00619	4.7525
#2	.00054	41.551	.00211	.01436	-0.00033	.00154	-.01770	4.7274
#3	.00117	41.690	.00298	.02232	-0.00077	-.00022	.00269	4.7240

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013404 Acquired: 11/4/2016 13:57:03 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00303	.64029	.00006	.00091	.00014	.00207	.00000
Stddev	.00023	.00056	.00469	.00063	.00052	.00012	.00006
%RSD	7.6531	.08744	7329.4	69.211	356.95	5.9509	3130.7

#1	-0.00281	.63986	-0.00347	.00124	.00040	.00194	-0.00004
#2	-0.00328	.64010	-0.00173	.00131	.00048	.00218	-0.00002
#3	-0.00301	.64093	.00539	.00018	-0.00045	.00208	.00007

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	7665.1	94978.	10965.
Stddev	96.9	383.	48.
%RSD	1.2637	.40319	.43652

#1	7554.2	95062.	10942.
#2	7708.6	95312.	11020.
#3	7732.7	94560.	10933.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013405 Acquired: 11/4/2016 14:00:49 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00083	.13140	-0.00061	.02892	.12311	-0.00001	37.121	.00019
Stddev	.00088	.00547	.00236	.00163	.00119	.00010	.078	.00015
%RSD	106.11	4.1633	385.06	5.6244	.96754	1803.7	.20889	78.997

#1	.00011	.12742	-0.00332	.02746	.12176	-0.00011	37.057	.00029
#2	-0.00097	.13764	.00051	.03067	.12357	.00001	37.100	.00002
#3	-0.00163	.12915	.00097	.02864	.12401	.00009	37.207	.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	.00046	.00041	.00298	.17923	4.2348	.00311	4.9949	.00756
Stddev	.00039	.00107	.00208	.01609	.0843	.00268	.0359	.00189
%RSD	84.352	259.55	69.923	8.9752	1.9901	86.410	.71919	24.942

#1	.00077	.00124	.00476	.16437	4.1615	.00434	4.9660	.00608
#2	.00059	.00079	.00069	.17701	4.2159	.00495	5.0351	.00691
#3	.00002	-0.00079	.00348	.19631	4.3269	.00003	4.9835	.00968

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	.00146	10.024	.00155	.08592	-0.00207	-0.00526	-0.00440	3.6050
Stddev	.00029	.022	.00152	.00937	.00246	.00372	.00529	.0132
%RSD	19.979	.22053	98.154	10.911	118.69	70.751	120.19	.36491

#1	.00174	10.021	-0.00020	.07842	-0.00366	-0.00628	-0.00760	3.5955
#2	.00115	10.048	.00253	.09643	.00076	-0.00114	-0.00731	3.6200
#3	.00149	10.004	.00232	.08291	-0.00331	-0.00837	.00170	3.5996

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013405 Acquired: 11/4/2016 14:00:49 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00326	.19017	-0.00089	-0.00169	.00104	.00403	.00014
Stddev	.00093	.00091	.00466	.00151	.00038	.00020	.00030
%RSD	28.434	.47771	522.08	89.140	36.581	4.9008	214.17

#1	-0.00270	.18927	.00327	-0.00287	.00141	.00381	.00001
#2	-0.00275	.19014	-0.00002	-0.00222	.00065	.00417	-0.00008
#3	-0.00434	.19109	-0.00593	.00001	.00104	.00412	.00048

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	7704.2	96194.	11009.
Stddev	45.5	95.	108.
%RSD	.59090	.09829	.98161

#1	7651.7	96239.	11076.
#2	7733.1	96258.	11066.
#3	7727.8	96086.	10884.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013406 Acquired: 11/4/2016 14:04:34 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00148	.02081	-0.00176	.10650	.04973	-0.00004	1.5401	.00006
Stddev	.00098	.00350	.00331	.00149	.00064	.00007	.0158	.00023
%RSD	66.234	16.844	188.00	1.3999	1.2828	197.54	1.0278	383.13

#1	-0.00071	.02485	.00062	.10478	.05047	-0.00005	1.5219	-0.00018
#2	-0.00258	.01860	-0.00036	.10746	.04938	-0.00010	1.5502	.00007
#3	-0.00115	.01897	-0.00555	.10725	.04935	.00004	1.5484	.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	.00009	-0.00092	.00197	.02291	.45288	.00250	.28641	.00140
Stddev	.00025	.00009	.00073	.01118	.01719	.00592	.05028	.00203
%RSD	283.92	9.9706	36.931	48.782	3.7948	236.77	17.557	144.55

#1	.00020	-0.00082	.00158	.03084	.46707	.00294	.30358	.00355
#2	-0.00020	-0.00100	.00152	.02777	.43377	.00818	.22979	.00116
#3	.00025	-0.00094	.00281	.01013	.45778	-0.00362	.32586	-0.00049

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	.00103	104.11	-0.00042	-0.00466	.00026	-0.00298	-0.00169	3.1370
Stddev	.00045	.17	.00140	.00589	.00176	.00462	.00493	.0020
%RSD	43.896	.15897	337.58	126.53	680.58	155.14	291.47	.06386

#1	.00119	104.06	-0.00202	-0.00638	.00228	-0.00728	-0.00696	3.1355
#2	.00052	104.29	.00061	-0.00950	-0.00066	-0.00354	.00281	3.1363
#3	.00137	103.97	.00016	.00190	-0.00085	.00190	-0.00093	3.1393

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013406 Acquired: 11/4/2016 14:04:34 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00307	.05293	-0.00317	.00066	-0.00011	.00447	-0.00013
Stddev	.00090	.00001	.00437	.00264	.00078	.00013	.00039
%RSD	29.407	.01700	137.83	403.34	733.05	2.9848	304.70

#1	-0.00216	.05292	-0.00138	.00130	.00070	.00451	.00030
#2	-0.00397	.05293	-0.00816	.00292	-0.00086	.00432	-0.00023
#3	-0.00309	.05293	.00002	-0.00225	-0.00016	.00458	-0.00046

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	7615.1	93424.	10876.
Stddev	11.8	217.	58.
%RSD	.15438	.23256	.53375

#1	7608.4	93667.	10811.
#2	7608.1	93357.	10923.
#3	7628.6	93249.	10893.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013407 Acquired: 11/4/2016 14:08:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00103	.64363	-0.00252	.02386	.03949	.00001	11.966	.00012
Stddev	.00102	.00412	.00034	.00235	.00108	.00004	.044	.00017
%RSD	98.740	.64049	13.616	9.8602	2.7420	806.14	.37150	137.62

#1	-0.00203	.64489	-0.00287	.02654	.03974	.00005	12.017	.00020
#2	.00001	.64698	-0.00218	.02213	.03831	-.00004	11.933	-.00007
#3	-0.00107	.63903	-0.00250	.02291	.04043	.00001	11.948	.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	.00029	-0.00012	.00172	.46541	1.9705	.00374	3.3888	.01786
Stddev	.00028	.00062	.00147	.02031	.0647	.00283	.0201	.00082
%RSD	94.266	530.52	85.418	4.3629	3.2844	75.588	.59378	4.6191

#1	.00047	-0.00021	.00024	.47639	2.0450	.00616	3.4027	.01692
#2	.00043	.00055	.00175	.47785	1.9382	.00443	3.3981	.01818
#3	-0.00003	-0.00069	.00317	.44198	1.9283	.00063	3.3657	.01847

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	-0.00005	3.2331	.00316	.14921	-0.00127	-0.00139	-0.00439	5.5064
Stddev	.00030	.0272	.00133	.00958	.00500	.00204	.00557	.0119
%RSD	556.45	.84192	42.144	6.4204	391.87	146.26	127.02	.21655

#1	-0.00011	3.2569	.00166	.15941	-0.00638	.00046	.00195	5.4929
#2	-0.00033	3.2034	.00422	.14040	-0.00106	-0.00106	-.00854	5.5107
#3	.00027	3.2391	.00359	.14783	.00361	-0.00358	-.00657	5.5155

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611013407 Acquired: 11/4/2016 14:08:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00217	.04557	.01017	-0.00188	.00056	.00769	.00062
Stddev	.00037	.00019	.00251	.00507	.00091	.00011	.00037
%RSD	16.877	.42518	24.712	269.49	163.74	1.3715	59.099

#1	-0.00258	.04574	.01231	.00325	-0.00014	.00781	.00059
#2	-0.00206	.04562	.01081	-0.00201	.00159	.00760	.00027
#3	-0.00187	.04536	.00740	-0.00689	.00022	.00766	.00100

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	7861.1	97959.	10960.
Stddev	14.9	431.	104.
%RSD	.18958	.43986	.94571

#1	7875.9	97879.	10877.
#2	7846.1	97573.	11076.
#3	7861.4	98424.	10926.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014301 Acquired: 11/4/2016 14:12:04 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00196	-.02145	.02602	.32293	.00015	-.00010	.02694
Stddev	.00131	.00168	.00154	.00177	.00035	.00003	.01960
%RSD	67.031	7.8136	5.9343	.54802	236.12	26.330	72.734

#1	.00202	-.01992	.02769	.32090	-.00024	-.00010	.04745
#2	.00062	-.02118	.02572	.32411	.00026	-.00013	.02497
#3	.00324	-.02324	.02464	.32379	.00043	-.00008	.00841

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	-.00028	.00027	.00038	.00417	.00582	.00047	.00197
Stddev	.00009	.00002	.00068	.00081	.01948	.04252	.00286
%RSD	30.695	8.6469	180.87	19.376	334.55	9100.5	144.99

#1	-.00031	.00026	-.00010	.00510	.02098	-.03329	.00176
#2	-.00018	.00025	.00007	.00375	-.01615	-.01352	-.00078
#3	-.00034	.00030	.00116	.00366	.01264	.04822	.00493

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	-.00085	-.00224	-.00047	.62715	.00201	.01232	-.00042
Stddev	.05099	.00176	.00066	.00313	.00089	.00770	.00044
%RSD	6016.4	78.487	141.74	.49887	44.246	62.488	104.08

#1	-.02075	-.00130	-.00011	.62472	.00304	.01827	-.00047
#2	-.03889	-.00115	-.00006	.62604	.00146	.00363	.00004
#3	.05710	-.00427	-.00123	.63068	.00154	.01507	-.00083

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014301 Acquired: 11/4/2016 14:12:04 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00395	.07354	.02306	.01159	.00010	.00046	F -.04507
Stddev	.00283	.00202	.00200	.00016	.00009	.00206	.00288
%RSD	71.767	2.7472	8.6631	1.3800	90.548	453.04	6.3974

#1	.00399	.07529	.02509	.01144	.00013	.00261	-.04829
#2	.00109	.07402	.02109	.01176	.00017	.00026	-.04274
#3	.00676	.07133	.02299	.01158	-.00000	-.00150	-.04416

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							18.000
Low Limit							-.04000

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	.00041	.05201	.00088
Stddev	.00027	.00020	.00020
%RSD	66.036	.37614	23.162

#1	.00012	.05180	.00102
#2	.00065	.05219	.00098
#3	.00046	.05205	.00064

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	9350.1	120270.	14284.
Stddev	38.0	558.	61.
%RSD	.40596	.46438	.42678

#1	9318.3	120880.	14215.
#2	9340.0	120120.	14329.
#3	9392.1	119800.	14308.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 14:15:53 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36957	10.398	.40580	.50348	1.0354	.05089	10.276
Stddev	.00101	.034	.00309	.00287	.0018	.00006	.015
%RSD	.27203	.32225	.76059	.56967	.17270	.12201	.14303

#1	.36842	10.364	.40229	.50338	1.0369	.05090	10.263
#2	.37029	10.401	.40702	.50066	1.0334	.05082	10.272
#3	.37001	10.431	.40809	.50639	1.0360	.05094	10.292

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	.05140	.20409	.50738	.51376	4.0291	51.469	1.0343
Stddev	.00024	.00058	.00224	.00160	.0376	.221	.0058
%RSD	.46553	.28476	.44054	.31105	.93383	.42866	.55677

#1	.05165	.20341	.50606	.51271	4.0042	51.622	1.0393
#2	.05117	.20442	.50996	.51560	4.0106	51.216	1.0280
#3	.05139	.20443	.50612	.51297	4.0723	51.568	1.0356

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	10.240	.50958	1.0103	52.745	.50950	10.105	.51278
Stddev	.109	.00188	.0009	.078	.00179	.038	.00344
%RSD	1.0690	.36883	.09165	.14726	.35175	.37300	.67002

#1	10.196	.50839	1.0099	52.783	.50915	10.108	.51286
#2	10.159	.51175	1.0114	52.656	.51144	10.066	.50930
#3	10.364	.50861	1.0097	52.797	.50791	10.142	.51617

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 14:15:53 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2196	42034	5.0430	92738	1.0259	99607	52099
Stddev	.0019	.00549	.0026	.00106	.0020	.00227	.00281
%RSD	.15483	1.3049	.05232	.11408	.19536	.22834	.53902

#1	1.2174	.41440	5.0443	.92778	1.0280	.99620	.52359
#2	1.2211	.42522	5.0400	.92818	1.0257	.99374	.51801
#3	1.2202	.42141	5.0447	.92618	1.0240	.99828	.52137

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	1.0149	1.0176	F .00052
Stddev	.0018	.0007	.00059
%RSD	.17221	.06631	113.48

#1	1.0165	1.0184	.00119
#2	1.0130	1.0171	.00011
#3	1.0152	1.0173	.00025

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	7717.7	95059.	11081.
Stddev	16.3	113.	33.
%RSD	.21183	.11845	.30075

#1	7715.5	95146.	11080.
#2	7702.5	95099.	11115.
#3	7735.0	94932.	11048.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 14:19:24 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00029	.00710	-.00156	.00100	.00121	.00000	-.01355	.00006
Stddev	.00038	.00363	.00196	.00065	.00084	.00007	.01140	.00016
%RSD	128.84	51.123	125.47	64.987	69.512	2271.5	84.130	273.29

#1	.00068	.00368	-.00016	.00047	.00027	.00007	-.00795	-.00011
#2	-.00008	.01091	-.00380	.00172	.00188	.00002	-.02666	.00008
#3	.00029	.00671	-.00073	.00080	.00149	-.00008	-.00603	.00021

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	.00037	.00037	.01402	.07877	.00387	.03232	-.00244
Stddev	.00059	.00085	.00163	.01002	.10947	.00354	.05905	.00113
%RSD	311.17	227.10	439.05	71.468	138.97	91.517	182.67	46.287

#1	.00019	.00072	.00198	.01213	.09713	-.00007	-.00704	-.00284
#2	-.00040	-.00059	.00041	.02485	.17791	.00680	.00379	-.00117
#3	.00078	.00100	-.00128	.00508	-.03872	.00489	.10022	-.00333

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	.03342	-.00001	.00120	-.00093	.00171	.00012	.00368
Stddev	.00070	.02318	.00066	.00363	.00122	.00295	.00540	.00059
%RSD	446.43	69.376	7243.3	301.18	131.33	172.51	4369.0	16.156

#1	.00061	.05862	-.00033	.00024	-.00038	.00392	.00286	.00436
#2	-.00077	.02865	.00075	-.00185	-.00008	.00285	-.00609	.00332
#3	-.00031	.01299	-.00044	.00521	-.00233	-.00164	.00361	.00335

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 14:19:24 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00039	.00008	-0.00312	.00282	-0.00060	.00043	-0.00018
Stddev	.00019	.00017	.00321	.00461	.00085	.00018	.00052
%RSD	49.382	200.59	102.81	163.83	141.89	41.566	282.42

#1	-0.00027	.00025	-0.00671	.00754	.00032	.00035	-0.00078
#2	-0.00061	-0.00009	-0.00055	.00259	-0.00076	.00064	.00017
#3	-0.00028	.00009	-0.00210	-0.00168	-0.00136	.00031	.00006

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	7878.0	98423.	11111.
Stddev	11.1	416.	40.
%RSD	.14107	.42242	.36071

#1	7876.9	98792.	11100.
#2	7867.5	98505.	11077.
#3	7889.7	97973.	11155.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014402 Acquired: 11/4/2016 14:23:14 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00105	.04148	.00171	.02270	.02653	.00002	74.166	.00025
Stddev	.00104	.00356	.00256	.00088	.00044	.00010	.274	.00018
%RSD	99.207	8.5939	149.63	3.8663	1.6651	605.16	.36970	73.150

#1	-0.00190	.03773	-0.00099	.02280	.02648	.00010	74.016	.00025
#2	.00011	.04482	.00202	.02177	.02700	-0.00010	73.999	.00007
#3	-0.00136	.04189	.00411	.02352	.02612	.00005	74.482	.00043

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	-0.00005	.00172	.02604	.96461	.06597	44.397	.03449
Stddev	.00038	.00069	.00190	.01322	.04521	.00651	.212	.00297
%RSD	453.99	1499.1	110.66	50.775	4.6865	9.8749	.47652	8.6234

#1	.00050	.00073	.00379	.04126	.94716	.07343	44.220	.03275
#2	-0.00001	-0.00026	.00129	.01731	1.0159	.06144	44.340	.03793
#3	-0.00024	-0.00061	.00007	.01956	.93073	.06303	44.631	.03280

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	.00045	266.71	.00136	.07498	-0.00174	.00282	-0.00635	16.612
Stddev	.00055	.60	.00137	.00268	.00464	.00817	.00318	.023
%RSD	121.48	.22588	100.60	3.5789	266.49	289.25	50.073	.13863

#1	.00010	266.27	.00278	.07792	-0.00705	-0.00651	-0.00519	16.638
#2	.00108	266.47	.00004	.07436	.00150	.00863	-0.00391	16.593
#3	.00017	267.40	.00127	.07267	.00034	.00635	-0.00995	16.607

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014402 Acquired: 11/4/2016 14:23:14 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00293	1.1816	-0.00791	.00023	.00107	.00382	-0.00011
Stddev	.00072	.0008	.00294	.00277	.00096	.00015	.00016
%RSD	24.475	.06938	37.105	1217.9	89.620	4.0496	146.14

#1	-0.00237	1.1821	-0.00456	.00276	.00184	.00373	-0.00002
#2	-0.00373	1.1807	-0.01004	-0.00273	.00136	.00374	-0.00029
#3	-0.00267	1.1821	-0.00913	.00065	-0.00000	.00400	-0.00002

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	7531.7	92388.	11078.
Stddev	11.3	541.	82.
%RSD	.14949	.58574	.74203

#1	7519.2	92363.	11089.
#2	7534.8	91859.	11154.
#3	7541.0	92941.	10991.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014404 Acquired: 11/4/2016 14:26:59 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.0130	.03986	.00249	.09862	.02619	.00012	194.11
Stddev	.00125	.00459	.00262	.00262	.00035	.00002	.26
%RSD	96.141	11.517	105.42	2.6578	1.3377	19.229	.13568

#1	-0.0011	.04007	.00185	.09769	.02626	.00014	194.29
#2	-0.0259	.04435	.00024	.10158	.02582	.00014	194.24
#3	-0.0119	.03517	.00537	.09659	.02651	.00010	193.81

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	.00070	-0.0009	.00269	.00299	.01844	2.2259	.08149
Stddev	.00012	.00007	.00102	.00153	.01703	.0333	.00441
%RSD	17.335	75.926	38.013	51.231	92.370	1.4942	5.4096

#1	.00057	-0.0013	.00273	.00465	.02539	2.1959	.08036
#2	.00082	-0.0001	.00369	.00269	.03090	2.2617	.08635
#3	.00072	-0.0012	.00165	.00163	-0.0097	2.2202	.07775

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	85.710	.00307	.00042	F 402.92	-0.0040	.06905	-0.0099
Stddev	.109	.00092	.00033	.95	.00104	.00661	.00748
%RSD	.12703	30.085	78.659	.23530	259.05	9.5686	754.07

#1	85.803	.00414	.00071	403.59	.00052	.07631	-0.0717
#2	85.590	.00261	.00005	401.84	-0.0019	.06339	-0.00312
#3	85.735	.00247	.00051	403.34	-0.0153	.06744	.00732

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-50000			

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014404 Acquired: 11/4/2016 14:26:59 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00341	-.00496	14.279	-.00333	2.4422	-.02670	.00004
Stddev	.00159	.01368	.030	.00044	.0025	.00333	.00554
%RSD	46.623	275.63	.20817	13.163	.10089	12.485	12342.

#1	.00510	.01021	14.258	-.00383	2.4437	-.02877	.00009
#2	.00319	-.00874	14.313	-.00300	2.4436	-.02285	-.00552
#3	.00195	-.01636	14.267	-.00318	2.4394	-.02847	.00556

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	.00052	.02061	-.00028
Stddev	.00066	.00042	.00029
%RSD	126.87	2.0292	104.66

#1	.00010	.02107	-.00015
#2	.00018	.02025	-.00008
#3	.00129	.02051	-.00061

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	7287.4	89246.	11071.
Stddev	11.6	239.	35.
%RSD	.15982	.26792	.31391

#1	7280.8	89455.	11078.
#2	7280.6	89297.	11102.
#3	7300.9	88985.	11033.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014406 Acquired: 11/4/2016 14:30:52 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.0075	1.5903	-0.0002	.03145	.07294	.00024	5.0967	.00052
Stddev	.00105	.0034	.00320	.00052	.00038	.00005	.0255	.00047
%RSD	140.57	.21671	13772.	1.6622	.51748	22.414	.49964	90.678

#1	.00016	1.5891	-0.00035	.03097	.07337	.00023	5.0901	.00053
#2	-0.00189	1.5875	.00332	.03136	.07277	.00019	5.0751	.00004
#3	-0.00051	1.5941	-0.00304	.03200	.07268	.00030	5.1248	.00099

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	.00198	.00426	.00285	3.5634	.70273	.01179	2.5102	.04227
Stddev	.00003	.00112	.00135	.0164	.06270	.00315	.0724	.00051
%RSD	1.7589	26.247	47.416	.46010	8.9227	26.707	2.8860	1.2146

#1	.00200	.00310	.00249	3.5790	.70721	.00982	2.4470	.04225
#2	.00194	.00533	.00172	3.5648	.63791	.01542	2.4945	.04177
#3	.00201	.00434	.00434	3.5463	.76308	.01012	2.5893	.04279

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	.00035	49.490	.00449	.89500	.00082	-.00180	.00914	21.015
Stddev	.00019	.242	.00200	.00716	.00236	.00281	.00730	.015
%RSD	54.626	.48858	44.585	.79969	287.62	155.87	79.915	.07372

#1	.00029	49.606	.00565	.88979	.00086	-.00138	.01437	20.997
#2	.00020	49.212	.00218	.90316	.00316	.00077	.01226	21.026
#3	.00057	49.651	.00564	.89204	-.00156	-.00480	.00079	21.021

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014406 Acquired: 11/4/2016 14:30:52 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00327	.14444	.03670	-0.00294	.00554	.03707	.00101
Stddev	.00042	.00028	.00296	.00303	.00072	.00028	.00027
%RSD	12.823	.19173	8.0677	102.83	13.034	.74447	26.379

#1	-0.00314	.14414	.03510	-0.00389	.00552	.03714	.00070
#2	-0.00293	.14468	.04011	.00044	.00628	.03676	.00114
#3	-0.00374	.14449	.03488	-0.00538	.00483	.03730	.00118

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	7859.4	96742.	11078.
Stddev	6.2	106.	130.
%RSD	.07888	.10918	1.1764

#1	7853.4	96864.	11090.
#2	7865.8	96683.	11203.
#3	7859.1	96680.	10943.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014501 Acquired: 11/4/2016 14:34:36 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-.00125	.06574	-.00162	.12143	.01760	.00006	240.71
Stddev	.00188	.00339	.00225	.00371	.00086	.00010	.37
%RSD	149.88	5.1549	139.03	3.0512	4.9074	172.63	.15353

#1	-.00066	.06765	-.00309	.12469	.01860	.00006	240.85
#2	-.00336	.06182	-.00275	.12220	.01719	.00015	240.29
#3	.00026	.06773	.00097	.11740	.01702	-.00004	240.99

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	.16018	.00948	.00063	.97616	.24506	4.4323	.06990
Stddev	.00024	.00035	.00086	.00250	.01139	.0176	.00436
%RSD	.14814	3.6770	135.96	.25648	4.6485	.39638	6.2422

#1	.16039	.00976	.00081	.97886	.23386	4.4520	.06504
#2	.15992	.00909	.00139	.97571	.25663	4.4270	.07348
#3	.16023	.00958	-.00030	.97392	.24468	4.4181	.07118

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	35.564	1.4370	.00523	15.074	.04632	F -.19376	.12590
Stddev	.094	.0072	.00006	.062	.00252	.00811	.00315
%RSD	.26540	.50235	1.2293	.41337	5.4322	4.1840	2.5047

#1	35.575	1.4420	.00518	15.146	.04484	-.20199	.12392
#2	35.464	1.4403	.00530	15.040	.04922	-.18578	.12954
#3	35.652	1.4287	.00520	15.036	.04489	-.19353	.12425

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit						180.00	
Low Limit						-.10000	

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014501 Acquired: 11/4/2016 14:34:36 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-.01088	.00379	9.1218	-.00289	.90110	F -.03360	-.00102
Stddev	.00530	.00744	.0107	.00104	.00112	.00266	.00236
%RSD	48.665	196.20	.11689	35.873	.12483	7.9241	230.86

#1	-.01278	.01225	9.1213	-.00340	.90116	-.03264	.00160
#2	-.00490	.00088	9.1327	-.00357	.90219	-.03155	-.00299
#3	-.01497	-.00175	9.1114	-.00170	.89994	-.03661	-.00169

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit						36.000	
Low Limit						-.03000	

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	-.00025	31.099	-.00013
Stddev	.00054	.018	.00036
%RSD	216.20	.05683	282.41

#1	-.00060	31.118	.00025
#2	.00037	31.083	-.00047
#3	-.00051	31.095	-.00016

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	7505.8	93150.	10944.
Stddev	12.9	616.	163.
%RSD	.17148	.66132	1.4876

#1	7520.6	92646.	10870.
#2	7498.0	93837.	11130.
#3	7498.7	92966.	10831.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014502 Acquired: 11/4/2016 14:38:16 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00098	.01916	-0.00008	.12119	.01749	.00008	240.39
Stddev	.00154	.00505	.00190	.00283	.00051	.00002	.35
%RSD	157.45	26.344	2293.6	2.3372	2.9301	27.213	.14517

#1	-.00155	.01389	-.00216	.12340	.01718	.00006	240.08
#2	.00077	.01964	.00033	.12217	.01720	.00011	240.31
#3	-.00216	.02395	.00158	.11800	.01808	.00008	240.77

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	.15836	.00917	-0.00026	.78428	.02382	4.5430	.06750
Stddev	.00038	.00023	.00096	.00082	.01792	.0977	.00056
%RSD	.24127	2.4970	370.23	.10483	75.232	2.1515	.83412

#1	.15794	.00898	.00044	.78333	.00751	4.4697	.06687
#2	.15845	.00943	-.00136	.78469	.04300	4.5053	.06766
#3	.15869	.00911	.00014	.78481	.02096	4.6540	.06797

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	35.582	1.4130	.00420	14.960	.04434	F -.14689	.04688
Stddev	.183	.0060	.00028	.039	.00031	.00808	.00273
%RSD	.51506	.42264	6.6213	.26398	.70930	5.5005	5.8253

#1	35.512	1.4121	.00431	14.936	.04400	-.14646	.04474
#2	35.443	1.4076	.00441	14.938	.04442	-.15518	.04996
#3	35.789	1.4194	.00389	15.006	.04461	-.13904	.04595

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit						180.00	
Low Limit						-.10000	

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014502 Acquired: 11/4/2016 14:38:16 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-.00597	.00194	8.9569	-.00253	.89668	F -.03526	-.00465
Stddev	.00294	.00822	.0129	.00035	.00170	.00360	.00239
%RSD	49.334	424.13	.14388	14.018	.18908	10.194	51.368

#1	-.00259	.01135	8.9433	-.00264	.89665	-.03807	-.00440
#2	-.00732	-.00382	8.9587	-.00213	.89499	-.03651	-.00714
#3	-.00799	-.00172	8.9689	-.00281	.89838	-.03121	-.00239

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit						36.000	
Low Limit						-.03000	

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	.00013	30.748	.00007
Stddev	.00042	.023	.00033
%RSD	333.65	.07338	477.47

#1	-.00017	30.724	.00000
#2	-.00006	30.750	-.00022
#3	.00061	30.769	.00042

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	7457.7	92579.	10975.
Stddev	2.4	212.	52.
%RSD	.03223	.22888	.47128

#1	7456.0	92350.	10918.
#2	7460.5	92768.	10988.
#3	7456.7	92619.	11019.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014502PS Acquired: 11/4/2016 14:41:57 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590393-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.17831	4.8601	.20129	1.0464	.52501	.02475	222.26	.16848
Stddev	.00152	.0175	.00155	.0048	.00183	.00010	1.16	.00035
%RSD	.84980	.35939	.76979	.45663	.34881	.41149	.52135	.20946

#1	.17686	4.8403	.19989	1.0410	.52634	.02464	222.37	.16807
#2	.17818	4.8667	.20103	1.0501	.52292	.02485	221.05	.16873
#3	.17988	4.8733	.20295	1.0481	.52576	.02475	223.36	.16862

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	.10603	.24728	.95237	1.9785	29.617	.57895	37.020	1.5312
Stddev	.00023	.00219	.00396	.0074	.199	.00750	.221	.0035
%RSD	.21936	.88462	.41584	.37458	.67164	1.2953	.59798	.22653

#1	.10627	.24478	.95693	1.9856	29.662	.57030	36.892	1.5300
#2	.10580	.24884	.94989	1.9708	29.400	.58289	36.892	1.5285
#3	.10601	.24821	.95028	1.9792	29.790	.58365	37.276	1.5351

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	.50537	39.671	.28221	4.8090	.28585	.58126	.19765	10.603
Stddev	.00136	.191	.00111	.0230	.00347	.00292	.00491	.012
%RSD	.26910	.48100	.39479	.47736	1.2139	.50234	2.4839	.11251

#1	.50605	39.764	.28337	4.7902	.28226	.57795	.20322	10.591
#2	.50381	39.451	.28115	4.8023	.28612	.58347	.19396	10.602
#3	.50626	39.797	.28212	4.8346	.28918	.58235	.19577	10.615

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014502PS Acquired: 11/4/2016 14:41:57 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590393-01

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.44873	1.3135	.45669	.24838	.50070	28.389	-.00006
Stddev	.00106	.0046	.00719	.00299	.00212	.054	.00038
%RSD	.23628	.35359	1.5743	1.2031	.42430	.18995	684.58
#1	.44989	1.3138	.46296	.25181	.49862	28.327	.00009
#2	.44847	1.3087	.44885	.24636	.50287	28.411	-.00048
#3	.44782	1.3180	.45826	.24697	.50061	28.428	.00023

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	7422.7	91693.	10743.
Stddev	9.2	221.	91.
%RSD	.12417	.24155	.84791
#1	7424.2	91942.	10738.
#2	7412.9	91621.	10837.
#3	7431.1	91516.	10655.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014502SDL Acquired: 11/4/2016 14:45:30 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
 Comment: WG590393-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00031	.01186	.00061	.02620	.00427	.00003	52.618	.03347
Stddev	.00097	.00586	.00219	.00164	.00034	.00005	.155	.00009
%RSD	311.11	49.437	359.45	6.2410	7.8400	154.28	.29373	.26943

#1	-.00041	.00509	-.00188	.02535	.00423	.00009	52.457	.03345
#2	-.00123	.01525	.00226	.02517	.00397	-.00001	52.765	.03356
#3	.00070	.01524	.00144	.02809	.00463	.00002	52.632	.03339

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	.00194	.00027	.16721	.01875	1.0093	.01282	7.6066	.29672
Stddev	.00063	.00051	.00135	.01158	.0381	.00267	.1070	.00292
%RSD	32.752	192.11	.80989	61.754	3.7708	20.823	1.4063	.98514

#1	.00120	.00005	.16821	.00538	.96881	.01084	7.5932	.29658
#2	.00231	-.00010	.16775	.02534	1.0443	.01176	7.7196	.29971
#3	.00229	.00085	.16567	.02553	1.0147	.01585	7.5070	.29386

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	.00137	3.1008	.00854	-.03006	.01203	.00129	-.00061	1.8508
Stddev	.00051	.0367	.00107	.00280	.00217	.00360	.00706	.0046
%RSD	37.117	1.1823	12.506	9.3201	18.049	278.92	1159.9	.24953

#1	.00159	3.0649	.00867	-.02828	.01421	.00108	.00492	1.8459
#2	.00079	3.0992	.00954	-.03329	.01201	.00499	.00182	1.8551
#3	.00172	3.1382	.00741	-.02861	.00987	-.00220	-.00856	1.8516

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1611014502SDL Acquired: 11/4/2016 14:45:30 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
 Comment: WG590393-02

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00259	.18407	-0.00700	.00163	.00002	6.6978	-0.0014
Stddev	.00054	.00107	.00452	.00127	.00100	.0054	.00006
%RSD	20.737	.58025	64.581	78.124	6152.9	.08097	38.880

#1	-0.00205	.18285	-0.00749	.00016	-0.00114	6.6917	-0.0010
#2	-0.00313	.18458	-0.01125	.00237	.00060	6.6996	-0.0013
#3	-0.00259	.18480	-0.00225	.00235	.00059	6.7022	-0.0020

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	7832.5	97177.	11186.
Stddev	24.5	198.	76.
%RSD	.31333	.20403	.68332

#1	7814.5	97346.	11268.
#2	7860.4	97227.	11116.
#3	7822.4	96959.	11176.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 14:49:14 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36293	10.238	.40613	.49794	1.0300	.05062	10.222
Stddev	.00338	.019	.00210	.00314	.0008	.00010	.040
%RSD	.93197	.18442	.51759	.63138	.08034	.19663	.38984

#1	.36620	10.219	.40381	.49508	1.0292	.05073	10.262
#2	.35945	10.239	.40667	.49744	1.0298	.05053	10.182
#3	.36316	10.257	.40791	.50131	1.0309	.05061	10.221

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	.05061	.20273	.50509	.50827	4.0139	51.214	1.0255
Stddev	.00047	.00043	.00089	.00162	.0356	.116	.0024
%RSD	.93403	.20980	.17701	.31820	.88769	.22589	.23872

#1	.05087	.20228	.50559	.50984	4.0234	51.081	1.0259
#2	.05090	.20278	.50406	.50661	4.0438	51.268	1.0229
#3	.05007	.20312	.50562	.50835	3.9745	51.292	1.0278

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	10.264	.50686	1.0006	52.577	.50446	10.017	.50840
Stddev	.022	.00169	.0009	.107	.00050	.017	.00195
%RSD	.21529	.33425	.08659	.20422	.09906	.17292	.38394

#1	10.251	.50786	1.0002	52.692	.50466	10.021	.50918
#2	10.251	.50782	1.0000	52.557	.50482	10.031	.50618
#3	10.289	.50491	1.0016	52.480	.50389	9.9974	.50984

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 14:49:14 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2071	.40845	4.9919	.92397	1.0213	.99072	.51862
Stddev	.0021	.00153	.0013	.00113	.0022	.00539	.00297
%RSD	.17504	.37532	.02495	.12191	.21273	.54421	.57215

#1	1.2072	.40966	4.9912	.92358	1.0221	.98767	.51846
#2	1.2050	.40897	4.9934	.92309	1.0189	.99694	.51573
#3	1.2092	.40673	4.9912	.92524	1.0230	.98754	.52166

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	1.0063	1.0187	F .00040
Stddev	.0008	.0012	.00015
%RSD	.07496	.11433	37.028

#1	1.0067	1.0185	.00057
#2	1.0054	1.0199	.00032
#3	1.0067	1.0175	.00031

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	7645.7	92951.	10873.
Stddev	4.5	260.	67.
%RSD	.05941	.27975	.61761

#1	7650.5	92668.	10942.
#2	7641.4	93179.	10808.
#3	7645.2	93007.	10868.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 14:52:45 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00109	.00266	.00016	.00085	.00084	.00005	-.00889	-.00004
Stddev	.00139	.00877	.00417	.00067	.00031	.00008	.01823	.00004
%RSD	127.29	329.34	2609.0	78.721	37.091	164.31	205.00	94.227

#1	.00046	-.00364	-.00459	.00115	.00061	.00010	-.00483	-.00005
#2	-.00223	-.00105	.00183	.00008	.00120	.00009	.00697	-.00007
#3	-.00150	.01268	.00324	.00131	.00071	-.00004	-.02881	.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	.00011	.00021	-.00018	.02248	.09212	.00172	.02903	.00189
Stddev	.00035	.00146	.00065	.00490	.10010	.00515	.02100	.00226
%RSD	323.96	694.31	360.57	21.803	108.66	299.74	72.345	119.18

#1	.00051	-.00024	.00037	.02071	.18021	-.00383	.00737	.00108
#2	-.00006	.00184	-.00001	.02802	-.01673	.00635	.03041	.00015
#3	-.00012	-.00097	-.00090	.01870	.11287	.00264	.04931	.00444

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	.00030	.00677	-.00037	-.00191	-.00095	.00096	-.00329	.00121
Stddev	.00057	.02090	.00136	.00874	.00141	.00303	.00917	.00283
%RSD	189.10	308.55	368.34	457.47	148.16	316.66	278.57	234.33

#1	.00094	.00031	.00069	.00375	-.00179	-.00157	-.01019	.00292
#2	.00011	.03014	-.00191	.00249	-.00174	.00432	.00712	-.00206
#3	-.00015	-.01013	.00010	-.01198	.00067	.00013	-.00681	.00277

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 14:52:45 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00008	.00009	-0.00313	.00329	-0.00028	.00043	-0.00015
Stddev	.00031	.00006	.00373	.00337	.00088	.00019	.00004
%RSD	365.75	62.231	119.30	102.45	316.11	44.229	25.827

#1	.00033	.00015	.00114	-.00060	.00030	.00026	-.00018
#2	-.00026	.00009	-.00475	.00528	-.00129	.00063	-.00017
#3	.00019	.00003	-.00578	.00520	.00016	.00039	-.00011

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	7753.0	96484.	10832.
Stddev	12.8	180.	99.
%RSD	.16533	.18681	.91167

#1	7755.4	96311.	10883.
#2	7764.4	96671.	10894.
#3	7739.1	96471.	10718.

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 14:56:34 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00507	.18805	.00875	.07834	.00963	.00163	.42606	.00055
Stddev	.00138	.00152	.00340	.00186	.00024	.00003	.01774	.00028
%RSD	27.210	.80726	38.887	2.3793	2.4483	1.7808	4.1646	50.677

#1	.00370	.18896	.00861	.07834	.00940	.00161	.44439	.00029
#2	.00646	.18888	.00542	.08020	.00987	.00167	.42482	.00052
#3	.00505	.18629	.01222	.07648	.00962	.00162	.40896	.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	.00428	.00412	.00406	.08178	1.0133	.08612	.41397	.00801
Stddev	.00014	.00103	.00173	.00785	.0325	.00898	.10528	.00163
%RSD	3.3824	24.875	42.593	9.5999	3.2092	10.433	25.432	20.346

#1	.00421	.00349	.00227	.08561	.99118	.09324	.45451	.00770
#2	.00418	.00357	.00572	.07275	.99807	.07602	.29445	.00656
#3	.00444	.00531	.00417	.08698	1.0506	.08908	.49296	.00978

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	.00810	.45716	.01774	.80528	.00572	.08730	.01235	.81528
Stddev	.00007	.00902	.00113	.00753	.00509	.00323	.00323	.00229
%RSD	.89424	1.9733	6.3447	.93565	89.008	3.6973	26.124	.28067

#1	.00805	.46633	.01840	.79833	.00914	.08547	.00872	.81264
#2	.00807	.45686	.01838	.81329	.00814	.09103	.01490	.81677
#3	.00818	.44830	.01644	.80423	-.00013	.08541	.01342	.81642

Check ? **Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 14:56:34 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.38663	.04253	.02766	.17117	.00828	.01824	.03944
Stddev	.00054	.00021	.00385	.00155	.00089	.00006	.00025
%RSD	.13906	.48518	13.925	.90652	10.779	.34111	.63242
#1	.38660	.04268	.03204	.17265	.00841	.01831	.03969
#2	.38611	.04230	.02610	.16955	.00733	.01821	.03945
#3	.38718	.04262	.02483	.17131	.00910	.01820	.03919

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	7784.7	96608.	10886.
Stddev	16.9	422.	14.
%RSD	.21649	.43718	.12493
#1	7781.4	96963.	10901.
#2	7803.0	96721.	10884.
#3	7769.7	96141.	10874.

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 15:00:20 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00823	.23141	.01007	.09973	.01158	.00198	.51137	.00095
Stddev	.00153	.00064	.00047	.00232	.00104	.00004	.00467	.00008
%RSD	18.604	.27497	4.6629	2.3225	8.9992	2.0877	.91404	7.9905

#1	.00955	.23202	.00953	.10238	.01277	.00194	.50597	.00092
#2	.00858	.23075	.01035	.09870	.01089	.00199	.51424	.00104
#3	.00655	.23147	.01033	.09811	.01107	.00202	.51388	.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	.00557	.00510	.00534	.10099	1.1994	.10371	.57288	.00911
Stddev	.00015	.00092	.00114	.00766	.1229	.00240	.06636	.00051
%RSD	2.7646	18.099	21.398	7.5864	10.244	2.3106	11.583	5.6294

#1	.00569	.00409	.00649	.09977	1.0956	.10102	.64839	.00865
#2	.00540	.00532	.00531	.10919	1.3351	.10450	.54636	.00966
#3	.00562	.00590	.00421	.09402	1.1676	.10562	.52388	.00901

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	.01042	.56301	.02145	1.0055	.00852	.10289	.01084	1.0217
Stddev	.00106	.00785	.00102	.0023	.00070	.00247	.00304	.0048
%RSD	10.172	1.3934	4.7328	.22899	8.2052	2.3978	28.009	.46903

#1	.01145	.57186	.02105	1.0029	.00779	.10005	.01397	1.0161
#2	.00933	.55691	.02261	1.0071	.00857	.10446	.00790	1.0242
#3	.01047	.56027	.02071	1.0065	.00919	.10418	.01066	1.0247

Check ? **Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 15:00:20 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.48527	.05294	.02688	.21089	.00938	.02167	.04828
Stddev	.00163	.00028	.00256	.00088	.00030	.00011	.00021
%RSD	.33650	.52098	9.5262	.41921	3.1825	.52053	.43340
#1	.48440	.05285	.02407	.21075	.00971	.02179	.04804
#2	.48715	.05273	.02748	.21184	.00932	.02164	.04845
#3	.48425	.05325	.02909	.21009	.00912	.02157	.04835

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	7740.7	95668.	10998.
Stddev	103.7	165.	32.
%RSD	1.3402	.17265	.29180
#1	7655.2	95555.	10972.
#2	7710.8	95858.	11034.
#3	7856.1	95591.	10988.

Approved: November 07, 2016

K: K Buck

Sample Name: L1611001601 Acquired: 11/4/2016 15:19:54 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
 Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.00100	.01640	.00672	.38890	.26709	.00002	.33733
Stddev	.00058	.00131	.00202	.00204	.00098	.00011	.00943
%RSD	57.790	7.9697	30.096	.52526	.36607	509.36	2.7962

#1	-.00155	.01788	.00514	.39042	.26609	.00014	.34734
#2	-.00104	.01593	.00602	.38657	.26713	.00000	.33606
#3	-.00040	.01540	.00900	.38969	.26805	-.00008	.32860

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	-.00015	.00519	.00043	.72665	.01714	1.1806	.34728
Stddev	.00017	.00053	.00133	.00266	.00513	.0209	.00153
%RSD	116.22	10.262	307.98	.36640	29.958	1.7717	.43930

#1	.00003	.00489	-.00109	.72373	.02306	1.1565	.34650
#2	-.00017	.00580	.00135	.72893	.01442	1.1921	.34631
#3	-.00031	.00487	.00103	.72730	.01393	1.1933	.34904

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	.10540	.05028	.00039	30.809	.02453	F -.13933	.08820
Stddev	.05329	.00116	.00048	.023	.00123	.00743	.00080
%RSD	50.558	2.3072	121.48	.07593	4.9946	5.3291	.90820

#1	.14177	.05094	.00062	30.821	.02594	-.13559	.08802
#2	.04423	.04894	-.00016	30.783	.02387	-.14788	.08908
#3	.13020	.05096	.00071	30.825	.02377	-.13453	.08750

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
High Limit						180.00	
Low Limit						-.10000	

Approved: November 07, 2016

K: K Buck

Sample Name: L1611001601 Acquired: 11/4/2016 15:19:54 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
 Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00202	-0.00504	.64329	-0.00398	.03096	.00275	.00104
Stddev	.00652	.00177	.00453	.00067	.00018	.00271	.00493
%RSD	322.67	35.071	.70459	16.970	.58585	98.559	474.77

#1	-0.00595	-0.00595	.64564	-0.00422	.03111	-0.00035	.00650
#2	-0.00563	-0.00617	.63806	-0.00450	.03076	.00467	-0.00030
#3	.00551	-0.00300	.64616	-0.00321	.03101	.00394	-0.00308

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	-0.00020	.73635	.00043
Stddev	.00023	.00703	.00026
%RSD	114.97	.95443	60.294

#1	-0.00027	.73158	.00016
#2	-0.00040	.73306	.00068
#3	.00006	.74442	.00045

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	7936.1	98266.	11357.
Stddev	33.8	468.	40.
%RSD	.42626	.47613	.34794

#1	7967.4	97736.	11389.
#2	7940.8	98440.	11313.
#3	7900.2	98621.	11369.

Approved: November 07, 2016

K: K Buck

Sample Name: 001601+.25ppm Acquired: 11/4/2016 15:23:37 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.18163	5.1885	.21121	1.3804	.76897	.02456	5.3290	.02474
Stddev	.00183	.0313	.00348	.0011	.00555	.00007	.0639	.00016
%RSD	1.0061	.60368	1.6476	.07739	.72169	.29966	1.1985	.62908

#1	.18162	5.1613	.20946	1.3816	.76310	.02454	5.2954	.02462
#2	.18347	5.1814	.21522	1.3799	.76969	.02464	5.2890	.02469
#3	.17981	5.2227	.20895	1.3796	.77413	.02450	5.4027	.02492

Check ? **Chk Pass** **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	.10460	.24794	.97361	1.9618	25.992	.83495	5.0505	.29840
Stddev	.00043	.00110	.00130	.0260	.220	.00369	.1268	.00313
%RSD	.41496	.44264	.13351	1.3275	.84704	.44222	2.5104	1.0504

#1	.10434	.24772	.97441	1.9596	25.755	.83073	5.0304	.29497
#2	.10437	.24913	.97211	1.9888	26.029	.83756	4.9349	.29914
#3	.10511	.24696	.97431	1.9369	26.191	.83657	5.1861	.30111

Check ? **Chk Pass** **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	.49297	56.007	.27252	4.7576	.34299	.60306	.19965	3.1224
Stddev	.00185	.502	.00222	.0108	.00284	.00093	.00418	.0057
%RSD	.37556	.89690	.81364	.22788	.82754	.15498	2.0945	.18131

#1	.49288	55.495	.27241	4.7467	.34105	.60280	.19491	3.1175
#2	.49487	56.028	.27480	4.7578	.34166	.60228	.20123	3.1211
#3	.49117	56.499	.27036	4.7683	.34624	.60409	.20282	3.1286

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: 001601+.25ppm Acquired: 11/4/2016 15:23:37 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.45467	.52747	.47635	.25709	.49144	1.2357	.00040
Stddev	.00117	.00370	.00414	.00110	.00266	.0032	.00018
%RSD	.25839	.70231	.86809	.42745	.54093	.25840	45.044
#1	.45566	.52327	.47171	.25807	.49174	1.2341	.00053
#2	.45337	.52890	.47769	.25731	.49394	1.2336	.00049
#3	.45498	.53026	.47965	.25590	.48865	1.2394	.00020

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	7721.9	95235.	11247.
Stddev	17.4	476.	88.
%RSD	.22485	.50014	.78068
#1	7739.3	94690.	11334.
#2	7722.0	95449.	11249.
#3	7704.5	95568.	11159.

Approved: November 07, 2016

K: K Buck

Sample Name: 001601+.50ppm Acquired: 11/4/2016 15:27:13 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36277	10.056	.41285	2.3824	1.2753	.04989	10.357	.05005
Stddev	.00198	.050	.00185	.0059	.0012	.00007	.025	.00006
%RSD	.54618	.50031	.44860	.24552	.09183	.13948	.24323	.11514

#1	.36499	10.114	.41085	2.3861	1.2763	.04997	10.328	.05010
#2	.36216	10.023	.41317	2.3756	1.2756	.04987	10.372	.04999
#3	.36117	10.031	.41452	2.3853	1.2740	.04983	10.372	.05004

Check ? **Chk Pass** **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	.20354	.49709	1.2286	3.9285	51.019	1.3386	10.018	.54711
Stddev	.00046	.00166	.0015	.0224	.044	.0054	.014	.00247
%RSD	.22496	.33368	.12369	.57111	.08572	.40008	.14210	.45095

#1	.20339	.49690	1.2276	3.9541	51.068	1.3325	10.030	.54821
#2	.20406	.49553	1.2278	3.9126	51.005	1.3409	10.003	.54884
#3	.20318	.49884	1.2303	3.9187	50.984	1.3425	10.023	.54429

Check ? **Chk Pass** **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	.98945	81.597	.52012	9.7481	.59269	1.1907	.39598	5.5975
Stddev	.00132	.227	.00225	.0111	.00335	.0035	.00343	.0017
%RSD	.13356	.27761	.43238	.11333	.56496	.29193	.86705	.03040

#1	.98935	81.369	.52180	9.7586	.59633	1.1873	.39434	5.5967
#2	.98819	81.822	.52099	9.7492	.59199	1.1942	.39367	5.5963
#3	.99083	81.600	.51756	9.7366	.58975	1.1906	.39992	5.5994

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: 001601+.50ppm Acquired: 11/4/2016 15:27:13 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.91053	1.0272	.96451	.50609	.99379	1.7417	.00066
Stddev	.00107	.0012	.00727	.00102	.00118	.0013	.00026
%RSD	.11793	.11572	.75367	.20091	.11913	.07503	39.273
#1	.90947	1.0273	.95761	.50609	.99350	1.7403	.00036
#2	.91162	1.0283	.96382	.50711	.99277	1.7428	.00082
#3	.91050	1.0259	.97210	.50508	.99509	1.7421	.00080

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	7610.0	92991.	11019.
Stddev	7.2	186.	5.
%RSD	.09505	.20044	.04899
#1	7611.0	92799.	11024.
#2	7602.4	93004.	11020.
#3	7616.8	93171.	11013.

Approved: November 07, 2016

K: K Buck

Sample Name: 001601+.75ppm Acquired: 11/4/2016 15:30:43 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.54239	14.767	.61614	3.3914	1.7666	.07506	15.214	.07420
Stddev	.00127	.051	.00550	.0094	.0050	.00047	.067	.00067
%RSD	.23363	.34405	.89293	.27604	.28087	.62870	.44137	.90612

#1	.54109	14.716	.61277	3.3865	1.7612	.07458	15.149	.07397
#2	.54248	14.770	.61315	3.3855	1.7677	.07509	15.211	.07496
#3	.54362	14.817	.62248	3.4022	1.7709	.07552	15.283	.07367

Check ? **Chk Pass** **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	.29998	.74198	1.4624	5.8546	75.103	1.8153	14.846	.78596
Stddev	.00033	.00232	.0025	.0066	.085	.0101	.191	.00571
%RSD	.11003	.31252	.17038	.11217	.11267	.55364	1.2857	.72642

#1	.29960	.74022	1.4598	5.8610	75.089	1.8044	14.629	.78264
#2	.30017	.74112	1.4627	5.8549	75.194	1.8172	14.988	.78269
#3	.30016	.74461	1.4647	5.8479	75.027	1.8243	14.921	.79255

Check ? **Chk Pass** **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	1.4791	105.39	.76329	14.695	.82823	1.7863	.60384	8.0338
Stddev	.0006	.36	.00145	.033	.00157	.0034	.00807	.0142
%RSD	.03991	.34374	.19029	.22530	.18905	.19219	1.3361	.17720

#1	1.4785	105.04	.76362	14.672	.82989	1.7839	.59571	8.0187
#2	1.4791	105.36	.76455	14.680	.82678	1.7847	.60396	8.0357
#3	1.4797	105.76	.76170	14.733	.82802	1.7902	.61184	8.0470

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: 001601+.75ppm Acquired: 11/4/2016 15:30:43 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.3574	1.5184	1.4497	.74637	1.4852	2.2218	.00094
Stddev	.0014	.0039	.0145	.00114	.0041	.0022	.00005
%RSD	.10572	.25604	.99810	.15301	.27753	.09997	4.9565
#1	1.3565	1.5140	1.4419	.74648	1.4817	2.2198	.00092
#2	1.3590	1.5200	1.4408	.74745	1.4841	2.2213	.00090
#3	1.3566	1.5213	1.4664	.74518	1.4898	2.2242	.00099

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	7529.4	91846.	10983.
Stddev	19.1	399.	60.
%RSD	.25340	.43469	.54497
#1	7514.5	92170.	11000.
#2	7522.9	91969.	10916.
#3	7550.9	91400.	11032.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 15:34:12 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36803	10.359	.40712	.50907	1.0330	.05100	10.204
Stddev	.00108	.032	.00329	.00112	.0039	.00039	.019
%RSD	.29216	.30478	.80707	.22002	.37672	.76127	.18193

#1	.36679	10.330	.40369	.50970	1.0296	.05068	10.191
#2	.36873	10.355	.41025	.50972	1.0321	.05089	10.196
#3	.36857	10.393	.40742	.50777	1.0373	.05144	10.225

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	.20463	.51038	.51437	4.0446	51.366	1.0217
Stddev	.00033	.00045	.00227	.00141	.0381	.154	.0083
%RSD	.64441	.22085	.44386	.27409	.94131	.29970	.81387

#1	.05152	.20508	.50993	.51498	4.0336	51.338	1.0125
#2	.05135	.20417	.50837	.51276	4.0133	51.227	1.0237
#3	.05088	.20464	.51284	.51538	4.0870	51.532	1.0288

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	10.171	.50971	1.0138	52.281	.51047	10.131	.51576
Stddev	.078	.00317	.0019	.203	.00104	.024	.00620
%RSD	.76239	.62188	.18845	.38793	.20370	.23991	1.2026

#1	10.215	.50655	1.0160	52.069	.51045	10.127	.51912
#2	10.082	.51289	1.0125	52.301	.51152	10.110	.50860
#3	10.217	.50969	1.0128	52.473	.50945	10.158	.51956

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 15:34:12 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2227	.40722	5.0690	.93444	1.0285	.98636	.52190
Stddev	.0013	.00798	.0051	.00115	.0046	.00385	.00425
%RSD	.10278	1.9589	.10020	.12291	.44957	.39054	.81359

#1	1.2217	.39861	5.0693	.93513	1.0260	.98192	.52364
#2	1.2223	.40870	5.0638	.93312	1.0257	.98887	.52499
#3	1.2241	.41435	5.0740	.93508	1.0339	.98828	.51706

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	1.0186	1.0273	F .00046
Stddev	.0020	.0002	.00024
%RSD	.20074	.01841	51.374

#1	1.0190	1.0270	.00019
#2	1.0204	1.0274	.00063
#3	1.0164	1.0274	.00056

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	7597.1	93472.	10945.
Stddev	11.0	462.	84.
%RSD	.14498	.49410	.76375

#1	7609.0	93729.	11006.
#2	7595.1	93748.	10979.
#3	7587.2	92939.	10849.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 15:37:44 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00121	.00670	-0.00070	.00382	.00086	.00002	-0.00865	-0.00018
Stddev	.00174	.00389	.00039	.00197	.00026	.00004	.02198	.00013
%RSD	144.56	57.999	56.117	51.652	30.562	222.87	254.06	73.651

#1	-0.00137	.00964	-0.00074	.00160	.00086	-0.00001	-.03289	-0.00030
#2	-0.00286	.00818	-0.00029	.00449	.00112	.00006	-.00304	-0.00020
#3	.00061	.00229	-0.00108	.00536	.00060	.00000	.00998	-0.00004

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	-0.00147	-0.00045	.00283	.25158	-0.00154	.08139	-0.00083
Stddev	.00054	.00040	.00077	.02486	.05865	.00338	.06015	.00195
%RSD	3189.7	27.337	169.33	878.22	23.315	219.28	73.899	235.74

#1	-0.00056	-0.00101	-0.00056	.02663	.31462	-0.00496	.01488	-0.00122
#2	.00052	-0.00167	.00036	-.02296	.24149	.00179	.09735	.00129
#3	.00010	-0.00173	-0.00117	.00482	.19862	-0.00145	.13196	-0.00256

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	.00011	.00914	.00109	-0.00048	-0.00251	-0.00522	-0.01013	.00251
Stddev	.00026	.02664	.00113	.00859	.00307	.00338	.00857	.00100
%RSD	239.05	291.48	103.32	1796.7	122.15	64.756	84.582	39.772

#1	-0.00019	-0.00039	.00026	-0.00862	-0.00081	-0.00132	-.01213	.00167
#2	.00027	-.01142	.00064	-0.00130	-0.00606	-0.00736	-.01752	.00225
#3	.00025	.03924	.00238	.00849	-0.00067	-0.00696	-0.00074	.00361

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 15:37:44 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00021	.00018	.00073	-0.00000	-0.00056	.00035	.00002
Stddev	.00024	.00029	.00344	.00258	.00039	.00011	.00015
%RSD	116.68	162.00	469.84	65996.	69.634	32.934	921.22

#1	.00007	.00006	-.00309	.00295	-.00020	.00024	-.00003
#2	-.00032	.00050	.00357	-.00181	-.00051	.00034	-.00011
#3	-.00037	-.00004	.00171	-.00116	-.00098	.00046	.00019

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	7745.7	96115.	10959.
Stddev	6.2	65.	79.
%RSD	.07972	.06748	.71673

#1	7752.8	96086.	10871.
#2	7742.8	96190.	11021.
#3	7741.5	96070.	10986.

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 15:41:33 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00823	.22603	.01107	.09591	.01090	.00196	.52575	.00120
Stddev	.00087	.00415	.00317	.00180	.00023	.00002	.00930	.00011
%RSD	10.616	1.8364	28.670	1.8765	2.0990	1.1241	1.7688	9.3944

#1	.00775	.22320	.01428	.09790	.01066	.00198	.52947	.00108
#2	.00770	.22408	.00793	.09543	.01095	.00195	.51517	.00129
#3	.00924	.23079	.01100	.09440	.01111	.00194	.53263	.00124

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	.00500	.00369	.00569	.11284	1.1423	.10331	.42288	.00903
Stddev	.00033	.00130	.00157	.01825	.0725	.00514	.06619	.00310
%RSD	6.6462	35.224	27.527	16.177	6.3468	4.9706	15.651	34.317

#1	.00522	.00399	.00401	.12895	1.1383	.09812	.47637	.01261
#2	.00517	.00227	.00596	.09301	1.0720	.10838	.44342	.00706
#3	.00462	.00482	.00711	.11656	1.2168	.10342	.34886	.00744

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	.00944	.54229	.02083	.96703	.01037	.10313	.00947	.98354
Stddev	.00027	.02618	.00067	.00661	.00415	.00113	.00503	.00685
%RSD	2.8332	4.8281	3.2024	.68376	39.974	1.0950	53.131	.69656

#1	.00913	.53044	.02007	.96082	.01395	.10425	.00536	.97563
#2	.00961	.57231	.02133	.97398	.00583	.10315	.01509	.98732
#3	.00956	.52413	.02110	.96629	.01134	.10200	.00797	.98767

Check ? **Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 15:41:33 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.46664	.05131	.02999	.20365	.00816	.02225	.04643
Stddev	.00055	.00041	.00470	.00284	.00053	.00019	.00039
%RSD	.11690	.80840	15.674	1.3950	6.4831	.84900	.83043
#1	.46689	.05112	.03393	.20621	.00859	.02224	.04644
#2	.46702	.05179	.03126	.20059	.00757	.02206	.04681
#3	.46602	.05103	.02479	.20414	.00831	.02244	.04604

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	7797.0	96680.	11092.
Stddev	19.2	324.	94.
%RSD	.24618	.33484	.84762
#1	7775.3	96522.	11077.
#2	7811.6	96466.	11006.
#3	7804.1	97052.	11193.

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 15:45:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00879	.23217	.01045	.09735	.01144	.00199	.53062	.00088
Stddev	.00027	.00587	.00227	.00097	.00025	.00006	.00772	.00012
%RSD	3.0671	2.5298	21.715	1.0015	2.1566	2.9432	1.4546	13.125

#1	.00851	.23201	.01001	.09756	.01116	.00194	.53934	.00086
#2	.00880	.22638	.00843	.09629	.01156	.00205	.52466	.00100
#3	.00905	.23812	.01291	.09821	.01161	.00198	.52786	.00077

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	.00561	.00514	.00500	.09716	1.1559	.10840	.54759	.00957
Stddev	.00025	.00062	.00192	.00833	.0936	.00169	.09828	.00066
%RSD	4.4646	12.068	38.406	8.5739	8.1009	1.5567	17.948	6.8478

#1	.00545	.00442	.00502	.08799	1.1398	.10768	.46945	.01028
#2	.00549	.00552	.00690	.10425	1.2565	.11032	.51539	.00899
#3	.00590	.00547	.00307	.09924	1.0713	.10718	.65794	.00944

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	.00980	.54695	.02073	.99344	.00927	.10417	.01535	1.0058
Stddev	.00025	.01665	.00051	.00340	.00135	.00760	.00727	.0046
%RSD	2.5117	3.0434	2.4725	.34199	14.592	7.2928	47.406	.45404

#1	.00966	.53481	.02081	.99007	.00946	.09855	.00994	1.0087
#2	.01009	.56593	.02018	.99339	.00783	.11281	.01247	1.0005
#3	.00967	.54013	.02119	.99687	.01052	.10115	.02362	1.0082

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LLCCV Acquired: 11/4/2016 15:45:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.47682	.05212	.03005	.20899	.00913	.02134	.04782
Stddev	.00053	.00015	.00145	.00216	.00036	.00015	.00071
%RSD	.11213	.28923	4.8103	1.0347	3.9491	.72072	1.4906

#1	.47744	.05226	.02854	.21148	.00875	.02146	.04845
#2	.47649	.05214	.03018	.20764	.00918	.02139	.04798
#3	.47654	.05196	.03142	.20785	.00946	.02117	.04705

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	7849.8	97487.	11134.
Stddev	14.4	312.	71.
%RSD	.18311	.31963	.63419

#1	7833.3	97586.	11054.
#2	7859.0	97737.	11185.
#3	7857.1	97138.	11164.

Approved: November 07, 2016

K: K Buck

Sample Name: PBW 4W Acquired: 11/4/2016 15:49:06 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00131	.00717	.00066	.00290	.00050	.00003	.15311	.00031
Stddev	.00181	.00223	.00161	.00271	.00054	.00009	.02115	.00018
%RSD	138.06	31.175	246.00	93.546	107.51	262.51	13.816	55.867

#1	-0.00259	.00760	-0.00119	-0.00007	.00049	.00001	.17226	.00028
#2	-0.00210	.00915	.00134	.00524	-0.00003	.00013	.13040	.00050
#3	.00076	.00475	.00181	.00353	.00105	-0.00004	.15667	.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	.00014	.00060	.00045	-0.00380	.08029	-0.00004	-0.02059	-0.00287
Stddev	.00047	.00026	.00099	.01385	.06516	.00227	.04464	.00105
%RSD	335.44	43.773	221.40	364.08	81.155	5213.8	216.75	36.658

#1	.00063	.00055	-0.00023	-0.01849	.09500	-0.00110	.00585	-0.00405
#2	-0.00030	.00088	.00159	.00900	.00903	.00256	-.07213	-0.00205
#3	.00008	.00036	-0.00001	-0.00192	.13682	-0.00159	.00450	-0.00251

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	.07804	.00099	-0.00924	-0.00030	.00202	-0.00709	.00694
Stddev	.00058	.02946	.00060	.00716	.00348	.00683	.01418	.00070
%RSD	350.76	37.743	60.731	77.475	1175.4	337.51	199.92	10.121

#1	-0.00031	.10377	.00060	-0.01521	.00035	.00424	-.00201	.00768
#2	.00081	.08445	.00168	-0.01122	.00281	-0.00564	-.02311	.00629
#3	-0.00001	.04591	.00068	-0.00130	-0.00405	.00747	.00384	.00684

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: PBW 4W Acquired: 11/4/2016 15:49:06 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-02

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00319	.00455	-0.00085	.00086	-0.00018	.00065	-0.00008
Stddev	.00059	.00013	.00477	.00173	.00046	.00001	.00021
%RSD	18.332	2.9610	559.55	201.24	255.49	2.2005	255.90

#1	-0.00257	.00470	-0.00492	.00234	.00003	.00063	.00006
#2	-0.00373	.00446	.00439	.00129	.00014	.00065	.00002
#3	-0.00329	.00449	-0.00202	-0.00104	-0.00070	.00066	-0.00033

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	7800.9	96501.	10971.
Stddev	29.7	396.	67.
%RSD	.38134	.41055	.60796

#1	7827.3	96748.	10937.
#2	7806.7	96044.	11048.
#3	7768.7	96711.	10928.

Approved: November 07, 2016

K: K Buck

Sample Name: LCSW 4W Acquired: 11/4/2016 15:52:53 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.00000(
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.17907	5.1661	.19367	.92873	.50944	.02443	5.0462	.02469
Stddev	.00129	.0042	.00628	.00079	.00161	.00012	.0221	.00029
%RSD	.72034	.08042	3.2422	.08496	.31544	.47319	.43813	1.1881

#1	.17938	5.1613	.19990	.92787	.50977	.02456	5.0283	.02454
#2	.17766	5.1685	.18734	.92941	.50769	.02441	5.0709	.02503
#3	.18018	5.1685	.19376	.92893	.51085	.02433	5.0393	.02450

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	.10066	.24957	.25142	1.9857	25.189	.50783	5.0528	.24951
Stddev	.00058	.00064	.00123	.0198	.096	.00163	.0266	.00396
%RSD	.58051	.25808	.48840	.99725	.38306	.32079	.52694	1.5855

#1	.10094	.25019	.25108	1.9689	25.090	.50956	5.0683	.24502
#2	.09999	.24890	.25278	1.9807	25.194	.50761	5.0221	.25098
#3	.10105	.24962	.25040	2.0076	25.283	.50632	5.0680	.25251

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	.50279	25.853	.25084	4.7471	.25560	.58815	.19112	2.4767
Stddev	.00053	.106	.00038	.0013	.00393	.00360	.00763	.0056
%RSD	.10466	.41063	.14967	.02714	1.5366	.61142	3.9919	.22498

#1	.50218	25.784	.25096	4.7466	.25174	.58494	.19346	2.4703
#2	.50315	25.799	.25042	4.7462	.25959	.59204	.19731	2.4801
#3	.50303	25.975	.25115	4.7486	.25548	.58747	.18260	2.4798

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: LCSW 4W Acquired: 11/4/2016 15:52:53 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-03

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.45853	.50635	.49363	.25829	.49877	.49656	.00035
Stddev	.00074	.00099	.00564	.00372	.00065	.00090	.00025
%RSD	.16179	.19605	1.1426	1.4388	.13110	.18139	70.427
#1	.45921	.50520	.48888	.25727	.49952	.49567	.00062
#2	.45865	.50694	.49215	.26241	.49843	.49747	.00028
#3	.45774	.50689	.49986	.25519	.49835	.49654	.00015

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	7787.1	96213.	11186.
Stddev	18.9	410.	25.
%RSD	.24242	.42618	.22065
#1	7808.5	95742.	11180.
#2	7780.1	96486.	11165.
#3	7772.8	96413.	11214.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140202 Acquired: 11/4/2016 15:56:31 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00333	20.260	.01982	.02141	.64037	.00470	21.930
Stddev	.00144	.111	.00073	.00164	.00068	.00004	.082
%RSD	43.438	.54663	3.6776	7.6675	.10679	.91804	.37546

#1	.00454	20.168	.02066	.02154	.64102	.00465	21.961
#2	.00173	20.383	.01931	.01970	.63966	.00472	21.836
#3	.00371	20.230	.01950	.02297	.64041	.00472	21.992

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	.00159	.02448	.14676	.18559	71.686	3.3427	.02558
Stddev	.00004	.00050	.00142	.00043	.206	.0604	.00319
%RSD	2.2753	2.0391	.96879	.23123	.28780	1.8056	12.472

#1	.00158	.02400	.14537	.18564	71.918	3.4011	.02659
#2	.00163	.02500	.14669	.18514	71.522	3.2806	.02814
#3	.00156	.02446	.14821	.18599	71.617	3.3464	.02201

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	3.5837	1.9754	.04956	F 338.93	.08408	77.282	.30177
Stddev	.0668	.0046	.00110	.62	.00154	.130	.00252
%RSD	1.8648	.23317	2.2259	.18210	1.8362	.16777	.83612

#1	3.5287	1.9756	.04951	339.51	.08537	77.322	.30180
#2	3.5642	1.9706	.04849	338.28	.08237	77.137	.30428
#3	3.6580	1.9798	.05069	339.00	.08450	77.387	.29924

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-50000			

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140202 Acquired: 11/4/2016 15:56:31 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00419	-.00689	33.253	.01147	.09752	.35413	.00177
Stddev	.00349	.00412	.042	.00094	.00035	.00663	.00487
%RSD	83.255	59.831	.12634	8.2188	.35791	1.8711	275.54

#1	.00147	-.00449	33.240	.01043	.09779	.35431	.00377
#2	.00812	-.01165	33.219	.01226	.09713	.34741	.00533
#3	.00297	-.00453	33.300	.01172	.09765	.36066	-.00379

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	.05081	.58675	.01957
Stddev	.00141	.00057	.00010
%RSD	2.7723	.09679	.51041

#1	.05165	.58679	.01947
#2	.04918	.58617	.01967
#3	.05159	.58730	.01956

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	7762.3	94343.	11649.
Stddev	18.0	958.	75.
%RSD	.23227	1.0150	.64408

#1	7768.5	95053.	11729.
#2	7776.5	94722.	11581.
#3	7742.0	93254.	11636.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140202PS Acquired: 11/4/2016 16:00:11 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590252-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.18742	23.256	.21786	.98118	1.0820	.02948	24.840
Stddev	.00061	.124	.00267	.00416	.0038	.00016	.070
%RSD	.32299	.53501	1.2279	.42386	.35287	.55041	.28059

#1	.18797	23.129	.21894	.98197	1.0778	.02947	24.760
#2	.18753	23.378	.21481	.98489	1.0851	.02965	24.886
#3	.18677	23.260	.21982	.97669	1.0832	.02933	24.875

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	.02627	.11956	.37918	.41231	66.961	28.169	.51350
Stddev	.00026	.00062	.00119	.00135	.171	.111	.00313
%RSD	.97508	.51442	.31476	.32832	.25571	.39342	.60886

#1	.02600	.11907	.37793	.41091	66.788	28.045	.51294
#2	.02631	.12025	.38031	.41241	67.130	28.258	.51070
#3	.02651	.11936	.37931	.41361	66.965	28.204	.51687

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	8.0848	2.0381	.53847	F 331.04	.31860	75.488	.51625
Stddev	.1079	.0178	.00136	.49	.00278	.024	.00059
%RSD	1.3341	.87473	.25266	.14888	.87240	.03115	.11432

#1	8.1248	2.0203	.53763	330.89	.31960	75.485	.51578
#2	8.1669	2.0382	.54004	331.59	.32073	75.467	.51691
#3	7.9626	2.0559	.53774	330.64	.31546	75.513	.51606

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-50000			

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140202PS Acquired: 11/4/2016 16:00:11 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG590252-03

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.58539	.19078	33.183	.45635	.58609	.81262	.24257
Stddev	.00166	.00737	.018	.00058	.00201	.00167	.00505
%RSD	.28365	3.8654	.05327	.12775	.34251	.20500	2.0822

#1	.58478	.18599	33.164	.45568	.58378	.81173	.23867
#2	.58412	.18707	33.199	.45664	.58709	.81454	.24827
#3	.58727	.19927	33.185	.45674	.58741	.81159	.24076

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	.54690	1.0253	.01780
Stddev	.00128	.0013	.00043
%RSD	.23409	.12465	2.4185

#1	.54781	1.0241	.01744
#2	.54544	1.0252	.01768
#3	.54745	1.0266	.01828

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	7752.8	94457.	11500.
Stddev	4.6	166.	75.
%RSD	.05882	.17574	.64914

#1	7758.0	94266.	11586.
#2	7749.9	94535.	11451.
#3	7750.4	94569.	11464.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140202SDL Acquired: 11/4/2016 16:03:45 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
 Comment: WG590252-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00006	4.6576	.00333	.00808	.13295	.00086	4.5785	.00029
Stddev	.00002	.0052	.00198	.00060	.00046	.00009	.0106	.00035
%RSD	25.359	.11249	59.582	7.4196	.34857	10.809	.23050	120.07

#1	.00006	4.6604	.00560	.00778	.13346	.00076	4.5771	.00007
#2	.00008	4.6609	.00243	.00769	.13254	.00093	4.5896	.00011
#3	.00005	4.6516	.00196	.00877	.13286	.00091	4.5686	.00070

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	.00525	.02948	.04044	14.935	.77541	.00614	.73903	.41462
Stddev	.00007	.00055	.00180	.039	.07857	.00308	.02093	.00273
%RSD	1.3089	1.8530	4.4466	.25914	10.133	50.145	2.8321	.65917

#1	.00523	.03011	.03836	14.907	.86062	.00969	.74549	.41766
#2	.00519	.02923	.04154	14.979	.75978	.00432	.71563	.41237
#3	.00533	.02911	.04141	14.918	.70583	.00440	.75596	.41384

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	.00984	74.983	.01766	16.262	.06521	-.00322	-.00450	7.0669
Stddev	.00014	.213	.00198	.038	.00132	.00438	.00704	.0162
%RSD	1.4698	.28368	11.224	.23248	2.0266	136.12	156.54	.22974

#1	.00975	75.228	.01632	16.219	.06373	.00161	-.00600	7.0494
#2	.01001	74.872	.01672	16.282	.06565	-.00695	.00317	7.0815
#3	.00977	74.849	.01994	16.286	.06626	-.00432	-.01067	7.0697

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140202SDL Acquired: 11/4/2016 16:03:45 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
 Comment: WG590252-04

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00059	.02042	.06944	-0.00126	.01037	.12359	.00415
Stddev	.00023	.00011	.00248	.00380	.00100	.00030	.00017
%RSD	38.408	.54220	3.5782	301.68	9.6016	.24351	4.0988

#1	-0.00085	.02044	.07071	-0.00331	.01022	.12325	.00429
#2	-0.00045	.02030	.07104	.00312	.01144	.12368	.00396
#3	-0.00046	.02052	.06658	-0.00359	.00946	.12383	.00419

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	7928.8	98390.	11450.
Stddev	23.0	359.	94.
%RSD	.29048	.36458	.81663

#1	7951.2	98728.	11443.
#2	7905.1	98429.	11547.
#3	7930.0	98014.	11360.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140203 Acquired: 11/4/2016 16:07:26 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00118	6.0161	.06951	.07977	.58732	.00531	33.474
Stddev	.00100	.0032	.00379	.00070	.00160	.00005	.063
%RSD	84.608	.05375	5.4471	.87453	.27263	.86800	.18953

#1	.00224	6.0197	.07382	.07917	.58909	.00526	33.402
#2	.00025	6.0150	.06673	.08054	.58598	.00534	33.523
#3	.00105	6.0135	.06799	.07962	.58689	.00533	33.497

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	.00136	.01536	.08763	.04614	35.517	7.5754	.00939
Stddev	.00041	.00048	.00080	.00065	.049	.0542	.00337
%RSD	29.964	3.1347	.91206	1.4164	.13843	.71581	35.821

#1	.00091	.01580	.08706	.04574	35.511	7.6184	.00719
#2	.00147	.01542	.08728	.04689	35.471	7.5145	.01327
#3	.00170	.01485	.08854	.04578	35.569	7.5932	.00772

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	9.6165	1.6337	.01274	F 354.08	.03412	9.1643	.09238
Stddev	.1303	.0049	.00042	6.15	.00133	.0189	.00099
%RSD	1.3552	.29936	3.3219	1.7359	3.9012	.20670	1.0760

#1	9.7162	1.6320	.01278	347.27	.03411	9.1547	.09139
#2	9.4690	1.6300	.01229	359.22	.03279	9.1861	.09338
#3	9.6644	1.6393	.01313	355.74	.03545	9.1520	.09235

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-50000			

Approved: November 07, 2016

K: K Buck

Sample Name: L1610140203 Acquired: 11/4/2016 16:07:26 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00238	-.00699	12.350	.00036	.20229	.34770	.00624
Stddev	.00127	.00426	.016	.00067	.00067	.00266	.00323
%RSD	53.437	60.893	.12690	182.88	.32900	.76498	51.685

#1	.00376	-.01173	12.365	-.00030	.20182	.34670	.00973
#2	.00213	-.00575	12.351	.00037	.20200	.34568	.00336
#3	.00125	-.00349	12.333	.00103	.20305	.35071	.00564

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	.18977	.17911	.03896
Stddev	.00125	.00035	.00044
%RSD	.65962	.19704	1.1170

#1	.18915	.17946	.03852
#2	.19121	.17912	.03895
#3	.18896	.17875	.03939

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	7687.2	93113.	11486.
Stddev	12.2	342.	47.
%RSD	.15877	.36779	.40668

#1	7700.7	92966.	11461.
#2	7677.1	92868.	11457.
#3	7683.7	93504.	11540.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610145603 Acquired: 11/4/2016 16:11:14 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 10 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	-0.00151	.01653	.00036	.02921	.01420	.00004	10.079	-0.00012
Stddev	.00026	.01119	.00158	.00200	.00042	.00003	.023	.00010
%RSD	17.265	67.696	439.12	6.8642	2.9510	82.935	.22691	89.255

#1	-0.00181	.01512	-0.00061	.02813	.01458	.00007	10.090	-0.00002
#2	-0.00130	.02836	-0.00049	.03152	.01375	.00001	10.094	-0.00023
#3	-0.00143	.00611	.00218	.02797	.01426	.00003	10.052	-0.00010

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	.00034	.00022	.00017	1.3781	.96884	.00350	5.5471	.10049
Stddev	.00003	.00022	.00094	.0226	.05074	.00332	.0672	.00422
%RSD	8.0404	98.324	537.62	1.6428	5.2376	95.024	1.2110	4.1948

#1	.00032	.00025	.00036	1.3522	.96266	.00733	5.5719	.09867
#2	.00037	-0.00001	-0.00084	1.3940	1.0224	.00138	5.5983	.09749
#3	.00033	.00043	.00101	1.3882	.92146	.00178	5.4711	.10531

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	-0.00031	19.529	-0.00142	.06035	-0.00054	.00187	-0.00331	.97084
Stddev	.00014	.065	.00170	.00571	.00307	.00213	.00921	.00354
%RSD	44.278	.33070	119.68	9.4680	565.78	113.96	278.71	.36445

#1	-0.00043	19.597	-0.00193	.06085	.00021	-0.00056	-0.00956	.97407
#2	-0.00016	19.469	.00048	.05441	-0.00392	.00342	.00727	.96706
#3	-0.00033	19.521	-0.00281	.06580	.00208	.00276	-0.00763	.97140

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1610145603 Acquired: 11/4/2016 16:11:14 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00323	.04404	-0.00238	.00175	-0.00042	.00070	-0.00018
Stddev	.00094	.00015	.00219	.00280	.00069	.00018	.00040
%RSD	29.078	.34341	92.286	159.59	164.01	25.341	223.11

#1	-0.00427	.04420	-0.00430	.00299	.00011	.00073	-0.00022
#2	-0.00244	.04390	.00001	-0.00145	-0.00018	.00051	-0.00055
#3	-0.00298	.04401	-0.00284	.00372	-0.00120	.00086	.00024

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	7806.7	96700.	10945.
Stddev	31.0	258.	145.
%RSD	.39738	.26727	1.3291

#1	7830.7	96975.	10865.
#2	7817.9	96665.	11113.
#3	7771.7	96461.	10857.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610154306 Acquired: 11/4/2016 16:15:01 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00082	.08831	.00205	.02097	.11879	.00001	80.612	.00013
Stddev	.00073	.00547	.00416	.00310	.00048	.00005	.099	.00008
%RSD	89.363	6.1895	202.65	14.801	.40118	366.79	.12274	59.525

#1	-0.00065	.08236	.00327	.01739	.11826	.00003	80.498	.00007
#2	-0.00019	.08948	.00546	.02294	.11919	.00005	80.660	.00011
#3	-0.00162	.09310	-0.00258	.02257	.11892	-0.00004	80.678	.00021

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	.00048	-0.00004	.00274	.12591	1.1826	.00527	9.8584	.02282
Stddev	.00012	.00089	.00202	.00808	.0263	.00265	.1308	.00131
%RSD	25.924	2373.8	73.659	6.4148	2.2238	50.211	1.3265	5.7521

#1	.00035	.00023	.00436	.12067	1.1545	.00308	9.7652	.02296
#2	.00048	-0.00103	.00048	.13521	1.1869	.00452	9.8022	.02406
#3	.00060	.00069	.00337	.12186	1.2065	.00821	10.008	.02145

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	13.691	.00024	.01129	.00131	.00442	.00472	4.0234
Stddev	.00016	.023	.00058	.01229	.00275	.00236	.00193	.0074
%RSD	43.348	.16665	241.36	108.82	210.06	53.388	40.780	.18345

#1	.00018	13.700	.00003	.02165	.00355	.00177	.00292	4.0268
#2	.00046	13.665	-0.00020	-0.00229	-0.00176	.00520	.00675	4.0149
#3	.00045	13.707	.00089	.01451	.00213	.00630	.00450	4.0285

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1610154306 Acquired: 11/4/2016 16:15:01 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-01

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00329	.34626	-0.00955	-0.00374	.00007	.00267	.00003
Stddev	.00147	.00101	.00607	.00206	.00038	.00013	.00016
%RSD	44.823	.29100	63.575	54.950	543.19	5.0212	570.69

#1	-0.00253	.34581	-0.00584	-0.00193	.00000	.00267	-0.00015
#2	-0.00234	.34556	-0.00626	-0.00332	-0.00027	.00253	.00012
#3	-0.00498	.34742	-0.01656	-0.00598	.00047	.00280	.00011

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	7646.8	94588.	11046.
Stddev	27.9	614.	33.
%RSD	.36446	.64940	.30147

#1	7626.7	95137.	11079.
#2	7635.1	93924.	11012.
#3	7678.6	94703.	11048.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610154306MS Acquired: 11/4/2016 16:18:46 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.00000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.17809	4.9580	.19728	.94865	.62338	.02471	84.639	.02430
Stddev	.00121	.0239	.00121	.00460	.00038	.00009	.110	.00019
%RSD	.68130	.48119	.61480	.48454	.06123	.36968	.12997	.78016

#1	.17939	4.9307	.19751	.94465	.62318	.02461	84.717	.02437
#2	.17791	4.9688	.19837	.94762	.62382	.02476	84.513	.02408
#3	.17698	4.9746	.19597	.95367	.62313	.02477	84.687	.02444

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	.09735	.24677	.24876	2.0865	26.221	.51145	14.689	.26991
Stddev	.00022	.00115	.00180	.0271	.117	.00154	.044	.00130
%RSD	.22369	.46690	.72530	1.2970	.44709	.30067	.29787	.48341

#1	.09712	.24750	.25080	2.0581	26.291	.50983	14.724	.26882
#2	.09755	.24736	.24738	2.1120	26.086	.51164	14.701	.27135
#3	.09738	.24544	.24810	2.0893	26.286	.51288	14.640	.26955

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	.49754	39.132	.24569	4.8299	.24820	.58875	.18726	6.5428
Stddev	.00079	.038	.00200	.0104	.00307	.00578	.00889	.0074
%RSD	.15920	.09801	.81471	.21444	1.2357	.98122	4.7473	.11271

#1	.49831	39.139	.24799	4.8403	.24768	.58251	.18426	6.5352
#2	.49673	39.091	.24437	4.8196	.25149	.59391	.19726	6.5434
#3	.49759	39.167	.24470	4.8300	.24542	.58982	.18026	6.5499

Check ? **Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1610154306MS Acquired: 11/4/2016 16:18:46 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-04

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.44919	.84239	.47828	.24799	.49761	.49002	.00027
Stddev	.00084	.00234	.00462	.00268	.00150	.00043	.00013
%RSD	.18678	.27787	.96695	1.0794	.30159	.08723	47.447
#1	.45004	.84389	.48361	.24496	.49933	.48954	.00038
#2	.44917	.84359	.47580	.25001	.49695	.49016	.00030
#3	.44836	.83969	.47542	.24900	.49655	.49036	.00013

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	7595.6	93358.	11002.
Stddev	28.4	305.	93.
%RSD	.37443	.32622	.84909
#1	7594.3	93316.	10981.
#2	7624.7	93077.	11103.
#3	7567.9	93681.	10920.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610154306MSD Acquired: 11/4/2016 16:22:23 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.17756	4.9967	.19541	.95059	.62341	.02492	84.781	.02442
Stddev	.00204	.0297	.00314	.00631	.00089	.00013	.190	.00026
%RSD	1.1481	.59439	1.6078	.66407	.14354	.53541	.22438	1.0465

#1	.17878	5.0303	.19185	.95699	.62288	.02504	84.615	.02440
#2	.17869	4.9858	.19779	.95041	.62291	.02492	84.740	.02418
#3	.17520	4.9740	.19659	.94436	.62444	.02478	84.989	.02469

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	.09718	.24681	.24859	2.0903	26.399	.51318	14.760	.27078
Stddev	.00037	.00117	.00173	.0383	.165	.00379	.051	.00411
%RSD	.37567	.47486	.69531	1.8317	.62513	.73860	.34559	1.5181

#1	.09709	.24786	.24666	2.0571	26.219	.50908	14.723	.27082
#2	.09688	.24704	.24999	2.1322	26.433	.51392	14.818	.26666
#3	.09759	.24555	.24913	2.0817	26.544	.51655	14.738	.27488

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	.49823	39.348	.24373	4.8186	.24484	.58833	.18096	6.5160
Stddev	.00070	.010	.00152	.0097	.00211	.00601	.00819	.0096
%RSD	.13991	.02601	.62290	.20032	.86133	1.0215	4.5261	.14701

#1	.49878	39.336	.24287	4.8252	.24257	.58263	.18197	6.5148
#2	.49846	39.354	.24548	4.8075	.24674	.58775	.17231	6.5072
#3	.49744	39.354	.24284	4.8230	.24522	.59461	.18860	6.5262

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: November 07, 2016

K: K Buck

Sample Name: L1610154306MSD Acquired: 11/4/2016 16:22:23 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG589732-05

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.44927	.84514	.47914	.24325	.50031	.48858	.00014
Stddev	.00107	.00193	.00780	.00330	.00304	.00041	.00018
%RSD	.23866	.22803	1.6272	1.3562	.60753	.08290	125.97
#1	.44803	.84333	.48812	.24665	.50279	.48898	.00020
#2	.44989	.84716	.47520	.24006	.50123	.48858	-.00006
#3	.44988	.84492	.47409	.24304	.49692	.48817	.00028

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	7574.5	92776.	10890.
Stddev	11.7	750.	97.
%RSD	.15411	.80875	.89342
#1	7587.2	92392.	10993.
#2	7564.1	92296.	10878.
#3	7572.3	93641.	10800.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 16:25:59 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36745	10.287	.40444	.50174	1.0316	.05081	10.193
Stddev	.00102	.068	.00487	.00285	.0021	.00001	.032
%RSD	.27655	.66200	1.2036	.56806	.20163	.01277	.31368

#1	.36858	10.342	.40396	.49845	1.0306	.05082	10.183
#2	.36661	10.211	.40952	.50353	1.0340	.05082	10.229
#3	.36716	10.308	.39982	.50324	1.0302	.05081	10.168

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	.05035	.20336	.50759	.51115	4.0255	51.506	1.0261
Stddev	.00030	.00049	.00087	.00109	.0284	.117	.0081
%RSD	.60476	.23975	.17100	.21371	.70624	.22712	.78585

#1	.05043	.20379	.50833	.51027	4.0158	51.380	1.0171
#2	.05001	.20347	.50780	.51080	4.0575	51.611	1.0327
#3	.05060	.20283	.50663	.51237	4.0032	51.527	1.0285

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	10.168	.50709	1.0029	52.559	.50754	10.031	.51012
Stddev	.012	.00294	.0004	.205	.00138	.018	.00359
%RSD	.12263	.57999	.03791	.39007	.27116	.17637	.70350

#1	10.182	.50442	1.0032	52.420	.50910	10.039	.50841
#2	10.161	.51025	1.0025	52.794	.50700	10.043	.50770
#3	10.160	.50661	1.0031	52.462	.50652	10.010	.51424

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 16:25:59 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	1.2069	.40606	5.0199	.92428	1.0241	.98653	.51986
Stddev	.0062	.00707	.0059	.00282	.0033	.00137	.00447
%RSD	.51655	1.7411	.11841	.30546	.32481	.13879	.85964

#1	1.1997	.41257	5.0211	.92222	1.0218	.98661	.52286
#2	1.2104	.40707	5.0135	.92311	1.0279	.98512	.51472
#3	1.2106	.39854	5.0252	.92750	1.0225	.98786	.52198

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	1.0146	1.0183	F -.00003
Stddev	.0009	.0004	.00030
%RSD	.08908	.03815	1163.4

#1	1.0136	1.0187	-.00024
#2	1.0153	1.0181	-.00015
#3	1.0150	1.0181	.00031

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	7637.1	93315.	10950.
Stddev	7.3	373.	94.
%RSD	.09538	.39938	.85919

#1	7629.8	93572.	11033.
#2	7637.1	93486.	10848.
#3	7644.4	92888.	10970.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 16:29:30 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00146	.00339	.00152	.00241	.00094	.00012	-.00904	.00014
Stddev	.00028	.00494	.00239	.00103	.00034	.00006	.01614	.00021
%RSD	18.895	145.84	156.91	42.747	35.807	51.617	178.40	152.51

#1	-0.00119	-0.00182	.00227	.00352	.00088	.00005	-.00768	-.00006
#2	-0.00175	.00801	-.00115	.00223	.00064	.00015	-.02582	.00036
#3	-0.00144	.00397	.00345	.00148	.00130	.00015	.00637	.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	.00005	.00009	-.00073	.00940	.22171	.00023	.02639	-.00017
Stddev	.00022	.00033	.00204	.02159	.03495	.00528	.12683	.00117
%RSD	429.87	356.43	281.34	229.62	15.763	2342.1	480.68	678.05

#1	-.00015	-.00028	-.00287	.03137	.25147	.00199	-.03609	-.00080
#2	.00002	.00019	-.00050	-.01178	.18323	-.00571	.17233	.00118
#3	.00029	.00037	.00119	.00862	.23044	.00440	-.05709	-.00090

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	.03960	.00032	.00075	-.00174	.00253	-.00790	.00495
Stddev	.00028	.02951	.00130	.01004	.00195	.00163	.00173	.00345
%RSD	89.353	74.530	403.01	1345.7	112.25	64.561	21.875	69.637

#1	.00040	.04334	.00087	.00496	-.00395	.00080	-.00653	.00510
#2	.00000	.00839	.00126	-.01072	-.00105	.00274	-.00731	.00143
#3	.00054	.06705	-.00116	.00799	-.00023	.00405	-.00984	.00831

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 16:29:30 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.00000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00220	.00026	-0.00120	.00058	.00025	.00004	-0.00005
Stddev	.00067	.00011	.00381	.00014	.00078	.00006	.00029
%RSD	30.470	42.520	316.36	24.337	311.29	164.67	631.35

#1	-0.00236	.00032	-0.00309	.00070	.00055	-0.00002	.00026
#2	-0.00278	.00013	.00318	.00043	-0.00064	.00009	-0.00033
#3	-0.00147	.00033	-0.00370	.00062	.00084	.00004	-0.00007

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	7702.9	95026.	10678.
Stddev	23.1	348.	153.
%RSD	.30019	.36652	1.4302

#1	7682.0	95310.	10800.
#2	7698.9	94638.	10728.
#3	7727.7	95131.	10507.

Approved: November 07, 2016

K: K Buck

Sample Name: ICSA Acquired: 11/4/2016 16:33:21 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	247.98	.00461	-0.00180	.00108	.00002	226.48
Stddev	.00076	1.04	.00248	.00355	.00029	.00005	.96
%RSD	148.84	.42122	53.871	196.86	27.091	208.93	.42502

#1	.00044	247.48	.00244	-0.00518	.00115	.00005	226.76
#2	.00130	247.28	.00407	-0.00213	.00076	-.00003	225.41
#3	-.00021	249.18	.00732	.00190	.00133	.00006	227.28

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	.00048	-0.00060	-0.00201	.00114	97.096	.33160	.01111
Stddev	.00053	.00010	.00084	.00165	.250	.02618	.00641
%RSD	109.19	16.319	41.759	145.01	.25712	7.8955	57.722

#1	.00095	-0.00062	-0.00294	-0.00076	97.384	.32158	.01784
#2	.00059	-0.00069	-0.00130	.00194	96.952	.31190	.00507
#3	-.00009	-0.00050	-0.00180	.00224	96.950	.36131	.01041

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	249.22	.00172	-0.00101	.09347	-0.00367	.04730	-0.00096
Stddev	.74	.00174	.00082	.03391	.00092	.00332	.00739
%RSD	.29723	100.72	81.163	36.277	24.954	7.0258	769.64

#1	250.06	.00326	-0.00166	.12844	-0.00457	.04695	.00518
#2	248.66	.00206	-0.00128	.06074	-0.00274	.04417	.00110
#3	248.93	-0.00016	-0.00009	.09122	-0.00371	.05079	-0.00917

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: November 07, 2016

K: K Buck

Sample Name: ICSA Acquired: 11/4/2016 16:33:21 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) 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	.00186	F .00887	.18059	-.00232	.00122	-.01314	.00294
Stddev	.00649	.01253	.00223	.00065	.00011	.00660	.00193
%RSD	348.20	141.19	1.2345	27.863	9.1266	50.216	65.851

#1	.00932	.01447	.18306	-.00246	.00131	-.00587	.00438
#2	-.00253	.01763	.18000	-.00161	.00110	-.01480	.00074
#3	-.00120	-.00548	.17872	-.00288	.00126	-.01876	.00369

Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.00800					
Low Limit		-.00800					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	-.00519	-.00629	-.00241
Stddev	.00088	.00023	.00028
%RSD	16.895	3.6267	11.474

#1	-.00522	-.00631	-.00213
#2	-.00429	-.00606	-.00268
#3	-.00604	-.00651	-.00242

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	7243.8	87602.	10821.
Stddev	6.2	258.	56.
%RSD	.08609	.29449	.51536

#1	7241.6	87728.	10781.
#2	7250.8	87773.	10884.
#3	7239.0	87305.	10797.

Approved: November 07, 2016

K: K Buck

Sample Name: ICSAB Acquired: 11/4/2016 16:37:13 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.47038	246.32	.25571	-.01832	.25488	.25858	227.58	.46809
Stddev	.00296	1.74	.00315	.00245	.00024	.00047	.32	.00021
%RSD	.62882	.70793	1.2329	13.382	.09474	.18363	.14071	.04494

#1	.47095	247.82	.25513	-.02087	.25505	.25909	227.21	.46818
#2	.46718	244.41	.25289	-.01599	.25460	.25851	227.81	.46785
#3	.47301	246.73	.25911	-.01808	.25498	.25815	227.71	.46823

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	.23842	.24765	.24902	97.082	5.4620	.00654	248.58	.24522
Stddev	.00069	.00089	.00086	.130	.0652	.00311	.38	.00267
%RSD	.29065	.36003	.34517	.13410	1.1939	47.542	.15426	1.0900

#1	.23825	.24814	.24972	97.219	5.4251	.00680	248.32	.24809
#2	.23783	.24819	.24928	96.960	5.4236	.00951	249.02	.24476
#3	.23918	.24662	.24806	97.065	5.5373	.00331	248.40	.24280

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	-.00112	5.4030	.47603	-.00906	.48015	.48523	.24297	.01184
Stddev	.00113	.0311	.00179	.00478	.00368	.00433	.01243	.00136
%RSD	100.86	.57639	.37592	52.792	.76545	.89323	5.1171	11.502

#1	.00018	5.4237	.47808	-.00720	.48406	.49014	.25652	.01306
#2	-.00186	5.4181	.47520	-.01450	.47962	.48362	.23208	.01037
#3	-.00166	5.3672	.47480	-.00549	.47677	.48193	.24032	.01208

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: ICSAB Acquired: 11/4/2016 16:37:13 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00292	.00121	-0.00990	.44121	.24701	.47868	-0.00244
Stddev	.00115	.00024	.00128	.00280	.00055	.00047	.00004
%RSD	39.485	20.055	12.944	.63442	.22116	.09913	1.6826

#1	-0.00177	.00146	-0.01118	.43971	.24682	.47904	-0.00248
#2	-0.00292	.00098	-0.00992	.43947	.24657	.47885	-0.00244
#3	-0.00407	.00119	-0.00862	.44443	.24762	.47814	-0.00240

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	7213.7	87028.	10762.
Stddev	9.0	278.	53.
%RSD	.12507	.31997	.49212

#1	7205.6	87270.	10778.
#2	7212.0	86724.	10805.
#3	7223.4	87092.	10703.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 16:40:59 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36418	10.217	.40197	.49918	1.0256	.05061	10.199
Stddev	.00012	.033	.00613	.00231	.0008	.00010	.005
%RSD	.03215	.32292	1.5259	.46234	.07853	.19102	.04630

#1	.36405	10.223	.40699	.50129	1.0263	.05051	10.195
#2	.36427	10.246	.40379	.49952	1.0248	.05062	10.204
#3	.36421	10.181	.39513	.49672	1.0258	.05070	10.198

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	.05105	.20341	.50563	.51055	3.9815	51.069	1.0202
Stddev	.00020	.00031	.00158	.00278	.0131	.178	.0047
%RSD	.39690	.15350	.31346	.54395	.32780	.34792	.46248

#1	.05086	.20308	.50714	.51211	3.9717	51.272	1.0238
#2	.05101	.20345	.50576	.51220	3.9764	50.940	1.0220
#3	.05126	.20370	.50398	.50734	3.9963	50.996	1.0149

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	10.166	.50570	1.0044	51.962	.50694	10.027	.50922
Stddev	.033	.00351	.0013	.035	.00065	.017	.00349
%RSD	.32864	.69404	.12879	.06681	.12813	.17340	.68500

#1	10.180	.50956	1.0047	51.989	.50640	10.047	.50530
#2	10.190	.50482	1.0055	51.923	.50766	10.019	.51037
#3	10.128	.50271	1.0030	51.973	.50677	10.015	.51199

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 16:40:59 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2042	.40459	5.0050	.92558	1.0181	.98030	.51863
Stddev	.0004	.00661	.0114	.00110	.0015	.00652	.00570
%RSD	.03072	1.6341	.22789	.11838	.15065	.66477	1.0994

#1	1.2039	.40135	4.9918	.92601	1.0193	.97737	.51680
#2	1.2046	.40022	5.0113	.92639	1.0164	.97577	.51407
#3	1.2040	.41220	5.0119	.92433	1.0187	.98777	.52502

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	1.0106	1.0178	F .00022
Stddev	.0014	.0003	.00013
%RSD	.14204	.02833	60.328

#1	1.0098	1.0179	.00011
#2	1.0123	1.0181	.00036
#3	1.0098	1.0175	.00019

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	7550.0	92448.	10860.
Stddev	31.7	256.	39.
%RSD	.42032	.27691	.35906

#1	7582.7	92529.	10871.
#2	7547.9	92654.	10816.
#3	7519.4	92161.	10892.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 16:44:31 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	-0.00066	.00531	.00054	.00459	.00050	.00008	.00142	-0.00003
Stddev	.00068	.00119	.00226	.00289	.00033	.00003	.02541	.00022
%RSD	102.69	22.402	422.25	63.010	65.403	34.770	1787.6	750.89

#1	-0.00141	.00467	-0.00207	.00128	.00057	.00006	-0.01920	-0.00014
#2	-0.00009	.00459	.00191	.00586	.00079	.00011	-0.00635	.00023
#3	-0.00049	.00669	.00176	.00663	.00014	.00008	.02981	-0.00018

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	.00029	.00060	.00247	.15163	.00078	.01821	-0.00017
Stddev	.00041	.00049	.00108	.01793	.04044	.00046	.03541	.00416
%RSD	208.36	168.78	179.68	726.83	26.669	58.429	194.43	2488.2

#1	-0.00001	.00023	.00185	-.01818	.17131	.00048	.00196	-.00449
#2	.00067	.00082	.00004	.01414	.10512	.00055	.05882	.00017
#3	-0.00007	-.00017	-.00008	.01144	.17847	.00131	-.00616	.00382

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	-0.00010	.01335	-0.00030	.00382	-0.00234	-0.00056	-0.00189	.00528
Stddev	.00042	.00289	.00083	.01474	.00211	.00357	.00489	.00220
%RSD	414.44	21.638	275.61	386.00	90.253	634.49	259.08	41.686

#1	-0.00040	.01122	.00065	-.01006	-.00034	.00335	.00322	.00675
#2	-0.00029	.01218	-.00074	.00223	-.00454	-.00142	-.00653	.00275
#3	.00038	.01664	-.00081	.01928	-.00213	-.00362	-.00235	.00634

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 16:44:31 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00251	.00024	-0.00121	-0.00261	-0.00052	-0.00012	.00001
Stddev	.00078	.00023	.00491	.00318	.00019	.00004	.00016
%RSD	30.872	93.786	404.65	121.64	36.546	36.354	2833.9

#1	-0.00210	.00041	.00013	.00045	-0.00033	-0.00013	-0.00018
#2	-0.00341	.00034	.00289	-0.00238	-0.00051	-0.00008	.00011
#3	-0.00203	-0.00002	-0.00666	-0.00590	-0.00071	-0.00016	.00009

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	7671.0	95455.	10892.
Stddev	11.3	186.	27.
%RSD	.14769	.19522	.24628

#1	7679.0	95608.	10875.
#2	7658.1	95509.	10922.
#3	7676.0	95247.	10877.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610001052 Acquired: 11/4/2016 16:48:21 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	4.8360	.00347	-.00156	.00295	.00044	.00008	.00775	.00006
Stddev	.0359	.00348	.00232	.00329	.00050	.00006	.01334	.00021
%RSD	.74164	100.15	148.63	111.55	113.22	80.678	172.19	376.43

#1	4.7975	.00735	-.00394	.00313	.00064	.00005	-.00513	.00030
#2	4.8421	.00247	-.00146	.00615	.00080	.00003	.02150	-.00006
#3	4.8685	.00061	.00071	-.00042	-.00013	.00015	.00687	-.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	.00012	-.00010	.00019	.01406	.17560	.00135	-.05352	.00085
Stddev	.00029	.00045	.00081	.01815	.04227	.00279	.03622	.00259
%RSD	251.63	446.41	418.26	129.10	24.075	206.51	67.673	303.29

#1	-.00011	-.00056	.00034	-.00685	.13992	.00448	-.07904	.00148
#2	.00001	.00035	-.00068	.02581	.16457	-.00086	-.06945	.00307
#3	.00044	-.00009	.00093	.02322	.22229	.00043	-.01207	-.00199

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	.00038	-.00189	.00052	-.00100	.00065	-.00135	-.00539	.00445
Stddev	.00029	.03466	.00102	.00240	.00258	.00574	.01119	.00330
%RSD	78.489	1831.9	196.52	240.69	396.34	426.01	207.50	74.237

#1	.00071	.02843	.00018	.00028	-.00082	.00502	.00713	.00806
#2	.00018	.00556	.00166	-.00376	-.00086	-.00613	-.00889	.00159
#3	.00023	-.03967	-.00029	.00050	.00363	-.00294	-.01441	.00369

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1610001052 Acquired: 11/4/2016 16:48:21 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00209	.00019	-0.00266	-0.00425	.00029	.00424	.00002
Stddev	.00078	.00027	.00319	.00270	.00037	.00028	.00011
%RSD	37.413	138.04	119.99	63.676	128.47	6.5096	677.61

#1	-0.00290	.00014	-0.00007	-0.00134	-0.00007	.00407	.00013
#2	-0.00133	.00049	-0.00623	-0.00668	.00027	.00409	-0.00007
#3	-0.00205	-0.00004	-0.00169	-0.00472	.00067	.00456	-0.00001

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	7695.4	95272.	10835.
Stddev	33.6	337.	26.
%RSD	.43718	.35337	.23981

#1	7658.0	95601.	10827.
#2	7705.1	95285.	10865.
#3	7723.2	94929.	10815.

Approved: November 07, 2016

K: K Buck

Sample Name: L1610001052 Acquired: 11/4/2016 16:52:09 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	2.9795	.00344	-.00121	.00269	.00054	.00005	.01250	-.00019
Stddev	.0022	.00257	.00183	.00127	.00018	.00003	.01888	.00044
%RSD	.07258	74.718	152.08	47.107	32.823	63.483	151.08	231.82

#1	2.9781	.00368	-.00080	.00129	.00038	.00006	.00559	-.00069
#2	2.9820	.00076	.00039	.00302	.00050	.00002	.03387	.00016
#3	2.9784	.00588	-.00321	.00375	.00073	.00008	-.00196	-.00004

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	.00068	.00168	.00593	.08082	.00172	.00161	-.00102
Stddev	.00023	.00109	.00149	.01244	.10337	.00473	.04523	.00321
%RSD	281.41	161.03	88.976	209.83	127.90	274.42	2803.2	314.86

#1	-.00009	.00050	.00078	-.00362	.16611	.00571	.00024	-.00280
#2	.00034	-.00031	.00086	.00140	.11048	-.00350	.04752	-.00294
#3	-.00000	.00185	.00340	.02000	-.03414	.00297	-.04292	.00269

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	.01127	.00063	-.00374	-.00043	.00193	-.00564	.00050
Stddev	.00043	.04879	.00121	.00951	.00517	.00385	.00907	.00213
%RSD	73.562	433.02	191.63	254.16	1201.1	199.54	160.85	423.56

#1	.00019	.00942	.00083	.00682	.00380	.00629	-.01321	.00273
#2	.00053	.06095	-.00067	-.00641	-.00620	.00052	.00441	.00029
#3	.00105	-.03657	.00174	-.01164	.00111	-.00102	-.00811	-.00152

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: L1610001052 Acquired: 11/4/2016 16:52:09 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00303	-0.00022	.00075	-0.00007	-0.00030	.00176	-0.00027
Stddev	.00076	.00021	.00296	.00279	.00101	.00010	.00045
%RSD	25.108	92.726	394.24	3811.5	336.05	5.6791	166.37

#1	-0.00274	-0.00046	-0.00188	.00248	-0.00044	.00186	-0.00078
#2	-0.00389	-0.00011	.00018	-0.00306	-0.00124	.00177	-0.00006
#3	-0.00245	-0.00010	.00395	.00036	.00077	.00166	.00004

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	7739.2	95647.	11003.
Stddev	19.5	314.	16.
%RSD	.25189	.32814	.14089

#1	7748.5	95868.	11008.
#2	7752.2	95786.	10986.
#3	7716.8	95288.	11016.

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 16:55:58 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.36663	10.254	.40747	.50435	1.0275	.05077	10.215
Stddev	.00214	.047	.00580	.00510	.0010	.00009	.036
%RSD	.58348	.45834	1.4232	1.0109	.09319	.17213	.35696

#1	.36739	10.247	.40639	.49978	1.0284	.05067	10.257
#2	.36422	10.211	.41373	.50342	1.0265	.05083	10.193
#3	.36829	10.304	.40229	.50985	1.0274	.05081	10.195

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	.05079	.20418	.50987	.51130	3.9750	51.015	1.0164
Stddev	.00054	.00027	.00246	.00113	.0190	.158	.0045
%RSD	1.0660	.13385	.48296	.22117	.47831	.31008	.44652

#1	.05047	.20402	.51123	.51253	3.9966	50.996	1.0197
#2	.05048	.20403	.51136	.51107	3.9678	51.181	1.0112
#3	.05141	.20450	.50703	.51030	3.9607	50.867	1.0183

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	10.129	.50336	1.0057	51.850	.51167	10.063	.50973
Stddev	.100	.00207	.0007	.269	.00262	.004	.00353
%RSD	.98615	.41181	.06906	.51881	.51167	.04294	.69241

#1	10.241	.50553	1.0050	52.138	.51407	10.064	.50617
#2	10.094	.50315	1.0064	51.605	.51206	10.058	.50980
#3	10.051	.50140	1.0057	51.808	.50888	10.067	.51322

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: November 07, 2016

K: K Buck

Sample Name: CCV Acquired: 11/4/2016 16:55:58 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	1.2044	.41075	5.0206	.92984	1.0211	.98796	.51555
Stddev	.0017	.00873	.0091	.00091	.0010	.00883	.00158
%RSD	.13687	2.1248	.18080	.09839	.10068	.89390	.30628

#1	1.2043	.40266	5.0119	.93006	1.0214	.99815	.51604
#2	1.2028	.42000	5.0198	.93062	1.0199	.98263	.51682
#3	1.2061	.40960	5.0300	.92883	1.0219	.98310	.51378

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	1.0132	1.0232	F .00021
Stddev	.0024	.0006	.00035
%RSD	.23984	.06341	166.45

#1	1.0145	1.0230	.00034
#2	1.0147	1.0239	-.00019
#3	1.0104	1.0227	.00048

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	7529.0	92108.	10757.
Stddev	12.8	207.	89.
%RSD	.17004	.22452	.83144

#1	7532.5	91985.	10657.
#2	7514.8	92347.	10785.
#3	7539.7	91991.	10830.

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 16:59:31 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 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	.00009	.00290	-.00111	.00189	.00080	.00009	-.01552	-.00010
Stddev	.00084	.00626	.00128	.00113	.00075	.00005	.01410	.00016
%RSD	901.19	215.56	115.36	59.581	94.021	53.852	90.841	159.70

#1	-.00046	-.00034	-.00141	.00284	.00087	.00014	-.00003	-.00010
#2	-.00033	.01012	.00030	.00218	.00151	.00004	-.01895	-.00027
#3	.00107	-.00107	-.00221	.00065	.00002	.00009	-.02760	.00006

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	-.00029	.00116	.00234	.16615	-.00193	.02430	-.00064
Stddev	.00047	.00096	.00208	.00962	.11129	.00464	.02443	.00137
%RSD	469.79	326.16	179.53	411.77	66.985	240.31	100.53	214.03

#1	.00009	.00079	-.00114	.00174	.11762	.00323	.04010	-.00020
#2	-.00036	-.00100	.00172	-.00697	.08736	-.00575	-.00384	.00046
#3	.00057	-.00067	.00289	.01225	.29346	-.00327	.03663	-.00218

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	.00326	.00020	.00179	.00112	.00325	-.00336	.00311
Stddev	.00055	.05032	.00178	.00365	.00143	.00737	.00887	.00161
%RSD	801.16	1543.5	881.71	203.81	127.79	226.98	263.80	51.559

#1	-.00059	.06108	.00213	.00200	.00053	.01176	-.00584	.00321
#2	.00052	-.02072	-.00138	.00532	.00276	-.00089	.00648	.00467
#3	-.00014	-.03058	-.00015	-.00196	.00008	-.00113	-.01072	.00146

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: November 07, 2016

K: K Buck

Sample Name: CCB Acquired: 11/4/2016 16:59:31 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v145) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment:

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00238	-0.00006	-0.00172	.00105	-0.00109	.00007	-0.00031
Stddev	.00069	.00026	.00496	.00247	.00062	.00032	.00039
%RSD	28.882	406.66	288.64	235.38	57.075	459.02	126.30

#1	-0.00289	.00018	.00291	-0.00180	-0.00072	.00044	-0.00074
#2	-0.00265	-0.00034	-0.00111	.00256	-0.00181	-0.00014	.00003
#3	-0.00160	-0.00004	-0.00695	.00239	-0.00074	-0.00009	-0.00022

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	7631.3	94443.	10680.
Stddev	13.6	442.	25.
%RSD	.17870	.46784	.23099

#1	7630.5	94169.	10661.
#2	7645.3	94953.	10708.
#3	7618.1	94208.	10672.

Approved: November 07, 2016

K: K Buck

2.3.2 Metals ICP-MS Data

2.3.2.1 Summary Data

Certificate of Analysis

Sample #: L16110144-02	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: 50WW08FF-110216	Prep Method: 3015	Prep Date: 11/07/2016 09:25
Matrix: Water	Analytical Method: 6020A	Cal Date: 11/11/2016 08:49
Workgroup #: WG590881	Analyst: JYH	Run Date: 11/11/2016 10:08
Collect Date: 11/02/2016 08:15	Dilution: 1	File ID: NI.111116.100823
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0392		0.00400	0.00200	0.00100

Certificate of Analysis

Sample #: L16110144-04	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: 50WW22FF-110216	Prep Method: 3015	Prep Date: 11/07/2016 09:25
Matrix: Water	Analytical Method: 6020A	Cal Date: 11/11/2016 08:49
Workgroup #: WG590881	Analyst: JYH	Run Date: 11/11/2016 10:11
Collect Date: 11/02/2016 09:25	Dilution: 1	File ID: NI.111116.101128
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.00390	J	0.00400	0.00200	0.00100

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

Lab Report #: L16110144

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L16110144-06	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: 50WW16FF-110216	Prep Method: 3015	Prep Date: 11/07/2016 09:25
Matrix: Water	Analytical Method: 6020A	Cal Date: 11/11/2016 08:49
Workgroup #: WG590881	Analyst: JYH	Run Date: 11/11/2016 10:14
Collect Date: 11/02/2016 10:40	Dilution: 1	File ID: NI.111116.101434
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Manganese, Dissolved	7439-96-5	0.0557		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:

Cs = Concentration computed by the data system (ug/L)

Vf = Final volume

Vi = Initial volume

D = Dilution factor as a multiplier (10X = 10)

Cx = Concentration of element in (ug/L)

Example:

0.1

100

40

1

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:

Cs = Concentration computed by the data system (ug/L)

Vf = Final volume

Vi = Initial volume

D = Dilution factor as a multiplier (10X = 10)

Cx = Concentration of element in (ug/kg)

Example:

0.1

200

0.5

1

40

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:

Cx = Concentration calculated as received (wet basis)

Px = Percent solids of sample (%wt)

$Cdry$ = Concentration calculated as dry weight (ug/kg)

Example:

40

80

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

Workgroup: WG590567
 Analyst: VC
 Spike Analyst: VC
 Run Date: 11/07/2016 09:25
 Method: 3015
 Balance: BAL016
 Instrument: MW-3
 Instrument Start: 11/07/2016 09:32

SOP: ME407 Revision 19
 Spike Solution: STD78216
 Spike Witness: ERP
 40 & 50 ML. DIGESTION TUCOA18987
 HNO3 Lot #: COA19196
 MS Filters- fisher-Lot#RRGT37258

SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG590567-02	BLANK	1	20 mL	50 mL	182.285 g	182.295 g	
2	WG590567-06	FLT_BLK	1	20 mL	50 mL	182 g	182 g	
3	WG590567-03	LCS	1	20 mL	50 mL	182.844 g	182.846 g	.25 mL
4	L16110098-02	SAMP	1	20 mL	50 mL	184.668 g	184.66 g	11/16/16
5	L16110098-05	SAMP	1	20 mL	50 mL	182.727 g	182.72 g	11/16/16
6	L16110098-08	SAMP	1	20 mL	50 mL	181.615 g	181.628 g	11/16/16
7	WG590567-01	REF	1	20 mL	50 mL	182.425 g	182.42 g	
8	L16110098-13	RS02	1	20 mL	50 mL	182.425 g	182.42 g	11/16/16
9	WG590567-04	MS	1	20 mL	50 mL	185.061 g	185.046 g	.25 mL
10	L16110098-14	MS02	1	20 mL	50 mL	185.061 g	185.046 g	.25 mL 11/16/16
11	WG590567-05	MSD	1	20 mL	50 mL	181.787 g	181.791 g	.25 mL
12	L16110098-15	SD02	1	20 mL	50 mL	181.787 g	181.791 g	.25 mL 11/16/16
13	L16110098-20	SAMP	1	20 mL	50 mL	182.118 g	182.118 g	11/16/16
14	L16110098-23	SAMP	1	20 mL	50 mL	184.897 g	184.901 g	11/16/16
15	L16110121-01	SAMP	1	20 mL	50 mL	183.388 g	183.379 g	11/11/16
16	L16110124-01	SAMP	1	20 mL	50 mL	185.432 g	185.428 g	11/11/16
17	L16110144-02	SAMP	1	20 mL	50 mL	184.081 g	184.079 g	11/14/16
18	L16110144-04	SAMP	1	20 mL	50 mL	181.509 g	181.494 g	11/14/16
19	L16110144-06	SAMP	1	20 mL	50 mL	182.487 g	182.486 g	11/14/16
20	L16110169-02	SAMP	1	20 mL	50 mL	183.95 g	183.944 g	11/14/16
21	L16110169-03	SAMP	1	20 mL	50 mL	183.465 g	183.441 g	11/14/16
22	L16110169-05	SAMP	1	20 mL	50 mL	181.649 g	181.627 g	11/14/16
23	L16110305-01	SAMP	1	20 mL	50 mL	185.174 g	185.165 g	11/21/16
24	L16110306-01	SAMP	1	20 mL	50 mL	183.227 g	183.218 g	11/21/16
25	L16110307-01	SAMP	1	20 mL	50 mL	183.837 g	183.816 g	11/21/16

WG590567-06	Lot # R6EA47800
L16110144-06	FILTERED DIGESTATE
L16110169-03	FILTERED DIGESTATE
L16110169-05	FILTERED DIGESTATE

Analyst: Vicki Collier

Reviewer: Evan Pottin



Microbac Laboratories Inc.

Instrument Run Log

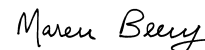
Instrument: ICP-MS2 Dataset: 111116A.REP
 Analyst1: JYH Analyst2: N/A
 Method: 200.8 SOP: ME700A Rev: 3
 Maintenance Log ID: _____
 Calibration Std: STD78743 ICV Std: STD78745 Post Spike: STD76567
 ICSA: STD78569 ICSAB: STD78570 Int. Std: RG738094
 CCV: STD78744 LLCCV: STD78575 Tuning Sol : STD78941
 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




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 LLCV: 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

Page: 2 Approved: November 14, 2016

Maren Beery

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: RG738094
 CCV: STD78744 LLCCV: STD78575 Tuning Sol : STD78941
 Stannous : _____ Hydroxylamine : _____

Workgroups: 590881,590880,590947,590943,591380,591386,591392Comments:

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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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 IC SAB: 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	0.146/100	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	0.031/100	1		11/11/16 15:48
117	NI.111116.155128	L16110536-07	BFB-16-090	0.217/100	1		11/11/16 15:51
118	NI.111116.155433	L16110536-09	BFB-16-091	0.111/100	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	0.084/100	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	0.075/100	1		11/11/16 16:19
126	NI.111116.162238	L16110536-17	BFB-16-095	0.083/100	1		11/11/16 16:22
127	NI.111116.162543	L16110536-19	BFB-16-096	0.046/100	1		11/11/16 16:25
128	NI.111116.162849	L16110536-21	BFB-16-097	0.181/100	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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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:

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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	

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Maren Beery



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



Analytical Method:6020A
Login Number:L16110144

AAB#:WG590881

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
50WW08FF-110216	02	11/02/16					11/07/2016	5	180		11/11/16	9.1	180	
50WW22FF-110216	04	11/02/16					11/07/2016	5	180		11/11/16	9	180	
50WW16FF-110216	06	11/02/16					11/07/2016	4.9	180		11/11/16	9	180	

* = SEE PROJECT QAPP REQUIREMENTS



METHOD BLANK SUMMARY

Login Number: L16110144 Work Group: WG590881
 Blank File ID: NI.111116.093037 Blank Sample ID: WG590567-02
 Prep Date: 11/07/16 09:25 Instrument ID: ICP-MS2
 Analyzed Date: 11/11/16 09:30 Method: 6020A
 Analyst: JYH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG590567-03	NI.110916.100441	11/09/16 10:04	01
FLT_BLK	WG590567-06	NI.110916.100740	11/09/16 10:07	01
LCS	WG590567-03	NI.111116.093343	11/11/16 09:33	02
FLT_BLK	WG590567-06	NI.111116.093648	11/11/16 09:36	02
50WW08FF-110216	L16110144-02	NI.111116.100823	11/11/16 10:08	01
50WW22FF-110216	L16110144-04	NI.111116.101128	11/11/16 10:11	01
50WW16FF-110216	L16110144-06	NI.111116.101434	11/11/16 10:14	01

Report Name: BLANK_SUMMARY
 PDF File ID: 5021782
 Report generated 11/14/2016 09:23



Login Number: L16110144 Prep Date: 11/07/16 09:25 Sample ID: WG590567-02
Instrument ID: ICP-MS2 Run Date: 11/11/16 09:30 Prep Method: 3015
File ID: NI.111116.093037 Analyst: JYH Method: 6020A
Workgroup (AAB#): WG590881 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: 5021783
14-NOV-2016 09:23



Login Number: L16110144 Run Date: 11/11/2016 Sample ID: WG590567-03
Instrument ID: ICP-MS2 Run Time: 09:33 Prep Method: 3015
File ID: NI.111116.093343 Analyst: JYH Method: 6020A
Workgroup (AAB#): WG590881 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	98.7	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 5021784
Report generated: 11/14/2016 09:23



Loginnum: L16110144 Cal ID: ICP-MS2- Worknum: WG590881
 Instrument ID: ICP-MS2 Contract #: Method: 6020A
 Parent ID: WG590567-01 File ID: NI.111116.093953 Dil: 1 Matrix: WATER
 Sample ID: WG590567-04 MS File ID: NI.111116.094259 Dil: 1 Units: mg/L
 Sample ID: WG590567-05 MSD File ID: NI.111116.094604 Dil: 1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Manganese	0.0101	0.125	0.133	98.6	0.125	0.131	96.9	1.53	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

Microbac Laboratories Inc.
Serial Dilution Report

Login: L16110144 **Worknum:** WG590881
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG590881-04 **File ID:** NI.111116.095826 **Dil:** 5 **Units:** ug/L
Sample: L16110124-01 **File ID:** NI.111116.095215 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Manganese	90.6		90.8		0.17	

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: 5021779

11/14/2016 09:23



Sample Login ID: L16110144 Worknum: WG590881
 Instrument ID: ICP-MS2 Method: 6020A
 Post Spike ID: WG590881-03 File ID: NI.111116.095520 Dil: 1 Units: ug/L
 Sample ID: L16110124-01 File ID: NI.111116.095215 Dil: 1 Matrix: Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
MANGANESE	167		90.6		50	153.6	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



Login: L16110144 Workgroup (AAB#): WG590881
 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		R	Q
	Conc	INT	Conc	INT	Conc	INT	Conc	INT		
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



Login Number: L16110144 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#): WG590881 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



Login Number: L16110144 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#): WG590881 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.



Login Number: L16110144 Run Date: 11/11/2016 Sample ID: WG591334-14
Instrument ID: ICP-MS2 Run Time: 10:04 Method: 6020A
File ID: NI.111116.100438 Analyst: JYH Units: ug/L
Workgroup (AAB#): WG590881 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.



Login Number: L16110144 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#): WG590881 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.



Login Number: L16110144 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#): WG590881 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



Login Number: L16110144 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#): WG590881 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



Login Number: L16110144 Run Date: 11/11/2016 Sample ID: WG591334-13
 Instrument ID: ICP-MS2 Run Time: 10:01 Method: 6020A
 File ID: NI.111116.100133 Analyst: JYH QC Key: DOD4
 Workgroup (AAB#): WG590881 Cal ID: ICP-MS - 11-NOV-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Manganese	0.0500	0.0491	mg/L	98.3	90 - 110	

* Exceeds LIMITS Criteria



Login Number: L16110144 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#): WG590881 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



Login Number: L16110144 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#): WG590881 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



Login Number: L16110144 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#): WG590881 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



Login number: L16110144
 Instrument ID: ICP-MS2
 Sol. A: WG591334-09
 Sol. AB: WG591334-10

File ID: NI.111116.091456
 File ID: NI.111116.091817

Workgroup (AAB#): WG590881
 Method: 6020A
 Units: ug/L
 Matrix: Water

ANALYTE	Sol. A			Sol. AB			Q
	True	Found	%Recovery	True	Found	%Recovery	
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.



INTERNAL STANDARD REPORT

Login: L16110144 Analytical Method: 6020
 Analytical Workgroup: WG590881 Matrix: 1
 Instrument: ICP-MS2 Analyst: JYH
 ICAL Date: 09-NOV-2016 07:20

Sample	Type	Run Date	BISMUTH	GERMANIUM	INDIUM
			% Rec	% Rec	% Rec
L16110098-02	SAMP	09-NOV-2016 10:19	99.864	95.499	100.86
L16110124-01	SAMP	09-NOV-2016 10:52	109.233	105.747	110.629
WG590567-02	BLANK	09-NOV-2016 10:01	104.447	99.929	102.14
WG590567-03	LCS	09-NOV-2016 10:04	104.709	98.56	105.538
WG590567-06	FLT_BLK	09-NOV-2016 10:07	96.032	92.446	93.666
WG590881-01	PSPK	09-NOV-2016 10:22	106.28	102.432	106.718
WG590881-02	SERIAL	09-NOV-2016 10:25	97.187	93.245	94.395
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
WG590991-17	LLICV	09-NOV-2016 09:17	103.731	101.412	102.365
WG590991-20	CCV	09-NOV-2016 09:54	99.397	96.793	100.766
WG590991-21	CCB	09-NOV-2016 09:57	95.862	91.972	92.749
WG590991-22	CCV	09-NOV-2016 10:31	105.697	102.533	107.351
WG590991-23	CCB	09-NOV-2016 10:34	92.699	92.556	91.584

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: 5021787
 Report generated: 11/14/2016 09:23



INTERNAL STANDARD REPORT

Login: L16110144 Analytical Method: 6020
 Analytical Workgroup: WG590881 Matrix: 1
 Instrument: ICP-MS2 Analyst: JYH
 ICAL Date: 11-NOV-2016 08:40

Sample	Type	Run Date	BISMUTH	GERMANIUM	INDIUM
			% Rec	% Rec	% Rec
L16110124-01	SAMP	11-NOV-2016 09:52	105.028	108.324	105.797
L16110144-02	SAMP	11-NOV-2016 10:08	98.296	106.852	102.497
L16110144-04	SAMP	11-NOV-2016 10:11	92.394	102.024	97.666
L16110144-06	SAMP	11-NOV-2016 10:14	106.152	109.058	107.338
WG590567-02	BLANK	11-NOV-2016 09:30	95.592	94.125	93.891
WG590567-03	LCS	11-NOV-2016 09:33	104.776	105.207	106.49
WG590567-06	FLT_BLK	11-NOV-2016 09:36	96.444	96.185	94.496
WG590881-03	PSPK	11-NOV-2016 09:55	103.108	106.375	105.014
WG590881-04	SERIAL	11-NOV-2016 09:58	98.164	97.282	95.148
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
WG591334-13	CCV	11-NOV-2016 10:01	102.206	105.883	103.54
WG591334-14	CCB	11-NOV-2016 10:04	111.111	111.095	110.265
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

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: 5021787
 Report generated: 11/14/2016 09:23



Login Number: L16110144 Date: 10/24/2016
Instrument 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.



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

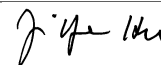
Analyte	E Mass	Meas Mass	Mass C DAC Val	Res DAC Value	Meas Peak W	Custom Res
Li	7.016	7.025	1311	2025	0.718	
Mg	23.985	24.025	4507	2019	0.706	
Co	58.933	58.975	11692	2021	0.704	
In	114.904	114.925	22859	2027	0.718	
U	238.050	238.075	47450	2043	0.719	

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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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

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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

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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

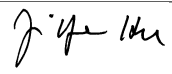
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115.275	5.661
115.325	11.490
115.375	21.254
115.425	18.109
115.475	20.012
115.525	8.537
115.575	8.497
115.625	4.387
115.675	3.952
115.725	4.769
115.775	5.678
115.825	4.458
115.875	3.646
115.925	4.723
115.975	3.106
116.025	3.354
116.075	3.463
116.125	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

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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

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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

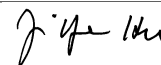
Obtained Formula (CeO 155.9 / Ce 139.905): 0.018 (=5008.56 / 274198.22)

Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.003 (=948.03 / 274198.22)

Report Date/Time: Friday, November 11, 2016 08:25:36

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SmartTune Wizard - Details

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)

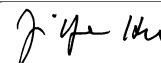
[Passed] Optimum value(s): N/A

End Time: 11/11/2016 8:25:36 AM

Report Date/Time: Friday, November 11, 2016 08:25:36

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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:\NexlONData\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

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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

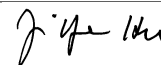
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: Blank

Report Date/Time: Friday, November 11, 2016 08:39:16

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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:\NexlONData\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

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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			

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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

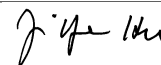
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: Standard 2

Sample Date/Time: Friday, November 11, 2016 08:43:17

Number of Replicates: 3

Autosampler Position: 2

Sample Description:

Method File: C:\NexlONData\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

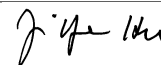
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: Standard 2

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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:\NexlONData\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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Sample ID: Standard 3

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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:\NexlONData\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

Report Date/Time: Friday, November 11, 2016 08:51:38

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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:\NexlONData\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			

Sample ID: QC Std 1

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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

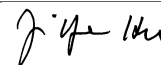
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QC Std 1	Na	23	
QC Std 1	Mg	24	
QC Std 1	Ca	43	

Sample ID: QC Std 1

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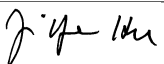


QC Std 1

Fe

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Sample ID: QC Std 1
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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:\NexlONData\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			

Sample ID: QC Std 2

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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	

Sample ID: QC Std 2

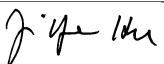
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Method 6020 - Summary Report

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:\NexlONData\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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