

**LONGHORN ARMY
AMMUNITION PLANT
KARNACK, TEXAS**

**ADMINISTRATIVE
RECORD**

Volume 12

2018

Bate Stamp Numbers

00852216 – 00853062

Prepared for

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

1976 – 2018

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

VOLUME 12

2018

- A. Title: Report (cont'd) – Quarterly Evaluation Report, 1st Quarter (January-March) 2017, Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas
- Author(s): AECOM Technical Services
- Recipient: U.S. Army Corps of Engineers
- Date: August 2017
- Bate Stamp: 00852216 – 00853062

Sample Name: L1703165801SDL Acquired: 4/4/2017 20:30:36 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
 Comment: WG608730-02

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.00193	-.00419	.72304	-.00040	.10834	.00629	.00287
Stddev	.00250	.00171	.00233	.00039	.00047	.00878	.00202
%RSD	129.19	40.831	.32224	97.662	.43309	139.53	70.439

#1	-.00198	-.00594	.72280	-.00043	.10847	.01143	.00516
#2	-.00441	-.00252	.72084	-.00077	.10782	-.00384	.00134
#3	.00059	-.00412	.72548	.00001	.10874	.01128	.00210

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	-.00024	.00084	F -.20008
Stddev	.00078	.00008	.24732
%RSD	321.72	10.044	123.61

#1	-.00008	.00094	.04161
#2	-.00109	.00078	-.18916
#3	.00044	.00081	-.45268

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23727.	155650.	4647.9
Stddev	114.	1178.	105.3
%RSD	.47912	.75711	2.2648

#1	23848.	156920.	4642.4
#2	23623.	154590.	4755.8
#3	23709.	155430.	4545.5

Approved: April 05, 2017

Ki K Buck

Sample Name: CCV Acquired: 4/4/2017 20:34:03 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.42077	10.423	.40123	.52225	1.0424	.05244	10.515
Stddev	.00158	.053	.00463	.00619	.0032	.00010	.104
%RSD	.37453	.51199	1.1530	1.1847	.30481	.18346	.98550

#1	.42252	10.383	.39822	.51515	1.0390	.05233	10.451
#2	.41945	10.403	.40656	.52508	1.0428	.05246	10.459
#3	.42035	10.484	.39892	.52651	1.0453	.05252	10.635

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	.05059	.20247	.52023	.50364	4.0171	52.937	1.0615
Stddev	.00033	.00069	.00045	.00195	.0368	.338	.0046
%RSD	.65132	.33835	.08562	.38682	.91688	.63846	.43584

#1	.05031	.20219	.52075	.50244	4.0316	52.561	1.0625
#2	.05095	.20325	.52001	.50589	3.9753	53.034	1.0565
#3	.05052	.20197	.51994	.50260	4.0445	53.216	1.0656

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	10.217	.50770	1.0029	53.734	.50616	9.8754	.50258
Stddev	.083	.00229	.0021	.250	.00007	.0236	.00201
%RSD	.81266	.45134	.21340	.46438	.01370	.23943	.39955

#1	10.136	.50558	1.0022	53.499	.50609	9.8523	.50236
#2	10.302	.51013	1.0054	53.707	.50623	9.8995	.50468
#3	10.215	.50739	1.0013	53.996	.50615	9.8745	.50068

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: April 05, 2017

K: K Buck

Sample Name: CCV Acquired: 4/4/2017 20:34:03 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	1.2369	4.0911	4.9949	1.0163	1.0277	1.0333	5.2253
Stddev	.0045	.00685	.0141	.0019	.0031	.0089	.00096
%RSD	.36243	1.6751	.28142	.19121	.30211	.86574	.18350

#1	1.2372	.40433	4.9797	1.0145	1.0246	1.0435	.52207
#2	1.2413	.41696	5.0074	1.0184	1.0278	1.0265	.52189
#3	1.2323	.40604	4.9977	1.0159	1.0308	1.0301	.52363

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	1.0330	1.0235	F 1.1241
Stddev	.0030	.0029	.1238
%RSD	.28989	.28436	11.010

#1	1.0297	1.0227	.99692
#2	1.0336	1.0268	1.1312
#3	1.0356	1.0211	1.2441

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	23343.	151830.	4550.3
Stddev	468.	1322.	41.4
%RSD	2.0052	.87058	.91076

#1	23221.	150620.	4525.5
#2	22948.	153240.	4598.1
#3	23860.	151620.	4527.3

Approved: April 05, 2017

Ki K Buck

Sample Name: CCB Acquired: 4/4/2017 20:37:23 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00051	-0.00353	.00054	.00168	-0.00281	-0.00004	.04647	-0.00021
Stddev	.00044	.00111	.00075	.00107	.00260	.00001	.00202	.00013
%RSD	87.371	31.454	138.58	63.655	92.792	20.229	4.3406	62.261

#1	-0.00085	-0.00225	-0.00002	.00258	-0.00184	-0.00005	.04422	-0.00033
#2	-0.00001	-0.00416	.00025	.00198	-0.00576	-0.00004	.04710	-0.00022
#3	-0.00066	-0.00418	.00140	.00050	-0.00082	-0.00003	.04810	-0.00007

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00012	-0.00065	.00008	-0.01043	.02529	.00135	.07684	.00106
Stddev	.00012	.00069	.00050	.03797	.10329	.00464	.04696	.00166
%RSD	98.512	106.80	622.06	363.87	408.40	343.23	61.119	155.96

#1	-0.00025	-0.00140	.00051	.02545	.05930	-0.00049	.12209	.00251
#2	-0.00007	-0.00004	-0.00047	-.05019	-.09071	.00663	.08009	-0.00075
#3	-0.00003	-0.00050	.00020	-.00656	.10729	-0.00209	.02833	.00143

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	.00012	.12276	.00084	.00303	.00042	-0.00395	-0.00287	.02877
Stddev	.00040	.02162	.00039	.00601	.00056	.00398	.00332	.04689
%RSD	323.91	17.615	46.780	198.07	134.38	100.73	115.47	162.97

#1	.00056	.14610	.00050	.00893	-0.00021	-0.00636	-0.00670	.00110
#2	.00002	.11876	.00076	-.00308	.00088	.00064	-0.00078	.08292
#3	-0.00021	.10341	.00127	.00325	.00058	-0.00613	-0.00114	.00231

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: April 05, 2017

K: K Buck

Sample Name: CCB Acquired: 4/4/2017 20:37:23 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.00042	-.00026	.00350	-.00098	.00006	-.00008	.02876
Stddev	.00034	.00019	.00884	.00206	.00015	.00009	.20968
%RSD	80.460	75.799	252.80	209.33	261.27	105.33	729.16

#1	.00034	-.00011	-.00488	.00069	-.00011	-.00000	.04290
#2	.00079	-.00018	.01273	-.00329	.00017	-.00018	-.18764
#3	.00013	-.00048	.00264	-.00035	.00011	-.00007	.23101

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	24627.	155890.	4664.9
Stddev	220.	1157.	35.4
%RSD	.89232	.74224	.75783

#1	24429.	155090.	4656.6
#2	24863.	155360.	4703.6
#3	24588.	157210.	4634.4

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703165802 Acquired: 4/4/2017 20:40:53 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.42932	-0.00104	.02287	.04240	.00001	33.557	.00001
Stddev	.00041	.01349	.00216	.00101	.00305	.00001	.296	.00011
%RSD	37.959	3.1413	208.51	4.4260	7.1861	121.25	.88314	2055.8

#1	-0.00063	.44216	.00121	.02404	.04098	.00000	33.853	-0.00011
#2	-0.00120	.43055	-0.00310	.02223	.04590	.00003	33.260	.00001
#3	-0.00143	.41527	-0.00121	.02235	.04032	.00000	33.558	.00011

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00022	.00005	.00173	.38612	.69118	.00526	4.3551	.01580
Stddev	.00029	.00066	.00054	.02210	.15108	.00229	.1406	.00328
%RSD	128.89	1240.7	31.425	5.7234	21.859	43.447	3.2283	20.725

#1	.00012	.00064	.00190	.40115	.64603	.00789	4.4906	.01308
#2	.00000	.00018	.00112	.39648	.85969	.00380	4.3648	.01489
#3	.00055	-.00066	.00217	.36075	.56782	.00409	4.2099	.01944

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	.00042	20.280	.00170	.02373	.00030	-.00318	-.00316	3.2171
Stddev	.00030	.035	.00026	.00518	.00110	.00468	.00173	.0049
%RSD	70.503	.17501	15.345	21.831	367.17	146.92	54.628	.15345

#1	.00063	20.314	.00199	.02031	-.00061	-.00285	-.00248	3.2226
#2	.00008	20.244	.00149	.02969	.00153	.00132	-.00188	3.2158
#3	.00055	20.283	.00162	.02120	-.00001	-.00802	-.00513	3.2130

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: April 05, 2017

K: K Buck

Sample Name: L1703165802 Acquired: 4/4/2017 20:40:53 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00100	.19357	.01343	-0.00162	.00055	.00220	.18837
Stddev	.00065	.00075	.01083	.00221	.00048	.00011	.33720
%RSD	64.387	.38742	80.626	136.60	88.323	4.8193	179.01

#1	-0.00100	.19413	.02408	-0.00276	.00028	.00225	-.12624
#2	-0.00166	.19386	.01377	-0.00303	.00111	.00228	.14700
#3	-0.00036	.19272	.00243	.00093	.00026	.00208	.54434

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	24378.	157570.	4791.4
Stddev	103.	3581.	26.8
%RSD	.42294	2.2725	.55984

#1	24268.	155320.	4804.7
#2	24472.	155690.	4760.5
#3	24394.	161700.	4808.9

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166201 Acquired: 4/4/2017 20:44:24 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-.00001	.08528	.00852	.03861	.21306	-.00004	77.177
Stddev	.00030	.00343	.00253	.00097	.00172	.00006	.413
%RSD	2999.2	4.0190	29.721	2.5107	.80581	139.75	.53578

#1	.00033	.08383	.01144	.03969	.21114	-.00006	76.770
#2	-.00025	.08282	.00703	.03782	.21446	.00002	77.164
#3	-.00011	.08919	.00708	.03832	.21358	-.00010	77.597

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	.00042	.00291	-.00020	.10403	17.821	1.6980	.01169
Stddev	.00008	.00040	.00063	.00191	.151	.1533	.00669
%RSD	19.867	13.789	315.13	1.8341	.84819	9.0263	57.206

#1	.00036	.00325	-.00081	.10617	17.646	1.7692	.01920
#2	.00051	.00301	-.00024	.10249	17.907	1.8027	.00951
#3	.00038	.00247	.00045	.10344	17.909	1.5221	.00637

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	17.762	.41177	.00050	13.051	.00200	.17771	.01547
Stddev	.134	.00371	.00042	.075	.00115	.00427	.00221
%RSD	.75223	.90116	85.094	.57491	57.387	2.4042	14.311

#1	17.631	.40938	.00029	12.992	.00227	.18226	.01479
#2	17.757	.40990	.00022	13.136	.00074	.17378	.01794
#3	17.898	.41605	.00099	13.025	.00299	.17708	.01367

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166201 Acquired: 4/4/2017 20:44:24 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00236	-0.00378	7.2870	.00044	.62167	.00146	-0.00014
Stddev	.00327	.00379	.0305	.00035	.00218	.00744	.00192
%RSD	138.66	100.28	.41905	79.854	.35088	508.46	1336.6

#1	-0.00422	-0.00236	7.3204	.00028	.61938	.00674	.00020
#2	.00142	-0.00808	7.2799	.00020	.62372	-.00705	-.00221
#3	-0.00427	-0.00091	7.2606	.00084	.62190	.00470	.00158

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	-0.00017	.32568	F -1.0399
Stddev	.00060	.00134	.4181
%RSD	344.52	.41265	40.202

#1	-0.00058	.32695	-.59215
#2	-0.00045	.32582	-1.4200
#3	.00051	.32427	-1.1076

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23176.	155680.	4637.4
Stddev	300.	1421.	29.6
%RSD	1.2959	.91270	.63778

#1	23405.	156930.	4652.6
#2	22836.	155970.	4656.2
#3	23288.	154140.	4603.3

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166202 Acquired: 4/4/2017 20:47:51 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-.00248	.00457	.00029	.02856	.12198	-.00007	62.608	.00021
Stddev	.00222	.00453	.00136	.00082	.00231	.00001	.584	.00009
%RSD	89.412	99.110	463.64	2.8667	1.8954	8.4489	.93200	46.187

#1	-.00135	.00919	.00085	.02885	.12380	-.00008	62.843	.00021
#2	-.00105	.00013	-.00126	.02763	.12275	-.00007	63.038	.00011
#3	-.00503	.00439	.00129	.02919	.11938	-.00007	61.944	.00030

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00183	-.00036	.00170	.01630	1.3524	.00567	13.770	.24407
Stddev	.00033	.00025	.00029	.01578	.1321	.00261	.131	.00475
%RSD	18.015	69.356	16.975	96.801	9.7693	46.073	.95363	1.9482

#1	.00145	-.00017	.00137	-.00046	1.2300	.00865	13.793	.24682
#2	.00203	-.00028	.00183	.01849	1.3347	.00456	13.888	.24681
#3	.00201	-.00065	.00191	.03088	1.4925	.00380	13.629	.23858

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	.00048	11.328	.00236	.00583	-.00186	-.00093	-.00224	5.0802
Stddev	.00047	.131	.00067	.00319	.00167	.00132	.00406	.0285
%RSD	98.463	1.1575	28.556	54.620	90.134	141.44	181.00	.56191

#1	.00100	11.356	.00287	.00445	-.00378	-.00186	-.00682	5.0937
#2	.00009	11.444	.00261	.00357	-.00103	.00058	-.00079	5.0995
#3	.00035	11.186	.00160	.00948	-.00076	-.00151	.00089	5.0474

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166202 Acquired: 4/4/2017 20:47:51 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00101	.49743	-0.00386	-0.00164	.00026	.01454	-0.03665
Stddev	.00031	.00362	.01223	.00058	.00035	.00005	.26667
%RSD	30.583	.72863	317.27	35.596	136.56	.35419	727.62

#1	-0.00096	.50043	.00209	-.00226	-.00014	.01453	.10399
#2	-.00135	.49846	-.01792	-.00109	.00038	.01459	-.34419
#3	-.00074	.49340	.00427	-.00158	.00054	.01449	.13025

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	23096.	154340.	4664.0
Stddev	260.	1557.	19.9
%RSD	1.1263	1.0087	.42627

#1	23334.	155950.	4641.2
#2	23138.	154220.	4673.7
#3	22818.	152850.	4677.2

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166203 Acquired: 4/4/2017 20:51:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00132	.08009	.00088	.02096	.07526	.00001	57.386	.00009
Stddev	.00058	.00696	.00059	.00108	.00233	.00007	.276	.00006
%RSD	44.293	8.6879	67.258	5.1453	3.1002	742.31	.48076	65.545

#1	-0.00101	.07218	.00128	.02142	.07332	.00001	57.440	.00003
#2	-0.00199	.08284	.00020	.02173	.07461	.00007	57.087	.00014
#3	-0.00096	.08526	.00115	.01973	.07785	-.00006	57.631	.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	-0.00016	.00040	.00339	.10725	1.3166	.00113	8.8665	.01491
Stddev	.00019	.00020	.00018	.01970	.1032	.00318	.0629	.00473
%RSD	120.68	49.301	5.3946	18.366	7.8402	280.99	.70978	31.751

#1	-0.00022	.00035	.00325	.12265	1.3727	-.00213	8.9208	.01086
#2	-0.00031	.00062	.00360	.11405	1.3797	.00423	8.7975	.01376
#3	.00006	.00023	.00332	.08506	1.1975	.00129	8.8813	.02011

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00052	32.970	.00111	.01290	.00113	-.00260	-.00211	3.6218
Stddev	.00015	.100	.00055	.00142	.00363	.00498	.00102	.0085
%RSD	28.156	.30460	49.619	11.020	321.17	191.93	48.313	.23380

#1	.00046	33.002	.00086	.01354	-.00289	-.00148	-.00313	3.6264
#2	.00041	32.858	.00073	.01127	.00418	-.00804	-.00110	3.6121
#3	.00068	33.052	.00174	.01389	.00210	.00173	-.00209	3.6270

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: April 05, 2017

K. K. Buck

Sample Name: L1703166203 Acquired: 4/4/2017 20:51:19 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.0091	.19777	-0.0726	-0.0395	.00067	.01437	-0.0679
Stddev	.00038	.00109	.01117	.00117	.00012	.00010	.07166
%RSD	41.757	.55152	153.84	29.689	17.835	.71953	1056.1

#1	-0.0048	.19667	-0.1992	-0.0267	.00073	.01428	.07076
#2	-0.0122	.19779	.00124	-0.0420	.00074	.01436	-.07056
#3	-0.0101	.19885	-0.0311	-0.0497	.00053	.01448	-.02055

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	23128.	148270.	4406.4
Stddev	278.	888.	9.0
%RSD	1.2009	.59916	.20529

#1	22810.	149000.	4409.9
#2	23324.	148520.	4413.3
#3	23251.	147280.	4396.2

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166204 Acquired: 4/4/2017 20:54:47 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.00004	.01127	-.00078	.20656	.33399	-.00011	20.559
Stddev	.00011	.00303	.00095	.00068	.00063	.00003	.038
%RSD	261.94	26.923	122.42	.33066	.18765	30.471	.18339

#1	.00007	.00791	.00008	.20617	.33443	-.00007	20.539
#2	.00013	.01382	-.00180	.20734	.33328	-.00014	20.535
#3	-.00008	.01209	-.00061	.20615	.33427	-.00010	20.602

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	-.00010	-.00007	-.00015	.00417	.16966	1.5782	.01027
Stddev	.00037	.00012	.00103	.00124	.05111	.0645	.00718
%RSD	351.16	173.47	680.31	29.669	30.123	4.0898	69.945

#1	-.00013	.00002	.00058	.00531	.14541	1.6526	.00551
#2	-.00046	-.00020	.00030	.00433	.13519	1.5444	.01853
#3	.00027	-.00002	-.00133	.00286	.22838	1.5376	.00677

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	4.5972	.03315	.00000	261.54	.00057	.04773	-.00062
Stddev	.0717	.00259	.00042	.13	.00039	.00351	.00351
%RSD	1.5606	7.8121	10725.	.05043	67.842	7.3522	571.17

#1	4.5318	.03026	-.00041	261.55	.00030	.05060	.00343
#2	4.5858	.03394	.00043	261.41	.00039	.04382	-.00233
#3	4.6739	.03526	-.00001	261.67	.00101	.04876	-.00294

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

K. K. Buck

Sample Name: L1703166204 Acquired: 4/4/2017 20:54:47 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00518	-0.00234	3.2401	-0.00150	.56106	-0.00030	.00014
Stddev	.00315	.00504	.0083	.00066	.00175	.01113	.00072
%RSD	60.724	215.71	.25601	44.003	.31227	3751.8	520.43

#1	-0.00173	-0.00690	3.2312	-0.00193	.56014	.00487	-0.00067
#2	-0.00789	.00307	3.2476	-0.00183	.55997	.00731	.00073
#3	-0.00593	-0.00317	3.2415	-0.00074	.56308	-.01307	.00035

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	.00111	.00189	F -.11314
Stddev	.00064	.00010	.07056
%RSD	57.749	5.0972	62.360

#1	.00140	.00199	-.05841
#2	.00038	.00190	-.08825
#3	.00156	.00179	-.19277

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23308.	147680.	4638.6
Stddev	147.	1213.	89.9
%RSD	.63079	.82144	1.9378

#1	23261.	148500.	4554.7
#2	23191.	146280.	4733.5
#3	23473.	148240.	4627.6

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166205 Acquired: 4/4/2017 20:58:15 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00158	.01148	-0.00036	.04088	.02101	-0.00015	2.2314
Stddev	.00120	.00568	.00167	.00186	.00057	.00002	.0321
%RSD	76.004	49.521	463.23	4.5488	2.7218	16.095	1.4388

#1	-0.00096	.01212	-0.00226	.04123	.02062	-0.00013	2.2333
#2	-0.00082	.01682	.00035	.04253	.02075	-0.00018	2.1984
#3	-0.00297	.00550	.00084	.03886	.02167	-0.00014	2.2625

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	.00013	-0.00000	.00011	.01652	-0.01267	.58357	.00500
Stddev	.00016	.00016	.00023	.00121	.00830	.02765	.00209
%RSD	117.82	4615.2	205.24	7.3060	65.472	4.7374	41.776

#1	.00029	-0.00018	.00010	.01516	-.02095	.57093	.00687
#2	-0.00002	.00010	.00035	.01745	-.01271	.56450	.00540
#3	.00014	.00007	-0.00011	.01695	-0.00436	.61527	.00275

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.40173	.00344	.00272	185.43	.00173	-0.00172	.00488
Stddev	.09839	.00252	.00041	.40	.00038	.00550	.00114
%RSD	24.492	73.381	15.187	.21818	21.785	319.69	23.299

#1	.49156	.00116	.00313	185.37	.00212	.00316	.00389
#2	.29657	.00615	.00272	185.87	.00137	-0.00769	.00612
#3	.41706	.00301	.00230	185.07	.00170	-0.00063	.00462

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166205 Acquired: 4/4/2017 20:58:15 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.00073	-.00445	1.5690	-.00110	.03598	-.00299	-.00271
Stddev	.00344	.00478	.0094	.00035	.00073	.01043	.00094
%RSD	473.83	107.43	.60114	31.331	2.0351	349.29	34.557

#1	-.00275	.00103	1.5588	-.00126	.03582	.00886	-.00339
#2	.00081	-.00663	1.5708	-.00071	.03678	-.01079	-.00164
#3	.00412	-.00776	1.5775	-.00134	.03535	-.00703	-.00311

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	.00063	.02264	F -.15491
Stddev	.00087	.00011	.24143
%RSD	137.66	.48549	155.85

#1	.00103	.02251	-.40222
#2	.00122	.02270	-.14267
#3	-.00036	.02271	.08016

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23692.	157150.	4800.1
Stddev	89.	468.	15.5
%RSD	.37764	.29805	.32364

#1	23672.	156620.	4804.3
#2	23790.	157530.	4782.9
#3	23615.	157290.	4813.1

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166206 Acquired: 4/4/2017 21:01:43 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00102	-0.00253	-0.00176	.02240	.14731	-0.00001	93.641
Stddev	.00145	.00245	.00102	.00087	.00167	.00003	.796
%RSD	143.33	96.649	58.241	3.8836	1.1319	214.48	.84987

#1	-0.00165	-0.00029	-0.00180	.02203	.14542	-0.00004	92.722
#2	.00065	-0.00215	-0.00275	.02178	.14793	-0.00002	94.112
#3	-0.00204	-0.00514	-0.00071	.02339	.14858	.00002	94.089

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	.00011	-0.00043	.00010	.01873	.00288	.87435	.00403
Stddev	.00003	.00015	.00047	.00052	.02491	.09201	.00757
%RSD	30.091	34.850	449.54	2.7708	864.37	10.524	187.73

#1	.00008	-0.00037	-0.00017	.01860	-.02563	.89652	-.00410
#2	.00014	-0.00060	.00065	.01930	.01389	.95324	.01088
#3	.00011	-0.00032	-0.00017	.01829	.02039	.77327	.00532

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.295	.00045	.00020	26.299	-0.00009	-0.01410	-.00236
Stddev	.170	.00030	.00026	.128	.00056	.00196	.00165
%RSD	1.2772	66.863	129.72	.48694	618.87	13.868	69.950

#1	13.145	.00072	-0.00010	26.151	-0.00066	-0.01229	-.00108
#2	13.479	.00013	.00038	26.380	-0.00006	-0.01384	-.00422
#3	13.260	.00050	.00033	26.365	.00045	-0.01617	-.00178

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166206 Acquired: 4/4/2017 21:01:43 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00303	-0.00017	4.2507	-0.00131	.44626	-0.00398	-0.00005
Stddev	.00268	.00312	.0146	.00007	.00121	.00656	.00334
%RSD	88.394	1811.9	.34313	5.6808	.27093	165.05	7095.8

#1	-0.00605	-0.00352	4.2671	-0.00136	.44491	-0.00659	-0.00389
#2	-0.00095	.00266	4.2393	-0.00135	.44724	-0.00884	.00160
#3	-0.00208	.00035	4.2455	-0.00122	.44663	.00349	.00215

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	.00091	.04012	F -.31611
Stddev	.00012	.00025	.22751
%RSD	13.480	.63439	71.973

#1	.00079	.04038	-.06151
#2	.00103	.04012	-.38732
#3	.00091	.03987	-.49950

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23467.	152140.	4721.7
Stddev	165.	319.	36.2
%RSD	.70199	.20961	.76721

#1	23302.	152400.	4748.4
#2	23631.	151780.	4736.3
#3	23467.	152230.	4680.5

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166207 Acquired: 4/4/2017 21:05:11 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.00014	.16086	-.00201	.01249	.04602	-.00004	15.625	.00029
Stddev	.00086	.00308	.00037	.00143	.00266	.00004	.074	.00009
%RSD	636.64	1.9136	18.545	11.487	5.7715	99.433	.47251	29.998

#1	.00060	.15732	-.00212	.01183	.04879	.00001	15.589	.00023
#2	-.00086	.16289	-.00160	.01413	.04576	-.00006	15.575	.00039
#3	.00066	.16238	-.00233	.01150	.04350	-.00007	15.710	.00025

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.00018	-.00003	.00319	.15219	.59630	-.00398	4.8777	.01180
Stddev	.00007	.00077	.00056	.02677	.08331	.00427	.1038	.00247
%RSD	37.232	2823.8	17.519	17.591	13.972	107.29	2.1273	20.963

#1	-.00023	-.00086	.00344	.14520	.50418	-.00381	4.7798	.00894
#2	-.00010	.00066	.00255	.18177	.61834	-.00834	4.8669	.01326
#3	-.00020	.00012	.00359	.12961	.66638	.00020	4.9864	.01320

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	.00015	4.4566	.00246	.01946	-.00015	-.00069	.00206	3.0394
Stddev	.00042	.0049	.00018	.00344	.00239	.00367	.00335	.0099
%RSD	275.19	.10895	7.4176	17.696	1633.3	528.76	162.89	.32448

#1	.00036	4.4554	.00257	.02280	-.00195	.00001	.00590	3.0507
#2	.00042	4.4620	.00225	.01965	-.00105	-.00467	-.00023	3.0327
#3	-.00033	4.4525	.00256	.01592	.00256	.00257	.00050	3.0348

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166207 Acquired: 4/4/2017 21:05:11 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.0061	.06710	.00183	-0.00457	.00057	.00878	.04675
Stddev	.00022	.00014	.00836	.00143	.00053	.00006	.18496
%RSD	35.735	.21242	456.41	31.310	92.210	.71419	395.61

#1	-0.0037	.06723	-0.00373	-0.00418	.00108	.00874	-.12241
#2	-0.0067	.06695	-0.00222	-0.00337	.00003	.00876	.24425
#3	-0.0079	.06713	.01145	-0.00615	.00062	.00885	.01842

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	23244.	152020.	4613.5
Stddev	223.	600.	61.3
%RSD	.95847	.39500	1.3291

#1	23003.	152700.	4669.4
#2	23443.	151550.	4623.1
#3	23286.	151810.	4547.9

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166208 Acquired: 4/4/2017 21:08:39 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-.00208	.00176	.00109	.02172	.06427	-.00003	80.040
Stddev	.00096	.00298	.00167	.00049	.00137	.00002	.352
%RSD	46.298	169.41	152.89	2.2443	2.1380	51.538	.43999

#1	-.00253	-.00165	.00289	.02178	.06554	-.00001	80.123
#2	-.00098	.00305	-.00042	.02217	.06281	-.00004	80.343
#3	-.00274	.00388	.00081	.02120	.06446	-.00004	79.654

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	.00024	-.00012	.00010	.01173	.03711	1.3095	-.00299
Stddev	.00011	.00030	.00086	.00070	.02939	.0366	.00332
%RSD	48.036	256.34	895.83	6.0039	79.206	2.7934	111.34

#1	.00037	-.00040	.00104	.01112	.00317	1.3253	-.00252
#2	.00016	.00020	-.00066	.01158	.05374	1.2677	.00008
#3	.00018	-.00015	-.00009	.01250	.05441	1.3355	-.00652

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	6.4754	.00585	.00113	11.071	.00190	.00247	.00149
Stddev	.0821	.00666	.00026	.021	.00063	.00572	.00229
%RSD	1.2681	113.79	23.162	.19188	33.016	231.41	153.37

#1	6.5627	-.00182	.00143	11.079	.00229	.00196	-.00014
#2	6.3997	.00927	.00095	11.086	.00224	-.00298	.00411
#3	6.4638	.01011	.00100	11.046	.00118	.00843	.00050

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166208 Acquired: 4/4/2017 21:08:39 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00310	-0.00206	3.8355	-0.00130	.32864	-0.01200	-0.00298
Stddev	.00018	.00416	.0073	.00059	.00177	.00948	.00287
%RSD	5.9628	201.75	.18927	45.538	.53954	79.012	96.350

#1	-0.00326	.00146	3.8289	-0.00191	.33033	-0.01151	-0.00156
#2	-0.00314	-0.00100	3.8433	-0.00073	.32881	-0.02171	-0.00628
#3	-0.00290	-0.00665	3.8343	-0.00126	.32679	-0.00277	-0.00109

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	.00047	.01817	F -.31917
Stddev	.00031	.00017	.11065
%RSD	66.011	.95613	34.669

#1	.00083	.01817	-.19174
#2	.00028	.01800	-.37476
#3	.00030	.01835	-.39100

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23364.	148710.	4428.3
Stddev	69.	1381.	47.4
%RSD	.29639	.92888	1.0705

#1	23406.	149810.	4376.5
#2	23401.	149160.	4469.5
#3	23284.	147160.	4439.0

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166301 Acquired: 4/4/2017 21:12:07 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00117	.15777	-0.00109	.01208	.05137	-0.00007	20.537
Stddev	.00203	.00309	.00045	.00095	.00034	.00004	.140
%RSD	173.99	1.9566	41.103	7.8997	.66898	51.498	.68339

#1	-0.00219	.15616	-0.00153	.01204	.05149	-0.00011	20.611
#2	.00117	.15582	-0.00063	.01114	.05098	-0.00006	20.376
#3	-0.00248	.16133	-0.00112	.01305	.05163	-0.00004	20.625

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	-0.00006	-0.00017	-0.00008	.00095	.18480	.48640	-0.00207
Stddev	.00010	.00014	.00014	.00069	.03080	.17065	.00617
%RSD	170.00	84.859	164.13	72.800	16.666	35.084	297.66

#1	.00003	-0.00022	.00006	.00039	.14940	.61645	-0.00430
#2	-0.00016	-0.00028	-0.00009	.00172	.19951	.54957	.00490
#3	-0.00004	-0.00001	-0.00022	.00073	.20549	.29317	-0.00682

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	3.7032	.01145	-0.00026	1.8246	.00200	.00430	-0.00081
Stddev	.0239	.00226	.00066	.0376	.00133	.00486	.00112
%RSD	.64415	19.753	253.73	2.0597	66.705	113.00	138.38

#1	3.6981	.01296	-0.00027	1.8533	.00160	.00269	.00047
#2	3.6823	.00885	-0.00091	1.8385	.00091	.00045	-0.00128
#3	3.7292	.01255	.00040	1.7821	.00349	.00977	-0.00161

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166301 Acquired: 4/4/2017 21:12:07 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-.00155	.00337	3.2986	-.00061	.07582	-.00142	-.00247
Stddev	.00216	.00357	.0080	.00035	.00055	.00769	.00308
%RSD	139.35	106.06	.24332	56.311	.72127	541.04	124.70

#1	-.00305	.00122	3.3075	-.00101	.07624	-.00380	-.00599
#2	.00092	.00749	3.2919	-.00043	.07520	.00718	-.00120
#3	-.00252	.00139	3.2964	-.00040	.07602	-.00764	-.00023

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	.00035	.00167	F -.15609
Stddev	.00056	.00009	.20949
%RSD	158.78	5.1683	134.21

#1	.00099	.00173	.05599
#2	-.00005	.00170	-.16136
#3	.00011	.00157	-.36290

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	24178.	158070.	4695.7
Stddev	553.	853.	49.7
%RSD	2.2889	.53957	1.0594

#1	23543.	158010.	4641.6
#2	24435.	158950.	4739.5
#3	24556.	157240.	4705.9

Approved: April 05, 2017

Ki K Buck

Sample Name: CCV Acquired: 4/4/2017 21:15:38 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.41892	10.348	.40019	.52018	1.0246	.05198	10.307
Stddev	.00388	.021	.00112	.00187	.0029	.00029	.042
%RSD	.92522	.20410	.28013	.35868	.27950	.55253	.40892

#1	.42169	10.351	.40114	.52179	1.0271	.05216	10.355
#2	.42058	10.368	.40048	.52062	1.0252	.05212	10.288
#3	.41449	10.326	.39895	.51814	1.0214	.05165	10.278

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	.05039	.20133	.51660	.50435	3.9532	51.832	1.0419
Stddev	.00017	.00021	.00148	.00067	.0349	.026	.0037
%RSD	.33083	.10573	.28707	.13267	.88172	.04991	.35195

#1	.05058	.20157	.51764	.50445	3.9420	51.843	1.0439
#2	.05033	.20118	.51725	.50497	3.9923	51.851	1.0442
#3	.05026	.20124	.51490	.50364	3.9253	51.803	1.0377

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	10.085	.49726	.99768	52.624	.50717	9.9198	.50373
Stddev	.079	.00276	.00223	.205	.00080	.0084	.00063
%RSD	.78039	.55551	.22374	.38994	.15797	.08465	.12522

#1	10.005	.49993	.99793	52.729	.50806	9.9268	.50423
#2	10.163	.49442	.99978	52.756	.50691	9.9105	.50302
#3	10.087	.49743	.99534	52.388	.50652	9.9221	.50393

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: April 05, 2017

K: K Buck

Sample Name: CCV Acquired: 4/4/2017 21:15:38 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	1.2474	4.1538	4.9807	1.0192	1.0118	1.0120	5.2076
Stddev	.0027	.00518	.0048	.0009	.0029	.0146	.00191
%RSD	.21225	1.2466	.09645	.09097	.28422	1.4458	.36764

#1	1.2479	.40944	4.9859	1.0195	1.0151	1.0276	.51859
#2	1.2445	.41779	4.9764	1.0199	1.0103	.99862	.52221
#3	1.2497	.41892	4.9799	1.0181	1.0100	1.0098	.52149

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	1.0210	1.0295	F 1.2236
Stddev	.0046	.0014	.1743
%RSD	.45419	.13789	14.244

#1	1.0248	1.0298	1.2797
#2	1.0223	1.0307	1.3629
#3	1.0158	1.0279	1.0281

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	24200.	156380.	4842.5
Stddev	606.	945.	10.0
%RSD	2.5059	.60447	.20667

#1	23877.	157230.	4831.0
#2	23824.	156540.	4847.6
#3	24900.	155360.	4849.0

Approved: April 05, 2017

Ki K Buck

Sample Name: CCB Acquired: 4/4/2017 21:19:00 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-.00177	-.00581	-.00044	.00330	-.00291	-.00002	.01982
Stddev	.00247	.00588	.00090	.00008	.00101	.00004	.03864
%RSD	139.98	101.22	204.04	2.5604	34.820	219.07	194.90

#1	-.00336	-.01088	.00059	.00321	-.00323	-.00004	.03881
#2	-.00302	-.00719	-.00084	.00338	-.00372	.00002	-.02463
#3	.00108	.00064	-.00106	.00330	-.00177	-.00003	.04530

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	.00001	-.00008	-.00136	-.00002	-.00042	-.00173	-.00076
Stddev	.00005	.00025	.00088	.00056	.00552	.04144	.00091
%RSD	937.77	321.63	64.745	2322.4	1309.3	2394.0	119.56

#1	-.00001	.00000	-.00144	-.00027	-.00594	-.04675	.00012
#2	-.00004	-.00036	-.00044	-.00042	.00511	.03482	-.00072
#3	.00007	.00012	-.00219	.00061	-.00044	.00673	-.00170

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	.11238	.00054	.00007	.11827	.00034	.00290	F -.00512
Stddev	.09617	.00107	.00019	.03686	.00157	.00756	.00218
%RSD	85.580	199.10	285.63	31.163	465.17	260.71	42.627

#1	.13858	-.00070	-.00003	.08324	.00092	-.00038	-.00636
#2	.19274	.00112	-.00006	.11485	-.00144	-.00247	-.00260
#3	.00582	.00118	.00029	.15671	.00153	.01154	-.00641

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							.00500
Low Limit							-.00500

Approved: April 05, 2017

Ki K Buck

Sample Name: CCB Acquired: 4/4/2017 21:19:00 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-.00310	-.00177	.00166	.00044	-.00016	.00271	.00265
Stddev	.00511	.00334	.00032	.00035	.00042	.00578	.00037
%RSD	164.97	188.76	19.034	80.968	253.42	213.28	13.927

#1	-.00467	-.00468	.00182	.00032	-.00026	.00309	.00222
#2	-.00724	-.00250	.00129	.00083	.00029	.00828	.00287
#3	.00262	.00188	.00186	.00016	-.00052	-.00325	.00285

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	.00061	-.00002	.03751
Stddev	.00002	.00010	.29203
%RSD	2.4693	588.45	778.56

#1	.00062	-.00014	.29057
#2	.00059	.00005	-.28202
#3	.00061	.00004	.10397

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	24159.	157060.	4740.6
Stddev	373.	1824.	38.9
%RSD	1.5423	1.1615	.82026

#1	24585.	159000.	4770.0
#2	23993.	155390.	4755.3
#3	23897.	156780.	4696.5

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703166501 Acquired: 4/4/2017 21:22:31 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	1.3861	.00138	.20648	.04236	.00008	2.3125	.00023
Stddev	.00107	.0066	.00045	.00209	.00158	.00002	.0701	.00016
%RSD	67.746	.47481	32.984	1.0110	3.7275	23.941	3.0329	71.607

#1	-0.00258	1.3871	.00128	.20881	.04328	.00006	2.2544	.00029
#2	-0.00045	1.3790	.00187	.20478	.04327	.00008	2.2926	.00035
#3	-0.00171	1.3921	.00098	.20586	.04054	.00009	2.3904	.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	.00118	.00300	.32427	3.1506	1.4404	.01073	1.2439	.03502
Stddev	.00029	.00049	.00110	.0193	.1542	.00355	.1053	.00147
%RSD	24.394	16.300	.33819	.61209	10.703	33.080	8.4686	4.2052

#1	.00087	.00272	.32442	3.1287	1.5992	.00713	1.1239	.03349
#2	.00124	.00270	.32528	3.1648	1.4305	.01084	1.2867	.03643
#3	.00143	.00356	.32310	3.1584	1.2914	.01423	1.3211	.03515

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	.00063	244.31	.00829	-0.08621	.03106	-.00041	-.00314	4.1223
Stddev	.00013	3.18	.00125	.00378	.00386	.00500	.00207	.0123
%RSD	20.915	1.3033	15.120	4.3804	12.423	1214.0	66.001	.29913

#1	.00057	240.63	.00704	-.09006	.02796	.00269	-.00496	4.1275
#2	.00077	246.03	.00954	-.08605	.03538	-.00619	-.00088	4.1311
#3	.00053	246.26	.00829	-.08251	.02984	.00226	-.00359	4.1082

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: April 05, 2017

K: K Buck

Sample Name: L1703166501 Acquired: 4/4/2017 21:22:31 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.00501	.10580	.01785	-.00221	.00282	.38469	.50302
Stddev	.00049	.00128	.00819	.00197	.00051	.00162	.38340
%RSD	9.8407	1.2125	45.899	89.236	17.985	.42195	76.219

#1	.00536	.10442	.00847	-.00218	.00254	.38583	.14516
#2	.00445	.10695	.02364	-.00025	.00251	.38541	.90766
#3	.00523	.10604	.02142	-.00418	.00340	.38284	.45625

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	23220.	147140.	4590.0
Stddev	112.	1213.	64.2
%RSD	.48127	.82430	1.3989

#1	23106.	147810.	4523.4
#2	23226.	145740.	4595.1
#3	23329.	147860.	4651.5

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703168501 Acquired: 4/4/2017 21:25:58 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.00011	4.8906	.00336	.01939	.04500	.00019	25.903	.00016
Stddev	.00073	.0278	.00058	.00188	.00256	.00004	.190	.00012
%RSD	634.51	.56815	17.335	9.6695	5.6801	24.235	.73538	75.460

#1	-.00071	4.9133	.00370	.01875	.04748	.00014	25.684	.00023
#2	.00041	4.8989	.00268	.01792	.04237	.00020	26.027	.00023
#3	.00064	4.8596	.00368	.02150	.04515	.00022	25.998	.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	.00082	.00514	.00563	4.3903	4.7588	.00613	10.570	.03427
Stddev	.00033	.00051	.00072	.0814	.0503	.00383	.106	.00282
%RSD	40.326	9.8882	12.713	1.8548	1.0563	62.429	1.0075	8.2374

#1	.00086	.00571	.00644	4.3299	4.7297	.00382	10.450	.03101
#2	.00112	.00500	.00537	4.4829	4.8168	.00403	10.651	.03596
#3	.00047	.00472	.00509	4.3580	4.7298	.01055	10.610	.03584

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	.00344	4.4880	.00662	.19382	.00308	-.00264	-.00262	10.769
Stddev	.00022	.0520	.00062	.00222	.00054	.00229	.00127	.015
%RSD	6.3501	1.1593	9.3571	1.1475	17.600	86.755	48.299	.13769

#1	.00367	4.4661	.00726	.19570	.00302	-.00315	-.00198	10.767
#2	.00340	4.5473	.00660	.19438	.00257	-.00465	-.00181	10.785
#3	.00324	4.4504	.00602	.19137	.00364	-.00014	-.00408	10.755

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703168501 Acquired: 4/4/2017 21:25:58 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00157	.08290	.06479	-0.00184	.00843	.03356	1.1354
Stddev	.00030	.00033	.00614	.00147	.00059	.00011	.2206
%RSD	18.971	.39763	9.4714	79.722	7.0264	.32996	19.430

#1	-0.00141	.08291	.06998	-.00264	.00911	.03345	1.3601
#2	-0.00139	.08257	.05802	-.00015	.00813	.03367	.91913
#3	-0.00192	.08323	.06638	-.00275	.00804	.03354	1.1269

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	24046.	154560.	4507.1
Stddev	89.	1934.	18.3
%RSD	.37173	1.2516	.40497

#1	24147.	152900.	4518.7
#2	24011.	154090.	4486.0
#3	23979.	156680.	4516.4

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703168502 Acquired: 4/4/2017 21:29:28 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00076	3.2081	.00075	.01634	.03338	.00008	26.021	.00007
Stddev	.00118	.0101	.00091	.00082	.00169	.00002	.228	.00021
%RSD	155.16	.31483	121.50	5.0485	5.0673	31.235	.87775	304.46

#1	-0.00123	3.2175	.00156	.01724	.03389	.00010	25.874	-0.0000
#2	-0.00165	3.2094	-0.00023	.01563	.03149	.00009	25.906	-0.0010
#3	.00058	3.1974	.00090	.01615	.03475	.00005	26.284	.00031

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	.00060	.00357	.00747	3.7164	4.7280	-0.00194	9.9917	.02787
Stddev	.00024	.00054	.00025	.0359	.1058	.00155	.1233	.00547
%RSD	39.910	15.221	3.3123	.96578	2.2373	80.200	1.2338	19.628

#1	.00032	.00337	.00740	3.6972	4.7365	-0.00047	9.9105	.03247
#2	.00072	.00315	.00727	3.6942	4.6183	-0.00357	9.9311	.02182
#3	.00074	.00418	.00775	3.7578	4.8293	-0.00177	10.134	.02931

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	.00332	7.8714	.00710	.19033	.00310	.00112	.00366	7.9303
Stddev	.00025	.0472	.00076	.00424	.00144	.00090	.00179	.0219
%RSD	7.6398	.59933	10.678	2.2297	46.320	80.124	48.867	.27548

#1	.00303	7.8400	.00623	.19201	.00476	.00025	.00397	7.9136
#2	.00348	7.8486	.00742	.18550	.00225	.00107	.00174	7.9223
#3	.00346	7.9257	.00764	.19346	.00230	.00205	.00528	7.9550

Check ? Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass Chk Pass
 High Limit
 Low Limit

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703168502 Acquired: 4/4/2017 21:29:28 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00118	.04484	.04222	-0.00181	.00563	.03040	.76012
Stddev	.00021	.00106	.00479	.00174	.00146	.00020	.36689
%RSD	17.860	2.3674	11.351	96.035	25.975	.66723	48.267

#1	-0.00099	.04367	.04662	-0.00039	.00396	.03029	.80613
#2	-0.00114	.04512	.04292	-0.00375	.00623	.03027	.37239
#3	-0.00140	.04573	.03712	-0.00129	.00669	.03063	1.1018

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	24017.	156060.	4610.5
Stddev	71.	1068.	51.9
%RSD	.29718	.68434	1.1266

#1	23935.	154880.	4599.9
#2	24053.	156340.	4666.9
#3	24063.	156960.	4564.7

Approved: April 05, 2017

K. K. Buck

Sample Name: L1703170401 Acquired: 4/4/2017 21:32:57 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG608508-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00048	.00206	.00089	.04839	.17713	-0.00003	76.946
Stddev	.00175	.00333	.00067	.00079	.00065	.00006	.351
%RSD	368.05	161.55	75.497	1.6376	.36624	225.85	.45618

#1	.00153	.00164	.00076	.04814	.17667	.00001	76.544
#2	-.00128	-.00104	.00030	.04775	.17686	.00000	77.105
#3	-.00167	.00558	.00162	.04927	.17787	-.00010	77.190

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.00005	-0.00042	-0.00008	.01310	.02301	4.5287	-0.00444
Stddev	.00011	.00013	.00045	.00104	.02757	.0384	.00627
%RSD	220.72	31.479	572.79	7.9412	119.83	.84901	141.20

#1	.00016	-.00041	-.00044	.01428	.00423	4.5172	-.01157
#2	-.00007	-.00029	-.00022	.01274	.01014	4.5715	.00022
#3	.00006	-.00055	.00042	.01229	.05466	4.4972	-.00197

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	13.697	-0.0029	.00033	14.945	.00018	-0.1194	-0.00128
Stddev	.065	.00260	.00049	.052	.00041	.00379	.00111
%RSD	.47417	906.18	147.19	.34855	221.96	31.760	86.680

#1	13.623	-.00281	-.00022	14.933	.00050	-.01590	-.00238
#2	13.725	.00238	.00070	14.900	.00033	-.01157	-.00128
#3	13.743	-.00043	.00052	15.002	-.00028	-.00834	-.00017

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

K. K. Buck

Sample Name: L1703170401 Acquired: 4/4/2017 21:32:57 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG608508-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.00114	-0.00178	5.2195	-0.00077	.11946	-0.00840	-0.00105
Stddev	.00027	.00246	.0065	.00022	.00068	.00579	.00372
%RSD	23.681	138.05	.12349	28.495	.57011	68.896	352.40

#1	-0.00085	-0.00030	5.2231	-0.00077	.11869	-0.01380	-0.00029
#2	-0.00138	-0.00462	5.2233	-0.00055	.11997	-0.00912	.00222
#3	-0.00120	-0.00042	5.2120	-0.00098	.11971	-0.00229	-0.00509

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	.00030	.10484	F -.13641
Stddev	.00097	.00008	.17576
%RSD	323.65	.07625	128.85

#1	-0.00005	.10483	.05465
#2	.00140	.10492	-.29124
#3	-0.00045	.10476	-.17263

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23952.	155270.	4641.8
Stddev	243.	671.	43.4
%RSD	1.0164	.43244	.93541

#1	23673.	156030.	4691.2
#2	24062.	155020.	4609.7
#3	24121.	154750.	4624.5

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703170401MS Acquired: 4/4/2017 21:36:24 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG608508-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.21041	5.1114	.20038	1.0510	.70494	.02640	83.340	.02522
Stddev	.00128	.0176	.00125	.0028	.00245	.00003	.439	.00026
%RSD	.61069	.34521	.62618	.27031	.34760	.10957	.52690	1.0235

#1	.21186	5.0976	.19916	1.0536	.70321	.02640	82.834	.02515
#2	.20996	5.1313	.20031	1.0514	.70775	.02642	83.620	.02500
#3	.20942	5.1054	.20167	1.0479	.70387	.02637	83.565	.02550

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	.10036	.26218	.26429	2.0264	30.513	.53190	18.932	.25130
Stddev	.00027	.00166	.00119	.0345	.210	.00620	.089	.00553
%RSD	.26645	.63404	.45164	1.7041	.68934	1.1649	.47011	2.1999

#1	.10033	.26074	.26396	2.0051	30.298	.53627	19.013	.24494
#2	.10012	.26400	.26330	2.0663	30.524	.53462	18.947	.25403
#3	.10065	.26181	.26561	2.0080	30.718	.52481	18.837	.25494

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	.49900	41.551	.25406	4.9631	.25406	.62552	.19960	7.8790
Stddev	.00095	.295	.00152	.0168	.00336	.00425	.00233	.0064
%RSD	.18949	.71041	.59633	.33824	1.3239	.67993	1.1664	.08067

#1	.49820	41.220	.25355	4.9510	.25776	.62215	.19804	7.8723
#2	.49876	41.646	.25287	4.9560	.25119	.62411	.20227	7.8796
#3	.50005	41.786	.25577	4.9823	.25324	.63030	.19848	7.8850

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: April 05, 2017

K: K Buck

Sample Name: L1703170401MS Acquired: 4/4/2017 21:36:24 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG608508-04

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.51783	.63578	.51231	.25905	.52470	.62349	.37772
Stddev	.00069	.00314	.01448	.00101	.00051	.00218	.06784
%RSD	.13272	.49436	2.8256	.38981	.09787	.34946	17.959
#1	.51726	.63306	.49560	.25908	.52436	.62165	.43274
#2	.51764	.63922	.52094	.25802	.52529	.62292	.39850
#3	.51860	.63505	.52040	.26004	.52444	.62590	.30193

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	24067.	155920.	4691.8
Stddev	219.	737.	119.4
%RSD	.90984	.47293	2.5447
#1	23857.	156430.	4700.5
#2	24294.	156250.	4568.3
#3	24049.	155070.	4806.6

Approved: April 05, 2017

Ki K Buck

Sample Name: L1703170401MSD Acquired: 4/4/2017 21:39:47 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG608508-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.20944	5.0644	.19569	1.0480	.69813	.02619	81.676	.02495
Stddev	.00120	.0005	.00082	.0028	.00113	.00007	.277	.00009
%RSD	.57455	.01061	.42065	.26993	.16142	.25855	.33934	.34979

#1	.21075	5.0640	.19538	1.0503	.69689	.02626	81.479	.02485
#2	.20917	5.0643	.19506	1.0489	.69839	.02620	81.556	.02502
#3	.20839	5.0650	.19662	1.0448	.69910	.02612	81.993	.02497

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	.09951	.26012	.26040	2.0048	30.663	.52122	18.650	.24801
Stddev	.00023	.00067	.00157	.0226	.201	.00266	.014	.00302
%RSD	.22784	.25787	.60234	1.1269	.65400	.51080	.07539	1.2187

#1	.09925	.26049	.25946	2.0029	30.432	.52283	18.639	.25140
#2	.09962	.26052	.25952	2.0283	30.786	.51815	18.646	.24560
#3	.09966	.25934	.26221	1.9832	30.771	.52269	18.666	.24703

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	.49273	41.241	.25084	4.8744	.24911	.61946	.19493	7.6740
Stddev	.00111	.143	.00105	.0021	.00205	.00535	.00250	.0099
%RSD	.22472	.34609	.41818	.04269	.82182	.86434	1.2838	.12862

#1	.49235	41.289	.25101	4.8767	.24802	.62563	.19720	7.6819
#2	.49186	41.080	.25179	4.8727	.25147	.61601	.19224	7.6629
#3	.49397	41.353	.24971	4.8737	.24783	.61673	.19533	7.6771

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 High Limit
 Low Limit

Approved: April 05, 2017

K. K. Beck

Sample Name: L1703170401MSD Acquired: 4/4/2017 21:39:47 Type: Unk
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) Mode: CONC Corr. Factor: 1.000000
 User: KKB Custom ID1: Custom ID2: Custom ID3:
 Comment: WG608508-05

Elem	Sn1899	Sr4077	Ti3372	Ti1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.51010	.62887	.50468	.25638	.51864	.61509	.72683
Stddev	.00100	.00181	.00803	.00098	.00085	.00059	.16446
%RSD	.19633	.28839	1.5911	.38257	.16400	.09514	22.628
#1	.51124	.62787	.50418	.25744	.51869	.61569	.66558
#2	.50937	.62778	.49691	.25551	.51946	.61505	.91312
#3	.50970	.63097	.51295	.25619	.51776	.61452	.60177

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	23169.	151920.	4731.8
Stddev	144.	715.	42.8
%RSD	.62168	.47061	.90398
#1	23239.	152740.	4728.6
#2	23004.	151420.	4776.1
#3	23265.	151600.	4690.8

Approved: April 05, 2017

Ki K Buck

Sample Name: CCV Acquired: 4/4/2017 21:43:10 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	.41458	10.249	.40192	.51860	1.0190	.05165	10.318	.05061
Stddev	.00088	.055	.00285	.00120	.0015	.00039	.027	.00068
%RSD	.21160	.53839	.70797	.23069	.15154	.75143	.25954	1.3493

#1	.41489	10.215	.39915	.51941	1.0194	.05148	10.300	.04983
#2	.41359	10.219	.40484	.51915	1.0173	.05138	10.349	.05090
#3	.41526	10.313	.40176	.51722	1.0203	.05209	10.306	.05110

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 Value
 Range

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.20233	.51174	.50323	3.9343	51.825	1.0428	10.081	.48541
Stddev	.00156	.00411	.00472	.0293	.163	.0053	.073	.00469
%RSD	.77140	.80272	.93755	.74362	.31389	.50990	.72436	.96529

#1	.20053	.51140	.49810	3.9156	51.901	1.0482	10.020	.48147
#2	.20310	.50781	.50423	3.9680	51.936	1.0375	10.061	.48416
#3	.20336	.51601	.50738	3.9193	51.638	1.0426	10.162	.49059

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 Value
 Range

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.0031	52.753	.50705	9.8202	.50085	1.2496	.41043	4.9614
Stddev	.0082	.012	.00457	.0833	.00518	.0107	.00322	.0394
%RSD	.81795	.02247	.90106	.84790	1.0340	.85894	.78436	.79506

#1	.99360	52.742	.50201	9.7244	.49491	1.2375	.40671	4.9159
#2	1.0078	52.753	.50823	9.8757	.50439	1.2582	.41224	4.9825
#3	1.0078	52.765	.51091	9.8604	.50325	1.2529	.41234	4.9858

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 Value
 Range

Approved: April 05, 2017

K: K Buck

Sample Name: CCV Acquired: 4/4/2017 21:43:10 Type: QC
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	1.0177	1.0032	1.0097	.52488	1.0124	1.0278	.99979
Stddev	.0071	.0039	.0087	.00281	.0057	.0078	.12573
%RSD	.70151	.38728	.86297	.53481	.56841	.76171	12.575

#1	1.0094	1.0001	1.0075	.52231	1.0118	1.0188	1.1113
#2	1.0219	1.0075	1.0023	.52788	1.0070	1.0323	.86353
#3	1.0217	1.0019	1.0193	.52445	1.0185	1.0324	1.0245

Check ? **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass** **Chk Pass**
 Value
 Range

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	23167.	153300.	4704.4
Stddev	296.	1432.	32.2
%RSD	1.2772	.93409	.68464

#1	23447.	154440.	4676.8
#2	23196.	153770.	4739.8
#3	22858.	151690.	4696.4

Approved: April 05, 2017

Ki K Buck

Sample Name: CCB Acquired: 4/4/2017 21:46:30 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-.00185	-.00400	.00111	.00492	-.00229	.00000	.01494
Stddev	.00098	.00184	.00097	.00161	.00120	.00001	.02222
%RSD	53.256	46.161	87.651	32.794	52.466	2521.7	148.67

#1	-.00202	-.00202	.00221	.00306	-.00208	-.00001	.01944
#2	-.00079	-.00567	.00072	.00580	-.00359	.00002	.03456
#3	-.00273	-.00429	.00039	.00590	-.00121	-.00000	-.00918

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	-.00022	.00001	-.00017	.00025	.01264	.18698	-.01241
Stddev	.00009	.00030	.00025	.00180	.01694	.11561	.00341
%RSD	39.989	3366.6	144.40	732.89	133.97	61.829	27.446

#1	-.00025	.00003	.00006	.00076	.00450	.26634	-.01496
#2	-.00012	.00030	-.00014	-.00175	.03212	.24025	-.00854
#3	-.00030	-.00030	-.00043	.00173	.00132	.05434	-.01372

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	.06443	.00191	.00008	.14586	.00053	-.00498	-.00015
Stddev	.05362	.00302	.00064	.02658	.00048	.00638	.00045
%RSD	83.229	157.59	802.02	18.224	90.098	128.25	301.83

#1	.00391	.00054	-.00021	.16212	.00062	-.00536	-.00047
#2	.10602	.00537	.00081	.11518	.00001	.00159	.00036
#3	.08335	-.00017	-.00036	.16027	.00096	-.01116	-.00033

Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: April 05, 2017

Ki K Buck

Sample Name: CCB Acquired: 4/4/2017 21:46:30 Type: Blank
 Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v308) 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	-0.00222	-0.00039	.00089	-0.00018	.00028	-0.00121	.00035
Stddev	.00074	.00071	.00083	.00067	.00005	.00927	.00153
%RSD	33.489	182.66	93.187	360.29	17.596	764.37	435.68

#1	-0.00299	-0.00028	-0.00000	.00058	.00034	.00441	.00160
#2	-0.00216	.00026	.00104	-0.00060	.00027	-0.01192	.00081
#3	-0.00151	-0.00115	.00164	-0.00053	.00024	.00387	-0.00135

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	.00033	-0.00011	F -.07446
Stddev	.00057	.00006	.20873
%RSD	171.04	57.913	280.33

#1	.00089	-0.00007	.03902
#2	-0.00025	-0.00007	-.31535
#3	.00037	-0.00018	.05295

Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	24329.	155000.	4509.8
Stddev	78.	2269.	23.8
%RSD	.31944	1.4636	.52876

#1	24376.	156900.	4484.3
#2	24240.	155610.	4513.3
#3	24372.	152490.	4531.6

Approved: April 05, 2017

Ki K Buck

2.3.2 Metals ICP-MS Data

2.3.2.1 Summary Data

Lab Report #: L17031690

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L17031690-01	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: LH18/24-SP650-6428-GRAB	Prep Method: 3015A	Prep Date: 04/03/2017 15:35
Matrix: Water	Analytical Method: 6020A	Cal Date: 04/04/2017 11:44
Workgroup #: WG608658	Analyst: JYH	Run Date: 04/04/2017 13:07
Collect Date: 03/29/2017 15:00	Dilution: 1	File ID: NI.040417.130715
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Antimony, Total	7440-36-0	0.00107	J	0.00200	0.00100	0.000500
Arsenic, Total	7440-38-2	0.00100	U	0.00200	0.00100	0.000500
Barium, Total	7440-39-3	0.187		0.00600	0.00300	0.00150
Cadmium, Total	7440-43-9	0.000600	U	0.00120	0.000600	0.000300
Chromium, Total	7440-47-3	0.0125		0.00400	0.00200	0.00100
Cobalt, Total	7440-48-4	0.00467		0.00200	0.00100	0.000500
Lead, Total	7439-92-1	0.00100	U	0.00200	0.00100	0.000500
Manganese, Total	7439-96-5	0.111		0.00400	0.00200	0.00100
Nickel, Total	7440-02-0	0.0172		0.00800	0.00400	0.00200
Silver, Total	7440-22-4	0.00100	U	0.00200	0.00100	0.000500
Vanadium, Total	7440-62-2	0.00100	U	0.00200	0.00100	0.000500
Zinc, Total	7440-66-6	0.0727		0.0500	0.0250	0.0125

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 #: L17031690

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L17031690-01	PrePrep Method: N/A	Instrument: ICP-MS2
Client ID: LH18/24-SP650-6428-GRAB	Prep Method: 3015A	Prep Date: 04/03/2017 15:35
Matrix: Water	Analytical Method: 6020A	Cal Date: 04/06/2017 10:24
Workgroup #: WG608658	Analyst: JYH	Run Date: 04/06/2017 13:12
Collect Date: 03/29/2017 15:00	Dilution: 1	File ID: NI.040617.131257
Sample Tag: 02	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Thallium, Total	7440-28-0	0.000200	U	0.000400	0.000200	0.000100
J	Estimated value ; the analyte concentration was less than the LOQ.					
U	Analyte was not detected. The concentration is below the reported LOD.					

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: WG608583
 Analyst: VC
 Spike Analyst: VC
 Run Date: 04/03/2017 15:35
 Method: 3015A
 Balance: BAL016
 Instrument: MW-3
 Instrument Start: 04/03/2017 15:31

SOP: ME407 Revision 19
 Spike Solution: STD78216
 Spike Witness: ERP
 HNO3 Lot #: COA19483
 40 & 50 ML. DIGESTION TU COA19487
 MS Filters- fisher-Lot# RRGT38288

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG608583-02	BLANK	1	20 mL	50 mL	185.092 g	185.088 g		
2	WG608583-04	FLT_BLK	1	20 mL	50 mL	182.185 g	182.174 g		
3	WG608583-03	LCS	1	20 mL	50 mL	184.44 g	184.447 g	.25 mL	
4	L17031676-01	SAMP	1	20 mL	50 mL	182.83 g	182.812 g		04/11/17
5	L17031676-02	SAMP	1	20 mL	50 mL	185.37 g	185.362 g		04/11/17
6	L17031676-03	SAMP	1	20 mL	50 mL	184.966 g	184.937 g		04/11/17
7	WG608583-01	REF	1	20 mL	50 mL	184.823 g	184.794 g		
8	L17031676-04	RS01	1	20 mL	50 mL	184.823 g	184.794 g		04/11/17
9	WG608583-05	MS	1	20 mL	50 mL	182.79 g	182.779 g	.25 mL	
10	L17031676-05	MS01	1	20 mL	50 mL	182.79 g	182.779 g	.25 mL	04/11/17
11	WG608583-06	MSD	1	20 mL	50 mL	184.317 g	184.314 g	.25 mL	
12	L17031676-06	SD01	1	20 mL	50 mL	184.317 g	184.314 g	.25 mL	04/11/17
13	L17031685-01	SAMP	1	20 mL	50 mL	181.393 g	181.381 g		04/14/17
14	L17031689-01	SAMP	1	20 mL	50 mL	184.129 g	184.117 g		04/11/17
15	L17031690-01	SAMP	1	20 mL	50 mL	183.851 g	183.839 g		04/11/17
16	L17031695-01	SAMP	1	20 mL	50 mL	184.241 g	184.228 g		04/06/17
17	L17031695-02	SAMP	1	20 mL	50 mL	185.245 g	185.245 g		04/06/17
18	L17031695-03	SAMP	1	20 mL	50 mL	181.792 g	181.749 g		04/06/17
19	L17031695-04	SAMP	1	20 mL	50 mL	181.731 g	181.725 g		04/06/17

L17031685-01	filtered digestate
L17031690-01	filtered digestate

Analyst: Vicki Collier

Reviewer: Evan Pottin



Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 040417B.REP
Analyst1: JYH Analyst2: N/A
Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
Maintenance Log ID: _____

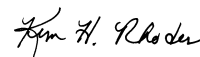
Calibration Std: STD80851 ICV Std: STD80849 Post Spike: STD79415
ICSA: STD80854 ICSAB: STD81136 Int. Std: RGT39300
CCV: STD81129 LLCCV: STD80853 Tuning Sol : STD80856
Stannous : _____ Hydroxylamine : _____

Workgroups: 608658,608658,608787

Comments:

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1	NI.040417.113143	Blank	Blank		1		04/04/17 11:31
2	NI.040417.113449	WG608789-01	Calibration Point		1		04/04/17 11:34
3	NI.040417.113754	WG608789-02	Calibration Point		1		04/04/17 11:37
4	NI.040417.114100	WG608789-03	Calibration Point		1		04/04/17 11:41
5	NI.040417.114405	WG608789-04	Calibration Point		1		04/04/17 11:44
6	NI.040417.114712	WG608789-05	Initial Calibration Verification		1		04/04/17 11:47
7	NI.040417.115019	WG608789-06	Initial Calib Blank		1		04/04/17 11:50
8	NI.040417.115326	WG608789-07	Low Level Initial Calibration V		1		04/04/17 11:53
9	NI.040417.115639	WG608789-08	Interference Check		1		04/04/17 11:56
10	NI.040417.115945	WG608789-09	Interference Check		1		04/04/17 11:59
11	NI.040417.120734	WG608789-10	Interference Check		1		04/04/17 12:07
12	NI.040417.121041	WG608789-11	CCV		1		04/04/17 12:10
13	NI.040417.121347	WG608789-12	CCB		1		04/04/17 12:13
14	NI.040417.121749	WG608583-02	Method/Prep Blank	20/50	1		04/04/17 12:17
15	NI.040417.122054	WG608583-03	Laboratory Control S	20/50	1		04/04/17 12:20
16	NI.040417.122400	WG608583-04	Filter Blank		1		04/04/17 12:24
17	NI.040417.122705	WG608583-01	Reference Sample		1	L17031676-04	04/04/17 12:27
18	NI.040417.123011	WG608583-05	Matrix Spike	20/50	1	L17031676-04	04/04/17 12:30
19	NI.040417.123315	WG608583-06	Matrix Spike Duplica	20/50	1	L17031676-04	04/04/17 12:33
20	NI.040417.123620	L17031676-01	MNA-GMW-706	20/50	1		04/04/17 12:36
21	NI.040417.123926	WG608658-01	Post Digestion Spike		1	L17031676-01	04/04/17 12:39
22	NI.040417.124231	WG608658-02	Serial Dilution		5	L17031676-01	04/04/17 12:42
23	NI.040417.124535	WG608658-02	Serial Dilution		25	L17031676-01	04/04/17 12:45
24	NI.040417.124842	WG608789-13	CCV		1		04/04/17 12:48
25	NI.040417.125148	WG608789-14	CCB		1		04/04/17 12:51
26	NI.040417.125455	L17031676-02	MNA-GMW-707	20/50	1		04/04/17 12:54
27	NI.040417.125801	L17031676-03	MNA-GMW-906	20/50	1		04/04/17 12:58
28	NI.040417.130105	L17031685-01	LF 6-7 SW11	20/50	1		04/04/17 13:01
29	NI.040417.130410	L17031689-01	LH18/24-SP140-7428-GRAB	20/50	1		04/04/17 13:04
30	NI.040417.130715	L17031690-01	LH18/24-SP650-6428-GRAB	20/50	1		04/04/17 13:07
31	NI.040417.131021	L17031695-01	T7B0928-01	20/50	1		04/04/17 13:10
32	NI.040417.131326	L17031695-02	T7B0928-02	20/50	1		04/04/17 13:13
33	NI.040417.131631	L17031695-03	T7B0928-03	20/50	1		04/04/17 13:16
34	NI.040417.131937	L17031695-04	T7B0928-04	20/50	1		04/04/17 13:19

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Instrument Run Log

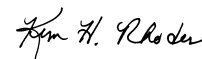
Instrument: ICP-MS2 Dataset: 040417B.REP
 Analyst1: JYH Analyst2: N/A
 Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
 Maintenance Log ID: _____
 Calibration Std: STD80851 ICV Std: STD80849 Post Spike: STD79415
 ICSA: STD80854 ICSAB: STD81136 Int. Std: RGT39300
 CCV: STD81129 LLCCV: STD80853 Tuning Sol : STD80856
 Stannous : _____ Hydroxylamine : _____

Workgroups: 608658,608658,608787

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	NI.040417.132244	WG608789-15	CCV		1		04/04/17 13:22
36	NI.040417.132549	WG608789-16	CCB		1		04/04/17 13:25
37	NI.040417.134151	L17031689-01	LH18/24-SP140-7428-GRAB	20/50	10		04/04/17 13:41
38	NI.040417.134459	WG608789-17	CCV		1		04/04/17 13:44
39	NI.040417.134804	WG608789-18	CCB		1		04/04/17 13:48
40	NI.040417.135110	WG608789-19	Low Level Continuing Calibra		1		04/04/17 13:51
41	NI.040417.135417	WG608632-02	Method/Prep Blank	.25/100	1		04/04/17 13:54
42	NI.040417.135724	WG608632-03	Laboratory Control S	.25/100	1		04/04/17 13:57
43	NI.040417.140030	WG608632-01	Reference Sample		1	L17040026-06	04/04/17 14:00
44	NI.040417.140336	WG608632-04	Matrix Spike	.25/100	1	L17040026-06	04/04/17 14:03
45	NI.040417.140641	WG608632-05	Matrix Spike Duplica	.254/100	1	L17040026-06	04/04/17 14:06
46	NI.040417.141028	L17040024-01	17C1666-01	.25/100	1		04/04/17 14:10
47	NI.040417.144105	L17040024-02	17C1666-02	.25/100	1		04/04/17 14:41
48	NI.040417.144410	WG608761-01	Post Digestion Spike		1	L17040024-02	04/04/17 14:44
49	NI.040417.144716	WG608761-02	Serial Dilution		5	L17040024-02	04/04/17 14:47
50	NI.040417.145021	WG608761-02	Serial Dilution		25	L17040024-02	04/04/17 14:50
51	NI.040417.145328	WG608789-20	CCV		1		04/04/17 14:53
52	NI.040417.145633	WG608789-21	CCB		1		04/04/17 14:56
53	NI.040417.145941	L17040024-03	17C1666-03	.251/100	1		04/04/17 14:59
54	NI.040417.150245	L17040024-04	17C1666-04	.254/100	1		04/04/17 15:02
55	NI.040417.150550	L17040024-05	17C1666-05	.254/100	1		04/04/17 15:05
56	NI.040417.150855	L17040024-06	17C1666-06	.256/100	1		04/04/17 15:08
57	NI.040417.151201	L17040024-07	17C1666-07	.25/100	1		04/04/17 15:12
58	NI.040417.151506	L17040024-08	17C1666-08	.257/100	1		04/04/17 15:15
59	NI.040417.151812	L17040024-09	17C1666-09	.254/100	1		04/04/17 15:18
60	NI.040417.152118	L17040024-10	17C1666-10	.255/100	1		04/04/17 15:21
61	NI.040417.152423	L17040026-01	17C1656-01	.251/100	1		04/04/17 15:24
62	NI.040417.152729	L17040026-02	17C1656-02	.252/100	1		04/04/17 15:27
63	NI.040417.153036	WG608789-22	CCV		1		04/04/17 15:30
64	NI.040417.153341	WG608789-23	CCB		1		04/04/17 15:33
65	NI.040417.153649	L17040026-03	17C1656-03	.256/100	1		04/04/17 15:36
66	NI.040417.153954	L17040026-04	17C1656-04	.251/100	1		04/04/17 15:39
67	NI.040417.154259	L17040026-05	17C1656-05	.25/100	1		04/04/17 15:42
68	NI.040417.154607	WG608789-24	CCV		1		04/04/17 15:46

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 040417B.REP
 Analyst1: JYH Analyst2: N/A
 Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
 Maintenance Log ID: _____
 Calibration Std: STD80851 ICV Std: STD80849 Post Spike: STD79415
 ICSA: STD80854 ICSAB: STD81136 Int. Std: RGT39300
 CCV: STD81129 LLCCV: STD80853 Tuning Sol : STD80856
 Stannous : _____ Hydroxylamine : _____

Workgroups: 608658,608658,608787

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
69	NI.040417.154913	WG608789-25	CCB		1		04/04/17 15:49
70	NI.040417.161238	WG608619-02	Method/Prep Blank	.25/100	1		04/04/17 16:12
71	NI.040417.161543	WG608619-03	Laboratory Control S	.25/100	1		04/04/17 16:15
72	NI.040417.161849	L17040026-06	17C1656-06		1	WG608619-01	04/04/17 16:18
73	NI.040417.162154	WG608619-04	Matrix Spike	.255/100	1	L17040026-06	04/04/17 16:21
74	NI.040417.162500	WG608619-05	Matrix Spike Duplica	.256/100	1	L17040026-06	04/04/17 16:25
75	NI.040417.162805	L17040024-01	17C1666-01	.255/100	1		04/04/17 16:28
76	NI.040417.163110	L17040024-02	17C1666-02	.253/100	1		04/04/17 16:31
77	NI.040417.163415	WG608787-01	Post Digestion Spike		1	L17040024-02	04/04/17 16:34
78	NI.040417.163721	WG608787-02	Serial Dilution		5	L17040024-02	04/04/17 16:37
79	NI.040417.164026	WG608787-02	Serial Dilution		25	L17040024-02	04/04/17 16:40
80	NI.040417.164333	WG608789-26	CCV		1		04/04/17 16:43
81	NI.040417.164638	WG608789-27	CCB		1		04/04/17 16:46
82	NI.040417.164945	L17040024-03	17C1666-03	.25/100	1		04/04/17 16:49
83	NI.040417.165251	L17040024-05	17C1666-05	.253/100	1		04/04/17 16:52
84	NI.040417.165556	L17040024-06	17C1666-06	.251/100	1		04/04/17 16:55
85	NI.040417.165901	L17040024-10	17C1666-10	.25/100	1		04/04/17 16:59
86	NI.040417.170207	L17040026-05	17C1656-05	.255/100	1		04/04/17 17:02
87	NI.040417.170513	WG608789-28	CCV		1		04/04/17 17:05
88	NI.040417.170818	WG608789-29	CCB		1		04/04/17 17:08

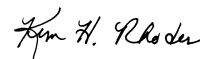
Comments

Seq.	Rerun	Dil.	Reason	Analytes
10			Rerun to verify. JYH	
86			Wrong sample label. JYH	

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Approved:

April 05, 2017




Microbac Laboratories Inc.

Instrument Run Log

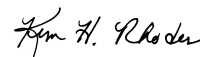
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 Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
 Maintenance Log ID: _____
 Calibration Std: STD80851 ICV Std: STD80849 Post Spike: STD79415
 ICSA: STD80854 ICSAB: STD81136 Int. Std: RGT39300
 CCV: STD81129 LLCCV: STD80853 Tuning Sol : STD80856
 Stannous : _____ Hydroxylamine : _____

Workgroups: 609052,608761,608658

Comments:

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3	NI.040617.101753	WG609131-02	Calibration Point		1		04/06/17 10:17
4	NI.040617.102058	WG609131-03	Calibration Point		1		04/06/17 10:20
5	NI.040617.102404	WG609131-04	Calibration Point		1		04/06/17 10:24
6	NI.040617.102711	WG609131-05	Initial Calibration Verification		1		04/06/17 10:27
7	NI.040617.103019	WG609131-06	Initial Calib Blank		1		04/06/17 10:30
8	NI.040617.103325	WG609131-07	Low Level Initial Calibration V		1		04/06/17 10:33
9	NI.040617.103631	WG609131-08	Interference Check		1		04/06/17 10:36
10	NI.040617.103936	WG609131-09	Interference Check		1		04/06/17 10:39
11	NI.040617.104243	WG609131-10	CCV		1		04/06/17 10:42
12	NI.040617.104548	WG609131-11	CCB		1		04/06/17 10:45
13	NI.040617.105007	WG608839-02	Method/Prep Blank	20/50	1		04/06/17 10:50
14	NI.040617.105312	WG608839-03	Laboratory Control S	20/50	1		04/06/17 10:53
15	NI.040617.105618	WG608839-01	Reference Sample		1	L17040123-13	04/06/17 10:56
16	NI.040617.105922	WG608839-04	Matrix Spike	20/50	1	L17040123-13	04/06/17 10:59
17	NI.040617.110228	WG608839-05	Matrix Spike Duplica	20/50	1	L17040123-13	04/06/17 11:02
18	NI.040617.110534	L17040019-01	17C1636-01	20/50	1		04/06/17 11:05
19	NI.040617.110839	L17040019-02	17C1636-02	20/50	1		04/06/17 11:08
20	NI.040617.111144	WG609052-01	Post Digestion Spike		1	L17040019-02	04/06/17 11:11
21	NI.040617.111449	WG609052-02	Serial Dilution		5	L17040019-02	04/06/17 11:14
22	NI.040617.111755	WG609052-02	Serial Dilution		25	L17040019-02	04/06/17 11:17
23	NI.040617.112102	WG609131-12	CCV		1		04/06/17 11:21
24	NI.040617.112408	WG609131-13	CCB		1		04/06/17 11:24
25	NI.040617.112715	L17031601-01	OBOD-J-SN	20/50	1		04/06/17 11:27
26	NI.040617.113019	L17031601-02	OBOD-K-SN	20/50	1		04/06/17 11:30
27	NI.040617.113325	L17031601-03	OBOD-18-SN	20/50	1		04/06/17 11:33
28	NI.040617.113630	L17031601-04	OBOD-30-SN	20/50	1		04/06/17 11:36
29	NI.040617.113935	L17031601-05	OBOD-29-SN	20/50	1		04/06/17 11:39
30	NI.040617.114240	L17031601-06	OBOD-15-SN	20/50	1		04/06/17 11:42
31	NI.040617.114545	L17040036-01	CEL-11-SN	20/50	1		04/06/17 11:45
32	NI.040617.114851	L17040036-02	CEL-13-SN	20/50	1		04/06/17 11:48
33	NI.040617.115156	L17040123-02	SW1A-331B-14	20/50	1		04/06/17 11:51
34	NI.040617.115501	L17040123-05	SW1B-331B-14	20/50	1		04/06/17 11:55

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Microbac Laboratories Inc.

Instrument Run Log

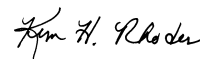
Instrument: ICP-MS2 Dataset: 040617A.REP
 Analyst1: JYH Analyst2: N/A
 Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
 Maintenance Log ID: _____
 Calibration Std: STD80851 ICV Std: STD80849 Post Spike: STD79415
 ICSA: STD80854 ICSAB: STD81136 Int. Std: RGT39300
 CCV: STD81129 LLCCV: STD80853 Tuning Sol : STD80856
 Stannous : _____ Hydroxylamine : _____

Workgroups: 609052,608761,608658

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	NI.040617.115808	WG609131-14	CCV		1		04/06/17 11:58
36	NI.040617.120114	WG609131-15	CCB		1		04/06/17 12:01
37	NI.040617.120420	L17040123-08	SW2A-331B-14	20/50	1		04/06/17 12:04
38	NI.040617.120725	L17040123-20	SW4A-331B-14	20/50	1		04/06/17 12:07
39	NI.040617.121031	L17040123-23	SW5A-331B-14	20/50	1		04/06/17 12:10
40	NI.040617.121335	L17040024-03	17C1666-03	.251/100	5		04/06/17 12:13
41	NI.040617.121641	L17040024-05	17C1666-05	.254/100	5		04/06/17 12:16
42	NI.040617.121947	L17040024-06	17C1666-06	.256/100	5		04/06/17 12:19
43	NI.040617.122252	L17040024-10	17C1666-10	.255/100	5		04/06/17 12:22
44	NI.040617.122600	WG609131-16	CCV		1		04/06/17 12:26
45	NI.040617.122905	WG609131-17	CCB		1		04/06/17 12:29
46	NI.040617.123213	WG608583-02	Method/Prep Blank	20/50	1		04/06/17 12:32
47	NI.040617.123518	WG608583-03	Laboratory Control S	20/50	1		04/06/17 12:35
48	NI.040617.123824	WG608583-01	Reference Sample		1	L17031676-04	04/06/17 12:38
49	NI.040617.124129	WG608583-05	Matrix Spike	20/50	1	L17031676-04	04/06/17 12:41
50	NI.040617.124434	WG608583-06	Matrix Spike Duplica	20/50	1	L17031676-04	04/06/17 12:44
51	NI.040617.124739	L17031689-01	LH18/24-SP140-7428-GRAB	20/50	1		04/06/17 12:47
52	NI.040617.131257	L17031690-01	LH18/24-SP650-6428-GRAB	20/50	1		04/06/17 13:12
53	NI.040617.131602	WG608658-03	Post Digestion Spike		1	L17031690-01	04/06/17 13:16
54	NI.040617.131908	WG608658-04	Serial Dilution		5	L17031690-01	04/06/17 13:19
55	NI.040617.132213	WG608583-04	Filter Blank		1		04/06/17 13:22
56	NI.040617.132520	WG609131-18	CCV		1		04/06/17 13:25
57	NI.040617.132825	WG609131-19	CCB		1		04/06/17 13:28
58	NI.040617.133133	WG609131-20	Low Level Continuing Calibra		1		04/06/17 13:31

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Microbac Laboratories Inc.

Data Checklist

Date: 04-APR-2017
 Analyst: JYH
 Analyst: NA
 Method: 6020/6020A/200.8
 Instrument: ICP-MS2
 Curve Workgroup: 608789
 Runlog ID: 81343
 Analytical Workgroups: 608658,608658,608787

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	1676,1685,1689,1690,0024
Client Forms	X
Level X	
Level 3	
Level 4	1676,1685,1689,1690
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:
05-APR-2017



Microbac Laboratories Inc.

Data Checklist

Date: 06-APR-2017
 Analyst: JYH
 Analyst: NA
 Method: 6020/6020A/200.8
 Instrument: ICP-MS2
 Curve Workgroup: 609131
 Runlog ID: 81393
 Analytical Workgroups: 609052,608761,608658

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	1601,036
Client Forms	X
Level X	
Level 3	
Level 4	1601,036
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:
07-APR-2017



Analytical Method:6020A
Login Number:L17031690

AAB#:WG608658

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
LH18/24-SP650-6428-GRAB	01	03/29/17					04/03/2017	5	180		04/06/17	7.9	180	
LH18/24-SP650-6428-GRAB	01	03/29/17					04/03/2017	5	180		04/04/17	5.9	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5230186
Report generated 04/06/2017 13:57



METHOD BLANK SUMMARY

Login Number: L17031690 Work Group: WG608658
 Blank File ID: NI.040417.121749 Blank Sample ID: WG608583-02
 Prep Date: 04/03/17 15:35 Instrument ID: ICP-MS2
 Analyzed Date: 04/04/17 12:17 Method: 6020A
 Analyst: JYH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG608583-03	NI.040417.122054	04/04/17 12:20	01
FLT_BLK	WG608583-04	NI.040417.122400	04/04/17 12:24	01
LH18/24-SP650-6428-GRAB	L17031690-01	NI.040417.130715	04/04/17 13:07	01
LCS	WG608583-03	NI.040617.123518	04/06/17 12:35	02
LH18/24-SP650-6428-GRAB	L17031690-01	NI.040617.131257	04/06/17 13:12	02
FLT_BLK	WG608583-04	NI.040617.132213	04/06/17 13:22	02

Report Name: BLANK_SUMMARY
 PDF File ID: 5230187
 Report generated 04/06/2017 13:57



METHOD BLANK SUMMARY

Login Number: L17031690 Work Group: WG608658
 Blank File ID: NI.040617.123213 Blank Sample ID: WG608583-02
 Prep Date: 04/03/17 15:35 Instrument ID: ICP-MS2
 Analyzed Date: 04/06/17 12:32 Method: 6020A
 Analyst: JYH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG608583-03	NI.040417.122054	04/04/17 12:20	01
FLT_BLK	WG608583-04	NI.040417.122400	04/04/17 12:24	01
LH18/24-SP650-6428-GRAB	L17031690-01	NI.040417.130715	04/04/17 13:07	01
LCS	WG608583-03	NI.040617.123518	04/06/17 12:35	02
LH18/24-SP650-6428-GRAB	L17031690-01	NI.040617.131257	04/06/17 13:12	02
FLT_BLK	WG608583-04	NI.040617.132213	04/06/17 13:22	02

Report Name: BLANK_SUMMARY
 PDF File ID: 5230187
 Report generated 04/06/2017 13:57



Login Number: L17031690 Prep Date: 04/03/17 15:35 Sample ID: WG608583-02
 Instrument ID: ICP-MS2 Run Date: 04/04/17 12:17 Prep Method: 3015A
 File ID: NI.040417.121749 Analyst: JYH Method: 6020A
 Workgroup (AAB#): WG608658 Matrix: Water Units: mg/L
 Contract #: _____ Cal ID: ICP-MS - 04-APR-17

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Antimony, Total	0.000500	0.00200	0.000500	1	U
Arsenic, Total	0.000500	0.00200	0.000500	1	U
Barium, Total	0.00150	0.00600	0.00150	1	U
Cadmium, Total	0.000300	0.00120	0.000300	1	U
Chromium, Total	0.00100	0.00400	0.00100	1	U
Cobalt, Total	0.000500	0.00200	0.000500	1	U
Lead, Total	0.000500	0.00200	0.000500	1	U
Manganese, Total	0.00100	0.00400	0.00100	1	U
Nickel, Total	0.00200	0.00800	0.00200	1	U
Silver, Total	0.000500	0.00200	0.000500	1	U
Vanadium, Total	0.000500	0.00200	0.000500	1	U
Zinc, Total	0.0125	0.0500	0.0125	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: 5230188
 07-APR-2017 08:47



Login Number: L17031690 Prep Date: 04/03/17 15:35 Sample ID: WG608583-02
Instrument ID: ICP-MS2 Run Date: 04/06/17 12:32 Prep Method: 3015A
File ID: NI.040617.123213 Analyst: JYH Method: 6020A
Workgroup (AAB#): WG608658 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: ICP-MS - 06-APR-17

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Thallium, Total	0.000100	0.000400	0.000100	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: 5230188
07-APR-2017 08:47



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608583-03
 Instrument ID: ICP-MS2 Run Time: 12:20 Prep Method: 3015A
 File ID: NI.040417.122054 Analyst: JYH Method: 6020A
 Workgroup (AAB#): WG608658 Matrix: Water Units: mg/L
 QC Key: DOD4 Lot#: STD78216 Cal ID: ICP-MS - 04-APR-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Antimony, Total	0.125	0.121	96.7	80 - 120	
Arsenic, Total	0.125	0.122	97.6	80 - 120	
Barium, Total	0.125	0.121	97.0	80 - 120	
Cadmium, Total	0.125	0.124	99.4	80 - 120	
Chromium, Total	0.125	0.125	100	80 - 120	
Cobalt, Total	0.125	0.124	99.0	80 - 120	
Lead, Total	0.125	0.123	98.6	80 - 120	
Manganese, Total	0.125	0.124	99.2	80 - 120	
Nickel, Total	0.125	0.126	101	80 - 120	
Silver, Total	0.125	0.123	98.4	80 - 120	
Vanadium, Total	0.125	0.123	98.2	80 - 120	
Zinc, Total	0.125	0.125	99.9	80 - 120	

LCS - Modified 03/06/2008
 PDF File ID: 5230225
 Report generated: 04/07/2017 08:47



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG608583-03
Instrument ID: ICP-MS2 Run Time: 12:35 Prep Method: 3015A
File ID: NI.040617.123518 Analyst: JYH Method: 6020A
Workgroup (AAB#): WG608658 Matrix: Water Units: mg/L
QC Key: DOD4 Lot#: STD78216 Cal ID: ICP-MS - 06-APR-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Thallium, Total	0.125	0.127	102	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 5230225
Report generated: 04/07/2017 08:47



Loginnum: L17031690 Cal ID: ICP-MS2- Worknum: WG608658
 Instrument ID: ICP-MS2 Contract #: _____ Method: 6020A
 Parent ID: WG608583-01 File ID: NI.040417.122705 Dil: 1 Matrix: WATER
 Sample ID: WG608583-05 MS File ID: NI.040417.123011 Dil: 1 Units: mg/L
 Sample ID: WG608583-06 MSD File ID: NI.040417.123315 Dil: 1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Antimony	ND	0.125	0.122	97.2	0.125	0.126	101	3.63	80 - 120	20	
Arsenic	0.00288	0.125	0.126	98.8	0.125	0.130	102	2.69	80 - 120	20	
Cadmium	ND	0.125	0.124	99.0	0.125	0.127	102	2.76	80 - 120	20	
Chromium	0.00661	0.125	0.129	98.3	0.125	0.131	99.7	1.38	80 - 120	20	
Cobalt	ND	0.125	0.120	95.9	0.125	0.124	99.0	3.16	80 - 120	20	
Lead	ND	0.125	0.122	98.0	0.125	0.126	101	3.05	80 - 120	20	
Manganese	0.0142	0.125	0.149	108	0.125	0.141	102	5.71	80 - 120	20	
Nickel	0.00256	0.125	0.123	96.4	0.125	0.126	98.8	2.35	80 - 120	20	
Silver	ND	0.125	0.120	95.9	0.125	0.123	98.7	2.91	80 - 120	20	
Vanadium	0.0127	0.125	0.135	98.0	0.125	0.137	99.3	1.26	80 - 120	20	
Zinc	0.209	0.125	0.195	-11.5	0.125	0.178	-25.2	9.23	80 - 120	20	*

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

Loginnum: L17031690 Cal ID: ICP-MS2- Worknum: WG608658
 Instrument ID: ICP-MS2 Contract #: _____ Method: 6020A
 Parent ID: WG608583-01 File ID: NI.040617.123824 Dil: 1 Matrix: WATER
 Sample ID: WG608583-05 MS File ID: NI.040617.124129 Dil: 1 Units: mg/L
 Sample ID: WG608583-06 MSD File ID: NI.040617.124434 Dil: 1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Thallium	ND	0.125	0.128	102	0.125	0.127	102	0.650	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

Microbac Laboratories Inc.
Serial Dilution Report

Login: L17031690 **Worknum:** WG608658
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG608658-04 **File ID:** NI.040617.131908 **Dil:** 5 **Units:** ug/L
Sample: L17031690-01 **File ID:** NI.040617.131257 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Antimony	0.461	F	1.82	F	295.00	
Arsenic	ND	U	ND	U		
Barium	75.2		73.5		2.25	
Cadmium	ND	U	ND	U		
Chromium	5.51	X	6.46	F	17.40	
Cobalt	1.90	X	1.79	F	5.69	
Lead	ND	U	ND	U		
Manganese	45.9		43.9		4.31	
Nickel	6.98	X	7.05	F	0.91	
Silver	ND	U	ND	U		
Thallium	ND	U	ND	U		
Vanadium	ND	U	ND	U		
Zinc	29.8	X	34.4	F	15.60	

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: 5230184

04/06/2017 13:57



Microbac Laboratories Inc.
Serial Dilution Report

Login: L17031690 **Worknum:** WG608658
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG608658-02 **File ID:** NI.040417.124231 **Dil:** 5 **Units:** ug/L
Sample: L17031676-01 **File ID:** NI.040417.123620 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Antimony	ND	U	1.17	F	1570.00	
Arsenic	0.551	F	ND	U		
Barium	89.8		91.4		1.75	
Cadmium	ND	U	ND	U		
Chromium	0.974	F	ND	U		
Cobalt	ND	U	ND	U		
Lead	0.229	F	ND	U		
Manganese	4.53	X	4.27	F	5.81	
Nickel	1.49	F	ND	U		
Silver	ND	U	ND	U		
Thallium	ND	U	ND	U		
Vanadium	4.12	X	4.17	X	1.23	
Zinc	125	X	137	X	9.38	

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: 5230184

04/06/2017 13:57



Sample Login ID: L17031690

Worknum: WG608658

Instrument ID: ICP-MS2

Method: 6020A

Post Spike ID: WG608658-01

File ID: NI.040417.123926

Dil: 1

Units: ug/L

Sample ID: L17031676-01

File ID: NI.040417.123620

Dil: 1

Matrix: Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ANTIMONY	49.9		0	U	50	99.8	75 - 125	
ARSENIC	50.2		0.551	F	50	99.4	75 - 125	
BARIUM	139		89.8		50	98.0	75 - 125	
CADMIUM	49.7		0	U	50	99.3	75 - 125	
CHROMIUM	49.8		0.974	F	50	97.7	75 - 125	
COBALT	49.2		0	U	50	98.5	75 - 125	
LEAD	49.6		0.229	F	50	98.8	75 - 125	
MANGANESE	53.4		4.53		50	97.7	75 - 125	
NICKEL	50.4		1.49	F	50	97.8	75 - 125	
SILVER	51.3		0	U	50	102.6	75 - 125	
THALLIUM	49.9		0	U	50	99.8	75 - 125	
VANADIUM	52.9		4.12		50	97.6	75 - 125	
ZINC	172		125		50	94.3	75 - 125	

N = % Recovery exceeds control limits

F = Result is between MDL and RL

U = Sample result is below MDL. A value of zero is used in the calculation



Sample Login ID: L17031690
Instrument ID: ICP-MS2
Post Spike ID: WG608658-03
Sample ID: L17031690-01

Worknum: WG608658
Method: 6020A
Units: ug/L
Matrix: Water

File ID: NI.040617.131602 Dil: 1
File ID: NI.040617.131257 Dil: 1

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ANTIMONY	50.7		0.461	F	50	100.5	75 - 125	
ARSENIC	52.7		0	U	50	105.3	75 - 125	
BARIUM	126		75.2		50	101.7	75 - 125	
CADMIUM	49.6		0	U	50	99.1	75 - 125	
CHROMIUM	59.8		5.51		50	108.6	75 - 125	
COBALT	53.6		1.90		50	103.4	75 - 125	
LEAD	51.4		0	U	50	102.8	75 - 125	
MANGANESE	98.0		45.9		50	104.1	75 - 125	
NICKEL	57.7		6.98		50	101.5	75 - 125	
SILVER	46.5		0	U	50	93.1	75 - 125	
THALLIUM	51.8		0	U	50	103.5	75 - 125	
VANADIUM	53.0		0	U	50	106.0	75 - 125	
ZINC	80.3		29.8		50	101.1	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



Microbac Laboratories Inc.
Initial Calibration Summary

00852290

Login: L17031690 Workgroup (AAB#): WG608658
 Analytical Method: 6020A Instrument ID: ICP-MS2
 ICAL Worknum: WG608789 Initial Calibration Date: 04-APR-2017 11:44

	WG608789-01		WG608789-02		WG608789-03		WG608789-04		R	Q
	Conc	INT	Conc	INT	Conc	INT	Conc	INT		
ANTIMONY	0	33.3	.4	328	50	215000	100	425000	.999993	
ARSENIC	0	-34.9	.4	4.80	50	56100	100	112000	.999964	
BARIUM	0	52.3	.4	170	50	82500	100	162000	.999983	
CADMIUM	0	6.60	.4	114	50	82700	100	160000	.999926	
CHROMIUM	0	5520	.4	5860	50	308000	100	597000	.999804	
COBALT	0	339	.4	793	50	405000	100	791000	.999812	
LEAD	0	542	.4	848	50	289000	100	570000	.999978	
MANGANESE	0	2370	.4	3120	50	532000	100	1040000	.999851	
NICKEL	0	266	.4	365	50	86200	100	169000	.999863	
SILVER	0	114	.4	474	50	293000	100	564000	.999881	
THALLIUM	0	68.3	.4	587	50	348000	100	681000	.999947	
VANADIUM	0	1140	.4	1460	50	335000	100	650000	.999757	
ZINC	0	463	.4	482	50	54100	100	108000	.99997	

INT = Instrument intensity
 R = Coefficient of correlation
 Q = Data Qualifier
 * = Out of Compliance; R < 0.995



Microbac Laboratories Inc.
Initial Calibration Summary

00852291

Login:	<u>L17031690</u>	Workgroup (AAB#):	<u>WG608658</u>
Analytical Method:	<u>6020A</u>	Instrument ID:	<u>ICP-MS2</u>
ICAL Worknum:	<u>WG609131</u>	Initial Calibration Date:	<u>06-APR-2017 10:24</u>

	WG609131-01		WG609131-02		WG609131-03		WG609131-04		R	Q
	Conc	INT	Conc	INT	Conc	INT	Conc	INT		
ANTIMONY	0	164	.4	285	50	157000	100	306000	.999999	
ARSENIC	0	-21.8	.4	18.9	50	41200	100	81600	.999988	
BARIUM	0	36.0	.4	109	50	57700	100	113000	1	
CADMIUM	0	2.30	.4	60.6	50	58200	100	112000	.999971	
CHROMIUM	0	4450	.4	4630	50	204000	100	389000	.999951	
COBALT	0	331	.4	613	50	280000	100	542000	.999981	
LEAD	0	351	.4	607	50	234000	100	459000	1	
MANGANESE	0	1730	.4	2120	50	345000	100	670000	.999991	
NICKEL	0	119	.4	195	50	59600	100	116000	.999996	
SILVER	0	78.3	.4	320	50	213000	100	408000	.999968	
THALLIUM	0	235	.4	499	50	268000	100	520000	.999991	
VANADIUM	0	858	.4	1060	50	213000	100	414000	.999992	
ZINC	0	246	.4	302	50	38900	100	76500	.999995	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5230192
Report generated: 06-APR-2017 13:58



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-06
 Instrument ID: ICP-MS2 Run Time: 11:50 Method: 6020A
 File ID: NI.040417.115019 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS2 - 04-APR-17
 Matrix: WATER

Analytes	MDL	RDL	Concentration	Qualifier
SILVER	.2	.8	.2	U
ARSENIC	.2	.8	.2	U
BARIIUM	.6	2.4	.6	U
CADMIUM	.12	.48	.12	U
COBALT	.2	.8	.2	U
CHROMIUM	.4	1.6	.4	U
MANGANESE	.4	1.6	.4	U
NICKEL	.8	3.2	.8	U
LEAD	.2	.8	.2	U
ANTIMONY	.2	.8	.2	U
THALLIUM	.04	.16	.04	U
VANADIUM	.2	.8	.2	U
ZINC	5	20	5	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: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-06
 Instrument ID: ICP-MS2 Run Time: 10:30 Method: 6020A
 File ID: NI.040617.103019 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS2 - 06-APR-17
 Matrix: WATER

Analytes	MDL	RDL	Concentration	Qualifier
SILVER	.2	.8	.2	U
ARSENIC	.2	.8	.2	U
BARIIUM	.6	2.4	.6	U
CADMIUM	.12	.48	.12	U
COBALT	.2	.8	.2	U
CHROMIUM	.4	1.6	.4	U
MANGANESE	.4	1.6	.4	U
NICKEL	.8	3.2	.8	U
LEAD	.2	.8	.2	U
ANTIMONY	.2	.8	.332	F
THALLIUM	.04	.16	.04	U
VANADIUM	.2	.8	.2	U
ZINC	5	20	5	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: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-12
 Instrument ID: ICP-MS2 Run Time: 12:13 Method: 6020A
 File ID: NI.040417.121347 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Antimony	0.200	0.800	0.200	U
Arsenic	0.200	0.800	0.200	U
Barium	0.600	2.40	0.600	U
Cadmium	0.120	0.480	0.120	U
Chromium	0.400	1.60	0.400	U
Cobalt	0.200	0.800	0.200	U
Lead	0.200	0.800	0.200	U
Manganese	0.400	1.60	0.400	U
Nickel	0.800	3.20	0.800	U
Silver	0.200	0.800	0.200	U
Thallium	0.0400	0.160	0.0400	U
Vanadium	0.200	0.800	0.200	U
Zinc	5.00	20.0	5.00	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: 5230197
 Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-14
 Instrument ID: ICP-MS2 Run Time: 12:51 Method: 6020A
 File ID: NI.040417.125148 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Antimony	0.200	0.800	0.200	U
Arsenic	0.200	0.800	0.200	U
Barium	0.600	2.40	0.600	U
Cadmium	0.120	0.480	0.120	U
Chromium	0.400	1.60	0.400	U
Cobalt	0.200	0.800	0.200	U
Lead	0.200	0.800	0.200	U
Manganese	0.400	1.60	0.400	U
Nickel	0.800	3.20	0.800	U
Silver	0.200	0.800	0.200	U
Thallium	0.0400	0.160	0.0400	U
Vanadium	0.200	0.800	0.200	U
Zinc	5.00	20.0	5.00	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: 5230197
 Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-16
 Instrument ID: ICP-MS2 Run Time: 13:25 Method: 6020A
 File ID: NI.040417.132549 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Antimony	0.200	0.800	0.200	U
Arsenic	0.200	0.800	0.200	U
Barium	0.600	2.40	0.600	U
Cadmium	0.120	0.480	0.120	U
Chromium	0.400	1.60	0.400	U
Cobalt	0.200	0.800	0.200	U
Lead	0.200	0.800	0.200	U
Manganese	0.400	1.60	0.400	U
Nickel	0.800	3.20	0.800	U
Silver	0.200	0.800	0.200	U
Thallium	0.0400	0.160	0.0400	U
Vanadium	0.200	0.800	0.200	U
Zinc	5.00	20.0	5.00	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: 5230197
 Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-11
 Instrument ID: ICP-MS2 Run Time: 10:45 Method: 6020A
 File ID: NI.040617.104548 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Antimony	0.200	0.800	0.231	F
Arsenic	0.200	0.800	0.200	U
Barium	0.600	2.40	0.600	U
Cadmium	0.120	0.480	0.120	U
Chromium	0.400	1.60	0.400	U
Cobalt	0.200	0.800	0.200	U
Lead	0.200	0.800	0.200	U
Manganese	0.400	1.60	0.400	U
Nickel	0.800	3.20	0.800	U
Silver	0.200	0.800	0.200	U
Thallium	0.0400	0.160	0.0400	U
Vanadium	0.200	0.800	0.200	U
Zinc	5.00	20.0	5.00	U

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

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 PDF File ID: 5230197
 Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-17
 Instrument ID: ICP-MS2 Run Time: 12:29 Method: 6020A
 File ID: NI.040617.122905 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Antimony	0.200	0.800	0.200	U
Arsenic	0.200	0.800	0.200	U
Barium	0.600	2.40	0.600	U
Cadmium	0.120	0.480	0.120	U
Chromium	0.400	1.60	0.400	U
Cobalt	0.200	0.800	0.200	U
Lead	0.200	0.800	0.200	U
Manganese	0.400	1.60	0.400	U
Nickel	0.800	3.20	0.800	U
Silver	0.200	0.800	0.200	U
Thallium	0.0400	0.160	0.0400	U
Vanadium	0.200	0.800	0.200	U
Zinc	5.00	20.0	5.00	U

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



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-19
 Instrument ID: ICP-MS2 Run Time: 13:28 Method: 6020A
 File ID: NI.040617.132825 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Antimony	0.200	0.800	0.200	U
Arsenic	0.200	0.800	0.200	U
Barium	0.600	2.40	0.600	U
Cadmium	0.120	0.480	0.120	U
Chromium	0.400	1.60	0.400	U
Cobalt	0.200	0.800	0.200	U
Lead	0.200	0.800	0.200	U
Manganese	0.400	1.60	0.400	U
Nickel	0.800	3.20	0.800	U
Silver	0.200	0.800	0.200	U
Thallium	0.0400	0.160	0.0400	U
Vanadium	0.200	0.800	0.200	U
Zinc	5.00	20.0	5.00	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: 5230197
 Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-05
 Instrument ID: ICP-MS2 Run Time: 10:27 Method: 6020A
 File ID: NI.040617.102711 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
 QC Key: DOD4

Analyte	Expected	Found	%REC	LIMITS	Q
Antimony	50	51.1	102	90 - 110	
Arsenic	50	50.3	101	90 - 110	
Barium	50	50.6	101	90 - 110	
Cadmium	50	50.8	102	90 - 110	
Chromium	50	50.3	101	90 - 110	
Cobalt	50	50.5	101	90 - 110	
Lead	50	50.3	101	90 - 110	
Manganese	50	50.7	101	90 - 110	
Nickel	50	50.5	101	90 - 110	
Silver	50	50.4	101	90 - 110	
Thallium	50	50.5	101	90 - 110	
Vanadium	50	50.2	100	90 - 110	
Zinc	50	50.3	101	90 - 110	

* Exceeds LIMITS Limit



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-05
 Instrument ID: ICP-MS2 Run Time: 11:47 Method: 6020A
 File ID: NI.040417.114712 Analyst: JYH Units: ug/L
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 QC Key: DOD4

Analyte	Expected	Found	%REC	LIMITS	Q
Antimony	50	49.9	99.8	90 - 110	
Arsenic	50	50.3	101	90 - 110	
Barium	50	49.7	99.5	90 - 110	
Cadmium	50	49.7	99.3	90 - 110	
Chromium	50	50.4	101	90 - 110	
Cobalt	50	50.2	100	90 - 110	
Lead	50	50.1	100	90 - 110	
Manganese	50	50.3	101	90 - 110	
Nickel	50	50.1	100	90 - 110	
Silver	50	50.0	100	90 - 110	
Thallium	50	50.3	101	90 - 110	
Vanadium	50	50.1	100	90 - 110	
Zinc	50	50.3	101	90 - 110	

* Exceeds LIMITS Limit



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-11
 Instrument ID: ICP-MS2 Run Time: 12:10 Method: 6020A
 File ID: NI.040417.121041 Analyst: JYH QC Key: DOD4
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.0500	0.0496	mg/L	99.2	90 - 110	
Arsenic	0.0500	0.0492	mg/L	98.3	90 - 110	
Barium	0.0500	0.0496	mg/L	99.3	90 - 110	
Cadmium	0.0500	0.0498	mg/L	99.5	90 - 110	
Chromium	0.0500	0.0494	mg/L	98.8	90 - 110	
Cobalt	0.0500	0.0491	mg/L	98.2	90 - 110	
Lead	0.0500	0.0494	mg/L	98.8	90 - 110	
Manganese	0.0500	0.0493	mg/L	98.7	90 - 110	
Nickel	0.0500	0.0491	mg/L	98.2	90 - 110	
Silver	0.0500	0.0503	mg/L	101	90 - 110	
Thallium	0.0500	0.0499	mg/L	99.7	90 - 110	
Vanadium	0.0500	0.0488	mg/L	97.6	90 - 110	
Zinc	0.0500	0.0489	mg/L	97.7	90 - 110	

* Exceeds LIMITS Criteria

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 PDF File ID: 5230196
 Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-13
 Instrument ID: ICP-MS2 Run Time: 12:48 Method: 6020A
 File ID: NI.040417.124842 Analyst: JYH QC Key: DOD4
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.0500	0.0500	mg/L	100	90 - 110	
Arsenic	0.0500	0.0498	mg/L	99.6	90 - 110	
Barium	0.0500	0.0499	mg/L	99.9	90 - 110	
Cadmium	0.0500	0.0503	mg/L	101	90 - 110	
Chromium	0.0500	0.0502	mg/L	100	90 - 110	
Cobalt	0.0500	0.0502	mg/L	100	90 - 110	
Lead	0.0500	0.0498	mg/L	99.6	90 - 110	
Manganese	0.0500	0.0503	mg/L	101	90 - 110	
Nickel	0.0500	0.0500	mg/L	100	90 - 110	
Silver	0.0500	0.0503	mg/L	101	90 - 110	
Thallium	0.0500	0.0501	mg/L	100	90 - 110	
Vanadium	0.0500	0.0498	mg/L	99.7	90 - 110	
Zinc	0.0500	0.0499	mg/L	99.8	90 - 110	

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
 PDF File ID: 5230196
 Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-15
Instrument ID: ICP-MS2 Run Time: 13:22 Method: 6020A
File ID: NI.040417.132244 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.0500	0.0497	mg/L	99.4	90 - 110	
Arsenic	0.0500	0.0490	mg/L	98.1	90 - 110	
Barium	0.0500	0.0501	mg/L	100	90 - 110	
Cadmium	0.0500	0.0501	mg/L	100	90 - 110	
Chromium	0.0500	0.0510	mg/L	102	90 - 110	
Cobalt	0.0500	0.0502	mg/L	100	90 - 110	
Lead	0.0500	0.0496	mg/L	99.3	90 - 110	
Manganese	0.0500	0.0505	mg/L	101	90 - 110	
Nickel	0.0500	0.0500	mg/L	100	90 - 110	
Silver	0.0500	0.0495	mg/L	98.9	90 - 110	
Thallium	0.0500	0.0502	mg/L	100	90 - 110	
Vanadium	0.0500	0.0510	mg/L	102	90 - 110	
Zinc	0.0500	0.0493	mg/L	98.6	90 - 110	

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5230196
Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-10
Instrument ID: ICP-MS2 Run Time: 10:42 Method: 6020A
File ID: NI.040617.104243 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.0500	0.0505	mg/L	101	90 - 110	
Arsenic	0.0500	0.0491	mg/L	98.2	90 - 110	
Barium	0.0500	0.0489	mg/L	97.8	90 - 110	
Cadmium	0.0500	0.0499	mg/L	99.7	90 - 110	
Chromium	0.0500	0.0495	mg/L	98.9	90 - 110	
Cobalt	0.0500	0.0496	mg/L	99.2	90 - 110	
Lead	0.0500	0.0500	mg/L	100	90 - 110	
Manganese	0.0500	0.0499	mg/L	99.8	90 - 110	
Nickel	0.0500	0.0499	mg/L	99.8	90 - 110	
Silver	0.0500	0.0496	mg/L	99.1	90 - 110	
Thallium	0.0500	0.0500	mg/L	100	90 - 110	
Vanadium	0.0500	0.0496	mg/L	99.2	90 - 110	
Zinc	0.0500	0.0499	mg/L	99.7	90 - 110	

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
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Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-16
Instrument ID: ICP-MS2 Run Time: 12:26 Method: 6020A
File ID: NI.040617.122600 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.0500	0.0494	mg/L	98.8	90 - 110	
Arsenic	0.0500	0.0493	mg/L	98.5	90 - 110	
Barium	0.0500	0.0489	mg/L	97.8	90 - 110	
Cadmium	0.0500	0.0500	mg/L	99.9	90 - 110	
Chromium	0.0500	0.0493	mg/L	98.6	90 - 110	
Cobalt	0.0500	0.0498	mg/L	99.5	90 - 110	
Lead	0.0500	0.0487	mg/L	97.3	90 - 110	
Manganese	0.0500	0.0499	mg/L	99.9	90 - 110	
Nickel	0.0500	0.0497	mg/L	99.5	90 - 110	
Silver	0.0500	0.0496	mg/L	99.3	90 - 110	
Thallium	0.0500	0.0493	mg/L	98.6	90 - 110	
Vanadium	0.0500	0.0497	mg/L	99.4	90 - 110	
Zinc	0.0500	0.0499	mg/L	99.9	90 - 110	

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5230196
Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-18
Instrument ID: ICP-MS2 Run Time: 13:25 Method: 6020A
File ID: NI.040617.132520 Analyst: JYH QC Key: DOD4
Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.0500	0.0490	mg/L	98.1	90 - 110	
Arsenic	0.0500	0.0491	mg/L	98.2	90 - 110	
Barium	0.0500	0.0490	mg/L	97.9	90 - 110	
Cadmium	0.0500	0.0502	mg/L	100	90 - 110	
Chromium	0.0500	0.0510	mg/L	102	90 - 110	
Cobalt	0.0500	0.0501	mg/L	100	90 - 110	
Lead	0.0500	0.0487	mg/L	97.4	90 - 110	
Manganese	0.0500	0.0506	mg/L	101	90 - 110	
Nickel	0.0500	0.0499	mg/L	99.8	90 - 110	
Silver	0.0500	0.0492	mg/L	98.4	90 - 110	
Thallium	0.0500	0.0495	mg/L	98.9	90 - 110	
Vanadium	0.0500	0.0512	mg/L	102	90 - 110	
Zinc	0.0500	0.0494	mg/L	98.9	90 - 110	

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5230196
Report generated 04/06/2017 13:58



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-07
 Instrument ID: ICP-MS2 Run Time: 11:53 Method: 6020A
 File ID: NI.040417.115326 Analyst: JYH QC Key: DOD4
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.400	0.406	ug/L	102	70 - 130	
Arsenic	0.400	0.425	ug/L	106	70 - 130	
Barium	0.750	0.701	ug/L	93.5	70 - 130	
Cadmium	0.240	0.207	ug/L	86.2	70 - 130	
Chromium	0.800	0.826	ug/L	103	70 - 130	
Cobalt	0.400	0.363	ug/L	90.7	70 - 130	
Lead	0.200	0.179	ug/L	89.6	70 - 130	
Manganese	0.500	0.403	ug/L	80.6	70 - 130	
Nickel	1.60	1.50	ug/L	94.1	70 - 130	
Silver	0.400	0.373	ug/L	93.3	70 - 130	
Thallium	0.0800	0.0567	ug/L	70.9	70 - 130	
Vanadium	0.400	0.352	ug/L	88.0	70 - 130	
Zinc	6.25	6.08	ug/L	97.3	70 - 130	

* Exceeds LIMITS Criteria



Login Number: L17031690 Run Date: 04/04/2017 Sample ID: WG608789-19
 Instrument ID: ICP-MS2 Run Time: 13:51 Method: 6020A
 File ID: NI.040417.135110 Analyst: JYH QC Key: DOD4
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 04-APR-17
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.400	0.347	ug/L	86.8	70 - 130	
Arsenic	0.400	0.362	ug/L	90.5	70 - 130	
Barium	0.750	0.634	ug/L	84.5	70 - 130	
Cadmium	0.240	0.218	ug/L	91.0	70 - 130	
Chromium	0.800	0.897	ug/L	112	70 - 130	
Cobalt	0.400	0.351	ug/L	87.7	70 - 130	
Lead	0.200	0.171	ug/L	85.4	70 - 130	
Manganese	0.500	0.407	ug/L	81.4	70 - 130	
Nickel	1.60	1.44	ug/L	90.1	70 - 130	
Silver	0.400	0.357	ug/L	89.2	70 - 130	
Thallium	0.0800	0.0440	ug/L	55.0	70 - 130	*
Vanadium	0.400	0.377	ug/L	94.3	70 - 130	
Zinc	6.25	5.96	ug/L	95.3	70 - 130	

* Exceeds LIMITS Criteria



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-07
 Instrument ID: ICP-MS2 Run Time: 10:33 Method: 6020A
 File ID: NI.040617.103325 Analyst: JYH QC Key: DOD4
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.400	0.455	ug/L	114	70 - 130	
Arsenic	0.400	0.422	ug/L	106	70 - 130	
Barium	0.750	0.691	ug/L	92.1	70 - 130	
Cadmium	0.240	0.236	ug/L	98.5	70 - 130	
Chromium	0.800	0.777	ug/L	97.1	70 - 130	
Cobalt	0.400	0.364	ug/L	91.0	70 - 130	
Lead	0.200	0.198	ug/L	99.1	70 - 130	
Manganese	0.500	0.428	ug/L	85.6	70 - 130	
Nickel	1.60	1.50	ug/L	93.5	70 - 130	
Silver	0.400	0.377	ug/L	94.2	70 - 130	
Thallium	0.0800	0.0801	ug/L	100	70 - 130	
Vanadium	0.400	0.341	ug/L	85.3	70 - 130	
Zinc	6.25	6.28	ug/L	100	70 - 130	

* Exceeds LIMITS Criteria



Login Number: L17031690 Run Date: 04/06/2017 Sample ID: WG609131-20
 Instrument ID: ICP-MS2 Run Time: 13:31 Method: 6020A
 File ID: NI.040617.133133 Analyst: JYH QC Key: DOD4
 Workgroup (AAB#): WG608658 Cal ID: ICP-MS - 06-APR-17
 Matrix: WATER

Analyte	Expected	Found	UNITS	%REC	LIMITS	Q
Antimony	0.400	0.397	ug/L	99.3	70 - 130	
Arsenic	0.400	0.426	ug/L	106	70 - 130	
Barium	0.750	0.741	ug/L	98.7	70 - 130	
Cadmium	0.240	0.234	ug/L	97.5	70 - 130	
Chromium	0.800	0.880	ug/L	110	70 - 130	
Cobalt	0.400	0.385	ug/L	96.2	70 - 130	
Lead	0.200	0.188	ug/L	93.8	70 - 130	
Manganese	0.500	0.546	ug/L	109	70 - 130	
Nickel	1.60	1.57	ug/L	97.9	70 - 130	
Silver	0.400	0.405	ug/L	101	70 - 130	
Thallium	0.0800	0.0622	ug/L	77.8	70 - 130	
Vanadium	0.400	0.381	ug/L	95.2	70 - 130	
Zinc	6.25	6.52	ug/L	104	70 - 130	

* Exceeds LIMITS Criteria



Login number: L17031690
Instrument ID: ICP-MS2
Sol. A: WG608789-08
Sol. AB: WG608789-10

File ID: NI.040417.115639
File ID: NI.040417.120734

Workgroup (AAB#): WG608658
Method: 6020A
Units: ug/L
Matrix: Water

ANALYTE	Sol. A			Sol. AB			Q
	True	Found	%Recovery	True	Found	%Recovery	
Antimony	NS	0.0495	NS	100	97.1	97.1	
Arsenic	NS	0.0392	NS	100	95.9	95.9	
Barium	NS	-0.0139	NS	100	95.1	95.1	
Cadmium	NS	-0.115	NS	100	95.1	95.1	
Chromium	NS	0.230	NS	100	92.9	92.9	
Cobalt	NS	0.0471	NS	100	93.1	93.1	
Lead	NS	0.00990	NS	100	95.8	95.8	
Manganese	NS	0.208	NS	100	93.7	93.7	
Nickel	NS	0.205	NS	100	93.5	93.5	
Silver	NS	-0.00890	NS	100	95.3	95.3	
Thallium	NS	-0.0238	NS	100	95.4	95.4	
Vanadium	NS	0.000400	NS	100	92.8	92.8	
Zinc	NS	0.674	NS	100	97.7	97.7	

NS = Not spiked

* = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.

= Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).

+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.



Login number: L17031690
Instrument ID: ICP-MS2
Sol. A: WG609131-08
Sol. AB: WG609131-09

File ID: NI.040617.103631
File ID: NI.040617.103936

Workgroup (AAB#): WG608658
Method: 6020A
Units: ug/L
Matrix: Water

ANALYTE	Sol. A			Sol. AB			Q
	True	Found	%Recovery	True	Found	%Recovery	
Antimony	NS	0.0763	NS	100	101	101	
Arsenic	NS	0.0291	NS	100	101	101	
Barium	NS	-0.00150	NS	100	101	101	
Cadmium	NS	-0.103	NS	100	99.3	99.3	
Chromium	NS	0.0745	NS	100	99.0	99.0	
Cobalt	NS	0.0425	NS	100	99.2	99.2	
Lead	NS	0.0159	NS	100	100	100	
Manganese	NS	0.176	NS	100	99.3	99.3	
Nickel	NS	0.206	NS	100	98.2	98.2	
Silver	NS	-0.00270	NS	100	97.4	97.4	
Thallium	NS	-0.00490	NS	100	99.3	99.3	
Vanadium	NS	-0.0213	NS	100	98.5	98.5	
Zinc	NS	0.530	NS	100	103	103	

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: L17031690 Analytical Method: 6020
 Analytical Workgroup: WG608658 Matrix: 1
 Instrument: ICP-MS2 Analyst: JYH
 ICAL Date: 04-APR-2017 11:34

Sample	Type	Run Date	BISMUTH	GERMANIUM	INDIUM
			% Rec	% Rec	% Rec
L17031676-01	SAMP	04-APR-2017 12:36	102.384	98.223	97.173
L17031690-01	SAMP	04-APR-2017 13:07	88.866	92.368	89.683
WG608583-02	BLANK	04-APR-2017 12:17	101.08	97.473	96.101
WG608583-03	LCS	04-APR-2017 12:20	103.103	98.105	98.337
WG608583-04	FLT_BLK	04-APR-2017 12:24	104.445	99.805	99.847
WG608658-01	PSPK	04-APR-2017 12:39	103.033	98.914	97.532
WG608658-02	SERIAL	04-APR-2017 12:42	97.647	92.016	91.503
WG608789-05	ICV	04-APR-2017 11:47	101.292	98.118	97.708
WG608789-06	ICB	04-APR-2017 11:50	102	98.238	98.971
WG608789-07	LLICV	04-APR-2017 11:53	100.971	97.73	97.472
WG608789-08	ICS	04-APR-2017 11:56	98.876	95.948	95.33
WG608789-10	ICS	04-APR-2017 12:07	103.052	98.677	96.897
WG608789-11	CCV	04-APR-2017 12:10	102.232	96.662	96.278
WG608789-12	CCB	04-APR-2017 12:13	104.729	98.874	99.215
WG608789-13	CCV	04-APR-2017 12:48	101.141	96.666	97.276
WG608789-14	CCB	04-APR-2017 12:51	101.752	97.466	98.153
WG608789-15	CCV	04-APR-2017 13:22	96.863	95.655	95.371
WG608789-16	CCB	04-APR-2017 13:25	98.28	95.981	96.164
WG608789-19	LLCCV	04-APR-2017 13:51	95.28	92.79	92.894

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: 5230191
 Report generated: 04/06/2017 13:58



INTERNAL STANDARD REPORT

Login: L17031690 Analytical Method: 6020
 Analytical Workgroup: WG608658 Matrix: 1
 Instrument: ICP-MS2 Analyst: JYH
 ICAL Date: 06-APR-2017 10:14

Sample	Type	Run Date	BISMUTH	GERMANIUM	INDIUM
			% Rec	% Rec	% Rec
L17031690-01	SAMP	06-APR-2017 13:12	86.599	90.819	88.432
WG608583-02	BLANK	06-APR-2017 12:32	100.544	96.767	96.931
WG608583-03	LCS	06-APR-2017 12:35	100.226	96.475	96.724
WG608583-04	FLT_BLK	06-APR-2017 13:22	99.805	98.408	99.807
WG608658-03	PSPK	06-APR-2017 13:16	87.016	91.96	90.155
WG608658-04	SERIAL	06-APR-2017 13:19	90.662	94.152	92.223
WG609131-05	ICV	06-APR-2017 10:27	96.181	94.594	94.308
WG609131-06	ICB	06-APR-2017 10:30	97.889	95.255	95.46
WG609131-07	LLICV	06-APR-2017 10:33	97.442	94.943	95.043
WG609131-08	ICS	06-APR-2017 10:36	95.918	94.156	94.286
WG609131-09	ICS	06-APR-2017 10:39	96.98	94.54	92.876
WG609131-10	CCV	06-APR-2017 10:42	98.199	94.661	95.332
WG609131-11	CCB	06-APR-2017 10:45	98.557	94.308	94.543
WG609131-16	CCV	06-APR-2017 12:26	100.46	97.455	98.096
WG609131-17	CCB	06-APR-2017 12:29	99.923	96.045	95.407
WG609131-18	CCV	06-APR-2017 13:25	99.028	98.143	98.647
WG609131-19	CCB	06-APR-2017 13:28	98.355	96.723	96.35
WG609131-20	LLCCV	06-APR-2017 13:31	97.668	95.789	95.995

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: 5230191
 Report generated: 04/06/2017 13:58



Login Number: L17031690 Date: 01/24/2017
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:\NexlONData\MassCal\default.tun
 Peak Search Window: 1.00

Sample Information

Sample Date/Time: Tuesday, April 04, 2017 09:18:53

Mass Calibration and Resolution


Analyte	E Mass	Meas Mass	Mass C DAC Val	Res DAC Value	Meas Peak	WCustom Res
Li	7.016	7.025	1319	2026	0.709	
Mg	23.985	23.975	4499	2021	0.701	
Co	58.933	58.975	11694	2023	0.686	
In	114.904	114.875	22855	2029	0.688	
U	238.050	238.075	47456	2045	0.679	

Relative Std. Dev.

Mass	Meas. Intens.	RSD
5.525		16.814
5.575		5.645
5.625		2.896
5.675		3.672
5.725		3.197
5.775		2.353
5.825		2.248
5.875		3.383
5.925		1.898
5.975		2.543
6.025		3.070
6.075		2.630
6.125		3.977
6.175		2.854
6.225		3.910
6.275		4.701
6.325		14.967
6.375		75.691
6.425		117.260
6.475		63.888
6.525		55.277
6.575		9.093
6.625		1.862
6.675		3.202
6.725		2.546
6.775		3.340
6.825		3.632

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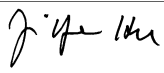
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6.875	3.364
6.925	2.213
6.975	2.780
7.025	3.161
7.075	2.580
7.125	2.900
7.175	3.541
7.225	4.310
7.275	2.642
7.325	5.183
7.375	8.610
7.425	49.793
7.475	34.233
7.525	113.537
7.575	71.261
7.625	39.123
7.675	81.441
7.725	73.193
7.775	37.268
7.825	149.071
7.875	104.583
7.925	60.858
7.975	37.268
8.025	35.355
8.075	63.191
8.125	106.863
8.175	37.268
8.225	104.583
8.275	79.057
8.325	47.507
8.375	46.566
8.425	46.481
8.475	98.543
22.525	136.931
22.575	60.858
22.625	29.166
22.675	117.851
22.725	30.987
22.775	60.858
22.825	26.438
22.875	18.109
22.925	30.842
22.975	13.552
23.025	36.712
23.075	26.146
23.125	27.163
23.175	19.628

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23.225	30.101
23.275	22.822
23.325	19.764
23.375	59.087
23.425	38.528
23.475	33.301
23.525	8.179
23.575	4.517
23.625	2.665
23.675	3.554
23.725	3.118
23.775	3.122
23.825	4.109
23.875	3.447
23.925	3.748
23.975	4.569
24.025	4.558
24.075	4.479
24.125	4.230
24.175	4.513
24.225	3.051
24.275	2.507
24.325	12.205
24.375	25.074
24.425	49.872
24.475	11.103
24.525	6.561
24.575	5.288
24.625	1.808
24.675	2.360
24.725	2.362
24.775	1.191
24.825	2.554
24.875	2.066
24.925	1.780
24.975	2.171
25.025	3.231
25.075	2.922
25.125	2.502
25.175	2.467
25.225	1.936
25.275	2.923
25.325	34.233
25.375	27.163
25.425	46.904
25.475	21.561
57.525	10.547

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57.575	4.099
57.625	4.351
57.675	2.236
57.725	4.318
57.775	5.927
57.825	3.735
57.875	3.584
57.925	4.238
57.975	2.934
58.025	2.382
58.075	2.901
58.125	2.227
58.175	3.852
58.225	4.309
58.275	5.623
58.325	20.215
58.375	50.302
58.425	38.870
58.475	13.614
58.525	6.686
58.575	5.251
58.625	6.528
58.675	4.553
58.725	3.162
58.775	3.704
58.825	3.593
58.875	3.938
58.925	4.450
58.975	4.461
59.025	3.466
59.075	4.162
59.125	3.355
59.175	4.063
59.225	4.792
59.275	5.743
59.325	35.392
59.375	34.401
59.425	75.691
59.475	32.810
59.525	24.130
59.575	8.955
59.625	7.253
59.675	5.446
59.725	5.548
59.775	4.378
59.825	6.512
59.875	4.369

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59.925	4.726
59.975	4.388
60.025	3.386
60.075	4.841
60.125	4.805
60.175	4.004
60.225	7.203
60.275	10.340
60.325	58.310
60.375	46.351
60.425	37.268
60.475	74.536
113.525	8.958
113.575	9.063
113.625	3.697
113.675	4.827
113.725	4.971
113.775	5.109
113.825	4.073
113.875	3.429
113.925	3.805
113.975	4.492
114.025	2.587
114.075	3.535
114.125	3.626
114.175	5.252
114.225	8.112
114.275	15.759
114.325	30.162
114.375	55.902
114.425	22.628
114.475	5.540
114.525	4.947
114.575	2.503
114.625	3.977
114.675	2.842
114.725	4.262
114.775	2.512
114.825	3.074
114.875	3.222
114.925	2.223
114.975	3.090
115.025	3.642
115.075	3.430
115.125	2.766
115.175	2.940
115.225	1.891

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115.275	2.909
115.325	11.165
115.375	38.030
115.425	28.284
115.475	38.861
115.525	18.871
115.575	11.561
115.625	8.067
115.675	6.552
115.725	5.189
115.775	6.481
115.825	4.366
115.875	3.110
115.925	7.413
115.975	8.565
116.025	3.454
116.075	1.653
116.125	5.645
116.175	5.813
116.225	12.741
116.275	14.949
116.325	35.315
116.375	67.748
116.425	15.215
116.475	50.047
236.525	
236.575	28.135
236.625	16.564
236.675	44.895
236.725	24.845
236.775	31.126
236.825	45.079
236.875	40.357
236.925	21.719
236.975	21.114
237.025	70.795
237.075	33.030
237.125	21.626
237.175	30.459
237.225	16.134
237.275	21.066
237.325	53.123
237.375	32.394
237.425	41.612
237.475	19.325
237.525	34.142
237.575	16.521

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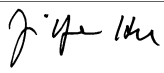
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237.625	6.904
237.675	3.787
237.725	5.374
237.775	5.365
237.825	4.178
237.875	4.860
237.925	3.668
237.975	3.436
238.025	3.909
238.075	3.106
238.125	3.650
238.175	3.658
238.225	3.032
238.275	3.371
238.325	3.292
238.375	3.104
238.425	4.887
238.475	3.773
238.525	6.783
238.575	10.033
238.625	21.979
238.675	23.595
238.725	39.700
238.775	23.563
238.825	26.694
238.875	41.650
238.925	51.888
238.975	23.903
239.025	13.352
239.075	16.524
239.125	13.546
239.175	16.318
239.225	24.022
239.275	26.086
239.325	38.079
239.375	13.546
239.425	14.400
239.475	25.693

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SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\NexIONData\Wizard\SmartTune\ESI SmartTune Fullmicrobac.swz

Start Time: 4/4/2017 9:24:07 AM

End Time: 4/4/2017 9:26:44 AM

Daily Performance Check - [Passed] Optimum value(s): N/A

Obtained Intensity (Be 9.0122): 13765.52

Obtained Intensity (Mg 23.985): 303698.40

Obtained Intensity (In 114.904): 84428.12

Obtained Intensity (U 238.05): 118802.73

Obtained Intensity (Bkgd 220): 0.20


Obtained Formula (CeO 155.9 / Ce 139.905): 0.014 (=3191.47 / 220648.95)

Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.005 (=1107.51 / 220648.95)

Report Date/Time: Tuesday, April 04, 2017 09:26:44

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SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\NexIONData\Wizard\SmartTune\ESI SmartTune Fullmicrobac.swz

Optimization Status

Start Time: 4/4/2017 9:24:07 AM

Daily Performance Check

Optimization Settings:

Method: C:\NexIONData\Method\FAST-Daily Performance.mth.
Intensity Criterion: Be 9.0122 > 4000
Intensity Criterion: Mg 23.985 > 20000
Intensity Criterion: In 114.904 > 65000
Intensity Criterion: U 238.05 > 45000
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): 13765.52
Obtained Intensity (Mg 23.985): 303698.40
Obtained Intensity (In 114.904): 84428.12
Obtained Intensity (U 238.05): 118802.73
Obtained Intensity (Bkgd 220): 0.20
Obtained Formula (CeO 155.9 / ce 139.905): 0.014 (=3191.47 / 220648.95)
Obtained Formula (Ce++ 69.9527 / ce 139.905): 0.005 (=1107.51 / 220648.95)


[Passed] Optimum value(s): N/A

End Time: 4/4/2017 9:26:44 AM

Report Date/Time: Tuesday, April 04, 2017 09:26:44

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Method 6020 - Summary Report

Sample ID: Blank

Sample Date/Time: Tuesday, April 04, 2017 11:31:43

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	302131.2	1.1				ug/L		Standard
|	Be	9	11.7	65.5				ug/L		Standard
|	Al	27	906.7	12.3				ug/L		Standard
|	Sc	45	39227.4	3.7				ug/L		Standard
|	Ti	47	33.7	22.3				ug/L		Standard
|	V	51	1154.8	11.8				ug/L		Standard
|	Cr	52	5602.0	1.8				ug/L		Standard
|	Cr	53	1041.7	42.8				ug/L		Standard
|	Mn	55	2370.2	0.8				ug/L		Standard
|	Co	59	381.3	6.5				ug/L		Standard
|	Ni	60	282.0	7.4				ug/L		Standard
|	Cu	65	706.7	3.1				ug/L		Standard
|	Zn	66	426.7	4.2				ug/L		Standard
>	Ge	72	842801.2	0.8				ug/L		Standard
|	As	75	-10.9	375.6				ug/L		Standard
|	Se	82	17.8	40.3				ug/L		Standard
|	Se-1	77	127.3	27.1				ug/L		Standard
>	Ga	71	91.7	45.7				mg/L		Standard
|	Rb	85	48.3	46.6				ug/L		Standard
|	Y	89	587988.7	0.4				ug/L		Standard
>	Rh	103	8.3	91.7				ug/L		Standard
|	Mo	98	35.0	29.9				ug/L		Standard
|	Ag	107	120.7	19.8				ug/L		Standard
|	Cd	111	4.3	74.7				mg/L		Standard
|	Cd	114	26.8	29.3				ug/L		Standard
>	In	115	702234.8	1.1				ug/L		Standard
|	Sn	118	180.0	8.4				ug/L		Standard
|	Sb	123	43.4	44.9				ug/L		Standard
|	Ba	135	50.3	12.9				ug/L		Standard
|	Ce	140	20.0	25.0				ug/L		Standard
>	Tb	159	1036041.3	0.6				ug/L		Standard
|	Ho	165	8.3	91.7				ug/L		Standard
|	Tl	203	87.0	36.8				ug/L		Standard
|	Tl	205	255.0	29.7				ug/L		Standard
|	Pb	206	523.3	2.2				ug/L		Standard
|	Pb	207	433.0	8.0				ug/L		Standard
|	Pb	208	498.3	2.3				ug/L		Standard
|	U	238	6.0	145.3				ug/L		Standard
>	Bi	209	631806.2	1.3				ug/L		Standard

Sample ID: Blank

Report Date/Time: Tuesday, April 04, 2017 11:33:53

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Na	23	1.7	173.2	mg/L	Standard
Mg	24	26.7	10.8	mg/L	Standard
K	39	16.7	17.3	mg/L	Standard
Ca	43	46.7	22.3	mg/L	Standard
Fe	54	23.1	82.3	mg/L	Standard
Fe	57	253.3	6.9	mg/L	Standard
Sc-1	45	39227.4	3.7	mg/L	Standard
Cl	35	0.7	173.2	ug/L	Standard
Kr	83	2.7	78.1	ug/L	Standard
Br	81	2163.5	5.6	ug/L	Standard
P	31	56.7	43.5	ug/L	Standard
S	34	26.7	75.8	ug/L	Standard
Sr	88	125.0	12.0	ug/L	Standard
C	12	43.3	58.1	mg/L	Standard
N	14	0.0		mg/L	Standard
Hg	202	10.0		mg/L	Standard
Dy	164	9.0	100.4	mg/L	Standard
Ho-1	165	8.3	91.7	mg/L	Standard
Er	166	20.0	132.3	mg/L	Standard
I	127	3535.4	12.5	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: Tuesday, April 04, 2017 11:33:53

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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

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Method 6020 - Summary Report

Sample ID: Standard 1

Sample Date/Time: Tuesday, April 04, 2017 11:34:49

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	319291.1	3.0				ug/L	302131	Standard
|	Be	9	15.0	0.0				ug/L	12	Standard
|	Al	27	785.0	1.3				ug/L	907	Standard
|	Sc	45	41660.5	1.3				ug/L	39227	Standard
|	Ti	47	37.0	15.0				ug/L	34	Standard
|	V	51	1137.8	5.0				ug/L	1155	Standard
|	Cr	52	5523.3	2.7				ug/L	5602	Standard
|	Cr	53	1056.7	30.6				ug/L	1042	Standard
|	Mn	55	2366.5	1.7				ug/L	2370	Standard
|	Co	59	339.3	4.4				ug/L	381	Standard
|	Ni	60	265.7	3.9				ug/L	282	Standard
|	Cu	65	726.4	3.2				ug/L	707	Standard
|	Zn	66	463.3	5.8				ug/L	427	Standard
>	Ge	72	883705.2	2.5				ug/L	842801	Standard
|	As	75	-34.9	42.7				ug/L	-11	Standard
|	Se	82	18.5	3.5				ug/L	18	Standard
|	Se-1	77	115.3	16.4				ug/L	127	Standard
>	Ga	71	105.0	25.2				mg/L	92	Standard
|	Rb	85	28.3	10.2				ug/L	48	Standard
|	Y	89	614767.9	2.2				ug/L	587989	Standard
>	Rh	103	13.3	21.7				ug/L	8	Standard
|	Mo	98	22.2	10.0				ug/L	35	Standard
|	Ag	107	113.7	4.8				ug/L	121	Standard
|	Cd	111	6.6	48.5				mg/L	4	Standard
|	Cd	114	32.7	61.1				ug/L	27	Standard
>	In	115	723397.9	1.9				ug/L	702235	Standard
|	Sn	118	211.0	4.7				ug/L	180	Standard
|	Sb	123	33.3	4.2				ug/L	43	Standard
|	Ba	135	52.3	13.6				ug/L	50	Standard
|	Ce	140	33.3	17.3				ug/L	20	Standard
>	Tb	159	1082336.5	2.2				ug/L	1036041	Standard
|	Ho	165	10.0					ug/L	8	Standard
|	Tl	203	68.3	18.6				ug/L	87	Standard
|	Tl	205	158.3	30.0				ug/L	255	Standard
|	Pb	206	551.7	2.2				ug/L	523	Standard
|	Pb	207	467.0	2.8				ug/L	433	Standard
	Pb	208	542.0	5.3				ug/L	498	Standard
	U	238	3.0	57.7				ug/L	6	Standard
>	Bi	209	663628.7	2.1				ug/L	631806	Standard

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Na	23	0.0		mg/L	2	Standard
Mg	24	30.0	50.0	mg/L	27	Standard
K	39	15.0	66.7	mg/L	17	Standard
Ca	43	41.7	36.7	mg/L	47	Standard
Fe	54	21.2	59.2	mg/L	23	Standard
Fe	57	278.3	17.1	mg/L	253	Standard
Sc-1	45	41660.5	1.3	mg/L	39227	Standard
Cl	35	2.7	86.6	ug/L	1	Standard
Kr	83	3.3	17.3	ug/L	3	Standard
Br	81	2030.1	11.6	ug/L	2163	Standard
P	31	58.3	24.7	ug/L	57	Standard
S	34	26.7	108.3	ug/L	27	Standard
Sr	88	113.3	15.5	ug/L	125	Standard
C	12	16.7	124.9	mg/L	43	Standard
N	14	0.0		mg/L	0	Standard
Hg	202	3.3	173.2	mg/L	10	Standard
Dy	164	13.0	46.5	mg/L	9	Standard
Ho-1	165	10.0		mg/L	8	Standard
Er	166	6.7	86.6	mg/L	20	Standard
I	127	3505.4	7.6	mg/L	3535	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

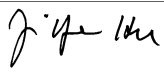
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: Standard 1

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Method 6020 - Summary Report

Sample ID: Standard 2

Sample Date/Time: Tuesday, April 04, 2017 11:37:54

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	302386.7	3.5				ug/L	302131	Standard
|	Be	9	123.3	29.9				ug/L	12	Standard
|	Al	27	9416.6	44.4				ug/L	907	Standard
|	Sc	45	40726.3	0.7				ug/L	39227	Standard
|	Ti	47	59.7	25.7				ug/L	34	Standard
|	V	51	1457.6	18.2				ug/L	1155	Standard
|	Cr	52	5860.5	1.1				ug/L	5602	Standard
|	Cr	53	1060.0	53.6				ug/L	1042	Standard
|	Mn	55	3122.3	14.8				ug/L	2370	Standard
|	Co	59	793.0	5.0				ug/L	381	Standard
|	Ni	60	364.7	6.9				ug/L	282	Standard
|	Cu	65	713.4	7.9				ug/L	707	Standard
|	Zn	66	481.7	5.7				ug/L	427	Standard
>	Ge	72	852172.4	2.3				ug/L	842801	Standard
|	As	75	4.8	618.9				ug/L	-11	Standard
|	Se	82	15.7	45.1				ug/L	18	Standard
|	Se-1	77	118.7	31.6				ug/L	127	Standard
>	Ga	71	65.0	23.1				mg/L	92	Standard
|	Rb	85	31.7	32.9				ug/L	48	Standard
|	Y	89	592456.3	2.7				ug/L	587989	Standard
>	Rh	103	8.3	91.7				ug/L	8	Standard
|	Mo	98	417.8	8.5				ug/L	35	Standard
|	Ag	107	474.0	17.2				ug/L	121	Standard
|	Cd	111	113.5	33.6				mg/L	4	Standard
|	Cd	114	346.4	17.3				ug/L	27	Standard
>	In	115	711147.6	1.6				ug/L	702235	Standard
|	Sn	118	258.0	18.1				ug/L	180	Standard
|	Sb	123	328.2	22.7				ug/L	43	Standard
|	Ba	135	169.7	26.4				ug/L	50	Standard
|	Ce	140	43.3	58.1				ug/L	20	Standard
>	Tb	159	1047036.2	0.4				ug/L	1036041	Standard
|	Ho	165	5.0	100.0				ug/L	8	Standard
|	Tl	203	586.7	28.2				ug/L	87	Standard
|	Tl	205	1275.1	31.6				ug/L	255	Standard
|	Pb	206	909.0	19.3				ug/L	523	Standard
|	Pb	207	740.7	11.3				ug/L	433	Standard
	Pb	208	848.3	5.3				ug/L	498	Standard
	U	238	294.3	33.4				ug/L	6	Standard
>	Bi	209	639550.6	1.1				ug/L	631806	Standard

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Na	23	1.7	173.2	mg/L	2	Standard
Mg	24	23.3	44.6	mg/L	27	Standard
K	39	10.0	86.6	mg/L	17	Standard
Ca	43	40.0	33.1	mg/L	47	Standard
Fe	54	34.9	49.3	mg/L	23	Standard
Fe	57	280.0	6.2	mg/L	253	Standard
Sc-1	45	40726.3	0.7	mg/L	39227	Standard
Cl	35	2.0	100.0	ug/L	1	Standard
Kr	83	2.3	137.8	ug/L	3	Standard
Br	81	2186.8	6.1	ug/L	2163	Standard
P	31	58.3	24.7	ug/L	57	Standard
S	34	26.7	39.0	ug/L	27	Standard
Sr	88	105.0	36.0	ug/L	125	Standard
C	12	30.0	88.2	mg/L	43	Standard
N	14	0.0		mg/L	0	Standard
Hg	202	0.0		mg/L	10	Standard
Dy	164	29.0	61.1	mg/L	9	Standard
Ho-1	165	5.0	100.0	mg/L	8	Standard
Er	166	20.0	86.6	mg/L	20	Standard
I	127	3485.4	11.1	mg/L	3535	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: Tuesday, April 04, 2017 11:41:00

Number of Replicates: 3

Autosampler Position: 3

Sample Description:

Method File: C:\NexIONData\Method\6020a.mth

Aliquot Volume (mL):

Diluted to Volume (mL):

User Name: JYH Nexion300X

Cumulative Autodilution Factor: 1

Nexion-ICP 200.8\6020

Concentration Results


IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	293584.2	3.5				ug/L	302131	Standard
|	Be	9	107949.9	1.9	50.0000	2.632	5.3	ug/L	12	Standard
|	Al	27	6878577.1	2.5	50.0000	1.413	2.8	ug/L	907	Standard
|	Sc	45	39608.4	1.1				ug/L	39227	Standard
|	Ti	47	20957.2	1.6	100.0000	2.754	2.8	ug/L	34	Standard
|	V	51	334637.8	1.9	50.0000	1.448	2.9	ug/L	1155	Standard
|	Cr	52	308324.4	0.9	50.0000	1.258	2.5	ug/L	5602	Standard
|	Cr	53	38564.0	2.7	50.0000	2.112	4.2	ug/L	1042	Standard
|	Mn	55	531891.2	1.7	50.0000	1.557	3.1	ug/L	2370	Standard
|	Co	59	404599.8	1.6	50.0000	1.726	3.5	ug/L	381	Standard
|	Ni	60	86171.4	1.4	50.0000	1.387	2.8	ug/L	282	Standard
|	Cu	65	90928.4	1.8	50.0000	1.381	2.8	ug/L	707	Standard
|	Zn	66	54114.5	1.7	50.0000	1.371	2.7	ug/L	427	Standard
>	Ge	72	819546.5	2.1				ug/L	842801	Standard
|	As	75	56054.4	2.1	50.0000	1.658	3.3	ug/L	-11	Standard
|	Se	82	5162.2	2.3	50.0000	1.779	3.6	ug/L	18	Standard
|	Se-1	77	3700.8	2.6	50.0000	2.349	4.7	ug/L	127	Standard
>	Ga	71	116.7	6.5				mg/L	92	Standard
|	Rb	85	311.7	10.9				ug/L	48	Standard
|	Y	89	579830.0	1.7				ug/L	587989	Standard
>	Rh	103	31.7	24.1				ug/L	8	Standard
|	Mo	98	360437.2	1.8	100.0000	2.804	2.8	ug/L	35	Standard
|	Ag	107	292650.3	0.6	50.0000	0.779	1.6	ug/L	121	Standard
|	Cd	111	82650.7	0.9	50.0000	0.919	1.8	mg/L	4	Standard
|	Cd	114	211914.8	0.9	50.0000	0.883	1.8	ug/L	27	Standard
>	In	115	686910.1	1.0				ug/L	702235	Standard
|	Sn	118	46066.3	2.3	50.0000	1.649	3.3	ug/L	180	Standard
|	Sb	123	215045.0	1.0	50.0000	0.964	1.9	ug/L	43	Standard
|	Ba	135	82537.2	1.5	50.0000	1.220	2.4	ug/L	50	Standard
|	Ce	140	260.0	13.3				ug/L	20	Standard
>	Tb	159	1033970.8	1.7				ug/L	1036041	Standard
|	Ho	165	13.3	142.0				ug/L	8	Standard
|	Tl	203	347507.6	1.6	50.0000	1.288	2.6	ug/L	87	Standard
|	Tl	205	851695.6	1.2	50.0000	0.907	1.8	ug/L	255	Standard
|	Pb	206	281359.5	1.6	50.0000	1.297	2.6	ug/L	523	Standard
|	Pb	207	255057.6	1.7	50.0000	1.458	2.9	ug/L	433	Standard
|	Pb	208	289181.1	0.9	50.0000	1.333	2.7	ug/L	498	Standard
	U	238	235845.2	1.2	50.0000	1.201	2.4	ug/L	6	Standard
>	Bi	209	636639.9	2.5				ug/L	631806	Standard

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Na	23	18.3	83.3	5.0000	4.521	90.4	mg/L	2	Standard
Mg	24	298.3	20.8	5.0000	1.189	23.8	mg/L	27	Standard
K	39	485.0	12.7	5.0000	0.625	12.5	mg/L	17	Standard
Ca	43	45.0	11.1	5.0000	3.884	77.7	mg/L	47	Standard
Fe	54	724.6	9.7	5.0000	0.490	9.8	mg/L	23	Standard
Fe	57	453.3	6.3	5.0000	0.665	13.3	mg/L	253	Standard
Sc-1	45	39608.4	1.1				mg/L	39227	Standard
Cl	35	5.3	86.6				ug/L	1	Standard
Kr	83	3.0	33.3				ug/L	3	Standard
Br	81	2133.5	12.1				ug/L	2163	Standard
P	31	48.3	15.8				ug/L	57	Standard
S	34	28.3	27.0				ug/L	27	Standard
Sr	88	146.7	11.0				ug/L	125	Standard
C	12	23.3	99.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	16.3	92.9				mg/L	9	Standard
Ho-1	165	13.3	142.0				mg/L	8	Standard
Er	166	6.7	173.2				mg/L	20	Standard
I	127	2935.3	9.9				mg/L	3535	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: Tuesday, April 04, 2017 11:44:05

Number of Replicates: 3

Autosampler Position: 4

Sample Description:

Method File: C:\NexIONData\Method\6020a.mth

Aliquot Volume (mL):

Diluted to Volume (mL):

User Name: JYH Nexion300X

Cumulative Autodilution Factor: 1

Nexion-ICP 200.8\6020

Concentration Results


IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	297569.1	1.5				ug/L	302131	Standard
|	Be	9	210186.4	1.5	97.9365	2.152	2.2	ug/L	12	Standard
|	Al	27	13470178.7	2.2	98.2650	2.589	2.6	ug/L	907	Standard
|	Sc	45	40031.2	3.4				ug/L	39227	Standard
|	Ti	47	40773.1	1.6	195.7087	2.252	1.2	ug/L	34	Standard
|	V	51	649784.9	1.2	97.7962	1.692	1.7	ug/L	1155	Standard
|	Cr	52	597338.9	1.3	98.0223	1.675	1.7	ug/L	5602	Standard
|	Cr	53	75548.0	2.9	98.7751	2.285	2.3	ug/L	1042	Standard
|	Mn	55	1042014.5	0.6	98.2732	1.425	1.5	ug/L	2370	Standard
|	Co	59	790822.7	0.9	98.0615	1.267	1.3	ug/L	381	Standard
|	Ni	60	169184.4	1.0	98.3439	1.306	1.3	ug/L	282	Standard
|	Cu	65	177970.0	1.7	98.2804	2.559	2.6	ug/L	707	Standard
|	Zn	66	107888.5	1.8	99.2267	2.200	2.2	ug/L	427	Standard
>	Ge	72	832683.7	1.6				ug/L	842801	Standard
|	As	75	112060.9	0.5	99.1510	1.590	1.6	ug/L	-11	Standard
|	Se	82	10172.2	1.6	98.4917	0.928	0.9	ug/L	18	Standard
|	Se-1	77	7232.1	1.7	98.7626	2.438	2.5	ug/L	127	Standard
>	Ga	71	165.0	13.2				mg/L	92	Standard
|	Rb	85	625.0	14.7				ug/L	48	Standard
|	Y	89	576386.1	1.0				ug/L	587989	Standard
>	Rh	103	36.7	31.5				ug/L	8	Standard
|	Mo	98	689055.4	0.2	196.0189	1.951	1.0	ug/L	35	Standard
|	Ag	107	564350.5	0.5	98.4594	1.245	1.3	ug/L	121	Standard
|	Cd	111	160436.8	0.5	98.7832	1.590	1.6	mg/L	4	Standard
|	Cd	114	412229.9	1.0	98.8964	1.886	1.9	ug/L	27	Standard
>	In	115	683238.9	1.1				ug/L	702235	Standard
|	Sn	118	88782.0	0.6	98.5157	0.808	0.8	ug/L	180	Standard
|	Sb	123	424582.4	1.2	99.6378	2.308	2.3	ug/L	43	Standard
|	Ba	135	162220.8	0.3	99.4180	1.374	1.4	ug/L	50	Standard
|	Ce	140	461.7	5.6				ug/L	20	Standard
>	Tb	159	1036209.8	0.9				ug/L	1036041	Standard
|	Ho	165	45.0	11.1				ug/L	8	Standard
|	Tl	203	680797.1	0.4	98.9760	1.262	1.3	ug/L	87	Standard
|	Tl	205	1644300.0	0.9	98.2407	0.676	0.7	ug/L	255	Standard
|	Pb	206	552890.7	0.8	99.1632	0.531	0.5	ug/L	523	Standard
|	Pb	207	497419.9	1.2	98.7726	0.658	0.7	ug/L	433	Standard
|	Pb	208	570299.3	1.0	99.3318	0.857	0.9	ug/L	498	Standard
	U	238	464238.4	1.7	99.1969	1.110	1.1	ug/L	6	Standard
>	Bi	209	636588.8	1.4				ug/L	631806	Standard

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Na	23	21.7	48.0	7.5133	4.084	54.4	mg/L	2	Standard
Mg	24	533.3	2.4	9.5540	0.257	2.7	mg/L	27	Standard
K	39	851.7	3.2	9.3457	0.518	5.5	mg/L	17	Standard
Ca	43	51.7	31.1	10.1858	14.419	141.6	mg/L	47	Standard
Fe	54	1476.9	3.9	10.1636	0.411	4.0	mg/L	23	Standard
Fe	57	628.3	6.9	9.8447	1.808	18.4	mg/L	253	Standard
Sc-1	45	40031.2	3.4				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.0	86.6				ug/L	3	Standard
Br	81	1993.5	7.9				ug/L	2163	Standard
P	31	70.0	37.1				ug/L	57	Standard
S	34	23.3	61.9				ug/L	27	Standard
Sr	88	116.7	13.8				ug/L	125	Standard
C	12	70.0	24.7				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	12.1	51.6				mg/L	9	Standard
Ho-1	165	45.0	11.1				mg/L	8	Standard
Er	166	26.7	114.6				mg/L	20	Standard
I	127	3053.6	19.8				mg/L	3535	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.	Na	23	Correlation coefficient < 0.998
Corr. Coef.	K	39	Correlation coefficient < 0.998

Sample ID: Standard 4

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Method 6020 - Summary Report

Sample ID: QC Std 1

Sample Date/Time: Tuesday, April 04, 2017 11:47:12

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	297205.5	1.7				ug/L	302131	Standard
|	Be	9	109611.8	1.4	51.1345	1.147	2.2	ug/L	12	Standard
|	Al	27	6824593.6	0.8	49.8417	1.029	2.1	ug/L	907	Standard
|	Sc	45	39570.0	2.2				ug/L	39227	Standard
|	Ti	47	20637.0	0.6	99.7018	2.894	2.9	ug/L	34	Standard
|	V	51	330989.5	0.4	50.1006	1.470	2.9	ug/L	1155	Standard
|	Cr	52	307656.2	0.3	50.4192	1.220	2.4	ug/L	5602	Standard
|	Cr	53	38572.4	1.0	50.1631	1.662	3.3	ug/L	1042	Standard
|	Mn	55	530654.8	0.4	50.2915	1.205	2.4	ug/L	2370	Standard
|	Co	59	402251.7	0.3	50.2188	1.229	2.4	ug/L	381	Standard
|	Ni	60	85752.6	0.4	50.1311	1.180	2.4	ug/L	282	Standard
|	Cu	65	90530.3	1.1	50.1821	0.967	1.9	ug/L	707	Standard
|	Zn	66	54474.4	1.0	50.2740	1.306	2.6	ug/L	427	Standard
>	Ge	72	826942.8	2.7				ug/L	842801	Standard
|	As	75	56457.1	0.8	50.3359	1.264	2.5	ug/L	-11	Standard
|	Se	82	5203.8	0.3	50.7128	1.519	3.0	ug/L	18	Standard
|	Se-1	77	3740.8	0.3	50.7016	1.242	2.5	ug/L	127	Standard
>	Ga	71	110.0	16.4				mg/L	92	Standard
|	Rb	85	768.4	5.1				ug/L	48	Standard
|	Y	89	580949.8	0.3				ug/L	587989	Standard
>	Rh	103	36.7	7.9				ug/L	8	Standard
|	Mo	98	345395.6	0.8	97.8488	2.230	2.3	ug/L	35	Standard
|	Ag	107	287715.8	0.5	49.9751	0.998	2.0	ug/L	121	Standard
|	Cd	111	80999.8	0.3	49.6562	0.900	1.8	mg/L	4	Standard
|	Cd	114	208596.6	0.7	49.8145	0.403	0.8	ug/L	27	Standard
>	In	115	686139.1	1.5				ug/L	702235	Standard
|	Sn	118	45397.6	0.9	50.0557	0.872	1.7	ug/L	180	Standard
|	Sb	123	213548.0	0.3	49.8904	0.902	1.8	ug/L	43	Standard
|	Ba	135	81534.8	0.7	49.7346	0.781	1.6	ug/L	50	Standard
|	Ce	140	70.0	31.1				ug/L	20	Standard
>	Tb	159	1027734.0	0.9				ug/L	1036041	Standard
|	Ho	165	26.7	21.7				ug/L	8	Standard
|	Tl	203	347995.0	0.4	50.3049	0.550	1.1	ug/L	87	Standard
|	Tl	205	846900.8	1.2	50.3211	0.935	1.9	ug/L	255	Standard
|	Pb	206	281625.3	0.7	50.1891	0.673	1.3	ug/L	523	Standard
|	Pb	207	255806.7	0.2	50.4805	0.432	0.9	ug/L	433	Standard
|	Pb	208	289491.1	0.5	50.1076	0.587	1.2	ug/L	498	Standard
	U	238	237805.4	0.7	50.5417	0.698	1.4	ug/L	6	Standard
>	Bi	209	639968.3	0.7				ug/L	631806	Standard

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Na	23	6.7	43.3	1.9013	1.089	57.3	mg/L	2	Standard
Mg	24	276.7	8.9	4.8113	0.480	10.0	mg/L	27	Standard
K	39	488.3	15.1	5.3653	0.762	14.2	mg/L	17	Standard
Ca	43	46.7	12.4	6.2751	4.118	65.6	mg/L	47	Standard
Fe	54	785.9	4.4	5.3624	0.285	5.3	mg/L	23	Standard
Fe	57	495.0	9.9	6.2485	1.078	17.3	mg/L	253	Standard
Sc-1	45	39570.0	2.2				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	3.0	57.7				ug/L	3	Standard
Br	81	1990.1	6.1				ug/L	2163	Standard
P	31	58.3	21.6				ug/L	57	Standard
S	34	28.3	53.9				ug/L	27	Standard
Sr	88	140.0	16.4				ug/L	125	Standard
C	12	63.3	79.5				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	6.0	87.0				mg/L	9	Standard
Ho-1	165	26.7	21.7				mg/L	8	Standard
Er	166	13.3	114.6				mg/L	20	Standard
I	127	5125.9	1.1				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	102.269		
Al	27	99.683		
Sc	45			
Ti	47	99.702		
V	51	100.201		
Cr	52	100.838		
Cr	53			
Mn	55	100.583		
Co	59	100.438		
Ni	60	100.262		
Cu	65	100.364		
Zn	66	100.548		
Ge	72		98.118	
As	75	100.672		
Se	82	101.426		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	97.849	
[Ag	107	99.950	
[Cd	111	99.312	
[Cd	114		
>	In	115		97.708
[Sn	118	100.111	
[	Sb	123	99.781	
[	Ba	135	99.469	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.610	
[	Tl	205		
[	Pb	206	100.378	
[	Pb	207	100.961	
[	Pb	208	100.215	
[	U	238	101.083	
>	Bi	209		101.292
[	Na	23	38.026	
[	Mg	24	96.226	
[	K	39	107.305	
[	Ca	43	125.501	
[	Fe	54	107.249	
[	Fe	57	124.971	
>	Sc-1	45		
[	Cl	35		
[	Kr	83		
[	Br	81		
[	P	31		
[	S	34		
[	Sr	88		
[	C	12		
[	N	14		
[	Hg	202		
[	Dy	164		
[	Ho-1	165		
[	Er	166		
[	I	127		

QC Out of Limits


Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 1	Na	23	
QC Std 1	Ca	43	
QC Std 1	Fe	57	

Sample ID: QC Std 1

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Method 6020 - Summary Report

Sample ID: QC Std 2

Sample Date/Time: Tuesday, April 04, 2017 11:50:19

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	299621.5	2.7				ug/L	302131	Standard
|	Be	9	51.7	29.6	0.0172	0.007	43.6	ug/L	12	Standard
|	Al	27	1966.8	52.1	-0.0036	0.008	211.7	ug/L	907	Standard
|	Sc	45	39859.0	2.2				ug/L	39227	Standard
|	Ti	47	41.0	23.5	0.0186	0.047	250.1	ug/L	34	Standard
|	V	51	1000.7	3.8	-0.0125	0.003	27.0	ug/L	1155	Standard
|	Cr	52	4582.7	2.5	-0.1353	0.018	13.5	ug/L	5602	Standard
|	Cr	53	613.3	5.9	-0.5154	0.062	12.0	ug/L	1042	Standard
|	Mn	55	2127.8	4.2	-0.0368	0.008	20.5	ug/L	2370	Standard
|	Co	59	391.7	16.5	0.0026	0.007	289.1	ug/L	381	Standard
|	Ni	60	252.7	9.1	-0.0096	0.011	114.2	ug/L	282	Standard
|	Cu	65	770.7	11.6	0.0930	0.045	48.2	ug/L	707	Standard
|	Zn	66	394.0	4.0	-0.0188	0.014	75.2	ug/L	427	Standard
>	Ge	72	827953.2	1.7				ug/L	842801	Standard
|	As	75	5.4	326.8	0.0505	0.016	31.4	ug/L	-11	Standard
|	Se	82	16.4	56.7	0.0604	0.090	149.4	ug/L	18	Standard
|	Se-1	77	82.3	22.3	-0.4149	0.277	66.8	ug/L	127	Standard
>	Ga	71	66.7	26.3				mg/L	92	Standard
|	Rb	85	25.0	20.0				ug/L	48	Standard
|	Y	89	580406.8	0.9				ug/L	587989	Standard
>	Rh	103	6.7	86.6				ug/L	8	Standard
|	Mo	98	242.4	16.0	0.0534	0.010	19.0	ug/L	35	Standard
|	Ag	107	173.7	27.0	0.0003	0.008	2535.0	ug/L	121	Standard
|	Cd	111	15.7	83.3	-0.0077	0.008	103.1	mg/L	4	Standard
|	Cd	114	72.8	55.5	-0.0127	0.009	74.8	ug/L	27	Standard
>	In	115	695010.6	1.6				ug/L	702235	Standard
|	Sn	118	269.0	10.3	0.0686	0.034	49.2	ug/L	180	Standard
|	Sb	123	508.3	5.9	0.0933	0.008	8.9	ug/L	43	Standard
|	Ba	135	72.7	21.4	-0.0062	0.010	153.7	ug/L	50	Standard
|	Ce	140	28.3	20.4				ug/L	20	Standard
>	Tb	159	1030815.5	1.6				ug/L	1036041	Standard
|	Ho	165	11.7	65.5				ug/L	8	Standard
|	Tl	203	182.0	17.8	-0.0087	0.005	57.7	ug/L	87	Standard
|	Tl	205	431.7	9.4	-0.0003	0.003	868.3	ug/L	255	Standard
|	Pb	206	1142.0	7.7	0.0903	0.018	20.2	ug/L	523	Standard
|	Pb	207	931.4	5.0	0.0864	0.008	9.8	ug/L	433	Standard
|	Pb	208	1089.7	7.2	0.0905	0.014	15.9	ug/L	498	Standard
	U	238	62.3	43.2	0.0006	0.006	1014.3	ug/L	6	Standard
>	Bi	209	644441.8	1.7				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0318	1.091	3427.5	mg/L	2	Standard
Mg	24	10.0	50.0	-0.2372	0.094	39.8	mg/L	27	Standard
K	39	10.0	86.6	0.0071	0.096	1355.4	mg/L	17	Standard
Ca	43	41.7	48.5	1.8586	15.807	850.5	mg/L	47	Standard
Fe	54	23.0	62.7	-0.0730	0.103	141.6	mg/L	23	Standard
Fe	57	288.3	14.1	0.4133	1.219	295.0	mg/L	253	Standard
Sc-1	45	39859.0	2.2				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	3.3	45.8				ug/L	3	Standard
Br	81	2046.8	5.1				ug/L	2163	Standard
P	31	55.0	24.1				ug/L	57	Standard
S	34	21.7	70.5				ug/L	27	Standard
Sr	88	131.7	36.5				ug/L	125	Standard
C	12	20.0	50.0				mg/L	43	Standard
N	14	6.7	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	6.0	93.6				mg/L	9	Standard
Ho-1	165	11.7	65.5				mg/L	8	Standard
Er	166	13.3	43.3				mg/L	20	Standard
I	127	3382.0	12.3				mg/L	3535	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		98.238	
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	98.971
[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	102.000
[	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

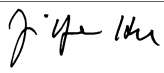
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 2	Mg	24	
QC Std 2	Ca	43	
QC Std 2	Fe	57	

Sample ID: QC Std 2

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Method 6020 - Summary Report

Sample ID: QC Std 3

Sample Date/Time: Tuesday, April 04, 2017 11:53:26

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	293099.6	1.0				ug/L	302131	Standard
|	Be	9	403.3	10.5	0.1841	0.022	11.9	ug/L	12	Standard
|	Al	27	960.0	33.9	-0.0108	0.002	22.5	ug/L	907	Standard
|	Sc	45	39361.1	4.2				ug/L	39227	Standard
|	Ti	47	29.0	21.5	-0.0390	0.028	71.5	ug/L	34	Standard
|	V	51	3385.4	4.8	0.3520	0.032	9.0	ug/L	1155	Standard
|	Cr	52	10297.8	2.0	0.8260	0.061	7.4	ug/L	5602	Standard
|	Cr	53	1370.1	6.1	0.5014	0.095	18.9	ug/L	1042	Standard
|	Mn	55	6718.8	3.5	0.4032	0.030	7.4	ug/L	2370	Standard
|	Co	59	3260.7	4.5	0.3628	0.023	6.3	ug/L	381	Standard
|	Ni	60	2823.3	5.7	1.5049	0.109	7.2	ug/L	282	Standard
|	Cu	65	1956.8	1.9	0.7602	0.032	4.2	ug/L	707	Standard
|	Zn	66	6929.9	1.1	6.0843	0.160	2.6	ug/L	427	Standard
>	Ge	72	823669.9	1.6				ug/L	842801	Standard
|	As	75	423.5	1.3	0.4245	0.010	2.2	ug/L	-11	Standard
|	Se	82	51.6	3.8	0.4062	0.019	4.7	ug/L	18	Standard
|	Se-1	77	125.0	17.9	0.1873	0.323	172.6	ug/L	127	Standard
>	Ga	71	78.3	19.5				mg/L	92	Standard
|	Rb	85	41.7	42.1				ug/L	48	Standard
|	Y	89	573975.6	3.3				ug/L	587989	Standard
>	Rh	103	5.0	100.0				ug/L	8	Standard
|	Mo	98	142.4	82.3	0.0263	0.034	128.3	ug/L	35	Standard
|	Ag	107	2308.8	5.4	0.3730	0.028	7.5	ug/L	121	Standard
|	Cd	111	364.5	5.8	0.2069	0.015	7.3	mg/L	4	Standard
|	Cd	114	992.8	9.3	0.2083	0.026	12.7	ug/L	27	Standard
>	In	115	684480.6	2.0				ug/L	702235	Standard
|	Sn	118	208.7	4.3	0.0061	0.014	236.0	ug/L	180	Standard
|	Sb	123	1835.0	5.2	0.4063	0.031	7.5	ug/L	43	Standard
|	Ba	135	1227.4	3.2	0.7014	0.031	4.4	ug/L	50	Standard
|	Ce	140	21.7	35.3				ug/L	20	Standard
>	Tb	159	1017160.2	1.6				ug/L	1036041	Standard
|	Ho	165	15.0	88.2				ug/L	8	Standard
|	Tl	203	630.7	7.0	0.0567	0.008	14.4	ug/L	87	Standard
|	Tl	205	1608.4	17.0	0.0703	0.018	25.5	ug/L	255	Standard
|	Pb	206	1661.1	6.1	0.1855	0.024	12.9	ug/L	523	Standard
|	Pb	207	1376.7	0.9	0.1767	0.007	3.7	ug/L	433	Standard
|	Pb	208	1588.4	3.3	0.1792	0.013	7.2	ug/L	498	Standard
	U	238	1755.8	3.7	0.3621	0.020	5.5	ug/L	6	Standard
>	Bi	209	637938.8	2.4				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0233	1.076	4613.3	mg/L	2	Standard
Mg	24	25.0	20.0	0.0494	0.084	170.6	mg/L	27	Standard
K	39	25.0	20.0	0.1788	0.060	33.4	mg/L	17	Standard
Ca	43	45.0	11.1	5.2326	4.696	89.7	mg/L	47	Standard
Fe	54	17.9	33.6	-0.1083	0.039	35.6	mg/L	23	Standard
Fe	57	273.3	20.2	0.0580	1.363	2348.8	mg/L	253	Standard
Sc-1	45	39361.1	4.2				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.3	114.6				ug/L	3	Standard
Br	81	1953.5	3.1				ug/L	2163	Standard
P	31	61.7	23.4				ug/L	57	Standard
S	34	26.7	10.8				ug/L	27	Standard
Sr	88	120.0	39.7				ug/L	125	Standard
C	12	46.7	81.1				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	15.1	37.4				mg/L	9	Standard
Ho-1	165	15.0	88.2				mg/L	8	Standard
Er	166	33.3	17.3				mg/L	20	Standard
I	127	3443.7	8.0				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	92.065		
Al	27	-1.075		
Sc	45			
Ti	47			
V	51	88.003		
Cr	52	103.249		
Cr	53			
Mn	55	80.638		
Co	59	90.712		
Ni	60	94.054		
Cu	65	95.024		
Zn	66	97.349		
Ge	72		97.730	
As	75	106.137		
Se	82	101.543		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98		
	Ag	107	93.251	
	Cd	111	86.219	
	Cd	114		
>	In	115		97.472
	Sn	118		
	Sb	123	101.571	
[	Ba	135	93.517	
[	Ce	140		
>	Tb	159		
[	Ho	165		
	Tl	203	70.894	
	Tl	205		
	Pb	206		
	Pb	207		
	Pb	208	89.625	
	U	238	90.516	
>	Bi	209		100.971
[	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

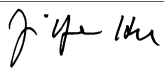
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 3	Al	27	

Sample ID: QC Std 3

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Method 6020 - Summary Report

Sample ID: QC Std 4

Sample Date/Time: Tuesday, April 04, 2017 11:56:39

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	292593.8	1.9				ug/L	302131	Standard
|	Be	9	25.0	52.9	0.0051	0.006	126.0	ug/L	12	Standard
|	Al	27	6406657.0	2.0	47.5153	0.168	0.4	ug/L	907	Standard
|	Sc	45	39342.7	0.8				ug/L	39227	Standard
|	Ti	47	19365.4	1.6	95.6235	1.952	2.0	ug/L	34	Standard
|	V	51	1060.3	3.1	0.0004	0.006	1394.6	ug/L	1155	Standard
|	Cr	52	6615.8	1.7	0.2296	0.024	10.6	ug/L	5602	Standard
|	Cr	53	786.7	5.4	-0.2602	0.053	20.4	ug/L	1042	Standard
|	Mn	55	4588.0	2.1	0.2075	0.010	4.9	ug/L	2370	Standard
|	Co	59	730.4	3.4	0.0471	0.004	7.6	ug/L	381	Standard
|	Ni	60	605.0	3.0	0.2053	0.012	5.8	ug/L	282	Standard
|	Cu	65	915.0	4.3	0.1860	0.023	12.3	ug/L	707	Standard
|	Zn	66	1113.0	1.7	0.6735	0.023	3.4	ug/L	427	Standard
>	Ge	72	808654.8	0.5				ug/L	842801	Standard
|	As	75	-7.3	283.5	0.0392	0.019	48.0	ug/L	-11	Standard
|	Se	82	17.0	19.0	0.0704	0.033	46.8	ug/L	18	Standard
|	Se-1	77	84.7	17.8	-0.3568	0.219	61.3	ug/L	127	Standard
>	Ga	71	66.7	31.2				mg/L	92	Standard
|	Rb	85	723.4	7.5				ug/L	48	Standard
|	Y	89	572751.2	1.5				ug/L	587989	Standard
>	Rh	103	10.0	100.0				ug/L	8	Standard
|	Mo	98	324748.5	0.9	94.2764	1.302	1.4	ug/L	35	Standard
|	Ag	107	115.3	1.0	-0.0089	0.000	1.5	ug/L	121	Standard
|	Cd	111	-154.9	4.5	-0.1146	0.004	3.4	mg/L	4	Standard
|	Cd	114	555.2	15.6	0.1061	0.021	19.6	ug/L	27	Standard
>	In	115	669441.7	0.5				ug/L	702235	Standard
|	Sn	118	240.7	9.0	0.0474	0.025	53.0	ug/L	180	Standard
|	Sb	123	307.1	7.8	0.0495	0.005	10.7	ug/L	43	Standard
|	Ba	135	57.7	2.0	-0.0139	0.001	5.4	ug/L	50	Standard
|	Ce	140	820.0	12.2				ug/L	20	Standard
>	Tb	159	1021703.8	1.1				ug/L	1036041	Standard
|	Ho	165	10.0	50.0				ug/L	8	Standard
|	Tl	203	75.0	19.7	-0.0238	0.002	9.1	ug/L	87	Standard
|	Tl	205	153.3	21.7	-0.0165	0.002	12.1	ug/L	255	Standard
|	Pb	206	611.3	6.4	-0.0006	0.007	1159.9	ug/L	523	Standard
|	Pb	207	527.7	0.4	0.0104	0.001	13.1	ug/L	433	Standard
|	Pb	208	603.3	5.3	0.0099	0.005	49.8	ug/L	498	Standard
	U	238	8.7	37.1	-0.0107	0.001	6.4	ug/L	6	Standard
>	Bi	209	624701.8	0.9				ug/L	631806	Standard

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Na	23	15.0	33.3	5.0631	1.929	38.1	mg/L	2	Standard
Mg	24	606.7	1.7	11.1200	0.200	1.8	mg/L	27	Standard
K	39	335.0	10.4	3.6725	0.373	10.2	mg/L	17	Standard
Ca	43	66.7	35.4	22.9038	19.244	84.0	mg/L	47	Standard
Fe	54	1769.7	7.2	12.4432	1.007	8.1	mg/L	23	Standard
Fe	57	736.7	11.6	13.1635	2.361	17.9	mg/L	253	Standard
Sc-1	45	39342.7	0.8				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	3.7	56.8				ug/L	3	Standard
Br	81	1966.8	3.8				ug/L	2163	Standard
P	31	48.3	33.3				ug/L	57	Standard
S	34	28.3	56.7				ug/L	27	Standard
Sr	88	120.0	11.0				ug/L	125	Standard
C	12	36.7	15.7				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	12.5	96.5				mg/L	9	Standard
Ho-1	165	10.0	50.0				mg/L	8	Standard
Er	166	16.7	69.3				mg/L	20	Standard
I	127	2873.6	8.8				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27	0.950		
Sc	45			
Ti	47	95.623		
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72		95.948	
As	75			
Se	82			
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	94.276	
[Ag	107		
[Cd	111		
[Cd	114		
>	In	115		95.330
[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		98.876
[	Na	23	40.505	
[	Mg	24	222.401	
[	K	39	73.450	
[	Ca	43	152.692	
[	Fe	54	99.545	
[	Fe	57	105.308	
>	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	Na	23	
QC Std 4	Mg	24	

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QC Std 4	K	39
QC Std 4	Ca	43

Sample ID: QC Std 4
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Method 6020 - Summary Report

Sample ID: QC Std 5

Sample Date/Time: Tuesday, April 04, 2017 11:59:45

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	304783.8	1.6				ug/L	302131	Standard
|	Be	9	208518.4	0.8	94.8569	1.400	1.5	ug/L	12	Standard
|	Al	27	6288394.2	1.4	44.7871	1.376	3.1	ug/L	907	Standard
|	Sc	45	39981.0	2.0				ug/L	39227	Standard
|	Ti	47	21310.0	1.0	102.1326	1.848	1.8	ug/L	34	Standard
|	V	51	627124.3	0.4	94.3019	0.687	0.7	ug/L	1155	Standard
|	Cr	52	578524.3	0.3	94.8294	0.718	0.8	ug/L	5602	Standard
|	Cr	53	73049.0	1.5	95.4097	2.317	2.4	ug/L	1042	Standard
|	Mn	55	1008327.3	1.0	95.0106	1.241	1.3	ug/L	2370	Standard
|	Co	59	764144.5	1.1	94.6743	0.998	1.1	ug/L	381	Standard
|	Ni	60	162438.8	1.1	94.3390	0.839	0.9	ug/L	282	Standard
|	Cu	65	171180.4	1.5	94.4339	1.692	1.8	ug/L	707	Standard
|	Zn	66	106872.6	1.0	98.2107	1.557	1.6	ug/L	427	Standard
>	Ge	72	833284.1	0.9				ug/L	842801	Standard
|	As	75	109116.0	1.1	96.4625	0.921	1.0	ug/L	-11	Standard
|	Se	82	9835.0	0.2	95.1573	0.997	1.0	ug/L	18	Standard
|	Se-1	77	7167.0	1.1	97.7716	0.888	0.9	ug/L	127	Standard
>	Ga	71	151.7	5.0				mg/L	92	Standard
|	Rb	85	731.7	8.9				ug/L	48	Standard
|	Y	89	588716.2	0.4				ug/L	587989	Standard
>	Rh	103	31.7	45.6				ug/L	8	Standard
|	Mo	98	334260.2	1.2	94.4368	1.075	1.1	ug/L	35	Standard
|	Ag	107	451626.8	18.1	78.2452	14.049	18.0	ug/L	121	Standard
|	Cd	111	155731.2	1.0	95.2317	0.947	1.0	mg/L	4	Standard
|	Cd	114	388070.0	1.1	92.4617	0.854	0.9	ug/L	27	Standard
>	In	115	687849.9	0.5				ug/L	702235	Standard
|	Sn	118	471.7	4.3	0.2954	0.025	8.5	ug/L	180	Standard
|	Sb	123	417442.0	1.8	97.2943	2.149	2.2	ug/L	43	Standard
|	Ba	135	157470.7	0.3	95.8506	0.765	0.8	ug/L	50	Standard
|	Ce	140	85.0	27.0				ug/L	20	Standard
>	Tb	159	1050695.2	0.4				ug/L	1036041	Standard
|	Ho	165	38.3	41.9				ug/L	8	Standard
|	Tl	203	674434.3	1.8	96.2329	0.896	0.9	ug/L	87	Standard
|	Tl	205	1646785.9	1.2	96.5745	0.136	0.1	ug/L	255	Standard
|	Pb	206	555011.9	1.8	97.7088	1.594	1.6	ug/L	523	Standard
|	Pb	207	497801.8	1.1	97.0293	0.939	1.0	ug/L	433	Standard
|	Pb	208	562486.6	1.2	96.1648	1.010	1.1	ug/L	498	Standard
	U	238	468413.7	2.5	98.2417	1.809	1.8	ug/L	6	Standard
>	Bi	209	648510.2	1.1				ug/L	631806	Standard

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Na	23	16.7	34.6	5.5751	2.121	38.0	mg/L	2	Standard
Mg	24	665.0	8.7	12.0283	1.070	8.9	mg/L	27	Standard
K	39	356.7	10.3	3.8601	0.476	12.3	mg/L	17	Standard
Ca	43	76.7	39.8	30.0987	24.779	82.3	mg/L	47	Standard
Fe	54	1714.9	6.0	11.8519	0.742	6.3	mg/L	23	Standard
Fe	57	745.0	4.7	13.0643	0.804	6.2	mg/L	253	Standard
Sc-1	45	39981.0	2.0				mg/L	39227	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	1.3	173.2				ug/L	3	Standard
Br	81	2000.1	4.3				ug/L	2163	Standard
P	31	41.7	30.2				ug/L	57	Standard
S	34	28.3	27.0				ug/L	27	Standard
Sr	88	130.0	6.7				ug/L	125	Standard
C	12	70.0	28.6				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	30.0	88.2				mg/L	10	Standard
Dy	164	29.0	36.1				mg/L	9	Standard
Ho-1	165	38.3	41.9				mg/L	8	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	8426.4	70.1				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	94.857		
Al	27	0.896		
Sc	45			
Ti	47	102.133		
V	51	94.302		
Cr	52	94.829		
Cr	53			
Mn	55	95.011		
Co	59	94.674		
Ni	60	94.339		
Cu	65	94.434		
Zn	66	98.211		
Ge	72		98.871	
As	75	96.462		
Se	82	95.157		
Se-1	77			
Ga	71			

Sample ID: QC Std 5

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	94.437	
[Ag	107	78.245	
[Cd	111	95.232	
[Cd	114		
>	In	115		97.952
[Sn	118		
[	Sb	123	97.294	
[	Ba	135	95.851	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	96.233	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	96.165	
[	U	238	98.242	
>	Bi	209		102.644
[	Na	23	44.601	
[	Mg	24	240.567	
[	K	39	77.201	
[	Ca	43	200.658	
[	Fe	54	94.815	
[	Fe	57	104.514	
>	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

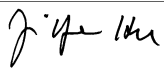
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Ag	107	
QC Std 5	Na	23	

Sample ID: QC Std 5

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QC Std 5	Mg	24
QC Std 5	K	39
QC Std 5	Ca	43

Sample ID: QC Std 5

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Method 6020 - Summary Report

Sample ID: QC Std 5

Sample Date/Time: Tuesday, April 04, 2017 12:07:34

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	301593.5	2.7				ug/L	302131	Standard
|	Be	9	207959.1	0.5	95.6424	2.931	3.1	ug/L	12	Standard
|	Al	27	6094602.8	1.4	43.8698	1.212	2.8	ug/L	907	Standard
|	Sc	45	39085.4	2.7				ug/L	39227	Standard
|	Ti	47	20010.2	0.5	96.0766	1.095	1.1	ug/L	34	Standard
|	V	51	615908.7	0.4	92.7975	1.143	1.2	ug/L	1155	Standard
|	Cr	52	565986.0	0.6	92.9365	0.418	0.4	ug/L	5602	Standard
|	Cr	53	72122.9	1.2	94.3675	1.850	2.0	ug/L	1042	Standard
|	Mn	55	992840.9	0.6	93.7305	0.802	0.9	ug/L	2370	Standard
|	Co	59	749840.6	0.6	93.0849	0.731	0.8	ug/L	381	Standard
|	Ni	60	160684.6	1.1	93.5041	1.203	1.3	ug/L	282	Standard
|	Cu	65	170189.5	0.9	94.0713	1.339	1.4	ug/L	707	Standard
|	Zn	66	106081.7	0.7	97.6722	1.281	1.3	ug/L	427	Standard
>	Ge	72	831651.9	0.8				ug/L	842801	Standard
|	As	75	108302.9	0.5	95.9345	0.836	0.9	ug/L	-11	Standard
|	Se	82	9817.9	0.7	95.1813	1.485	1.6	ug/L	18	Standard
|	Se-1	77	7106.7	0.5	97.1337	1.247	1.3	ug/L	127	Standard
>	Ga	71	171.7	6.1				mg/L	92	Standard
|	Rb	85	748.4	12.5				ug/L	48	Standard
|	Y	89	588484.5	0.9				ug/L	587989	Standard
>	Rh	103	33.3	48.2				ug/L	8	Standard
|	Mo	98	317898.5	0.8	90.7967	1.157	1.3	ug/L	35	Standard
|	Ag	107	543772.2	0.5	95.2568	1.272	1.3	ug/L	121	Standard
|	Cd	111	153818.9	0.8	95.0895	1.067	1.1	mg/L	4	Standard
|	Cd	114	380965.5	1.2	91.7669	1.790	2.0	ug/L	27	Standard
>	In	115	680447.7	1.0				ug/L	702235	Standard
|	Sn	118	441.0	6.3	0.2669	0.035	13.1	ug/L	180	Standard
|	Sb	123	411958.1	3.4	97.0757	3.970	4.1	ug/L	43	Standard
|	Ba	135	154546.3	1.5	95.0984	1.825	1.9	ug/L	50	Standard
|	Ce	140	88.3	17.3				ug/L	20	Standard
>	Tb	159	1045762.4	0.3				ug/L	1036041	Standard
|	Ho	165	30.0	57.7				ug/L	8	Standard
|	Tl	203	671545.9	1.5	95.4489	1.661	1.7	ug/L	87	Standard
|	Tl	205	1630734.7	1.5	95.2587	1.621	1.7	ug/L	255	Standard
|	Pb	206	547891.3	1.9	96.0784	2.276	2.4	ug/L	523	Standard
|	Pb	207	492760.9	2.1	95.6677	2.291	2.4	ug/L	433	Standard
|	Pb	208	562372.3	1.7	95.7669	1.960	2.0	ug/L	498	Standard
	U	238	468842.0	2.3	97.9527	2.387	2.4	ug/L	6	Standard
>	Bi	209	651090.2	0.7				ug/L	631806	Standard

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Na	23	13.3	78.1	4.4357	3.925	88.5	mg/L	2	Standard
Mg	24	546.7	7.4	10.0555	0.885	8.8	mg/L	27	Standard
K	39	333.3	3.8	3.6793	0.040	1.1	mg/L	17	Standard
Ca	43	58.3	42.3	16.1086	19.525	121.2	mg/L	47	Standard
Fe	54	1644.5	5.3	11.6364	0.960	8.2	mg/L	23	Standard
Fe	57	693.3	9.1	12.0602	1.461	12.1	mg/L	253	Standard
Sc-1	45	39085.4	2.7				mg/L	39227	Standard
Cl	35	3.3	91.7				ug/L	1	Standard
Kr	83	2.3	89.2				ug/L	3	Standard
Br	81	2020.1	9.9				ug/L	2163	Standard
P	31	50.0	52.0				ug/L	57	Standard
S	34	35.0	37.8				ug/L	27	Standard
Sr	88	131.7	9.6				ug/L	125	Standard
C	12	83.3	56.7				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	10	Standard
Dy	164	2.7	188.8				mg/L	9	Standard
Ho-1	165	30.0	57.7				mg/L	8	Standard
Er	166	13.3	114.6				mg/L	20	Standard
I	127	12612.0	70.2				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	95.642		
Al	27	0.877		
Sc	45			
Ti	47	96.077		
V	51	92.798		
Cr	52	92.936		
Cr	53			
Mn	55	93.730		
Co	59	93.085		
Ni	60	93.504		
Cu	65	94.071		
Zn	66	97.672		
Ge	72		98.677	
As	75	95.935		
Se	82	95.181		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	90.797	
[Ag	107	95.257	
[Cd	111	95.090	
[Cd	114		
>	In	115		96.897
[Sn	118		
[	Sb	123	97.076	
[	Ba	135	95.098	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	95.449	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	95.767	
[	U	238	97.953	
>	Bi	209		103.052
[	Na	23	35.486	
[	Mg	24	201.110	
[	K	39	73.585	
[	Ca	43	107.391	
[	Fe	54	93.092	
[	Fe	57	96.481	
>	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

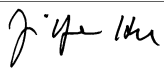
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Na	23	
QC Std 5	Mg	24	

Sample ID: QC Std 5

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QC Std 5	K	39
QC Std 5	Ca	43

Sample ID: QC Std 5
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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Tuesday, April 04, 2017 12:10:41

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	291600.4	2.5				ug/L	302131	Standard
|	Be	9	105037.8	0.8	49.9479	0.910	1.8	ug/L	12	Standard
|	Al	27	6659452.7	2.2	49.5769	1.489	3.0	ug/L	907	Standard
|	Sc	45	38674.3	2.2				ug/L	39227	Standard
|	Ti	47	20113.3	1.8	98.6048	2.867	2.9	ug/L	34	Standard
|	V	51	317780.2	1.1	48.8039	1.041	2.1	ug/L	1155	Standard
|	Cr	52	297025.3	0.8	49.3777	0.924	1.9	ug/L	5602	Standard
|	Cr	53	37137.1	1.2	48.9757	1.216	2.5	ug/L	1042	Standard
|	Mn	55	513150.9	0.6	49.3440	0.635	1.3	ug/L	2370	Standard
|	Co	59	387783.5	0.6	49.1235	0.609	1.2	ug/L	381	Standard
|	Ni	60	82781.5	0.7	49.1014	0.298	0.6	ug/L	282	Standard
|	Cu	65	87256.9	1.2	49.0792	0.990	2.0	ug/L	707	Standard
|	Zn	66	52199.1	1.1	48.8738	0.885	1.8	ug/L	427	Standard
>	Ge	72	814672.7	1.2				ug/L	842801	Standard
|	As	75	54345.3	0.7	49.1647	0.273	0.6	ug/L	-11	Standard
|	Se	82	5046.7	0.8	49.9011	0.937	1.9	ug/L	18	Standard
|	Se-1	77	3612.1	1.6	49.6471	1.068	2.2	ug/L	127	Standard
>	Ga	71	85.0	27.0				mg/L	92	Standard
|	Rb	85	306.7	20.8				ug/L	48	Standard
|	Y	89	581689.4	0.7				ug/L	587989	Standard
>	Rh	103	20.0	66.1				ug/L	8	Standard
|	Mo	98	348987.0	0.3	100.3201	1.234	1.2	ug/L	35	Standard
|	Ag	107	285273.4	1.0	50.2830	0.969	1.9	ug/L	121	Standard
|	Cd	111	79988.1	0.8	49.7607	0.845	1.7	mg/L	4	Standard
|	Cd	114	205545.1	1.4	49.8179	1.125	2.3	ug/L	27	Standard
>	In	115	676094.6	0.9				ug/L	702235	Standard
|	Sn	118	45841.9	0.4	51.2986	0.667	1.3	ug/L	180	Standard
|	Sb	123	209197.1	0.3	49.5943	0.557	1.1	ug/L	43	Standard
|	Ba	135	80195.4	1.2	49.6434	1.030	2.1	ug/L	50	Standard
|	Ce	140	213.3	19.9				ug/L	20	Standard
>	Tb	159	1033528.3	0.7				ug/L	1036041	Standard
|	Ho	165	11.7	89.2				ug/L	8	Standard
|	Tl	203	348159.2	0.8	49.8656	0.633	1.3	ug/L	87	Standard
|	Tl	205	849174.4	1.1	49.9904	0.751	1.5	ug/L	255	Standard
|	Pb	206	282038.9	0.6	49.7999	0.660	1.3	ug/L	523	Standard
|	Pb	207	255637.9	0.5	49.9829	0.552	1.1	ug/L	433	Standard
|	Pb	208	288020.2	0.7	49.3927	0.549	1.1	ug/L	498	Standard
	U	238	242626.5	0.1	51.0912	0.446	0.9	ug/L	6	Standard
>	Bi	209	645908.7	0.7				ug/L	631806	Standard

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Na	23	3.3	86.6	0.6678	1.097	164.2	mg/L	2	Standard
Mg	24	283.3	8.3	5.0674	0.566	11.2	mg/L	27	Standard
K	39	438.3	19.2	4.9127	0.851	17.3	mg/L	17	Standard
Ca	43	46.7	48.3	6.9426	17.890	257.7	mg/L	47	Standard
Fe	54	705.3	9.1	4.8974	0.351	7.2	mg/L	23	Standard
Fe	57	405.0	5.4	4.0125	0.852	21.2	mg/L	253	Standard
Sc-1	45	38674.3	2.2				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	4.3	48.0				ug/L	3	Standard
Br	81	2030.1	12.6				ug/L	2163	Standard
P	31	43.3	26.6				ug/L	57	Standard
S	34	35.0	37.8				ug/L	27	Standard
Sr	88	136.7	33.2				ug/L	125	Standard
C	12	36.7	56.8				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	12.9	48.2				mg/L	9	Standard
Ho-1	165	11.7	89.2				mg/L	8	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	2828.6	14.6				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.896		
Al	27	99.154		
Sc	45			
Ti	47	98.605		
V	51	97.608		
Cr	52	98.755		
Cr	53			
Mn	55	98.688		
Co	59	98.247		
Ni	60	98.203		
Cu	65	98.158		
Zn	66	97.748		
Ge	72		96.662	
As	75	98.329		
Se	82	99.802		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.320	
[Ag	107	100.566	
[Cd	111	99.521	
[Cd	114		
>	In	115		96.278
[Sn	118	102.597	
[	Sb	123	99.189	
[	Ba	135	99.287	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	99.731	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	98.785	
[	U	238	102.182	
>	Bi	209		102.232
[	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: PBW 83 WG608583-02

Sample Date/Time: Tuesday, April 04, 2017 12:17:49

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	295803.5	3.5				ug/L	302131	Standard
|	Be	9	26.7	39.0	0.0058	0.005	88.9	ug/L	12	Standard
|	Al	27	1985.1	8.3	-0.0033	0.001	36.7	ug/L	907	Standard
|	Sc	45	39431.2	0.8				ug/L	39227	Standard
|	Ti	47	34.3	11.0	-0.0123	0.019	153.4	ug/L	34	Standard
|	V	51	1070.7	2.9	-0.0005	0.006	1084.7	ug/L	1155	Standard
|	Cr	52	5205.6	1.5	-0.0247	0.020	80.9	ug/L	5602	Standard
|	Cr	53	675.0	10.8	-0.4264	0.104	24.3	ug/L	1042	Standard
|	Mn	55	2253.5	1.3	-0.0232	0.003	14.5	ug/L	2370	Standard
|	Co	59	270.3	8.9	-0.0122	0.003	24.5	ug/L	381	Standard
|	Ni	60	253.3	9.4	-0.0080	0.013	162.6	ug/L	282	Standard
|	Cu	65	636.7	4.4	0.0216	0.018	82.3	ug/L	707	Standard
|	Zn	66	960.4	3.2	0.5140	0.027	5.2	ug/L	427	Standard
>	Ge	72	821500.6	0.8				ug/L	842801	Standard
|	As	75	-75.4	33.0	-0.0217	0.022	102.3	ug/L	-11	Standard
|	Se	82	13.4	50.3	0.0319	0.066	205.9	ug/L	18	Standard
|	Se-1	77	89.3	16.3	-0.3097	0.213	68.8	ug/L	127	Standard
>	Ga	71	46.7	22.3				mg/L	92	Standard
|	Rb	85	50.0	52.9				ug/L	48	Standard
|	Y	89	575179.1	2.2				ug/L	587989	Standard
>	Rh	103	10.0	50.0				ug/L	8	Standard
|	Mo	98	67.8	3.1	0.0052	0.001	13.7	ug/L	35	Standard
|	Ag	107	114.3	7.1	-0.0093	0.001	15.1	ug/L	121	Standard
|	Cd	111	3.6	42.6	-0.0150	0.001	6.3	mg/L	4	Standard
|	Cd	114	38.5	34.7	-0.0205	0.003	15.3	ug/L	27	Standard
>	In	115	674855.5	1.0				ug/L	702235	Standard
|	Sn	118	242.3	12.2	0.0473	0.036	75.1	ug/L	180	Standard
|	Sb	123	177.7	39.2	0.0183	0.017	92.7	ug/L	43	Standard
|	Ba	135	66.3	14.3	-0.0089	0.006	65.4	ug/L	50	Standard
|	Ce	140	45.0	29.4				ug/L	20	Standard
>	Tb	159	1015864.7	0.5				ug/L	1036041	Standard
|	Ho	165	5.0	0.0				ug/L	8	Standard
|	Tl	203	73.3	21.7	-0.0243	0.002	9.6	ug/L	87	Standard
|	Tl	205	166.7	36.3	-0.0159	0.004	22.7	ug/L	255	Standard
|	Pb	206	540.0	0.5	-0.0158	0.000	2.7	ug/L	523	Standard
|	Pb	207	462.0	6.6	-0.0050	0.006	125.2	ug/L	433	Standard
|	Pb	208	521.0	2.4	-0.0067	0.002	31.4	ug/L	498	Standard
	U	238	10.3	24.4	-0.0104	0.001	5.2	ug/L	6	Standard
>	Bi	209	638629.6	0.3				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0297	1.087	3665.3	mg/L	2	Standard
Mg	24	23.3	81.1	0.0193	0.363	1876.8	mg/L	27	Standard
K	39	6.7	86.6	-0.0285	0.065	229.2	mg/L	17	Standard
Ca	43	21.7	35.3	-14.0062	6.105	43.6	mg/L	47	Standard
Fe	54	28.1	10.3	-0.0354	0.020	55.6	mg/L	23	Standard
Fe	57	228.3	18.9	-1.1932	1.261	105.7	mg/L	253	Standard
Sc-1	45	39431.2	0.8				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	1.3	43.3				ug/L	3	Standard
Br	81	2073.5	7.0				ug/L	2163	Standard
P	31	51.7	24.4				ug/L	57	Standard
S	34	28.3	10.2				ug/L	27	Standard
Sr	88	128.3	13.7				ug/L	125	Standard
C	12	33.3	121.2				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	16.2	71.3				mg/L	9	Standard
Ho-1	165	5.0	0.0				mg/L	8	Standard
Er	166	10.0					mg/L	20	Standard
I	127	3783.8	12.2				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		97.906	
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		97.473	
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	96.101
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
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[Pb	206	
[Pb	207	
[Pb	208	
[U	238	
>	Bi	209	101.080
[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
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Sample ID: PBW 83 WG608583-02

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Method 6020 - Summary Report

Sample ID: L1703167605S WG608583-05

Sample Date/Time: Tuesday, April 04, 2017 12:30:11

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	314544.9	0.8				ug/L	302131	Standard
|	Be	9	109559.8	2.0	48.2867	1.152	2.4	ug/L	12	Standard
|	Al	27	13398387.1	0.7	92.4564	1.015	1.1	ug/L	907	Standard
|	Sc	45	42479.5	0.4				ug/L	39227	Standard
|	Ti	47	3624.4	4.6	16.9271	1.002	5.9	ug/L	34	Standard
|	V	51	366181.8	0.8	54.0452	0.935	1.7	ug/L	1155	Standard
|	Cr	52	324047.2	0.1	51.7965	0.693	1.3	ug/L	5602	Standard
|	Cr	53	40865.0	1.8	51.8500	1.333	2.6	ug/L	1042	Standard
|	Mn	55	646368.2	0.1	59.7653	0.803	1.3	ug/L	2370	Standard
|	Co	59	394105.1	0.2	47.9643	0.659	1.4	ug/L	381	Standard
|	Ni	60	86416.1	0.5	49.2460	0.374	0.8	ug/L	282	Standard
|	Cu	65	91282.8	0.6	49.3277	0.642	1.3	ug/L	707	Standard
|	Zn	66	86499.5	0.1	78.0355	0.913	1.2	ug/L	427	Standard
>	Ge	72	847964.7	1.2				ug/L	842801	Standard
|	As	75	58165.0	0.4	50.5575	0.818	1.6	ug/L	-11	Standard
|	Se	82	5231.9	0.6	49.6984	0.642	1.3	ug/L	18	Standard
|	Se-1	77	3710.1	1.5	48.9656	0.202	0.4	ug/L	127	Standard
>	Ga	71	1183.4	8.8				mg/L	92	Standard
|	Rb	85	29413.5	2.3				ug/L	48	Standard
|	Y	89	609741.8	1.4				ug/L	587989	Standard
>	Rh	103	200.0	15.2				ug/L	8	Standard
|	Mo	98	2729.1	4.0	0.7438	0.034	4.6	ug/L	35	Standard
|	Ag	107	281471.4	0.1	47.9302	0.190	0.4	ug/L	121	Standard
|	Cd	111	82354.4	0.4	49.4979	0.430	0.9	mg/L	4	Standard
|	Cd	114	203232.9	0.5	47.5854	0.063	0.1	ug/L	27	Standard
>	In	115	699736.9	0.5				ug/L	702235	Standard
|	Sn	118	481.3	4.1	0.2970	0.023	7.7	ug/L	180	Standard
|	Sb	123	212260.3	0.5	48.6172	0.340	0.7	ug/L	43	Standard
|	Ba	135	234717.8	0.7	140.4675	1.599	1.1	ug/L	50	Standard
|	Ce	140	44057.3	0.3				ug/L	20	Standard
>	Tb	159	1079103.8	0.7				ug/L	1036041	Standard
|	Ho	165	623.3	25.2				ug/L	8	Standard
|	Tl	203	361419.2	0.6	50.6854	0.176	0.3	ug/L	87	Standard
|	Tl	205	874999.9	1.0	50.4354	0.304	0.6	ug/L	255	Standard
|	Pb	206	291133.9	1.6	50.3332	0.728	1.4	ug/L	523	Standard
|	Pb	207	250926.6	2.0	48.0338	0.869	1.8	ug/L	433	Standard
|	Pb	208	291767.9	1.2	48.9911	0.552	1.1	ug/L	498	Standard
	U	238	254620.8	1.8	52.4973	0.764	1.5	ug/L	6	Standard
>	Bi	209	659642.4	0.7				ug/L	631806	Standard

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Na	23	38.3	39.8	12.7812	5.339	41.8	mg/L	2	Standard
Mg	24	410.0	4.9	6.8003	0.327	4.8	mg/L	27	Standard
K	39	121.7	20.3	1.1664	0.253	21.7	mg/L	17	Standard
Ca	43	96.7	13.0	41.6347	9.376	22.5	mg/L	47	Standard
Fe	54	106.4	32.7	0.4696	0.228	48.6	mg/L	23	Standard
Fe	57	490.0	3.7	5.1818	0.485	9.4	mg/L	253	Standard
Sc-1	45	42479.5	0.4				mg/L	39227	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	2.0	50.0				ug/L	3	Standard
Br	81	48644.7	2.3				ug/L	2163	Standard
P	31	68.3	22.4				ug/L	57	Standard
S	34	31.7	65.7				ug/L	27	Standard
Sr	88	236.7	12.9				ug/L	125	Standard
C	12	83.3	70.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	843.7	11.8				mg/L	9	Standard
Ho-1	165	623.3	25.2				mg/L	8	Standard
Er	166	620.0	21.0				mg/L	20	Standard
I	127	136103.8	2.3				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		104.109	
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		100.613	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703167605S WG608583-05
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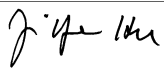
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>	Rh	103	
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[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
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>	Bi	209	104.406
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[Br	81	
[P	31	
[S	34	
[Sr	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
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1703167605S WG608583-05
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Method 6020 - Summary Report

Sample ID: L1703167606SD WG608583-06

Sample Date/Time: Tuesday, April 04, 2017 12:33:15

Number of Replicates: 3

Autosampler Position: 210

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	305759.5	0.9				ug/L	302131	Standard
|	Be	9	109232.6	3.1	49.5163	1.112	2.2	ug/L	12	Standard
|	Al	27	13460645.4	0.6	95.5543	0.670	0.7	ug/L	907	Standard
|	Sc	45	41553.6	2.8				ug/L	39227	Standard
|	Ti	47	2192.8	11.3	10.4579	1.159	11.1	ug/L	34	Standard
|	V	51	360516.5	1.9	54.7330	1.386	2.5	ug/L	1155	Standard
|	Cr	52	319343.3	1.4	52.5167	1.085	2.1	ug/L	5602	Standard
|	Cr	53	40940.2	1.4	53.4721	1.298	2.4	ug/L	1042	Standard
|	Mn	55	593692.0	1.2	56.4492	0.898	1.6	ug/L	2370	Standard
|	Co	59	395451.9	0.5	49.5048	0.672	1.4	ug/L	381	Standard
|	Ni	60	86006.5	1.7	50.4155	0.744	1.5	ug/L	282	Standard
|	Cu	65	90465.3	2.0	50.2895	1.151	2.3	ug/L	707	Standard
|	Zn	66	76721.1	1.5	71.1532	0.877	1.2	ug/L	427	Standard
>	Ge	72	824391.8	1.1				ug/L	842801	Standard
|	As	75	58094.4	0.1	51.9362	0.598	1.2	ug/L	-11	Standard
|	Se	82	5294.0	0.3	51.7292	0.474	0.9	ug/L	18	Standard
|	Se-1	77	3684.1	1.9	50.0525	1.216	2.4	ug/L	127	Standard
>	Ga	71	618.3	7.9				mg/L	92	Standard
|	Rb	85	21423.5	1.8				ug/L	48	Standard
|	Y	89	590494.4	2.0				ug/L	587989	Standard
>	Rh	103	211.7	20.1				ug/L	8	Standard
|	Mo	98	2636.8	0.9	0.7456	0.011	1.5	ug/L	35	Standard
|	Ag	107	279283.2	0.6	49.3441	0.315	0.6	ug/L	121	Standard
|	Cd	111	81594.1	0.5	50.8839	0.597	1.2	mg/L	4	Standard
|	Cd	114	202118.7	1.9	49.1004	0.700	1.4	ug/L	27	Standard
>	In	115	674431.0	1.0				ug/L	702235	Standard
|	Sn	118	407.0	5.7	0.2327	0.024	10.5	ug/L	180	Standard
|	Sb	123	212141.9	1.5	50.4165	0.874	1.7	ug/L	43	Standard
|	Ba	135	231017.7	1.3	143.4403	1.629	1.1	ug/L	50	Standard
|	Ce	140	24170.9	1.0				ug/L	20	Standard
>	Tb	159	1047318.8	0.7				ug/L	1036041	Standard
|	Ho	165	336.7	17.6				ug/L	8	Standard
|	Tl	203	360211.8	1.1	52.0634	0.749	1.4	ug/L	87	Standard
|	Tl	205	888146.9	1.6	52.7586	0.628	1.2	ug/L	255	Standard
|	Pb	206	287415.3	1.1	51.2151	0.844	1.6	ug/L	523	Standard
|	Pb	207	251314.1	0.4	49.5837	0.405	0.8	ug/L	433	Standard
|	Pb	208	291859.3	0.8	50.5107	0.756	1.5	ug/L	498	Standard
	U	238	257182.9	1.3	54.6530	1.063	1.9	ug/L	6	Standard
>	Bi	209	640083.7	0.9				ug/L	631806	Standard

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Na	23	36.7	15.7	12.4544	1.787	14.4	mg/L	2	Standard
Mg	24	401.7	6.9	6.8230	0.662	9.7	mg/L	27	Standard
K	39	131.7	13.3	1.3042	0.204	15.7	mg/L	17	Standard
Ca	43	110.0	28.4	53.9865	26.360	48.8	mg/L	47	Standard
Fe	54	66.4	12.8	0.2146	0.059	27.6	mg/L	23	Standard
Fe	57	428.3	10.8	3.8303	1.347	35.2	mg/L	253	Standard
Sc-1	45	41553.6	2.8				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	2.0	100.0				ug/L	3	Standard
Br	81	57355.7	10.0				ug/L	2163	Standard
P	31	50.0	17.3				ug/L	57	Standard
S	34	33.3	45.8				ug/L	27	Standard
Sr	88	216.7	7.4				ug/L	125	Standard
C	12	56.7	71.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	10	Standard
Dy	164	561.2	5.7				mg/L	9	Standard
Ho-1	165	336.7	17.6				mg/L	8	Standard
Er	166	323.3	7.1				mg/L	20	Standard
I	127	153759.9	10.1				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.201	
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		97.816	
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	96.041
[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	101.310
[	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	

Sample ID: L1703167606SD WG608583-06
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Method 6020 - Summary Report

Sample ID: L1703167601

Sample Date/Time: Tuesday, April 04, 2017 12:36:20

Number of Replicates: 3

Autosampler Position: 211

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	298462.7	3.0				ug/L	302131	Standard
|	Be	9	81.7	21.5	0.0311	0.008	25.9	ug/L	12	Standard
|	Al	27	1245105.8	0.3	9.0446	0.304	3.4	ug/L	907	Standard
|	Sc	45	39277.5	2.9				ug/L	39227	Standard
|	Ti	47	1628.4	2.0	7.6890	0.080	1.0	ug/L	34	Standard
|	V	51	28239.2	1.2	4.1177	0.065	1.6	ug/L	1155	Standard
|	Cr	52	11242.2	0.4	0.9740	0.012	1.3	ug/L	5602	Standard
|	Cr	53	1328.4	11.3	0.4366	0.193	44.1	ug/L	1042	Standard
|	Mn	55	50137.5	1.0	4.5286	0.096	2.1	ug/L	2370	Standard
|	Co	59	1309.7	0.8	0.1172	0.001	0.9	ug/L	381	Standard
|	Ni	60	2808.3	1.5	1.4872	0.035	2.4	ug/L	282	Standard
|	Cu	65	4852.1	1.1	2.3678	0.014	0.6	ug/L	707	Standard
|	Zn	66	135046.9	1.4	125.0337	2.937	2.3	ug/L	427	Standard
>	Ge	72	827828.2	1.0				ug/L	842801	Standard
|	As	75	568.0	2.5	0.5511	0.013	2.4	ug/L	-11	Standard
|	Se	82	125.9	4.3	1.1282	0.064	5.7	ug/L	18	Standard
|	Se-1	77	97.7	2.1	-0.2036	0.042	20.8	ug/L	127	Standard
>	Ga	71	608.3	5.5				mg/L	92	Standard
|	Rb	85	25890.4	0.9				ug/L	48	Standard
|	Y	89	590191.7	2.1				ug/L	587989	Standard
>	Rh	103	33.3	43.3				ug/L	8	Standard
|	Mo	98	444.1	8.6	0.1122	0.011	9.8	ug/L	35	Standard
|	Ag	107	154.7	8.2	-0.0025	0.002	80.6	ug/L	121	Standard
|	Cd	111	40.1	17.1	0.0075	0.004	54.8	mg/L	4	Standard
|	Cd	114	136.7	20.4	0.0030	0.007	220.2	ug/L	27	Standard
>	In	115	682383.0	1.2				ug/L	702235	Standard
|	Sn	118	371.7	2.9	0.1881	0.013	7.1	ug/L	180	Standard
|	Sb	123	399.0	12.5	0.0699	0.013	18.4	ug/L	43	Standard
|	Ba	135	146319.5	0.6	89.7776	0.940	1.0	ug/L	50	Standard
|	Ce	140	11716.2	2.7				ug/L	20	Standard
>	Tb	159	1041248.0	1.2				ug/L	1036041	Standard
|	Ho	165	318.3	16.8				ug/L	8	Standard
|	Tl	203	235.0	9.8	-0.0013	0.003	272.2	ug/L	87	Standard
|	Tl	205	595.0	13.0	0.0092	0.005	51.0	ug/L	255	Standard
|	Pb	206	1894.1	0.6	0.2222	0.003	1.4	ug/L	523	Standard
|	Pb	207	1602.8	3.2	0.2170	0.007	3.4	ug/L	433	Standard
|	Pb	208	1901.7	2.7	0.2290	0.006	2.6	ug/L	498	Standard
	U	238	761.0	3.8	0.1474	0.005	3.3	ug/L	6	Standard
>	Bi	209	646867.1	0.8				ug/L	631806	Standard

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Na	23	18.3	15.7	6.3186	1.064	16.8	mg/L	2	Standard
Mg	24	95.0	24.1	1.3863	0.442	31.9	mg/L	27	Standard
K	39	175.0	2.9	1.8730	0.016	0.8	mg/L	17	Standard
Ca	43	73.3	19.7	28.5739	12.440	43.5	mg/L	47	Standard
Fe	54	61.2	26.0	0.2043	0.120	58.5	mg/L	23	Standard
Fe	57	303.3	9.7	0.9387	0.651	69.3	mg/L	253	Standard
Sc-1	45	39277.5	2.9				mg/L	39227	Standard
Cl	35	2.0	0.0				ug/L	1	Standard
Kr	83	1.3	86.6				ug/L	3	Standard
Br	81	63014.4	5.4				ug/L	2163	Standard
P	31	53.3	35.5				ug/L	57	Standard
S	34	25.0	34.6				ug/L	27	Standard
Sr	88	151.7	8.3				ug/L	125	Standard
C	12	43.3	58.1				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	408.5	18.8				mg/L	9	Standard
Ho-1	165	318.3	16.8				mg/L	8	Standard
Er	166	310.0	19.4				mg/L	20	Standard
I	127	87978.2	3.5				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.786	
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		98.223	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703167601

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	97.173
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
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[K	39	
[Ca	43	
[Fe	54	
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>	Sc-1	45	
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[S	34	
[Sr	88	
[C	12	
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[Hg	202	
[Dy	164	
[Ho-1	165	
[Er	166	
[I	127	

QC Out of Limits

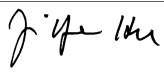
Measurement Type	Analyte	Mass	Out of Limits Message
Zn 66 Upper, S, EEE	Zn	66	

Sample ID: L1703167601

Report Date/Time: Tuesday, April 04, 2017 12:38:31

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Method 6020 - Summary Report

Sample ID: L1703167601PS WG608658-01

Sample Date/Time: Tuesday, April 04, 2017 12:39:26

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	298402.1	1.8				ug/L	302131	Standard
|	Be	9	105925.7	1.5	49.2254	1.562	3.2	ug/L	12	Standard
|	Al	27	1224109.5	0.5	8.8900	0.206	2.3	ug/L	907	Standard
|	Sc	45	40761.4	2.2				ug/L	39227	Standard
|	Ti	47	1630.4	8.7	7.6431	0.657	8.6	ug/L	34	Standard
|	V	51	352392.8	0.5	52.8945	0.432	0.8	ug/L	1155	Standard
|	Cr	52	306567.6	1.0	49.8059	0.550	1.1	ug/L	5602	Standard
|	Cr	53	38819.7	1.1	50.0491	0.567	1.1	ug/L	1042	Standard
|	Mn	55	567944.7	0.7	53.3854	0.346	0.6	ug/L	2370	Standard
|	Co	59	397806.8	0.8	49.2433	0.471	1.0	ug/L	381	Standard
|	Ni	60	86910.2	1.3	50.3812	0.823	1.6	ug/L	282	Standard
|	Cu	65	94712.8	1.8	52.0764	1.052	2.0	ug/L	707	Standard
|	Zn	66	187114.5	1.8	172.1592	3.537	2.1	ug/L	427	Standard
>	Ge	72	833647.6	0.7				ug/L	842801	Standard
|	As	75	56832.5	0.8	50.2431	0.553	1.1	ug/L	-11	Standard
|	Se	82	5246.5	1.4	50.6935	0.926	1.8	ug/L	18	Standard
|	Se-1	77	3671.8	2.3	49.3102	1.522	3.1	ug/L	127	Standard
>	Ga	71	728.4	1.0				mg/L	92	Standard
|	Rb	85	26322.8	1.6				ug/L	48	Standard
|	Y	89	590123.4	1.0				ug/L	587989	Standard
>	Rh	103	33.3	48.2				ug/L	8	Standard
|	Mo	98	488.8	9.7	0.1244	0.014	11.5	ug/L	35	Standard
|	Ag	107	294966.2	2.0	51.3204	1.171	2.3	ug/L	121	Standard
|	Cd	111	80864.0	1.6	49.6558	0.971	2.0	mg/L	4	Standard
|	Cd	114	198831.8	1.4	47.5641	0.700	1.5	ug/L	27	Standard
>	In	115	684902.7	0.6				ug/L	702235	Standard
|	Sn	118	358.3	3.1	0.1718	0.013	7.6	ug/L	180	Standard
|	Sb	123	213167.9	0.9	49.8850	0.713	1.4	ug/L	43	Standard
|	Ba	135	226948.6	1.4	138.7623	2.527	1.8	ug/L	50	Standard
|	Ce	140	11711.2	1.1				ug/L	20	Standard
>	Tb	159	1041825.2	0.6				ug/L	1036041	Standard
|	Ho	165	341.7	14.2				ug/L	8	Standard
|	Tl	203	351288.8	1.3	49.9211	0.551	1.1	ug/L	87	Standard
|	Tl	205	855509.0	2.1	49.9664	0.625	1.3	ug/L	255	Standard
|	Pb	206	285143.2	1.5	49.9553	0.756	1.5	ug/L	523	Standard
|	Pb	207	256917.3	1.6	49.8412	0.789	1.6	ug/L	433	Standard
|	Pb	208	291760.8	1.4	49.6441	0.556	1.1	ug/L	498	Standard
	U	238	242823.4	1.7	50.7335	0.772	1.5	ug/L	6	Standard
>	Bi	209	650969.2	1.0				ug/L	631806	Standard

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Na	23	40.0	33.1	13.9126	4.648	33.4	mg/L	2	Standard
Mg	24	111.7	9.3	1.6246	0.160	9.8	mg/L	27	Standard
K	39	158.3	12.8	1.6233	0.254	15.7	mg/L	17	Standard
Ca	43	55.0	45.5	12.0728	20.544	170.2	mg/L	47	Standard
Fe	54	71.6	12.0	0.2585	0.054	21.1	mg/L	23	Standard
Fe	57	301.7	12.7	0.5818	0.929	159.7	mg/L	253	Standard
Sc-1	45	40761.4	2.2				mg/L	39227	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	2.0	0.0				ug/L	3	Standard
Br	81	60905.8	6.5				ug/L	2163	Standard
P	31	56.7	18.4				ug/L	57	Standard
S	34	20.0	43.3				ug/L	27	Standard
Sr	88	135.0	41.2				ug/L	125	Standard
C	12	86.7	74.2				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	388.5	9.6				mg/L	9	Standard
Ho-1	165	341.7	14.2				mg/L	8	Standard
Er	166	240.0	25.0				mg/L	20	Standard
I	127	86436.1	3.8				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.766	
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		98.914	
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	97.532
[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	103.033
[	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
Zn 66 Upper, S, EEE	Zn	66	
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1703167601SDL WG608658-02

Sample Date/Time: Tuesday, April 04, 2017 12:42:31

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	278248.9	1.9				ug/L	302131	Standard
|	Be	9	53.3	35.5	0.0197	0.009	45.4	ug/L	12	Standard
|	Al	27	236846.9	0.6	1.8305	0.043	2.4	ug/L	907	Standard
|	Sc	45	37097.0	0.2				ug/L	39227	Standard
|	Ti	47	319.7	6.7	1.4692	0.106	7.2	ug/L	34	Standard
|	V	51	6165.3	0.5	0.8337	0.004	0.5	ug/L	1155	Standard
|	Cr	52	5717.1	0.9	0.1179	0.006	4.9	ug/L	5602	Standard
|	Cr	53	696.7	9.6	-0.3425	0.092	26.9	ug/L	1042	Standard
|	Mn	55	10761.8	1.0	0.8531	0.007	0.9	ug/L	2370	Standard
|	Co	59	460.7	6.4	0.0151	0.004	24.5	ug/L	381	Standard
|	Ni	60	698.7	3.0	0.2793	0.014	4.9	ug/L	282	Standard
|	Cu	65	1344.7	3.1	0.4638	0.022	4.7	ug/L	707	Standard
|	Zn	66	27982.8	1.3	27.3525	0.407	1.5	ug/L	427	Standard
>	Ge	72	775514.9	0.4				ug/L	842801	Standard
|	As	75	61.1	50.0	0.1039	0.029	28.2	ug/L	-11	Standard
|	Se	82	35.9	18.2	0.2738	0.067	24.4	ug/L	18	Standard
|	Se-1	77	78.7	5.1	-0.3951	0.056	14.2	ug/L	127	Standard
>	Ga	71	146.7	12.0				mg/L	92	Standard
|	Rb	85	5025.8	2.9				ug/L	48	Standard
|	Y	89	539105.2	0.6				ug/L	587989	Standard
>	Rh	103	15.0	33.3				ug/L	8	Standard
|	Mo	98	113.6	11.2	0.0200	0.004	18.1	ug/L	35	Standard
|	Ag	107	124.3	10.5	-0.0064	0.002	35.1	ug/L	121	Standard
|	Cd	111	9.2	16.6	-0.0112	0.001	9.0	mg/L	4	Standard
|	Cd	114	39.8	58.6	-0.0197	0.006	29.7	ug/L	27	Standard
>	In	115	642562.6	0.8				ug/L	702235	Standard
|	Sn	118	193.7	14.1	0.0033	0.033	997.9	ug/L	180	Standard
|	Sb	123	1033.1	14.2	0.2339	0.038	16.3	ug/L	43	Standard
|	Ba	135	28103.0	1.4	18.2701	0.120	0.7	ug/L	50	Standard
|	Ce	140	2203.5	3.5				ug/L	20	Standard
>	Tb	159	974663.8	1.9				ug/L	1036041	Standard
|	Ho	165	68.3	22.4				ug/L	8	Standard
|	Tl	203	140.0	14.2	-0.0139	0.003	24.0	ug/L	87	Standard
|	Tl	205	316.7	6.0	-0.0063	0.002	24.2	ug/L	255	Standard
|	Pb	206	815.4	5.8	0.0386	0.007	17.5	ug/L	523	Standard
|	Pb	207	692.3	4.5	0.0455	0.005	9.9	ug/L	433	Standard
|	Pb	208	840.3	3.8	0.0539	0.003	5.6	ug/L	498	Standard
	U	238	156.0	7.2	0.0218	0.003	14.0	ug/L	6	Standard
>	Bi	209	616938.0	1.9				ug/L	631806	Standard

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Na	23	8.3	124.9	2.7377	4.171	152.4	mg/L	2	Standard
Mg	24	23.3	12.4	0.0459	0.057	124.5	mg/L	27	Standard
K	39	50.0	10.0	0.4942	0.060	12.1	mg/L	17	Standard
Ca	43	41.7	13.9	4.5124	5.058	112.1	mg/L	47	Standard
Fe	54	26.4	22.4	-0.0354	0.045	127.2	mg/L	23	Standard
Fe	57	265.0	5.7	0.3040	0.466	153.2	mg/L	253	Standard
Sc-1	45	37097.0	0.2				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.3	43.3				ug/L	3	Standard
Br	81	13793.0	4.7				ug/L	2163	Standard
P	31	48.3	6.0				ug/L	57	Standard
S	34	31.7	9.1				ug/L	27	Standard
Sr	88	138.3	10.4				ug/L	125	Standard
C	12	36.7	83.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	10	Standard
Dy	164	84.1	36.2				mg/L	9	Standard
Ho-1	165	68.3	22.4				mg/L	8	Standard
Er	166	53.3	28.6				mg/L	20	Standard
I	127	19540.9	2.9				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		92.095	
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		92.016	
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	91.503
[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	97.647
[	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: L1703167601SDL WG608658-02

Sample Date/Time: Tuesday, April 04, 2017 12:45:35

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

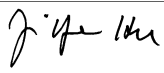
IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	276989.1	1.0				ug/L	302131	Standard
|	Be	9	15.0	88.2	0.0007	0.007	910.9	ug/L	12	Standard
|	Al	27	48034.4	1.0	0.3586	0.003	1.0	ug/L	907	Standard
|	Sc	45	37202.3	1.4				ug/L	39227	Standard
|	Ti	47	83.0	18.0	0.2492	0.077	31.1	ug/L	34	Standard
|	V	51	2120.6	6.1	0.1795	0.021	11.8	ug/L	1155	Standard
|	Cr	52	4768.4	0.2	-0.0496	0.003	5.3	ug/L	5602	Standard
|	Cr	53	938.4	10.7	0.0032	0.141	4405.5	ug/L	1042	Standard
|	Mn	55	3388.7	2.0	0.1053	0.007	6.5	ug/L	2370	Standard
|	Co	59	305.3	5.1	-0.0055	0.002	38.9	ug/L	381	Standard
|	Ni	60	290.3	5.6	0.0243	0.011	43.4	ug/L	282	Standard
|	Cu	65	675.7	2.6	0.0665	0.011	17.1	ug/L	707	Standard
|	Zn	66	6738.8	0.8	6.3037	0.061	1.0	ug/L	427	Standard
>	Ge	72	774503.3	0.2				ug/L	842801	Standard
|	As	75	36.3	81.6	0.0804	0.028	35.1	ug/L	-11	Standard
|	Se	82	21.1	3.9	0.1205	0.009	7.4	ug/L	18	Standard
|	Se-1	77	107.0	21.2	0.0289	0.337	1166.5	ug/L	127	Standard
>	Ga	71	50.0	17.3				mg/L	92	Standard
|	Rb	85	1015.0	10.7				ug/L	48	Standard
|	Y	89	537973.8	1.5				ug/L	587989	Standard
>	Rh	103	15.0	57.7				ug/L	8	Standard
|	Mo	98	37.9	14.4	-0.0028	0.002	58.9	ug/L	35	Standard
|	Ag	107	119.3	16.0	-0.0072	0.004	50.2	ug/L	121	Standard
|	Cd	111	4.6	76.2	-0.0142	0.002	16.4	mg/L	4	Standard
|	Cd	114	42.4	18.6	-0.0190	0.002	10.8	ug/L	27	Standard
>	In	115	639265.1	0.3				ug/L	702235	Standard
|	Sn	118	159.7	6.7	-0.0360	0.012	34.2	ug/L	180	Standard
|	Sb	123	253.0	23.6	0.0395	0.015	37.7	ug/L	43	Standard
|	Ba	135	5644.4	0.8	3.6486	0.024	0.7	ug/L	50	Standard
|	Ce	140	488.3	6.7				ug/L	20	Standard
>	Tb	159	961827.0	1.2				ug/L	1036041	Standard
|	Ho	165	21.7	58.1				ug/L	8	Standard
|	Tl	203	207.7	12.9	-0.0034	0.004	118.8	ug/L	87	Standard
|	Tl	205	480.0	14.8	0.0041	0.004	106.1	ug/L	255	Standard
|	Pb	206	585.0	3.9	-0.0028	0.004	143.0	ug/L	523	Standard
|	Pb	207	473.3	7.0	0.0017	0.007	400.2	ug/L	433	Standard
|	Pb	208	571.7	10.5	0.0067	0.011	157.5	ug/L	498	Standard
	U	238	39.0	25.3	-0.0039	0.002	55.5	ug/L	6	Standard
>	Bi	209	610049.3	0.3				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	28.3	53.9	0.1479	0.315	212.7	mg/L	27	Standard
K	39	13.3	57.3	0.0549	0.091	165.7	mg/L	17	Standard
Ca	43	25.0	40.0	-10.0127	8.799	87.9	mg/L	47	Standard
Fe	54	16.4	46.4	-0.1109	0.059	53.5	mg/L	23	Standard
Fe	57	275.0	7.9	0.5865	0.759	129.4	mg/L	253	Standard
Sc-1	45	37202.3	1.4				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	2.7	108.3				ug/L	3	Standard
Br	81	4334.0	7.3				ug/L	2163	Standard
P	31	45.0	22.2				ug/L	57	Standard
S	34	21.7	35.3				ug/L	27	Standard
Sr	88	136.7	20.1				ug/L	125	Standard
C	12	50.0	20.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	29.0	70.6				mg/L	9	Standard
Ho-1	165	21.7	58.1				mg/L	8	Standard
Er	166	20.0	100.0				mg/L	20	Standard
I	127	6351.3	5.1				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		91.678	
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		91.896	
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	91.033
[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	96.556
[	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: Tuesday, April 04, 2017 12:48:42

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	291203.5	0.7				ug/L	302131	Standard
|	Be	9	106347.0	1.4	50.6232	0.475	0.9	ug/L	12	Standard
|	Al	27	6685993.2	1.4	49.8238	0.425	0.9	ug/L	907	Standard
|	Sc	45	40096.3	1.6				ug/L	39227	Standard
|	Ti	47	20563.3	1.0	100.7893	0.929	0.9	ug/L	34	Standard
|	V	51	324494.8	1.3	49.8297	0.730	1.5	ug/L	1155	Standard
|	Cr	52	302151.2	1.7	50.2374	0.919	1.8	ug/L	5602	Standard
|	Cr	53	38539.0	1.5	50.8617	0.627	1.2	ug/L	1042	Standard
|	Mn	55	523592.1	1.4	50.3464	0.682	1.4	ug/L	2370	Standard
|	Co	59	395942.2	1.3	50.1529	0.720	1.4	ug/L	381	Standard
|	Ni	60	84382.4	1.5	50.0499	0.727	1.5	ug/L	282	Standard
|	Cu	65	88890.3	0.3	49.9967	0.345	0.7	ug/L	707	Standard
|	Zn	66	53286.9	0.9	49.8941	0.602	1.2	ug/L	427	Standard
>	Ge	72	814701.8	0.4				ug/L	842801	Standard
|	As	75	55056.6	0.7	49.8042	0.384	0.8	ug/L	-11	Standard
|	Se	82	5077.1	1.1	50.1940	0.598	1.2	ug/L	18	Standard
|	Se-1	77	3699.8	1.5	50.8824	0.680	1.3	ug/L	127	Standard
>	Ga	71	103.3	14.8				mg/L	92	Standard
|	Rb	85	315.0	2.7				ug/L	48	Standard
|	Y	89	574120.4	2.3				ug/L	587989	Standard
>	Rh	103	23.3	65.5				ug/L	8	Standard
|	Mo	98	351849.7	0.6	100.1039	0.937	0.9	ug/L	35	Standard
|	Ag	107	288138.4	2.1	50.2575	0.492	1.0	ug/L	121	Standard
|	Cd	111	81696.6	1.7	50.2951	0.255	0.5	mg/L	4	Standard
|	Cd	114	210835.2	1.6	50.5675	0.219	0.4	ug/L	27	Standard
>	In	115	683106.3	1.2				ug/L	702235	Standard
|	Sn	118	46245.8	2.0	51.2120	0.482	0.9	ug/L	180	Standard
|	Sb	123	213122.0	2.3	50.0007	0.802	1.6	ug/L	43	Standard
|	Ba	135	81534.9	2.0	49.9459	0.452	0.9	ug/L	50	Standard
|	Ce	140	280.0	13.9				ug/L	20	Standard
>	Tb	159	1038138.0	1.4				ug/L	1036041	Standard
|	Ho	165	10.0	50.0				ug/L	8	Standard
|	Tl	203	346118.7	1.1	50.1069	0.409	0.8	ug/L	87	Standard
|	Tl	205	840599.8	1.8	50.0144	0.325	0.7	ug/L	255	Standard
|	Pb	206	279441.4	0.8	49.8718	0.194	0.4	ug/L	523	Standard
|	Pb	207	255285.4	0.8	50.4522	0.285	0.6	ug/L	433	Standard
|	Pb	208	287261.7	0.5	49.7951	0.347	0.7	ug/L	498	Standard
	U	238	238920.8	1.0	50.8528	0.403	0.8	ug/L	6	Standard
>	Bi	209	639017.1	1.1				ug/L	631806	Standard

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Na	23	5.0	100.0	1.2636	1.856	146.9	mg/L	2	Standard
Mg	24	273.3	12.2	4.6751	0.574	12.3	mg/L	27	Standard
K	39	378.3	6.0	4.0823	0.236	5.8	mg/L	17	Standard
Ca	43	43.3	48.0	3.2964	17.055	517.4	mg/L	47	Standard
Fe	54	726.8	5.6	4.8705	0.257	5.3	mg/L	23	Standard
Fe	57	488.3	3.0	5.8999	0.492	8.3	mg/L	253	Standard
Sc-1	45	40096.3	1.6				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	0.3	173.2				ug/L	3	Standard
Br	81	2596.9	6.0				ug/L	2163	Standard
P	31	58.3	26.2				ug/L	57	Standard
S	34	36.7	31.5				ug/L	27	Standard
Sr	88	136.7	7.6				ug/L	125	Standard
C	12	43.3	35.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	26.2	110.2				mg/L	9	Standard
Ho-1	165	10.0	50.0				mg/L	8	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	3130.3	12.9				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	101.246		
Al	27	99.648		
Sc	45			
Ti	47	100.789		
V	51	99.659		
Cr	52	100.475		
Cr	53			
Mn	55	100.693		
Co	59	100.306		
Ni	60	100.100		
Cu	65	99.993		
Zn	66	99.788		
Ge	72		96.666	
As	75	99.608		
Se	82	100.388		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.104	
[Ag	107	100.515	
[Cd	111	100.590	
[Cd	114		
>	In	115		97.276
[Sn	118	102.424	
[	Sb	123	100.001	
[	Ba	135	99.892	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.214	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	99.590	
[	U	238	101.706	
>	Bi	209		101.141
[	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: Tuesday, April 04, 2017 12:51:48

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	295046.2	2.5				ug/L	302131	Standard
|	Be	9	25.0	52.9	0.0051	0.006	126.6	ug/L	12	Standard
|	Al	27	1336.7	32.5	-0.0080	0.003	41.0	ug/L	907	Standard
|	Sc	45	40316.9	2.5				ug/L	39227	Standard
|	Ti	47	28.7	19.2	-0.0397	0.028	71.7	ug/L	34	Standard
|	V	51	1120.4	2.8	0.0070	0.001	18.4	ug/L	1155	Standard
|	Cr	52	4936.1	2.3	-0.0699	0.015	21.8	ug/L	5602	Standard
|	Cr	53	575.0	5.4	-0.5602	0.059	10.6	ug/L	1042	Standard
|	Mn	55	2083.1	2.1	-0.0395	0.005	12.1	ug/L	2370	Standard
|	Co	59	300.3	3.7	-0.0084	0.002	26.0	ug/L	381	Standard
|	Ni	60	217.7	3.9	-0.0290	0.004	13.0	ug/L	282	Standard
|	Cu	65	1100.4	6.3	0.2816	0.024	8.6	ug/L	707	Standard
|	Zn	66	452.3	7.9	0.0383	0.024	61.5	ug/L	427	Standard
>	Ge	72	821446.1	2.3				ug/L	842801	Standard
|	As	75	15.0	162.5	0.0592	0.022	36.9	ug/L	-11	Standard
|	Se	82	16.5	26.6	0.0633	0.046	73.3	ug/L	18	Standard
|	Se-1	77	79.3	11.0	-0.4495	0.142	31.5	ug/L	127	Standard
>	Ga	71	50.0	17.3				mg/L	92	Standard
|	Rb	85	46.7	71.3				ug/L	48	Standard
|	Y	89	582539.2	2.2				ug/L	587989	Standard
>	Rh	103	13.3	57.3				ug/L	8	Standard
|	Mo	98	217.4	52.3	0.0469	0.032	67.8	ug/L	35	Standard
|	Ag	107	217.3	58.2	0.0081	0.022	268.9	ug/L	121	Standard
|	Cd	111	23.7	141.8	-0.0028	0.020	742.8	mg/L	4	Standard
|	Cd	114	97.1	85.9	-0.0068	0.020	292.4	ug/L	27	Standard
>	In	115	689266.4	2.2				ug/L	702235	Standard
|	Sn	118	233.0	11.6	0.0315	0.034	107.3	ug/L	180	Standard
|	Sb	123	322.6	26.5	0.0512	0.021	40.3	ug/L	43	Standard
|	Ba	135	59.3	49.3	-0.0140	0.018	126.1	ug/L	50	Standard
|	Ce	140	53.3	44.3				ug/L	20	Standard
>	Tb	159	1030472.7	2.2				ug/L	1036041	Standard
|	Ho	165	18.3	15.7				ug/L	8	Standard
|	Tl	203	118.3	70.0	-0.0178	0.012	68.6	ug/L	87	Standard
|	Tl	205	321.7	66.6	-0.0066	0.013	195.3	ug/L	255	Standard
|	Pb	206	1063.7	5.5	0.0768	0.012	15.5	ug/L	523	Standard
|	Pb	207	834.7	5.1	0.0678	0.009	13.7	ug/L	433	Standard
|	Pb	208	1015.0	2.5	0.0780	0.001	1.4	ug/L	498	Standard
	U	238	46.3	77.5	-0.0027	0.008	283.9	ug/L	6	Standard
>	Bi	209	642877.5	2.6				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	20.0	43.3	-0.0559	0.150	267.7	mg/L	27	Standard
K	39	10.0	86.6	0.0067	0.096	1447.0	mg/L	17	Standard
Ca	43	35.0	37.8	-3.7731	10.296	272.9	mg/L	47	Standard
Fe	54	38.0	39.8	0.0278	0.098	352.9	mg/L	23	Standard
Fe	57	238.3	5.3	-1.0577	0.481	45.5	mg/L	253	Standard
Sc-1	45	40316.9	2.5				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	2.7	21.7				ug/L	3	Standard
Br	81	2083.5	14.3				ug/L	2163	Standard
P	31	65.0	42.8				ug/L	57	Standard
S	34	23.3	44.6				ug/L	27	Standard
Sr	88	123.3	24.4				ug/L	125	Standard
C	12	16.7	124.9				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	15.7	73.5				mg/L	9	Standard
Ho-1	165	18.3	15.7				mg/L	8	Standard
Er	166	20.0	0.0				mg/L	20	Standard
I	127	3405.4	10.7				mg/L	3535	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		97.466	
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	98.153
[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	101.752
[	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: L1703167602

Sample Date/Time: Tuesday, April 04, 2017 12:54:55

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	299682.3	2.2				ug/L	302131	Standard
|	Be	9	43.3	17.6	0.0133	0.004	29.6	ug/L	12	Standard
|	Al	27	10305631.3	1.6	74.6471	1.182	1.6	ug/L	907	Standard
|	Sc	45	40860.0	0.7				ug/L	39227	Standard
|	Ti	47	399.3	9.3	1.7942	0.192	10.7	ug/L	34	Standard
|	V	51	38035.5	0.5	5.7340	0.131	2.3	ug/L	1155	Standard
|	Cr	52	18786.6	1.0	2.3016	0.073	3.2	ug/L	5602	Standard
|	Cr	53	2798.6	2.1	2.4824	0.148	6.0	ug/L	1042	Standard
|	Mn	55	9784.5	1.4	0.7123	0.017	2.4	ug/L	2370	Standard
|	Co	59	846.4	3.0	0.0618	0.005	8.3	ug/L	381	Standard
|	Ni	60	1545.7	2.5	0.7682	0.025	3.3	ug/L	282	Standard
|	Cu	65	1379.1	0.6	0.4499	0.014	3.0	ug/L	707	Standard
|	Zn	66	8020.5	0.8	7.2327	0.197	2.7	ug/L	427	Standard
>	Ge	72	809626.1	1.8				ug/L	842801	Standard
|	As	75	1157.0	4.0	1.0980	0.040	3.6	ug/L	-11	Standard
|	Se	82	98.4	1.8	0.8816	0.035	4.0	ug/L	18	Standard
|	Se-1	77	186.3	7.1	1.0905	0.157	14.4	ug/L	127	Standard
>	Ga	71	106.7	9.8				mg/L	92	Standard
|	Rb	85	6291.3	3.5				ug/L	48	Standard
|	Y	89	568660.6	1.9				ug/L	587989	Standard
>	Rh	103	151.7	15.6				ug/L	8	Standard
|	Mo	98	1666.4	3.8	0.4718	0.011	2.4	ug/L	35	Standard
|	Ag	107	123.7	12.7	-0.0074	0.003	33.9	ug/L	121	Standard
|	Cd	111	14.8	20.5	-0.0078	0.002	25.2	mg/L	4	Standard
|	Cd	114	73.6	15.4	-0.0117	0.003	26.2	ug/L	27	Standard
>	In	115	666171.5	1.5				ug/L	702235	Standard
|	Sn	118	299.7	4.5	0.1162	0.020	17.0	ug/L	180	Standard
|	Sb	123	284.8	11.9	0.0446	0.009	20.6	ug/L	43	Standard
|	Ba	135	207138.0	0.9	130.2252	2.735	2.1	ug/L	50	Standard
|	Ce	140	2463.5	7.1				ug/L	20	Standard
>	Tb	159	1029018.4	0.8				ug/L	1036041	Standard
|	Ho	165	50.0	36.1				ug/L	8	Standard
|	Tl	203	397.7	2.6	0.0233	0.001	6.2	ug/L	87	Standard
|	Tl	205	911.7	5.1	0.0290	0.003	10.0	ug/L	255	Standard
|	Pb	206	745.4	5.3	0.0222	0.007	30.7	ug/L	523	Standard
|	Pb	207	635.0	4.6	0.0305	0.006	18.3	ug/L	433	Standard
|	Pb	208	749.0	4.8	0.0342	0.007	19.3	ug/L	498	Standard
	U	238	10167.7	2.0	2.1744	0.046	2.1	ug/L	6	Standard
>	Bi	209	632478.4	0.2				ug/L	631806	Standard

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Na	23	53.3	42.3	18.7767	8.254	44.0	mg/L	2	Standard
Mg	24	540.0	6.7	9.4723	0.716	7.6	mg/L	27	Standard
K	39	81.7	24.7	0.7838	0.224	28.5	mg/L	17	Standard
Ca	43	125.0	4.0	66.9166	4.429	6.6	mg/L	47	Standard
Fe	54	22.8	14.4	-0.0785	0.022	28.2	mg/L	23	Standard
Fe	57	418.3	2.8	3.7403	0.271	7.2	mg/L	253	Standard
Sc-1	45	40860.0	0.7				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	2.3	89.2				ug/L	3	Standard
Br	81	30150.0	1.5				ug/L	2163	Standard
P	31	45.0	48.4				ug/L	57	Standard
S	34	38.3	32.8				ug/L	27	Standard
Sr	88	201.7	5.7				ug/L	125	Standard
C	12	66.7	48.2				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0					mg/L	10	Standard
Dy	164	83.6	19.1				mg/L	9	Standard
Ho-1	165	50.0	36.1				mg/L	8	Standard
Er	166	63.3	24.1				mg/L	20	Standard
I	127	77698.8	2.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.189	
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		96.064	
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	94.865
[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	100.106
[	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

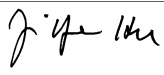
Measurement Type	Analyte	Mass	Out of Limits Message
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1703167602

Report Date/Time: Tuesday, April 04, 2017 12:57:06

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Method 6020 - Summary Report

Sample ID: L1703167603

Sample Date/Time: Tuesday, April 04, 2017 12:58:01

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	301644.9	1.0				ug/L	302131	Standard
|	Be	9	151.7	22.4	0.0630	0.016	25.8	ug/L	12	Standard
|	Al	27	3800794.7	1.6	27.3398	0.681	2.5	ug/L	907	Standard
|	Sc	45	39917.5	1.6				ug/L	39227	Standard
|	Ti	47	2340.8	4.0	11.2435	0.396	3.5	ug/L	34	Standard
|	V	51	24576.5	0.5	3.5993	0.020	0.5	ug/L	1155	Standard
|	Cr	52	13286.5	2.1	1.3365	0.050	3.7	ug/L	5602	Standard
|	Cr	53	1876.8	4.3	1.1928	0.098	8.3	ug/L	1042	Standard
|	Mn	55	143531.3	0.8	13.5437	0.029	0.2	ug/L	2370	Standard
|	Co	59	2339.8	2.4	0.2486	0.006	2.6	ug/L	381	Standard
|	Ni	60	2827.9	1.4	1.5150	0.017	1.1	ug/L	282	Standard
|	Cu	65	6536.4	1.3	3.3426	0.036	1.1	ug/L	707	Standard
|	Zn	66	689607.0	1.6	646.3077	7.091	1.1	ug/L	427	Standard
>	Ge	72	819670.9	0.6				ug/L	842801	Standard
|	As	75	754.8	11.2	0.7241	0.078	10.8	ug/L	-11	Standard
|	Se	82	124.0	5.0	1.1216	0.066	5.9	ug/L	18	Standard
|	Se-1	77	111.0	4.5	-0.0023	0.074	3180.8	ug/L	127	Standard
>	Ga	71	823.4	7.6				mg/L	92	Standard
|	Rb	85	36360.3	1.9				ug/L	48	Standard
|	Y	89	581016.6	1.2				ug/L	587989	Standard
>	Rh	103	113.3	22.2				ug/L	8	Standard
|	Mo	98	4418.3	3.0	1.2705	0.040	3.1	ug/L	35	Standard
|	Ag	107	163.0	18.9	-0.0004	0.005	1173.7	ug/L	121	Standard
|	Cd	111	49.6	21.0	0.0140	0.006	45.8	mg/L	4	Standard
|	Cd	114	204.5	23.1	0.0203	0.011	56.2	ug/L	27	Standard
>	In	115	668428.5	0.9				ug/L	702235	Standard
|	Sn	118	516.7	10.9	0.3613	0.059	16.4	ug/L	180	Standard
|	Sb	123	900.9	7.1	0.1921	0.014	7.5	ug/L	43	Standard
|	Ba	135	116150.2	1.5	72.7415	1.087	1.5	ug/L	50	Standard
|	Ce	140	22181.2	2.8				ug/L	20	Standard
>	Tb	159	1026519.3	0.3				ug/L	1036041	Standard
|	Ho	165	348.3	16.6				ug/L	8	Standard
|	Tl	203	299.7	16.8	0.0087	0.007	84.2	ug/L	87	Standard
|	Tl	205	713.4	16.6	0.0168	0.007	41.9	ug/L	255	Standard
|	Pb	206	1872.4	6.1	0.2240	0.021	9.5	ug/L	523	Standard
|	Pb	207	1534.7	1.2	0.2087	0.004	2.0	ug/L	433	Standard
|	Pb	208	1844.0	1.2	0.2244	0.004	1.9	ug/L	498	Standard
	U	238	2886.3	1.1	0.6045	0.008	1.2	ug/L	6	Standard
>	Bi	209	636244.1	0.4				ug/L	631806	Standard

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Na	23	33.3	34.6	11.7573	4.211	35.8	mg/L	2	Standard
Mg	24	403.3	3.8	7.1416	0.331	4.6	mg/L	27	Standard
K	39	176.7	1.6	1.8598	0.001	0.0	mg/L	17	Standard
Ca	43	68.3	25.7	23.6269	14.905	63.1	mg/L	47	Standard
Fe	54	129.6	17.0	0.6800	0.163	23.9	mg/L	23	Standard
Fe	57	338.3	17.0	1.7997	1.724	95.8	mg/L	253	Standard
Sc-1	45	39917.5	1.6				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	3.3	45.8				ug/L	3	Standard
Br	81	63480.4	10.6				ug/L	2163	Standard
P	31	61.7	23.4				ug/L	57	Standard
S	34	33.3	17.3				ug/L	27	Standard
Sr	88	160.0	15.6				ug/L	125	Standard
C	12	33.3	17.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	384.8	22.5				mg/L	9	Standard
Ho-1	165	348.3	16.6				mg/L	8	Standard
Er	166	316.7	26.5				mg/L	20	Standard
I	127	260431.7	5.4				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.839	
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		97.256	
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	95.186
[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	100.702
[	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

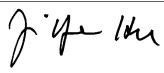
Measurement Type	Analyte	Mass	Out of Limits Message
Zn 66 Upper, S, EEE	Zn	66	

Sample ID: L1703167603

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Method 6020 - Summary Report

Sample ID: L1703168501

Sample Date/Time: Tuesday, April 04, 2017 13:01:05

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	292305.1	2.1				ug/L	302131	Standard
|	Be	9	301.7	26.9	0.1368	0.041	29.9	ug/L	12	Standard
|	Al	27	7060394.7	2.0	52.4465	2.083	4.0	ug/L	907	Standard
|	Sc	45	40701.3	1.7				ug/L	39227	Standard
|	Ti	47	7994.4	2.3	39.1930	2.082	5.3	ug/L	34	Standard
|	V	51	35420.1	2.1	5.3088	0.272	5.1	ug/L	1155	Standard
|	Cr	52	27990.8	2.4	3.8515	0.211	5.5	ug/L	5602	Standard
|	Cr	53	3665.4	3.5	3.6435	0.228	6.3	ug/L	1042	Standard
|	Mn	55	171101.5	1.5	16.3387	0.741	4.5	ug/L	2370	Standard
|	Co	59	5511.7	1.3	0.6545	0.030	4.6	ug/L	381	Standard
|	Ni	60	5577.7	0.9	3.1700	0.116	3.7	ug/L	282	Standard
|	Cu	65	6365.7	1.8	3.2791	0.178	5.4	ug/L	707	Standard
|	Zn	66	24574.2	1.4	22.8662	0.973	4.3	ug/L	427	Standard
>	Ge	72	813143.0	3.2				ug/L	842801	Standard
|	As	75	1000.0	4.4	0.9523	0.058	6.1	ug/L	-11	Standard
|	Se	82	38.4	15.2	0.2814	0.057	20.3	ug/L	18	Standard
|	Se-1	77	109.0	2.8	-0.0165	0.087	525.7	ug/L	127	Standard
>	Ga	71	3720.5	3.3				mg/L	92	Standard
|	Rb	85	71530.2	2.6				ug/L	48	Standard
|	Y	89	589133.4	1.5				ug/L	587989	Standard
>	Rh	103	11.7	49.5				ug/L	8	Standard
|	Mo	98	6503.2	1.1	1.8499	0.056	3.0	ug/L	35	Standard
|	Ag	107	159.7	8.1	-0.0014	0.003	200.9	ug/L	121	Standard
|	Cd	111	27.9	18.2	0.0001	0.003	2353.7	mg/L	4	Standard
|	Cd	114	120.0	33.2	-0.0008	0.010	1234.3	ug/L	27	Standard
>	In	115	678319.9	2.3				ug/L	702235	Standard
|	Sn	118	374.0	5.6	0.1936	0.032	16.5	ug/L	180	Standard
|	Sb	123	1801.0	4.5	0.4021	0.028	7.1	ug/L	43	Standard
|	Ba	135	35527.6	0.4	21.8978	0.531	2.4	ug/L	50	Standard
|	Ce	140	43708.0	0.8				ug/L	20	Standard
>	Tb	159	1040414.4	2.0				ug/L	1036041	Standard
|	Ho	165	853.4	10.5				ug/L	8	Standard
|	Tl	203	518.3	3.1	0.0395	0.003	7.6	ug/L	87	Standard
|	Tl	205	1251.7	12.4	0.0480	0.010	20.7	ug/L	255	Standard
|	Pb	206	9765.1	2.1	1.6174	0.050	3.1	ug/L	523	Standard
|	Pb	207	7824.0	2.3	1.4378	0.050	3.4	ug/L	433	Standard
|	Pb	208	9525.2	1.3	1.5410	0.037	2.4	ug/L	498	Standard
	U	238	1553.4	4.0	0.3150	0.016	5.2	ug/L	6	Standard
>	Bi	209	645355.1	1.1				ug/L	631806	Standard

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Na	23	18.3	56.8	6.0404	3.674	60.8	mg/L	2	Standard
Mg	24	93.3	34.9	1.2949	0.604	46.7	mg/L	27	Standard
K	39	223.3	9.0	2.3300	0.202	8.7	mg/L	17	Standard
Ca	43	58.3	27.6	14.5121	12.721	87.7	mg/L	47	Standard
Fe	54	355.8	3.5	2.2289	0.128	5.8	mg/L	23	Standard
Fe	57	393.3	25.1	3.0759	2.518	81.9	mg/L	253	Standard
Sc-1	45	40701.3	1.7				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	3.0	57.7				ug/L	3	Standard
Br	81	6998.3	2.5				ug/L	2163	Standard
P	31	56.7	39.8				ug/L	57	Standard
S	34	38.3	27.2				ug/L	27	Standard
Sr	88	135.0	20.6				ug/L	125	Standard
C	12	90.0	22.2				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	10	Standard
Dy	164	1436.0	10.6				mg/L	9	Standard
Ho-1	165	853.4	10.5				mg/L	8	Standard
Er	166	850.0	4.2				mg/L	20	Standard
I	127	18381.2	7.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		96.748	
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		96.481	
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	96.594
[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	102.144
[	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

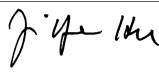
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: L1703168901

Sample Date/Time: Tuesday, April 04, 2017 13:04:10

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	316740.3	1.5				ug/L	302131	Standard
|	Be	9	576.7	7.0	0.2458	0.021	8.6	ug/L	12	Standard
|	Al	27	30773615.9	1.6	210.9632	6.560	3.1	ug/L	907	Standard
|	Sc	45	42676.7	0.8				ug/L	39227	Standard
|	Ti	47	883.7	3.1	4.1615	0.104	2.5	ug/L	34	Standard
|	V	51	6029.1	9.3	0.7657	0.093	12.2	ug/L	1155	Standard
|	Cr	52	108191.6	1.1	17.4236	0.328	1.9	ug/L	5602	Standard
|	Cr	53	33178.0	1.7	43.6266	0.574	1.3	ug/L	1042	Standard
|	Mn	55	7215557.4	0.7	697.3313	10.669	1.5	ug/L	2370	Standard
|	Co	59	87802.7	0.8	11.0928	0.177	1.6	ug/L	381	Standard
|	Ni	60	33838.1	1.5	19.9901	0.456	2.3	ug/L	282	Standard
|	Cu	65	14033.8	2.2	7.6158	0.222	2.9	ug/L	707	Standard
|	Zn	66	263070.0	1.1	247.9813	3.597	1.5	ug/L	427	Standard
>	Ge	72	814240.1	0.9				ug/L	842801	Standard
|	As	75	2102.2	1.8	1.9469	0.035	1.8	ug/L	-11	Standard
|	Se	82	286.9	7.9	2.7429	0.202	7.4	ug/L	18	Standard
|	Se-1	77	2170.2	5.2	29.2265	1.861	6.4	ug/L	127	Standard
>	Ga	71	393.3	16.9				mg/L	92	Standard
|	Rb	85	13899.7	1.9				ug/L	48	Standard
|	Y	89	590207.5	0.3				ug/L	587989	Standard
>	Rh	103	171.7	13.1				ug/L	8	Standard
|	Mo	98	7710.6	0.7	2.2796	0.028	1.2	ug/L	35	Standard
|	Ag	107	285.0	2.6	0.0225	0.001	5.2	ug/L	121	Standard
|	Cd	111	1049.1	5.8	0.6581	0.034	5.2	mg/L	4	Standard
|	Cd	114	2707.4	4.9	0.6494	0.028	4.3	ug/L	27	Standard
>	In	115	653379.6	1.2				ug/L	702235	Standard
|	Sn	118	353.7	4.4	0.1856	0.021	11.3	ug/L	180	Standard
|	Sb	123	812.0	5.8	0.1752	0.010	5.5	ug/L	43	Standard
|	Ba	135	551543.8	1.3	353.5703	4.379	1.2	ug/L	50	Standard
|	Ce	140	47156.6	2.7				ug/L	20	Standard
>	Tb	159	1036886.6	0.7				ug/L	1036041	Standard
|	Ho	165	1013.4	4.3				ug/L	8	Standard
|	Tl	203	434.3	13.8	0.0310	0.008	27.0	ug/L	87	Standard
|	Tl	205	1186.7	9.8	0.0482	0.006	13.1	ug/L	255	Standard
|	Pb	206	4107.9	1.9	0.6583	0.022	3.4	ug/L	523	Standard
|	Pb	207	3431.1	2.5	0.6162	0.027	4.3	ug/L	433	Standard
|	Pb	208	4075.9	1.0	0.6453	0.017	2.6	ug/L	498	Standard
	U	238	3312.7	0.8	0.7270	0.004	0.5	ug/L	6	Standard
>	Bi	209	609314.8	1.3				ug/L	631806	Standard

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Na	23	38.3	32.8	12.7089	4.360	34.3	mg/L	2	Standard
Mg	24	11816.3	3.3	206.8617	6.533	3.2	mg/L	27	Standard
K	39	66.7	17.3	0.5887	0.114	19.4	mg/L	17	Standard
Ca	43	116.7	6.5	56.4337	6.206	11.0	mg/L	47	Standard
Fe	54	729.9	7.1	4.5817	0.306	6.7	mg/L	23	Standard
Fe	57	613.3	2.9	8.3307	0.347	4.2	mg/L	253	Standard
Sc-1	45	42676.7	0.8				mg/L	39227	Standard
Cl	35	2.7	173.2				ug/L	1	Standard
Kr	83	2.7	78.1				ug/L	3	Standard
Br	81	190598.5	2.4				ug/L	2163	Standard
P	31	76.7	15.1				ug/L	57	Standard
S	34	45.0	50.9				ug/L	27	Standard
Sr	88	218.3	20.5				ug/L	125	Standard
C	12	113.3	53.9				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	10	Standard
Dy	164	1233.9	12.2				mg/L	9	Standard
Ho-1	165	1013.4	4.3				mg/L	8	Standard
Er	166	963.4	8.8				mg/L	20	Standard
I	127	435581.2	6.5				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		104.835	
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		96.611	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703168901

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	93.043
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
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[Ca	43	
[Fe	54	
[Fe	57	
>	Sc-1	45	
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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

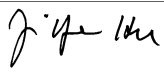
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Zn 66 Upper, S, EEE	Zn	66	

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Method 6020 - Summary Report

Sample ID: L1703169001

Sample Date/Time: Tuesday, April 04, 2017 13:07:15

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	315122.0	3.1				ug/L	302131	Standard
|	Be	9	78.3	14.7	0.0276	0.004	15.0	ug/L	12	Standard
|	Al	27	15106003.6	1.7	104.1370	4.550	4.4	ug/L	907	Standard
|	Sc	45	43530.8	2.2				ug/L	39227	Standard
|	Ti	47	914.7	4.6	4.5224	0.256	5.7	ug/L	34	Standard
|	V	51	-1159.8	57.4	-0.3521	0.109	31.0	ug/L	1155	Standard
|	Cr	52	33379.1	4.2	5.0157	0.314	6.3	ug/L	5602	Standard
|	Cr	53	46916.0	5.4	65.1980	4.307	6.6	ug/L	1042	Standard
|	Mn	55	441030.3	2.0	44.3634	1.363	3.1	ug/L	2370	Standard
|	Co	59	14422.9	0.4	1.8677	0.033	1.8	ug/L	381	Standard
|	Ni	60	11291.9	2.2	6.8756	0.226	3.3	ug/L	282	Standard
|	Cu	65	4018.2	5.6	2.0463	0.158	7.7	ug/L	707	Standard
|	Zn	66	29820.7	2.2	29.0690	0.998	3.4	ug/L	427	Standard
>	Ge	72	778481.3	1.3				ug/L	842801	Standard
|	As	75	-592.5	50.5	-0.5168	0.288	55.7	ug/L	-11	Standard
|	Se	82	-274.6	18.5	-2.9502	0.554	18.8	ug/L	18	Standard
|	Se-1	77	4941.1	8.5	71.8002	7.079	9.9	ug/L	127	Standard
>	Ga	71	158.3	23.3				mg/L	92	Standard
|	Rb	85	36472.2	2.4				ug/L	48	Standard
|	Y	89	548097.8	1.8				ug/L	587989	Standard
>	Rh	103	371.7	21.6				ug/L	8	Standard
|	Mo	98	4360.3	0.4	1.3315	0.020	1.5	ug/L	35	Standard
|	Ag	107	195.7	11.6	0.0075	0.004	50.1	ug/L	121	Standard
|	Cd	111	159.4	10.1	0.0893	0.012	13.2	mg/L	4	Standard
|	Cd	114	473.5	5.4	0.0935	0.008	8.8	ug/L	27	Standard
>	In	115	629784.7	1.5				ug/L	702235	Standard
|	Sn	118	303.0	6.4	0.1397	0.021	14.9	ug/L	180	Standard
|	Sb	123	1767.9	4.9	0.4264	0.029	6.7	ug/L	43	Standard
|	Ba	135	112663.7	1.4	74.9084	2.168	2.9	ug/L	50	Standard
|	Ce	140	1783.4	7.4				ug/L	20	Standard
>	Tb	159	1002832.7	1.6				ug/L	1036041	Standard
|	Ho	165	55.0	63.6				ug/L	8	Standard
|	Tl	203	279.3	8.1	0.0111	0.003	30.2	ug/L	87	Standard
|	Tl	205	665.0	8.7	0.0193	0.004	22.1	ug/L	255	Standard
|	Pb	206	854.7	1.4	0.0616	0.004	6.6	ug/L	523	Standard
|	Pb	207	704.0	6.5	0.0621	0.009	14.0	ug/L	433	Standard
|	Pb	208	820.7	4.1	0.0650	0.007	11.2	ug/L	498	Standard
	U	238	1245.4	3.1	0.2893	0.014	4.8	ug/L	6	Standard
>	Bi	209	561459.9	1.6				ug/L	631806	Standard

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Na	23	31.7	39.7	10.1568	4.209	41.4	mg/L	2	Standard
Mg	24	50134.6	3.7	862.3192	44.074	5.1	mg/L	27	Standard
K	39	133.3	32.3	1.2621	0.472	37.4	mg/L	17	Standard
Ca	43	53.3	32.9	7.6141	12.162	159.7	mg/L	47	Standard
Fe	54	79.0	11.2	0.2754	0.057	20.7	mg/L	23	Standard
Fe	57	373.3	5.4	1.8911	0.340	18.0	mg/L	253	Standard
Sc-1	45	43530.8	2.2				mg/L	39227	Standard
Cl	35	5.3	57.3				ug/L	1	Standard
Kr	83	5.7	20.4				ug/L	3	Standard
Br	81	126707.8	2.3				ug/L	2163	Standard
P	31	66.7	43.9				ug/L	57	Standard
S	34	50.0	43.6				ug/L	27	Standard
Sr	88	213.3	10.8				ug/L	125	Standard
C	12	480.0	44.8				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	87.3	49.2				mg/L	9	Standard
Ho-1	165	55.0	63.6				mg/L	8	Standard
Er	166	56.7	40.8				mg/L	20	Standard
I	127	413463.4	7.0				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		104.300	
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		92.368	
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	89.683
[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	88.866
[	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

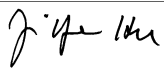
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
As 75 Lower	As	75	
Se 82 Lower	Se	82	

Sample ID: L1703169001

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Method 6020 - Summary Report

Sample ID: L1703169501

Sample Date/Time: Tuesday, April 04, 2017 13:10:21

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	298886.2	1.3				ug/L	302131	Standard
|	Be	9	73.3	23.9	0.0272	0.008	29.7	ug/L	12	Standard
|	Al	27	18882253.5	0.6	137.1366	1.026	0.7	ug/L	907	Standard
|	Sc	45	44712.5	0.5				ug/L	39227	Standard
|	Ti	47	139.7	10.3	0.4947	0.074	14.9	ug/L	34	Standard
|	V	51	1652.1	23.5	0.0856	0.056	65.7	ug/L	1155	Standard
|	Cr	52	10499.0	4.1	0.8470	0.055	6.5	ug/L	5602	Standard
|	Cr	53	6644.8	18.1	7.5001	1.519	20.3	ug/L	1042	Standard
|	Mn	55	9282758.1	0.8	881.0059	10.971	1.2	ug/L	2370	Standard
|	Co	59	9295.5	1.9	1.1117	0.013	1.2	ug/L	381	Standard
|	Ni	60	4195.9	2.5	2.2956	0.058	2.5	ug/L	282	Standard
|	Cu	65	1935.1	2.0	0.7407	0.026	3.6	ug/L	707	Standard
|	Zn	66	9638.4	1.3	8.5520	0.196	2.3	ug/L	427	Standard
>	Ge	72	829162.9	1.0				ug/L	842801	Standard
|	As	75	2557.7	5.7	2.3172	0.134	5.8	ug/L	-11	Standard
|	Se	82	57.5	18.0	0.4601	0.104	22.7	ug/L	18	Standard
|	Se-1	77	579.3	22.6	6.4925	1.741	26.8	ug/L	127	Standard
>	Ga	71	131.7	8.8				mg/L	92	Standard
|	Rb	85	17510.1	0.4				ug/L	48	Standard
|	Y	89	586953.4	0.8				ug/L	587989	Standard
>	Rh	103	55.0	32.8				ug/L	8	Standard
|	Mo	98	1144.5	3.1	0.3098	0.011	3.5	ug/L	35	Standard
|	Ag	107	135.7	7.7	-0.0059	0.002	31.4	ug/L	121	Standard
|	Cd	111	17.5	24.7	-0.0065	0.003	40.9	mg/L	4	Standard
|	Cd	114	72.6	34.0	-0.0125	0.006	47.2	ug/L	27	Standard
>	In	115	686354.0	0.3				ug/L	702235	Standard
|	Sn	118	336.3	2.8	0.1466	0.009	6.4	ug/L	180	Standard
|	Sb	123	184.0	24.8	0.0190	0.011	56.7	ug/L	43	Standard
|	Ba	135	395687.3	1.1	241.4491	3.192	1.3	ug/L	50	Standard
|	Ce	140	2798.6	4.1				ug/L	20	Standard
>	Tb	159	1048195.1	0.8				ug/L	1036041	Standard
|	Ho	165	388.3	8.8				ug/L	8	Standard
|	Tl	203	290.0	6.7	0.0082	0.003	33.5	ug/L	87	Standard
|	Tl	205	758.4	9.2	0.0205	0.004	19.9	ug/L	255	Standard
|	Pb	206	932.0	1.3	0.0588	0.003	4.3	ug/L	523	Standard
|	Pb	207	739.4	3.2	0.0539	0.005	8.7	ug/L	433	Standard
|	Pb	208	896.0	3.3	0.0626	0.005	7.5	ug/L	498	Standard
	U	238	1252.4	1.0	0.2612	0.004	1.5	ug/L	6	Standard
>	Bi	209	622160.6	0.5				ug/L	631806	Standard

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Na	23	25.0	52.9	7.7030	4.431	57.5	mg/L	2	Standard
Mg	24	2693.6	7.1	44.6659	2.957	6.6	mg/L	27	Standard
K	39	160.0	9.4	1.4836	0.146	9.8	mg/L	17	Standard
Ca	43	86.7	3.3	30.7842	2.356	7.7	mg/L	47	Standard
Fe	54	484.7	11.2	2.8173	0.326	11.6	mg/L	23	Standard
Fe	57	476.7	4.2	4.2095	0.473	11.2	mg/L	253	Standard
Sc-1	45	44712.5	0.5				mg/L	39227	Standard
Cl	35	2.0	0.0				ug/L	1	Standard
Kr	83	2.7	21.7				ug/L	3	Standard
Br	81	19355.7	2.7				ug/L	2163	Standard
P	31	65.0	42.8				ug/L	57	Standard
S	34	36.7	20.8				ug/L	27	Standard
Sr	88	126.7	23.8				ug/L	125	Standard
C	12	96.7	51.0				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	10	Standard
Dy	164	453.2	10.1				mg/L	9	Standard
Ho-1	165	388.3	8.8				mg/L	8	Standard
Er	166	350.0	7.6				mg/L	20	Standard
I	127	143475.0	3.5				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.926	
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		98.382	
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	97.739
[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	98.473
[	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

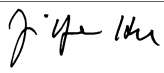
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1703169501

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Method 6020 - Summary Report

Sample ID: L1703169502

Sample Date/Time: Tuesday, April 04, 2017 13:13:26

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	298022.3	2.9				ug/L	302131	Standard
|	Be	9	50.0	26.5	0.0164	0.005	33.4	ug/L	12	Standard
|	Al	27	17542911.8	1.0	127.8333	3.552	2.8	ug/L	907	Standard
|	Sc	45	42930.7	0.5				ug/L	39227	Standard
|	Ti	47	137.0	6.5	0.4831	0.050	10.4	ug/L	34	Standard
|	V	51	1200.9	15.3	0.0178	0.026	144.3	ug/L	1155	Standard
|	Cr	52	7835.7	3.1	0.4068	0.026	6.4	ug/L	5602	Standard
|	Cr	53	2987.0	10.1	2.6463	0.354	13.4	ug/L	1042	Standard
|	Mn	55	14255126.4	0.4	1355.7058	20.994	1.5	ug/L	2370	Standard
|	Co	59	11816.6	1.2	1.4286	0.011	0.8	ug/L	381	Standard
|	Ni	60	5680.4	2.9	3.1708	0.134	4.2	ug/L	282	Standard
|	Cu	65	1992.8	2.9	0.7750	0.040	5.1	ug/L	707	Standard
|	Zn	66	6088.6	3.5	5.2710	0.204	3.9	ug/L	427	Standard
>	Ge	72	827588.1	1.2				ug/L	842801	Standard
|	As	75	457.6	13.5	0.4534	0.059	13.1	ug/L	-11	Standard
|	Se	82	31.8	7.7	0.2104	0.021	10.1	ug/L	18	Standard
|	Se-1	77	302.7	14.9	2.6566	0.621	23.4	ug/L	127	Standard
>	Ga	71	138.3	18.5				mg/L	92	Standard
|	Rb	85	10170.1	2.9				ug/L	48	Standard
|	Y	89	582805.8	1.6				ug/L	587989	Standard
>	Rh	103	33.3	37.7				ug/L	8	Standard
|	Mo	98	623.1	2.1	0.1611	0.003	2.0	ug/L	35	Standard
|	Ag	107	151.3	31.9	-0.0034	0.008	237.4	ug/L	121	Standard
|	Cd	111	17.2	86.0	-0.0068	0.009	131.1	mg/L	4	Standard
|	Cd	114	87.5	11.6	-0.0090	0.003	28.2	ug/L	27	Standard
>	In	115	690623.3	0.8				ug/L	702235	Standard
|	Sn	118	340.0	3.8	0.1484	0.017	11.3	ug/L	180	Standard
|	Sb	123	180.2	18.6	0.0178	0.008	42.4	ug/L	43	Standard
|	Ba	135	422806.0	0.9	256.4225	4.194	1.6	ug/L	50	Standard
|	Ce	140	528.3	11.4				ug/L	20	Standard
>	Tb	159	1060388.5	0.4				ug/L	1036041	Standard
|	Ho	165	16.7	75.5				ug/L	8	Standard
|	Tl	203	364.3	20.0	0.0193	0.011	55.7	ug/L	87	Standard
|	Tl	205	976.7	29.1	0.0339	0.017	51.0	ug/L	255	Standard
|	Pb	206	692.7	13.5	0.0149	0.017	115.4	ug/L	523	Standard
|	Pb	207	622.7	15.3	0.0302	0.019	63.4	ug/L	433	Standard
|	Pb	208	696.3	13.3	0.0271	0.017	61.6	ug/L	498	Standard
	U	238	206.3	33.1	0.0325	0.015	45.7	ug/L	6	Standard
>	Bi	209	621873.2	0.5				ug/L	631806	Standard

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Na	23	50.0	26.5	16.6634	4.567	27.4	mg/L	2	Standard
Mg	24	1713.4	6.3	29.4502	1.742	5.9	mg/L	27	Standard
K	39	130.0	10.2	1.2397	0.138	11.1	mg/L	17	Standard
Ca	43	101.7	15.0	44.6403	11.588	26.0	mg/L	47	Standard
Fe	54	484.5	4.7	2.9437	0.143	4.9	mg/L	23	Standard
Fe	57	475.0	5.3	4.6597	0.677	14.5	mg/L	253	Standard
Sc-1	45	42930.7	0.5				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	4.0	86.6				ug/L	3	Standard
Br	81	10700.4	4.2				ug/L	2163	Standard
P	31	65.0	7.7				ug/L	57	Standard
S	34	55.0	39.6				ug/L	27	Standard
Sr	88	193.3	19.6				ug/L	125	Standard
C	12	43.3	66.6				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	15.4	96.6				mg/L	9	Standard
Ho-1	165	16.7	75.5				mg/L	8	Standard
Er	166	26.7	43.3				mg/L	20	Standard
I	127	98452.9	5.9				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.640	
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		98.195	
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	98.347
[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	98.428
[	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

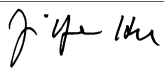
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1703169502

Report Date/Time: Tuesday, April 04, 2017 13:15:37

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Method 6020 - Summary Report

Sample ID: L1703169503

Sample Date/Time: Tuesday, April 04, 2017 13:16:31

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	298915.0	1.2				ug/L	302131	Standard
|	Be	9	70.0	25.8	0.0257	0.009	33.9	ug/L	12	Standard
|	Al	27	16612545.4	1.6	120.6393	2.147	1.8	ug/L	907	Standard
|	Sc	45	42858.9	2.8				ug/L	39227	Standard
|	Ti	47	110.7	7.5	0.3589	0.041	11.5	ug/L	34	Standard
|	V	51	973.2	20.8	-0.0157	0.030	189.8	ug/L	1155	Standard
|	Cr	52	8780.2	1.5	0.5738	0.031	5.3	ug/L	5602	Standard
|	Cr	53	4954.1	7.8	5.3160	0.557	10.5	ug/L	1042	Standard
|	Mn	55	12385914.4	1.2	1185.3447	21.094	1.8	ug/L	2370	Standard
|	Co	59	12761.0	1.0	1.5566	0.015	1.0	ug/L	381	Standard
|	Ni	60	8783.2	0.3	5.0200	0.017	0.3	ug/L	282	Standard
|	Cu	65	1986.5	4.7	0.7785	0.059	7.5	ug/L	707	Standard
|	Zn	66	7094.7	2.4	6.2478	0.196	3.1	ug/L	427	Standard
>	Ge	72	822355.4	0.6				ug/L	842801	Standard
|	As	75	453.7	1.5	0.4521	0.007	1.6	ug/L	-11	Standard
|	Se	82	42.2	14.4	0.3141	0.059	18.7	ug/L	18	Standard
|	Se-1	77	489.7	5.2	5.3119	0.392	7.4	ug/L	127	Standard
>	Ga	71	163.3	8.8				mg/L	92	Standard
|	Rb	85	12318.3	3.7				ug/L	48	Standard
|	Y	89	583752.5	2.1				ug/L	587989	Standard
>	Rh	103	38.3	41.9				ug/L	8	Standard
|	Mo	98	3143.6	3.6	0.8803	0.030	3.4	ug/L	35	Standard
|	Ag	107	198.7	64.2	0.0051	0.022	430.6	ug/L	121	Standard
|	Cd	111	29.6	115.0	0.0009	0.021	2199.1	mg/L	4	Standard
|	Cd	114	125.5	49.2	0.0003	0.015	5175.5	ug/L	27	Standard
>	In	115	682969.4	1.4				ug/L	702235	Standard
|	Sn	118	353.0	7.7	0.1669	0.028	16.7	ug/L	180	Standard
|	Sb	123	647.8	16.1	0.1281	0.024	19.1	ug/L	43	Standard
|	Ba	135	111585.4	0.9	68.4014	1.312	1.9	ug/L	50	Standard
|	Ce	140	635.0	7.6				ug/L	20	Standard
>	Tb	159	1038948.7	1.0				ug/L	1036041	Standard
|	Ho	165	181.7	13.6				ug/L	8	Standard
|	Tl	203	317.7	20.1	0.0122	0.009	77.3	ug/L	87	Standard
|	Tl	205	781.7	23.8	0.0218	0.011	50.9	ug/L	255	Standard
|	Pb	206	785.7	5.3	0.0315	0.007	23.0	ug/L	523	Standard
|	Pb	207	659.7	7.0	0.0373	0.008	22.7	ug/L	433	Standard
|	Pb	208	754.7	8.2	0.0371	0.011	30.2	ug/L	498	Standard
	U	238	1824.1	4.4	0.3854	0.019	5.0	ug/L	6	Standard
>	Bi	209	623572.7	0.9				ug/L	631806	Standard

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Na	23	45.0	22.2	14.9097	3.055	20.5	mg/L	2	Standard
Mg	24	3687.1	2.5	64.0364	3.145	4.9	mg/L	27	Standard
K	39	133.3	9.4	1.2747	0.093	7.3	mg/L	17	Standard
Ca	43	98.3	38.8	42.3007	28.431	67.2	mg/L	47	Standard
Fe	54	259.4	5.9	1.4703	0.101	6.9	mg/L	23	Standard
Fe	57	443.3	10.2	3.8587	1.109	28.7	mg/L	253	Standard
Sc-1	45	42858.9	2.8				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.3	65.5				ug/L	3	Standard
Br	81	15404.5	6.0				ug/L	2163	Standard
P	31	85.0	15.6				ug/L	57	Standard
S	34	43.3	29.0				ug/L	27	Standard
Sr	88	156.7	4.9				ug/L	125	Standard
C	12	60.0	66.7				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	140.7	19.6				mg/L	9	Standard
Ho-1	165	181.7	13.6				mg/L	8	Standard
Er	166	263.3	15.8				mg/L	20	Standard
I	127	33882.9	1.7				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.936	
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		97.574	
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	97.257
[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	98.697
[	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

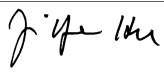
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1703169503

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Method 6020 - Summary Report

Sample ID: L1703169504

Sample Date/Time: Tuesday, April 04, 2017 13:19:37

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	299679.0	2.4				ug/L	302131	Standard
|	Be	9	46.7	22.3	0.0148	0.005	31.6	ug/L	12	Standard
|	Al	27	19737599.8	0.6	143.0094	3.167	2.2	ug/L	907	Standard
|	Sc	45	42987.6	0.4				ug/L	39227	Standard
|	Ti	47	136.0	4.1	0.4826	0.031	6.4	ug/L	34	Standard
|	V	51	1109.4	9.3	0.0054	0.017	324.1	ug/L	1155	Standard
|	Cr	52	7963.4	1.9	0.4375	0.025	5.8	ug/L	5602	Standard
|	Cr	53	2690.2	15.5	2.2738	0.508	22.3	ug/L	1042	Standard
|	Mn	55	17971658.9	0.4	1721.0647	23.129	1.3	ug/L	2370	Standard
|	Co	59	6811.2	1.7	0.8100	0.027	3.3	ug/L	381	Standard
|	Ni	60	5364.6	1.0	3.0071	0.059	2.0	ug/L	282	Standard
|	Cu	65	1453.1	1.1	0.4797	0.018	3.7	ug/L	707	Standard
|	Zn	66	4227.3	0.2	3.5696	0.067	1.9	ug/L	427	Standard
>	Ge	72	821901.2	1.5				ug/L	842801	Standard
|	As	75	1281.4	5.5	1.1935	0.053	4.4	ug/L	-11	Standard
|	Se	82	28.8	18.6	0.1827	0.048	26.5	ug/L	18	Standard
|	Se-1	77	333.7	4.9	3.1238	0.260	8.3	ug/L	127	Standard
>	Ga	71	195.0	12.8				mg/L	92	Standard
|	Rb	85	13609.4	2.2				ug/L	48	Standard
|	Y	89	569190.3	2.0				ug/L	587989	Standard
>	Rh	103	26.7	54.1				ug/L	8	Standard
|	Mo	98	2099.3	3.5	0.5842	0.027	4.6	ug/L	35	Standard
|	Ag	107	112.3	8.6	-0.0099	0.002	15.6	ug/L	121	Standard
|	Cd	111	5.3	33.9	-0.0139	0.001	7.8	mg/L	4	Standard
|	Cd	114	58.5	17.4	-0.0158	0.003	15.9	ug/L	27	Standard
>	In	115	681855.4	1.0				ug/L	702235	Standard
|	Sn	118	304.7	7.5	0.1137	0.023	20.5	ug/L	180	Standard
|	Sb	123	234.1	11.8	0.0310	0.006	19.7	ug/L	43	Standard
|	Ba	135	376591.7	0.5	231.3154	1.513	0.7	ug/L	50	Standard
|	Ce	140	170.0	21.2				ug/L	20	Standard
>	Tb	159	1032646.3	0.7				ug/L	1036041	Standard
|	Ho	165	108.3	17.5				ug/L	8	Standard
|	Tl	203	294.7	7.0	0.0096	0.003	30.2	ug/L	87	Standard
|	Tl	205	656.7	12.4	0.0149	0.005	33.7	ug/L	255	Standard
|	Pb	206	618.7	6.8	0.0029	0.009	292.4	ug/L	523	Standard
|	Pb	207	513.7	3.3	0.0095	0.003	33.2	ug/L	433	Standard
|	Pb	208	593.0	1.1	0.0101	0.001	14.0	ug/L	498	Standard
	U	238	621.7	3.0	0.1253	0.004	3.3	ug/L	6	Standard
>	Bi	209	613142.2	0.8				ug/L	631806	Standard

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Na	23	41.7	18.3	13.7664	2.611	19.0	mg/L	2	Standard
Mg	24	2425.2	4.3	41.8081	1.694	4.1	mg/L	27	Standard
K	39	171.7	10.2	1.6680	0.181	10.9	mg/L	17	Standard
Ca	43	110.0	13.6	50.7744	11.191	22.0	mg/L	47	Standard
Fe	54	416.2	12.3	2.4921	0.339	13.6	mg/L	23	Standard
Fe	57	476.7	9.5	4.6878	1.208	25.8	mg/L	253	Standard
Sc-1	45	42987.6	0.4				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	2.7	57.3				ug/L	3	Standard
Br	81	13102.3	1.6				ug/L	2163	Standard
P	31	60.0	38.2				ug/L	57	Standard
S	34	36.7	43.8				ug/L	27	Standard
Sr	88	128.3	37.0				ug/L	125	Standard
C	12	53.3	75.8				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	54.1	62.2				mg/L	9	Standard
Ho-1	165	108.3	17.5				mg/L	8	Standard
Er	166	193.3	16.6				mg/L	20	Standard
I	127	170874.4	6.8				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.188	
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		97.520	
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	97.098
[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	97.046
[	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

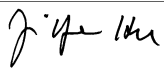
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1703169504

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Tuesday, April 04, 2017 13:22:44

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	285626.0	1.8				ug/L	302131	Standard
|	Be	9	103738.9	0.3	50.3566	0.801	1.6	ug/L	12	Standard
|	Al	27	6688217.6	0.5	50.8246	0.797	1.6	ug/L	907	Standard
|	Sc	45	40718.0	1.9				ug/L	39227	Standard
|	Ti	47	20816.6	0.9	103.1160	0.667	0.6	ug/L	34	Standard
|	V	51	328446.5	0.2	50.9761	0.503	1.0	ug/L	1155	Standard
|	Cr	52	303718.2	0.1	51.0493	0.594	1.2	ug/L	5602	Standard
|	Cr	53	38532.3	0.3	51.4087	0.462	0.9	ug/L	1042	Standard
|	Mn	55	519551.2	1.0	50.4900	0.667	1.3	ug/L	2370	Standard
|	Co	59	391805.9	1.0	50.1535	0.286	0.6	ug/L	381	Standard
|	Ni	60	83412.7	1.8	50.0023	1.102	2.2	ug/L	282	Standard
|	Cu	65	87619.7	1.4	49.8028	0.722	1.5	ug/L	707	Standard
|	Zn	66	52099.1	0.5	49.2958	0.619	1.3	ug/L	427	Standard
>	Ge	72	806179.6	1.1				ug/L	842801	Standard
|	As	75	53634.7	0.6	49.0332	0.379	0.8	ug/L	-11	Standard
|	Se	82	4867.9	0.4	48.6333	0.381	0.8	ug/L	18	Standard
|	Se-1	77	3533.1	2.0	49.0548	1.243	2.5	ug/L	127	Standard
>	Ga	71	111.7	11.3				mg/L	92	Standard
|	Rb	85	318.3	4.0				ug/L	48	Standard
|	Y	89	558905.4	0.8				ug/L	587989	Standard
>	Rh	103	35.0	37.8				ug/L	8	Standard
|	Mo	98	341362.0	0.8	99.0622	1.417	1.4	ug/L	35	Standard
|	Ag	107	278003.4	0.9	49.4662	0.777	1.6	ug/L	121	Standard
|	Cd	111	79839.1	0.3	50.1394	0.577	1.2	mg/L	4	Standard
|	Cd	114	206147.8	0.5	50.4354	0.418	0.8	ug/L	27	Standard
>	In	115	669725.3	1.1				ug/L	702235	Standard
|	Sn	118	45667.4	2.4	51.5995	1.804	3.5	ug/L	180	Standard
|	Sb	123	207701.9	0.2	49.7086	0.533	1.1	ug/L	43	Standard
|	Ba	135	80105.2	1.0	50.0608	1.014	2.0	ug/L	50	Standard
|	Ce	140	221.7	7.9				ug/L	20	Standard
>	Tb	159	1009931.3	1.2				ug/L	1036041	Standard
|	Ho	165	20.0	66.1				ug/L	8	Standard
|	Tl	203	331798.5	0.9	50.1581	0.495	1.0	ug/L	87	Standard
|	Tl	205	806021.4	0.9	50.0808	0.361	0.7	ug/L	255	Standard
|	Pb	206	268668.9	0.7	50.0698	0.403	0.8	ug/L	523	Standard
|	Pb	207	243018.5	1.0	50.1518	0.661	1.3	ug/L	433	Standard
|	Pb	208	274291.4	0.7	49.6479	0.412	0.8	ug/L	498	Standard
	U	238	225093.9	1.2	50.0309	0.912	1.8	ug/L	6	Standard
>	Bi	209	611989.3	1.5				ug/L	631806	Standard

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Na	23	5.0	0.0	1.2223	0.036	2.9	mg/L	2	Standard
Mg	24	331.7	10.3	5.6735	0.610	10.7	mg/L	27	Standard
K	39	510.0	7.8	5.4535	0.419	7.7	mg/L	17	Standard
Ca	43	56.7	36.7	13.3853	17.503	130.8	mg/L	47	Standard
Fe	54	784.4	1.5	5.1927	0.085	1.6	mg/L	23	Standard
Fe	57	506.7	2.5	6.1905	0.235	3.8	mg/L	253	Standard
Sc-1	45	40718.0	1.9				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	3.3	75.5				ug/L	3	Standard
Br	81	2110.1	4.3				ug/L	2163	Standard
P	31	66.7	8.7				ug/L	57	Standard
S	34	50.0	20.0				ug/L	27	Standard
Sr	88	123.3	24.4				ug/L	125	Standard
C	12	23.3	49.5				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	173.2				mg/L	10	Standard
Dy	164	43.0	13.1				mg/L	9	Standard
Ho-1	165	20.0	66.1				mg/L	8	Standard
Er	166	6.7	86.6				mg/L	20	Standard
I	127	6071.3	38.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
> Li	6			
Be	9	100.713		
Al	27	101.649		
Sc	45			
Ti	47	103.116		
V	51	101.952		
Cr	52	102.099		
Cr	53			
Mn	55	100.980		
Co	59	100.307		
Ni	60	100.005		
Cu	65	99.606		
Zn	66	98.592		
> Ge	72		95.655	
As	75	98.066		
Se	82	97.267		
Se-1	77			
> Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	99.062	
[Ag	107	98.932	
[Cd	111	100.279	
[Cd	114		
>	In	115		95.371
[Sn	118	103.199	
[	Sb	123	99.417	
[	Ba	135	100.122	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.316	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	99.296	
[	U	238	100.062	
>	Bi	209		96.863
[	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: Tuesday, April 04, 2017 13:25:49

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	289391.2	1.5				ug/L	302131	Standard
|	Be	9	38.3	54.3	0.0116	0.010	86.0	ug/L	12	Standard
|	Al	27	1313.4	25.9	-0.0080	0.003	34.1	ug/L	907	Standard
|	Sc	45	41254.5	3.4				ug/L	39227	Standard
|	Ti	47	34.3	14.4	-0.0096	0.026	269.4	ug/L	34	Standard
|	V	51	926.7	7.9	-0.0205	0.010	46.4	ug/L	1155	Standard
|	Cr	52	4677.1	0.4	-0.1012	0.007	7.4	ug/L	5602	Standard
|	Cr	53	566.7	7.3	-0.5607	0.051	9.1	ug/L	1042	Standard
|	Mn	55	2761.9	8.4	0.0298	0.025	83.7	ug/L	2370	Standard
|	Co	59	293.0	8.0	-0.0088	0.003	37.1	ug/L	381	Standard
|	Ni	60	212.0	4.3	-0.0304	0.004	14.8	ug/L	282	Standard
|	Cu	65	1369.4	2.0	0.4450	0.019	4.3	ug/L	707	Standard
|	Zn	66	434.3	2.4	0.0282	0.014	49.7	ug/L	427	Standard
>	Ge	72	808925.1	1.2				ug/L	842801	Standard
|	As	75	-13.9	299.9	0.0331	0.038	115.4	ug/L	-11	Standard
|	Se	82	14.4	42.2	0.0444	0.060	136.1	ug/L	18	Standard
|	Se-1	77	88.3	18.1	-0.3070	0.211	68.8	ug/L	127	Standard
>	Ga	71	95.0	13.9				mg/L	92	Standard
|	Rb	85	31.7	39.7				ug/L	48	Standard
|	Y	89	560605.4	1.2				ug/L	587989	Standard
>	Rh	103	13.3	78.1				ug/L	8	Standard
|	Mo	98	148.2	22.1	0.0284	0.010	34.7	ug/L	35	Standard
|	Ag	107	144.7	7.6	-0.0039	0.002	51.0	ug/L	121	Standard
|	Cd	111	6.8	28.8	-0.0130	0.001	9.8	mg/L	4	Standard
|	Cd	114	40.9	47.0	-0.0199	0.005	24.0	ug/L	27	Standard
>	In	115	675295.9	1.2				ug/L	702235	Standard
|	Sn	118	214.3	9.0	0.0153	0.020	131.9	ug/L	180	Standard
|	Sb	123	151.2	11.2	0.0119	0.004	30.1	ug/L	43	Standard
|	Ba	135	52.0	5.8	-0.0178	0.002	8.4	ug/L	50	Standard
|	Ce	140	21.7	53.3				ug/L	20	Standard
>	Tb	159	1008848.8	1.1				ug/L	1036041	Standard
|	Ho	165	6.7	43.3				ug/L	8	Standard
|	Tl	203	78.3	16.7	-0.0232	0.002	8.4	ug/L	87	Standard
|	Tl	205	235.0	14.9	-0.0114	0.002	19.7	ug/L	255	Standard
|	Pb	206	983.0	2.5	0.0685	0.004	5.4	ug/L	523	Standard
|	Pb	207	808.0	1.1	0.0681	0.001	2.2	ug/L	433	Standard
|	Pb	208	954.0	3.4	0.0733	0.005	6.3	ug/L	498	Standard
	U	238	27.0	22.5	-0.0067	0.001	20.1	ug/L	6	Standard
>	Bi	209	620936.6	0.8				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	33.3	34.6	0.1757	0.193	109.8	mg/L	27	Standard
K	39	20.0	50.0	0.1138	0.116	101.5	mg/L	17	Standard
Ca	43	30.0	33.3	-8.2602	7.593	91.9	mg/L	47	Standard
Fe	54	27.6	20.1	-0.0472	0.036	76.7	mg/L	23	Standard
Fe	57	321.7	8.6	1.0414	0.875	84.1	mg/L	253	Standard
Sc-1	45	41254.5	3.4				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	4.7	44.6				ug/L	3	Standard
Br	81	1823.4	13.2				ug/L	2163	Standard
P	31	58.3	21.6				ug/L	57	Standard
S	34	38.3	41.9				ug/L	27	Standard
Sr	88	130.0	25.2				ug/L	125	Standard
C	12	13.3	43.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	12.7	93.2				mg/L	9	Standard
Ho-1	165	6.7	43.3				mg/L	8	Standard
Er	166	13.3	86.6				mg/L	20	Standard
I	127	4235.6	5.9				mg/L	3535	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		95.981	
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	96.164
[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	98.280
[	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: L1703168901

Sample Date/Time: Tuesday, April 04, 2017 13:41:51

Number of Replicates: 3

Autosampler Position: 224

Sample Description: 10

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	263039.6	2.6				ug/L	302131	Standard
|	Be	9	78.3	26.6	0.0347	0.012	34.0	ug/L	12	Standard
|	Al	27	3035785.3	0.3	25.0483	0.698	2.8	ug/L	907	Standard
|	Sc	45	38458.8	3.2				ug/L	39227	Standard
|	Ti	47	113.7	2.2	0.4209	0.024	5.6	ug/L	34	Standard
|	V	51	1724.5	3.8	0.1214	0.007	5.6	ug/L	1155	Standard
|	Cr	52	15063.2	0.5	1.8432	0.058	3.1	ug/L	5602	Standard
|	Cr	53	3760.5	4.7	4.1438	0.274	6.6	ug/L	1042	Standard
|	Mn	55	607847.5	0.8	62.9234	1.613	2.6	ug/L	2370	Standard
|	Co	59	9011.7	2.1	1.1829	0.053	4.5	ug/L	381	Standard
|	Ni	60	3601.8	0.6	2.1473	0.038	1.8	ug/L	282	Standard
|	Cu	65	1894.5	2.6	0.8177	0.040	4.9	ug/L	707	Standard
|	Zn	66	28992.7	1.9	29.0397	1.019	3.5	ug/L	427	Standard
>	Ge	72	757746.4	2.2				ug/L	842801	Standard
|	As	75	173.5	30.7	0.2139	0.049	23.1	ug/L	-11	Standard
|	Se	82	45.2	13.9	0.3823	0.068	17.7	ug/L	18	Standard
|	Se-1	77	298.3	7.0	2.9823	0.334	11.2	ug/L	127	Standard
>	Ga	71	81.7	41.7				mg/L	92	Standard
|	Rb	85	1355.1	0.4				ug/L	48	Standard
|	Y	89	513480.4	2.9				ug/L	587989	Standard
>	Rh	103	28.3	36.7				ug/L	8	Standard
|	Mo	98	772.0	4.3	0.2241	0.014	6.4	ug/L	35	Standard
|	Ag	107	125.7	8.0	-0.0057	0.002	41.8	ug/L	121	Standard
|	Cd	111	113.7	11.2	0.0588	0.009	16.0	mg/L	4	Standard
|	Cd	114	306.9	5.9	0.0500	0.003	6.2	ug/L	27	Standard
>	In	115	629862.5	2.2				ug/L	702235	Standard
|	Sn	118	178.3	20.8	-0.0109	0.042	389.7	ug/L	180	Standard
|	Sb	123	203.8	27.9	0.0277	0.014	49.2	ug/L	43	Standard
|	Ba	135	55437.6	0.5	36.8335	1.001	2.7	ug/L	50	Standard
|	Ce	140	4770.8	5.8				ug/L	20	Standard
>	Tb	159	933909.6	1.6				ug/L	1036041	Standard
|	Ho	165	110.0	12.0				ug/L	8	Standard
|	Tl	203	239.7	4.1	0.0041	0.002	42.2	ug/L	87	Standard
|	Tl	205	635.0	6.1	0.0167	0.003	17.9	ug/L	255	Standard
|	Pb	206	902.0	2.5	0.0690	0.004	5.5	ug/L	523	Standard
|	Pb	207	728.0	4.6	0.0656	0.005	8.1	ug/L	433	Standard
|	Pb	208	866.7	1.6	0.0721	0.004	5.1	ug/L	498	Standard
	U	238	291.3	1.5	0.0571	0.001	1.0	ug/L	6	Standard
>	Bi	209	568254.6	1.4				ug/L	631806	Standard

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Na	23	8.3	34.6	2.5995	1.061	40.8	mg/L	2	Standard
Mg	24	1223.4	5.4	23.4298	1.958	8.4	mg/L	27	Standard
K	39	28.3	36.7	0.2234	0.122	54.8	mg/L	17	Standard
Ca	43	41.7	27.7	3.3081	10.086	304.9	mg/L	47	Standard
Fe	54	107.9	5.7	0.5560	0.065	11.7	mg/L	23	Standard
Fe	57	320.0	8.7	1.6340	1.086	66.5	mg/L	253	Standard
Sc-1	45	38458.8	3.2				mg/L	39227	Standard
Cl	35	3.3	69.3				ug/L	1	Standard
Kr	83	2.7	43.3				ug/L	3	Standard
Br	81	19909.8	3.7				ug/L	2163	Standard
P	31	66.7	35.4				ug/L	57	Standard
S	34	40.0	25.0				ug/L	27	Standard
Sr	88	155.0	5.6				ug/L	125	Standard
C	12	20.0	50.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	135.4	18.8				mg/L	9	Standard
Ho-1	165	110.0	12.0				mg/L	8	Standard
Er	166	96.7	26.0				mg/L	20	Standard
I	127	52980.0	20.1				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		87.061	
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		89.908	
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	89.694
[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	89.941
[	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: L1703168901

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Tuesday, April 04, 2017 13:44:59

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	288179.9	1.0				ug/L	302131	Standard
|	Be	9	105702.6	2.6	50.8519	1.600	3.1	ug/L	12	Standard
|	Al	27	6824491.9	1.0	51.3967	0.937	1.8	ug/L	907	Standard
|	Sc	45	40791.6	5.4				ug/L	39227	Standard
|	Ti	47	21118.4	0.8	104.5677	2.227	2.1	ug/L	34	Standard
|	V	51	335080.9	0.6	51.9816	0.901	1.7	ug/L	1155	Standard
|	Cr	52	310410.9	0.8	52.1652	0.934	1.8	ug/L	5602	Standard
|	Cr	53	38798.0	2.0	51.7539	1.809	3.5	ug/L	1042	Standard
|	Mn	55	528808.3	1.0	51.3708	1.231	2.4	ug/L	2370	Standard
|	Co	59	400234.9	0.9	51.2125	1.191	2.3	ug/L	381	Standard
|	Ni	60	84919.0	0.5	50.8798	0.848	1.7	ug/L	282	Standard
|	Cu	65	89497.2	0.2	50.8500	0.657	1.3	ug/L	707	Standard
|	Zn	66	53341.7	1.4	50.4522	1.021	2.0	ug/L	427	Standard
>	Ge	72	806674.9	1.4				ug/L	842801	Standard
|	As	75	54393.8	0.6	49.7029	0.965	1.9	ug/L	-11	Standard
|	Se	82	4961.0	1.1	49.5342	0.229	0.5	ug/L	18	Standard
|	Se-1	77	3585.8	2.4	49.7878	1.831	3.7	ug/L	127	Standard
>	Ga	71	88.3	26.1				mg/L	92	Standard
|	Rb	85	316.7	7.5				ug/L	48	Standard
|	Y	89	556097.0	2.5				ug/L	587989	Standard
>	Rh	103	28.3	71.3				ug/L	8	Standard
|	Mo	98	348348.0	1.4	100.4674	2.909	2.9	ug/L	35	Standard
|	Ag	107	283841.2	1.8	50.1935	1.541	3.1	ug/L	121	Standard
|	Cd	111	82311.0	0.7	51.3712	1.194	2.3	mg/L	4	Standard
|	Cd	114	210578.8	1.8	51.2021	1.473	2.9	ug/L	27	Standard
>	In	115	674027.1	1.7				ug/L	702235	Standard
|	Sn	118	45850.6	0.8	51.4685	0.628	1.2	ug/L	180	Standard
|	Sb	123	211729.3	0.8	50.3592	1.240	2.5	ug/L	43	Standard
|	Ba	135	81352.2	1.5	50.5188	1.180	2.3	ug/L	50	Standard
|	Ce	140	233.3	17.8				ug/L	20	Standard
>	Tb	159	1002494.3	0.9				ug/L	1036041	Standard
|	Ho	165	10.0	86.6				ug/L	8	Standard
|	Tl	203	334070.3	1.6	50.6376	1.418	2.8	ug/L	87	Standard
|	Tl	205	811527.4	1.5	50.5576	1.282	2.5	ug/L	255	Standard
|	Pb	206	271296.9	1.9	50.6975	1.548	3.1	ug/L	523	Standard
|	Pb	207	246268.7	1.8	50.9605	1.516	3.0	ug/L	433	Standard
|	Pb	208	276908.8	1.5	50.2575	1.385	2.8	ug/L	498	Standard
	U	238	228092.7	1.7	50.8307	1.429	2.8	ug/L	6	Standard
>	Bi	209	610448.8	1.4				ug/L	631806	Standard

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Na	23	5.0	100.0	1.2718	1.860	146.3	mg/L	2	Standard
Mg	24	366.7	15.1	6.2832	0.669	10.6	mg/L	27	Standard
K	39	566.7	3.3	6.0676	0.285	4.7	mg/L	17	Standard
Ca	43	43.3	17.6	2.6033	6.421	246.6	mg/L	47	Standard
Fe	54	725.9	9.5	4.7820	0.478	10.0	mg/L	23	Standard
Fe	57	453.3	5.2	4.7540	1.218	25.6	mg/L	253	Standard
Sc-1	45	40791.6	5.4				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.3	99.0				ug/L	3	Standard
Br	81	2236.8	7.4				ug/L	2163	Standard
P	31	31.7	59.8				ug/L	57	Standard
S	34	36.7	43.8				ug/L	27	Standard
Sr	88	136.7	18.4				ug/L	125	Standard
C	12	13.3	86.6				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	18.2	53.5				mg/L	9	Standard
Ho-1	165	10.0	86.6				mg/L	8	Standard
Er	166	36.7	15.7				mg/L	20	Standard
I	127	3385.4	11.2				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	101.704		
Al	27	102.793		
Sc	45			
Ti	47	104.568		
V	51	103.963		
Cr	52	104.330		
Cr	53			
Mn	55	102.742		
Co	59	102.425		
Ni	60	101.760		
Cu	65	101.700		
Zn	66	100.904		
Ge	72		95.714	
As	75	99.406		
Se	82	99.068		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.467	
[Ag	107	100.387	
[Cd	111	102.742	
[Cd	114		
>	In	115		95.983
[Sn	118	102.937	
[	Sb	123	100.718	
[	Ba	135	101.038	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	101.275	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	100.515	
[	U	238	101.661	
>	Bi	209		96.620
[	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: Tuesday, April 04, 2017 13:48:04

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	283222.5	3.0				ug/L	302131	Standard
|	Be	9	35.0	14.3	0.0104	0.003	27.0	ug/L	12	Standard
|	Al	27	855.0	12.7	-0.0113	0.001	7.4	ug/L	907	Standard
|	Sc	45	40348.7	1.8				ug/L	39227	Standard
|	Ti	47	30.7	7.5	-0.0235	0.012	50.8	ug/L	34	Standard
|	V	51	1062.4	9.6	0.0053	0.016	293.0	ug/L	1155	Standard
|	Cr	52	4889.5	1.3	-0.0414	0.008	18.5	ug/L	5602	Standard
|	Cr	53	425.0	11.8	-0.7374	0.069	9.3	ug/L	1042	Standard
|	Mn	55	2151.8	0.5	-0.0238	0.002	8.1	ug/L	2370	Standard
|	Co	59	279.3	5.1	-0.0095	0.002	19.7	ug/L	381	Standard
|	Ni	60	216.3	2.6	-0.0241	0.003	12.5	ug/L	282	Standard
|	Cu	65	1472.4	4.2	0.5275	0.033	6.3	ug/L	707	Standard
|	Zn	66	424.7	5.5	0.0304	0.021	69.7	ug/L	427	Standard
>	Ge	72	786515.4	0.4				ug/L	842801	Standard
|	As	75	-18.9	142.5	0.0282	0.025	89.1	ug/L	-11	Standard
|	Se	82	15.7	14.5	0.0619	0.023	37.4	ug/L	18	Standard
|	Se-1	77	87.0	6.9	-0.2892	0.084	28.9	ug/L	127	Standard
>	Ga	71	61.7	16.9				mg/L	92	Standard
|	Rb	85	45.0	33.3				ug/L	48	Standard
|	Y	89	552249.6	0.8				ug/L	587989	Standard
>	Rh	103	5.0	100.0				ug/L	8	Standard
|	Mo	98	141.3	30.6	0.0270	0.012	46.2	ug/L	35	Standard
|	Ag	107	123.3	12.3	-0.0074	0.003	37.4	ug/L	121	Standard
|	Cd	111	4.2	27.7	-0.0146	0.001	5.0	mg/L	4	Standard
|	Cd	114	47.5	6.5	-0.0181	0.001	3.9	ug/L	27	Standard
>	In	115	664479.2	0.5				ug/L	702235	Standard
|	Sn	118	219.0	7.5	0.0247	0.020	79.8	ug/L	180	Standard
|	Sb	123	174.0	16.1	0.0180	0.007	38.4	ug/L	43	Standard
|	Ba	135	48.7	8.3	-0.0194	0.002	12.5	ug/L	50	Standard
|	Ce	140	30.0	16.7				ug/L	20	Standard
>	Tb	159	982650.9	1.9				ug/L	1036041	Standard
|	Ho	165	5.0	0.0				ug/L	8	Standard
|	Tl	203	63.7	26.6	-0.0253	0.003	10.1	ug/L	87	Standard
|	Tl	205	136.7	45.2	-0.0173	0.004	22.2	ug/L	255	Standard
|	Pb	206	1027.0	0.8	0.0794	0.002	3.1	ug/L	523	Standard
|	Pb	207	845.7	6.1	0.0784	0.011	13.6	ug/L	433	Standard
|	Pb	208	972.3	6.0	0.0791	0.010	12.4	ug/L	498	Standard
	U	238	16.7	36.7	-0.0089	0.001	15.2	ug/L	6	Standard
>	Bi	209	611832.5	0.5				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0031	1.041	33749.6	mg/L	2	Standard
Mg	24	28.3	44.4	0.0992	0.230	231.8	mg/L	27	Standard
K	39	13.3	57.3	0.0421	0.083	197.2	mg/L	17	Standard
Ca	43	40.0	33.1	0.3678	11.143	3029.3	mg/L	47	Standard
Fe	54	29.6	1.4	-0.0289	0.005	16.8	mg/L	23	Standard
Fe	57	215.0	4.7	-1.7129	0.239	13.9	mg/L	253	Standard
Sc-1	45	40348.7	1.8				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	3.0	66.7				ug/L	3	Standard
Br	81	1903.5	5.0				ug/L	2163	Standard
P	31	46.7	44.6				ug/L	57	Standard
S	34	33.3	85.3				ug/L	27	Standard
Sr	88	130.0	25.2				ug/L	125	Standard
C	12	20.0	0.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	16.0	75.7				mg/L	9	Standard
Ho-1	165	5.0	0.0				mg/L	8	Standard
Er	166	13.3	173.2				mg/L	20	Standard
I	127	3247.0	4.5				mg/L	3535	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		93.322	
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	94.624
[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	96.839
[	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: QC Std 8

Sample Date/Time: Tuesday, April 04, 2017 13:51:10

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	280340.5	3.8				ug/L	302131	Standard
|	Be	9	401.7	7.5	0.1917	0.009	4.4	ug/L	12	Standard
|	Al	27	748.4	29.7	-0.0121	0.001	12.2	ug/L	907	Standard
|	Sc	45	39319.3	1.4				ug/L	39227	Standard
|	Ti	47	36.0	12.7	0.0047	0.025	518.2	ug/L	34	Standard
|	V	51	3371.8	2.3	0.3770	0.010	2.5	ug/L	1155	Standard
|	Cr	52	10180.8	1.8	0.8965	0.031	3.4	ug/L	5602	Standard
|	Cr	53	1043.4	2.5	0.1388	0.046	32.8	ug/L	1042	Standard
|	Mn	55	6421.7	2.9	0.4071	0.014	3.5	ug/L	2370	Standard
|	Co	59	3007.3	6.0	0.3509	0.022	6.2	ug/L	381	Standard
|	Ni	60	2579.2	2.8	1.4412	0.037	2.5	ug/L	282	Standard
|	Cu	65	1841.4	0.5	0.7503	0.010	1.4	ug/L	707	Standard
|	Zn	66	6454.0	1.3	5.9593	0.074	1.2	ug/L	427	Standard
>	Ge	72	782038.5	0.7				ug/L	842801	Standard
|	As	75	336.0	4.0	0.3621	0.012	3.3	ug/L	-11	Standard
|	Se	82	45.5	9.0	0.3697	0.043	11.6	ug/L	18	Standard
|	Se-1	77	115.3	11.3	0.1375	0.201	146.1	ug/L	127	Standard
>	Ga	71	51.7	27.9				mg/L	92	Standard
|	Rb	85	21.7	53.3				ug/L	48	Standard
|	Y	89	543074.1	2.1				ug/L	587989	Standard
>	Rh	103	10.0	50.0				ug/L	8	Standard
|	Mo	98	52.2	17.3	0.0012	0.003	212.4	ug/L	35	Standard
|	Ag	107	2114.8	4.5	0.3569	0.014	3.9	ug/L	121	Standard
|	Cd	111	365.3	6.5	0.2183	0.014	6.2	mg/L	4	Standard
|	Cd	114	805.0	8.7	0.1724	0.016	9.4	ug/L	27	Standard
>	In	115	652333.4	0.9				ug/L	702235	Standard
|	Sn	118	187.3	8.4	-0.0075	0.020	264.0	ug/L	180	Standard
|	Sb	123	1509.9	1.5	0.3472	0.007	2.1	ug/L	43	Standard
|	Ba	135	1064.7	0.7	0.6337	0.006	0.9	ug/L	50	Standard
|	Ce	140	15.0	66.7				ug/L	20	Standard
>	Tb	159	975680.5	1.2				ug/L	1036041	Standard
|	Ho	165	10.0	50.0				ug/L	8	Standard
|	Tl	203	513.3	7.0	0.0440	0.006	13.1	ug/L	87	Standard
|	Tl	205	1176.7	3.0	0.0485	0.001	2.7	ug/L	255	Standard
|	Pb	206	1469.1	2.1	0.1665	0.006	3.3	ug/L	523	Standard
|	Pb	207	1243.1	1.2	0.1648	0.006	3.7	ug/L	433	Standard
|	Pb	208	1453.4	3.2	0.1707	0.009	5.4	ug/L	498	Standard
	U	238	1587.1	5.1	0.3459	0.014	4.0	ug/L	6	Standard
>	Bi	209	601985.2	1.4				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0379	1.102	2910.2	mg/L	2	Standard
Mg	24	31.7	9.1	0.1777	0.047	26.5	mg/L	27	Standard
K	39	16.7	45.8	0.0837	0.084	99.9	mg/L	17	Standard
Ca	43	35.0	14.3	-2.9751	4.327	145.4	mg/L	47	Standard
Fe	54	29.5	44.3	-0.0239	0.095	396.2	mg/L	23	Standard
Fe	57	291.7	13.9	0.5989	1.026	171.3	mg/L	253	Standard
Sc-1	45	39319.3	1.4				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	2.7	86.6				ug/L	3	Standard
Br	81	1710.1	10.8				ug/L	2163	Standard
P	31	60.0	38.2				ug/L	57	Standard
S	34	25.0	60.0				ug/L	27	Standard
Sr	88	135.0	13.4				ug/L	125	Standard
C	12	13.3	43.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	2.9	217.0				mg/L	9	Standard
Ho-1	165	10.0	50.0				mg/L	8	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	2973.6	5.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	95.848		
Al	27			
Sc	45			
Ti	47			
V	51	94.241		
Cr	52	112.058		
Cr	53			
Mn	55	81.428		
Co	59	87.722		
Ni	60	90.076		
Cu	65	93.783		
Zn	66	95.349		
Ge	72		92.790	
As	75	90.533		
Se	82	92.429		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98		
[Ag	107	89.237	
[Cd	111	90.956	
[Cd	114		
>	In	115		92.894
[Sn	118		
[Sb	123	86.790	
[	Ba	135	84.493	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	55.047	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	85.368	
[	U	238	86.484	
>	Bi	209		95.280
[	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

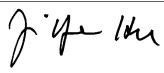
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 8	Tl	203	

Sample ID: QC Std 8

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Method 6020 - Summary Report

Sample ID: PBS MS WG608632-02

Sample Date/Time: Tuesday, April 04, 2017 13:54:17

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	290368.2	1.8				ug/L	302131	Standard
|	Be	9	33.3	22.9	0.0091	0.004	39.2	ug/L	12	Standard
|	Al	27	6493.1	1.3	0.0307	0.001	4.1	ug/L	907	Standard
|	Sc	45	40674.5	2.5				ug/L	39227	Standard
|	Ti	47	42.0	7.1	0.0301	0.013	42.7	ug/L	34	Standard
|	V	51	1193.8	1.5	0.0229	0.003	15.1	ug/L	1155	Standard
|	Cr	52	6851.2	0.9	0.2807	0.017	6.2	ug/L	5602	Standard
|	Cr	53	783.4	2.9	-0.2548	0.014	5.7	ug/L	1042	Standard
|	Mn	55	2462.9	3.4	0.0028	0.003	92.2	ug/L	2370	Standard
|	Co	59	296.0	0.3	-0.0081	0.001	12.0	ug/L	381	Standard
|	Ni	60	326.7	3.2	0.0403	0.007	16.6	ug/L	282	Standard
|	Cu	65	947.4	3.2	0.2094	0.009	4.3	ug/L	707	Standard
|	Zn	66	1865.1	2.4	1.4048	0.028	2.0	ug/L	427	Standard
>	Ge	72	801262.8	2.4				ug/L	842801	Standard
|	As	75	-35.9	12.2	0.0129	0.004	29.3	ug/L	-11	Standard
|	Se	82	16.1	30.2	0.0632	0.053	83.3	ug/L	18	Standard
|	Se-1	77	88.0	11.8	-0.2975	0.154	51.8	ug/L	127	Standard
>	Ga	71	41.7	18.3				mg/L	92	Standard
|	Rb	85	58.3	32.5				ug/L	48	Standard
|	Y	89	555520.2	1.4				ug/L	587989	Standard
>	Rh	103	16.7	62.4				ug/L	8	Standard
|	Mo	98	89.7	13.7	0.0115	0.003	29.7	ug/L	35	Standard
|	Ag	107	115.7	11.5	-0.0090	0.002	24.9	ug/L	121	Standard
|	Cd	111	5.6	52.1	-0.0137	0.002	13.4	mg/L	4	Standard
|	Cd	114	49.6	15.4	-0.0178	0.002	10.3	ug/L	27	Standard
>	In	115	673922.0	0.8				ug/L	702235	Standard
|	Sn	118	264.7	0.2	0.0727	0.003	4.1	ug/L	180	Standard
|	Sb	123	101.5	13.5	0.0002	0.003	2214.5	ug/L	43	Standard
|	Ba	135	79.0	14.3	-0.0009	0.007	734.7	ug/L	50	Standard
|	Ce	140	58.3	13.1				ug/L	20	Standard
>	Tb	159	999076.3	0.3				ug/L	1036041	Standard
|	Ho	165	8.3	69.3				ug/L	8	Standard
|	Tl	203	40.0	7.5	-0.0289	0.000	1.2	ug/L	87	Standard
|	Tl	205	121.7	39.9	-0.0183	0.003	15.5	ug/L	255	Standard
|	Pb	206	526.7	0.7	-0.0144	0.002	16.4	ug/L	523	Standard
|	Pb	207	460.3	4.8	-0.0017	0.003	199.7	ug/L	433	Standard
|	Pb	208	521.3	4.1	-0.0030	0.003	106.2	ug/L	498	Standard
	U	238	9.0	40.1	-0.0106	0.001	7.7	ug/L	6	Standard
>	Bi	209	614243.4	2.0				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0147	1.061	7232.3	mg/L	2	Standard
Mg	24	31.7	24.1	0.1582	0.143	90.1	mg/L	27	Standard
K	39	11.7	49.5	0.0232	0.062	269.3	mg/L	17	Standard
Ca	43	31.7	39.7	-6.7495	9.296	137.7	mg/L	47	Standard
Fe	54	19.3	24.8	-0.1013	0.035	35.0	mg/L	23	Standard
Fe	57	286.7	17.9	0.1905	1.351	708.9	mg/L	253	Standard
Sc-1	45	40674.5	2.5				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	1.7	69.3				ug/L	3	Standard
Br	81	2020.1	3.9				ug/L	2163	Standard
P	31	70.0	12.4				ug/L	57	Standard
S	34	28.3	44.4				ug/L	27	Standard
Sr	88	118.3	17.1				ug/L	125	Standard
C	12	20.0	86.6				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	5.9	187.3				mg/L	9	Standard
Ho-1	165	8.3	69.3				mg/L	8	Standard
Er	166	16.7	69.3				mg/L	20	Standard
I	127	16637.5	2.6				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		96.107	
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		95.071	
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	95.968
[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	97.220
[	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 MS WG608632-02

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Method 6020 - Summary Report

Sample ID: LCSS MS WG608632-03

Sample Date/Time: Tuesday, April 04, 2017 13:57:24

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	293729.4	2.6				ug/L	302131	Standard
|	Be	9	52196.4	1.4	24.6423	0.792	3.2	ug/L	12	Standard
|	Al	27	8737.7	31.2	0.0467	0.020	42.6	ug/L	907	Standard
|	Sc	45	41409.9	1.4				ug/L	39227	Standard
|	Ti	47	41.7	11.3	0.0236	0.023	97.1	ug/L	34	Standard
|	V	51	167669.3	0.6	25.4829	0.146	0.6	ug/L	1155	Standard
|	Cr	52	158493.0	0.6	25.7324	0.117	0.5	ug/L	5602	Standard
|	Cr	53	19802.9	1.8	25.2969	0.592	2.3	ug/L	1042	Standard
|	Mn	55	263742.8	0.8	25.0599	0.234	0.9	ug/L	2370	Standard
|	Co	59	198820.0	0.3	24.9807	0.209	0.8	ug/L	381	Standard
|	Ni	60	42908.3	1.6	25.1920	0.532	2.1	ug/L	282	Standard
|	Cu	65	45819.2	0.9	25.4236	0.373	1.5	ug/L	707	Standard
|	Zn	66	27144.3	0.7	25.0443	0.307	1.2	ug/L	427	Standard
>	Ge	72	820576.3	0.6				ug/L	842801	Standard
|	As	75	27242.4	0.8	24.4913	0.326	1.3	ug/L	-11	Standard
|	Se	82	2459.2	1.6	24.0871	0.455	1.9	ug/L	18	Standard
|	Se-1	77	1870.4	3.4	24.7587	0.833	3.4	ug/L	127	Standard
>	Ga	71	43.3	17.6				mg/L	92	Standard
|	Rb	85	53.3	27.1				ug/L	48	Standard
|	Y	89	566537.8	0.7				ug/L	587989	Standard
>	Rh	103	25.0	60.0				ug/L	8	Standard
|	Mo	98	114.8	107.9	0.0185	0.036	191.7	ug/L	35	Standard
|	Ag	107	138559.0	0.9	24.2431	0.429	1.8	ug/L	121	Standard
|	Cd	111	40387.9	0.8	24.9465	0.263	1.1	mg/L	4	Standard
|	Cd	114	99608.2	1.6	23.9649	0.617	2.6	ug/L	27	Standard
>	In	115	680669.8	1.0				ug/L	702235	Standard
|	Sn	118	306.0	16.0	0.1158	0.054	47.1	ug/L	180	Standard
|	Sb	123	104223.5	0.7	24.5308	0.389	1.6	ug/L	43	Standard
|	Ba	135	40495.7	1.2	24.8742	0.486	2.0	ug/L	50	Standard
|	Ce	140	71.7	26.4				ug/L	20	Standard
>	Tb	159	1013725.0	1.4				ug/L	1036041	Standard
|	Ho	165	21.7	70.5				ug/L	8	Standard
|	Tl	203	174677.5	0.4	25.8355	0.275	1.1	ug/L	87	Standard
|	Tl	205	425311.9	0.7	25.8603	0.355	1.4	ug/L	255	Standard
|	Pb	206	140858.1	0.9	25.6471	0.481	1.9	ug/L	523	Standard
|	Pb	207	121979.1	1.1	24.5966	0.448	1.8	ug/L	433	Standard
|	Pb	208	140192.5	0.7	24.7949	0.301	1.2	ug/L	498	Standard
	U	238	111707.6	0.9	24.3015	0.425	1.8	ug/L	6	Standard
>	Bi	209	625084.0	1.0				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	28.3	27.0	0.0886	0.144	163.1	mg/L	27	Standard
K	39	13.3	21.7	0.0388	0.029	75.3	mg/L	17	Standard
Ca	43	41.7	36.7	0.8108	12.211	1506.1	mg/L	47	Standard
Fe	54	21.4	37.4	-0.0898	0.056	62.6	mg/L	23	Standard
Fe	57	301.7	15.0	0.4512	1.115	247.0	mg/L	253	Standard
Sc-1	45	41409.9	1.4				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.0	86.6				ug/L	3	Standard
Br	81	2783.6	4.5				ug/L	2163	Standard
P	31	61.7	20.4				ug/L	57	Standard
S	34	40.0	25.0				ug/L	27	Standard
Sr	88	143.3	26.2				ug/L	125	Standard
C	12	3.3	173.2				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	33.2	46.2				mg/L	9	Standard
Ho-1	165	21.7	70.5				mg/L	8	Standard
Er	166	3.3	173.2				mg/L	20	Standard
I	127	16667.5	2.2				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		97.219	
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		97.363	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: LCSS MS WG608632-03

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	96.929
[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	98.936
[	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

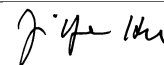
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: LCSS MS WG608632-03

Report Date/Time: Tuesday, April 04, 2017 13:59:35

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Method 6020 - Summary Report

Sample ID: L1704002606 WG608632-01

Sample Date/Time: Tuesday, April 04, 2017 14:00:30

Number of Replicates: 3

Autosampler Position: 227

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	304680.3	2.0				ug/L	302131	Standard
|	Be	9	3193.7	4.7	1.4469	0.077	5.3	ug/L	12	Standard
|	Al	27	1348520.2	1.9	9.5910	0.117	1.2	ug/L	907	Standard
|	Sc	45	46322.4	3.5				ug/L	39227	Standard
|	Ti	47	10727.5	1.5	52.2618	0.420	0.8	ug/L	34	Standard
|	V	51	400094.7	0.8	61.2072	0.365	0.6	ug/L	1155	Standard
|	Cr	52	222902.0	0.4	36.6606	0.182	0.5	ug/L	5602	Standard
|	Cr	53	27429.8	0.9	35.6577	0.612	1.7	ug/L	1042	Standard
|	Mn	55	41956879.9	0.2	4035.8282	41.067	1.0	ug/L	2370	Standard
|	Co	59	109665.8	0.3	13.7973	0.150	1.1	ug/L	381	Standard
|	Ni	60	22831.5	0.8	13.3690	0.216	1.6	ug/L	282	Standard
|	Cu	65	31834.7	0.7	17.6123	0.286	1.6	ug/L	707	Standard
|	Zn	66	66999.8	0.7	62.5596	0.934	1.5	ug/L	427	Standard
>	Ge	72	818282.7	0.9				ug/L	842801	Standard
|	As	75	14726.7	0.6	13.2974	0.107	0.8	ug/L	-11	Standard
|	Se	82	136.9	12.8	1.2499	0.164	13.1	ug/L	18	Standard
|	Se-1	77	193.0	4.2	1.1583	0.138	11.9	ug/L	127	Standard
>	Ga	71	37468.0	3.7				mg/L	92	Standard
|	Rb	85	252832.0	0.1				ug/L	48	Standard
|	Y	89	937245.6	1.1				ug/L	587989	Standard
>	Rh	103	26.7	43.3				ug/L	8	Standard
|	Mo	98	3835.1	1.8	1.0853	0.019	1.7	ug/L	35	Standard
|	Ag	107	865.4	4.1	0.1227	0.006	4.6	ug/L	121	Standard
|	Cd	111	294.1	2.7	0.1653	0.007	4.5	mg/L	4	Standard
|	Cd	114	654.1	5.2	0.1285	0.011	8.5	ug/L	27	Standard
>	In	115	677937.8	1.6				ug/L	702235	Standard
|	Sn	118	220.0	12.5	0.0212	0.035	165.1	ug/L	180	Standard
|	Sb	123	155.1	12.2	0.0127	0.005	39.5	ug/L	43	Standard
|	Ba	135	356391.5	2.0	220.1976	5.383	2.4	ug/L	50	Standard
|	Ce	140	3913899.8	1.2				ug/L	20	Standard
>	Tb	159	1068923.8	0.7				ug/L	1036041	Standard
|	Ho	165	25423.0	1.7				ug/L	8	Standard
|	Tl	203	3228.0	3.2	0.4412	0.012	2.7	ug/L	87	Standard
|	Tl	205	7908.7	10.1	0.4534	0.045	10.0	ug/L	255	Standard
|	Pb	206	254223.9	1.3	46.1917	0.498	1.1	ug/L	523	Standard
|	Pb	207	203624.9	1.2	40.9593	0.362	0.9	ug/L	433	Standard
|	Pb	208	242602.3	1.6	42.8069	0.561	1.3	ug/L	498	Standard
	U	238	7531.9	0.8	1.6202	0.017	1.0	ug/L	6	Standard
>	Bi	209	627535.5	0.7				ug/L	631806	Standard

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Na	23	8.3	91.7	2.0149	2.374	117.8	mg/L	2	Standard
Mg	24	45.0	29.4	0.3068	0.238	77.5	mg/L	27	Standard
K	39	86.7	8.8	0.7253	0.045	6.2	mg/L	17	Standard
Ca	43	55.0	36.4	6.9277	15.256	220.2	mg/L	47	Standard
Fe	54	5339.7	0.6	32.2640	0.932	2.9	mg/L	23	Standard
Fe	57	1703.4	2.1	33.2274	0.592	1.8	mg/L	253	Standard
Sc-1	45	46322.4	3.5				mg/L	39227	Standard
Cl	35	3.3	34.6				ug/L	1	Standard
Kr	83	4.7	49.5				ug/L	3	Standard
Br	81	4380.6	4.0				ug/L	2163	Standard
P	31	70.0	18.9				ug/L	57	Standard
S	34	31.7	59.8				ug/L	27	Standard
Sr	88	128.3	11.9				ug/L	125	Standard
C	12	56.7	53.9				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	176.7	25.5				mg/L	10	Standard
Dy	164	39436.4	1.4				mg/L	9	Standard
Ho-1	165	25423.0	1.7				mg/L	8	Standard
Er	166	23264.5	0.6				mg/L	20	Standard
I	127	65128.1	2.6				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.844	
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		97.091	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704002606 WG608632-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	96.540
[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	99.324
[	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	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1704002606 WG608632-01

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Method 6020 - Summary Report

Sample ID: L1704002606S WG608632-04

Sample Date/Time: Tuesday, April 04, 2017 14:03:36

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	310297.9	2.2				ug/L	302131	Standard
|	Be	9	55046.5	0.9	24.5956	0.587	2.4	ug/L	12	Standard
|	Al	27	1372666.9	1.2	9.5891	0.276	2.9	ug/L	907	Standard
|	Sc	45	47720.0	1.5				ug/L	39227	Standard
|	Ti	47	10487.3	1.7	50.5395	1.407	2.8	ug/L	34	Standard
|	V	51	522202.7	1.5	79.0816	2.320	2.9	ug/L	1155	Standard
|	Cr	52	323177.0	1.3	52.9705	1.294	2.4	ug/L	5602	Standard
|	Cr	53	40124.7	1.4	52.1988	1.698	3.3	ug/L	1042	Standard
|	Mn	55	35081488.8	1.6	3338.2062	96.460	2.9	ug/L	2370	Standard
|	Co	59	294657.9	1.3	36.7438	0.563	1.5	ug/L	381	Standard
|	Ni	60	63808.8	0.8	37.2348	0.687	1.8	ug/L	282	Standard
|	Cu	65	74347.3	0.3	41.1272	0.864	2.1	ug/L	707	Standard
|	Zn	66	94626.9	1.3	87.5386	0.855	1.0	ug/L	427	Standard
>	Ge	72	827393.2	2.1				ug/L	842801	Standard
|	As	75	37534.5	1.9	33.4575	0.958	2.9	ug/L	-11	Standard
|	Se	82	2321.3	1.8	22.5479	0.582	2.6	ug/L	18	Standard
|	Se-1	77	1755.1	2.7	22.9313	0.273	1.2	ug/L	127	Standard
>	Ga	71	38886.5	2.9				mg/L	92	Standard
|	Rb	85	270931.4	1.8				ug/L	48	Standard
|	Y	89	930758.9	0.7				ug/L	587989	Standard
>	Rh	103	45.0	33.3				ug/L	8	Standard
|	Mo	98	3801.3	0.5	1.0654	0.011	1.0	ug/L	35	Standard
|	Ag	107	134772.2	1.8	23.4515	0.472	2.0	ug/L	121	Standard
|	Cd	111	40269.2	1.4	24.7388	0.339	1.4	mg/L	4	Standard
|	Cd	114	99765.5	2.7	23.8700	0.632	2.6	ug/L	27	Standard
>	In	115	684338.2	0.6				ug/L	702235	Standard
|	Sn	118	201.0	6.5	-0.0026	0.014	529.5	ug/L	180	Standard
|	Sb	123	1560.4	0.8	0.3416	0.005	1.5	ug/L	43	Standard
|	Ba	135	397577.7	1.0	243.3249	3.459	1.4	ug/L	50	Standard
|	Ce	140	3910893.7	1.4				ug/L	20	Standard
>	Tb	159	1090501.1	0.6				ug/L	1036041	Standard
|	Ho	165	24524.8	0.6				ug/L	8	Standard
|	Tl	203	176196.4	1.5	25.4669	0.496	1.9	ug/L	87	Standard
|	Tl	205	430905.0	0.7	25.6033	0.285	1.1	ug/L	255	Standard
|	Pb	206	399206.2	0.8	71.2269	0.872	1.2	ug/L	523	Standard
|	Pb	207	331069.2	1.1	65.3956	0.894	1.4	ug/L	433	Standard
|	Pb	208	389937.5	0.5	67.5609	0.379	0.6	ug/L	498	Standard
	U	238	121255.0	0.9	25.7766	0.150	0.6	ug/L	6	Standard
>	Bi	209	639623.7	0.4				ug/L	631806	Standard

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Na	23	5.0	100.0	0.9407	1.537	163.3	mg/L	2	Standard
Mg	24	28.3	20.4	0.0192	0.086	449.4	mg/L	27	Standard
K	39	85.0	10.2	0.6871	0.088	12.8	mg/L	17	Standard
Ca	43	46.7	16.4	-0.2018	4.876	2416.2	mg/L	47	Standard
Fe	54	4591.9	6.8	26.8674	1.602	6.0	mg/L	23	Standard
Fe	57	1573.4	5.7	28.9766	1.558	5.4	mg/L	253	Standard
Sc-1	45	47720.0	1.5				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	3.7	41.7				ug/L	3	Standard
Br	81	5267.6	7.9				ug/L	2163	Standard
P	31	60.0	8.3				ug/L	57	Standard
S	34	31.7	65.7				ug/L	27	Standard
Sr	88	116.7	21.1				ug/L	125	Standard
C	12	80.0	25.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	203.3	7.5				mg/L	10	Standard
Dy	164	38137.1	1.7				mg/L	9	Standard
Ho-1	165	24524.8	0.6				mg/L	8	Standard
Er	166	22970.7	1.7				mg/L	20	Standard
I	127	69546.0	2.2				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.703	
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		98.172	
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	97.451
[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	101.237
[	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	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1704002606S WG608632-04
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Method 6020 - Summary Report

Sample ID: L1704002606SD WG608632-05

Sample Date/Time: Tuesday, April 04, 2017 14:06:41

Number of Replicates: 3

Autosampler Position: 229

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	300822.4	1.5				ug/L	302131	Standard
|	Be	9	56098.7	1.8	25.8474	0.251	1.0	ug/L	12	Standard
|	Al	27	1381764.5	1.9	9.9550	0.231	2.3	ug/L	907	Standard
|	Sc	45	46752.1	2.7				ug/L	39227	Standard
|	Ti	47	10956.3	1.7	53.5430	2.078	3.9	ug/L	34	Standard
|	V	51	627966.4	0.8	96.4183	1.787	1.9	ug/L	1155	Standard
|	Cr	52	367024.3	1.4	61.1094	1.291	2.1	ug/L	5602	Standard
|	Cr	53	46038.2	2.0	60.9153	1.668	2.7	ug/L	1042	Standard
|	Mn	55	43342586.3	1.3	4180.5465	115.711	2.8	ug/L	2370	Standard
|	Co	59	312462.6	1.2	39.5030	0.953	2.4	ug/L	381	Standard
|	Ni	60	64327.6	1.2	38.0509	0.673	1.8	ug/L	282	Standard
|	Cu	65	75322.1	1.6	42.2483	1.380	3.3	ug/L	707	Standard
|	Zn	66	98784.4	2.0	92.6772	3.136	3.4	ug/L	427	Standard
>	Ge	72	816324.9	2.4				ug/L	842801	Standard
|	As	75	41836.1	0.8	37.7955	0.985	2.6	ug/L	-11	Standard
|	Se	82	2342.2	1.2	23.0696	0.861	3.7	ug/L	18	Standard
|	Se-1	77	1793.4	1.5	23.8169	0.700	2.9	ug/L	127	Standard
>	Ga	71	41157.5	2.6				mg/L	92	Standard
|	Rb	85	271134.8	1.4				ug/L	48	Standard
|	Y	89	964976.6	1.2				ug/L	587989	Standard
>	Rh	103	26.7	10.8				ug/L	8	Standard
|	Mo	98	4491.8	1.6	1.2927	0.025	2.0	ug/L	35	Standard
|	Ag	107	134332.3	1.4	23.9476	0.402	1.7	ug/L	121	Standard
|	Cd	111	39931.1	0.2	25.1317	0.093	0.4	mg/L	4	Standard
|	Cd	114	98752.1	1.8	24.2080	0.549	2.3	ug/L	27	Standard
>	In	115	667991.2	0.5				ug/L	702235	Standard
|	Sn	118	202.3	5.5	0.0044	0.012	277.5	ug/L	180	Standard
|	Sb	123	1798.2	4.0	0.4077	0.019	4.7	ug/L	43	Standard
|	Ba	135	430124.8	1.0	269.6780	2.096	0.8	ug/L	50	Standard
|	Ce	140	4033609.6	0.9				ug/L	20	Standard
>	Tb	159	1067569.1	1.0				ug/L	1036041	Standard
|	Ho	165	27414.8	2.0				ug/L	8	Standard
|	Tl	203	175150.6	1.1	25.9415	0.339	1.3	ug/L	87	Standard
|	Tl	205	425375.5	0.9	25.8996	0.294	1.1	ug/L	255	Standard
|	Pb	206	410804.7	0.5	75.1136	0.669	0.9	ug/L	523	Standard
|	Pb	207	341168.5	0.8	69.0594	0.334	0.5	ug/L	433	Standard
|	Pb	208	399411.5	1.1	70.9185	0.845	1.2	ug/L	498	Standard
	U	238	121758.6	0.6	26.5245	0.195	0.7	ug/L	6	Standard
>	Bi	209	624203.1	0.8				ug/L	631806	Standard

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Na	23	6.7	86.6	1.4952	1.814	121.3	mg/L	2	Standard
Mg	24	41.7	25.0	0.2413	0.162	67.1	mg/L	27	Standard
K	39	55.0	15.7	0.4170	0.068	16.2	mg/L	17	Standard
Ca	43	28.3	27.0	-12.2291	4.836	39.5	mg/L	47	Standard
Fe	54	6589.3	2.7	39.5016	1.791	4.5	mg/L	23	Standard
Fe	57	2048.5	1.3	41.0697	1.882	4.6	mg/L	253	Standard
Sc-1	45	46752.1	2.7				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.0	100.0				ug/L	3	Standard
Br	81	5120.9	2.8				ug/L	2163	Standard
P	31	50.0	17.3				ug/L	57	Standard
S	34	25.0	52.9				ug/L	27	Standard
Sr	88	138.3	20.6				ug/L	125	Standard
C	12	110.0	27.3				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	186.7	24.7				mg/L	10	Standard
Dy	164	43974.6	0.6				mg/L	9	Standard
Ho-1	165	27414.8	2.0				mg/L	8	Standard
Er	166	25037.3	2.7				mg/L	20	Standard
I	127	76861.2	2.3				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.567	
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		96.859	
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	95.124
[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	98.797
[	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	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1704002606SD WG608632-05
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Method 6020 - Summary Report

Sample ID: L1704002402

Sample Date/Time: Tuesday, April 04, 2017 14:41:05

Number of Replicates: 3

Autosampler Position: 231

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	340229.3	0.5				ug/L	302131	Standard
|	Be	9	9352.9	1.7	3.8044	0.062	1.6	ug/L	12	Standard
|	Al	27	2843837.0	1.0	18.1281	0.237	1.3	ug/L	907	Standard
|	Sc	45	74139.3	0.8				ug/L	39227	Standard
|	Ti	47	35365.9	1.5	169.5173	5.398	3.2	ug/L	34	Standard
|	V	51	964747.5	1.1	145.0808	4.192	2.9	ug/L	1155	Standard
|	Cr	52	484313.5	1.5	79.2004	2.641	3.3	ug/L	5602	Standard
|	Cr	53	61367.4	0.2	79.8771	1.534	1.9	ug/L	1042	Standard
|	Mn	55	3789719.8	1.0	357.5235	8.596	2.4	ug/L	2370	Standard
|	Co	59	89096.5	0.7	10.9909	0.234	2.1	ug/L	381	Standard
|	Ni	60	77625.3	0.2	44.9717	0.876	1.9	ug/L	282	Standard
|	Cu	65	102328.7	0.6	56.2804	1.314	2.3	ug/L	707	Standard
|	Zn	66	102189.8	0.5	93.8292	2.147	2.3	ug/L	427	Standard
>	Ge	72	833990.6	1.8				ug/L	842801	Standard
|	As	75	17219.6	1.0	15.2506	0.237	1.6	ug/L	-11	Standard
|	Se	82	97.1	6.5	0.8409	0.072	8.5	ug/L	18	Standard
|	Se-1	77	241.3	8.2	1.7740	0.234	13.2	ug/L	127	Standard
>	Ga	71	119773.4	2.4				mg/L	92	Standard
|	Rb	85	439474.0	2.0				ug/L	48	Standard
|	Y	89	1552553.4	1.4				ug/L	587989	Standard
>	Rh	103	18.3	15.7				ug/L	8	Standard
|	Mo	98	1491.8	2.2	0.4111	0.007	1.6	ug/L	35	Standard
|	Ag	107	932.4	6.5	0.1336	0.010	7.4	ug/L	121	Standard
|	Cd	111	211.4	8.1	0.1133	0.010	8.7	mg/L	4	Standard
|	Cd	114	549.2	10.0	0.1022	0.012	12.2	ug/L	27	Standard
>	In	115	681497.4	0.7				ug/L	702235	Standard
|	Sn	118	277.3	0.8	0.0835	0.004	4.7	ug/L	180	Standard
|	Sb	123	153.7	25.0	0.0121	0.009	73.4	ug/L	43	Standard
|	Ba	135	88520.2	0.7	54.3636	0.724	1.3	ug/L	50	Standard
|	Ce	140	563726.4	1.2				ug/L	20	Standard
>	Tb	159	1119713.7	1.0				ug/L	1036041	Standard
|	Ho	165	73506.2	0.8				ug/L	8	Standard
|	Tl	203	4348.6	2.7	0.6092	0.025	4.2	ug/L	87	Standard
|	Tl	205	10753.8	2.6	0.6287	0.023	3.7	ug/L	255	Standard
|	Pb	206	135304.1	0.7	24.6261	0.304	1.2	ug/L	523	Standard
|	Pb	207	106064.9	0.2	21.3713	0.286	1.3	ug/L	433	Standard
|	Pb	208	128354.2	0.1	22.6901	0.328	1.4	ug/L	498	Standard
	U	238	8477.7	1.3	1.8326	0.053	2.9	ug/L	6	Standard
>	Bi	209	625210.8	1.5				ug/L	631806	Standard

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Na	23	1.7	173.2	-0.2639	0.579	219.3	mg/L	2	Standard
Mg	24	38.3	32.8	-0.0372	0.129	346.9	mg/L	27	Standard
K	39	156.7	17.6	0.8337	0.165	19.8	mg/L	17	Standard
Ca	43	40.0	25.0	-14.2838	4.437	31.1	mg/L	47	Standard
Fe	54	14423.9	3.8	54.5714	1.654	3.0	mg/L	23	Standard
Fe	57	4172.2	5.0	54.8808	3.265	5.9	mg/L	253	Standard
Sc-1	45	74139.3	0.8				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	4.0	25.0				ug/L	3	Standard
Br	81	4003.9	2.7				ug/L	2163	Standard
P	31	58.3	21.6				ug/L	57	Standard
S	34	38.3	45.8				ug/L	27	Standard
Sr	88	113.3	28.7				ug/L	125	Standard
C	12	16.7	69.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	390.0	14.3				mg/L	10	Standard
Dy	164	111468.0	2.4				mg/L	9	Standard
Ho-1	165	73506.2	0.8				mg/L	8	Standard
Er	166	69559.4	3.0				mg/L	20	Standard
I	127	18009.0	1.3				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		112.610	
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		98.955	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704002402

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	97.047
[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	98.956
[	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

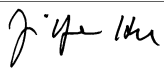
Measurement Type	Analyte	Mass	Out of Limits Message
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1704002402PS WG608761-01

Sample Date/Time: Tuesday, April 04, 2017 14:44:10

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	341952.8	2.9				ug/L	302131	Standard
|	Be	9	115245.0	1.4	46.7328	0.867	1.9	ug/L	12	Standard
|	Al	27	2823474.0	0.9	17.9151	0.456	2.5	ug/L	907	Standard
|	Sc	45	72119.7	3.0				ug/L	39227	Standard
|	Ti	47	34457.5	1.0	167.2300	2.949	1.8	ug/L	34	Standard
|	V	51	1273639.4	0.2	193.9856	2.189	1.1	ug/L	1155	Standard
|	Cr	52	776109.9	0.6	129.0586	1.410	1.1	ug/L	5602	Standard
|	Cr	53	97642.0	1.9	129.5309	3.875	3.0	ug/L	1042	Standard
|	Mn	55	4362876.3	0.8	416.8206	5.717	1.4	ug/L	2370	Standard
|	Co	59	478999.4	0.9	60.0404	0.840	1.4	ug/L	381	Standard
|	Ni	60	159953.9	1.0	94.0112	1.559	1.7	ug/L	282	Standard
|	Cu	65	190276.4	1.0	106.2672	1.739	1.6	ug/L	707	Standard
|	Zn	66	154442.5	1.0	143.8078	3.051	2.1	ug/L	427	Standard
>	Ge	72	823476.7	1.3				ug/L	842801	Standard
|	As	75	72926.8	0.7	65.2615	1.191	1.8	ug/L	-11	Standard
|	Se	82	5153.1	0.1	50.4085	0.683	1.4	ug/L	18	Standard
|	Se-1	77	3785.5	3.8	51.5207	1.690	3.3	ug/L	127	Standard
>	Ga	71	117975.9	1.1				mg/L	92	Standard
|	Rb	85	441352.7	0.7				ug/L	48	Standard
|	Y	89	1555116.7	1.4				ug/L	587989	Standard
>	Rh	103	31.7	18.2				ug/L	8	Standard
|	Mo	98	1458.0	2.1	0.4013	0.010	2.4	ug/L	35	Standard
|	Ag	107	287252.4	0.3	50.2012	0.720	1.4	ug/L	121	Standard
|	Cd	111	80426.4	1.2	49.6109	1.102	2.2	mg/L	4	Standard
|	Cd	114	201169.2	1.3	48.3439	1.142	2.4	ug/L	27	Standard
>	In	115	681889.5	1.2				ug/L	702235	Standard
|	Sn	118	289.7	2.9	0.0970	0.010	10.5	ug/L	180	Standard
|	Sb	123	210537.7	0.8	49.4864	0.311	0.6	ug/L	43	Standard
|	Ba	135	167097.7	0.9	102.6120	1.741	1.7	ug/L	50	Standard
|	Ce	140	563999.7	1.2				ug/L	20	Standard
>	Tb	159	1127332.7	1.1				ug/L	1036041	Standard
|	Ho	165	73695.5	2.1				ug/L	8	Standard
|	Tl	203	344312.3	0.5	50.2267	0.258	0.5	ug/L	87	Standard
|	Tl	205	842458.9	0.9	50.5124	0.453	0.9	ug/L	255	Standard
|	Pb	206	410173.0	0.8	73.8169	0.583	0.8	ug/L	523	Standard
|	Pb	207	353503.6	1.0	70.4353	0.749	1.1	ug/L	433	Standard
|	Pb	208	410695.2	0.7	71.7772	0.480	0.7	ug/L	498	Standard
	U	238	240850.0	1.1	51.6555	0.592	1.1	ug/L	6	Standard
>	Bi	209	634150.1	0.0				ug/L	631806	Standard

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Na	23	5.0	100.0	0.4345	1.053	242.3	mg/L	2	Standard
Mg	24	43.3	29.0	0.0274	0.140	511.4	mg/L	27	Standard
K	39	141.7	44.1	0.7667	0.387	50.5	mg/L	17	Standard
Ca	43	35.0	57.1	-16.0778	9.002	56.0	mg/L	47	Standard
Fe	54	14103.7	4.6	54.8546	1.479	2.7	mg/L	23	Standard
Fe	57	4252.3	3.1	57.8660	1.337	2.3	mg/L	253	Standard
Sc-1	45	72119.7	3.0				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	1.3	114.6				ug/L	3	Standard
Br	81	4110.6	3.7				ug/L	2163	Standard
P	31	71.7	33.0				ug/L	57	Standard
S	34	36.7	70.0				ug/L	27	Standard
Sr	88	146.7	24.7				ug/L	125	Standard
C	12	30.0	33.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	346.7	13.3				mg/L	10	Standard
Dy	164	109570.6	1.4				mg/L	9	Standard
Ho-1	165	73695.5	2.1				mg/L	8	Standard
Er	166	70396.6	2.7				mg/L	20	Standard
I	127	16847.7	3.5				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		113.180	
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		97.707	
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	97.103
[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	100.371
[	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
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	
Cr 52 Upper, S, EEE	Cr	52	


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Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Cu 65 Upper, S, EEE	Cu	65
Zn 66 Upper, S, EEE	Zn	66
Ba 135 Upper, S, EEE	Ba	135

Sample ID: L1704002402PS WG608761-01
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Method 6020 - Summary Report

Sample ID: L1704002402SDL WG608761-02

Sample Date/Time: Tuesday, April 04, 2017 14:47:16

Number of Replicates: 3

Autosampler Position: 233

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	288818.8	1.5				ug/L	302131	Standard
|	Be	9	1851.8	4.6	0.8820	0.033	3.8	ug/L	12	Standard
|	Al	27	469170.4	1.0	3.5094	0.088	2.5	ug/L	907	Standard
|	Sc	45	45222.4	1.0				ug/L	39227	Standard
|	Ti	47	6705.8	1.5	33.5557	0.499	1.5	ug/L	34	Standard
|	V	51	187500.0	0.3	29.4329	0.254	0.9	ug/L	1155	Standard
|	Cr	52	96868.0	0.3	15.8987	0.226	1.4	ug/L	5602	Standard
|	Cr	53	12136.5	3.3	15.5120	0.723	4.7	ug/L	1042	Standard
|	Mn	55	618157.3	1.0	60.9486	0.425	0.7	ug/L	2370	Standard
|	Co	59	17465.4	1.0	2.2224	0.002	0.1	ug/L	381	Standard
|	Ni	60	15364.1	1.7	9.2080	0.066	0.7	ug/L	282	Standard
|	Cu	65	21036.9	0.8	11.8680	0.050	0.4	ug/L	707	Standard
|	Zn	66	21975.3	1.2	20.8597	0.357	1.7	ug/L	427	Standard
>	Ge	72	795198.3	1.0				ug/L	842801	Standard
|	As	75	3474.4	1.6	3.2628	0.019	0.6	ug/L	-11	Standard
|	Se	82	33.8	13.5	0.2436	0.043	17.7	ug/L	18	Standard
|	Se-1	77	106.0	12.3	-0.0259	0.202	778.2	ug/L	127	Standard
>	Ga	71	23171.0	1.1				mg/L	92	Standard
|	Rb	85	85829.1	1.3				ug/L	48	Standard
|	Y	89	737654.9	0.4				ug/L	587989	Standard
>	Rh	103	6.7	43.3				ug/L	8	Standard
|	Mo	98	304.9	5.4	0.0761	0.006	7.8	ug/L	35	Standard
|	Ag	107	281.7	3.3	0.0217	0.001	4.4	ug/L	121	Standard
|	Cd	111	41.6	4.2	0.0095	0.001	15.5	mg/L	4	Standard
|	Cd	114	101.6	2.7	-0.0044	0.000	10.3	ug/L	27	Standard
>	In	115	655586.4	1.6				ug/L	702235	Standard
|	Sn	118	188.7	2.1	-0.0071	0.002	22.8	ug/L	180	Standard
|	Sb	123	1178.6	32.2	0.2637	0.089	33.7	ug/L	43	Standard
|	Ba	135	17729.4	1.4	11.2820	0.342	3.0	ug/L	50	Standard
|	Ce	140	111656.7	1.9				ug/L	20	Standard
>	Tb	159	1010420.9	1.3				ug/L	1036041	Standard
|	Ho	165	14368.5	3.6				ug/L	8	Standard
|	Tl	203	902.7	2.4	0.1014	0.004	4.1	ug/L	87	Standard
|	Tl	205	2268.5	0.1	0.1149	0.001	0.7	ug/L	255	Standard
|	Pb	206	27064.2	1.1	4.9329	0.036	0.7	ug/L	523	Standard
|	Pb	207	21088.0	1.0	4.2557	0.068	1.6	ug/L	433	Standard
|	Pb	208	25534.6	1.7	4.5251	0.095	2.1	ug/L	498	Standard
	U	238	1662.1	2.7	0.3562	0.010	2.9	ug/L	6	Standard
>	Bi	209	613110.5	0.7				ug/L	631806	Standard

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Na	23	3.3	86.6	0.4893	0.942	192.5	mg/L	2	Standard
Mg	24	30.0	33.3	0.0714	0.164	230.4	mg/L	27	Standard
K	39	48.3	41.8	0.3716	0.202	54.2	mg/L	17	Standard
Ca	43	36.7	15.7	-5.5792	3.926	70.4	mg/L	47	Standard
Fe	54	2637.1	8.0	16.2035	1.462	9.0	mg/L	23	Standard
Fe	57	930.0	7.1	15.2237	1.839	12.1	mg/L	253	Standard
Sc-1	45	45222.4	1.0				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.0	50.0				ug/L	3	Standard
Br	81	2160.2	7.2				ug/L	2163	Standard
P	31	48.3	23.9				ug/L	57	Standard
S	34	38.3	32.8				ug/L	27	Standard
Sr	88	131.7	24.7				ug/L	125	Standard
C	12	26.7	78.1				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	80.0	12.5				mg/L	10	Standard
Dy	164	21146.0	0.6				mg/L	9	Standard
Ho-1	165	14368.5	3.6				mg/L	8	Standard
Er	166	13562.7	3.1				mg/L	20	Standard
I	127	13017.3	0.3				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		95.594	
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		94.352	
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	93.357
[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	97.041
[	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: L1704002402SDL WG608761-02
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Method 6020 - Summary Report

Sample ID: L1704002402SDL WG608761-02

Sample Date/Time: Tuesday, April 04, 2017 14:50:21

Number of Replicates: 3

Autosampler Position: 234

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	275071.6	1.7				ug/L	302131	Standard
|	Be	9	388.3	10.0	0.1888	0.016	8.7	ug/L	12	Standard
|	Al	27	95079.3	3.3	0.7324	0.013	1.8	ug/L	907	Standard
|	Sc	45	39992.7	0.2				ug/L	39227	Standard
|	Ti	47	1366.7	4.3	6.8133	0.270	4.0	ug/L	34	Standard
|	V	51	38440.3	0.8	6.0078	0.062	1.0	ug/L	1155	Standard
|	Cr	52	22736.0	0.6	3.1116	0.043	1.4	ug/L	5602	Standard
|	Cr	53	2580.2	4.6	2.3088	0.178	7.7	ug/L	1042	Standard
|	Mn	55	126074.1	1.7	12.4553	0.265	2.1	ug/L	2370	Standard
|	Co	59	3751.8	3.0	0.4495	0.017	3.8	ug/L	381	Standard
|	Ni	60	3258.7	1.0	1.8632	0.018	1.0	ug/L	282	Standard
|	Cu	65	4609.7	1.8	2.3843	0.060	2.5	ug/L	707	Standard
|	Zn	66	5267.6	0.9	4.7951	0.068	1.4	ug/L	427	Standard
>	Ge	72	781755.4	0.5				ug/L	842801	Standard
|	As	75	667.2	2.4	0.6742	0.015	2.2	ug/L	-11	Standard
|	Se	82	16.4	51.3	0.0702	0.087	124.3	ug/L	18	Standard
|	Se-1	77	90.3	12.6	-0.2314	0.175	75.5	ug/L	127	Standard
>	Ga	71	4664.1	3.1				mg/L	92	Standard
|	Rb	85	17678.7	3.8				ug/L	48	Standard
|	Y	89	579651.7	0.7				ug/L	587989	Standard
>	Rh	103	3.3	86.6				ug/L	8	Standard
|	Mo	98	80.8	14.3	0.0099	0.004	35.6	ug/L	35	Standard
|	Ag	107	148.0	22.1	-0.0023	0.006	251.0	ug/L	121	Standard
|	Cd	111	16.6	76.4	-0.0065	0.008	125.7	mg/L	4	Standard
|	Cd	114	62.4	83.4	-0.0141	0.013	92.5	ug/L	27	Standard
>	In	115	649328.7	1.3				ug/L	702235	Standard
|	Sn	118	158.3	10.4	-0.0406	0.017	42.7	ug/L	180	Standard
|	Sb	123	286.6	39.8	0.0467	0.028	59.6	ug/L	43	Standard
|	Ba	135	3571.4	1.1	2.2540	0.010	0.5	ug/L	50	Standard
|	Ce	140	22626.9	2.2				ug/L	20	Standard
>	Tb	159	975238.5	1.2				ug/L	1036041	Standard
|	Ho	165	2735.2	8.1				ug/L	8	Standard
|	Tl	203	227.3	15.1	0.0001	0.006	8211.5	ug/L	87	Standard
|	Tl	205	481.7	22.3	0.0047	0.007	151.4	ug/L	255	Standard
|	Pb	206	5743.1	1.2	0.9782	0.025	2.6	ug/L	523	Standard
|	Pb	207	4535.7	1.8	0.8569	0.019	2.2	ug/L	433	Standard
|	Pb	208	5331.4	1.0	0.8858	0.018	2.0	ug/L	498	Standard
	U	238	352.3	11.0	0.0671	0.009	13.9	ug/L	6	Standard
>	Bi	209	601984.1	1.1				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0201	1.071	5318.3	mg/L	2	Standard
Mg	24	26.7	57.3	0.0742	0.286	385.2	mg/L	27	Standard
K	39	23.3	24.7	0.1550	0.063	41.0	mg/L	17	Standard
Ca	43	56.7	48.6	13.9498	22.098	158.4	mg/L	47	Standard
Fe	54	559.5	10.1	3.7056	0.393	10.6	mg/L	23	Standard
Fe	57	426.7	2.9	4.2186	0.329	7.8	mg/L	253	Standard
Sc-1	45	39992.7	0.2				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	3.3	34.6				ug/L	3	Standard
Br	81	1746.8	5.8				ug/L	2163	Standard
P	31	58.3	49.5				ug/L	57	Standard
S	34	33.3	67.6				ug/L	27	Standard
Sr	88	131.7	20.9				ug/L	125	Standard
C	12	13.3	114.6				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	23.3	65.5				mg/L	10	Standard
Dy	164	4271.0	2.8				mg/L	9	Standard
Ho-1	165	2735.2	8.1				mg/L	8	Standard
Er	166	2496.9	12.4				mg/L	20	Standard
I	127	13459.3	1.7				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		91.044	
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		92.757	
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	92.466
[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	95.280
[	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: Tuesday, April 04, 2017 14:53:28

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	289460.2	2.7				ug/L	302131	Standard
|	Be	9	103035.9	2.2	49.3733	1.974	4.0	ug/L	12	Standard
|	Al	27	6633331.7	3.3	49.7573	2.206	4.4	ug/L	907	Standard
|	Sc	45	40972.0	3.4				ug/L	39227	Standard
|	Ti	47	20882.4	4.0	100.3663	4.250	4.2	ug/L	34	Standard
|	V	51	329621.6	2.6	49.6315	1.372	2.8	ug/L	1155	Standard
|	Cr	52	304521.9	2.4	49.6369	1.351	2.7	ug/L	5602	Standard
|	Cr	53	37922.4	3.2	49.0263	1.544	3.1	ug/L	1042	Standard
|	Mn	55	523294.4	1.9	49.3357	1.116	2.3	ug/L	2370	Standard
|	Co	59	394930.4	3.1	49.0494	1.575	3.2	ug/L	381	Standard
|	Ni	60	84581.2	2.9	49.1886	1.432	2.9	ug/L	282	Standard
|	Cu	65	88656.4	2.2	48.8874	1.193	2.4	ug/L	707	Standard
|	Zn	66	53457.8	2.2	49.0736	1.190	2.4	ug/L	427	Standard
>	Ge	72	830920.4	1.3				ug/L	842801	Standard
|	As	75	54751.4	2.8	48.5660	1.434	3.0	ug/L	-11	Standard
|	Se	82	5004.3	2.8	48.5114	1.599	3.3	ug/L	18	Standard
|	Se-1	77	3617.1	2.2	48.7086	0.787	1.6	ug/L	127	Standard
>	Ga	71	76.7	16.4				mg/L	92	Standard
|	Rb	85	501.7	24.5				ug/L	48	Standard
|	Y	89	578474.7	1.7				ug/L	587989	Standard
>	Rh	103	11.7	65.5				ug/L	8	Standard
|	Mo	98	347530.6	3.0	97.8427	3.946	4.0	ug/L	35	Standard
|	Ag	107	284030.1	2.7	49.0285	1.804	3.7	ug/L	121	Standard
|	Cd	111	81594.0	2.5	49.7114	1.763	3.5	mg/L	4	Standard
|	Cd	114	207400.1	2.3	49.2267	1.653	3.4	ug/L	27	Standard
>	In	115	690456.8	1.1				ug/L	702235	Standard
|	Sn	118	45923.9	2.9	50.3274	2.002	4.0	ug/L	180	Standard
|	Sb	123	209917.8	1.9	48.7367	1.458	3.0	ug/L	43	Standard
|	Ba	135	80062.1	2.4	48.5345	1.664	3.4	ug/L	50	Standard
|	Ce	140	455.0	77.1				ug/L	20	Standard
>	Tb	159	1023203.5	2.5				ug/L	1036041	Standard
|	Ho	165	21.7	96.1				ug/L	8	Standard
|	Tl	203	333022.2	1.4	49.1109	1.927	3.9	ug/L	87	Standard
|	Tl	205	804774.4	1.5	48.7805	1.924	3.9	ug/L	255	Standard
|	Pb	206	270626.8	1.3	49.1978	1.860	3.8	ug/L	523	Standard
|	Pb	207	244681.5	2.3	49.2636	2.336	4.7	ug/L	433	Standard
|	Pb	208	277432.1	2.6	48.9964	2.493	5.1	ug/L	498	Standard
	U	238	229460.5	3.0	49.7623	2.675	5.4	ug/L	6	Standard
>	Bi	209	627697.2	2.5				ug/L	631806	Standard

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Na	23	6.7	114.6	1.7600	2.690	152.8	mg/L	2	Standard
Mg	24	295.0	8.5	4.9798	0.641	12.9	mg/L	27	Standard
K	39	425.0	17.3	4.5199	0.970	21.5	mg/L	17	Standard
Ca	43	41.7	18.3	1.2479	7.219	578.5	mg/L	47	Standard
Fe	54	696.6	2.6	4.5600	0.257	5.6	mg/L	23	Standard
Fe	57	503.3	5.5	6.0180	0.693	11.5	mg/L	253	Standard
Sc-1	45	40972.0	3.4				mg/L	39227	Standard
Cl	35	2.7	114.6				ug/L	1	Standard
Kr	83	2.7	43.3				ug/L	3	Standard
Br	81	2023.5	9.4				ug/L	2163	Standard
P	31	48.3	43.1				ug/L	57	Standard
S	34	50.0	34.6				ug/L	27	Standard
Sr	88	118.3	28.8				ug/L	125	Standard
C	12	40.0	25.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	10	Standard
Dy	164	32.7	68.5				mg/L	9	Standard
Ho-1	165	21.7	96.1				mg/L	8	Standard
Er	166	13.3	114.6				mg/L	20	Standard
I	127	2471.9	5.7				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	98.747		
Al	27	99.515		
Sc	45			
Ti	47	100.366		
V	51	99.263		
Cr	52	99.274		
Cr	53			
Mn	55	98.671		
Co	59	98.099		
Ni	60	98.377		
Cu	65	97.775		
Zn	66	98.147		
Ge	72		98.590	
As	75	97.132		
Se	82	97.023		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	97.843	
[Ag	107	98.057	
[Cd	111	99.423	
[Cd	114		
>	In	115		98.323
[Sn	118	100.655	
[	Sb	123	97.473	
[	Ba	135	97.069	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	98.222	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	97.993	
[	U	238	99.525	
>	Bi	209		99.350
[	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: Tuesday, April 04, 2017 14:56:33

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	280157.5	2.6				ug/L	302131	Standard
|	Be	9	20.0	43.3	0.0031	0.004	136.1	ug/L	12	Standard
|	Al	27	835.0	14.4	-0.0114	0.001	8.1	ug/L	907	Standard
|	Sc	45	40509.1	3.5				ug/L	39227	Standard
|	Ti	47	34.3	14.4	-0.0089	0.019	217.8	ug/L	34	Standard
|	V	51	1075.6	3.6	0.0040	0.005	130.5	ug/L	1155	Standard
|	Cr	52	4926.1	0.6	-0.0523	0.022	42.4	ug/L	5602	Standard
|	Cr	53	413.3	2.5	-0.7652	0.024	3.1	ug/L	1042	Standard
|	Mn	55	2167.5	2.9	-0.0267	0.002	6.2	ug/L	2370	Standard
|	Co	59	267.7	7.5	-0.0117	0.004	30.1	ug/L	381	Standard
|	Ni	60	183.3	12.3	-0.0469	0.010	21.7	ug/L	282	Standard
|	Cu	65	2234.5	3.2	0.9479	0.037	3.9	ug/L	707	Standard
|	Zn	66	436.0	5.8	0.0325	0.012	37.8	ug/L	427	Standard
>	Ge	72	803051.9	2.9				ug/L	842801	Standard
|	As	75	-2.4	2389.6	0.0442	0.052	118.3	ug/L	-11	Standard
|	Se	82	16.8	24.3	0.0695	0.044	62.8	ug/L	18	Standard
|	Se-1	77	69.7	5.4	-0.5650	0.027	4.7	ug/L	127	Standard
>	Ga	71	35.0	24.7				mg/L	92	Standard
|	Rb	85	105.0	29.7				ug/L	48	Standard
|	Y	89	569859.2	1.0				ug/L	587989	Standard
>	Rh	103	11.7	49.5				ug/L	8	Standard
|	Mo	98	136.2	8.9	0.0248	0.003	13.4	ug/L	35	Standard
|	Ag	107	145.0	8.1	-0.0040	0.002	40.7	ug/L	121	Standard
|	Cd	111	2.8	60.9	-0.0155	0.001	6.8	mg/L	4	Standard
|	Cd	114	48.9	43.4	-0.0179	0.005	29.9	ug/L	27	Standard
>	In	115	677184.0	2.6				ug/L	702235	Standard
|	Sn	118	229.0	17.8	0.0319	0.052	161.6	ug/L	180	Standard
|	Sb	123	392.1	20.3	0.0691	0.021	30.4	ug/L	43	Standard
|	Ba	135	50.7	1.1	-0.0187	0.001	6.0	ug/L	50	Standard
|	Ce	140	40.0	66.1				ug/L	20	Standard
>	Tb	159	1012433.5	1.5				ug/L	1036041	Standard
|	Ho	165	18.3	15.7				ug/L	8	Standard
|	Tl	203	46.7	50.3	-0.0281	0.004	12.6	ug/L	87	Standard
|	Tl	205	125.0	55.4	-0.0183	0.004	23.4	ug/L	255	Standard
|	Pb	206	1102.0	3.7	0.0865	0.004	5.0	ug/L	523	Standard
|	Pb	207	880.4	3.6	0.0794	0.004	4.9	ug/L	433	Standard
|	Pb	208	1024.7	1.9	0.0825	0.006	7.1	ug/L	498	Standard
	U	238	17.3	31.8	-0.0089	0.001	13.3	ug/L	6	Standard
>	Bi	209	632987.6	1.5				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	43.3	29.0	0.3810	0.252	66.1	mg/L	27	Standard
K	39	11.7	65.5	0.0252	0.086	340.2	mg/L	17	Standard
Ca	43	43.3	24.0	2.6418	7.087	268.2	mg/L	47	Standard
Fe	54	22.8	13.8	-0.0775	0.021	27.0	mg/L	23	Standard
Fe	57	263.3	19.4	-0.4106	1.399	340.7	mg/L	253	Standard
Sc-1	45	40509.1	3.5				mg/L	39227	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	3.3	17.3				ug/L	3	Standard
Br	81	2083.5	8.4				ug/L	2163	Standard
P	31	46.7	16.4				ug/L	57	Standard
S	34	45.0	0.0				ug/L	27	Standard
Sr	88	110.0	7.9				ug/L	125	Standard
C	12	26.7	43.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	12.4	122.2				mg/L	9	Standard
Ho-1	165	18.3	15.7				mg/L	8	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	3107.0	4.7				mg/L	3535	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		95.284	
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	96.433
[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	100.187
[	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

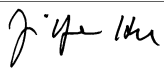
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Cu	65	

Sample ID: QC Std 7

Report Date/Time: Tuesday, April 04, 2017 14:58:44

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Method 6020 - Summary Report

Sample ID: L1704002403

Sample Date/Time: Tuesday, April 04, 2017 14:59:41

Number of Replicates: 3

Autosampler Position: 235

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	335516.7	1.9				ug/L	302131	Standard
|	Be	9	7178.4	1.1	2.9602	0.069	2.3	ug/L	12	Standard
|	Al	27	1945783.6	1.3	12.5768	0.396	3.1	ug/L	907	Standard
|	Sc	45	72598.5	1.5				ug/L	39227	Standard
|	Ti	47	20922.8	1.5	100.7918	0.813	0.8	ug/L	34	Standard
|	V	51	813754.2	0.6	123.0670	1.592	1.3	ug/L	1155	Standard
|	Cr	52	284411.3	0.9	46.4119	0.535	1.2	ug/L	5602	Standard
|	Cr	53	35586.7	1.3	46.0439	0.964	2.1	ug/L	1042	Standard
|	Mn	55	29489318.4	0.5	2800.0998	19.099	0.7	ug/L	2370	Standard
|	Co	59	1458166.1	1.1	181.6655	2.625	1.4	ug/L	381	Standard
|	Ni	60	76666.1	0.4	44.6797	0.431	1.0	ug/L	282	Standard
|	Cu	65	92305.3	0.5	51.0354	0.224	0.4	ug/L	707	Standard
|	Zn	66	122512.3	1.0	113.2311	1.119	1.0	ug/L	427	Standard
>	Ge	72	828894.3	0.8				ug/L	842801	Standard
|	As	75	15683.4	1.5	13.9777	0.226	1.6	ug/L	-11	Standard
|	Se	82	90.2	5.6	0.7785	0.047	6.0	ug/L	18	Standard
|	Se-1	77	250.7	4.1	1.9268	0.160	8.3	ug/L	127	Standard
>	Ga	71	86223.1	2.9				mg/L	92	Standard
|	Rb	85	236386.5	0.9				ug/L	48	Standard
|	Y	89	1392243.0	0.5				ug/L	587989	Standard
>	Rh	103	31.7	24.1				ug/L	8	Standard
|	Mo	98	1967.7	3.3	0.5413	0.017	3.1	ug/L	35	Standard
|	Ag	107	1083.0	1.9	0.1581	0.003	1.6	ug/L	121	Standard
|	Cd	111	319.8	5.9	0.1783	0.012	6.6	mg/L	4	Standard
|	Cd	114	720.5	8.4	0.1418	0.015	10.8	ug/L	27	Standard
>	In	115	688281.7	0.6				ug/L	702235	Standard
|	Sn	118	293.7	4.3	0.0985	0.016	16.0	ug/L	180	Standard
|	Sb	123	266.1	27.6	0.0381	0.017	45.8	ug/L	43	Standard
|	Ba	135	78296.5	1.1	47.6035	0.635	1.3	ug/L	50	Standard
|	Ce	140	39673183.1	0.8				ug/L	20	Standard
>	Tb	159	1139510.3	0.8				ug/L	1036041	Standard
|	Ho	165	68025.8	2.3				ug/L	8	Standard
|	Tl	203	9096.4	0.7	1.2947	0.025	2.0	ug/L	87	Standard
|	Tl	205	22515.1	2.6	1.3263	0.018	1.4	ug/L	255	Standard
|	Pb	206	579810.3	2.1	104.5100	1.202	1.2	ug/L	523	Standard
|	Pb	207	450031.8	1.8	89.7972	0.852	0.9	ug/L	433	Standard
|	Pb	208	546596.9	1.8	95.6716	1.138	1.2	ug/L	498	Standard
	U	238	12431.4	2.6	2.6571	0.038	1.4	ug/L	6	Standard
>	Bi	209	633409.1	1.3				ug/L	631806	Standard

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Na	23	1.7	173.2	-0.2593	0.587	226.3	mg/L	2	Standard
Mg	24	21.7	13.3	-0.2011	0.033	16.5	mg/L	27	Standard
K	39	133.3	22.0	0.7113	0.180	25.3	mg/L	17	Standard
Ca	43	25.0	72.1	-20.6300	7.940	38.5	mg/L	47	Standard
Fe	54	13921.2	1.8	53.7938	0.744	1.4	mg/L	23	Standard
Fe	57	4078.9	6.5	54.7506	3.393	6.2	mg/L	253	Standard
Sc-1	45	72598.5	1.5				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	2.7	21.7				ug/L	3	Standard
Br	81	2516.9	4.1				ug/L	2163	Standard
P	31	55.0	32.8				ug/L	57	Standard
S	34	40.0	12.5				ug/L	27	Standard
Sr	88	128.3	2.2				ug/L	125	Standard
C	12	26.7	57.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	950.0	4.6				mg/L	10	Standard
Dy	164	106330.0	1.3				mg/L	9	Standard
Ho-1	165	68025.8	2.3				mg/L	8	Standard
Er	166	64584.0	0.6				mg/L	20	Standard
I	127	20704.1	1.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		111.050	
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		98.350	
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	98.013
[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	100.254
[	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

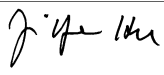
Measurement Type	Analyte	Mass	Out of Limits Message
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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Co 59 Upper, S, EEE	Co	59
Zn 66 Upper, S, EEE	Zn	66
Pb 206 Upper, S, EEE	Pb	206

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Method 6020 - Summary Report

Sample ID: L1704002404

Sample Date/Time: Tuesday, April 04, 2017 15:02:45

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	393126.6	0.8				ug/L	302131	Standard
|	Be	9	12531.9	3.7	4.4136	0.197	4.5	ug/L	12	Standard
|	Al	27	14282981.3	1.9	78.8599	1.868	2.4	ug/L	907	Standard
|	Sc	45	75722.1	1.4				ug/L	39227	Standard
|	Ti	47	59298.9	2.6	282.3001	9.157	3.2	ug/L	34	Standard
|	V	51	615217.9	2.1	91.7895	2.487	2.7	ug/L	1155	Standard
|	Cr	52	385839.9	2.0	62.4489	1.570	2.5	ug/L	5602	Standard
|	Cr	53	48074.5	2.0	61.8275	1.247	2.0	ug/L	1042	Standard
|	Mn	55	9925338.1	1.6	930.0084	18.596	2.0	ug/L	2370	Standard
|	Co	59	446493.2	2.0	54.8712	1.449	2.6	ug/L	381	Standard
|	Ni	60	77626.4	2.3	44.6531	1.394	3.1	ug/L	282	Standard
|	Cu	65	165916.9	1.4	90.8056	2.017	2.2	ug/L	707	Standard
|	Zn	66	118302.8	1.7	107.9060	2.690	2.5	ug/L	427	Standard
>	Ge	72	839871.2	0.8				ug/L	842801	Standard
|	As	75	25391.0	2.2	22.3085	0.646	2.9	ug/L	-11	Standard
|	Se	82	303.8	2.0	2.8200	0.079	2.8	ug/L	18	Standard
|	Se-1	77	993.0	2.6	12.0884	0.289	2.4	ug/L	127	Standard
>	Ga	71	85344.8	2.3				mg/L	92	Standard
|	Rb	85	828128.6	4.5				ug/L	48	Standard
|	Y	89	4870561.1	2.7				ug/L	587989	Standard
>	Rh	103	51.7	36.6				ug/L	8	Standard
|	Mo	98	1606.4	1.3	0.4359	0.004	0.9	ug/L	35	Standard
|	Ag	107	1312.4	3.2	0.1962	0.007	3.7	ug/L	121	Standard
|	Cd	111	565.3	8.5	0.3257	0.029	8.8	mg/L	4	Standard
|	Cd	114	1394.5	5.6	0.2999	0.019	6.2	ug/L	27	Standard
>	In	115	693407.5	0.5				ug/L	702235	Standard
|	Sn	118	392.7	3.4	0.2045	0.015	7.2	ug/L	180	Standard
|	Sb	123	178.6	29.8	0.0173	0.012	70.3	ug/L	43	Standard
|	Ba	135	98386.4	1.3	59.3880	0.910	1.5	ug/L	50	Standard
|	Ce	140	8316124.8	1.9				ug/L	20	Standard
>	Tb	159	1412957.9	0.2				ug/L	1036041	Standard
|	Ho	165	297365.1	1.5				ug/L	8	Standard
|	Tl	203	5760.8	2.3	0.7895	0.025	3.1	ug/L	87	Standard
|	Tl	205	14233.3	0.5	0.8112	0.012	1.4	ug/L	255	Standard
|	Pb	206	293118.0	2.1	51.6834	1.591	3.1	ug/L	523	Standard
|	Pb	207	223009.7	1.4	43.5239	0.954	2.2	ug/L	433	Standard
|	Pb	208	269340.5	2.0	46.1148	1.346	2.9	ug/L	498	Standard
	U	238	13053.3	1.8	2.7326	0.072	2.6	ug/L	6	Standard
>	Bi	209	646951.4	0.9				ug/L	631806	Standard

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Na	23	15.0	33.3	2.3380	0.971	41.5	mg/L	2	Standard
Mg	24	31.7	32.9	-0.1115	0.103	92.8	mg/L	27	Standard
K	39	570.0	5.3	3.2381	0.227	7.0	mg/L	17	Standard
Ca	43	31.7	48.2	-18.2681	6.361	34.8	mg/L	47	Standard
Fe	54	10528.1	4.2	38.9346	1.405	3.6	mg/L	23	Standard
Fe	57	3287.0	8.4	40.6231	4.644	11.4	mg/L	253	Standard
Sc-1	45	75722.1	1.4				mg/L	39227	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	2.0	100.0				ug/L	3	Standard
Br	81	2416.9	3.4				ug/L	2163	Standard
P	31	53.3	28.6				ug/L	57	Standard
S	34	33.3	37.7				ug/L	27	Standard
Sr	88	131.7	36.1				ug/L	125	Standard
C	12	36.7	31.5				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	510.0	2.0				mg/L	10	Standard
Dy	164	490171.1	3.0				mg/L	9	Standard
Ho-1	165	297365.1	1.5				mg/L	8	Standard
Er	166	272153.5	2.5				mg/L	20	Standard
I	127	15346.1	3.7				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		130.118	
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		99.652	
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	98.743
[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	102.397
[Na	23	
[Mg	24	
[K	39	
[Ca	43	
[Fe	54	
[Fe	57	
>	Sc-1	45	
[Cl	35	
[Kr	83	
[Br	81	
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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

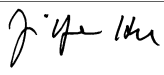
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Ti 47 Upper, S, EEE	Ti	47	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002404

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Sample ID: L1704002404

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Method 6020 - Summary Report

Sample ID: L1704002405

Sample Date/Time: Tuesday, April 04, 2017 15:05:50

Number of Replicates: 3

Autosampler Position: 237

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	335022.1	1.3				ug/L	302131	Standard
|	Be	9	23888.8	1.5	9.8791	0.103	1.0	ug/L	12	Standard
|	Al	27	3382032.0	0.9	21.9009	0.464	2.1	ug/L	907	Standard
|	Sc	45	76139.2	1.9				ug/L	39227	Standard
|	Ti	47	14476.3	7.5	70.2106	4.028	5.7	ug/L	34	Standard
|	V	51	776844.0	0.6	118.4517	1.754	1.5	ug/L	1155	Standard
|	Cr	52	769172.7	0.9	128.1151	2.328	1.8	ug/L	5602	Standard
|	Cr	53	97405.5	1.8	129.3923	0.584	0.5	ug/L	1042	Standard
|	Mn	55	3251481.5	0.9	311.1026	5.807	1.9	ug/L	2370	Standard
|	Co	59	102238.1	1.0	12.7996	0.169	1.3	ug/L	381	Standard
|	Ni	60	159679.4	1.4	93.9939	0.700	0.7	ug/L	282	Standard
|	Cu	65	90293.6	0.6	50.3340	0.720	1.4	ug/L	707	Standard
|	Zn	66	181926.4	0.7	169.7350	2.549	1.5	ug/L	427	Standard
>	Ge	72	822165.4	1.7				ug/L	842801	Standard
|	As	75	13740.2	1.0	12.3526	0.177	1.4	ug/L	-11	Standard
|	Se	82	257.1	4.0	2.4253	0.139	5.7	ug/L	18	Standard
|	Se-1	77	632.3	3.5	7.3181	0.341	4.7	ug/L	127	Standard
>	Ga	71	108179.9	1.6				mg/L	92	Standard
|	Rb	85	313765.6	0.5				ug/L	48	Standard
|	Y	89	5216839.2	1.0				ug/L	587989	Standard
>	Rh	103	25.0	40.0				ug/L	8	Standard
|	Mo	98	1413.8	2.2	0.3956	0.016	4.1	ug/L	35	Standard
|	Ag	107	1125.4	0.5	0.1706	0.004	2.5	ug/L	121	Standard
|	Cd	111	741.2	5.1	0.4477	0.022	5.0	mg/L	4	Standard
|	Cd	114	1872.9	4.2	0.4283	0.027	6.4	ug/L	27	Standard
>	In	115	670724.9	1.9				ug/L	702235	Standard
|	Sn	118	269.7	7.8	0.0795	0.019	23.9	ug/L	180	Standard
|	Sb	123	152.2	26.5	0.0125	0.010	81.6	ug/L	43	Standard
|	Ba	135	91937.8	1.0	57.3813	1.180	2.1	ug/L	50	Standard
|	Ce	140	5009207.9	1.1				ug/L	20	Standard
>	Tb	159	1303002.0	0.4				ug/L	1036041	Standard
|	Ho	165	279659.0	0.4				ug/L	8	Standard
|	Tl	203	3679.8	1.1	0.5000	0.006	1.2	ug/L	87	Standard
|	Tl	205	9181.1	3.1	0.5227	0.017	3.2	ug/L	255	Standard
|	Pb	206	237509.8	0.5	42.5210	0.230	0.5	ug/L	523	Standard
|	Pb	207	185218.9	0.9	36.7075	0.305	0.8	ug/L	433	Standard
|	Pb	208	221750.7	0.4	38.5518	0.143	0.4	ug/L	498	Standard
	U	238	3432.1	2.4	0.7206	0.017	2.4	ug/L	6	Standard
>	Bi	209	636755.4	0.0				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	35.0	28.6	-0.0795	0.105	132.0	mg/L	27	Standard
K	39	166.7	11.4	0.8683	0.120	13.8	mg/L	17	Standard
Ca	43	33.3	45.8	-17.6310	6.309	35.8	mg/L	47	Standard
Fe	54	15722.3	1.0	57.9513	0.554	1.0	mg/L	23	Standard
Fe	57	4619.0	3.8	59.7683	2.862	4.8	mg/L	253	Standard
Sc-1	45	76139.2	1.9				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.3	49.5				ug/L	3	Standard
Br	81	2586.9	6.8				ug/L	2163	Standard
P	31	65.0	26.6				ug/L	57	Standard
S	34	23.3	53.9				ug/L	27	Standard
Sr	88	103.3	11.2				ug/L	125	Standard
C	12	53.3	10.8				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	236.7	17.1				mg/L	10	Standard
Dy	164	410804.9	0.8				mg/L	9	Standard
Ho-1	165	279659.0	0.4				mg/L	8	Standard
Er	166	260456.4	1.2				mg/L	20	Standard
I	127	13889.7	1.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		110.886	
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		97.552	
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	95.513
[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	100.783
[	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
V 51 Upper, S, EEE	V	51	
Cr 52 Upper, S, EEE	Cr	52	
Cr 53 Upper, S, EEE	Cr	53	

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Mn 55 Upper, S, EEE	Mn	55
Zn 66 Upper, S, EEE	Zn	66

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Method 6020 - Summary Report

Sample ID: L1704002406

Sample Date/Time: Tuesday, April 04, 2017 15:08:55

Number of Replicates: 3

Autosampler Position: 238

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	312761.2	2.4				ug/L	302131	Standard
|	Be	9	90352.0	1.4	40.0541	0.788	2.0	ug/L	12	Standard
|	Al	27	2618852.9	1.0	18.1679	0.550	3.0	ug/L	907	Standard
|	Sc	45	97979.2	2.0				ug/L	39227	Standard
|	Ti	47	10818.9	1.6	52.0859	1.023	2.0	ug/L	34	Standard
|	V	51	1040202.7	0.9	157.5052	1.771	1.1	ug/L	1155	Standard
|	Cr	52	627215.5	0.9	103.5355	1.248	1.2	ug/L	5602	Standard
|	Cr	53	79444.4	1.4	104.5251	1.485	1.4	ug/L	1042	Standard
|	Mn	55	7827318.5	1.0	743.7717	9.374	1.3	ug/L	2370	Standard
|	Co	59	285820.1	0.6	35.6050	0.290	0.8	ug/L	381	Standard
|	Ni	60	69156.2	1.4	40.3256	0.633	1.6	ug/L	282	Standard
|	Cu	65	101514.6	0.8	56.2153	0.539	1.0	ug/L	707	Standard
|	Zn	66	103887.7	1.6	96.0537	1.766	1.8	ug/L	427	Standard
>	Ge	72	828091.8	0.3				ug/L	842801	Standard
|	As	75	24863.1	2.1	22.1536	0.518	2.3	ug/L	-11	Standard
|	Se	82	804.8	4.3	7.7442	0.361	4.7	ug/L	18	Standard
|	Se-1	77	2150.8	0.8	28.4319	0.330	1.2	ug/L	127	Standard
>	Ga	71	134455.7	1.0				mg/L	92	Standard
|	Rb	85	385294.4	1.1				ug/L	48	Standard
|	Y	89	12279036.2	0.9				ug/L	587989	Standard
>	Rh	103	31.7	18.2				ug/L	8	Standard
|	Mo	98	2155.7	1.4	0.6095	0.014	2.3	ug/L	35	Standard
|	Ag	107	2641.2	5.6	0.4395	0.030	6.8	ug/L	121	Standard
|	Cd	111	1674.3	3.8	1.0317	0.049	4.7	mg/L	4	Standard
|	Cd	114	4165.9	3.4	0.9872	0.043	4.4	ug/L	27	Standard
>	In	115	671702.3	0.8				ug/L	702235	Standard
|	Sn	118	236.7	8.2	0.0419	0.021	50.6	ug/L	180	Standard
|	Sb	123	165.6	48.9	0.0156	0.020	125.8	ug/L	43	Standard
|	Ba	135	124754.6	1.7	77.7576	1.732	2.2	ug/L	50	Standard
|	Ce	140	8570909.0	1.4				ug/L	20	Standard
>	Tb	159	1883986.8	1.2				ug/L	1036041	Standard
|	Ho	165	909620.5	1.0				ug/L	8	Standard
|	Tl	203	8299.3	2.3	1.1734	0.033	2.8	ug/L	87	Standard
|	Tl	205	19737.8	1.5	1.1551	0.024	2.1	ug/L	255	Standard
|	Pb	206	558423.9	0.9	100.2679	1.245	1.2	ug/L	523	Standard
|	Pb	207	431978.5	0.5	85.8606	0.692	0.8	ug/L	433	Standard
|	Pb	208	524766.0	0.7	91.4924	0.768	0.8	ug/L	498	Standard
	U	238	6430.4	1.9	1.3632	0.034	2.5	ug/L	6	Standard
>	Bi	209	635877.6	0.6				ug/L	631806	Standard

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Na	23	5.0	100.0	0.1553	0.760	489.7	mg/L	2	Standard
Mg	24	30.0	28.9	-0.1958	0.066	33.5	mg/L	27	Standard
K	39	76.7	30.8	0.2434	0.108	44.4	mg/L	17	Standard
Ca	43	28.3	10.2	-22.3695	0.933	4.2	mg/L	47	Standard
Fe	54	16515.5	2.2	47.2693	1.396	3.0	mg/L	23	Standard
Fe	57	4639.0	1.0	44.9684	0.788	1.8	mg/L	253	Standard
Sc-1	45	97979.2	2.0				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.3	49.5				ug/L	3	Standard
Br	81	6151.3	6.1				ug/L	2163	Standard
P	31	46.7	50.6				ug/L	57	Standard
S	34	43.3	6.7				ug/L	27	Standard
Sr	88	135.0	18.5				ug/L	125	Standard
C	12	16.7	34.6				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	1486.7	3.0				mg/L	10	Standard
Dy	164	1331284.6	1.2				mg/L	9	Standard
Ho-1	165	909620.5	1.0				mg/L	8	Standard
Er	166	872246.3	2.4				mg/L	20	Standard
I	127	28870.8	1.4				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		103.518	
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		98.255	
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	95.652
[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	100.644
[	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
V 51 Upper, S, EEE	V	51	
Cr 52 Upper, S, EEE	Cr	52	
Cr 53 Upper, S, EEE	Cr	53	

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Mn 55 Upper, S, EEE	Mn	55
Pb 206 Upper, S, EEE	Pb	206

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Method 6020 - Summary Report

Sample ID: L1704002407

Sample Date/Time: Tuesday, April 04, 2017 15:12:01

Number of Replicates: 3

Autosampler Position: 239

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	350054.3	0.5				ug/L	302131	Standard
|	Be	9	8865.9	1.7	3.5044	0.042	1.2	ug/L	12	Standard
|	Al	27	3084786.1	0.2	19.1129	0.122	0.6	ug/L	907	Standard
|	Sc	45	62324.6	0.6				ug/L	39227	Standard
|	Ti	47	23885.6	10.6	117.9084	12.163	10.3	ug/L	34	Standard
|	V	51	646612.0	0.9	100.1631	0.936	0.9	ug/L	1155	Standard
|	Cr	52	354288.0	1.2	59.4858	0.699	1.2	ug/L	5602	Standard
|	Cr	53	44652.4	2.1	59.5701	1.134	1.9	ug/L	1042	Standard
|	Mn	55	7203213.2	0.9	700.6423	8.221	1.2	ug/L	2370	Standard
|	Co	59	238555.4	0.9	30.4135	0.353	1.2	ug/L	381	Standard
|	Ni	60	189906.0	0.0	113.6393	0.388	0.3	ug/L	282	Standard
|	Cu	65	92168.2	0.2	52.2226	0.116	0.2	ug/L	707	Standard
|	Zn	66	128776.9	0.5	121.9814	0.237	0.2	ug/L	427	Standard
>	Ge	72	808958.3	0.3				ug/L	842801	Standard
|	As	75	11650.4	0.4	10.6497	0.035	0.3	ug/L	-11	Standard
|	Se	82	125.0	8.0	1.1474	0.103	9.0	ug/L	18	Standard
|	Se-1	77	203.3	13.9	1.3362	0.401	30.0	ug/L	127	Standard
>	Ga	71	80543.5	1.2				mg/L	92	Standard
|	Rb	85	239535.9	2.3				ug/L	48	Standard
|	Y	89	920030.4	0.5				ug/L	587989	Standard
>	Rh	103	30.0	28.9				ug/L	8	Standard
|	Mo	98	1770.9	1.0	0.5095	0.011	2.2	ug/L	35	Standard
|	Ag	107	775.7	1.3	0.1112	0.001	0.8	ug/L	121	Standard
|	Cd	111	284.7	4.1	0.1651	0.009	5.3	mg/L	4	Standard
|	Cd	114	695.0	4.4	0.1436	0.009	6.3	ug/L	27	Standard
>	In	115	657261.4	1.2				ug/L	702235	Standard
|	Sn	118	249.0	6.6	0.0622	0.021	34.1	ug/L	180	Standard
|	Sb	123	138.1	19.3	0.0097	0.006	66.9	ug/L	43	Standard
|	Ba	135	78883.2	1.6	50.2291	0.960	1.9	ug/L	50	Standard
|	Ce	140	1567644.2	0.9				ug/L	20	Standard
>	Tb	159	1059747.9	2.5				ug/L	1036041	Standard
|	Ho	165	27336.3	0.9				ug/L	8	Standard
|	Tl	203	5081.5	1.0	0.7247	0.005	0.7	ug/L	87	Standard
|	Tl	205	12255.0	2.4	0.7270	0.016	2.3	ug/L	255	Standard
|	Pb	206	326598.7	0.9	60.1687	0.541	0.9	ug/L	523	Standard
|	Pb	207	252191.5	0.5	51.4326	0.553	1.1	ug/L	433	Standard
|	Pb	208	304061.2	1.1	54.3953	0.645	1.2	ug/L	498	Standard
	U	238	17938.9	0.7	3.9284	0.053	1.3	ug/L	6	Standard
>	Bi	209	619314.0	1.6				ug/L	631806	Standard

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Na	23	1.7	173.2	-0.2037	0.683	335.5	mg/L	2	Standard
Mg	24	36.7	15.7	0.0158	0.071	449.8	mg/L	27	Standard
K	39	138.3	27.1	0.8802	0.264	30.0	mg/L	17	Standard
Ca	43	30.0	28.9	-16.1594	4.577	28.3	mg/L	47	Standard
Fe	54	14872.5	2.4	66.9942	1.211	1.8	mg/L	23	Standard
Fe	57	4340.6	0.5	69.7293	0.829	1.2	mg/L	253	Standard
Sc-1	45	62324.6	0.6				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.7	78.1				ug/L	3	Standard
Br	81	4927.5	2.3				ug/L	2163	Standard
P	31	55.0					ug/L	57	Standard
S	34	31.7	24.1				ug/L	27	Standard
Sr	88	126.7	14.9				ug/L	125	Standard
C	12	50.0	34.6				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	403.3	13.7				mg/L	10	Standard
Dy	164	40306.0	3.1				mg/L	9	Standard
Ho-1	165	27336.3	0.9				mg/L	8	Standard
Er	166	27161.0	2.0				mg/L	20	Standard
I	127	88947.0	1.4				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		115.862	
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		95.984	
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	93.596
[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	98.023
[	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
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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Ni 60 Upper, S, EEE	Ni	60
Zn 66 Upper, S, EEE	Zn	66

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Method 6020 - Summary Report

Sample ID: L1704002408

Sample Date/Time: Tuesday, April 04, 2017 15:15:06

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	287160.8	0.9				ug/L	302131	Standard
|	Be	9	18491.3	1.3	8.9210	0.124	1.4	ug/L	12	Standard
|	Al	27	583039.2	1.4	4.3896	0.022	0.5	ug/L	907	Standard
|	Sc	45	58270.2	1.8				ug/L	39227	Standard
|	Ti	47	7556.9	9.3	37.3254	3.372	9.0	ug/L	34	Standard
|	V	51	453914.4	0.8	70.5355	1.012	1.4	ug/L	1155	Standard
|	Cr	52	116497.9	1.1	19.0341	0.363	1.9	ug/L	5602	Standard
|	Cr	53	14475.3	4.7	18.4912	1.093	5.9	ug/L	1042	Standard
|	Mn	55	567017.2	0.6	55.1439	0.781	1.4	ug/L	2370	Standard
|	Co	59	76268.8	1.0	9.7294	0.147	1.5	ug/L	381	Standard
|	Ni	60	91257.7	0.3	54.7363	0.582	1.1	ug/L	282	Standard
|	Cu	65	69641.7	0.7	39.5304	0.610	1.5	ug/L	707	Standard
|	Zn	66	83900.0	0.6	79.6463	1.079	1.4	ug/L	427	Standard
>	Ge	72	805907.7	0.8				ug/L	842801	Standard
|	As	75	4811.6	2.6	4.4414	0.079	1.8	ug/L	-11	Standard
|	Se	82	81.5	20.2	0.7166	0.162	22.6	ug/L	18	Standard
|	Se-1	77	253.7	5.2	2.0688	0.184	8.9	ug/L	127	Standard
>	Ga	71	89361.1	1.4				mg/L	92	Standard
|	Rb	85	28022.6	0.8				ug/L	48	Standard
|	Y	89	1466225.8	1.8				ug/L	587989	Standard
>	Rh	103	18.3	56.8				ug/L	8	Standard
|	Mo	98	653.8	1.7	0.1769	0.005	2.6	ug/L	35	Standard
|	Ag	107	720.4	2.0	0.0997	0.002	2.1	ug/L	121	Standard
|	Cd	111	941.2	4.1	0.5788	0.033	5.6	mg/L	4	Standard
|	Cd	114	2233.6	6.8	0.5211	0.038	7.3	ug/L	27	Standard
>	In	115	664740.9	1.5				ug/L	702235	Standard
|	Sn	118	244.7	5.8	0.0540	0.019	35.7	ug/L	180	Standard
|	Sb	123	104.1	28.1	0.0011	0.007	634.8	ug/L	43	Standard
|	Ba	135	22362.5	1.7	14.0434	0.273	1.9	ug/L	50	Standard
|	Ce	140	3667399.1	1.5				ug/L	20	Standard
>	Tb	159	1093456.9	1.1				ug/L	1036041	Standard
|	Ho	165	68116.1	1.5				ug/L	8	Standard
|	Tl	203	3505.4	0.1	0.4858	0.002	0.4	ug/L	87	Standard
|	Tl	205	8700.8	1.9	0.5053	0.007	1.4	ug/L	255	Standard
|	Pb	206	125795.4	1.3	22.9586	0.217	0.9	ug/L	523	Standard
|	Pb	207	96028.7	0.8	19.3996	0.096	0.5	ug/L	433	Standard
|	Pb	208	115717.7	0.9	20.5098	0.166	0.8	ug/L	498	Standard
	U	238	16375.8	0.3	3.5621	0.012	0.3	ug/L	6	Standard
>	Bi	209	623207.4	0.5				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	30.0	16.7	-0.0400	0.058	145.1	mg/L	27	Standard
K	39	43.3	29.0	0.2261	0.096	42.6	mg/L	17	Standard
Ca	43	48.3	33.3	-4.9913	8.796	176.2	mg/L	47	Standard
Fe	54	9085.9	2.5	43.6991	0.911	2.1	mg/L	23	Standard
Fe	57	2595.2	4.2	41.8460	2.162	5.2	mg/L	253	Standard
Sc-1	45	58270.2	1.8				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	3.0	33.3				ug/L	3	Standard
Br	81	2353.5	17.5				ug/L	2163	Standard
P	31	80.0	12.5				ug/L	57	Standard
S	34	36.7	31.5				ug/L	27	Standard
Sr	88	136.7	13.9				ug/L	125	Standard
C	12	23.3	49.5				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	186.7	35.7				mg/L	10	Standard
Dy	164	103034.4	0.3				mg/L	9	Standard
Ho-1	165	68116.1	1.5				mg/L	8	Standard
Er	166	65963.3	0.7				mg/L	20	Standard
I	127	50950.6	2.4				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		95.045	
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		95.623	
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	94.661
[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	98.639
[	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: L1704002409

Sample Date/Time: Tuesday, April 04, 2017 15:18:12

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	367959.7	0.9				ug/L	302131	Standard
|	Be	9	4557.4	5.2	1.7106	0.097	5.7	ug/L	12	Standard
|	Al	27	5335478.6	1.9	31.4627	0.721	2.3	ug/L	907	Standard
|	Sc	45	62557.3	2.7				ug/L	39227	Standard
|	Ti	47	24443.7	0.3	121.6910	2.486	2.0	ug/L	34	Standard
|	V	51	671549.1	2.0	104.8632	0.315	0.3	ug/L	1155	Standard
|	Cr	52	221648.3	1.4	37.1831	0.239	0.6	ug/L	5602	Standard
|	Cr	53	27423.1	0.8	36.3754	0.413	1.1	ug/L	1042	Standard
|	Mn	55	1438882.8	0.9	140.8966	1.191	0.8	ug/L	2370	Standard
|	Co	59	100917.7	0.9	12.9437	0.142	1.1	ug/L	381	Standard
|	Ni	60	58260.1	1.2	35.0353	0.250	0.7	ug/L	282	Standard
|	Cu	65	96817.4	0.6	55.3230	0.659	1.2	ug/L	707	Standard
|	Zn	66	79594.9	0.7	75.8646	1.044	1.4	ug/L	427	Standard
>	Ge	72	802538.4	1.8				ug/L	842801	Standard
|	As	75	10947.2	1.5	10.0904	0.152	1.5	ug/L	-11	Standard
|	Se	82	57.4	30.8	0.4766	0.171	35.9	ug/L	18	Standard
|	Se-1	77	191.3	9.4	1.1861	0.241	20.4	ug/L	127	Standard
>	Ga	71	99373.2	1.7				mg/L	92	Standard
|	Rb	85	259609.0	1.7				ug/L	48	Standard
|	Y	89	1114100.9	0.8				ug/L	587989	Standard
>	Rh	103	30.0	44.1				ug/L	8	Standard
|	Mo	98	757.5	5.4	0.2095	0.013	6.2	ug/L	35	Standard
|	Ag	107	764.0	9.9	0.1090	0.014	12.9	ug/L	121	Standard
|	Cd	111	200.0	11.5	0.1108	0.016	14.1	mg/L	4	Standard
|	Cd	114	458.8	8.5	0.0845	0.010	12.1	ug/L	27	Standard
>	In	115	658055.0	1.1				ug/L	702235	Standard
|	Sn	118	293.3	11.7	0.1132	0.043	38.2	ug/L	180	Standard
|	Sb	123	142.0	36.4	0.0106	0.013	119.5	ug/L	43	Standard
|	Ba	135	46530.0	0.8	29.5700	0.103	0.3	ug/L	50	Standard
|	Ce	140	1854200.5	1.5				ug/L	20	Standard
>	Tb	159	1065528.6	1.4				ug/L	1036041	Standard
|	Ho	165	43512.4	2.4				ug/L	8	Standard
|	Tl	203	2995.6	5.6	0.4150	0.025	6.1	ug/L	87	Standard
|	Tl	205	7361.8	2.6	0.4286	0.010	2.3	ug/L	255	Standard
|	Pb	206	112933.3	0.7	20.8312	0.164	0.8	ug/L	523	Standard
|	Pb	207	86185.4	0.8	17.5964	0.116	0.7	ug/L	433	Standard
|	Pb	208	104687.2	1.1	18.7530	0.143	0.8	ug/L	498	Standard
	U	238	11283.5	3.1	2.4778	0.069	2.8	ug/L	6	Standard
>	Bi	209	616369.2	1.4				ug/L	631806	Standard

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Na	23	3.3	86.6	0.1852	0.679	366.6	mg/L	2	Standard
Mg	24	33.3	37.7	-0.0233	0.159	684.4	mg/L	27	Standard
K	39	291.7	11.4	1.9698	0.287	14.6	mg/L	17	Standard
Ca	43	31.7	24.1	-15.3121	4.282	28.0	mg/L	47	Standard
Fe	54	10227.4	3.2	45.8336	1.230	2.7	mg/L	23	Standard
Fe	57	3040.3	1.6	46.3633	0.832	1.8	mg/L	253	Standard
Sc-1	45	62557.3	2.7				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	1.7	69.3				ug/L	3	Standard
Br	81	2413.5	9.2				ug/L	2163	Standard
P	31	61.7	32.8				ug/L	57	Standard
S	34	21.7	35.3				ug/L	27	Standard
Sr	88	120.0	11.0				ug/L	125	Standard
C	12	40.0	25.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	126.7	40.5				mg/L	10	Standard
Dy	164	65312.5	0.9				mg/L	9	Standard
Ho-1	165	43512.4	2.4				mg/L	8	Standard
Er	166	40704.6	2.1				mg/L	20	Standard
I	127	39167.2	1.1				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		121.788	
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		95.223	
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	93.709
[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	97.557
[	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
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

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Method 6020 - Summary Report

Sample ID: L1704002410

Sample Date/Time: Tuesday, April 04, 2017 15:21:18

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	325813.2	1.8				ug/L	302131	Standard
|	Be	9	5004.2	3.9	2.1236	0.111	5.2	ug/L	12	Standard
|	Al	27	1190268.3	0.7	7.9151	0.192	2.4	ug/L	907	Standard
|	Sc	45	72114.5	0.7				ug/L	39227	Standard
|	Ti	47	17831.5	2.3	89.8736	1.091	1.2	ug/L	34	Standard
|	V	51	850043.5	0.7	134.5499	1.047	0.8	ug/L	1155	Standard
|	Cr	52	438901.8	1.2	75.5089	1.005	1.3	ug/L	5602	Standard
|	Cr	53	55347.6	1.0	75.7839	1.554	2.1	ug/L	1042	Standard
|	Mn	55	5469600.8	0.6	543.3562	6.523	1.2	ug/L	2370	Standard
|	Co	59	202673.2	0.4	26.3856	0.211	0.8	ug/L	381	Standard
|	Ni	60	76688.9	1.2	46.7837	0.935	2.0	ug/L	282	Standard
|	Cu	65	106249.9	0.7	61.5509	0.704	1.1	ug/L	707	Standard
|	Zn	66	124495.1	1.2	120.4527	2.224	1.8	ug/L	427	Standard
>	Ge	72	792043.1	1.2				ug/L	842801	Standard
|	As	75	17996.8	1.0	16.7775	0.264	1.6	ug/L	-11	Standard
|	Se	82	43.7	19.4	0.3468	0.092	26.5	ug/L	18	Standard
|	Se-1	77	158.7	4.5	0.7469	0.089	11.9	ug/L	127	Standard
>	Ga	71	130096.2	1.2				mg/L	92	Standard
|	Rb	85	378373.2	1.0				ug/L	48	Standard
|	Y	89	1020467.0	1.0				ug/L	587989	Standard
>	Rh	103	26.7	21.7				ug/L	8	Standard
|	Mo	98	1412.8	0.6	0.4119	0.010	2.3	ug/L	35	Standard
|	Ag	107	966.4	3.8	0.1493	0.006	3.8	ug/L	121	Standard
|	Cd	111	202.2	8.7	0.1149	0.013	11.2	mg/L	4	Standard
|	Cd	114	437.1	17.5	0.0815	0.020	25.1	ug/L	27	Standard
>	In	115	644468.2	1.7				ug/L	702235	Standard
|	Sn	118	233.7	1.3	0.0498	0.004	8.0	ug/L	180	Standard
|	Sb	123	96.7	27.8	0.0001	0.007	8859.8	ug/L	43	Standard
|	Ba	135	56337.2	0.7	36.5753	0.656	1.8	ug/L	50	Standard
|	Ce	140	12141327.8	0.7				ug/L	20	Standard
>	Tb	159	1067664.5	0.7				ug/L	1036041	Standard
|	Ho	165	37107.1	0.9				ug/L	8	Standard
|	Tl	203	5326.3	1.3	0.7664	0.012	1.5	ug/L	87	Standard
|	Tl	205	12775.4	2.3	0.7640	0.017	2.3	ug/L	255	Standard
|	Pb	206	247423.5	0.3	45.8467	0.218	0.5	ug/L	523	Standard
|	Pb	207	192773.9	0.3	39.5423	0.186	0.5	ug/L	433	Standard
|	Pb	208	230543.2	0.2	41.4830	0.153	0.4	ug/L	498	Standard
	U	238	14599.4	1.1	3.2151	0.035	1.1	ug/L	6	Standard
>	Bi	209	615337.1	0.2				ug/L	631806	Standard

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Na	23	3.3	173.2	0.0924	1.196	1294.5	mg/L	2	Standard
Mg	24	20.0	25.0	-0.2172	0.052	24.0	mg/L	27	Standard
K	39	78.3	16.1	0.3778	0.074	19.6	mg/L	17	Standard
Ca	43	28.3	36.7	-19.0373	4.612	24.2	mg/L	47	Standard
Fe	54	15841.3	2.4	61.6536	1.228	2.0	mg/L	23	Standard
Fe	57	4505.7	1.1	61.7671	0.663	1.1	mg/L	253	Standard
Sc-1	45	72114.5	0.7				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	5.0	60.0				ug/L	3	Standard
Br	81	2690.2	3.9				ug/L	2163	Standard
P	31	56.7	28.4				ug/L	57	Standard
S	34	28.3	20.4				ug/L	27	Standard
Sr	88	153.3	3.8				ug/L	125	Standard
C	12	30.0	33.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	350.0	13.1				mg/L	10	Standard
Dy	164	55609.3	2.3				mg/L	9	Standard
Ho-1	165	37107.1	0.9				mg/L	8	Standard
Er	166	36724.5	0.9				mg/L	20	Standard
I	127	22147.8	1.6				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		107.838	
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		93.977	
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	91.774
[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	97.393
[	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
V 51 Upper, S, EEE	V	51	
Mn 55 Upper, S, EEE	Mn	55	
Zn 66 Upper, S, EEE	Zn	66	

Sample ID: L1704002410

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Method 6020 - Summary Report

Sample ID: L1704002601

Sample Date/Time: Tuesday, April 04, 2017 15:24:23

Number of Replicates: 3

Autosampler Position: 243

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

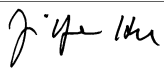
IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	298250.5	1.2				ug/L	302131	Standard
|	Be	9	2401.9	5.4	1.1093	0.048	4.4	ug/L	12	Standard
|	Al	27	1144722.9	0.5	8.3147	0.073	0.9	ug/L	907	Standard
|	Sc	45	55125.1	2.4				ug/L	39227	Standard
|	Ti	47	6356.7	5.8	31.8824	1.657	5.2	ug/L	34	Standard
|	V	51	673588.8	0.3	106.4642	0.528	0.5	ug/L	1155	Standard
|	Cr	52	342466.8	0.2	58.6533	0.436	0.7	ug/L	5602	Standard
|	Cr	53	42705.1	0.2	58.0964	0.487	0.8	ug/L	1042	Standard
|	Mn	55	1088549.2	1.6	107.8124	0.929	0.9	ug/L	2370	Standard
|	Co	59	70731.1	2.2	9.1670	0.151	1.7	ug/L	381	Standard
|	Ni	60	41631.1	1.0	25.2930	0.111	0.4	ug/L	282	Standard
|	Cu	65	51750.9	1.6	29.7703	0.295	1.0	ug/L	707	Standard
|	Zn	66	41760.5	0.7	40.0996	0.047	0.1	ug/L	427	Standard
>	Ge	72	792924.8	0.8				ug/L	842801	Standard
|	As	75	14822.9	1.3	13.8099	0.126	0.9	ug/L	-11	Standard
|	Se	82	80.9	4.7	0.7233	0.034	4.7	ug/L	18	Standard
|	Se-1	77	153.0	6.9	0.6627	0.167	25.2	ug/L	127	Standard
>	Ga	71	71535.2	1.2				mg/L	92	Standard
|	Rb	85	442967.0	0.3				ug/L	48	Standard
|	Y	89	671537.5	0.2				ug/L	587989	Standard
>	Rh	103	21.7	58.1				ug/L	8	Standard
|	Mo	98	1695.2	0.5	0.4943	0.005	1.1	ug/L	35	Standard
|	Ag	107	925.7	7.7	0.1408	0.012	8.4	ug/L	121	Standard
|	Cd	111	92.1	16.3	0.0427	0.010	23.5	mg/L	4	Standard
|	Cd	114	163.3	4.7	0.0115	0.002	19.9	ug/L	27	Standard
>	In	115	647885.3	0.8				ug/L	702235	Standard
|	Sn	118	189.0	2.4	-0.0041	0.004	98.9	ug/L	180	Standard
|	Sb	123	75.4	30.7	-0.0053	0.006	110.1	ug/L	43	Standard
|	Ba	135	75805.8	0.9	48.9630	0.255	0.5	ug/L	50	Standard
|	Ce	140	3988751.9	1.3				ug/L	20	Standard
>	Tb	159	1028399.4	2.1				ug/L	1036041	Standard
|	Ho	165	12310.0	3.5				ug/L	8	Standard
|	Tl	203	4258.6	2.2	0.6045	0.008	1.3	ug/L	87	Standard
|	Tl	205	10158.4	2.9	0.6010	0.010	1.7	ug/L	255	Standard
|	Pb	206	171416.4	1.5	31.6687	0.055	0.2	ug/L	523	Standard
|	Pb	207	132504.6	1.1	27.0999	0.171	0.6	ug/L	433	Standard
|	Pb	208	157588.5	0.8	28.2750	0.354	1.3	ug/L	498	Standard
	U	238	11085.1	1.4	2.4336	0.018	0.7	ug/L	6	Standard
>	Bi	209	616499.6	1.7				ug/L	631806	Standard

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Na	23	1.7	173.2	-0.1593	0.760	477.1	mg/L	2	Standard
Mg	24	45.0	22.2	0.1887	0.151	80.0	mg/L	27	Standard
K	39	116.7	24.4	0.8389	0.249	29.7	mg/L	17	Standard
Ca	43	40.0	12.5	-8.3414	2.375	28.5	mg/L	47	Standard
Fe	54	10384.6	1.4	52.8603	1.377	2.6	mg/L	23	Standard
Fe	57	3045.3	4.4	53.7957	4.193	7.8	mg/L	253	Standard
Sc-1	45	55125.1	2.4				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	1.7	69.3				ug/L	3	Standard
Br	81	3707.1	7.2				ug/L	2163	Standard
P	31	60.0	25.0				ug/L	57	Standard
S	34	48.3	15.8				ug/L	27	Standard
Sr	88	135.0	7.4				ug/L	125	Standard
C	12	26.7	21.7				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	753.4	3.8				mg/L	10	Standard
Dy	164	18396.6	2.9				mg/L	9	Standard
Ho-1	165	12310.0	3.5				mg/L	8	Standard
Er	166	11801.3	3.5				mg/L	20	Standard
I	127	31010.1	3.7				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.716	
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		94.082	
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	92.261
[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	97.577
[	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

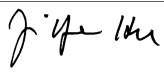
Measurement Type	Analyte	Mass	Out of Limits Message
V 51 Upper, S, EEE	V	51	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002601

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Method 6020 - Summary Report

Sample ID: L1704002602

Sample Date/Time: Tuesday, April 04, 2017 15:27:29

Number of Replicates: 3

Autosampler Position: 244

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	295929.3	3.5				ug/L	302131	Standard
|	Be	9	5125.9	3.7	2.3946	0.025	1.1	ug/L	12	Standard
|	Al	27	861403.1	1.5	6.3042	0.132	2.1	ug/L	907	Standard
|	Sc	45	63713.7	2.0				ug/L	39227	Standard
|	Ti	47	6317.7	3.2	30.8934	0.487	1.6	ug/L	34	Standard
|	V	51	915656.4	1.7	141.1680	0.224	0.2	ug/L	1155	Standard
|	Cr	52	422142.7	1.9	70.6764	0.662	0.9	ug/L	5602	Standard
|	Cr	53	53427.4	2.0	71.1785	2.022	2.8	ug/L	1042	Standard
|	Mn	55	1042049.0	2.0	100.6206	0.241	0.2	ug/L	2370	Standard
|	Co	59	66719.9	1.2	8.4290	0.084	1.0	ug/L	381	Standard
|	Ni	60	43086.5	2.2	25.5253	0.128	0.5	ug/L	282	Standard
|	Cu	65	133499.3	1.5	75.3972	0.329	0.4	ug/L	707	Standard
|	Zn	66	72007.0	0.7	67.6911	0.855	1.3	ug/L	427	Standard
>	Ge	72	813201.7	1.8				ug/L	842801	Standard
|	As	75	23418.3	0.4	21.2531	0.307	1.4	ug/L	-11	Standard
|	Se	82	103.1	4.9	0.9235	0.033	3.5	ug/L	18	Standard
|	Se-1	77	176.7	2.9	0.9426	0.058	6.2	ug/L	127	Standard
>	Ga	71	78164.4	0.7				mg/L	92	Standard
|	Rb	85	320910.4	2.1				ug/L	48	Standard
|	Y	89	870402.9	1.1				ug/L	587989	Standard
>	Rh	103	13.3	43.3				ug/L	8	Standard
|	Mo	98	2634.0	0.7	0.7607	0.012	1.6	ug/L	35	Standard
|	Ag	107	973.0	2.8	0.1461	0.004	2.9	ug/L	121	Standard
|	Cd	111	108.9	4.3	0.0521	0.002	4.8	mg/L	4	Standard
|	Cd	114	244.3	4.1	0.0308	0.003	8.3	ug/L	27	Standard
>	In	115	660699.5	1.6				ug/L	702235	Standard
|	Sn	118	212.7	3.8	0.0189	0.013	67.9	ug/L	180	Standard
|	Sb	123	85.9	25.0	-0.0031	0.005	175.7	ug/L	43	Standard
|	Ba	135	64311.9	0.7	40.7309	0.625	1.5	ug/L	50	Standard
|	Ce	140	899582.3	0.4				ug/L	20	Standard
>	Tb	159	1073300.8	1.1				ug/L	1036041	Standard
|	Ho	165	25044.0	1.6				ug/L	8	Standard
|	Tl	203	3256.3	1.1	0.4489	0.007	1.5	ug/L	87	Standard
|	Tl	205	8115.5	2.3	0.4697	0.014	2.9	ug/L	255	Standard
|	Pb	206	161356.3	0.8	29.4861	0.179	0.6	ug/L	523	Standard
|	Pb	207	124897.3	0.6	25.2655	0.184	0.7	ug/L	433	Standard
|	Pb	208	149824.6	1.2	26.5873	0.173	0.7	ug/L	498	Standard
	U	238	17448.7	1.0	3.7970	0.047	1.2	ug/L	6	Standard
>	Bi	209	623102.6	0.6				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	36.7	55.1	0.0029	0.226	7734.9	mg/L	27	Standard
K	39	90.0	40.1	0.5224	0.251	48.1	mg/L	17	Standard
Ca	43	26.7	28.6	-18.1853	3.974	21.9	mg/L	47	Standard
Fe	54	14898.6	1.5	65.6547	0.698	1.1	mg/L	23	Standard
Fe	57	4142.2	2.0	64.5954	1.755	2.7	mg/L	253	Standard
Sc-1	45	63713.7	2.0				mg/L	39227	Standard
Cl	35	2.7	86.6				ug/L	1	Standard
Kr	83	2.3	24.7				ug/L	3	Standard
Br	81	5204.2	6.3				ug/L	2163	Standard
P	31	68.3	11.2				ug/L	57	Standard
S	34	30.0	16.7				ug/L	27	Standard
Sr	88	118.3	6.5				ug/L	125	Standard
C	12	43.3	48.0				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	300.0	14.5				mg/L	10	Standard
Dy	164	36717.3	1.8				mg/L	9	Standard
Ho-1	165	25044.0	1.6				mg/L	8	Standard
Er	166	23728.6	2.9				mg/L	20	Standard
I	127	42004.8	1.8				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		97.947	
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		96.488	
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	94.085
[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	98.622
[	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

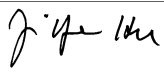
Measurement Type	Analyte	Mass	Out of Limits Message
V 51 Upper, S, EEE	V	51	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002602

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Tuesday, April 04, 2017 15:30:36

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	276221.9	3.3				ug/L	302131	Standard
|	Be	9	103373.2	1.8	51.8976	1.000	1.9	ug/L	12	Standard
|	Al	27	6605901.4	1.3	51.9221	1.052	2.0	ug/L	907	Standard
|	Sc	45	38132.9	2.7				ug/L	39227	Standard
|	Ti	47	20568.0	0.6	104.2919	2.322	2.2	ug/L	34	Standard
|	V	51	325498.7	0.4	51.7057	0.632	1.2	ug/L	1155	Standard
|	Cr	52	298927.7	0.3	51.4307	0.859	1.7	ug/L	5602	Standard
|	Cr	53	37594.9	0.7	51.3331	0.719	1.4	ug/L	1042	Standard
|	Mn	55	515689.1	0.4	51.2941	0.613	1.2	ug/L	2370	Standard
|	Co	59	389293.4	0.4	51.0048	0.704	1.4	ug/L	381	Standard
|	Ni	60	82998.0	0.4	50.9235	0.751	1.5	ug/L	282	Standard
|	Cu	65	87266.3	0.7	50.7747	0.827	1.6	ug/L	707	Standard
|	Zn	66	52694.1	0.0	51.0432	0.834	1.6	ug/L	427	Standard
>	Ge	72	787752.3	1.6				ug/L	842801	Standard
|	As	75	54212.4	0.9	50.7210	0.402	0.8	ug/L	-11	Standard
|	Se	82	5037.1	0.4	51.5150	0.982	1.9	ug/L	18	Standard
|	Se-1	77	3566.1	2.2	50.7292	1.573	3.1	ug/L	127	Standard
>	Ga	71	120.0	23.2				mg/L	92	Standard
|	Rb	85	755.0	8.3				ug/L	48	Standard
|	Y	89	552922.0	1.0				ug/L	587989	Standard
>	Rh	103	20.0	75.0				ug/L	8	Standard
|	Mo	98	348824.8	0.5	104.3612	1.383	1.3	ug/L	35	Standard
|	Ag	107	287549.0	0.4	52.7486	0.587	1.1	ug/L	121	Standard
|	Cd	111	81118.7	0.5	52.5208	0.741	1.4	mg/L	4	Standard
|	Cd	114	205925.0	0.3	51.9418	0.558	1.1	ug/L	27	Standard
>	In	115	649620.3	1.0				ug/L	702235	Standard
|	Sn	118	45970.6	1.6	53.5475	0.932	1.7	ug/L	180	Standard
|	Sb	123	210884.3	0.5	52.0331	0.620	1.2	ug/L	43	Standard
|	Ba	135	79942.7	0.3	51.5016	0.358	0.7	ug/L	50	Standard
|	Ce	140	2602.3	156.8				ug/L	20	Standard
>	Tb	159	984780.9	1.3				ug/L	1036041	Standard
|	Ho	165	68.3	135.4				ug/L	8	Standard
|	Tl	203	342142.0	0.7	52.0120	0.538	1.0	ug/L	87	Standard
|	Tl	205	831672.0	1.5	51.9664	0.979	1.9	ug/L	255	Standard
|	Pb	206	279841.3	0.5	52.4486	0.457	0.9	ug/L	523	Standard
|	Pb	207	252230.9	0.6	52.3465	0.379	0.7	ug/L	433	Standard
|	Pb	208	286392.2	0.7	52.1310	0.147	0.3	ug/L	498	Standard
	U	238	242794.6	0.6	54.2639	0.381	0.7	ug/L	6	Standard
>	Bi	209	608554.4	0.4				ug/L	631806	Standard

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Na	23	5.0	100.0	1.3811	2.003	145.0	mg/L	2	Standard
Mg	24	298.3	20.1	5.4501	1.312	24.1	mg/L	27	Standard
K	39	463.3	9.2	5.2930	0.558	10.5	mg/L	17	Standard
Ca	43	46.7	24.7	7.6348	8.848	115.9	mg/L	47	Standard
Fe	54	764.9	17.2	5.4145	0.943	17.4	mg/L	23	Standard
Fe	57	425.0	10.8	4.7736	1.636	34.3	mg/L	253	Standard
Sc-1	45	38132.9	2.7				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.7	78.1				ug/L	3	Standard
Br	81	2043.5	3.3				ug/L	2163	Standard
P	31	68.3	34.6				ug/L	57	Standard
S	34	23.3	68.9				ug/L	27	Standard
Sr	88	128.3	11.9				ug/L	125	Standard
C	12	40.0	43.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	10	Standard
Dy	164	77.1	152.9				mg/L	9	Standard
Ho-1	165	68.3	135.4				mg/L	8	Standard
Er	166	60.0	130.2				mg/L	20	Standard
I	127	2448.5	12.4				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	103.795		
Al	27	103.844		
Sc	45			
Ti	47	104.292		
V	51	103.411		
Cr	52	102.861		
Cr	53			
Mn	55	102.588		
Co	59	102.010		
Ni	60	101.847		
Cu	65	101.549		
Zn	66	102.086		
Ge	72		93.468	
As	75	101.442		
Se	82	103.030		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	104.361	
[Ag	107	105.497	
[Cd	111	105.042	
[Cd	114		
>	In	115		92.508
[Sn	118	107.095	
[	Sb	123	104.066	
[	Ba	135	103.003	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	104.024	
[	Tl	205		
[Pb	206		
[Pb	207		
[Pb	208	104.262	
[U	238	108.528	
>	Bi	209		96.320
[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
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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Tuesday, April 04, 2017 15:33:41

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	272617.0	2.9				ug/L	302131	Standard
|	Be	9	28.3	27.0	0.0077	0.004	55.4	ug/L	12	Standard
|	Al	27	865.0	12.3	-0.0110	0.001	7.1	ug/L	907	Standard
|	Sc	45	37705.2	2.7				ug/L	39227	Standard
|	Ti	47	26.3	25.3	-0.0428	0.036	84.7	ug/L	34	Standard
|	V	51	917.8	4.4	-0.0150	0.007	43.9	ug/L	1155	Standard
|	Cr	52	4373.3	1.8	-0.1177	0.004	3.3	ug/L	5602	Standard
|	Cr	53	298.3	4.2	-0.9074	0.010	1.1	ug/L	1042	Standard
|	Mn	55	2116.8	4.1	-0.0234	0.005	20.1	ug/L	2370	Standard
|	Co	59	308.0	2.3	-0.0050	0.001	18.8	ug/L	381	Standard
|	Ni	60	188.7	12.1	-0.0388	0.017	43.3	ug/L	282	Standard
|	Cu	65	2437.5	2.3	1.1200	0.010	0.9	ug/L	707	Standard
|	Zn	66	427.0	5.0	0.0402	0.013	33.3	ug/L	427	Standard
>	Ge	72	772263.2	2.0				ug/L	842801	Standard
|	As	75	-26.0	74.5	0.0211	0.018	86.7	ug/L	-11	Standard
|	Se	82	10.5	35.9	0.0102	0.039	380.8	ug/L	18	Standard
|	Se-1	77	81.7	19.8	-0.3437	0.251	73.2	ug/L	127	Standard
>	Ga	71	96.7	15.8				mg/L	92	Standard
|	Rb	85	255.0	7.1				ug/L	48	Standard
|	Y	89	544472.8	2.1				ug/L	587989	Standard
>	Rh	103	11.7	24.7				ug/L	8	Standard
|	Mo	98	133.5	19.6	0.0258	0.007	27.7	ug/L	35	Standard
|	Ag	107	124.7	7.6	-0.0064	0.002	33.4	ug/L	121	Standard
|	Cd	111	6.5	38.2	-0.0130	0.002	11.9	mg/L	4	Standard
|	Cd	114	46.1	37.4	-0.0181	0.004	24.2	ug/L	27	Standard
>	In	115	645350.4	2.0				ug/L	702235	Standard
|	Sn	118	208.3	6.0	0.0197	0.017	87.2	ug/L	180	Standard
|	Sb	123	292.8	15.1	0.0489	0.013	25.6	ug/L	43	Standard
|	Ba	135	40.0	7.5	-0.0240	0.002	9.8	ug/L	50	Standard
|	Ce	140	81.7	63.7				ug/L	20	Standard
>	Tb	159	981673.7	1.9				ug/L	1036041	Standard
|	Ho	165	5.0	100.0				ug/L	8	Standard
|	Tl	203	45.0	8.0	-0.0281	0.001	2.3	ug/L	87	Standard
|	Tl	205	116.7	34.6	-0.0186	0.003	14.1	ug/L	255	Standard
|	Pb	206	1087.0	5.8	0.0895	0.012	13.3	ug/L	523	Standard
|	Pb	207	884.4	7.7	0.0853	0.012	14.2	ug/L	433	Standard
|	Pb	208	1003.7	3.9	0.0839	0.009	11.0	ug/L	498	Standard
	U	238	15.7	35.2	-0.0092	0.001	13.0	ug/L	6	Standard
>	Bi	209	615346.2	1.5				ug/L	631806	Standard

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Na	23	3.3	86.6	0.7091	1.133	159.8	mg/L	2	Standard
Mg	24	30.0	28.9	0.1717	0.176	102.5	mg/L	27	Standard
K	39	11.7	49.5	0.0347	0.071	203.2	mg/L	17	Standard
Ca	43	36.7	55.1	-0.0206	18.011	87574.0	mg/L	47	Standard
Fe	54	24.8	39.7	-0.0516	0.069	132.8	mg/L	23	Standard
Fe	57	281.7	8.8	0.6814	0.928	136.2	mg/L	253	Standard
Sc-1	45	37705.2	2.7				mg/L	39227	Standard
Cl	35	3.3	34.6				ug/L	1	Standard
Kr	83	2.0	100.0				ug/L	3	Standard
Br	81	2030.1	5.1				ug/L	2163	Standard
P	31	71.7	35.8				ug/L	57	Standard
S	34	26.7	39.0				ug/L	27	Standard
Sr	88	113.3	16.7				ug/L	125	Standard
C	12	23.3	49.5				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	10	Standard
Dy	164	6.2	100.1				mg/L	9	Standard
Ho-1	165	5.0	100.0				mg/L	8	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	2720.2	8.2				mg/L	3535	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		91.631	
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	91.900
[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	97.395
[	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

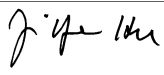
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Cu	65	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: L1704002603

Sample Date/Time: Tuesday, April 04, 2017 15:36:49

Number of Replicates: 3

Autosampler Position: 245

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	284363.7	0.2				ug/L	302131	Standard
|	Be	9	2026.8	5.1	0.9814	0.051	5.2	ug/L	12	Standard
|	Al	27	1422019.0	1.4	10.8379	0.147	1.4	ug/L	907	Standard
|	Sc	45	51203.1	2.7				ug/L	39227	Standard
|	Ti	47	5599.0	2.0	27.9415	0.259	0.9	ug/L	34	Standard
|	V	51	755176.9	1.2	118.8512	0.514	0.4	ug/L	1155	Standard
|	Cr	52	399717.5	1.6	68.2976	0.261	0.4	ug/L	5602	Standard
|	Cr	53	50328.5	1.0	68.4082	1.665	2.4	ug/L	1042	Standard
|	Mn	55	3374627.8	2.8	333.2165	4.135	1.2	ug/L	2370	Standard
|	Co	59	90053.3	3.0	11.6306	0.158	1.4	ug/L	381	Standard
|	Ni	60	41504.8	2.8	25.1002	0.291	1.2	ug/L	282	Standard
|	Cu	65	52109.8	2.9	29.8423	0.505	1.7	ug/L	707	Standard
|	Zn	66	42434.0	2.1	40.5686	0.418	1.0	ug/L	427	Standard
>	Ge	72	796462.3	1.6				ug/L	842801	Standard
|	As	75	24060.6	2.6	22.2866	0.251	1.1	ug/L	-11	Standard
|	Se	82	95.2	6.4	0.8644	0.048	5.6	ug/L	18	Standard
|	Se-1	77	165.7	6.0	0.8349	0.114	13.7	ug/L	127	Standard
>	Ga	71	77105.8	3.0				mg/L	92	Standard
|	Rb	85	429856.9	1.8				ug/L	48	Standard
|	Y	89	631304.3	2.6				ug/L	587989	Standard
>	Rh	103	26.7	21.7				ug/L	8	Standard
|	Mo	98	2037.2	6.1	0.6013	0.032	5.3	ug/L	35	Standard
|	Ag	107	989.4	5.8	0.1539	0.010	6.2	ug/L	121	Standard
|	Cd	111	99.0	7.2	0.0476	0.005	9.9	mg/L	4	Standard
|	Cd	114	226.6	16.4	0.0280	0.010	35.6	ug/L	27	Standard
>	In	115	642985.8	1.0				ug/L	702235	Standard
|	Sn	118	188.3	7.8	-0.0033	0.015	463.1	ug/L	180	Standard
|	Sb	123	164.7	28.7	0.0170	0.012	67.9	ug/L	43	Standard
|	Ba	135	59906.2	1.5	38.9778	0.420	1.1	ug/L	50	Standard
|	Ce	140	1330956.1	0.9				ug/L	20	Standard
>	Tb	159	1007940.2	1.3				ug/L	1036041	Standard
|	Ho	165	10103.4	1.6				ug/L	8	Standard
|	Tl	203	3757.1	1.6	0.5382	0.002	0.4	ug/L	87	Standard
|	Tl	205	9221.1	4.2	0.5521	0.015	2.7	ug/L	255	Standard
|	Pb	206	178498.2	2.0	33.5072	0.227	0.7	ug/L	523	Standard
|	Pb	207	140459.1	1.1	29.1911	0.149	0.5	ug/L	433	Standard
|	Pb	208	168586.9	2.8	30.7306	0.361	1.2	ug/L	498	Standard
	U	238	9526.0	3.2	2.1226	0.036	1.7	ug/L	6	Standard
>	Bi	209	606837.8	1.6				ug/L	631806	Standard

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Na	23	11.7	99.0	2.7206	3.201	117.7	mg/L	2	Standard
Mg	24	88.3	19.9	0.8715	0.286	32.9	mg/L	27	Standard
K	39	108.3	21.8	0.8364	0.216	25.8	mg/L	17	Standard
Ca	43	36.7	43.8	-8.7787	9.358	106.6	mg/L	47	Standard
Fe	54	11709.8	4.9	64.2476	4.064	6.3	mg/L	23	Standard
Fe	57	3408.7	1.1	66.3623	2.727	4.1	mg/L	253	Standard
Sc-1	45	51203.1	2.7				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	1.3	43.3				ug/L	3	Standard
Br	81	4000.5	2.0				ug/L	2163	Standard
P	31	58.3	60.8				ug/L	57	Standard
S	34	30.0	16.7				ug/L	27	Standard
Sr	88	128.3	19.2				ug/L	125	Standard
C	12	73.3	7.9				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	1083.4	16.3				mg/L	10	Standard
Dy	164	15492.1	4.0				mg/L	9	Standard
Ho-1	165	10103.4	1.6				mg/L	8	Standard
Er	166	9943.3	1.6				mg/L	20	Standard
I	127	45240.8	3.0				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		94.119	
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		94.502	
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	91.563
[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	96.048
[	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

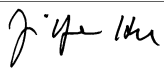
Measurement Type	Analyte	Mass	Out of Limits Message
V 51 Upper, S, EEE	V	51	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002603

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Method 6020 - Summary Report

Sample ID: L1704002604

Sample Date/Time: Tuesday, April 04, 2017 15:39:54

Number of Replicates: 3

Autosampler Position: 246

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	293782.9	1.6				ug/L	302131	Standard
|	Be	9	1173.4	4.9	0.5471	0.030	5.4	ug/L	12	Standard
|	Al	27	1933372.0	1.9	14.2687	0.182	1.3	ug/L	907	Standard
|	Sc	45	51402.1	1.8				ug/L	39227	Standard
|	Ti	47	5769.1	5.4	28.7242	1.554	5.4	ug/L	34	Standard
|	V	51	629136.5	1.4	98.7375	1.310	1.3	ug/L	1155	Standard
|	Cr	52	310606.2	0.8	52.7381	0.330	0.6	ug/L	5602	Standard
|	Cr	53	39090.4	0.4	52.6883	0.125	0.2	ug/L	1042	Standard
|	Mn	55	1214160.9	0.5	119.4547	0.695	0.6	ug/L	2370	Standard
|	Co	59	54916.7	0.3	7.0580	0.014	0.2	ug/L	381	Standard
|	Ni	60	32597.0	0.8	19.6331	0.189	1.0	ug/L	282	Standard
|	Cu	65	39916.2	0.4	22.7259	0.044	0.2	ug/L	707	Standard
|	Zn	66	41597.4	0.9	39.6628	0.305	0.8	ug/L	427	Standard
>	Ge	72	798434.0	0.2				ug/L	842801	Standard
|	As	75	10301.6	1.7	9.5456	0.159	1.7	ug/L	-11	Standard
|	Se	82	64.4	11.5	0.5514	0.076	13.7	ug/L	18	Standard
|	Se-1	77	132.0	1.5	0.3429	0.032	9.3	ug/L	127	Standard
>	Ga	71	67058.1	0.5				mg/L	92	Standard
|	Rb	85	429413.4	0.4				ug/L	48	Standard
|	Y	89	623354.9	0.8				ug/L	587989	Standard
>	Rh	103	28.3	27.0				ug/L	8	Standard
|	Mo	98	1430.3	3.3	0.4122	0.014	3.5	ug/L	35	Standard
|	Ag	107	972.7	2.0	0.1484	0.004	3.0	ug/L	121	Standard
|	Cd	111	240.2	3.9	0.1378	0.006	4.0	mg/L	4	Standard
|	Cd	114	562.7	5.9	0.1117	0.009	8.2	ug/L	27	Standard
>	In	115	651867.1	1.3				ug/L	702235	Standard
|	Sn	118	210.7	3.6	0.0199	0.011	55.7	ug/L	180	Standard
|	Sb	123	111.1	32.2	0.0034	0.009	271.1	ug/L	43	Standard
|	Ba	135	101900.5	0.7	65.4356	0.418	0.6	ug/L	50	Standard
|	Ce	140	1960590.9	1.0				ug/L	20	Standard
>	Tb	159	1016135.8	0.7				ug/L	1036041	Standard
|	Ho	165	6226.3	3.5				ug/L	8	Standard
|	Tl	203	3115.0	1.1	0.4344	0.006	1.4	ug/L	87	Standard
|	Tl	205	7590.2	1.8	0.4441	0.007	1.7	ug/L	255	Standard
|	Pb	206	163779.1	0.3	30.3530	0.018	0.1	ug/L	523	Standard
|	Pb	207	126872.3	0.8	26.0285	0.183	0.7	ug/L	433	Standard
|	Pb	208	152462.8	0.8	27.4399	0.226	0.8	ug/L	498	Standard
	U	238	14219.3	1.4	3.1356	0.046	1.5	ug/L	6	Standard
>	Bi	209	614457.8	0.2				ug/L	631806	Standard

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Na	23	3.3	86.6	0.3594	0.830	230.8	mg/L	2	Standard
Mg	24	86.7	33.3	0.8396	0.431	51.3	mg/L	27	Standard
K	39	126.7	18.7	0.9893	0.203	20.5	mg/L	17	Standard
Ca	43	36.7	34.3	-8.6975	7.967	91.6	mg/L	47	Standard
Fe	54	8817.3	3.8	48.1231	2.573	5.3	mg/L	23	Standard
Fe	57	2716.9	3.5	51.1064	2.837	5.6	mg/L	253	Standard
Sc-1	45	51402.1	1.8				mg/L	39227	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	3.0	33.3				ug/L	3	Standard
Br	81	3883.8	3.5				ug/L	2163	Standard
P	31	50.0	45.8				ug/L	57	Standard
S	34	20.0	0.0				ug/L	27	Standard
Sr	88	131.7	19.1				ug/L	125	Standard
C	12	36.7	103.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	596.7	5.1				mg/L	10	Standard
Dy	164	9228.9	4.8				mg/L	9	Standard
Ho-1	165	6226.3	3.5				mg/L	8	Standard
Er	166	5931.2	4.3				mg/L	20	Standard
I	127	34272.1	0.8				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		97.237	
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		94.736	
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	92.828
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
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[Pb	206	
[Pb	207	
[Pb	208	
[U	238	
>	Bi	209	97.254
[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

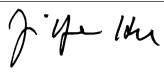
Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002604

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Method 6020 - Summary Report

Sample ID: L1704002605

Sample Date/Time: Tuesday, April 04, 2017 15:42:59

Number of Replicates: 3

Autosampler Position: 247

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	283126.3	1.8				ug/L	302131	Standard
|	Be	9	3007.0	2.5	1.4662	0.057	3.9	ug/L	12	Standard
|	Al	27	760334.6	0.7	5.8130	0.093	1.6	ug/L	907	Standard
|	Sc	45	62117.1	2.7				ug/L	39227	Standard
|	Ti	47	8204.2	4.3	41.6103	1.475	3.5	ug/L	34	Standard
|	V	51	500399.3	0.3	79.8286	0.390	0.5	ug/L	1155	Standard
|	Cr	52	189193.9	0.9	32.3233	0.099	0.3	ug/L	5602	Standard
|	Cr	53	23583.3	1.8	31.8066	0.414	1.3	ug/L	1042	Standard
|	Mn	55	947894.9	1.0	94.7809	0.333	0.4	ug/L	2370	Standard
|	Co	59	59038.8	1.7	7.7198	0.079	1.0	ug/L	381	Standard
|	Ni	60	59801.8	1.0	36.7613	0.075	0.2	ug/L	282	Standard
|	Cu	65	89114.6	1.0	52.0185	0.106	0.2	ug/L	707	Standard
|	Zn	66	93328.3	2.0	90.9759	1.069	1.2	ug/L	427	Standard
>	Ge	72	785194.5	0.8				ug/L	842801	Standard
|	As	75	25994.9	1.7	24.4207	0.230	0.9	ug/L	-11	Standard
|	Se	82	40.1	19.7	0.3127	0.085	27.0	ug/L	18	Standard
|	Se-1	77	140.0	16.3	0.4911	0.319	65.0	ug/L	127	Standard
>	Ga	71	53609.7	2.4				mg/L	92	Standard
|	Rb	85	149384.5	0.6				ug/L	48	Standard
|	Y	89	740639.2	2.3				ug/L	587989	Standard
>	Rh	103	21.7	48.0				ug/L	8	Standard
|	Mo	98	3136.3	1.4	0.9363	0.014	1.5	ug/L	35	Standard
|	Ag	107	978.4	4.4	0.1524	0.008	5.4	ug/L	121	Standard
|	Cd	111	162.3	4.4	0.0893	0.005	5.5	mg/L	4	Standard
|	Cd	114	383.0	12.4	0.0681	0.012	17.7	ug/L	27	Standard
>	In	115	641291.1	0.2				ug/L	702235	Standard
|	Sn	118	199.7	9.8	0.0108	0.023	214.1	ug/L	180	Standard
|	Sb	123	91.8	20.3	-0.0011	0.005	438.5	ug/L	43	Standard
|	Ba	135	17733.7	1.6	11.5336	0.176	1.5	ug/L	50	Standard
|	Ce	140	6735831.6	1.1				ug/L	20	Standard
>	Tb	159	1010629.2	0.2				ug/L	1036041	Standard
|	Ho	165	16215.3	1.6				ug/L	8	Standard
|	Tl	203	3973.9	1.0	0.5720	0.007	1.2	ug/L	87	Standard
|	Tl	205	9609.7	3.2	0.5773	0.019	3.3	ug/L	255	Standard
|	Pb	206	333056.6	0.7	62.6966	0.367	0.6	ug/L	523	Standard
|	Pb	207	251910.8	1.3	52.4920	0.627	1.2	ug/L	433	Standard
|	Pb	208	302572.3	0.6	55.3067	0.339	0.6	ug/L	498	Standard
	U	238	18149.5	0.6	4.0612	0.025	0.6	ug/L	6	Standard
>	Bi	209	606086.9	0.2				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	28.3	10.2	-0.0837	0.028	33.6	mg/L	27	Standard
K	39	73.3	14.2	0.4192	0.063	15.1	mg/L	17	Standard
Ca	43	28.3	20.4	-16.9374	3.368	19.9	mg/L	47	Standard
Fe	54	7664.9	1.3	34.5416	0.683	2.0	mg/L	23	Standard
Fe	57	2413.5	9.7	35.4719	2.999	8.5	mg/L	253	Standard
Sc-1	45	62117.1	2.7				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.3	24.7				ug/L	3	Standard
Br	81	3213.7	4.6				ug/L	2163	Standard
P	31	68.3	4.2				ug/L	57	Standard
S	34	25.0	40.0				ug/L	27	Standard
Sr	88	118.3	10.6				ug/L	125	Standard
C	12	26.7	21.7				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	360.0	14.4				mg/L	10	Standard
Dy	164	24460.8	2.9				mg/L	9	Standard
Ho-1	165	16215.3	1.6				mg/L	8	Standard
Er	166	15661.4	0.4				mg/L	20	Standard
I	127	19681.1	3.0				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		93.710	
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		93.165	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704002605

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	91.321
[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	95.929
[	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

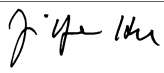
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1704002605

Report Date/Time: Tuesday, April 04, 2017 15:45:10

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Tuesday, April 04, 2017 15:46:07

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	267270.1	0.9				ug/L	302131	Standard
|	Be	9	99138.4	2.7	51.4203	1.388	2.7	ug/L	12	Standard
|	Al	27	6502802.8	2.3	52.7965	0.791	1.5	ug/L	907	Standard
|	Sc	45	37559.8	2.5				ug/L	39227	Standard
|	Ti	47	19938.4	0.5	102.8319	0.287	0.3	ug/L	34	Standard
|	V	51	312839.6	0.3	50.5506	0.423	0.8	ug/L	1155	Standard
|	Cr	52	290382.2	0.3	50.8124	0.563	1.1	ug/L	5602	Standard
|	Cr	53	36587.5	1.0	50.8054	0.138	0.3	ug/L	1042	Standard
|	Mn	55	501597.9	1.1	50.7548	0.883	1.7	ug/L	2370	Standard
|	Co	59	379175.6	0.4	50.5381	0.601	1.2	ug/L	381	Standard
|	Ni	60	80576.0	0.7	50.2881	0.317	0.6	ug/L	282	Standard
|	Cu	65	85256.5	0.4	50.4588	0.247	0.5	ug/L	707	Standard
|	Zn	66	51321.4	0.4	50.5668	0.310	0.6	ug/L	427	Standard
>	Ge	72	774291.2	0.8				ug/L	842801	Standard
|	As	75	53200.9	0.4	50.6370	0.229	0.5	ug/L	-11	Standard
|	Se	82	4935.6	1.1	51.3431	0.423	0.8	ug/L	18	Standard
|	Se-1	77	3547.4	1.2	51.3474	0.474	0.9	ug/L	127	Standard
>	Ga	71	91.7	36.3				mg/L	92	Standard
|	Rb	85	561.7	6.4				ug/L	48	Standard
|	Y	89	544498.5	1.1				ug/L	587989	Standard
>	Rh	103	23.3	12.4				ug/L	8	Standard
|	Mo	98	341675.7	0.8	103.4807	0.914	0.9	ug/L	35	Standard
|	Ag	107	279035.3	0.5	51.8171	0.263	0.5	ug/L	121	Standard
|	Cd	111	79271.7	1.0	51.9560	0.504	1.0	mg/L	4	Standard
|	Cd	114	204259.6	2.1	52.1553	0.971	1.9	ug/L	27	Standard
>	In	115	641671.4	0.3				ug/L	702235	Standard
|	Sn	118	44776.4	1.0	52.7964	0.463	0.9	ug/L	180	Standard
|	Sb	123	206562.2	1.1	51.5933	0.409	0.8	ug/L	43	Standard
|	Ba	135	78635.2	1.1	51.2839	0.500	1.0	ug/L	50	Standard
|	Ce	140	408.3	30.6				ug/L	20	Standard
>	Tb	159	973567.6	1.2				ug/L	1036041	Standard
|	Ho	165	8.3	91.7				ug/L	8	Standard
|	Tl	203	337363.1	2.0	51.3238	0.919	1.8	ug/L	87	Standard
|	Tl	205	820592.4	2.8	51.3104	1.291	2.5	ug/L	255	Standard
|	Pb	206	273752.9	1.5	51.3443	0.625	1.2	ug/L	523	Standard
|	Pb	207	248273.9	1.5	51.5637	0.642	1.2	ug/L	433	Standard
|	Pb	208	277889.5	1.3	50.6208	0.559	1.1	ug/L	498	Standard
	U	238	237283.3	0.8	53.0736	0.324	0.6	ug/L	6	Standard
>	Bi	209	608064.2	0.2				ug/L	631806	Standard

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Na	23	10.0	100.0	3.3933	4.059	119.6	mg/L	2	Standard
Mg	24	278.3	15.0	5.1394	0.979	19.0	mg/L	27	Standard
K	39	478.3	7.9	5.5415	0.314	5.7	mg/L	17	Standard
Ca	43	50.0	50.0	11.3493	21.539	189.8	mg/L	47	Standard
Fe	54	757.4	0.0	5.4484	0.142	2.6	mg/L	23	Standard
Fe	57	468.3	7.5	6.2078	0.706	11.4	mg/L	253	Standard
Sc-1	45	37559.8	2.5				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	2.7	78.1				ug/L	3	Standard
Br	81	1933.5	3.4				ug/L	2163	Standard
P	31	58.3	32.5				ug/L	57	Standard
S	34	26.7	54.1				ug/L	27	Standard
Sr	88	113.3	11.1				ug/L	125	Standard
C	12	36.7	15.7				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	12.4	43.3				mg/L	9	Standard
Ho-1	165	8.3	91.7				mg/L	8	Standard
Er	166	20.0	50.0				mg/L	20	Standard
I	127	2303.5	10.6				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	102.841		
Al	27	105.593		
Sc	45			
Ti	47	102.832		
V	51	101.101		
Cr	52	101.625		
Cr	53			
Mn	55	101.510		
Co	59	101.076		
Ni	60	100.576		
Cu	65	100.918		
Zn	66	101.134		
Ge	72		91.871	
As	75	101.274		
Se	82	102.686		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	103.481	
[Ag	107	103.634	
[Cd	111	103.912	
[Cd	114		
>	In	115		91.376
[Sn	118	105.593	
[	Sb	123	103.187	
[	Ba	135	102.568	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	102.648	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	101.242	
[U	238	106.147	
>	Bi	209		96.242
[Na	23		
[Mg	24		
[K	39		
[Ca	43		
[Fe	54		
[Fe	57		
>	Sc-1	45		
[Cl	35		
[Kr	83		
[Br	81		
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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: QC Std 6

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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Tuesday, April 04, 2017 15:49:13

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	267840.6	2.0				ug/L	302131	Standard
|	Be	9	43.3	46.6	0.0156	0.010	64.9	ug/L	12	Standard
|	Al	27	1080.0	28.7	-0.0091	0.003	27.5	ug/L	907	Standard
|	Sc	45	37018.5	2.7				ug/L	39227	Standard
|	Ti	47	28.0	10.7	-0.0313	0.017	55.3	ug/L	34	Standard
|	V	51	1076.3	2.8	0.0145	0.007	50.2	ug/L	1155	Standard
|	Cr	52	4558.0	1.2	-0.0677	0.018	26.7	ug/L	5602	Standard
|	Cr	53	341.7	8.8	-0.8354	0.040	4.7	ug/L	1042	Standard
|	Mn	55	2146.2	5.7	-0.0158	0.014	87.6	ug/L	2370	Standard
|	Co	59	294.7	1.9	-0.0060	0.001	21.7	ug/L	381	Standard
|	Ni	60	185.0	3.0	-0.0388	0.005	11.9	ug/L	282	Standard
|	Cu	65	2686.2	1.6	1.3019	0.011	0.8	ug/L	707	Standard
|	Zn	66	417.0	6.5	0.0389	0.022	57.2	ug/L	427	Standard
>	Ge	72	756540.9	1.3				ug/L	842801	Standard
|	As	75	-26.5	82.2	0.0201	0.021	105.1	ug/L	-11	Standard
|	Se	82	8.2	29.2	-0.0117	0.027	226.3	ug/L	18	Standard
|	Se-1	77	82.0	17.1	-0.3164	0.199	62.9	ug/L	127	Standard
>	Ga	71	81.7	36.9				mg/L	92	Standard
|	Rb	85	270.0	22.5				ug/L	48	Standard
|	Y	89	538969.5	1.2				ug/L	587989	Standard
>	Rh	103	5.0	0.0				ug/L	8	Standard
|	Mo	98	157.8	27.6	0.0341	0.013	37.7	ug/L	35	Standard
|	Ag	107	144.3	17.5	-0.0023	0.005	211.0	ug/L	121	Standard
|	Cd	111	9.1	44.3	-0.0111	0.003	24.8	mg/L	4	Standard
|	Cd	114	32.6	9.1	-0.0214	0.001	3.4	ug/L	27	Standard
>	In	115	632954.3	1.2				ug/L	702235	Standard
|	Sn	118	214.0	7.1	0.0313	0.021	67.5	ug/L	180	Standard
|	Sb	123	291.6	27.1	0.0500	0.021	41.5	ug/L	43	Standard
|	Ba	135	45.7	19.1	-0.0198	0.006	29.5	ug/L	50	Standard
|	Ce	140	190.0	92.2				ug/L	20	Standard
>	Tb	159	958937.4	1.8				ug/L	1036041	Standard
|	Ho	165	10.0	50.0				ug/L	8	Standard
|	Tl	203	53.7	78.3	-0.0267	0.006	24.2	ug/L	87	Standard
|	Tl	205	113.3	71.3	-0.0187	0.005	27.3	ug/L	255	Standard
|	Pb	206	1102.0	3.1	0.0949	0.007	7.6	ug/L	523	Standard
|	Pb	207	890.0	2.3	0.0889	0.003	3.6	ug/L	433	Standard
|	Pb	208	1023.3	2.8	0.0897	0.005	5.5	ug/L	498	Standard
	U	238	26.7	52.5	-0.0066	0.003	47.7	ug/L	6	Standard
>	Bi	209	607461.2	0.5				ug/L	631806	Standard

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Na	23	1.7	173.2	0.0749	1.166	1555.6	mg/L	2	Standard
Mg	24	23.3	65.5	0.0496	0.319	643.5	mg/L	27	Standard
K	39	16.7	45.8	0.0975	0.097	99.0	mg/L	17	Standard
Ca	43	31.7	24.1	-4.0562	7.103	175.1	mg/L	47	Standard
Fe	54	23.0	54.2	-0.0589	0.099	167.7	mg/L	23	Standard
Fe	57	270.0	3.2	0.4697	0.071	15.1	mg/L	253	Standard
Sc-1	45	37018.5	2.7				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.3	49.5				ug/L	3	Standard
Br	81	2033.5	8.8				ug/L	2163	Standard
P	31	55.0	24.1				ug/L	57	Standard
S	34	38.3	30.1				ug/L	27	Standard
Sr	88	106.7	22.2				ug/L	125	Standard
C	12	33.3	45.8				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	10	Standard
Dy	164	12.4	132.4				mg/L	9	Standard
Ho-1	165	10.0	50.0				mg/L	8	Standard
Er	166	20.0	132.3				mg/L	20	Standard
I	127	2816.9	7.6				mg/L	3535	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		89.765	
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	90.134
[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	96.147
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[K	39	
[Ca	43	
[Fe	54	
[Fe	57	
>	Sc-1	45	
[Cl	35	
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[P	31	
[S	34	
[Sr	88	
[C	12	
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[Hg	202	
[Dy	164	
[Ho-1	165	
[Er	166	
[I	127	

QC Out of Limits

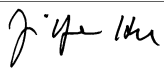
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Cu	65	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: PBS 12 WG608619-02

Sample Date/Time: Tuesday, April 04, 2017 16:12:38

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	455850.5	1.8				ug/L	302131	Standard
|	Be	9	48.3	15.8	0.0079	0.002	27.4	ug/L	12	Standard
|	Al	27	36926.7	4.2	0.1579	0.004	2.7	ug/L	907	Standard
|	Sc	45	49885.3	0.9				ug/L	39227	Standard
|	Ti	47	739.4	6.6	3.1948	0.234	7.3	ug/L	34	Standard
|	V	51	976.0	242.6	-0.0235	0.340	1449.6	ug/L	1155	Standard
|	Cr	52	36637.9	0.3	4.8639	0.026	0.5	ug/L	5602	Standard
|	Cr	53	87658.0	2.8	108.9913	2.639	2.4	ug/L	1042	Standard
|	Mn	55	6389.7	1.5	0.3346	0.006	1.8	ug/L	2370	Standard
|	Co	59	421.0	3.7	0.0034	0.002	59.5	ug/L	381	Standard
|	Ni	60	468.0	7.0	0.1014	0.019	19.1	ug/L	282	Standard
|	Cu	65	1380.7	2.9	0.3906	0.024	6.2	ug/L	707	Standard
|	Zn	66	6097.6	7.4	4.9610	0.371	7.5	ug/L	427	Standard
>	Ge	72	876649.6	0.5				ug/L	842801	Standard
|	As	75	-384.6	138.1	-0.2765	0.446	161.1	ug/L	-11	Standard
|	Se	82	6.0	100.7	-0.0443	0.056	125.7	ug/L	18	Standard
|	Se-1	77	18513.3	2.5	242.3260	5.286	2.2	ug/L	127	Standard
>	Ga	71	516.7	3.9				mg/L	92	Standard
|	Rb	85	675.0	5.1				ug/L	48	Standard
|	Y	89	621429.7	0.6				ug/L	587989	Standard
>	Rh	103	13.3	43.3				ug/L	8	Standard
|	Mo	98	104.8	4.2	0.0151	0.001	7.7	ug/L	35	Standard
|	Ag	107	154.0	15.3	-0.0029	0.004	142.2	ug/L	121	Standard
|	Cd	111	26.9	30.5	-0.0009	0.005	545.7	mg/L	4	Standard
|	Cd	114	101.7	20.6	-0.0058	0.005	84.6	ug/L	27	Standard
>	In	115	691952.0	0.6				ug/L	702235	Standard
|	Sn	118	371.3	2.1	0.1820	0.011	5.9	ug/L	180	Standard
|	Sb	123	197.7	30.8	0.0218	0.014	64.3	ug/L	43	Standard
|	Ba	135	411.7	7.9	0.1991	0.018	9.2	ug/L	50	Standard
|	Ce	140	813.4	6.2				ug/L	20	Standard
>	Tb	159	1169048.7	1.6				ug/L	1036041	Standard
|	Ho	165	35.0	62.3				ug/L	8	Standard
|	Tl	203	244.7	31.1	-0.0007	0.011	1733.5	ug/L	87	Standard
|	Tl	205	561.7	17.7	0.0065	0.006	98.4	ug/L	255	Standard
|	Pb	206	883.0	4.1	0.0396	0.004	10.6	ug/L	523	Standard
|	Pb	207	747.7	1.8	0.0460	0.001	1.6	ug/L	433	Standard
|	Pb	208	977.0	3.1	0.0662	0.007	10.5	ug/L	498	Standard
	U	238	12.3	28.5	-0.0101	0.001	7.6	ug/L	6	Standard
>	Bi	209	663801.4	1.9				ug/L	631806	Standard

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Na	23	1.7	173.2	-0.1025	0.859	837.7	mg/L	2	Standard
Mg	24	68.3	40.3	0.6027	0.423	70.1	mg/L	27	Standard
K	39	15.0	33.3	0.0294	0.044	148.0	mg/L	17	Standard
Ca	43	48.3	57.0	-0.3778	18.102	4791.3	mg/L	47	Standard
Fe	54	47.5	6.3	0.0323	0.015	46.5	mg/L	23	Standard
Fe	57	283.3	5.4	-1.3208	0.380	28.7	mg/L	253	Standard
Sc-1	45	49885.3	0.9				mg/L	39227	Standard
Cl	35	5.3	78.1				ug/L	1	Standard
Kr	83	6.0	16.7				ug/L	3	Standard
Br	81	2763.6	8.7				ug/L	2163	Standard
P	31	103.3	19.6				ug/L	57	Standard
S	34	41.7	38.6				ug/L	27	Standard
Sr	88	173.3	19.6				ug/L	125	Standard
C	12	130.0	20.4				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	114.6				mg/L	10	Standard
Dy	164	29.4	92.3				mg/L	9	Standard
Ho-1	165	35.0	62.3				mg/L	8	Standard
Er	166	13.3	114.6				mg/L	20	Standard
I	127	13881.4	7.2				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		150.878	
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		104.016	
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	98.536
[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	105.064
[	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
Cr 53 Upper, S, EEE	Cr	53	
Se-1 77 Upper, S, EEE	Se-1	77	

Sample ID: PBS 12 WG608619-02

Report Date/Time: Tuesday, April 04, 2017 16:14:48

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Method 6020 - Summary Report

Sample ID: LCSS 12 WG608619-03

Sample Date/Time: Tuesday, April 04, 2017 16:15:43

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	477433.3	3.6				ug/L	302131	Standard
|	Be	9	82783.9	1.1	24.0533	0.916	3.8	ug/L	12	Standard
|	Al	27	13300.8	4.5	0.0427	0.004	10.5	ug/L	907	Standard
|	Sc	45	50756.6	2.5				ug/L	39227	Standard
|	Ti	47	154.3	15.2	0.5054	0.102	20.3	ug/L	34	Standard
|	V	51	206740.7	2.3	28.6302	0.796	2.8	ug/L	1155	Standard
|	Cr	52	233253.7	0.1	34.7854	0.115	0.3	ug/L	5602	Standard
|	Cr	53	130925.0	1.3	158.9658	2.829	1.8	ug/L	1042	Standard
|	Mn	55	331589.0	1.6	28.7215	0.593	2.1	ug/L	2370	Standard
|	Co	59	243142.5	1.9	27.8209	0.667	2.4	ug/L	381	Standard
|	Ni	60	52515.9	1.4	28.0895	0.495	1.8	ug/L	282	Standard
|	Cu	65	53002.6	2.1	26.7949	0.690	2.6	ug/L	707	Standard
|	Zn	66	32670.2	2.1	27.4819	0.720	2.6	ug/L	427	Standard
>	Ge	72	901265.7	0.5				ug/L	842801	Standard
|	As	75	30321.8	1.3	24.8186	0.445	1.8	ug/L	-11	Standard
|	Se	82	2810.4	0.9	25.0668	0.324	1.3	ug/L	18	Standard
|	Se-1	77	23713.2	0.7	302.3111	0.824	0.3	ug/L	127	Standard
>	Ga	71	595.0	4.7				mg/L	92	Standard
|	Rb	85	346.7	11.6				ug/L	48	Standard
|	Y	89	635439.7	0.5				ug/L	587989	Standard
>	Rh	103	31.7	24.1				ug/L	8	Standard
|	Mo	98	106.4	5.0	0.0153	0.001	7.7	ug/L	35	Standard
|	Ag	107	150072.3	0.8	25.6377	0.038	0.1	ug/L	121	Standard
|	Cd	111	42946.3	1.7	25.8996	0.200	0.8	mg/L	4	Standard
|	Cd	114	108135.2	0.4	25.4027	0.320	1.3	ug/L	27	Standard
>	In	115	697105.2	1.0				ug/L	702235	Standard
|	Sn	118	348.7	3.6	0.1542	0.010	6.6	ug/L	180	Standard
|	Sb	123	106309.4	2.2	24.4279	0.352	1.4	ug/L	43	Standard
|	Ba	135	43179.4	1.2	25.8965	0.138	0.5	ug/L	50	Standard
|	Ce	140	665.0	5.3				ug/L	20	Standard
>	Tb	159	1183151.5	0.5				ug/L	1036041	Standard
|	Ho	165	36.7	15.7				ug/L	8	Standard
|	Tl	203	204589.3	1.9	27.5824	0.353	1.3	ug/L	87	Standard
|	Tl	205	489374.2	0.4	27.1238	0.237	0.9	ug/L	255	Standard
|	Pb	206	161470.0	1.6	26.8005	0.271	1.0	ug/L	523	Standard
|	Pb	207	137576.3	1.9	25.2869	0.322	1.3	ug/L	433	Standard
|	Pb	208	177638.7	0.4	28.6525	0.110	0.4	ug/L	498	Standard
	U	238	144853.2	1.3	28.7236	0.202	0.7	ug/L	6	Standard
>	Bi	209	685732.6	0.6				ug/L	631806	Standard

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Na	23	1.7	173.2	-0.1149	0.837	728.9	mg/L	2	Standard
Mg	24	63.3	37.3	0.5048	0.327	64.8	mg/L	27	Standard
K	39	16.7	62.4	0.0404	0.088	218.6	mg/L	17	Standard
Ca	43	41.7	59.2	-4.9794	16.509	331.5	mg/L	47	Standard
Fe	54	34.0	16.6	-0.0469	0.033	70.2	mg/L	23	Standard
Fe	57	345.0	12.9	-0.0943	0.796	843.9	mg/L	253	Standard
Sc-1	45	50756.6	2.5				mg/L	39227	Standard
Cl	35	2.0	173.2				ug/L	1	Standard
Kr	83	6.0					ug/L	3	Standard
Br	81	2680.2	3.9				ug/L	2163	Standard
P	31	70.0	7.1				ug/L	57	Standard
S	34	35.0	24.7				ug/L	27	Standard
Sr	88	163.3	4.7				ug/L	125	Standard
C	12	86.7	33.3				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	10	Standard
Dy	164	28.7	5.1				mg/L	9	Standard
Ho-1	165	36.7	15.7				mg/L	8	Standard
Er	166	26.7	114.6				mg/L	20	Standard
I	127	13065.6	0.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		158.022	
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		106.937	
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	99.270
[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	108.535
[	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

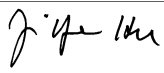
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Cr 53 Upper, S, EEE	Cr	53	
Se-1 77 Upper, S, EEE	Se-1	77	

Sample ID: LCSS 12 WG608619-03

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Method 6020 - Summary Report

Sample ID: L1704002606 WG608619-01

Sample Date/Time: Tuesday, April 04, 2017 16:18:49

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	494010.9	1.7				ug/L	302131	Standard
|	Be	9	4839.1	2.4	1.3512	0.018	1.4	ug/L	12	Standard
|	Al	27	3090950.9	1.3	13.5667	0.221	1.6	ug/L	907	Standard
|	Sc	45	58499.4	1.8				ug/L	39227	Standard
|	Ti	47	32430.3	1.1	145.9915	1.370	0.9	ug/L	34	Standard
|	V	51	563898.7	1.4	79.5860	1.322	1.7	ug/L	1155	Standard
|	Cr	52	442752.5	0.9	67.8851	0.851	1.3	ug/L	5602	Standard
|	Cr	53	197166.8	5.1	243.8284	13.559	5.6	ug/L	1042	Standard
|	Mn	55	48823028.0	0.7	4329.7448	42.911	1.0	ug/L	2370	Standard
|	Co	59	121713.3	1.1	14.1193	0.227	1.6	ug/L	381	Standard
|	Ni	60	32516.5	1.1	17.6031	0.269	1.5	ug/L	282	Standard
|	Cu	65	39212.3	0.5	20.0456	0.179	0.9	ug/L	707	Standard
|	Zn	66	88820.9	0.3	76.5445	0.497	0.6	ug/L	427	Standard
>	Ge	72	887529.8	0.5				ug/L	842801	Standard
|	As	75	18027.0	0.8	15.0017	0.196	1.3	ug/L	-11	Standard
|	Se	82	111.3	4.3	0.9127	0.048	5.3	ug/L	18	Standard
|	Se-1	77	28216.3	5.9	365.6699	22.898	6.3	ug/L	127	Standard
>	Ga	71	51313.4	1.2				mg/L	92	Standard
|	Rb	85	386853.5	1.1				ug/L	48	Standard
|	Y	89	1046186.4	2.1				ug/L	587989	Standard
>	Rh	103	25.0	87.2				ug/L	8	Standard
|	Mo	98	9745.4	2.1	2.7685	0.073	2.6	ug/L	35	Standard
|	Ag	107	908.4	1.7	0.1296	0.004	2.8	ug/L	121	Standard
|	Cd	111	251.1	1.6	0.1380	0.002	1.7	mg/L	4	Standard
|	Cd	114	920.1	8.2	0.1918	0.018	9.3	ug/L	27	Standard
>	In	115	680717.9	0.7				ug/L	702235	Standard
|	Sn	118	2481.2	0.8	2.5440	0.040	1.6	ug/L	180	Standard
|	Sb	123	2950.4	1.3	0.6710	0.008	1.2	ug/L	43	Standard
|	Ba	135	395909.9	1.0	243.5778	0.746	0.3	ug/L	50	Standard
|	Ce	140	4455032.3	1.0				ug/L	20	Standard
>	Tb	159	1226181.1	1.6				ug/L	1036041	Standard
|	Ho	165	31621.3	1.3				ug/L	8	Standard
|	Tl	203	4331.6	1.0	0.5578	0.008	1.3	ug/L	87	Standard
|	Tl	205	10533.7	1.5	0.5665	0.006	1.0	ug/L	255	Standard
|	Pb	206	270902.8	1.7	45.6562	0.667	1.5	ug/L	523	Standard
|	Pb	207	213253.1	1.5	39.7861	0.398	1.0	ug/L	433	Standard
|	Pb	208	297519.9	0.5	48.7099	0.142	0.3	ug/L	498	Standard
	U	238	10022.3	0.9	2.0028	0.024	1.2	ug/L	6	Standard
>	Bi	209	676521.3	0.5				ug/L	631806	Standard

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Na	23	5.0	100.0	0.6803	1.275	187.5	mg/L	2	Standard
Mg	24	70.0	25.8	0.4711	0.233	49.4	mg/L	27	Standard
K	39	176.7	11.4	1.2369	0.163	13.2	mg/L	17	Standard
Ca	43	33.3	31.2	-13.3903	5.359	40.0	mg/L	47	Standard
Fe	54	6145.9	1.1	29.3678	0.234	0.8	mg/L	23	Standard
Fe	57	1938.5	4.5	29.2015	2.296	7.9	mg/L	253	Standard
Sc-1	45	58499.4	1.8				mg/L	39227	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	3.7	68.6				ug/L	3	Standard
Br	81	4690.7	2.6				ug/L	2163	Standard
P	31	71.7	17.6				ug/L	57	Standard
S	34	31.7	36.5				ug/L	27	Standard
Sr	88	166.7	22.5				ug/L	125	Standard
C	12	180.0	55.6				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	210.0	8.2				mg/L	10	Standard
Dy	164	48999.3	1.6				mg/L	9	Standard
Ho-1	165	31621.3	1.3				mg/L	8	Standard
Er	166	28690.5	2.8				mg/L	20	Standard
I	127	143648.9	10.0				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		163.509	
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		105.307	
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	96.936
[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	107.077
[	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
Ti 47 Upper, S, EEE	Ti	47	
Cr 53 Upper, S, EEE	Cr	53	


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Mn 55 Upper, S, EEE	Mn	55
Se-1 77 Upper, S, EEE	Se-1	77
Ba 135 Upper, S, EEE	Ba	135

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Method 6020 - Summary Report

Sample ID: L1704002606S WG608619-04

Sample Date/Time: Tuesday, April 04, 2017 16:21:54

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	476391.9	0.6				ug/L	302131	Standard
|	Be	9	84159.8	1.2	24.4849	0.159	0.7	ug/L	12	Standard
|	Al	27	2904214.1	1.1	13.2166	0.160	1.2	ug/L	907	Standard
|	Sc	45	57308.2	1.2				ug/L	39227	Standard
|	Ti	47	32147.4	0.4	148.4753	0.820	0.6	ug/L	34	Standard
|	V	51	714364.9	1.6	103.4825	1.550	1.5	ug/L	1155	Standard
|	Cr	52	518111.6	1.1	81.6770	0.798	1.0	ug/L	5602	Standard
|	Cr	53	217788.0	2.4	276.4496	6.395	2.3	ug/L	1042	Standard
|	Mn	55	50823278.1	1.1	4623.9194	46.695	1.0	ug/L	2370	Standard
|	Co	59	342404.1	1.2	40.8355	0.480	1.2	ug/L	381	Standard
|	Ni	60	77469.9	1.6	43.2521	0.701	1.6	ug/L	282	Standard
|	Cu	65	85841.2	1.5	45.4381	0.666	1.5	ug/L	707	Standard
|	Zn	66	109559.4	0.9	96.9658	0.840	0.9	ug/L	427	Standard
>	Ge	72	865090.1	0.1				ug/L	842801	Standard
|	As	75	44631.9	1.3	38.0325	0.470	1.2	ug/L	-11	Standard
|	Se	82	2579.7	0.3	23.9661	0.068	0.3	ug/L	18	Standard
|	Se-1	77	32317.8	1.1	429.8950	4.576	1.1	ug/L	127	Standard
>	Ga	71	46148.5	1.2				mg/L	92	Standard
|	Rb	85	354369.6	0.6				ug/L	48	Standard
|	Y	89	1041943.2	0.7				ug/L	587989	Standard
>	Rh	103	33.3	22.9				ug/L	8	Standard
|	Mo	98	12087.2	0.5	3.5127	0.038	1.1	ug/L	35	Standard
|	Ag	107	134287.8	0.4	24.0067	0.207	0.9	ug/L	121	Standard
|	Cd	111	39474.8	0.6	24.9137	0.020	0.1	mg/L	4	Standard
|	Cd	114	99450.6	2.7	24.4443	0.546	2.2	ug/L	27	Standard
>	In	115	666124.2	0.5				ug/L	702235	Standard
|	Sn	118	1309.1	1.8	1.2675	0.029	2.3	ug/L	180	Standard
|	Sb	123	95891.3	0.2	23.0591	0.083	0.4	ug/L	43	Standard
|	Ba	135	410280.7	0.2	257.9591	0.930	0.4	ug/L	50	Standard
|	Ce	140	4373466.6	0.4				ug/L	20	Standard
>	Tb	159	1205980.0	0.4				ug/L	1036041	Standard
|	Ho	165	33640.7	2.4				ug/L	8	Standard
|	Tl	203	191250.2	1.0	26.6988	0.207	0.8	ug/L	87	Standard
|	Tl	205	462315.9	0.7	26.5314	0.039	0.1	ug/L	255	Standard
|	Pb	206	403617.8	1.2	69.5508	0.930	1.3	ug/L	523	Standard
|	Pb	207	325922.7	1.0	62.1739	0.526	0.8	ug/L	433	Standard
|	Pb	208	454202.4	1.0	76.0178	0.078	0.1	ug/L	498	Standard
	U	238	151263.1	1.3	31.0593	0.161	0.5	ug/L	6	Standard
>	Bi	209	662251.5	0.9				ug/L	631806	Standard

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Na	23	10.0	50.0	1.9861	1.278	64.4	mg/L	2	Standard
Mg	24	65.0	20.4	0.4256	0.183	43.0	mg/L	27	Standard
K	39	148.3	8.5	1.0449	0.102	9.8	mg/L	17	Standard
Ca	43	35.0	75.6	-12.0580	14.783	122.6	mg/L	47	Standard
Fe	54	6135.5	4.9	29.9366	1.649	5.5	mg/L	23	Standard
Fe	57	1845.1	6.0	28.1486	2.540	9.0	mg/L	253	Standard
Sc-1	45	57308.2	1.2				mg/L	39227	Standard
Cl	35	2.0	173.2				ug/L	1	Standard
Kr	83	4.7	32.7				ug/L	3	Standard
Br	81	4310.6	6.1				ug/L	2163	Standard
P	31	91.7	26.9				ug/L	57	Standard
S	34	26.7	10.8				ug/L	27	Standard
Sr	88	211.7	5.9				ug/L	125	Standard
C	12	160.0	34.8				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	170.0	27.0				mg/L	10	Standard
Dy	164	50952.3	2.1				mg/L	9	Standard
Ho-1	165	33640.7	2.4				mg/L	8	Standard
Er	166	29742.5	2.6				mg/L	20	Standard
I	127	141918.9	7.3				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		157.677	
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		102.645	
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	94.858
[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	104.819
[	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
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	


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Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Se-1 77 Upper, S, EEE	Se-1	77
Ba 135 Upper, S, EEE	Ba	135

Sample ID: L1704002606S WG608619-04
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Method 6020 - Summary Report

Sample ID: L1704002606SD WG608619-05

Sample Date/Time: Tuesday, April 04, 2017 16:25:00

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	481885.4	1.1				ug/L	302131	Standard
|	Be	9	87304.1	0.6	25.1131	0.342	1.4	ug/L	12	Standard
|	Al	27	4253775.4	3.1	19.1487	0.724	3.8	ug/L	907	Standard
|	Sc	45	59612.0	0.1				ug/L	39227	Standard
|	Ti	47	52546.0	1.4	235.3148	1.605	0.7	ug/L	34	Standard
|	V	51	835253.5	0.4	117.3044	1.879	1.6	ug/L	1155	Standard
|	Cr	52	511896.1	1.2	78.1769	0.910	1.2	ug/L	5602	Standard
|	Cr	53	217561.2	1.9	267.6017	2.185	0.8	ug/L	1042	Standard
|	Mn	55	54342022.7	1.8	4791.5222	16.091	0.3	ug/L	2370	Standard
|	Co	59	366036.4	1.6	42.3093	0.153	0.4	ug/L	381	Standard
|	Ni	60	89677.7	2.4	48.5411	0.692	1.4	ug/L	282	Standard
|	Cu	65	94301.7	2.5	48.3930	0.310	0.6	ug/L	707	Standard
|	Zn	66	140243.2	1.9	120.3861	1.207	1.0	ug/L	427	Standard
>	Ge	72	892664.7	2.0				ug/L	842801	Standard
|	As	75	48842.0	3.2	40.3255	0.490	1.2	ug/L	-11	Standard
|	Se	82	2780.8	2.2	25.0402	0.107	0.4	ug/L	18	Standard
|	Se-1	77	31824.1	1.8	410.2014	3.707	0.9	ug/L	127	Standard
>	Ga	71	61087.9	1.5				mg/L	92	Standard
|	Rb	85	487448.2	1.6				ug/L	48	Standard
|	Y	89	1066066.0	1.1				ug/L	587989	Standard
>	Rh	103	50.0	20.0				ug/L	8	Standard
|	Mo	98	10444.1	0.9	2.9974	0.006	0.2	ug/L	35	Standard
|	Ag	107	137433.6	1.4	24.2809	0.264	1.1	ug/L	121	Standard
|	Cd	111	40595.9	0.9	25.3237	0.434	1.7	mg/L	4	Standard
|	Cd	114	103000.0	1.1	25.0222	0.021	0.1	ug/L	27	Standard
>	In	115	674030.6	1.1				ug/L	702235	Standard
|	Sn	118	2088.8	2.0	2.1294	0.066	3.1	ug/L	180	Standard
|	Sb	123	96772.5	1.1	22.9984	0.223	1.0	ug/L	43	Standard
|	Ba	135	481164.2	1.3	298.9809	2.114	0.7	ug/L	50	Standard
|	Ce	140	4709031.5	1.4				ug/L	20	Standard
>	Tb	159	1215281.6	0.6				ug/L	1036041	Standard
|	Ho	165	34497.6	1.7				ug/L	8	Standard
|	Tl	203	199781.6	1.2	27.4121	0.285	1.0	ug/L	87	Standard
|	Tl	205	481551.6	1.1	27.1626	0.365	1.3	ug/L	255	Standard
|	Pb	206	451048.1	2.1	76.3915	0.751	1.0	ug/L	523	Standard
|	Pb	207	365244.0	2.9	68.4752	1.054	1.5	ug/L	433	Standard
|	Pb	208	507529.2	1.2	83.4947	0.694	0.8	ug/L	498	Standard
	U	238	157519.8	2.2	31.7866	0.300	0.9	ug/L	6	Standard
>	Bi	209	673865.1	1.7				ug/L	631806	Standard

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Na	23	18.3	41.7	3.9605	1.899	48.0	mg/L	2	Standard
Mg	24	75.0	24.0	0.5170	0.226	43.7	mg/L	27	Standard
K	39	240.0	9.5	1.6825	0.172	10.2	mg/L	17	Standard
Ca	43	35.0	28.6	-12.7693	5.396	42.3	mg/L	47	Standard
Fe	54	6794.5	6.0	31.8789	1.947	6.1	mg/L	23	Standard
Fe	57	1966.8	3.0	29.0150	1.067	3.7	mg/L	253	Standard
Sc-1	45	59612.0	0.1				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	5.0	20.0				ug/L	3	Standard
Br	81	4570.7	11.5				ug/L	2163	Standard
P	31	73.3	14.2				ug/L	57	Standard
S	34	40.0	33.1				ug/L	27	Standard
Sr	88	166.7	10.5				ug/L	125	Standard
C	12	226.7	33.1				mg/L	43	Standard
N	14	6.7	173.2				mg/L	0	Standard
Hg	202	206.7	14.8				mg/L	10	Standard
Dy	164	53054.0	2.5				mg/L	9	Standard
Ho-1	165	34497.6	1.7				mg/L	8	Standard
Er	166	31399.2	2.1				mg/L	20	Standard
I	127	149874.8	9.0				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		159.495	
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		105.916	
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	95.984
[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	106.657
[	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
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	


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Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Zn 66 Upper, S, EEE	Zn	66
Se-1 77 Upper, S, EEE	Se-1	77
Ba 135 Upper, S, EEE	Ba	135

Sample ID: L1704002606SD WG608619-05
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Method 6020 - Summary Report

Sample ID: L1704002401

Sample Date/Time: Tuesday, April 04, 2017 16:28:05

Number of Replicates: 3

Autosampler Position: 306

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	522708.9	1.9				ug/L	302131	Standard
|	Be	9	2046.8	4.9	0.5365	0.036	6.7	ug/L	12	Standard
|	Al	27	3444392.0	2.1	14.2937	0.549	3.8	ug/L	907	Standard
|	Sc	45	60825.2	2.9				ug/L	39227	Standard
|	Ti	47	36285.1	2.4	158.4038	4.946	3.1	ug/L	34	Standard
|	V	51	937175.1	0.9	128.3404	1.900	1.5	ug/L	1155	Standard
|	Cr	52	498904.5	0.8	74.2484	1.106	1.5	ug/L	5602	Standard
|	Cr	53	184791.7	0.4	221.4144	2.256	1.0	ug/L	1042	Standard
|	Mn	55	11259662.5	1.4	968.0093	22.511	2.3	ug/L	2370	Standard
|	Co	59	180534.0	1.4	20.3260	0.458	2.3	ug/L	381	Standard
|	Ni	60	32981.9	1.7	17.3097	0.448	2.6	ug/L	282	Standard
|	Cu	65	55014.4	1.9	27.3892	0.672	2.5	ug/L	707	Standard
|	Zn	66	94154.0	1.3	78.6858	1.760	2.2	ug/L	427	Standard
>	Ge	72	915447.6	0.9				ug/L	842801	Standard
|	As	75	23173.4	0.6	18.6859	0.286	1.5	ug/L	-11	Standard
|	Se	82	137.2	13.9	1.1091	0.159	14.3	ug/L	18	Standard
|	Se-1	77	24626.3	1.8	309.1150	3.519	1.1	ug/L	127	Standard
>	Ga	71	95659.4	2.1				mg/L	92	Standard
|	Rb	85	597988.1	1.9				ug/L	48	Standard
|	Y	89	725820.2	0.5				ug/L	587989	Standard
>	Rh	103	23.3	86.6				ug/L	8	Standard
|	Mo	98	11700.4	2.1	3.2418	0.082	2.5	ug/L	35	Standard
|	Ag	107	909.7	4.5	0.1258	0.006	4.7	ug/L	121	Standard
|	Cd	111	142.6	10.1	0.0687	0.009	13.1	mg/L	4	Standard
|	Cd	114	518.8	10.3	0.0918	0.011	12.1	ug/L	27	Standard
>	In	115	698531.6	1.6				ug/L	702235	Standard
|	Sn	118	2281.2	2.5	2.2566	0.100	4.4	ug/L	180	Standard
|	Sb	123	4178.6	1.6	0.9355	0.030	3.2	ug/L	43	Standard
|	Ba	135	105357.7	1.3	63.1434	1.450	2.3	ug/L	50	Standard
|	Ce	140	744026.7	1.7				ug/L	20	Standard
>	Tb	159	1212371.7	1.8				ug/L	1036041	Standard
|	Ho	165	7248.4	2.9				ug/L	8	Standard
|	Tl	203	5673.4	1.0	0.7256	0.015	2.1	ug/L	87	Standard
|	Tl	205	13626.1	0.4	0.7248	0.011	1.5	ug/L	255	Standard
|	Pb	206	251564.4	1.3	41.5227	0.907	2.2	ug/L	523	Standard
|	Pb	207	199125.3	2.0	36.3856	0.974	2.7	ug/L	433	Standard
|	Pb	208	266974.2	0.7	42.8065	0.893	2.1	ug/L	498	Standard
	U	238	13562.4	1.4	2.6589	0.055	2.1	ug/L	6	Standard
>	Bi	209	690744.0	1.7				ug/L	631806	Standard

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Na	23	3.3	173.2	0.2157	1.410	653.4	mg/L	2	Standard
Mg	24	81.7	15.4	0.5798	0.149	25.7	mg/L	27	Standard
K	39	208.3	27.7	1.4235	0.465	32.6	mg/L	17	Standard
Ca	43	23.3	12.4	-19.2930	1.832	9.5	mg/L	47	Standard
Fe	54	11493.2	0.7	53.0359	1.768	3.3	mg/L	23	Standard
Fe	57	2960.3	1.8	46.4523	1.628	3.5	mg/L	253	Standard
Sc-1	45	60825.2	2.9				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	3.0	66.7				ug/L	3	Standard
Br	81	4223.9	5.9				ug/L	2163	Standard
P	31	93.3	18.8				ug/L	57	Standard
S	34	53.3	10.8				ug/L	27	Standard
Sr	88	175.0	15.9				ug/L	125	Standard
C	12	113.3	28.4				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	930.0	6.5				mg/L	10	Standard
Dy	164	10901.8	5.7				mg/L	9	Standard
Ho-1	165	7248.4	2.9				mg/L	8	Standard
Er	166	7008.3	6.0				mg/L	20	Standard
I	127	300209.9	9.7				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		173.007	
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		108.620	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704002401

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	99.473
[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	109.328
[	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

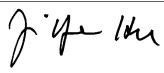
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

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Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Se-1 77 Upper, S, EEE	Se-1	77

Sample ID: L1704002401

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Method 6020 - Summary Report

Sample ID: L1704002402

Sample Date/Time: Tuesday, April 04, 2017 16:31:10

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	724249.4	1.9				ug/L	302131	Standard
|	Be	9	17471.7	1.2	3.3390	0.100	3.0	ug/L	12	Standard
|	Al	27	8199017.6	1.8	24.5593	0.297	1.2	ug/L	907	Standard
|	Sc	45	96857.0	1.2				ug/L	39227	Standard
|	Ti	47	77401.6	1.6	345.2722	6.861	2.0	ug/L	34	Standard
|	V	51	1530002.3	1.3	214.0831	2.692	1.3	ug/L	1155	Standard
|	Cr	52	782931.0	1.5	119.5299	1.361	1.1	ug/L	5602	Standard
|	Cr	53	202979.2	1.7	248.5162	1.446	0.6	ug/L	1042	Standard
|	Mn	55	8526151.6	1.3	748.4613	8.211	1.1	ug/L	2370	Standard
|	Co	59	263944.2	0.7	30.3689	0.156	0.5	ug/L	381	Standard
|	Ni	60	136355.5	0.9	73.5824	0.175	0.2	ug/L	282	Standard
|	Cu	65	139362.7	0.8	71.3866	0.412	0.6	ug/L	707	Standard
|	Zn	66	159449.3	0.8	136.3548	0.710	0.5	ug/L	427	Standard
>	Ge	72	896380.5	1.2				ug/L	842801	Standard
|	As	75	27499.4	1.5	22.6335	0.070	0.3	ug/L	-11	Standard
|	Se	82	69.3	5.0	0.5240	0.027	5.2	ug/L	18	Standard
|	Se-1	77	21633.1	1.5	277.1766	3.673	1.3	ug/L	127	Standard
>	Ga	71	183283.9	2.3				mg/L	92	Standard
|	Rb	85	879756.7	0.9				ug/L	48	Standard
|	Y	89	1813129.0	1.8				ug/L	587989	Standard
>	Rh	103	21.7	35.3				ug/L	8	Standard
|	Mo	98	9566.4	0.3	2.7431	0.031	1.1	ug/L	35	Standard
|	Ag	107	1079.7	1.7	0.1614	0.003	2.1	ug/L	121	Standard
|	Cd	111	261.7	3.5	0.1460	0.005	3.4	mg/L	4	Standard
|	Cd	114	1008.2	3.9	0.2152	0.009	4.0	ug/L	27	Standard
>	In	115	674357.8	1.2				ug/L	702235	Standard
|	Sn	118	3610.4	1.1	3.8424	0.005	0.1	ug/L	180	Standard
|	Sb	123	2438.4	2.0	0.5559	0.015	2.7	ug/L	43	Standard
|	Ba	135	134543.4	0.9	83.5304	1.002	1.2	ug/L	50	Standard
|	Ce	140	4153252.6	1.9				ug/L	20	Standard
>	Tb	159	1275884.6	1.6				ug/L	1036041	Standard
|	Ho	165	95924.4	1.1				ug/L	8	Standard
|	Tl	203	7939.7	1.2	1.0617	0.008	0.7	ug/L	87	Standard
|	Tl	205	18950.2	0.9	1.0498	0.008	0.8	ug/L	255	Standard
|	Pb	206	231241.6	0.2	39.3229	0.236	0.6	ug/L	523	Standard
|	Pb	207	179565.5	0.4	33.8017	0.067	0.2	ug/L	433	Standard
|	Pb	208	239480.5	1.5	39.5561	0.494	1.2	ug/L	498	Standard
	U	238	12607.2	1.3	2.5463	0.027	1.1	ug/L	6	Standard
>	Bi	209	670239.0	0.4				ug/L	631806	Standard

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Na	23	3.3	173.2	-0.0948	0.872	919.3	mg/L	2	Standard
Mg	24	66.7	58.3	0.0885	0.293	331.2	mg/L	27	Standard
K	39	471.7	16.5	2.0558	0.349	17.0	mg/L	17	Standard
Ca	43	31.7	77.9	-21.2120	8.033	37.9	mg/L	47	Standard
Fe	54	21292.2	2.0	61.7182	1.951	3.2	mg/L	23	Standard
Fe	57	5429.3	2.2	54.6463	2.038	3.7	mg/L	253	Standard
Sc-1	45	96857.0	1.2				mg/L	39227	Standard
Cl	35	5.3	78.1				ug/L	1	Standard
Kr	83	5.3	78.1				ug/L	3	Standard
Br	81	2990.3	10.1				ug/L	2163	Standard
P	31	86.7	8.8				ug/L	57	Standard
S	34	28.3	62.0				ug/L	27	Standard
Sr	88	176.7	7.1				ug/L	125	Standard
C	12	106.7	42.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	533.3	20.7				mg/L	10	Standard
Dy	164	143947.3	1.0				mg/L	9	Standard
Ho-1	165	95924.4	1.1				mg/L	8	Standard
Er	166	90774.5	1.6				mg/L	20	Standard
I	127	57642.6	14.5				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		239.714	
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		106.357	
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	96.030
[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	106.083
[	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

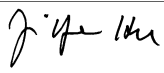
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

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Cr 52 Upper, S, EEE	Cr	52
Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Zn 66 Upper, S, EEE	Zn	66
Se-1 77 Upper, S, EEE	Se-1	77

Sample ID: L1704002402

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Method 6020 - Summary Report

Sample ID: L1704002402PS WG608787-01

Sample Date/Time: Tuesday, April 04, 2017 16:34:15

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	689948.3	1.6				ug/L	302131	Standard
|	Be	9	170275.2	2.4	34.2212	1.305	3.8	ug/L	12	Standard
|	Al	27	8020606.5	1.0	25.2243	0.596	2.4	ug/L	907	Standard
|	Sc	45	94166.8	1.5				ug/L	39227	Standard
|	Ti	47	74808.2	0.7	338.6343	7.089	2.1	ug/L	34	Standard
|	V	51	2286383.3	1.1	324.7656	8.301	2.6	ug/L	1155	Standard
|	Cr	52	1107372.4	0.7	171.9662	3.625	2.1	ug/L	5602	Standard
|	Cr	53	239484.8	1.6	297.8804	9.222	3.1	ug/L	1042	Standard
|	Mn	55	8942497.2	0.5	796.6699	15.899	2.0	ug/L	2370	Standard
|	Co	59	696660.8	1.1	81.4233	1.872	2.3	ug/L	381	Standard
|	Ni	60	225904.4	1.0	123.8225	2.639	2.1	ug/L	282	Standard
|	Cu	65	231797.9	1.4	120.7320	3.144	2.6	ug/L	707	Standard
|	Zn	66	218080.3	0.8	189.4068	3.763	2.0	ug/L	427	Standard
>	Ge	72	883427.4	1.5				ug/L	842801	Standard
|	As	75	86187.3	1.2	71.8960	1.805	2.5	ug/L	-11	Standard
|	Se	82	5492.2	0.9	50.0847	1.178	2.4	ug/L	18	Standard
|	Se-1	77	24553.9	1.2	319.5284	8.783	2.7	ug/L	127	Standard
>	Ga	71	179626.9	0.5				mg/L	92	Standard
|	Rb	85	873689.4	1.1				ug/L	48	Standard
|	Y	89	1814006.6	1.2				ug/L	587989	Standard
>	Rh	103	45.0	19.2				ug/L	8	Standard
|	Mo	98	9397.7	0.8	2.7445	0.037	1.4	ug/L	35	Standard
|	Ag	107	283302.1	0.5	50.9840	0.279	0.5	ug/L	121	Standard
|	Cd	111	79006.7	0.9	50.1843	0.688	1.4	mg/L	4	Standard
|	Cd	114	200940.7	0.5	49.7258	0.689	1.4	ug/L	27	Standard
>	In	115	662140.0	0.9				ug/L	702235	Standard
|	Sn	118	3637.4	1.3	3.9487	0.078	2.0	ug/L	180	Standard
|	Sb	123	203343.9	0.6	49.2203	0.231	0.5	ug/L	43	Standard
|	Ba	135	210692.8	0.2	133.2503	1.384	1.0	ug/L	50	Standard
|	Ce	140	4106541.1	0.5				ug/L	20	Standard
>	Tb	159	1250992.7	0.5				ug/L	1036041	Standard
|	Ho	165	95399.4	1.7				ug/L	8	Standard
|	Tl	203	381998.6	0.6	53.9927	0.696	1.3	ug/L	87	Standard
|	Tl	205	919554.7	1.2	53.4224	1.037	1.9	ug/L	255	Standard
|	Pb	206	521950.2	0.5	91.0365	1.226	1.3	ug/L	523	Standard
|	Pb	207	435764.9	0.1	84.1405	0.694	0.8	ug/L	433	Standard
|	Pb	208	568340.6	1.0	96.2661	0.903	0.9	ug/L	498	Standard
	U	238	295320.2	1.2	61.3668	0.802	1.3	ug/L	6	Standard
>	Bi	209	654564.7	0.9				ug/L	631806	Standard

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Na	23	3.3	173.2	-0.0723	0.911	1260.4	mg/L	2	Standard
Mg	24	66.7	41.3	0.1045	0.218	208.6	mg/L	27	Standard
K	39	490.0	4.7	2.2054	0.121	5.5	mg/L	17	Standard
Ca	43	35.0	51.5	-19.7656	6.025	30.5	mg/L	47	Standard
Fe	54	20672.2	3.3	61.6195	1.986	3.2	mg/L	23	Standard
Fe	57	5344.3	3.4	55.4310	2.889	5.2	mg/L	253	Standard
Sc-1	45	94166.8	1.5				mg/L	39227	Standard
Cl	35	2.7	86.6				ug/L	1	Standard
Kr	83	6.0					ug/L	3	Standard
Br	81	2987.0	11.3				ug/L	2163	Standard
P	31	73.3	15.7				ug/L	57	Standard
S	34	28.3	44.4				ug/L	27	Standard
Sr	88	156.7	24.0				ug/L	125	Standard
C	12	100.0	17.3				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	556.7	16.3				mg/L	10	Standard
Dy	164	141555.7	0.6				mg/L	9	Standard
Ho-1	165	95399.4	1.7				mg/L	8	Standard
Er	166	89969.7	0.8				mg/L	20	Standard
I	127	48016.1	5.5				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		228.361	
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		104.820	
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	94.290
[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	103.602
[	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
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	


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Cr 52 Upper, S, EEE	Cr	52
Cr 53 Upper, S, EEE	Cr	53
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
Se-1 77 Upper, S, EEE	Se-1	77
Ba 135 Upper, S, EEE	Ba	135

Sample ID: L1704002402PS WG608787-01
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Method 6020 - Summary Report

Sample ID: L1704002402SDL WG608787-02

Sample Date/Time: Tuesday, April 04, 2017 16:37:21

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

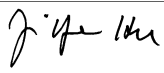
IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	397755.1	0.7				ug/L	302131	Standard
|	Be	9	2810.3	3.0	0.9726	0.023	2.4	ug/L	12	Standard
|	Al	27	1181297.5	0.8	6.4296	0.067	1.0	ug/L	907	Standard
|	Sc	45	50510.7	1.2				ug/L	39227	Standard
|	Ti	47	13073.0	0.7	60.0701	0.799	1.3	ug/L	34	Standard
|	V	51	270621.0	1.3	38.9695	0.686	1.8	ug/L	1155	Standard
|	Cr	52	145020.4	0.4	22.1368	0.115	0.5	ug/L	5602	Standard
|	Cr	53	42145.2	1.1	52.2407	0.557	1.1	ug/L	1042	Standard
|	Mn	55	1295757.5	1.3	117.2630	1.992	1.7	ug/L	2370	Standard
|	Co	59	48649.0	1.2	5.7429	0.087	1.5	ug/L	381	Standard
|	Ni	60	25634.3	1.4	14.1584	0.232	1.6	ug/L	282	Standard
|	Cu	65	27634.5	0.3	14.3502	0.072	0.5	ug/L	707	Standard
|	Zn	66	32453.4	0.3	28.3556	0.257	0.9	ug/L	427	Standard
>	Ge	72	868032.0	0.6				ug/L	842801	Standard
|	As	75	5445.4	3.2	4.6649	0.148	3.2	ug/L	-11	Standard
|	Se	82	22.2	35.1	0.1072	0.074	68.6	ug/L	18	Standard
|	Se-1	77	5045.5	2.5	65.5624	1.363	2.1	ug/L	127	Standard
>	Ga	71	34252.0	0.5				mg/L	92	Standard
|	Rb	85	173312.3	0.5				ug/L	48	Standard
|	Y	89	827816.9	1.3				ug/L	587989	Standard
>	Rh	103	18.3	56.8				ug/L	8	Standard
|	Mo	98	1890.0	2.4	0.5310	0.018	3.3	ug/L	35	Standard
|	Ag	107	310.0	5.0	0.0253	0.002	8.6	ug/L	121	Standard
|	Cd	111	63.6	29.2	0.0224	0.011	49.5	mg/L	4	Standard
|	Cd	114	271.0	17.0	0.0360	0.011	29.7	ug/L	27	Standard
>	In	115	673834.1	1.1				ug/L	702235	Standard
|	Sn	118	831.7	3.4	0.7119	0.022	3.2	ug/L	180	Standard
|	Sb	123	1400.9	20.4	0.3096	0.070	22.5	ug/L	43	Standard
|	Ba	135	27232.1	0.4	16.8799	0.121	0.7	ug/L	50	Standard
|	Ce	140	690471.0	0.6				ug/L	20	Standard
>	Tb	159	1111784.9	1.2				ug/L	1036041	Standard
|	Ho	165	17641.9	1.2				ug/L	8	Standard
|	Tl	203	1651.8	1.9	0.1948	0.005	2.7	ug/L	87	Standard
|	Tl	205	4103.9	2.6	0.2087	0.005	2.3	ug/L	255	Standard
|	Pb	206	45128.4	1.0	7.6360	0.118	1.5	ug/L	523	Standard
|	Pb	207	35372.9	1.0	6.6268	0.115	1.7	ug/L	433	Standard
|	Pb	208	43267.1	1.0	7.1156	0.077	1.1	ug/L	498	Standard
	U	238	2235.2	2.1	0.4441	0.007	1.6	ug/L	6	Standard
>	Bi	209	665742.5	0.8				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	46.7	34.4	0.2687	0.248	92.2	mg/L	27	Standard
K	39	90.0	9.6	0.6870	0.080	11.6	mg/L	17	Standard
Ca	43	43.3	65.6	-4.0911	17.910	437.8	mg/L	47	Standard
Fe	54	3230.5	3.7	17.7807	0.456	2.6	mg/L	23	Standard
Fe	57	1170.0	3.0	18.0997	0.785	4.3	mg/L	253	Standard
Sc-1	45	50510.7	1.2				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	3.0	57.7				ug/L	3	Standard
Br	81	2103.5	9.0				ug/L	2163	Standard
P	31	78.3	24.2				ug/L	57	Standard
S	34	28.3	20.4				ug/L	27	Standard
Sr	88	165.0	16.9				ug/L	125	Standard
C	12	36.7	68.6				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	130.0	20.4				mg/L	10	Standard
Dy	164	26973.7	4.5				mg/L	9	Standard
Ho-1	165	17641.9	1.2				mg/L	8	Standard
Er	166	16529.0	1.0				mg/L	20	Standard
I	127	23428.1	0.5				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		131.650	
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		102.994	
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	95.956
[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	105.371
[	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
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002402SDL WG608787-02
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Method 6020 - Summary Report

Sample ID: L1704002402SDL WG608787-02

Sample Date/Time: Tuesday, April 04, 2017 16:40:26

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	299556.2	1.8				ug/L	302131	Standard
|	Be	9	480.0	3.1	0.2153	0.003	1.5	ug/L	12	Standard
|	Al	27	211039.8	1.5	1.5119	0.038	2.5	ug/L	907	Standard
|	Sc	45	39818.9	1.7				ug/L	39227	Standard
|	Ti	47	2290.8	0.8	11.3060	0.174	1.5	ug/L	34	Standard
|	V	51	47954.0	0.9	7.3799	0.152	2.1	ug/L	1155	Standard
|	Cr	52	28600.0	0.6	4.0439	0.088	2.2	ug/L	5602	Standard
|	Cr	53	10040.0	2.2	12.5495	0.245	2.0	ug/L	1042	Standard
|	Mn	55	236307.2	2.9	23.0775	0.960	4.2	ug/L	2370	Standard
|	Co	59	8898.3	0.6	1.1057	0.016	1.4	ug/L	381	Standard
|	Ni	60	4754.1	1.3	2.7310	0.059	2.2	ug/L	282	Standard
|	Cu	65	5370.0	1.4	2.7684	0.028	1.0	ug/L	707	Standard
|	Zn	66	6852.2	1.1	6.2163	0.031	0.5	ug/L	427	Standard
>	Ge	72	797964.6	1.2				ug/L	842801	Standard
|	As	75	969.6	16.6	0.9408	0.151	16.1	ug/L	-11	Standard
|	Se	82	12.0	48.4	0.0223	0.060	271.2	ug/L	18	Standard
|	Se-1	77	1284.4	5.9	17.0286	1.200	7.0	ug/L	127	Standard
>	Ga	71	6444.7	1.6				mg/L	92	Standard
|	Rb	85	31178.7	0.9				ug/L	48	Standard
|	Y	89	589893.9	0.0				ug/L	587989	Standard
>	Rh	103	15.0	57.7				ug/L	8	Standard
|	Mo	98	358.5	4.7	0.0941	0.004	4.2	ug/L	35	Standard
|	Ag	107	167.7	27.0	0.0016	0.008	515.7	ug/L	121	Standard
|	Cd	111	17.2	62.6	-0.0060	0.007	115.9	mg/L	4	Standard
|	Cd	114	84.5	44.7	-0.0083	0.009	113.4	ug/L	27	Standard
>	In	115	642559.3	1.1				ug/L	702235	Standard
|	Sn	118	268.7	7.7	0.0918	0.021	23.4	ug/L	180	Standard
|	Sb	123	334.8	33.1	0.0594	0.027	45.5	ug/L	43	Standard
|	Ba	135	5246.9	3.6	3.3708	0.128	3.8	ug/L	50	Standard
|	Ce	140	130447.5	1.4				ug/L	20	Standard
>	Tb	159	1005870.7	0.8				ug/L	1036041	Standard
|	Ho	165	2952.0	3.7				ug/L	8	Standard
|	Tl	203	455.7	16.1	0.0330	0.011	32.9	ug/L	87	Standard
|	Tl	205	1113.4	22.2	0.0424	0.015	35.7	ug/L	255	Standard
|	Pb	206	8735.9	2.9	1.4946	0.037	2.5	ug/L	523	Standard
|	Pb	207	7014.3	2.2	1.3322	0.041	3.1	ug/L	433	Standard
|	Pb	208	8308.2	1.8	1.3872	0.041	3.0	ug/L	498	Standard
	U	238	415.3	15.0	0.0783	0.014	17.5	ug/L	6	Standard
>	Bi	209	621282.2	1.2				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	26.7	78.1	0.0783	0.398	508.4	mg/L	27	Standard
K	39	18.3	83.3	0.1011	0.173	171.0	mg/L	17	Standard
Ca	43	30.0	60.1	-7.4623	14.584	195.4	mg/L	47	Standard
Fe	54	639.5	6.7	4.2932	0.372	8.7	mg/L	23	Standard
Fe	57	391.7	11.8	3.2823	1.098	33.4	mg/L	253	Standard
Sc-1	45	39818.9	1.7				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	2.3	24.7				ug/L	3	Standard
Br	81	2010.1	0.5				ug/L	2163	Standard
P	31	60.0	8.3				ug/L	57	Standard
S	34	33.3	43.3				ug/L	27	Standard
Sr	88	128.3	11.2				ug/L	125	Standard
C	12	26.7	57.3				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	40.0	66.1				mg/L	10	Standard
Dy	164	4669.4	3.9				mg/L	9	Standard
Ho-1	165	2952.0	3.7				mg/L	8	Standard
Er	166	3020.3	4.1				mg/L	20	Standard
I	127	16739.2	1.6				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.148	
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		94.680	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704002402SDL WG608787-02
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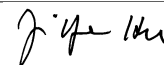
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[Kr	83	
[Br	81	
[P	31	
[S	34	
[Sr	88	
[C	12	
[N	14	
[Hg	202	
[Dy	164	
[Ho-1	165	
[Er	166	
[I	127	

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: Tuesday, April 04, 2017 16:43:33

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	282682.9	1.3				ug/L	302131	Standard
|	Be	9	103752.5	2.3	50.8736	0.622	1.2	ug/L	12	Standard
|	Al	27	6695475.6	2.0	51.3982	0.643	1.3	ug/L	907	Standard
|	Sc	45	39566.6	2.4				ug/L	39227	Standard
|	Ti	47	20497.9	1.1	100.6236	0.677	0.7	ug/L	34	Standard
|	V	51	322917.2	1.8	49.6598	0.369	0.7	ug/L	1155	Standard
|	Cr	52	298314.0	1.7	49.6622	0.277	0.6	ug/L	5602	Standard
|	Cr	53	40094.7	4.4	53.0444	1.949	3.7	ug/L	1042	Standard
|	Mn	55	518558.2	2.0	49.9345	0.585	1.2	ug/L	2370	Standard
|	Co	59	391767.8	1.7	49.6967	0.280	0.6	ug/L	381	Standard
|	Ni	60	83447.6	2.1	49.5689	0.799	1.6	ug/L	282	Standard
|	Cu	65	88453.5	2.1	49.8225	0.625	1.3	ug/L	707	Standard
|	Zn	66	53083.8	1.8	49.7749	0.309	0.6	ug/L	427	Standard
>	Ge	72	813462.4	1.2				ug/L	842801	Standard
|	As	75	55214.4	0.9	50.0236	0.185	0.4	ug/L	-11	Standard
|	Se	82	5082.4	1.1	50.3268	0.699	1.4	ug/L	18	Standard
|	Se-1	77	3948.5	2.3	54.4894	0.607	1.1	ug/L	127	Standard
>	Ga	71	155.0	12.9				mg/L	92	Standard
|	Rb	85	563.3	17.2				ug/L	48	Standard
|	Y	89	572806.7	0.2				ug/L	587989	Standard
>	Rh	103	26.7	28.6				ug/L	8	Standard
|	Mo	98	353735.9	1.3	102.7429	0.602	0.6	ug/L	35	Standard
|	Ag	107	289414.7	1.4	51.5413	0.309	0.6	ug/L	121	Standard
|	Cd	111	81669.3	1.3	51.3338	0.212	0.4	mg/L	4	Standard
|	Cd	114	211022.0	1.3	51.6746	0.097	0.2	ug/L	27	Standard
>	In	115	669085.3	1.1				ug/L	702235	Standard
|	Sn	118	45767.7	0.4	51.7554	0.745	1.4	ug/L	180	Standard
|	Sb	123	212260.3	1.1	50.8452	0.257	0.5	ug/L	43	Standard
|	Ba	135	79532.5	1.2	49.7426	0.137	0.3	ug/L	50	Standard
|	Ce	140	251.7	20.1				ug/L	20	Standard
>	Tb	159	1035240.6	0.4				ug/L	1036041	Standard
|	Ho	165	10.0	100.0				ug/L	8	Standard
|	Tl	203	343925.0	0.6	50.5089	0.436	0.9	ug/L	87	Standard
|	Tl	205	841867.9	1.5	50.8186	0.914	1.8	ug/L	255	Standard
|	Pb	206	280000.9	0.2	50.6953	0.331	0.7	ug/L	523	Standard
|	Pb	207	254154.3	0.5	50.9555	0.482	0.9	ug/L	433	Standard
|	Pb	208	282560.2	0.5	49.6867	0.439	0.9	ug/L	498	Standard
	U	238	237911.3	0.1	51.3693	0.294	0.6	ug/L	6	Standard
>	Bi	209	629912.3	0.5				ug/L	631806	Standard

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Na	23	5.0	100.0	1.3060	1.924	147.3	mg/L	2	Standard
Mg	24	271.7	6.5	4.7230	0.460	9.7	mg/L	27	Standard
K	39	496.7	1.2	5.4686	0.191	3.5	mg/L	17	Standard
Ca	43	40.0	12.5	0.9459	4.665	493.2	mg/L	47	Standard
Fe	54	722.5	9.4	4.9159	0.581	11.8	mg/L	23	Standard
Fe	57	473.3	5.0	5.6727	0.993	17.5	mg/L	253	Standard
Sc-1	45	39566.6	2.4				mg/L	39227	Standard
Cl	35	2.7	86.6				ug/L	1	Standard
Kr	83	1.3	43.3				ug/L	3	Standard
Br	81	2093.5	5.8				ug/L	2163	Standard
P	31	56.7	33.4				ug/L	57	Standard
S	34	26.7	21.7				ug/L	27	Standard
Sr	88	103.3	18.3				ug/L	125	Standard
C	12	30.0	33.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	25.5	88.2				mg/L	9	Standard
Ho-1	165	10.0	100.0				mg/L	8	Standard
Er	166	23.3	49.5				mg/L	20	Standard
I	127	3218.7	9.2				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	101.747		
Al	27	102.796		
Sc	45			
Ti	47	100.624		
V	51	99.320		
Cr	52	99.324		
Cr	53			
Mn	55	99.869		
Co	59	99.393		
Ni	60	99.138		
Cu	65	99.645		
Zn	66	99.550		
Ge	72		96.519	
As	75	100.047		
Se	82	100.654		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	102.743	
[Ag	107	103.083	
[Cd	111	102.668	
[Cd	114		
>	In	115		95.279
[Sn	118	103.511	
[	Sb	123	101.690	
[	Ba	135	99.485	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	101.018	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	99.373	
[	U	238	102.739	
>	Bi	209		99.700
[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		
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[Hg	202		
[Dy	164		
[Ho-1	165		
[Er	166		
[I	127		

QC Out of Limits

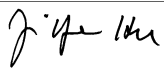
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Tuesday, April 04, 2017 16:46:38

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	276782.2	1.5				ug/L	302131	Standard
|	Be	9	45.0	11.1	0.0158	0.003	16.2	ug/L	12	Standard
|	Al	27	1033.4	26.9	-0.0098	0.002	22.0	ug/L	907	Standard
|	Sc	45	37777.1	3.3				ug/L	39227	Standard
|	Ti	47	24.3	2.4	-0.0556	0.004	7.7	ug/L	34	Standard
|	V	51	763.5	18.3	-0.0423	0.022	52.1	ug/L	1155	Standard
|	Cr	52	4582.0	1.3	-0.0943	0.012	13.2	ug/L	5602	Standard
|	Cr	53	2351.8	2.0	1.9698	0.080	4.1	ug/L	1042	Standard
|	Mn	55	2612.9	12.8	0.0223	0.029	130.4	ug/L	2370	Standard
|	Co	59	283.0	7.7	-0.0090	0.002	26.7	ug/L	381	Standard
|	Ni	60	179.0	10.8	-0.0471	0.010	21.5	ug/L	282	Standard
|	Cu	65	2331.8	2.0	1.0331	0.018	1.8	ug/L	707	Standard
|	Zn	66	421.0	6.7	0.0271	0.023	86.0	ug/L	427	Standard
>	Ge	72	785699.6	1.6				ug/L	842801	Standard
|	As	75	23.5	163.5	0.0676	0.036	52.7	ug/L	-11	Standard
|	Se	82	11.6	66.2	0.0202	0.080	396.3	ug/L	18	Standard
|	Se-1	77	285.7	12.2	2.6282	0.443	16.9	ug/L	127	Standard
>	Ga	71	125.0	14.4				mg/L	92	Standard
|	Rb	85	176.7	22.7				ug/L	48	Standard
|	Y	89	558525.0	0.7				ug/L	587989	Standard
>	Rh	103	5.0	100.0				ug/L	8	Standard
|	Mo	98	131.4	31.7	0.0249	0.012	50.1	ug/L	35	Standard
|	Ag	107	131.7	9.1	-0.0054	0.003	47.3	ug/L	121	Standard
|	Cd	111	2.5	60.1	-0.0156	0.001	6.1	mg/L	4	Standard
|	Cd	114	37.8	18.9	-0.0203	0.002	9.3	ug/L	27	Standard
>	In	115	651935.9	1.8				ug/L	702235	Standard
|	Sn	118	206.3	11.2	0.0148	0.027	183.7	ug/L	180	Standard
|	Sb	123	481.6	33.1	0.0948	0.041	43.5	ug/L	43	Standard
|	Ba	135	42.3	25.3	-0.0229	0.007	28.4	ug/L	50	Standard
|	Ce	140	58.3	106.5				ug/L	20	Standard
>	Tb	159	1004299.9	1.6				ug/L	1036041	Standard
|	Ho	165	5.0	100.0				ug/L	8	Standard
|	Tl	203	260.7	7.9	0.0039	0.003	81.6	ug/L	87	Standard
|	Tl	205	655.0	4.0	0.0142	0.001	10.0	ug/L	255	Standard
|	Pb	206	963.0	2.9	0.0645	0.006	8.8	ug/L	523	Standard
|	Pb	207	793.7	2.6	0.0649	0.003	5.1	ug/L	433	Standard
|	Pb	208	885.3	2.6	0.0607	0.003	4.5	ug/L	498	Standard
	U	238	20.3	40.1	-0.0082	0.002	22.3	ug/L	6	Standard
>	Bi	209	622270.4	1.3				ug/L	631806	Standard

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Na	23	3.3	86.6	0.7136	1.138	159.5	mg/L	2	Standard
Mg	24	16.7	69.3	-0.0897	0.243	271.2	mg/L	27	Standard
K	39	8.3	124.9	-0.0055	0.121	2193.5	mg/L	17	Standard
Ca	43	23.3	81.1	-11.4613	17.038	148.7	mg/L	47	Standard
Fe	54	21.5	58.8	-0.0762	0.090	118.4	mg/L	23	Standard
Fe	57	285.0	6.3	0.7431	0.263	35.4	mg/L	253	Standard
Sc-1	45	37777.1	3.3				mg/L	39227	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	4.0	50.0				ug/L	3	Standard
Br	81	2023.5	6.1				ug/L	2163	Standard
P	31	58.3	21.6				ug/L	57	Standard
S	34	23.3	53.9				ug/L	27	Standard
Sr	88	130.0	3.8				ug/L	125	Standard
C	12	40.0	66.1				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	2.9	187.9				mg/L	9	Standard
Ho-1	165	5.0	100.0				mg/L	8	Standard
Er	166	10.0	100.0				mg/L	20	Standard
I	127	3550.4	3.2				mg/L	3535	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		93.225	
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	92.837
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
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[K	39	
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QC Out of Limits

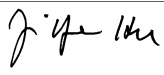
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Cu	65	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: L1704002403

Sample Date/Time: Tuesday, April 04, 2017 16:49:45

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	493727.5	1.0				ug/L	302131	Standard
|	Be	9	10273.5	7.1	2.8774	0.188	6.5	ug/L	12	Standard
|	Al	27	3352453.6	0.3	14.7233	0.127	0.9	ug/L	907	Standard
|	Sc	45	83142.5	1.5				ug/L	39227	Standard
|	Ti	47	39226.8	3.5	178.7819	4.016	2.2	ug/L	34	Standard
|	V	51	1125208.5	1.0	160.9452	1.875	1.2	ug/L	1155	Standard
|	Cr	52	369066.1	1.4	57.1478	0.738	1.3	ug/L	5602	Standard
|	Cr	53	130800.9	3.1	163.3566	7.092	4.3	ug/L	1042	Standard
|	Mn	55	68017426.0	1.1	6106.7509	40.842	0.7	ug/L	2370	Standard
|	Co	59	3995631.2	1.2	470.7274	3.894	0.8	ug/L	381	Standard
|	Ni	60	90628.6	1.2	49.9575	0.636	1.3	ug/L	282	Standard
|	Cu	65	104116.6	1.6	54.4497	0.508	0.9	ug/L	707	Standard
|	Zn	66	129699.5	1.3	113.3460	1.603	1.4	ug/L	427	Standard
>	Ge	72	876691.2	1.5				ug/L	842801	Standard
|	As	75	23242.2	3.9	19.5616	0.494	2.5	ug/L	-11	Standard
|	Se	82	60.9	16.5	0.4616	0.096	20.8	ug/L	18	Standard
|	Se-1	77	18407.2	5.2	241.0614	15.457	6.4	ug/L	127	Standard
>	Ga	71	107590.7	0.5				mg/L	92	Standard
|	Rb	85	285353.8	0.9				ug/L	48	Standard
|	Y	89	1464019.9	1.0				ug/L	587989	Standard
>	Rh	103	23.3	12.4				ug/L	8	Standard
|	Mo	98	11563.6	1.2	3.3852	0.036	1.1	ug/L	35	Standard
|	Ag	107	1144.7	1.6	0.1770	0.004	2.3	ug/L	121	Standard
|	Cd	111	333.4	7.0	0.1950	0.015	7.9	mg/L	4	Standard
|	Cd	114	1105.9	7.1	0.2444	0.018	7.5	ug/L	27	Standard
>	In	115	661136.0	0.4				ug/L	702235	Standard
|	Sn	118	2265.5	1.0	2.3780	0.029	1.2	ug/L	180	Standard
|	Sb	123	2852.6	3.1	0.6678	0.021	3.1	ug/L	43	Standard
|	Ba	135	85336.6	0.5	54.0201	0.461	0.9	ug/L	50	Standard
|	Ce	140	62868947.8	1.2				ug/L	20	Standard
>	Tb	159	1233140.6	0.2				ug/L	1036041	Standard
|	Ho	165	76107.3	0.7				ug/L	8	Standard
|	Tl	203	12506.2	1.3	1.7049	0.039	2.3	ug/L	87	Standard
|	Tl	205	30290.3	2.6	1.7054	0.020	1.2	ug/L	255	Standard
|	Pb	206	750070.7	2.4	128.6973	1.847	1.4	ug/L	523	Standard
|	Pb	207	577532.1	2.0	109.6976	1.140	1.0	ug/L	433	Standard
|	Pb	208	784042.9	0.4	130.6684	2.385	1.8	ug/L	498	Standard
	U	238	15027.1	0.3	3.0596	0.055	1.8	ug/L	6	Standard
>	Bi	209	665533.4	1.5				ug/L	631806	Standard

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	60.0	36.3	0.1145	0.191	166.8	mg/L	27	Standard
K	39	163.3	14.5	0.7670	0.116	15.2	mg/L	17	Standard
Ca	43	41.7	48.5	-15.5660	7.716	49.6	mg/L	47	Standard
Fe	54	18105.8	2.3	61.1231	1.251	2.0	mg/L	23	Standard
Fe	57	4724.1	4.1	55.4636	1.731	3.1	mg/L	253	Standard
Sc-1	45	83142.5	1.5				mg/L	39227	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	4.7	44.6				ug/L	3	Standard
Br	81	2596.9	4.0				ug/L	2163	Standard
P	31	81.7	31.4				ug/L	57	Standard
S	34	35.0	37.8				ug/L	27	Standard
Sr	88	150.0	11.5				ug/L	125	Standard
C	12	80.0	69.6				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	960.0	5.8				mg/L	10	Standard
Dy	164	117843.6	2.9				mg/L	9	Standard
Ho-1	165	76107.3	0.7				mg/L	8	Standard
Er	166	73079.3	3.3				mg/L	20	Standard
I	127	54692.3	8.6				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		163.415	
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		104.021	
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	94.147
[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	105.338
[	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

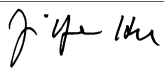
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

Sample ID: L1704002403

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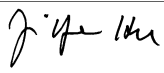
Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Co 59 Upper, S, EEE	Co	59
Zn 66 Upper, S, EEE	Zn	66
Se-1 77 Upper, S, EEE	Se-1	77
Pb 206 Upper, S, EEE	Pb	206
Pb 207 Upper, S, EEE	Pb	207
Pb 208 Upper, S, EEE	Pb	208

Sample ID: L1704002403

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Method 6020 - Summary Report

Sample ID: L1704002405

Sample Date/Time: Tuesday, April 04, 2017 16:52:51

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	480934.5	3.0				ug/L	302131	Standard
|	Be	9	31764.9	2.2	9.1556	0.349	3.8	ug/L	12	Standard
|	Al	27	7628930.8	3.8	34.4282	1.328	3.9	ug/L	907	Standard
|	Sc	45	83370.4	0.1				ug/L	39227	Standard
|	Ti	47	41942.7	2.8	190.4093	5.534	2.9	ug/L	34	Standard
|	V	51	1013780.7	2.8	144.3784	4.222	2.9	ug/L	1155	Standard
|	Cr	52	768429.1	2.5	119.4511	3.109	2.6	ug/L	5602	Standard
|	Cr	53	170576.6	1.5	212.4624	3.146	1.5	ug/L	1042	Standard
|	Mn	55	5837232.3	3.1	521.6691	16.729	3.2	ug/L	2370	Standard
|	Co	59	166468.3	2.9	19.4853	0.580	3.0	ug/L	381	Standard
|	Ni	60	162861.1	1.9	89.5194	1.837	2.1	ug/L	282	Standard
|	Cu	65	114614.5	3.4	59.7234	2.133	3.6	ug/L	707	Standard
|	Zn	66	187270.1	2.6	163.1354	4.548	2.8	ug/L	427	Standard
>	Ge	72	880359.4	0.2				ug/L	842801	Standard
|	As	75	19418.4	2.4	16.2869	0.413	2.5	ug/L	-11	Standard
|	Se	82	186.6	10.9	1.6107	0.186	11.5	ug/L	18	Standard
|	Se-1	77	16582.1	2.1	215.9749	4.481	2.1	ug/L	127	Standard
>	Ga	71	112647.3	2.2				mg/L	92	Standard
|	Rb	85	446871.1	3.0				ug/L	48	Standard
|	Y	89	4621403.8	3.0				ug/L	587989	Standard
>	Rh	103	25.0	72.1				ug/L	8	Standard
|	Mo	98	5781.9	2.4	1.6838	0.055	3.3	ug/L	35	Standard
|	Ag	107	1091.0	4.7	0.1671	0.011	6.4	ug/L	121	Standard
|	Cd	111	849.6	1.6	0.5228	0.004	0.8	mg/L	4	Standard
|	Cd	114	2396.2	1.8	0.5638	0.016	2.8	ug/L	27	Standard
>	In	115	661889.8	0.9				ug/L	702235	Standard
|	Sn	118	2759.6	3.0	2.9429	0.121	4.1	ug/L	180	Standard
|	Sb	123	2366.7	6.2	0.5496	0.040	7.2	ug/L	43	Standard
|	Ba	135	90159.3	3.0	57.0220	2.185	3.8	ug/L	50	Standard
|	Ce	140	4733030.3	2.7				ug/L	20	Standard
>	Tb	159	1373107.5	0.4				ug/L	1036041	Standard
|	Ho	165	249760.2	1.2				ug/L	8	Standard
|	Tl	203	4728.7	3.0	0.6110	0.022	3.7	ug/L	87	Standard
|	Tl	205	11147.4	6.1	0.6000	0.041	6.8	ug/L	255	Standard
|	Pb	206	222113.8	3.0	37.3510	1.363	3.6	ug/L	523	Standard
|	Pb	207	169650.9	2.5	31.5784	0.959	3.0	ug/L	433	Standard
|	Pb	208	222204.2	1.8	36.2914	0.863	2.4	ug/L	498	Standard
	U	238	3911.5	2.3	0.7726	0.023	2.9	ug/L	6	Standard
>	Bi	209	677756.4	0.6				ug/L	631806	Standard

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Na	23	5.0	100.0	0.2899	0.888	306.3	mg/L	2	Standard
Mg	24	50.0	10.0	0.0241	0.045	185.5	mg/L	27	Standard
K	39	341.7	15.6	1.7147	0.287	16.8	mg/L	17	Standard
Ca	43	35.0	42.9	-18.1602	5.790	31.9	mg/L	47	Standard
Fe	54	18522.8	3.7	62.3608	2.235	3.6	mg/L	23	Standard
Fe	57	4902.5	4.1	57.6814	2.617	4.5	mg/L	253	Standard
Sc-1	45	83370.4	0.1				mg/L	39227	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	4.0	43.3				ug/L	3	Standard
Br	81	3770.5	3.9				ug/L	2163	Standard
P	31	80.0	16.5				ug/L	57	Standard
S	34	26.7	39.0				ug/L	27	Standard
Sr	88	211.7	10.9				ug/L	125	Standard
C	12	60.0	66.7				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	173.3	31.8				mg/L	10	Standard
Dy	164	363864.1	2.8				mg/L	9	Standard
Ho-1	165	249760.2	1.2				mg/L	8	Standard
Er	166	234532.3	3.0				mg/L	20	Standard
I	127	21697.2	1.8				mg/L	3535	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		159.181	
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		104.456	
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	94.255
[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	107.273
[	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

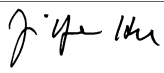
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

Sample ID: L1704002405

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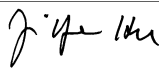
Cr 52 Upper, S, EEE	Cr	52
Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Zn 66 Upper, S, EEE	Zn	66
Se-1 77 Upper, S, EEE	Se-1	77

Sample ID: L1704002405

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Method 6020 - Summary Report

Sample ID: L1704002406

Sample Date/Time: Tuesday, April 04, 2017 16:55:56

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	433236.8	0.7				ug/L	302131	Standard
|	Be	9	126590.1	1.8	40.5051	0.826	2.0	ug/L	12	Standard
|	Al	27	3822416.1	2.2	19.1371	0.507	2.6	ug/L	907	Standard
|	Sc	45	114020.8	0.5				ug/L	39227	Standard
|	Ti	47	23860.1	1.8	110.0803	1.842	1.7	ug/L	34	Standard
|	V	51	1525566.5	1.3	221.0414	3.456	1.6	ug/L	1155	Standard
|	Cr	52	750610.7	1.6	118.6556	1.971	1.7	ug/L	5602	Standard
|	Cr	53	166378.8	2.3	210.7506	5.278	2.5	ug/L	1042	Standard
|	Mn	55	8854415.5	1.8	804.8804	16.144	2.0	ug/L	2370	Standard
|	Co	59	315101.9	1.4	37.5520	0.581	1.5	ug/L	381	Standard
|	Ni	60	87734.3	1.5	48.9727	0.801	1.6	ug/L	282	Standard
|	Cu	65	120122.0	1.6	63.6764	0.973	1.5	ug/L	707	Standard
|	Zn	66	127374.8	0.7	112.7240	1.047	0.9	ug/L	427	Standard
>	Ge	72	865657.4	0.4				ug/L	842801	Standard
|	As	75	41809.6	1.7	35.6067	0.505	1.4	ug/L	-11	Standard
|	Se	82	699.1	3.5	6.4184	0.221	3.4	ug/L	18	Standard
|	Se-1	77	17158.0	1.1	227.3629	3.435	1.5	ug/L	127	Standard
>	Ga	71	158136.3	2.5				mg/L	92	Standard
|	Rb	85	496210.5	1.4				ug/L	48	Standard
|	Y	89	12829242.7	2.0				ug/L	587989	Standard
>	Rh	103	48.3	26.0				ug/L	8	Standard
|	Mo	98	14442.3	1.0	4.2982	0.035	0.8	ug/L	35	Standard
|	Ag	107	2728.2	1.8	0.4703	0.014	2.9	ug/L	121	Standard
|	Cd	111	1482.1	2.9	0.9406	0.017	1.8	mg/L	4	Standard
|	Cd	114	4073.7	6.1	0.9967	0.073	7.3	ug/L	27	Standard
>	In	115	650927.4	1.2				ug/L	702235	Standard
|	Sn	118	3920.5	4.8	4.3500	0.188	4.3	ug/L	180	Standard
|	Sb	123	4072.1	1.6	0.9791	0.007	0.7	ug/L	43	Standard
|	Ba	135	133177.9	1.8	85.6522	0.951	1.1	ug/L	50	Standard
|	Ce	140	8279032.8	1.3				ug/L	20	Standard
>	Tb	159	2482215.4	0.9				ug/L	1036041	Standard
|	Ho	165	987576.8	2.3				ug/L	8	Standard
|	Tl	203	9669.1	1.8	1.3301	0.011	0.8	ug/L	87	Standard
|	Tl	205	23795.3	0.4	1.3548	0.009	0.7	ug/L	255	Standard
|	Pb	206	578922.6	2.6	100.7919	1.765	1.8	ug/L	523	Standard
|	Pb	207	441525.9	2.4	85.0931	1.316	1.5	ug/L	433	Standard
|	Pb	208	576561.3	0.4	97.4913	0.814	0.8	ug/L	498	Standard
	U	238	7825.4	1.9	1.6109	0.022	1.3	ug/L	6	Standard
>	Bi	209	655716.9	1.0				ug/L	631806	Standard

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Na	23	5.0	100.0	0.0532	0.651	1222.8	mg/L	2	Standard
Mg	24	48.3	36.3	-0.1077	0.114	106.0	mg/L	27	Standard
K	39	163.3	27.8	0.5316	0.176	33.1	mg/L	17	Standard
Ca	43	28.3	66.8	-23.6680	5.384	22.8	mg/L	47	Standard
Fe	54	20133.2	1.6	49.5169	0.971	2.0	mg/L	23	Standard
Fe	57	5237.6	1.3	43.3902	0.561	1.3	mg/L	253	Standard
Sc-1	45	114020.8	0.5				mg/L	39227	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	3.7	15.7				ug/L	3	Standard
Br	81	4273.9	5.6				ug/L	2163	Standard
P	31	68.3	27.7				ug/L	57	Standard
S	34	45.0	19.2				ug/L	27	Standard
Sr	88	158.3	32.9				ug/L	125	Standard
C	12	90.0	69.4				mg/L	43	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	1746.8	14.5				mg/L	10	Standard
Dy	164	1435835.7	1.0				mg/L	9	Standard
Ho-1	165	987576.8	2.3				mg/L	8	Standard
Er	166	939686.4	1.4				mg/L	20	Standard
I	127	88892.9	8.6				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		143.394	
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		102.712	
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	92.694
[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	103.785
[	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

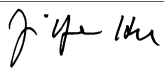
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

Sample ID: L1704002406

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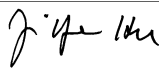
Cr 52 Upper, S, EEE	Cr	52
Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Zn 66 Upper, S, EEE	Zn	66
Se-1 77 Upper, S, EEE	Se-1	77
Pb 206 Upper, S, EEE	Pb	206

Sample ID: L1704002406

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Method 6020 - Summary Report

Sample ID: L1704002410

Sample Date/Time: Tuesday, April 04, 2017 16:59:01

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	546013.5	3.9				ug/L	302131	Standard
|	Be	9	8635.8	1.8	2.1871	0.046	2.1	ug/L	12	Standard
|	Al	27	4361132.2	3.7	17.3224	0.114	0.7	ug/L	907	Standard
|	Sc	45	88088.7	2.2				ug/L	39227	Standard
|	Ti	47	47543.8	1.9	218.2006	5.385	2.5	ug/L	34	Standard
|	V	51	1222801.4	0.4	176.0535	1.432	0.8	ug/L	1155	Standard
|	Cr	52	639752.2	0.3	100.3768	0.969	1.0	ug/L	5602	Standard
|	Cr	53	160191.0	2.2	201.6240	5.616	2.8	ug/L	1042	Standard
|	Mn	55	8094452.5	0.6	731.2787	8.865	1.2	ug/L	2370	Standard
|	Co	59	323829.6	1.2	38.3584	0.680	1.8	ug/L	381	Standard
|	Ni	60	111788.9	0.2	62.0597	0.531	0.9	ug/L	282	Standard
|	Cu	65	129920.6	0.4	68.4744	0.359	0.5	ug/L	707	Standard
|	Zn	66	169126.0	0.6	148.8823	1.786	1.2	ug/L	427	Standard
>	Ge	72	870999.6	0.6				ug/L	842801	Standard
|	As	75	24649.4	1.1	20.8839	0.305	1.5	ug/L	-11	Standard
|	Se	82	26.0	17.6	0.1416	0.041	29.1	ug/L	18	Standard
|	Se-1	77	16305.1	2.3	214.6651	6.177	2.9	ug/L	127	Standard
>	Ga	71	163994.6	1.9				mg/L	92	Standard
|	Rb	85	637924.1	0.3				ug/L	48	Standard
|	Y	89	1120459.9	2.3				ug/L	587989	Standard
>	Rh	103	35.0	28.6				ug/L	8	Standard
|	Mo	98	8725.6	0.9	2.5560	0.031	1.2	ug/L	35	Standard
|	Ag	107	1094.4	6.9	0.1683	0.015	9.1	ug/L	121	Standard
|	Cd	111	390.1	9.5	0.2316	0.026	11.0	mg/L	4	Standard
|	Cd	114	1307.1	5.7	0.2950	0.021	7.0	ug/L	27	Standard
>	In	115	659861.5	0.9				ug/L	702235	Standard
|	Sn	118	3527.7	0.9	3.8369	0.074	1.9	ug/L	180	Standard
|	Sb	123	2627.5	3.8	0.6147	0.030	4.8	ug/L	43	Standard
|	Ba	135	80349.5	0.2	50.9598	0.398	0.8	ug/L	50	Standard
|	Ce	140	5494276.5	1.5				ug/L	20	Standard
>	Tb	159	1190406.5	0.6				ug/L	1036041	Standard
|	Ho	165	44246.2	0.8				ug/L	8	Standard
|	Tl	203	7480.2	3.0	1.0092	0.035	3.4	ug/L	87	Standard
|	Tl	205	18242.6	2.2	1.0207	0.028	2.7	ug/L	255	Standard
|	Pb	206	309370.2	0.5	53.2083	0.756	1.4	ug/L	523	Standard
|	Pb	207	236778.6	1.1	45.0801	0.878	1.9	ug/L	433	Standard
|	Pb	208	309094.2	0.5	51.6284	0.623	1.2	ug/L	498	Standard
	U	238	17892.6	0.2	3.6577	0.027	0.7	ug/L	6	Standard
>	Bi	209	663224.1	0.9				ug/L	631806	Standard

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Na	23	5.0	100.0	0.2349	0.822	349.7	mg/L	2	Standard
Mg	24	55.0	31.5	0.0422	0.146	345.2	mg/L	27	Standard
K	39	306.7	3.4	1.4406	0.030	2.0	mg/L	17	Standard
Ca	43	38.3	15.1	-17.6526	2.210	12.5	mg/L	47	Standard
Fe	54	19859.0	2.4	63.3132	2.487	3.9	mg/L	23	Standard
Fe	57	5242.6	4.3	58.4540	1.415	2.4	mg/L	253	Standard
Sc-1	45	88088.7	2.2				mg/L	39227	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	4.3	48.0				ug/L	3	Standard
Br	81	4590.7	2.3				ug/L	2163	Standard
P	31	73.3	25.8				ug/L	57	Standard
S	34	15.0	57.7				ug/L	27	Standard
Sr	88	175.0	12.5				ug/L	125	Standard
C	12	116.7	47.2				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	423.3	14.4				mg/L	10	Standard
Dy	164	65809.3	0.8				mg/L	9	Standard
Ho-1	165	44246.2	0.8				mg/L	8	Standard
Er	166	42773.6	2.3				mg/L	20	Standard
I	127	77568.8	7.8				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		180.721	
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		103.346	
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	93.966
[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	104.973
[	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
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

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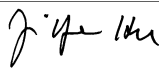
Cr 52 Upper, S, EEE	Cr	52
Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Zn 66 Upper, S, EEE	Zn	66
Se-1 77 Upper, S, EEE	Se-1	77

Sample ID: L1704002410

Report Date/Time: Tuesday, April 04, 2017 17:01:12

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Method 6020 - Summary Report

Sample ID: L1704002405

Sample Date/Time: Tuesday, April 04, 2017 17:02:07

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

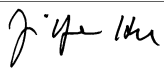
IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	416566.6	2.8				ug/L	302131	Standard
|	Be	9	3572.1	2.3	1.1829	0.051	4.3	ug/L	12	Standard
|	Al	27	366831.7	1.7	1.8944	0.040	2.1	ug/L	907	Standard
|	Sc	45	77233.1	2.1				ug/L	39227	Standard
|	Ti	47	23531.9	2.9	105.9385	3.367	3.2	ug/L	34	Standard
|	V	51	796583.0	2.2	112.5436	2.660	2.4	ug/L	1155	Standard
|	Cr	52	276907.0	1.1	42.1385	0.480	1.1	ug/L	5602	Standard
|	Cr	53	113419.7	1.8	139.7446	2.992	2.1	ug/L	1042	Standard
|	Mn	55	1580791.0	1.1	140.0210	1.919	1.4	ug/L	2370	Standard
|	Co	59	74601.9	1.1	8.6400	0.122	1.4	ug/L	381	Standard
|	Ni	60	64423.7	1.1	35.0459	0.486	1.4	ug/L	282	Standard
|	Cu	65	96116.6	1.1	49.6447	0.588	1.2	ug/L	707	Standard
|	Zn	66	99999.3	0.7	86.2658	0.879	1.0	ug/L	427	Standard
>	Ge	72	887127.0	0.3				ug/L	842801	Standard
|	As	75	37061.5	1.8	30.8052	0.459	1.5	ug/L	-11	Standard
|	Se	82	10.3	42.1	-0.0056	0.039	695.6	ug/L	18	Standard
|	Se-1	77	15981.1	1.6	206.4884	2.848	1.4	ug/L	127	Standard
>	Ga	71	73201.4	0.8				mg/L	92	Standard
|	Rb	85	144929.9	1.4				ug/L	48	Standard
|	Y	89	815847.7	0.4				ug/L	587989	Standard
>	Rh	103	46.7	22.3				ug/L	8	Standard
|	Mo	98	18889.1	1.7	5.4682	0.101	1.9	ug/L	35	Standard
|	Ag	107	916.4	5.1	0.1337	0.009	6.8	ug/L	121	Standard
|	Cd	111	166.6	2.3	0.0875	0.002	2.4	mg/L	4	Standard
|	Cd	114	543.3	7.5	0.1032	0.010	10.1	ug/L	27	Standard
>	In	115	669665.8	0.5				ug/L	702235	Standard
|	Sn	118	1492.4	2.1	1.4676	0.036	2.4	ug/L	180	Standard
|	Sb	123	3337.4	0.4	0.7751	0.004	0.6	ug/L	43	Standard
|	Ba	135	19446.8	1.4	12.1148	0.200	1.6	ug/L	50	Standard
|	Ce	140	6951035.4	0.5				ug/L	20	Standard
>	Tb	159	1172929.7	1.7				ug/L	1036041	Standard
|	Ho	165	19349.0	1.9				ug/L	8	Standard
|	Tl	203	4917.5	0.1	0.6339	0.008	1.2	ug/L	87	Standard
|	Tl	205	11978.1	3.1	0.6438	0.027	4.2	ug/L	255	Standard
|	Pb	206	406689.2	1.1	68.1727	0.206	0.3	ug/L	523	Standard
|	Pb	207	305149.0	1.5	56.6203	0.509	0.9	ug/L	433	Standard
|	Pb	208	397057.2	0.8	64.6388	0.725	1.1	ug/L	498	Standard
	U	238	25491.8	2.0	5.0820	0.109	2.2	ug/L	6	Standard
>	Bi	209	680740.1	1.2				ug/L	631806	Standard

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Na	23	1.7	173.2	-0.2858	0.541	189.4	mg/L	2	Standard
Mg	24	65.0	7.7	0.2054	0.051	24.9	mg/L	27	Standard
K	39	61.7	12.4	0.2506	0.046	18.4	mg/L	17	Standard
Ca	43	23.3	32.7	-21.9082	3.349	15.3	mg/L	47	Standard
Fe	54	11795.7	1.4	42.8153	1.431	3.3	mg/L	23	Standard
Fe	57	3187.0	2.0	38.2156	1.296	3.4	mg/L	253	Standard
Sc-1	45	77233.1	2.1				mg/L	39227	Standard
Cl	35	4.7	24.7				ug/L	1	Standard
Kr	83	4.7	32.7				ug/L	3	Standard
Br	81	2600.2	8.0				ug/L	2163	Standard
P	31	75.0	35.3				ug/L	57	Standard
S	34	21.7	58.1				ug/L	27	Standard
Sr	88	161.7	18.9				ug/L	125	Standard
C	12	133.3	55.3				mg/L	43	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	523.3	15.4				mg/L	10	Standard
Dy	164	28676.0	4.6				mg/L	9	Standard
Ho-1	165	19349.0	1.9				mg/L	8	Standard
Er	166	18221.0	2.8				mg/L	20	Standard
I	127	53238.5	5.0				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		137.876	
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		105.259	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704002405

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	95.362
[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	107.745
[	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

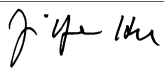
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Ti 47 Upper, S, EEE	Ti	47	
V 51 Upper, S, EEE	V	51	

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Cr 53 Upper, S, EEE	Cr	53
Mn 55 Upper, S, EEE	Mn	55
Se-1 77 Upper, S, EEE	Se-1	77

Sample ID: L1704002405

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Tuesday, April 04, 2017 17:05:13

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	284254.6	5.2				ug/L	302131	Standard
|	Be	9	108957.1	1.8	53.2068	2.192	4.1	ug/L	12	Standard
|	Al	27	6978078.5	1.6	53.3813	3.217	6.0	ug/L	907	Standard
|	Sc	45	38201.5	2.9				ug/L	39227	Standard
|	Ti	47	20985.9	1.6	104.5174	3.860	3.7	ug/L	34	Standard
|	V	51	331550.3	0.8	51.7456	2.171	4.2	ug/L	1155	Standard
|	Cr	52	309360.3	1.3	52.2951	1.825	3.5	ug/L	5602	Standard
|	Cr	53	43520.9	5.5	58.4766	0.677	1.2	ug/L	1042	Standard
|	Mn	55	534079.2	2.1	52.1713	1.261	2.4	ug/L	2370	Standard
|	Co	59	403621.0	2.2	51.9296	1.255	2.4	ug/L	381	Standard
|	Ni	60	85980.0	1.7	51.8105	1.411	2.7	ug/L	282	Standard
|	Cu	65	90813.1	2.1	51.8969	1.451	2.8	ug/L	707	Standard
|	Zn	66	54261.0	2.3	51.6146	1.192	2.3	ug/L	427	Standard
>	Ge	72	802637.3	4.4				ug/L	842801	Standard
|	As	75	56219.1	2.2	51.6515	1.181	2.3	ug/L	-11	Standard
|	Se	82	5222.0	2.2	52.4400	1.165	2.2	ug/L	18	Standard
|	Se-1	77	4360.3	8.0	61.1095	2.338	3.8	ug/L	127	Standard
>	Ga	71	195.0	19.4				mg/L	92	Standard
|	Rb	85	551.7	6.8				ug/L	48	Standard
|	Y	89	562583.5	4.7				ug/L	587989	Standard
>	Rh	103	25.0	34.6				ug/L	8	Standard
|	Mo	98	364952.2	0.4	107.1259	3.541	3.3	ug/L	35	Standard
|	Ag	107	298250.6	0.5	53.6791	1.722	3.2	ug/L	121	Standard
|	Cd	111	84521.9	0.3	53.6961	1.970	3.7	mg/L	4	Standard
|	Cd	114	216112.0	0.9	53.4784	1.537	2.9	ug/L	27	Standard
>	In	115	662590.3	3.6				ug/L	702235	Standard
|	Sn	118	47646.5	1.7	54.4456	1.465	2.7	ug/L	180	Standard
|	Sb	123	220398.7	0.1	53.3592	1.909	3.6	ug/L	43	Standard
|	Ba	135	83102.6	0.8	52.5246	1.513	2.9	ug/L	50	Standard
|	Ce	140	1298.4	108.1				ug/L	20	Standard
>	Tb	159	1015057.6	3.4				ug/L	1036041	Standard
|	Ho	165	25.0	80.0				ug/L	8	Standard
|	Tl	203	359560.4	0.3	53.0878	1.433	2.7	ug/L	87	Standard
|	Tl	205	870835.2	0.4	52.8480	1.506	2.9	ug/L	255	Standard
|	Pb	206	292442.2	1.2	53.2469	2.090	3.9	ug/L	523	Standard
|	Pb	207	263930.3	0.6	53.1966	1.226	2.3	ug/L	433	Standard
|	Pb	208	293293.7	0.7	51.8596	1.800	3.5	ug/L	498	Standard
	U	238	249203.4	0.6	54.0989	1.714	3.2	ug/L	6	Standard
>	Bi	209	626872.5	2.7				ug/L	631806	Standard

Sample ID: QC Std 6

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Na	23	11.7	89.2	3.9185	4.074	104.0	mg/L	2	Standard
Mg	24	298.3	25.2	5.4228	1.491	27.5	mg/L	27	Standard
K	39	396.7	10.7	4.5048	0.508	11.3	mg/L	17	Standard
Ca	43	46.7	40.6	7.9918	16.798	210.2	mg/L	47	Standard
Fe	54	673.5	11.8	4.7307	0.569	12.0	mg/L	23	Standard
Fe	57	490.0	10.8	6.6228	1.592	24.0	mg/L	253	Standard
Sc-1	45	38201.5	2.9				mg/L	39227	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	3.0	33.3				ug/L	3	Standard
Br	81	2240.2	5.9				ug/L	2163	Standard
P	31	48.3	33.3				ug/L	57	Standard
S	34	26.7	60.3				ug/L	27	Standard
Sr	88	153.3	24.7				ug/L	125	Standard
C	12	16.7	91.7				mg/L	43	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	10	Standard
Dy	164	51.1	92.8				mg/L	9	Standard
Ho-1	165	25.0	80.0				mg/L	8	Standard
Er	166	46.7	96.6				mg/L	20	Standard
I	127	4225.6	24.0				mg/L	3535	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	106.414		
Al	27	106.763		
Sc	45			
Ti	47	104.517		
V	51	103.491		
Cr	52	104.590		
Cr	53			
Mn	55	104.343		
Co	59	103.859		
Ni	60	103.621		
Cu	65	103.794		
Zn	66	103.229		
Ge	72		95.234	
As	75	103.303		
Se	82	104.880		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	107.126	
[Ag	107	107.358	
[Cd	111	107.392	
[Cd	114		
>	In	115		94.355
[Sn	118	108.891	
[	Sb	123	106.718	
[	Ba	135	105.049	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	106.176	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	103.719	
[	U	238	108.198	
>	Bi	209		99.219
[	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

Report Date/Time: Tuesday, April 04, 2017 17:07:24

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Approved: April 05, 2017



Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Tuesday, April 04, 2017 17:08:18

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	283379.2	3.5				ug/L	302131	Standard
|	Be	9	33.3	22.9	0.0095	0.003	36.3	ug/L	12	Standard
|	Al	27	1193.4	47.9	-0.0087	0.004	51.4	ug/L	907	Standard
|	Sc	45	38512.3	3.6				ug/L	39227	Standard
|	Ti	47	31.3	9.8	-0.0243	0.016	66.1	ug/L	34	Standard
|	V	51	457.2	36.8	-0.0931	0.026	28.1	ug/L	1155	Standard
|	Cr	52	4367.6	2.1	-0.1529	0.016	10.2	ug/L	5602	Standard
|	Cr	53	3127.0	5.0	2.9371	0.178	6.1	ug/L	1042	Standard
|	Mn	55	2689.6	9.1	0.0228	0.021	92.9	ug/L	2370	Standard
|	Co	59	331.7	16.9	-0.0038	0.007	184.2	ug/L	381	Standard
|	Ni	60	188.3	10.7	-0.0443	0.013	29.5	ug/L	282	Standard
|	Cu	65	2473.9	3.3	1.0769	0.047	4.4	ug/L	707	Standard
|	Zn	66	436.0	3.4	0.0305	0.020	66.5	ug/L	427	Standard
>	Ge	72	807777.3	1.4				ug/L	842801	Standard
|	As	75	-72.9	96.9	-0.0210	0.066	311.6	ug/L	-11	Standard
|	Se	82	9.6	45.2	-0.0031	0.044	1383.8	ug/L	18	Standard
|	Se-1	77	377.7	1.9	3.8341	0.127	3.3	ug/L	127	Standard
>	Ga	71	156.7	10.3				mg/L	92	Standard
|	Rb	85	173.3	23.1				ug/L	48	Standard
|	Y	89	569059.7	1.7				ug/L	587989	Standard
>	Rh	103	10.0	50.0				ug/L	8	Standard
|	Mo	98	158.0	7.9	0.0320	0.003	8.0	ug/L	35	Standard
|	Ag	107	149.7	1.7	-0.0026	0.001	42.2	ug/L	121	Standard
|	Cd	111	11.8	53.0	-0.0097	0.004	42.3	mg/L	4	Standard
|	Cd	114	37.4	72.1	-0.0205	0.007	33.6	ug/L	27	Standard
>	In	115	662889.0	2.6				ug/L	702235	Standard
|	Sn	118	220.0	9.6	0.0269	0.030	113.1	ug/L	180	Standard
|	Sb	123	344.5	28.2	0.0597	0.026	42.8	ug/L	43	Standard
|	Ba	135	51.0	11.8	-0.0177	0.005	25.9	ug/L	50	Standard
|	Ce	140	325.0	81.3				ug/L	20	Standard
>	Tb	159	1025954.1	2.0				ug/L	1036041	Standard
|	Ho	165	10.0					ug/L	8	Standard
|	Tl	203	359.0	2.9	0.0170	0.001	7.5	ug/L	87	Standard
|	Tl	205	761.7	7.8	0.0194	0.003	13.0	ug/L	255	Standard
|	Pb	206	982.0	7.1	0.0628	0.010	16.2	ug/L	523	Standard
|	Pb	207	837.7	1.0	0.0692	0.005	7.9	ug/L	433	Standard
|	Pb	208	941.0	4.8	0.0661	0.011	16.8	ug/L	498	Standard
|	U	238	29.0	55.5	-0.0064	0.003	54.4	ug/L	6	Standard
>	Bi	209	640103.2	2.4				ug/L	631806	Standard

Sample ID: QC Std 7

Report Date/Time: Tuesday, April 04, 2017 17:10:29

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Na	23	0.0		-0.5982	0.000	0.0	mg/L	2	Standard
Mg	24	23.3	12.4	0.0285	0.052	181.1	mg/L	27	Standard
K	39	15.0	57.7	0.0704	0.104	148.2	mg/L	17	Standard
Ca	43	35.0	14.3	-2.2870	5.092	222.7	mg/L	47	Standard
Fe	54	36.1	16.4	0.0284	0.040	142.1	mg/L	23	Standard
Fe	57	273.3	8.6	0.2704	0.902	333.5	mg/L	253	Standard
Sc-1	45	38512.3	3.6				mg/L	39227	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.0	86.6				ug/L	3	Standard
Br	81	2036.8	9.5				ug/L	2163	Standard
P	31	45.0	29.4				ug/L	57	Standard
S	34	21.7	35.3				ug/L	27	Standard
Sr	88	116.7	36.4				ug/L	125	Standard
C	12	56.7	40.8				mg/L	43	Standard
N	14	6.7	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	10	Standard
Dy	164	36.3	57.7				mg/L	9	Standard
Ho-1	165	10.0					mg/L	8	Standard
Er	166	6.7	173.2				mg/L	20	Standard
I	127	3305.4	5.5				mg/L	3535	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		95.844	
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	94.397
[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	101.313
[	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

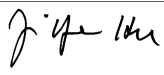
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Cu	65	

Sample ID: QC Std 7

Report Date/Time: Tuesday, April 04, 2017 17:10:29

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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: Thursday, April 06, 2017 09:45:43

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	1315	2026	0.693	
Mg	23.985	23.975	4509	2021	0.693	
Co	58.933	58.925	11686	2023	0.692	
In	114.904	114.925	22861	2029	0.691	
U	238.050	238.075	47454	2044	0.702	

Relative Std. Dev.

Mass	Meas. Intens.	RSD
5.525		28.944
5.575		9.367
5.625		6.648
5.675		6.192
5.725		2.272
5.775		2.384
5.825		2.524
5.875		1.824
5.925		2.708
5.975		1.397
6.025		2.162
6.075		1.838
6.125		1.674
6.175		2.124
6.225		3.924
6.275		2.487
6.325		1.842
6.375		24.495
6.425		105.409
6.475		95.831
6.525		57.735
6.575		27.082
6.625		17.254
6.675		3.986
6.725		3.466
6.775		1.099
6.825		2.992

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6.875	2.373
6.925	1.451
6.975	1.669
7.025	2.096
7.075	2.572
7.125	1.681
7.175	0.659
7.225	1.760
7.275	2.906
7.325	1.044
7.375	4.360
7.425	14.816
7.475	149.071
7.525	71.261
7.575	37.268
7.625	82.402
7.675	55.902
7.725	72.436
7.775	70.711
7.825	104.583
7.875	35.355
7.925	55.902
7.975	93.541
8.025	61.237
8.075	122.475
8.125	108.327
8.175	35.355
8.225	83.853
8.275	34.233
8.325	55.902
8.375	58.685
8.425	52.705
8.475	29.881
22.525	223.607
22.575	42.127
22.625	33.641
22.675	42.426
22.725	51.875
22.775	37.268
22.825	24.164
22.875	41.650
22.925	11.620
22.975	7.402
23.025	34.233
23.075	14.172
23.125	26.517
23.175	25.353

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23.225	34.233
23.275	26.307
23.325	40.074
23.375	55.513
23.425	22.427
23.475	12.278
23.525	4.624
23.575	3.995
23.625	2.332
23.675	2.825
23.725	1.490
23.775	2.245
23.825	2.026
23.875	2.440
23.925	2.290
23.975	2.077
24.025	2.231
24.075	1.909
24.125	2.258
24.175	2.438
24.225	2.510
24.275	7.146
24.325	34.993
24.375	46.206
24.425	19.275
24.475	9.487
24.525	7.528
24.575	4.336
24.625	2.851
24.675	1.536
24.725	2.409
24.775	2.219
24.825	2.041
24.875	1.705
24.925	2.109
24.975	2.533
25.025	3.968
25.075	2.918
25.125	1.871
25.175	1.975
25.225	2.890
25.275	31.623
25.325	34.967
25.375	30.842
25.425	30.769
25.475	6.349
57.525	15.606

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57.575	8.707
57.625	3.767
57.675	2.829
57.725	3.435
57.775	3.173
57.825	2.861
57.875	1.809
57.925	1.269
57.975	3.034
58.025	2.533
58.075	3.703
58.125	1.881
58.175	2.397
58.225	2.444
58.275	7.093
58.325	28.037
58.375	45.913
58.425	12.500
58.475	11.214
58.525	3.597
58.575	5.048
58.625	2.334
58.675	2.997
58.725	3.252
58.775	1.928
58.825	2.419
58.875	2.133
58.925	2.139
58.975	1.953
59.025	2.592
59.075	3.882
59.125	1.917
59.175	4.277
59.225	2.857
59.275	12.541
59.325	38.030
59.375	67.711
59.425	50.000
59.475	26.394
59.525	5.712
59.575	7.395
59.625	3.264
59.675	2.344
59.725	0.934
59.775	4.089
59.825	1.513
59.875	5.485

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59.925	1.886
59.975	3.524
60.025	2.284
60.075	5.973
60.125	4.758
60.175	4.087
60.225	3.736
60.275	12.304
60.325	51.349
60.375	47.140
60.425	43.853
60.475	69.722
113.525	6.763
113.575	7.388
113.625	3.378
113.675	1.472
113.725	4.325
113.775	1.746
113.825	3.519
113.875	3.232
113.925	2.623
113.975	2.665
114.025	2.059
114.075	3.510
114.125	1.336
114.175	4.221
114.225	4.537
114.275	14.110
114.325	21.429
114.375	26.352
114.425	10.388
114.475	10.992
114.525	7.367
114.575	5.293
114.625	3.688
114.675	3.705
114.725	3.877
114.775	1.339
114.825	1.616
114.875	1.892
114.925	0.915
114.975	1.921
115.025	3.145
115.075	2.984
115.125	2.763
115.175	2.321
115.225	2.600

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115.275	8.202
115.325	9.260
115.375	33.641
115.425	10.648
115.475	38.932
115.525	34.167
115.575	19.913
115.625	9.923
115.675	8.953
115.725	1.803
115.775	1.139
115.825	6.524
115.875	3.038
115.925	4.298
115.975	5.445
116.025	5.119
116.075	2.346
116.125	5.710
116.175	6.596
116.225	7.884
116.275	12.499
116.325	29.186
116.375	39.123
116.425	50.461
116.475	75.357
236.525	
236.575	22.222
236.625	21.601
236.675	29.533
236.725	13.176
236.775	50.634
236.825	46.018
236.875	13.469
236.925	23.077
236.975	35.277
237.025	28.144
237.075	15.475
237.125	15.746
237.175	37.268
237.225	31.126
237.275	22.720
237.325	21.114
237.375	59.835
237.425	31.599
237.475	21.254
237.525	9.448
237.575	18.256

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237.625	7.377
237.675	2.566
237.725	5.144
237.775	1.613
237.825	0.893
237.875	1.403
237.925	1.285
237.975	1.152
238.025	1.310
238.075	0.875
238.125	0.354
238.175	0.601
238.225	0.397
238.275	1.568
238.325	1.154
238.375	2.030
238.425	2.410
238.475	3.425
238.525	6.927
238.575	13.682
238.625	23.344
238.675	20.888
238.725	22.569
238.775	23.362
238.825	17.275
238.875	40.161
238.925	40.737
238.975	29.220
239.025	25.901
239.075	39.336
239.125	25.693
239.175	41.097
239.225	21.812
239.275	25.635
239.325	20.233
239.375	27.216
239.425	25.489
239.475	31.181

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SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\NexIONData\Wizard\SmartTune\SmartTune Fullmicrobac.swz

Start Time: 4/6/2017 9:50:50 AM

End Time: 4/6/2017 9:53:21 AM

Daily Performance Check - [Passed] Optimum value(s): N/A

Obtained Intensity (Be 9.0122): 9596.91

Obtained Intensity (Mg 23.985): 228617.80

Obtained Intensity (In 114.904): 55389.33

Obtained Intensity (U 238.05): 92230.07

Obtained Intensity (Bkgd 220): 0.07


Obtained Formula (CeO 155.9 / Ce 139.905): 0.016 (=2387.85 / 149661.69)

Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.004 (=590.61 / 149661.69)

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SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\NexIONData\Wizard\SmartTune\SmartTune Fullmicrobac.swz

Optimization Status

Start Time: 4/6/2017 9:50:50 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): 9596.91
Obtained Intensity (Mg 23.985): 228617.80
Obtained Intensity (In 114.904): 55389.33
Obtained Intensity (U 238.05): 92230.07
Obtained Intensity (Bkgd 220): 0.07
Obtained Formula (CeO 155.9 / Ce 139.905): 0.016 (=2387.85 / 149661.69)
Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.004 (=590.61 / 149661.69)


[Passed] Optimum value(s): N/A

End Time: 4/6/2017 9:53:21 AM

Report Date/Time: Thursday, April 06, 2017 09:53:21

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Method 6020 - Summary Report

Sample ID: Blank

Sample Date/Time: Thursday, April 06, 2017 10:11:41

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	187000.7	2.5				ug/L		Standard
|	Be	9	16.7	75.5				ug/L		Standard
|	Al	27	1055.0	7.9				ug/L		Standard
|	Sc	45	23084.2	1.0				ug/L		Standard
|	Ti	47	23.7	4.9				ug/L		Standard
|	V	51	975.4	5.6				ug/L		Standard
|	Cr	52	4541.7	2.8				ug/L		Standard
|	Cr	53	656.7	11.0				ug/L		Standard
|	Mn	55	1886.5	4.7				ug/L		Standard
|	Co	59	343.3	7.4				ug/L		Standard
|	Ni	60	119.7	5.6				ug/L		Standard
|	Cu	65	405.0	5.0				ug/L		Standard
|	Zn	66	262.7	5.2				ug/L		Standard
>	Ge	72	524310.1	2.0				ug/L		Standard
|	As	75	4.2	506.2				ug/L		Standard
|	Se	82	16.1	29.8				ug/L		Standard
|	Se-1	77	96.7	8.4				ug/L		Standard
>	Ga	71	23.3	12.4				mg/L		Standard
|	Rb	85	35.0	14.3				ug/L		Standard
|	Y	89	364599.8	2.5				ug/L		Standard
>	Rh	103	10.0	50.0				ug/L		Standard
|	Mo	98	45.2	10.5				ug/L		Standard
|	Ag	107	85.7	5.9				ug/L		Standard
|	Cd	111	3.9	25.3				mg/L		Standard
|	Cd	114	24.6	50.7				ug/L		Standard
>	In	115	418957.7	1.9				ug/L		Standard
|	Sn	118	139.3	3.0				ug/L		Standard
|	Sb	123	278.0	43.5				ug/L		Standard
|	Ba	135	47.7	11.6				ug/L		Standard
|	Ce	140	30.0	60.1				ug/L		Standard
>	Tb	159	683587.6	0.7				ug/L		Standard
|	Ho	165	5.0	100.0				ug/L		Standard
|	Tl	203	251.3	1.0				ug/L		Standard
|	Tl	205	568.3	3.3				ug/L		Standard
|	Pb	206	333.7	4.2				ug/L		Standard
|	Pb	207	300.0	3.8				ug/L		Standard
	Pb	208	368.0	5.7				ug/L		Standard
	U	238	3.7	87.7				ug/L		Standard
>	Bi	209	431903.8	1.1				ug/L		Standard

Sample ID: Blank

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Na	23	0.0		mg/L	Standard
Mg	24	25.0	40.0	mg/L	Standard
K	39	16.7	17.3	mg/L	Standard
Ca	43	58.3	17.8	mg/L	Standard
Fe	54	22.8	32.9	mg/L	Standard
Fe	57	255.0	10.2	mg/L	Standard
Sc-1	45	23084.2	1.0	mg/L	Standard
Cl	35	1.3	86.6	ug/L	Standard
Kr	83	3.0	88.2	ug/L	Standard
Br	81	1806.8	3.1	ug/L	Standard
P	31	31.7	32.9	ug/L	Standard
S	34	8.3	69.3	ug/L	Standard
Sr	88	143.3	16.5	ug/L	Standard
C	12	33.3	45.8	mg/L	Standard
N	14	0.0		mg/L	Standard
Hg	202	3.3	173.2	mg/L	Standard
Dy	164	16.3	126.9	mg/L	Standard
Ho-1	165	5.0	100.0	mg/L	Standard
Er	166	6.7	86.6	mg/L	Standard
I	127	2930.3	5.4	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			

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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

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Method 6020 - Summary Report

Sample ID: Standard 1

Sample Date/Time: Thursday, April 06, 2017 10:14:47

Number of Replicates: 3

Autosampler Position: 1

Sample Description:

Method File: C:\NexIONData\Method\6020a.mth

Aliquot Volume (mL):

Diluted to Volume (mL):

User Name: JYH Nexion300X

Cumulative Autodilution Factor: 1

Nexion-ICP 200.8\6020

Concentration Results


IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	187651.7	1.4				ug/L	187001	Standard
|	Be	9	13.3	57.3	-0.0156	0.005	31.0	ug/L	17	Standard
|	Al	27	978.4	5.0	0.0039	0.001	18.0	ug/L	1055	Standard
|	Sc	45	22894.0	0.1				ug/L	23084	Standard
|	Ti	47	27.3	9.2	0.0587	0.018	30.0	ug/L	24	Standard
|	V	51	857.7	8.1	0.0038	0.017	450.1	ug/L	975	Standard
|	Cr	52	4450.7	1.4	0.0095	0.007	72.9	ug/L	4542	Standard
|	Cr	53	580.0	3.4	-0.0238	0.032	134.1	ug/L	657	Standard
|	Mn	55	1727.1	4.0	-0.0052	0.006	118.3	ug/L	1886	Standard
|	Co	59	331.3	6.2	0.0004	0.004	1116.0	ug/L	343	Standard
|	Ni	60	118.7	16.2	-0.0131	0.017	129.5	ug/L	120	Standard
|	Cu	65	397.7	2.5	0.0145	0.009	65.2	ug/L	405	Standard
|	Zn	66	245.7	9.4	-0.0200	0.028	139.7	ug/L	263	Standard
>	Ge	72	521216.5	1.6				ug/L	524310	Standard
|	As	75	-21.8	21.9	0.0018	0.005	299.9	ug/L	4	Standard
|	Se	82	12.2	40.6	0.0139	0.063	454.4	ug/L	16	Standard
|	Se-1	77	92.3	8.1	0.0332	0.117	351.0	ug/L	97	Standard
>	Ga	71	30.0	44.1				mg/L	23	Standard
|	Rb	85	18.3	31.5				ug/L	35	Standard
|	Y	89	361624.0	2.0				ug/L	364600	Standard
>	Rh	103	13.3	57.3				ug/L	10	Standard
|	Mo	98	30.5	12.3	-0.0068	0.001	18.5	ug/L	45	Standard
|	Ag	107	78.3	6.0	-0.0059	0.001	10.6	ug/L	86	Standard
|	Cd	111	2.3	50.3	0.0007	0.001	151.5	mg/L	4	Standard
|	Cd	114	24.4	53.2	-0.0080	0.004	51.7	ug/L	25	Standard
>	In	115	416823.0	2.8				ug/L	418958	Standard
|	Sn	118	145.3	14.3	0.0212	0.038	177.3	ug/L	139	Standard
|	Sb	123	163.8	35.5	0.0129	0.020	152.2	ug/L	278	Standard
|	Ba	135	36.0	0.0	-0.0118	0.001	7.5	ug/L	48	Standard
|	Ce	140	13.3	21.7				ug/L	30	Standard
>	Tb	159	682687.6	1.2				ug/L	683588	Standard
|	Ho	165	5.0	0.0				ug/L	5	Standard
|	Tl	203	235.3	1.6	0.0018	0.000	24.7	ug/L	251	Standard
|	Tl	205	551.7	11.7	-0.0037	0.005	130.0	ug/L	568	Standard
|	Pb	206	327.7	6.4	-0.0071	0.005	64.1	ug/L	334	Standard
|	Pb	207	291.3	6.8	-0.0029	0.005	159.6	ug/L	300	Standard
|	Pb	208	350.7	4.2	-0.0031	0.003	106.9	ug/L	368	Standard
	U	238	3.0	33.3	-0.0001	0.000	361.2	ug/L	4	Standard
>	Bi	209	431881.6	0.7				ug/L	431904	Standard

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Na	23	8.3	91.7	6.6092	10.083	152.6	mg/L	0	Standard
Mg	24	40.0	21.7	0.5717	0.226	39.6	mg/L	25	Standard
K	39	8.3	34.6	-0.2186	0.039	17.9	mg/L	17	Standard
Ca	43	70.0	31.1	5.6653	3.894	68.7	mg/L	58	Standard
Fe	54	14.8	35.8	-0.0094	0.048	511.9	mg/L	23	Standard
Fe	57	258.3	10.7	0.8241	0.759	92.2	mg/L	255	Standard
Sc-1	45	22894.0	0.1				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.7	69.3				ug/L	3	Standard
Br	81	1880.1	3.5				ug/L	1807	Standard
P	31	25.0	72.1				ug/L	32	Standard
S	34	5.0	100.0				ug/L	8	Standard
Sr	88	130.0	36.7				ug/L	143	Standard
C	12	16.7	69.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	13.2	114.0				mg/L	16	Standard
Ho-1	165	5.0	0.0				mg/L	5	Standard
Er	166	3.3	173.2				mg/L	7	Standard
I	127	3022.0	5.9				mg/L	2930	Standard

QC Calculated Values


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

Sample ID: Standard 1

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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 1

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Method 6020 - Summary Report

Sample ID: Standard 2

Sample Date/Time: Thursday, April 06, 2017 10:17:53

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	186440.8	3.0				ug/L	187001	Standard
|	Be	9	115.0	11.5	0.0500	0.011	21.7	ug/L	17	Standard
|	Al	27	4922.5	3.1	0.0500	0.001	2.7	ug/L	1055	Standard
|	Sc	45	22984.1	1.4				ug/L	23084	Standard
|	Ti	47	32.3	9.9	0.1000	0.022	22.3	ug/L	24	Standard
|	V	51	1059.1	3.6	0.0500	0.013	25.9	ug/L	975	Standard
|	Cr	52	4629.0	2.7	0.0500	0.022	43.0	ug/L	4542	Standard
|	Cr	53	620.0	4.3	0.0500	0.060	120.6	ug/L	657	Standard
|	Mn	55	2116.8	0.9	0.0500	0.005	9.7	ug/L	1886	Standard
|	Co	59	613.3	1.9	0.0500	0.002	4.0	ug/L	343	Standard
|	Ni	60	195.3	5.6	0.0500	0.009	17.1	ug/L	120	Standard
|	Cu	65	444.3	3.3	0.0500	0.009	18.0	ug/L	405	Standard
|	Zn	66	301.7	3.4	0.0500	0.014	28.3	ug/L	263	Standard
>	Ge	72	522950.7	1.7				ug/L	524310	Standard
|	As	75	18.9	50.2	0.0500	0.011	21.8	ug/L	4	Standard
|	Se	82	15.0	14.2	0.0500	0.029	58.2	ug/L	16	Standard
|	Se-1	77	93.3	14.9	0.0500	0.283	566.0	ug/L	97	Standard
>	Ga	71	31.7	50.8				mg/L	23	Standard
|	Rb	85	35.0	65.5				ug/L	35	Standard
|	Y	89	362001.8	2.5				ug/L	364600	Standard
>	Rh	103	8.3	69.3				ug/L	10	Standard
|	Mo	98	309.5	3.9	0.1000	0.005	5.3	ug/L	45	Standard
|	Ag	107	319.7	5.1	0.0500	0.004	8.6	ug/L	86	Standard
|	Cd	111	60.6	14.1	0.0500	0.007	15.0	mg/L	4	Standard
|	Cd	114	200.5	4.3	0.0500	0.003	6.2	ug/L	25	Standard
>	In	115	419360.8	0.7				ug/L	418958	Standard
|	Sn	118	166.0	2.1	0.0500	0.006	12.4	ug/L	139	Standard
|	Sb	123	284.8	14.1	0.0500	0.013	25.9	ug/L	278	Standard
|	Ba	135	109.3	14.0	0.0500	0.012	24.6	ug/L	48	Standard
|	Ce	140	11.7	65.5				ug/L	30	Standard
>	Tb	159	690339.1	1.0				ug/L	683588	Standard
|	Ho	165	6.7	86.6				ug/L	5	Standard
|	Tl	203	499.0	3.4	0.0500	0.004	8.1	ug/L	251	Standard
|	Tl	205	1256.7	3.4	0.0500	0.004	8.5	ug/L	568	Standard
|	Pb	206	573.3	2.5	0.0500	0.004	8.2	ug/L	334	Standard
|	Pb	207	497.0	5.6	0.0500	0.008	16.4	ug/L	300	Standard
|	Pb	208	606.7	6.9	0.0500	0.008	15.4	ug/L	368	Standard
	U	238	199.3	7.9	0.0500	0.004	7.3	ug/L	4	Standard
>	Bi	209	434036.8	1.1				ug/L	431904	Standard

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Na	23	3.3	86.6	0.0050	3.803 76058.6	mg/L	0	Standard
Mg	24	18.3	15.7	0.0050	0.077 1547.2	mg/L	25	Standard
K	39	25.0	20.0	0.0050	0.063 1261.8	mg/L	17	Standard
Ca	43	38.3	27.2	0.0050	1.959 39175.4	mg/L	58	Standard
Fe	54	16.5	45.6	0.0050	0.066 1322.6	mg/L	23	Standard
Fe	57	230.0	31.4	0.0050	1.945 38912.0	mg/L	255	Standard
Sc-1	45	22984.1	1.4			mg/L	23084	Standard
Cl	35	0.0				ug/L	1	Standard
Kr	83	2.0	50.0			ug/L	3	Standard
Br	81	1896.8	5.6			ug/L	1807	Standard
P	31	43.3	13.3			ug/L	32	Standard
S	34	3.3	86.6			ug/L	8	Standard
Sr	88	106.7	23.6			ug/L	143	Standard
C	12	30.0	0.0			mg/L	33	Standard
N	14	0.0				mg/L	0	Standard
Hg	202	0.0				mg/L	3	Standard
Dy	164	9.2	106.6			mg/L	16	Standard
Ho-1	165	6.7	86.6			mg/L	5	Standard
Er	166	16.7	124.9			mg/L	7	Standard
I	127	2960.3	5.4			mg/L	2930	Standard

QC Calculated Values


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

Sample ID: Standard 2

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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: Thursday, April 06, 2017 10:20:58

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	181460.5	2.1				ug/L	187001	Standard
|	Be	9	76646.7	0.6	50.6362	1.006	2.0	ug/L	17	Standard
|	Al	27	4190436.7	0.4	50.2686	0.901	1.8	ug/L	1055	Standard
|	Sc	45	22720.4	0.5				ug/L	23084	Standard
|	Ti	47	11760.9	0.8	100.7629	0.890	0.9	ug/L	24	Standard
|	V	51	213163.2	0.7	50.1993	0.321	0.6	ug/L	975	Standard
|	Cr	52	204305.6	0.4	50.4954	0.593	1.2	ug/L	4542	Standard
|	Cr	53	26155.9	3.2	50.1469	1.143	2.3	ug/L	657	Standard
|	Mn	55	345305.4	1.0	50.2136	0.192	0.4	ug/L	1886	Standard
|	Co	59	279961.8	1.3	50.3070	0.159	0.3	ug/L	343	Standard
|	Ni	60	59564.2	1.1	50.1348	0.348	0.7	ug/L	120	Standard
|	Cu	65	63242.7	0.7	50.1964	0.307	0.6	ug/L	405	Standard
|	Zn	66	38918.9	1.4	49.8459	0.044	0.1	ug/L	263	Standard
>	Ge	72	513816.3	1.3				ug/L	524310	Standard
|	As	75	41186.4	0.6	49.7537	0.371	0.7	ug/L	4	Standard
|	Se	82	3775.0	1.6	49.6327	1.050	2.1	ug/L	16	Standard
|	Se-1	77	2678.2	3.7	49.6627	1.225	2.5	ug/L	97	Standard
>	Ga	71	41.7	18.3				mg/L	23	Standard
|	Rb	85	253.3	6.9				ug/L	35	Standard
|	Y	89	356417.5	1.7				ug/L	364600	Standard
>	Rh	103	25.0	52.9				ug/L	10	Standard
|	Mo	98	257229.2	0.1	100.7615	0.153	0.2	ug/L	45	Standard
|	Ag	107	212532.6	0.6	50.4001	0.227	0.4	ug/L	86	Standard
|	Cd	111	58177.6	0.6	50.3796	0.345	0.7	mg/L	4	Standard
|	Cd	114	151735.2	1.4	51.1251	0.758	1.5	ug/L	25	Standard
>	In	115	409726.6	0.2				ug/L	418958	Standard
|	Sn	118	33544.4	1.3	50.8825	0.613	1.2	ug/L	139	Standard
|	Sb	123	156672.6	0.8	49.9484	0.375	0.8	ug/L	278	Standard
|	Ba	135	57697.0	0.9	49.9676	0.453	0.9	ug/L	48	Standard
|	Ce	140	201.7	29.4				ug/L	30	Standard
>	Tb	159	677900.8	1.0				ug/L	683588	Standard
|	Ho	165	6.7	114.6				ug/L	5	Standard
|	Tl	203	267871.9	0.3	50.2162	0.115	0.2	ug/L	251	Standard
|	Tl	205	641501.2	1.0	50.0096	0.341	0.7	ug/L	568	Standard
|	Pb	206	209328.4	0.2	49.9733	0.230	0.5	ug/L	334	Standard
|	Pb	207	189634.3	0.4	50.0488	0.341	0.7	ug/L	300	Standard
|	Pb	208	234392.7	0.3	50.0082	0.314	0.6	ug/L	368	Standard
	U	238	191538.4	0.8	49.9360	0.567	1.1	ug/L	4	Standard
>	Bi	209	424751.4	0.4				ug/L	431904	Standard

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Na	23	6.7	114.6	4.4386	10.100	227.5	mg/L	0	Standard
Mg	24	215.0	12.3	5.1760	0.669	12.9	mg/L	25	Standard
K	39	395.0	7.0	5.0538	0.367	7.3	mg/L	17	Standard
Ca	43	71.7	24.5	6.0518	3.118	51.5	mg/L	58	Standard
Fe	54	592.2	10.6	5.2758	0.602	11.4	mg/L	23	Standard
Fe	57	435.0	12.1	5.8286	1.485	25.5	mg/L	255	Standard
Sc-1	45	22720.4	0.5				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	3.7	78.7				ug/L	3	Standard
Br	81	1570.1	8.6				ug/L	1807	Standard
P	31	48.3	15.8				ug/L	32	Standard
S	34	11.7	65.5				ug/L	8	Standard
Sr	88	121.7	13.2				ug/L	143	Standard
C	12	33.3	45.8				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	9.5	5.0				mg/L	16	Standard
Ho-1	165	6.7	114.6				mg/L	5	Standard
Er	166	10.0	100.0				mg/L	7	Standard
I	127	2628.6	10.9				mg/L	2930	Standard

QC Calculated Values


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

Sample ID: Standard 3

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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: Thursday, April 06, 2017 10:24:04

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	180949.2	1.3				ug/L	187001	Standard
|	Be	9	149012.5	0.7	98.7283	1.310	1.3	ug/L	17	Standard
|	Al	27	8267860.2	0.9	99.4631	2.205	2.2	ug/L	1055	Standard
|	Sc	45	22653.6	2.3				ug/L	23084	Standard
|	Ti	47	22698.0	0.4	198.4749	3.068	1.5	ug/L	24	Standard
|	V	51	413937.7	0.3	99.6017	1.758	1.8	ug/L	975	Standard
|	Cr	52	388766.2	0.7	99.0096	1.268	1.3	ug/L	4542	Standard
|	Cr	53	50430.5	1.5	99.7063	0.498	0.5	ug/L	657	Standard
|	Mn	55	669854.8	1.4	99.5730	0.822	0.8	ug/L	1886	Standard
|	Co	59	542108.7	1.5	99.3863	0.673	0.7	ug/L	343	Standard
|	Ni	60	116081.1	1.8	99.7306	0.581	0.6	ug/L	120	Standard
|	Cu	65	122720.1	1.5	99.6073	0.652	0.7	ug/L	405	Standard
|	Zn	66	76543.5	0.7	100.3080	1.374	1.4	ug/L	263	Standard
>	Ge	72	503935.3	2.0				ug/L	524310	Standard
|	As	75	81603.1	1.0	100.4924	1.460	1.5	ug/L	4	Standard
|	Se	82	7503.7	1.5	100.7343	0.426	0.4	ug/L	16	Standard
|	Se-1	77	5232.9	0.8	100.6742	1.442	1.4	ug/L	97	Standard
>	Ga	71	83.3	17.3				mg/L	23	Standard
|	Rb	85	471.7	9.8				ug/L	35	Standard
|	Y	89	351083.2	1.4				ug/L	364600	Standard
>	Rh	103	30.0	44.1				ug/L	10	Standard
|	Mo	98	494078.1	0.7	198.4778	1.366	0.7	ug/L	45	Standard
|	Ag	107	407859.2	0.9	99.2001	0.127	0.1	ug/L	86	Standard
|	Cd	111	111763.7	1.0	99.2412	0.168	0.2	mg/L	4	Standard
|	Cd	114	282904.0	1.8	97.7509	1.048	1.1	ug/L	25	Standard
>	In	115	399582.0	1.0				ug/L	418958	Standard
|	Sn	118	63042.9	1.6	98.2359	0.773	0.8	ug/L	139	Standard
|	Sb	123	306094.2	0.8	100.1031	0.324	0.3	ug/L	278	Standard
|	Ba	135	112634.5	1.1	100.0647	0.478	0.5	ug/L	48	Standard
|	Ce	140	323.3	9.1				ug/L	30	Standard
>	Tb	159	667511.0	0.9				ug/L	683588	Standard
|	Ho	165	25.0	60.0				ug/L	5	Standard
|	Tl	203	520197.9	1.0	99.5678	0.997	1.0	ug/L	251	Standard
|	Tl	205	1256094.0	1.5	99.9807	0.695	0.7	ug/L	568	Standard
|	Pb	206	410308.7	0.8	100.0534	0.317	0.3	ug/L	334	Standard
|	Pb	207	370604.6	0.8	99.9024	0.669	0.7	ug/L	300	Standard
|	Pb	208	458805.8	0.1	99.9835	1.122	1.1	ug/L	368	Standard
	U	238	376300.2	0.3	100.1280	1.039	1.0	ug/L	4	Standard
>	Bi	209	416191.7	1.0				ug/L	431904	Standard

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Na	23	11.7	89.2	11.1222	13.953	125.5	mg/L	0	Standard
Mg	24	385.0	22.1	9.6482	2.027	21.0	mg/L	25	Standard
K	39	748.4	9.5	9.8924	0.759	7.7	mg/L	17	Standard
Ca	43	81.7	3.5	7.8975	0.185	2.3	mg/L	58	Standard
Fe	54	1044.5	4.1	9.4486	0.605	6.4	mg/L	23	Standard
Fe	57	523.3	2.8	8.3436	0.074	0.9	mg/L	255	Standard
Sc-1	45	22653.6	2.3				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	1.0	100.0				ug/L	3	Standard
Br	81	1750.1	15.0				ug/L	1807	Standard
P	31	41.7	13.9				ug/L	32	Standard
S	34	5.0	0.0				ug/L	8	Standard
Sr	88	115.0	26.4				ug/L	143	Standard
C	12	46.7	32.7				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	18.9	93.2				mg/L	16	Standard
Ho-1	165	25.0	60.0				mg/L	5	Standard
Er	166	23.3	49.5				mg/L	7	Standard
I	127	3412.1	4.2				mg/L	2930	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.	Na	23	Correlation coefficient < 0.998
Corr. Coef.	Ca	43	Correlation coefficient < 0.998
Corr. Coef.	Fe	57	Correlation coefficient < 0.998

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Method 6020 - Summary Report

Sample ID: QC Std 1

Sample Date/Time: Thursday, April 06, 2017 10:27:11

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	180167.1	3.0				ug/L	187001	Standard
|	Be	9	75010.2	0.7	49.9342	1.875	3.8	ug/L	17	Standard
|	Al	27	4150359.0	0.9	50.1587	1.362	2.7	ug/L	1055	Standard
|	Sc	45	22672.0	1.1				ug/L	23084	Standard
|	Ti	47	11435.0	0.5	101.5080	1.366	1.3	ug/L	24	Standard
|	V	51	205927.3	0.4	50.2467	0.731	1.5	ug/L	975	Standard
|	Cr	52	196426.7	0.4	50.2946	0.708	1.4	ug/L	4542	Standard
|	Cr	53	25262.7	1.8	50.1906	0.988	2.0	ug/L	657	Standard
|	Mn	55	336745.4	0.6	50.7407	0.699	1.4	ug/L	1886	Standard
|	Co	59	271182.6	0.2	50.4930	0.812	1.6	ug/L	343	Standard
|	Ni	60	57904.4	1.4	50.4941	0.340	0.7	ug/L	120	Standard
|	Cu	65	61836.6	0.6	50.8568	0.757	1.5	ug/L	405	Standard
|	Zn	66	37937.1	0.7	50.3487	0.712	1.4	ug/L	263	Standard
>	Ge	72	495963.6	1.8				ug/L	524310	Standard
|	As	75	40192.1	0.9	50.3022	0.489	1.0	ug/L	4	Standard
|	Se	82	3738.7	2.5	50.9188	0.486	1.0	ug/L	16	Standard
|	Se-1	77	2677.6	1.7	51.5177	1.098	2.1	ug/L	97	Standard
>	Ga	71	48.3	15.8				mg/L	23	Standard
|	Rb	85	298.3	15.6				ug/L	35	Standard
|	Y	89	344227.9	3.6				ug/L	364600	Standard
>	Rh	103	18.3	56.8				ug/L	10	Standard
|	Mo	98	249182.4	0.9	101.2998	3.111	3.1	ug/L	45	Standard
|	Ag	107	204865.4	0.3	50.4298	1.975	3.9	ug/L	86	Standard
|	Cd	111	56525.7	0.8	50.8118	2.075	4.1	mg/L	4	Standard
|	Cd	114	146423.8	0.9	51.2178	2.285	4.5	ug/L	25	Standard
>	In	115	395112.7	3.9				ug/L	418958	Standard
|	Sn	118	32509.5	1.2	51.1775	1.571	3.1	ug/L	139	Standard
|	Sb	123	154326.9	0.8	51.0793	2.280	4.5	ug/L	278	Standard
|	Ba	135	56334.9	0.5	50.6385	1.771	3.5	ug/L	48	Standard
|	Ce	140	131.7	13.3				ug/L	30	Standard
>	Tb	159	649649.2	3.2				ug/L	683588	Standard
|	Ho	165	11.7	65.5				ug/L	5	Standard
|	Tl	203	263254.7	0.7	50.4749	0.920	1.8	ug/L	251	Standard
|	Tl	205	636840.6	0.9	50.7842	1.354	2.7	ug/L	568	Standard
|	Pb	206	208280.1	0.3	50.8624	1.289	2.5	ug/L	334	Standard
|	Pb	207	188735.9	0.2	50.9505	1.140	2.2	ug/L	300	Standard
|	Pb	208	230656.2	0.4	50.3360	1.179	2.3	ug/L	368	Standard
	U	238	191856.5	1.0	51.1653	1.520	3.0	ug/L	4	Standard
>	Bi	209	415409.4	2.4				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.1510	3.870	179.9	mg/L	0	Standard
Mg	24	200.0	10.0	4.7953	0.530	11.1	mg/L	25	Standard
K	39	378.3	20.7	4.8371	1.066	22.0	mg/L	17	Standard
Ca	43	53.3	21.7	2.7989	2.172	77.6	mg/L	58	Standard
Fe	54	515.3	2.3	4.5808	0.097	2.1	mg/L	23	Standard
Fe	57	336.7	7.0	3.0988	0.759	24.5	mg/L	255	Standard
Sc-1	45	22672.0	1.1				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	3.3	34.6				ug/L	3	Standard
Br	81	1586.8	10.4				ug/L	1807	Standard
P	31	26.7	28.6				ug/L	32	Standard
S	34	16.7	96.4				ug/L	8	Standard
Sr	88	138.3	35.1				ug/L	143	Standard
C	12	20.0	50.0				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	12.9	48.2				mg/L	16	Standard
Ho-1	165	11.7	65.5				mg/L	5	Standard
Er	166	10.0	100.0				mg/L	7	Standard
I	127	2680.2	5.2				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.868		
Al	27	100.317		
Sc	45			
Ti	47	101.508		
V	51	100.493		
Cr	52	100.589		
Cr	53			
Mn	55	101.481		
Co	59	100.986		
Ni	60	100.988		
Cu	65	101.714		
Zn	66	100.697		
Ge	72		94.594	
As	75	100.604		
Se	82	101.838		
Se-1	77			
Ga	71			

Sample ID: QC Std 1

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	101.300	
[Ag	107	100.860	
[Cd	111	101.624	
[Cd	114		
>	In	115		94.308
[Sn	118	102.355	
[	Sb	123	102.159	
[	Ba	135	101.277	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.950	
[	Tl	205		
[	Pb	206	101.725	
[	Pb	207	101.901	
[	Pb	208	100.672	
[	U	238	102.331	
>	Bi	209		96.181
[	Na	23	-43.020	
[	Mg	24	95.906	
[	K	39	96.742	
[	Ca	43	55.979	
[	Fe	54	91.615	
[	Fe	57	61.976	
>	Sc-1	45		
[	Cl	35		
[	Kr	83		
[	Br	81		
[	P	31		
[	S	34		
[	Sr	88		
[	C	12		
[	N	14		
[	Hg	202		
[	Dy	164		
[	Ho-1	165		
[	Er	166		
[	I	127		

QC Out of Limits

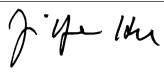
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 1	Na	23	
QC Std 1	K	39	
QC Std 1	Ca	43	

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QC Std 1

Fe

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Method 6020 - Summary Report

Sample ID: QC Std 2

Sample Date/Time: Thursday, April 06, 2017 10:30:19

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	179954.7	3.2				ug/L	187001	Standard
|	Be	9	28.3	50.9	-0.0053	0.010	184.4	ug/L	17	Standard
|	Al	27	1301.7	2.3	0.0083	0.000	2.3	ug/L	1055	Standard
|	Sc	45	22505.0	3.6				ug/L	23084	Standard
|	Ti	47	24.3	35.0	0.0421	0.073	173.7	ug/L	24	Standard
|	V	51	634.2	5.6	-0.0419	0.009	21.9	ug/L	975	Standard
|	Cr	52	3290.0	0.2	-0.2437	0.008	3.4	ug/L	4542	Standard
|	Cr	53	453.3	11.2	-0.2303	0.104	45.1	ug/L	657	Standard
|	Mn	55	1890.8	1.2	0.0303	0.003	10.7	ug/L	1886	Standard
|	Co	59	287.3	7.0	-0.0053	0.003	60.9	ug/L	343	Standard
|	Ni	60	108.0	4.8	-0.0181	0.006	30.6	ug/L	120	Standard
|	Cu	65	432.7	3.1	0.0568	0.009	15.7	ug/L	405	Standard
|	Zn	66	409.7	5.1	0.2110	0.022	10.3	ug/L	263	Standard
>	Ge	72	499432.5	1.1				ug/L	524310	Standard
|	As	75	-14.5	288.7	0.0093	0.053	565.8	ug/L	4	Standard
|	Se	82	16.1	48.4	0.0738	0.105	142.5	ug/L	16	Standard
|	Se-1	77	98.0	6.7	0.2220	0.121	54.3	ug/L	97	Standard
>	Ga	71	16.7	69.3				mg/L	23	Standard
|	Rb	85	38.3	15.1				ug/L	35	Standard
|	Y	89	348102.2	2.9				ug/L	364600	Standard
>	Rh	103	15.0	88.2				ug/L	10	Standard
|	Mo	98	150.7	25.4	0.0418	0.014	33.5	ug/L	45	Standard
|	Ag	107	91.7	7.9	-0.0019	0.001	70.7	ug/L	86	Standard
|	Cd	111	4.8	89.7	0.0029	0.004	127.0	mg/L	4	Standard
|	Cd	114	45.5	49.1	-0.0004	0.007	1684.7	ug/L	25	Standard
>	In	115	399938.3	1.9				ug/L	418958	Standard
|	Sn	118	168.0	12.4	0.0656	0.037	56.6	ug/L	139	Standard
|	Sb	123	1130.2	38.5	0.3319	0.148	44.6	ug/L	278	Standard
|	Ba	135	50.3	11.6	0.0021	0.004	204.2	ug/L	48	Standard
|	Ce	140	13.3	78.1				ug/L	30	Standard
>	Tb	159	657719.4	1.5				ug/L	683588	Standard
|	Ho	165	5.0	100.0				ug/L	5	Standard
|	Tl	203	217.3	12.6	-0.0006	0.006	904.5	ug/L	251	Standard
|	Tl	205	510.0	9.0	-0.0060	0.004	66.1	ug/L	568	Standard
|	Pb	206	406.3	8.0	0.0134	0.006	48.1	ug/L	334	Standard
|	Pb	207	364.0	5.3	0.0181	0.005	28.7	ug/L	300	Standard
|	Pb	208	428.0	9.1	0.0150	0.007	49.9	ug/L	368	Standard
	U	238	22.0	12.0	0.0049	0.001	15.8	ug/L	4	Standard
>	Bi	209	422785.9	1.4				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	31.7	65.7	0.3565	0.514	144.2	mg/L	25	Standard
K	39	3.3	173.2	-0.2844	0.081	28.6	mg/L	17	Standard
Ca	43	48.3	26.0	2.0048	2.548	127.1	mg/L	58	Standard
Fe	54	31.4	24.5	0.1480	0.079	53.6	mg/L	23	Standard
Fe	57	231.7	11.1	0.2050	0.834	406.9	mg/L	255	Standard
Sc-1	45	22505.0	3.6				mg/L	23084	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	4.3	66.6				ug/L	3	Standard
Br	81	1630.1	7.5				ug/L	1807	Standard
P	31	38.3	64.3				ug/L	32	Standard
S	34	10.0					ug/L	8	Standard
Sr	88	113.3	28.7				ug/L	143	Standard
C	12	30.0	88.2				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	9.2	186.7				mg/L	16	Standard
Ho-1	165	5.0	100.0				mg/L	5	Standard
Er	166	16.7	34.6				mg/L	7	Standard
I	127	2756.9	4.7				mg/L	2930	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		95.255	
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	95.460
[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	97.889
[	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

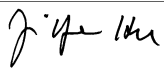
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 2	Sb	123	
QC Std 2	Na	23	
QC Std 2	Mg	24	

Sample ID: QC Std 2

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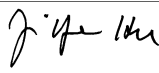
QC Std 2	K	39
QC Std 2	Ca	43
QC Std 2	Fe	54
QC Std 2	Fe	57

Sample ID: QC Std 2

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Method 6020 - Summary Report

Sample ID: QC Std 3

Sample Date/Time: Thursday, April 06, 2017 10:33:25

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	180238.2	3.5				ug/L	187001	Standard
|	Be	9	346.7	12.1	0.2069	0.032	15.3	ug/L	17	Standard
|	Al	27	1285.1	39.5	0.0079	0.006	69.6	ug/L	1055	Standard
|	Sc	45	23192.8	4.9				ug/L	23084	Standard
|	Ti	47	24.0	15.0	0.0408	0.036	89.0	ug/L	24	Standard
|	V	51	2199.7	4.9	0.3412	0.038	11.1	ug/L	975	Standard
|	Cr	52	7193.0	1.8	0.7767	0.025	3.2	ug/L	4542	Standard
|	Cr	53	911.7	1.6	0.7010	0.034	4.9	ug/L	657	Standard
|	Mn	55	4522.0	4.2	0.4280	0.012	2.9	ug/L	1886	Standard
|	Co	59	2275.5	5.0	0.3639	0.010	2.7	ug/L	343	Standard
|	Ni	60	1847.4	2.6	1.4967	0.003	0.2	ug/L	120	Standard
|	Cu	65	1307.7	6.9	0.7784	0.047	6.0	ug/L	405	Standard
|	Zn	66	4965.8	2.2	6.2776	0.113	1.8	ug/L	263	Standard
>	Ge	72	497793.5	2.8				ug/L	524310	Standard
|	As	75	317.0	13.4	0.4222	0.046	10.8	ug/L	4	Standard
|	Se	82	46.9	10.0	0.4935	0.052	10.5	ug/L	16	Standard
|	Se-1	77	110.0	11.6	0.4718	0.311	65.8	ug/L	97	Standard
>	Ga	71	11.7	49.5				mg/L	23	Standard
|	Rb	85	20.0	0.0				ug/L	35	Standard
|	Y	89	351566.9	2.4				ug/L	364600	Standard
>	Rh	103	6.7	173.2				ug/L	10	Standard
|	Mo	98	57.1	6.6	0.0045	0.002	33.9	ug/L	45	Standard
|	Ag	107	1641.1	1.4	0.3766	0.003	0.9	ug/L	86	Standard
|	Cd	111	266.9	7.3	0.2364	0.012	5.0	mg/L	4	Standard
|	Cd	114	701.3	7.8	0.2270	0.016	6.8	ug/L	25	Standard
>	In	115	398188.2	2.2				ug/L	418958	Standard
|	Sn	118	139.7	3.6	0.0218	0.005	22.9	ug/L	139	Standard
|	Sb	123	1501.8	5.3	0.4546	0.034	7.5	ug/L	278	Standard
|	Ba	135	822.4	2.1	0.6910	0.016	2.3	ug/L	48	Standard
|	Ce	140	18.3	31.5				ug/L	30	Standard
>	Tb	159	656054.4	2.8				ug/L	683588	Standard
|	Ho	165	5.0	100.0				ug/L	5	Standard
|	Tl	203	643.7	16.8	0.0801	0.019	23.1	ug/L	251	Standard
|	Tl	205	1510.1	6.7	0.0729	0.006	8.0	ug/L	568	Standard
|	Pb	206	1170.7	7.6	0.1982	0.016	8.2	ug/L	334	Standard
|	Pb	207	967.4	2.8	0.1794	0.003	1.5	ug/L	300	Standard
|	Pb	208	1275.0	3.9	0.1981	0.006	2.9	ug/L	368	Standard
	U	238	1467.7	5.7	0.3852	0.016	4.1	ug/L	4	Standard
>	Bi	209	420856.4	1.8				ug/L	431904	Standard

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Na	23	5.0	100.0	2.1856	6.422	293.8	mg/L	0	Standard
Mg	24	21.7	48.0	0.0874	0.266	304.4	mg/L	25	Standard
K	39	8.3	34.6	-0.2211	0.034	15.5	mg/L	17	Standard
Ca	43	81.7	30.2	7.4917	3.836	51.2	mg/L	58	Standard
Fe	54	21.3	59.5	0.0513	0.125	242.8	mg/L	23	Standard
Fe	57	256.7	9.2	0.6784	0.385	56.8	mg/L	255	Standard
Sc-1	45	23192.8	4.9				mg/L	23084	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.7	78.1				ug/L	3	Standard
Br	81	1676.8	5.1				ug/L	1807	Standard
P	31	25.0	0.0				ug/L	32	Standard
S	34	10.0	86.6				ug/L	8	Standard
Sr	88	131.7	5.8				ug/L	143	Standard
C	12	33.3	45.8				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	8.6	9.7				mg/L	16	Standard
Ho-1	165	5.0	100.0				mg/L	5	Standard
Er	166	30.0	57.7				mg/L	7	Standard
I	127	2916.9	5.1				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
> Li	6			
Be	9	103.439		
Al	27	0.792		
Sc	45			
Ti	47			
V	51	85.305		
Cr	52	97.091		
Cr	53			
Mn	55	85.599		
Co	59	90.987		
Ni	60	93.545		
Cu	65	97.295		
Zn	66	100.441		
> Ge	72		94.943	
As	75	105.546		
Se	82	123.374		
Se-1	77			
> Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98		
	Ag	107	94.142	
	Cd	111	98.490	
	Cd	114		
>	In	115		95.043
	Sn	118		
	Sb	123	113.648	
[	Ba	135	92.138	
[	Ce	140		
>	Tb	159		
[	Ho	165		
	Tl	203	100.071	
	Tl	205		
	Pb	206		
	Pb	207		
	Pb	208	99.038	
	U	238	96.299	
>	Bi	209		97.442
[	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

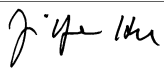
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 3	Al	27	

Sample ID: QC Std 3

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Method 6020 - Summary Report

Sample ID: QC Std 4

Sample Date/Time: Thursday, April 06, 2017 10:36:31

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	178350.4	1.6				ug/L	187001	Standard
|	Be	9	23.3	32.7	-0.0085	0.005	61.6	ug/L	17	Standard
|	Al	27	3840707.2	0.4	46.8743	0.923	2.0	ug/L	1055	Standard
|	Sc	45	22470.0	1.9				ug/L	23084	Standard
|	Ti	47	10582.4	0.8	94.3612	1.024	1.1	ug/L	24	Standard
|	V	51	710.1	6.5	-0.0213	0.013	62.5	ug/L	975	Standard
|	Cr	52	4462.3	0.8	0.0745	0.013	17.2	ug/L	4542	Standard
|	Cr	53	611.7	6.3	0.1046	0.100	96.0	ug/L	657	Standard
|	Mn	55	2829.3	1.9	0.1764	0.007	4.0	ug/L	1886	Standard
|	Co	59	539.0	4.0	0.0425	0.005	12.1	ug/L	343	Standard
|	Ni	60	362.0	8.8	0.2062	0.032	15.3	ug/L	120	Standard
|	Cu	65	545.0	4.0	0.1542	0.011	7.3	ug/L	405	Standard
|	Zn	66	642.3	4.4	0.5299	0.039	7.3	ug/L	263	Standard
>	Ge	72	493670.3	1.9				ug/L	524310	Standard
|	As	75	1.2	1252.8	0.0291	0.019	66.5	ug/L	4	Standard
|	Se	82	12.8	10.1	0.0316	0.018	56.2	ug/L	16	Standard
|	Se-1	77	81.0	20.5	-0.0945	0.334	353.2	ug/L	97	Standard
>	Ga	71	36.7	63.0				mg/L	23	Standard
|	Rb	85	526.7	7.1				ug/L	35	Standard
|	Y	89	344803.1	1.5				ug/L	364600	Standard
>	Rh	103	11.7	49.5				ug/L	10	Standard
|	Mo	98	225509.2	0.2	91.6344	1.138	1.2	ug/L	45	Standard
|	Ag	107	87.0	11.1	-0.0027	0.002	81.9	ug/L	86	Standard
|	Cd	111	-113.2	12.0	-0.1031	0.013	13.0	mg/L	4	Standard
|	Cd	114	367.8	13.8	0.1126	0.018	16.3	ug/L	25	Standard
>	In	115	395017.3	1.4				ug/L	418958	Standard
|	Sn	118	145.0	1.4	0.0320	0.001	2.7	ug/L	139	Standard
|	Sb	123	346.8	36.5	0.0763	0.043	56.9	ug/L	278	Standard
|	Ba	135	45.7	10.8	-0.0015	0.004	287.1	ug/L	48	Standard
|	Ce	140	590.0	6.6				ug/L	30	Standard
>	Tb	159	664562.0	0.8				ug/L	683588	Standard
|	Ho	165	11.7	65.5				ug/L	5	Standard
|	Tl	203	191.3	11.5	-0.0049	0.004	82.6	ug/L	251	Standard
|	Tl	205	428.3	12.8	-0.0117	0.004	36.8	ug/L	568	Standard
|	Pb	206	414.3	1.9	0.0174	0.002	8.9	ug/L	334	Standard
|	Pb	207	341.7	5.5	0.0140	0.005	32.3	ug/L	300	Standard
|	Pb	208	423.0	1.2	0.0159	0.001	8.6	ug/L	368	Standard
	U	238	7.3	43.8	0.0011	0.001	75.6	ug/L	4	Standard
>	Bi	209	414274.4	0.7				ug/L	431904	Standard

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Na	23	11.7	24.7	11.3280	4.138	36.5	mg/L	0	Standard
Mg	24	486.7	22.1	12.4588	2.865	23.0	mg/L	25	Standard
K	39	328.3	9.2	4.2014	0.499	11.9	mg/L	17	Standard
Ca	43	76.7	26.4	7.0943	3.605	50.8	mg/L	58	Standard
Fe	54	1196.1	6.5	10.9139	0.511	4.7	mg/L	23	Standard
Fe	57	601.7	12.3	10.6629	1.817	17.0	mg/L	255	Standard
Sc-1	45	22470.0	1.9				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.0	100.0				ug/L	3	Standard
Br	81	1590.1	6.7				ug/L	1807	Standard
P	31	41.7	13.9				ug/L	32	Standard
S	34	8.3	34.6				ug/L	8	Standard
Sr	88	111.7	2.6				ug/L	143	Standard
C	12	23.3	24.7				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	13.2	44.9				mg/L	16	Standard
Ho-1	165	11.7	65.5				mg/L	5	Standard
Er	166	3.3	173.2				mg/L	7	Standard
I	127	2283.5	9.2				mg/L	2930	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27	0.937		
Sc	45			
Ti	47	94.361		
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72		94.156	
As	75			
Se	82			
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	91.634	
[Ag	107		
[Cd	111		
[Cd	114		
>	In	115		94.286
[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		95.918
[	Na	23	90.624	
[	Mg	24	249.175	
[	K	39	84.028	
[	Ca	43	47.295	
[	Fe	54	87.311	
[	Fe	57	85.303	
>	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	Mg	24	
QC Std 4	Ca	43	

Sample ID: QC Std 4

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Method 6020 - Summary Report

Sample ID: QC Std 5

Sample Date/Time: Thursday, April 06, 2017 10:39:36

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	181612.8	3.4				ug/L	187001	Standard
|	Be	9	150726.1	1.3	99.5372	2.127	2.1	ug/L	17	Standard
|	Al	27	3754476.0	0.6	45.0171	1.239	2.8	ug/L	1055	Standard
|	Sc	45	22611.9	2.6				ug/L	23084	Standard
|	Ti	47	11402.6	1.3	101.2642	1.518	1.5	ug/L	24	Standard
|	V	51	402842.6	0.8	98.5237	1.116	1.1	ug/L	975	Standard
|	Cr	52	382342.1	0.4	98.9783	0.240	0.2	ug/L	4542	Standard
|	Cr	53	50183.0	0.8	100.8799	1.274	1.3	ug/L	657	Standard
|	Mn	55	657261.5	1.1	99.3176	0.872	0.9	ug/L	1886	Standard
|	Co	59	532209.2	0.4	99.1890	0.206	0.2	ug/L	343	Standard
|	Ni	60	112387.0	0.7	98.1607	0.841	0.9	ug/L	120	Standard
|	Cu	65	120375.6	0.4	99.3246	0.454	0.5	ug/L	405	Standard
|	Zn	66	77175.1	0.5	102.8124	0.944	0.9	ug/L	263	Standard
>	Ge	72	495682.7	0.4				ug/L	524310	Standard
|	As	75	80615.5	0.7	100.9121	0.530	0.5	ug/L	4	Standard
|	Se	82	7396.6	1.6	100.9419	1.176	1.2	ug/L	16	Standard
|	Se-1	77	5301.3	2.1	103.7256	2.492	2.4	ug/L	97	Standard
>	Ga	71	81.7	18.7				mg/L	23	Standard
|	Rb	85	525.0	9.9				ug/L	35	Standard
|	Y	89	343638.9	1.6				ug/L	364600	Standard
>	Rh	103	26.7	39.0				ug/L	10	Standard
|	Mo	98	225440.8	1.2	92.9920	1.304	1.4	ug/L	45	Standard
|	Ag	107	390035.1	2.1	97.4119	1.272	1.3	ug/L	86	Standard
|	Cd	111	108922.7	0.9	99.3281	1.311	1.3	mg/L	4	Standard
|	Cd	114	271540.3	1.1	96.3527	0.200	0.2	ug/L	25	Standard
>	In	115	389110.2	1.0				ug/L	418958	Standard
|	Sn	118	184.0	8.7	0.0982	0.028	28.7	ug/L	139	Standard
|	Sb	123	300922.0	0.9	101.0608	0.614	0.6	ug/L	278	Standard
|	Ba	135	110440.4	0.2	100.7630	1.067	1.1	ug/L	48	Standard
|	Ce	140	51.7	36.6				ug/L	30	Standard
>	Tb	159	659198.0	1.4				ug/L	683588	Standard
|	Ho	165	13.3	78.1				ug/L	5	Standard
|	Tl	203	521879.9	1.0	99.2510	1.170	1.2	ug/L	251	Standard
|	Tl	205	1262847.0	1.2	99.8811	1.416	1.4	ug/L	568	Standard
|	Pb	206	412260.8	0.5	99.8870	0.550	0.6	ug/L	334	Standard
|	Pb	207	371590.6	0.8	99.5268	0.845	0.8	ug/L	300	Standard
|	Pb	208	462307.8	1.2	100.0985	1.419	1.4	ug/L	368	Standard
	U	238	385576.2	1.5	101.9373	1.747	1.7	ug/L	4	Standard
>	Bi	209	418861.4	0.2				ug/L	431904	Standard

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Na	23	10.0		8.9699	0.339	3.8	mg/L	0	Standard
Mg	24	435.0	10.5	10.9998	0.933	8.5	mg/L	25	Standard
K	39	330.0	13.6	4.2004	0.711	16.9	mg/L	17	Standard
Ca	43	68.3	21.1	5.5477	2.807	50.6	mg/L	58	Standard
Fe	54	1147.4	3.0	10.4102	0.490	4.7	mg/L	23	Standard
Fe	57	545.0	6.4	8.9874	1.056	11.8	mg/L	255	Standard
Sc-1	45	22611.9	2.6				mg/L	23084	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.3	24.7				ug/L	3	Standard
Br	81	1683.4	0.7				ug/L	1807	Standard
P	31	31.7	50.8				ug/L	32	Standard
S	34	10.0	86.6				ug/L	8	Standard
Sr	88	133.3	7.8				ug/L	143	Standard
C	12	53.3	10.8				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	3	Standard
Dy	164	8.9	8.2				mg/L	16	Standard
Ho-1	165	13.3	78.1				mg/L	5	Standard
Er	166	23.3	65.5				mg/L	7	Standard
I	127	15302.7	1.8				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.537		
Al	27	0.900		
Sc	45			
Ti	47	101.264		
V	51	98.524		
Cr	52	98.978		
Cr	53			
Mn	55	99.318		
Co	59	99.189		
Ni	60	98.161		
Cu	65	99.325		
Zn	66	102.812		
Ge	72		94.540	
As	75	100.912		
Se	82	100.942		
Se-1	77			
Ga	71			

Sample ID: QC Std 5

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	92.992	
[Ag	107	97.412	
[Cd	111	99.328	
[Cd	114		
>	In	115		92.876
[Sn	118		
[	Sb	123	101.061	
[	Ba	135	100.763	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	99.251	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	100.098	
[	U	238	101.937	
>	Bi	209		96.980
[	Na	23	71.759	
[	Mg	24	219.996	
[	K	39	84.008	
[	Ca	43	36.985	
[	Fe	54	83.281	
[	Fe	57	71.899	
>	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 5	Al	27	
QC Std 5	Na	23	
QC Std 5	Mg	24	

Sample ID: QC Std 5

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QC Std 5	Ca	43
QC Std 5	Fe	57

Sample ID: QC Std 5
Report Date/Time: Thursday, April 06, 2017 15:40:18
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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Thursday, April 06, 2017 10:42:43

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	179249.6	2.9				ug/L	187001	Standard
|	Be	9	73968.5	2.2	49.4710	1.216	2.5	ug/L	17	Standard
|	Al	27	4105870.6	0.3	49.8781	1.511	3.0	ug/L	1055	Standard
|	Sc	45	22381.5	4.6				ug/L	23084	Standard
|	Ti	47	11410.3	0.3	101.2339	2.303	2.3	ug/L	24	Standard
|	V	51	203362.8	1.6	49.5790	0.305	0.6	ug/L	975	Standard
|	Cr	52	193432.7	1.3	49.4741	0.487	1.0	ug/L	4542	Standard
|	Cr	53	24868.7	1.7	49.3577	0.964	2.0	ug/L	657	Standard
|	Mn	55	331346.2	0.1	49.8954	1.084	2.2	ug/L	1886	Standard
|	Co	59	266588.9	0.6	49.6039	0.808	1.6	ug/L	343	Standard
|	Ni	60	57232.9	0.4	49.8821	0.915	1.8	ug/L	120	Standard
|	Cu	65	60669.9	0.2	49.8651	1.194	2.4	ug/L	405	Standard
|	Zn	66	37606.6	0.9	49.8735	0.691	1.4	ug/L	263	Standard
>	Ge	72	496316.4	2.2				ug/L	524310	Standard
|	As	75	39239.8	1.6	49.0756	0.377	0.8	ug/L	4	Standard
|	Se	82	3712.8	2.2	50.5346	0.364	0.7	ug/L	16	Standard
|	Se-1	77	2657.6	2.7	51.0704	0.302	0.6	ug/L	97	Standard
>	Ga	71	45.0	55.6				mg/L	23	Standard
|	Rb	85	258.3	14.5				ug/L	35	Standard
|	Y	89	350863.3	1.6				ug/L	364600	Standard
>	Rh	103	25.0	40.0				ug/L	10	Standard
|	Mo	98	248140.3	1.0	99.7338	1.889	1.9	ug/L	45	Standard
|	Ag	107	203747.5	0.4	49.5746	0.715	1.4	ug/L	86	Standard
|	Cd	111	56112.5	0.5	49.8588	0.973	2.0	mg/L	4	Standard
|	Cd	114	145460.8	0.3	50.2899	1.015	2.0	ug/L	25	Standard
>	In	115	399399.1	1.8				ug/L	418958	Standard
|	Sn	118	32271.3	0.5	50.2261	0.959	1.9	ug/L	139	Standard
|	Sb	123	154461.3	0.5	50.5256	0.717	1.4	ug/L	278	Standard
|	Ba	135	55031.8	1.1	48.8998	0.932	1.9	ug/L	48	Standard
|	Ce	140	163.3	11.6				ug/L	30	Standard
>	Tb	159	661889.0	1.7				ug/L	683588	Standard
|	Ho	165	3.3	86.6				ug/L	5	Standard
|	Tl	203	266244.6	0.4	50.0015	1.221	2.4	ug/L	251	Standard
|	Tl	205	642319.1	0.3	50.1623	1.038	2.1	ug/L	568	Standard
|	Pb	206	209966.2	0.6	50.2128	0.995	2.0	ug/L	334	Standard
|	Pb	207	189545.0	1.1	50.1074	0.735	1.5	ug/L	300	Standard
|	Pb	208	234023.0	0.3	50.0177	1.108	2.2	ug/L	368	Standard
	U	238	198814.6	0.5	51.9268	1.344	2.6	ug/L	4	Standard
>	Bi	209	424126.6	2.1				ug/L	431904	Standard

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Na	23	6.7	86.6	4.8427	7.994	165.1	mg/L	0	Standard
Mg	24	176.7	9.1	4.2524	0.542	12.7	mg/L	25	Standard
K	39	313.3	3.3	4.0152	0.329	8.2	mg/L	17	Standard
Ca	43	75.0	11.5	6.8923	1.823	26.5	mg/L	58	Standard
Fe	54	545.9	9.1	4.9197	0.228	4.6	mg/L	23	Standard
Fe	57	393.3	11.0	4.8132	0.856	17.8	mg/L	255	Standard
Sc-1	45	22381.5	4.6				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	3.3	45.8				ug/L	3	Standard
Br	81	1616.8	2.9				ug/L	1807	Standard
P	31	41.7	6.9				ug/L	32	Standard
S	34	11.7	24.7				ug/L	8	Standard
Sr	88	118.3	8.8				ug/L	143	Standard
C	12	30.0	57.7				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	3	Standard
Dy	164	9.5	105.0				mg/L	16	Standard
Ho-1	165	3.3	86.6				mg/L	5	Standard
Er	166	10.0					mg/L	7	Standard
I	127	2431.9	8.7				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	98.942		
Al	27	99.756		
Sc	45			
Ti	47	101.234		
V	51	99.158		
Cr	52	98.948		
Cr	53			
Mn	55	99.791		
Co	59	99.208		
Ni	60	99.764		
Cu	65	99.730		
Zn	66	99.747		
Ge	72		94.661	
As	75	98.151		
Se	82	101.069		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	99.734	
[Ag	107	99.149	
[Cd	111	99.718	
[Cd	114		
>	In	115		95.332
[Sn	118	100.452	
[	Sb	123	101.051	
[	Ba	135	97.800	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	100.003	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	100.035	
[	U	238	103.854	
>	Bi	209		98.199
[	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: Thursday, April 06, 2017 10:45:48

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	177363.0	3.8				ug/L	187001	Standard
|	Be	9	41.7	36.7	0.0040	0.010	253.6	ug/L	17	Standard
|	Al	27	1228.4	2.5	0.0076	0.000	5.6	ug/L	1055	Standard
|	Sc	45	22142.8	3.4				ug/L	23084	Standard
|	Ti	47	23.0	21.7	0.0324	0.043	131.5	ug/L	24	Standard
|	V	51	744.9	4.8	-0.0132	0.002	17.8	ug/L	975	Standard
|	Cr	52	3488.7	3.6	-0.1830	0.014	7.7	ug/L	4542	Standard
|	Cr	53	463.3	5.1	-0.1993	0.076	38.2	ug/L	657	Standard
|	Mn	55	1754.1	1.9	0.0125	0.005	39.2	ug/L	1886	Standard
|	Co	59	259.3	4.2	-0.0099	0.003	32.4	ug/L	343	Standard
|	Ni	60	111.7	15.2	-0.0141	0.014	99.9	ug/L	120	Standard
|	Cu	65	400.0	5.3	0.0334	0.016	46.9	ug/L	405	Standard
|	Zn	66	405.0	6.1	0.2101	0.015	7.0	ug/L	263	Standard
>	Ge	72	494463.8	3.5				ug/L	524310	Standard
|	As	75	-7.7	601.8	0.0193	0.057	297.4	ug/L	4	Standard
|	Se	82	11.8	64.9	0.0187	0.111	594.3	ug/L	16	Standard
|	Se-1	77	68.3	3.7	-0.3498	0.003	0.8	ug/L	97	Standard
>	Ga	71	16.7	45.8				mg/L	23	Standard
|	Rb	85	31.7	18.2				ug/L	35	Standard
|	Y	89	350310.6	2.9				ug/L	364600	Standard
>	Rh	103	11.7	24.7				ug/L	10	Standard
|	Mo	98	151.5	16.6	0.0428	0.009	21.2	ug/L	45	Standard
|	Ag	107	99.0	16.0	0.0002	0.004	2173.1	ug/L	86	Standard
|	Cd	111	5.5	64.6	0.0037	0.003	90.0	mg/L	4	Standard
|	Cd	114	32.6	38.0	-0.0046	0.005	101.8	ug/L	25	Standard
>	In	115	396096.6	2.9				ug/L	418958	Standard
|	Sn	118	150.7	10.0	0.0407	0.028	68.1	ug/L	139	Standard
|	Sb	123	809.9	46.8	0.2309	0.134	57.8	ug/L	278	Standard
|	Ba	135	45.3	25.8	-0.0019	0.010	528.8	ug/L	48	Standard
|	Ce	140	18.3	83.3				ug/L	30	Standard
>	Tb	159	658289.6	2.7				ug/L	683588	Standard
|	Ho	165	8.3	91.7				ug/L	5	Standard
|	Tl	203	216.3	1.5	-0.0011	0.000	12.0	ug/L	251	Standard
|	Tl	205	488.3	12.5	-0.0079	0.005	64.7	ug/L	568	Standard
|	Pb	206	394.0	4.2	0.0099	0.005	53.6	ug/L	334	Standard
|	Pb	207	363.3	4.2	0.0172	0.003	15.6	ug/L	300	Standard
|	Pb	208	452.3	4.8	0.0197	0.006	30.7	ug/L	368	Standard
	U	238	23.0	45.8	0.0052	0.003	54.7	ug/L	4	Standard
>	Bi	209	425669.8	1.5				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	23.3	32.7	0.1537	0.187	121.8	mg/L	25	Standard
K	39	15.0	33.3	-0.1208	0.074	61.6	mg/L	17	Standard
Ca	43	48.3	11.9	2.0751	0.778	37.5	mg/L	58	Standard
Fe	54	14.7	67.2	-0.0069	0.088	1274.8	mg/L	23	Standard
Fe	57	213.3	16.6	-0.2327	0.946	406.4	mg/L	255	Standard
Sc-1	45	22142.8	3.4				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.3	49.5				ug/L	3	Standard
Br	81	1693.4	10.5				ug/L	1807	Standard
P	31	36.7	55.1				ug/L	32	Standard
S	34	5.0	0.0				ug/L	8	Standard
Sr	88	125.0	16.0				ug/L	143	Standard
C	12	33.3	45.8				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	3	Standard
Dy	164	-0.2	173.2				mg/L	16	Standard
Ho-1	165	8.3	91.7				mg/L	5	Standard
Er	166	3.3	173.2				mg/L	7	Standard
I	127	2478.5	5.2				mg/L	2930	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		94.308	
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	94.543
[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	98.557
[	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

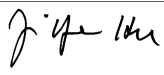
Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Sb	123	

Sample ID: QC Std 7

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Method 6020 - Summary Report

Sample ID: PBW A6 WG608839-02

Sample Date/Time: Thursday, April 06, 2017 10:50:07

Number of Replicates: 3

Autosampler Position: 205

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	178629.1	3.0				ug/L	187001	Standard
|	Be	9	18.3	41.7	-0.0119	0.005	42.0	ug/L	17	Standard
|	Al	27	1298.4	4.8	0.0083	0.001	9.6	ug/L	1055	Standard
|	Sc	45	22107.8	1.0				ug/L	23084	Standard
|	Ti	47	20.7	29.6	0.0104	0.052	493.8	ug/L	24	Standard
|	V	51	759.4	6.5	-0.0105	0.012	113.3	ug/L	975	Standard
|	Cr	52	3840.5	3.4	-0.0960	0.019	19.6	ug/L	4542	Standard
|	Cr	53	470.0	2.1	-0.1921	0.015	7.9	ug/L	657	Standard
|	Mn	55	1398.1	1.9	-0.0428	0.001	3.1	ug/L	1886	Standard
|	Co	59	262.0	1.0	-0.0097	0.000	4.5	ug/L	343	Standard
|	Ni	60	119.3	11.2	-0.0077	0.013	167.8	ug/L	120	Standard
|	Cu	65	398.0	7.6	0.0298	0.021	70.5	ug/L	405	Standard
|	Zn	66	874.4	5.2	0.8332	0.053	6.4	ug/L	263	Standard
>	Ge	72	496961.5	1.6				ug/L	524310	Standard
|	As	75	-17.7	266.4	0.0062	0.059	959.2	ug/L	4	Standard
|	Se	82	12.0	33.0	0.0191	0.057	296.8	ug/L	16	Standard
|	Se-1	77	93.7	14.2	0.1443	0.242	167.9	ug/L	97	Standard
>	Ga	71	16.7	17.3				mg/L	23	Standard
|	Rb	85	25.0	40.0				ug/L	35	Standard
|	Y	89	344531.1	2.3				ug/L	364600	Standard
>	Rh	103	3.3	86.6				ug/L	10	Standard
|	Mo	98	58.5	22.3	0.0053	0.005	103.5	ug/L	45	Standard
|	Ag	107	77.7	20.7	-0.0051	0.004	70.7	ug/L	86	Standard
|	Cd	111	4.6	45.4	0.0028	0.002	69.2	mg/L	4	Standard
|	Cd	114	28.1	19.6	-0.0062	0.002	33.7	ug/L	25	Standard
>	In	115	395480.0	2.2				ug/L	418958	Standard
|	Sn	118	133.7	8.0	0.0141	0.020	141.8	ug/L	139	Standard
|	Sb	123	374.3	38.8	0.0856	0.051	59.5	ug/L	278	Standard
|	Ba	135	45.3	17.1	-0.0019	0.006	316.9	ug/L	48	Standard
|	Ce	140	21.7	13.3				ug/L	30	Standard
>	Tb	159	660533.7	1.1				ug/L	683588	Standard
|	Ho	165	5.0	0.0				ug/L	5	Standard
|	Tl	203	162.0	3.3	-0.0112	0.001	6.5	ug/L	251	Standard
|	Tl	205	353.3	3.3	-0.0184	0.001	5.9	ug/L	568	Standard
|	Pb	206	325.7	4.3	-0.0063	0.002	32.3	ug/L	334	Standard
|	Pb	207	285.7	3.0	-0.0030	0.001	45.4	ug/L	300	Standard
|	Pb	208	369.3	3.3	0.0022	0.003	154.3	ug/L	368	Standard
	U	238	5.0	52.9	0.0005	0.001	147.6	ug/L	4	Standard
>	Bi	209	424325.9	1.8				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	31.7	36.5	0.3853	0.320	83.0	mg/L	25	Standard
K	39	8.3	91.7	-0.2153	0.106	49.3	mg/L	17	Standard
Ca	43	41.7	36.7	0.8635	2.777	321.6	mg/L	58	Standard
Fe	54	18.0	30.6	0.0256	0.053	207.5	mg/L	23	Standard
Fe	57	220.0	8.2	-0.0263	0.462	1758.8	mg/L	255	Standard
Sc-1	45	22107.8	1.0				mg/L	23084	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	3.0	88.2				ug/L	3	Standard
Br	81	1906.8	13.4				ug/L	1807	Standard
P	31	51.7	24.4				ug/L	32	Standard
S	34	8.3	34.6				ug/L	8	Standard
Sr	88	145.0	11.9				ug/L	143	Standard
C	12	33.3	45.8				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	9.2	6.0				mg/L	16	Standard
Ho-1	165	5.0	0.0				mg/L	5	Standard
Er	166	16.7	69.3				mg/L	7	Standard
I	127	3037.0	4.0				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		95.523	
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		94.784	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: PBW A6 WG608839-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	94.396
[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	98.245
[	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: PBW A6 WG608839-02

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Method 6020 - Summary Report

Sample ID: LCSW A6 WG608839-03

Sample Date/Time: Thursday, April 06, 2017 10:53:12

Number of Replicates: 3

Autosampler Position: 206

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	184722.8	1.8				ug/L	187001	Standard
|	Be	9	75259.8	0.3	48.8366	0.727	1.5	ug/L	17	Standard
|	Al	27	6539.9	42.1	0.0693	0.031	44.9	ug/L	1055	Standard
|	Sc	45	22398.2	1.9				ug/L	23084	Standard
|	Ti	47	32.7	12.7	0.1154	0.035	30.4	ug/L	24	Standard
|	V	51	205178.5	0.3	49.6146	0.571	1.2	ug/L	975	Standard
|	Cr	52	198283.4	0.8	50.3160	0.500	1.0	ug/L	4542	Standard
|	Cr	53	25680.1	0.8	50.5809	1.147	2.3	ug/L	657	Standard
|	Mn	55	338064.8	1.0	50.4809	0.359	0.7	ug/L	1886	Standard
|	Co	59	274652.7	0.7	50.6804	0.506	1.0	ug/L	343	Standard
|	Ni	60	59662.2	1.1	51.5664	0.224	0.4	ug/L	120	Standard
|	Cu	65	62938.1	0.8	51.3011	0.383	0.7	ug/L	405	Standard
|	Zn	66	38359.8	1.0	50.4530	0.221	0.4	ug/L	263	Standard
>	Ge	72	500403.5	1.5				ug/L	524310	Standard
|	As	75	40088.7	1.1	49.7242	0.223	0.4	ug/L	4	Standard
|	Se	82	3776.3	2.0	50.9792	0.663	1.3	ug/L	16	Standard
|	Se-1	77	2621.2	0.5	49.9326	0.542	1.1	ug/L	97	Standard
>	Ga	71	40.0	25.0				mg/L	23	Standard
|	Rb	85	46.7	55.0				ug/L	35	Standard
|	Y	89	352205.3	1.2				ug/L	364600	Standard
>	Rh	103	16.7	45.8				ug/L	10	Standard
|	Mo	98	101.1	86.4	0.0218	0.034	157.7	ug/L	45	Standard
|	Ag	107	204780.7	1.2	49.6601	0.579	1.2	ug/L	86	Standard
|	Cd	111	57595.8	0.6	51.0056	0.620	1.2	mg/L	4	Standard
|	Cd	114	144550.8	1.8	49.8023	0.599	1.2	ug/L	25	Standard
>	In	115	400694.8	1.5				ug/L	418958	Standard
|	Sn	118	210.7	6.0	0.1309	0.015	11.3	ug/L	139	Standard
|	Sb	123	150073.7	1.4	48.9229	0.201	0.4	ug/L	278	Standard
|	Ba	135	56296.1	0.5	49.8606	0.776	1.6	ug/L	48	Standard
|	Ce	140	73.3	27.6				ug/L	30	Standard
>	Tb	159	665884.7	2.0				ug/L	683588	Standard
|	Ho	165	15.0	0.0				ug/L	5	Standard
|	Tl	203	279528.8	1.0	51.7800	0.095	0.2	ug/L	251	Standard
|	Tl	205	671740.1	0.8	51.7480	0.282	0.5	ug/L	568	Standard
|	Pb	206	219375.8	1.0	51.7531	0.378	0.7	ug/L	334	Standard
|	Pb	207	189660.7	0.3	49.4616	0.353	0.7	ug/L	300	Standard
|	Pb	208	238847.2	0.4	50.3576	0.707	1.4	ug/L	368	Standard
	U	238	195316.5	0.5	50.3189	0.681	1.4	ug/L	4	Standard
>	Bi	209	429858.4	1.0				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	36.7	20.8	0.5083	0.222	43.6	mg/L	25	Standard
K	39	18.3	87.7	-0.0806	0.220	272.3	mg/L	17	Standard
Ca	43	60.0	52.0	4.1174	5.650	137.2	mg/L	58	Standard
Fe	54	14.9	78.9	-0.0061	0.108	1765.3	mg/L	23	Standard
Fe	57	228.3	12.6	0.1225	0.708	578.0	mg/L	255	Standard
Sc-1	45	22398.2	1.9				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	0.3	173.2				ug/L	3	Standard
Br	81	1743.4	5.3				ug/L	1807	Standard
P	31	40.0	25.0				ug/L	32	Standard
S	34	3.3	173.2				ug/L	8	Standard
Sr	88	120.0	23.2				ug/L	143	Standard
C	12	16.7	69.3				mg/L	33	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	6.3	99.7				mg/L	16	Standard
Ho-1	165	15.0	0.0				mg/L	5	Standard
Er	166	6.7	173.2				mg/L	7	Standard
I	127	7591.9	2.2				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.782	
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		95.440	
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	95.641
[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	99.526
[	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 A6 WG608839-03

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Method 6020 - Summary Report

Sample ID: L1704012313 WG608839-01

Sample Date/Time: Thursday, April 06, 2017 10:56:18

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	184658.6	1.3				ug/L	187001	Standard
|	Be	9	50.0	26.5	0.0084	0.009	107.0	ug/L	17	Standard
|	Al	27	334677.6	0.1	3.9378	0.049	1.2	ug/L	1055	Standard
|	Sc	45	23346.3	4.2				ug/L	23084	Standard
|	Ti	47	159.3	14.5	1.2038	0.214	17.8	ug/L	24	Standard
|	V	51	1309.4	9.7	0.1153	0.033	28.9	ug/L	975	Standard
|	Cr	52	5771.1	0.8	0.3669	0.013	3.6	ug/L	4542	Standard
|	Cr	53	816.7	6.9	0.4645	0.090	19.5	ug/L	657	Standard
|	Mn	55	29548.5	1.0	4.0889	0.098	2.4	ug/L	1886	Standard
|	Co	59	585.0	4.1	0.0474	0.004	8.6	ug/L	343	Standard
|	Ni	60	608.3	6.8	0.4038	0.026	6.4	ug/L	120	Standard
|	Cu	65	839.4	2.7	0.3752	0.015	4.0	ug/L	405	Standard
|	Zn	66	1326.7	4.0	1.3874	0.050	3.6	ug/L	263	Standard
>	Ge	72	511044.5	1.7				ug/L	524310	Standard
|	As	75	65.5	7.1	0.1072	0.005	4.4	ug/L	4	Standard
|	Se	82	20.5	14.4	0.1279	0.043	33.3	ug/L	16	Standard
|	Se-1	77	80.7	10.5	-0.1560	0.165	105.6	ug/L	97	Standard
>	Ga	71	76.7	10.0				mg/L	23	Standard
|	Rb	85	1825.1	6.3				ug/L	35	Standard
|	Y	89	361402.8	0.6				ug/L	364600	Standard
>	Rh	103	10.0	50.0				ug/L	10	Standard
|	Mo	98	67.6	17.2	0.0083	0.005	57.0	ug/L	45	Standard
|	Ag	107	135.3	3.4	0.0084	0.001	11.1	ug/L	86	Standard
|	Cd	111	15.9	50.2	0.0126	0.007	55.4	mg/L	4	Standard
|	Cd	114	87.8	38.4	0.0139	0.011	81.8	ug/L	25	Standard
>	In	115	404840.3	0.8				ug/L	418958	Standard
|	Sn	118	206.0	7.2	0.1206	0.025	20.8	ug/L	139	Standard
|	Sb	123	1900.0	39.6	0.5759	0.248	43.1	ug/L	278	Standard
|	Ba	135	4560.0	1.8	3.9575	0.049	1.2	ug/L	48	Standard
|	Ce	140	2336.8	2.0				ug/L	30	Standard
>	Tb	159	676336.1	0.7				ug/L	683588	Standard
|	Ho	165	65.0	50.4				ug/L	5	Standard
|	Tl	203	299.3	15.3	0.0129	0.009	71.0	ug/L	251	Standard
|	Tl	205	790.0	7.9	0.0139	0.006	41.2	ug/L	568	Standard
|	Pb	206	595.3	2.0	0.0539	0.004	8.2	ug/L	334	Standard
|	Pb	207	523.0	2.4	0.0555	0.002	4.4	ug/L	300	Standard
|	Pb	208	620.7	8.0	0.0518	0.010	19.0	ug/L	368	Standard
	U	238	101.0	14.8	0.0247	0.004	17.0	ug/L	4	Standard
>	Bi	209	437949.6	1.6				ug/L	431904	Standard

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Na	23	3.3	173.2	0.0342	7.655	22414.2	mg/L	0	Standard
Mg	24	60.0	36.3	1.0735	0.600	55.9	mg/L	25	Standard
K	39	15.0	66.7	-0.1322	0.136	103.0	mg/L	17	Standard
Ca	43	45.0	50.9	1.1598	4.243	365.8	mg/L	58	Standard
Fe	54	33.1	17.3	0.1522	0.059	38.6	mg/L	23	Standard
Fe	57	256.7	18.9	0.6551	1.435	219.1	mg/L	255	Standard
Sc-1	45	23346.3	4.2				mg/L	23084	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	2.3	65.5				ug/L	3	Standard
Br	81	3873.8	2.3				ug/L	1807	Standard
P	31	28.3	36.7				ug/L	32	Standard
S	34	6.7	43.3				ug/L	8	Standard
Sr	88	118.3	28.1				ug/L	143	Standard
C	12	43.3	13.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	3	Standard
Dy	164	113.3	22.1				mg/L	16	Standard
Ho-1	165	65.0	50.4				mg/L	5	Standard
Er	166	70.0	49.5				mg/L	7	Standard
I	127	11027.3	2.3				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.748	
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		97.470	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704012313 WG608839-01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	96.630
[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	101.400
[	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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Sample ID: L1704012313 WG608839-01

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Method 6020 - Summary Report

Sample ID: L1704012314S WG608839-04

Sample Date/Time: Thursday, April 06, 2017 10:59:22

Number of Replicates: 3

Autosampler Position: 208

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	184886.7	2.7				ug/L	187001	Standard
|	Be	9	77960.1	0.4	50.5639	1.565	3.1	ug/L	17	Standard
|	Al	27	362087.1	0.3	4.2574	0.124	2.9	ug/L	1055	Standard
|	Sc	45	23746.9	2.4				ug/L	23084	Standard
|	Ti	47	154.3	6.7	1.1465	0.093	8.1	ug/L	24	Standard
|	V	51	213260.7	0.3	50.0002	0.447	0.9	ug/L	975	Standard
|	Cr	52	205118.8	0.1	50.4707	0.479	0.9	ug/L	4542	Standard
|	Cr	53	26214.3	0.5	50.0442	0.553	1.1	ug/L	657	Standard
|	Mn	55	377501.6	0.3	54.6773	0.426	0.8	ug/L	1886	Standard
|	Co	59	282915.3	0.5	50.6176	0.619	1.2	ug/L	343	Standard
|	Ni	60	61077.5	0.6	51.1872	0.751	1.5	ug/L	120	Standard
|	Cu	65	65349.6	0.2	51.6494	0.524	1.0	ug/L	405	Standard
|	Zn	66	40173.5	0.7	51.2390	0.647	1.3	ug/L	263	Standard
>	Ge	72	516086.3	0.9				ug/L	524310	Standard
|	As	75	42600.0	0.3	51.2330	0.425	0.8	ug/L	4	Standard
|	Se	82	3917.8	1.0	51.2885	0.944	1.8	ug/L	16	Standard
|	Se-1	77	2761.9	3.2	51.0491	1.814	3.6	ug/L	97	Standard
>	Ga	71	80.0	21.7				mg/L	23	Standard
|	Rb	85	1828.4	6.5				ug/L	35	Standard
|	Y	89	362016.0	1.4				ug/L	364600	Standard
>	Rh	103	15.0	33.3				ug/L	10	Standard
|	Mo	98	88.7	13.7	0.0161	0.005	32.2	ug/L	45	Standard
|	Ag	107	208492.7	0.7	49.1122	0.539	1.1	ug/L	86	Standard
|	Cd	111	59451.0	0.9	51.1452	1.171	2.3	mg/L	4	Standard
|	Cd	114	148181.6	0.9	49.6007	1.146	2.3	ug/L	25	Standard
>	In	115	412515.1	1.5				ug/L	418958	Standard
|	Sn	118	233.3	8.3	0.1563	0.034	21.9	ug/L	139	Standard
|	Sb	123	154701.6	0.3	48.9943	0.860	1.8	ug/L	278	Standard
|	Ba	135	61562.2	1.0	52.9696	1.284	2.4	ug/L	48	Standard
|	Ce	140	2346.8	3.9				ug/L	30	Standard
>	Tb	159	687424.5	1.1				ug/L	683588	Standard
|	Ho	165	56.7	10.2				ug/L	5	Standard
|	Tl	203	283312.4	1.6	51.4446	1.231	2.4	ug/L	251	Standard
|	Tl	205	681555.7	1.5	51.4636	1.001	1.9	ug/L	568	Standard
|	Pb	206	223250.5	2.0	51.6279	1.473	2.9	ug/L	334	Standard
|	Pb	207	193866.6	1.7	49.5590	1.258	2.5	ug/L	300	Standard
|	Pb	208	244958.3	1.1	50.6213	0.983	1.9	ug/L	368	Standard
	U	238	198864.3	0.9	50.2158	0.877	1.7	ug/L	4	Standard
>	Bi	209	438572.5	0.9				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	56.7	25.5	0.9487	0.339	35.7	mg/L	25	Standard
K	39	20.0	25.0	-0.0699	0.068	97.0	mg/L	17	Standard
Ca	43	60.0	25.0	3.4782	2.437	70.1	mg/L	58	Standard
Fe	54	36.1	15.8	0.1731	0.057	33.2	mg/L	23	Standard
Fe	57	231.7	11.1	-0.1424	0.739	519.1	mg/L	255	Standard
Sc-1	45	23746.9	2.4				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	2.7	78.1				ug/L	3	Standard
Br	81	6871.6	8.7				ug/L	1807	Standard
P	31	33.3	17.3				ug/L	32	Standard
S	34	10.0	50.0				ug/L	8	Standard
Sr	88	138.3	29.0				ug/L	143	Standard
C	12	20.0	100.0				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	57.4	63.2				mg/L	16	Standard
Ho-1	165	56.7	10.2				mg/L	5	Standard
Er	166	53.3	10.8				mg/L	7	Standard
I	127	11707.9	6.1				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.870	
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		98.431	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704012314S WG608839-04

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	98.462
[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	101.544
[	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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Sample ID: L1704012314S WG608839-04

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Method 6020 - Summary Report

Sample ID: L1704012315SD WG608839-05

Sample Date/Time: Thursday, April 06, 2017 11:02:28

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	183678.4	1.1				ug/L	187001	Standard
|	Be	9	78047.2	1.8	50.9337	1.325	2.6	ug/L	17	Standard
|	Al	27	353737.5	1.8	4.1842	0.048	1.1	ug/L	1055	Standard
|	Sc	45	24014.0	1.6				ug/L	23084	Standard
|	Ti	47	151.3	10.9	1.1284	0.148	13.1	ug/L	24	Standard
|	V	51	215163.2	0.5	50.7332	0.525	1.0	ug/L	975	Standard
|	Cr	52	205271.2	0.7	50.8000	0.658	1.3	ug/L	4542	Standard
|	Cr	53	26297.8	0.6	50.4944	0.210	0.4	ug/L	657	Standard
|	Mn	55	375429.5	0.6	54.6842	0.644	1.2	ug/L	1886	Standard
|	Co	59	282530.9	0.7	50.8334	0.639	1.3	ug/L	343	Standard
|	Ni	60	61190.0	0.5	51.5692	0.516	1.0	ug/L	120	Standard
|	Cu	65	65767.4	0.4	52.2755	0.507	1.0	ug/L	405	Standard
|	Zn	66	40883.4	1.0	52.4451	0.706	1.3	ug/L	263	Standard
>	Ge	72	513189.8	0.6				ug/L	524310	Standard
|	As	75	42576.1	0.8	51.4907	0.180	0.3	ug/L	4	Standard
|	Se	82	3939.3	0.2	51.8582	0.205	0.4	ug/L	16	Standard
|	Se-1	77	2748.6	1.9	51.0906	1.207	2.4	ug/L	97	Standard
>	Ga	71	80.0	16.5				mg/L	23	Standard
|	Rb	85	1793.4	7.8				ug/L	35	Standard
|	Y	89	368117.2	1.5				ug/L	364600	Standard
>	Rh	103	15.0	33.3				ug/L	10	Standard
|	Mo	98	79.3	7.9	0.0126	0.003	22.0	ug/L	45	Standard
|	Ag	107	209213.2	0.7	49.5771	0.872	1.8	ug/L	86	Standard
|	Cd	111	59290.7	0.3	51.3038	0.569	1.1	mg/L	4	Standard
|	Cd	114	147928.4	1.0	49.8065	1.004	2.0	ug/L	25	Standard
>	In	115	410071.8	1.0				ug/L	418958	Standard
|	Sn	118	197.3	6.8	0.1032	0.020	19.2	ug/L	139	Standard
|	Sb	123	154629.7	0.8	49.2578	0.554	1.1	ug/L	278	Standard
|	Ba	135	61887.5	1.0	53.5552	0.331	0.6	ug/L	48	Standard
|	Ce	140	2178.5	5.5				ug/L	30	Standard
>	Tb	159	684314.0	1.4				ug/L	683588	Standard
|	Ho	165	68.3	8.4				ug/L	5	Standard
|	Tl	203	284538.9	0.2	51.6827	0.207	0.4	ug/L	251	Standard
|	Tl	205	681567.5	0.4	51.4829	0.367	0.7	ug/L	568	Standard
|	Pb	206	224486.5	0.9	51.9282	0.543	1.0	ug/L	334	Standard
|	Pb	207	195060.0	1.1	49.8776	0.442	0.9	ug/L	300	Standard
|	Pb	208	245604.5	1.1	50.7714	0.640	1.3	ug/L	368	Standard
	U	238	199825.8	1.0	50.4748	0.544	1.1	ug/L	4	Standard
>	Bi	209	438391.8	0.5				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	53.3	37.9	0.8577	0.519	60.6	mg/L	25	Standard
K	39	25.0	52.9	-0.0092	0.169	1829.7	mg/L	17	Standard
Ca	43	48.3	15.8	1.3920	1.253	90.0	mg/L	58	Standard
Fe	54	30.7	34.2	0.1216	0.087	71.5	mg/L	23	Standard
Fe	57	246.7	11.2	0.1772	0.671	378.6	mg/L	255	Standard
Sc-1	45	24014.0	1.6				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.0	0.0				ug/L	3	Standard
Br	81	2480.2	7.3				ug/L	1807	Standard
P	31	41.7	38.6				ug/L	32	Standard
S	34	15.0	88.2				ug/L	8	Standard
Sr	88	123.3	18.7				ug/L	143	Standard
C	12	33.3	124.9				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	3	Standard
Dy	164	64.1	44.7				mg/L	16	Standard
Ho-1	165	68.3	8.4				mg/L	5	Standard
Er	166	53.3	57.3				mg/L	7	Standard
I	127	13099.0	4.0				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.223	
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		97.879	
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	97.879
[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	101.502
[	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

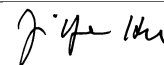
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: L1704001901

Sample Date/Time: Thursday, April 06, 2017 11:05:34

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	191970.2	0.8				ug/L	187001	Standard
|	Be	9	201.7	36.1	0.1016	0.045	44.1	ug/L	17	Standard
|	Al	27	716763.8	0.3	8.1198	0.093	1.1	ug/L	1055	Standard
|	Sc	45	24466.4	3.0				ug/L	23084	Standard
|	Ti	47	1030.4	5.1	8.4059	0.355	4.2	ug/L	24	Standard
|	V	51	6339.3	3.4	1.2583	0.056	4.4	ug/L	975	Standard
|	Cr	52	10645.4	0.2	1.5101	0.022	1.5	ug/L	4542	Standard
|	Cr	53	1426.7	2.8	1.5699	0.063	4.0	ug/L	657	Standard
|	Mn	55	473662.2	0.9	66.9223	0.575	0.9	ug/L	1886	Standard
|	Co	59	11590.4	0.9	1.9649	0.009	0.5	ug/L	343	Standard
|	Ni	60	2417.2	1.9	1.8666	0.018	0.9	ug/L	120	Standard
|	Cu	65	14313.8	0.7	10.7910	0.042	0.4	ug/L	405	Standard
|	Zn	66	19354.7	1.4	23.8833	0.345	1.4	ug/L	263	Standard
>	Ge	72	529505.8	1.0				ug/L	524310	Standard
|	As	75	450.0	10.9	0.5552	0.062	11.2	ug/L	4	Standard
|	Se	82	124.5	5.2	1.4487	0.089	6.2	ug/L	16	Standard
|	Se-1	77	93.3	10.0	0.0255	0.171	669.5	ug/L	97	Standard
>	Ga	71	648.3	7.7				mg/L	23	Standard
|	Rb	85	22606.9	2.7				ug/L	35	Standard
|	Y	89	385918.9	1.7				ug/L	364600	Standard
>	Rh	103	21.7	26.6				ug/L	10	Standard
|	Mo	98	511.0	9.1	0.1755	0.022	12.3	ug/L	45	Standard
|	Ag	107	165.0	45.5	0.0140	0.018	129.5	ug/L	86	Standard
|	Cd	111	134.3	14.8	0.1115	0.019	17.1	mg/L	4	Standard
|	Cd	114	1746.1	2.5	0.5538	0.025	4.4	ug/L	25	Standard
>	In	115	423398.0	2.0				ug/L	418958	Standard
|	Sn	118	11086.4	2.1	16.1402	0.187	1.2	ug/L	139	Standard
|	Sb	123	2687.7	31.6	0.7946	0.281	35.3	ug/L	278	Standard
|	Ba	135	16148.3	1.2	13.5037	0.101	0.7	ug/L	48	Standard
|	Ce	140	45519.9	0.7				ug/L	30	Standard
>	Tb	159	705013.4	1.9				ug/L	683588	Standard
|	Ho	165	811.7	9.0				ug/L	5	Standard
|	Tl	203	458.0	19.1	0.0396	0.016	39.6	ug/L	251	Standard
|	Tl	205	1106.7	14.8	0.0356	0.012	34.2	ug/L	568	Standard
|	Pb	206	4938.1	1.3	1.0314	0.016	1.5	ug/L	334	Standard
|	Pb	207	4109.2	1.9	0.9475	0.018	1.9	ug/L	300	Standard
|	Pb	208	5271.0	1.6	0.9872	0.017	1.7	ug/L	368	Standard
	U	238	303.0	11.0	0.0738	0.008	11.4	ug/L	4	Standard
>	Bi	209	449608.0	0.2				ug/L	431904	Standard

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Na	23	6.7	114.6	3.9995	9.784	244.6	mg/L	0	Standard
Mg	24	103.3	7.4	2.0512	0.194	9.5	mg/L	25	Standard
K	39	150.0	12.0	1.5651	0.186	11.9	mg/L	17	Standard
Ca	43	56.7	27.0	2.5986	2.364	91.0	mg/L	58	Standard
Fe	54	103.0	5.4	0.7310	0.034	4.6	mg/L	23	Standard
Fe	57	273.3	11.0	0.7518	0.723	96.1	mg/L	255	Standard
Sc-1	45	24466.4	3.0				mg/L	23084	Standard
Cl	35	4.0	86.6				ug/L	1	Standard
Kr	83	2.0	50.0				ug/L	3	Standard
Br	81	61742.3	3.4				ug/L	1807	Standard
P	31	63.3	4.6				ug/L	32	Standard
S	34	13.3	43.3				ug/L	8	Standard
Sr	88	135.0	33.3				ug/L	143	Standard
C	12	63.3	39.7				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	180.0	19.2				mg/L	3	Standard
Dy	164	1256.2	7.8				mg/L	16	Standard
Ho-1	165	811.7	9.0				mg/L	5	Standard
Er	166	706.7	2.9				mg/L	7	Standard
I	127	367037.2	7.6				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.657	
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		100.991	
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	101.060
[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	104.099
[	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: L1704001902

Sample Date/Time: Thursday, April 06, 2017 11:08:39

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	188104.2	2.4				ug/L	187001	Standard
|	Be	9	308.3	13.0	0.1722	0.023	13.2	ug/L	17	Standard
|	Al	27	1227715.3	1.7	14.2002	0.106	0.7	ug/L	1055	Standard
|	Sc	45	23326.3	1.7				ug/L	23084	Standard
|	Ti	47	430.3	4.3	3.5134	0.137	3.9	ug/L	24	Standard
|	V	51	1769.4	7.5	0.2214	0.032	14.4	ug/L	975	Standard
|	Cr	52	7074.0	2.8	0.6843	0.037	5.4	ug/L	4542	Standard
|	Cr	53	1818.4	1.7	2.4146	0.052	2.2	ug/L	657	Standard
|	Mn	55	7206162.3	0.9	1050.9817	5.296	0.5	ug/L	1886	Standard
|	Co	59	204101.9	0.8	36.5923	0.231	0.6	ug/L	343	Standard
|	Ni	60	6370.0	0.9	5.2515	0.016	0.3	ug/L	120	Standard
|	Cu	65	2390.2	3.2	1.6060	0.047	2.9	ug/L	405	Standard
|	Zn	66	7005.3	2.5	8.6825	0.174	2.0	ug/L	263	Standard
>	Ge	72	514764.7	0.7				ug/L	524310	Standard
|	As	75	124.2	13.7	0.1773	0.020	11.3	ug/L	4	Standard
|	Se	82	65.1	0.5	0.7126	0.004	0.5	ug/L	16	Standard
|	Se-1	77	163.3	2.2	1.4161	0.080	5.6	ug/L	97	Standard
>	Ga	71	166.7	17.1				mg/L	23	Standard
|	Rb	85	64781.6	1.9				ug/L	35	Standard
|	Y	89	372782.6	1.6				ug/L	364600	Standard
>	Rh	103	20.0	43.3				ug/L	10	Standard
|	Mo	98	121.0	20.6	0.0290	0.010	33.9	ug/L	45	Standard
|	Ag	107	87.7	8.4	-0.0033	0.002	55.7	ug/L	86	Standard
|	Cd	111	162.5	1.3	0.1396	0.003	1.9	mg/L	4	Standard
|	Cd	114	676.0	3.2	0.2120	0.006	2.7	ug/L	25	Standard
>	In	115	409275.2	0.7				ug/L	418958	Standard
|	Sn	118	3318.7	1.2	4.8622	0.055	1.1	ug/L	139	Standard
|	Sb	123	654.8	31.0	0.1704	0.066	38.5	ug/L	278	Standard
|	Ba	135	56446.0	1.8	48.9367	0.757	1.5	ug/L	48	Standard
|	Ce	140	15429.5	3.1				ug/L	30	Standard
>	Tb	159	683744.9	1.0				ug/L	683588	Standard
|	Ho	165	518.3	6.2				ug/L	5	Standard
|	Tl	203	1296.1	2.3	0.1967	0.008	3.9	ug/L	251	Standard
|	Tl	205	3178.7	8.3	0.1970	0.020	10.0	ug/L	568	Standard
|	Pb	206	1443.4	0.2	0.2540	0.004	1.6	ug/L	334	Standard
|	Pb	207	1163.0	5.7	0.2226	0.016	7.0	ug/L	300	Standard
|	Pb	208	1527.7	1.5	0.2430	0.003	1.2	ug/L	368	Standard
	U	238	123.0	2.9	0.0306	0.001	4.2	ug/L	4	Standard
>	Bi	209	433493.7	1.2				ug/L	431904	Standard

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Na	23	8.3	124.9	6.3946	13.374	209.2	mg/L	0	Standard
Mg	24	485.0	6.4	11.9486	0.924	7.7	mg/L	25	Standard
K	39	225.0	15.6	2.6585	0.475	17.9	mg/L	17	Standard
Ca	43	51.7	5.6	2.2195	0.411	18.5	mg/L	58	Standard
Fe	54	26.1	9.7	0.0890	0.020	22.6	mg/L	23	Standard
Fe	57	265.0	8.2	0.8758	0.624	71.3	mg/L	255	Standard
Sc-1	45	23326.3	1.7				mg/L	23084	Standard
Cl	35	2.0	173.2				ug/L	1	Standard
Kr	83	2.3	24.7				ug/L	3	Standard
Br	81	16098.6	3.5				ug/L	1807	Standard
P	31	46.7	32.7				ug/L	32	Standard
S	34	8.3	91.7				ug/L	8	Standard
Sr	88	118.3	6.5				ug/L	143	Standard
C	12	80.0	33.1				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	336.7	12.0				mg/L	3	Standard
Dy	164	735.4	10.6				mg/L	16	Standard
Ho-1	165	518.3	6.2				mg/L	5	Standard
Er	166	513.3	9.2				mg/L	7	Standard
I	127	2680596.7	5.9				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.590	
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		98.179	
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	97.689
[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	100.368
[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

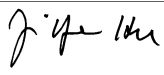
Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704001902

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Method 6020 - Summary Report

Sample ID: L1704001902PS WG609052-01

Sample Date/Time: Thursday, April 06, 2017 11:11:44

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	186434.0	3.0				ug/L	187001	Standard
|	Be	9	77253.1	1.5	49.6771	0.828	1.7	ug/L	17	Standard
|	Al	27	1226518.4	1.6	14.3205	0.490	3.4	ug/L	1055	Standard
|	Sc	45	23391.4	1.0				ug/L	23084	Standard
|	Ti	47	397.0	33.0	3.2300	1.145	35.4	ug/L	24	Standard
|	V	51	214502.4	0.5	50.4371	1.391	2.8	ug/L	975	Standard
|	Cr	52	206822.1	0.7	51.0438	1.239	2.4	ug/L	4542	Standard
|	Cr	53	26817.0	0.8	51.3621	0.917	1.8	ug/L	657	Standard
|	Mn	55	7522813.5	1.3	1097.3669	21.903	2.0	ug/L	1886	Standard
|	Co	59	480369.7	1.2	86.2169	1.697	2.0	ug/L	343	Standard
|	Ni	60	65770.1	1.9	55.2709	1.022	1.8	ug/L	120	Standard
|	Cu	65	66866.9	1.4	52.9968	0.979	1.8	ug/L	405	Standard
|	Zn	66	46794.5	1.5	59.8940	0.814	1.4	ug/L	263	Standard
>	Ge	72	514830.0	2.6				ug/L	524310	Standard
|	As	75	42644.6	1.8	51.4256	1.253	2.4	ug/L	4	Standard
|	Se	82	4011.5	1.9	52.6679	1.808	3.4	ug/L	16	Standard
|	Se-1	77	2914.9	2.9	54.1159	1.529	2.8	ug/L	97	Standard
>	Ga	71	246.7	15.5				mg/L	23	Standard
|	Rb	85	63512.9	1.7				ug/L	35	Standard
|	Y	89	373542.2	2.6				ug/L	364600	Standard
>	Rh	103	40.0	54.5				ug/L	10	Standard
|	Mo	98	136.9	28.4	0.0354	0.014	38.3	ug/L	45	Standard
|	Ag	107	218339.0	0.8	52.3401	1.314	2.5	ug/L	86	Standard
|	Cd	111	58437.6	1.4	51.1460	0.880	1.7	mg/L	4	Standard
|	Cd	114	144951.3	1.8	49.3579	0.763	1.5	ug/L	25	Standard
>	In	115	405530.6	3.1				ug/L	418958	Standard
|	Sn	118	3219.3	1.1	4.7595	0.178	3.7	ug/L	139	Standard
|	Sb	123	159198.2	0.8	51.3059	1.313	2.6	ug/L	278	Standard
|	Ba	135	114485.2	0.7	100.2749	2.927	2.9	ug/L	48	Standard
|	Ce	140	15446.2	2.4				ug/L	30	Standard
>	Tb	159	688792.2	0.7				ug/L	683588	Standard
|	Ho	165	560.0	10.9				ug/L	5	Standard
|	Tl	203	280644.6	0.5	51.4388	0.509	1.0	ug/L	251	Standard
|	Tl	205	669136.4	1.4	50.9997	0.452	0.9	ug/L	568	Standard
|	Pb	206	220119.2	1.0	51.3773	0.226	0.4	ug/L	334	Standard
|	Pb	207	197695.9	1.4	51.0100	0.196	0.4	ug/L	300	Standard
|	Pb	208	246142.1	1.0	51.3436	0.387	0.8	ug/L	368	Standard
	U	238	205667.9	0.9	52.4235	0.708	1.4	ug/L	4	Standard
>	Bi	209	434474.1	1.4				ug/L	431904	Standard

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Na	23	10.0		8.5201	0.131	1.5	mg/L	0	Standard
Mg	24	576.7	11.3	14.2452	1.626	11.4	mg/L	25	Standard
K	39	281.7	11.4	3.4006	0.444	13.1	mg/L	17	Standard
Ca	43	48.3	15.8	1.6226	1.407	86.7	mg/L	58	Standard
Fe	54	38.8	51.4	0.2007	0.175	87.3	mg/L	23	Standard
Fe	57	286.7	8.2	1.4391	0.573	39.9	mg/L	255	Standard
Sc-1	45	23391.4	1.0				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	1.0	100.0				ug/L	3	Standard
Br	81	15381.1	4.2				ug/L	1807	Standard
P	31	28.3	36.7				ug/L	32	Standard
S	34	5.0	0.0				ug/L	8	Standard
Sr	88	96.7	25.5				ug/L	143	Standard
C	12	53.3	39.0				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	346.7	7.3				mg/L	3	Standard
Dy	164	798.1	10.2				mg/L	16	Standard
Ho-1	165	560.0	10.9				mg/L	5	Standard
Er	166	526.7	15.3				mg/L	7	Standard
I	127	2688998.5	4.8				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.697	
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		98.192	
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	96.795
[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	100.595
[	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	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1704001902PS WG609052-01

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Method 6020 - Summary Report

Sample ID: L1704001902SDL WG609052-02

Sample Date/Time: Thursday, April 06, 2017 11:14:49

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	175647.4	1.4				ug/L	187001	Standard
|	Be	9	86.7	31.8	0.0350	0.019	53.5	ug/L	17	Standard
|	Al	27	241575.7	0.9	2.9862	0.021	0.7	ug/L	1055	Standard
|	Sc	45	21987.6	1.9				ug/L	23084	Standard
|	Ti	47	108.3	55.7	0.7989	0.543	68.0	ug/L	24	Standard
|	V	51	914.0	11.9	0.0293	0.024	81.8	ug/L	975	Standard
|	Cr	52	4048.9	2.2	-0.0306	0.036	116.2	ug/L	4542	Standard
|	Cr	53	690.0	7.0	0.2673	0.082	30.8	ug/L	657	Standard
|	Mn	55	1209791.9	0.6	184.3888	1.581	0.9	ug/L	1886	Standard
|	Co	59	39267.8	0.4	7.3192	0.103	1.4	ug/L	343	Standard
|	Ni	60	1359.1	2.5	1.0855	0.038	3.5	ug/L	120	Standard
|	Cu	65	728.4	6.5	0.3084	0.032	10.2	ug/L	405	Standard
|	Zn	66	1896.5	2.2	2.2218	0.090	4.0	ug/L	263	Standard
>	Ge	72	492057.6	1.4				ug/L	524310	Standard
|	As	75	18.6	282.9	0.0510	0.066	130.5	ug/L	4	Standard
|	Se	82	26.1	24.2	0.2147	0.089	41.3	ug/L	16	Standard
|	Se-1	77	93.7	7.3	0.1639	0.122	74.4	ug/L	97	Standard
>	Ga	71	73.3	19.7				mg/L	23	Standard
|	Rb	85	12214.9	2.3				ug/L	35	Standard
|	Y	89	345087.4	0.9				ug/L	364600	Standard
>	Rh	103	16.7	34.6				ug/L	10	Standard
|	Mo	98	27.6	13.2	-0.0073	0.001	19.8	ug/L	45	Standard
|	Ag	107	119.0	7.6	0.0052	0.002	40.6	ug/L	86	Standard
|	Cd	111	32.6	3.5	0.0280	0.001	3.3	mg/L	4	Standard
|	Cd	114	190.5	14.2	0.0505	0.009	18.2	ug/L	25	Standard
>	In	115	395103.3	0.4				ug/L	418958	Standard
|	Sn	118	728.7	4.2	0.9536	0.044	4.6	ug/L	139	Standard
|	Sb	123	1044.8	35.2	0.3071	0.123	40.0	ug/L	278	Standard
|	Ba	135	11027.7	0.6	9.8698	0.061	0.6	ug/L	48	Standard
|	Ce	140	3048.6	4.8				ug/L	30	Standard
>	Tb	159	657235.8	0.7				ug/L	683588	Standard
|	Ho	165	116.7	6.5				ug/L	5	Standard
|	Tl	203	433.7	3.7	0.0396	0.002	6.0	ug/L	251	Standard
|	Tl	205	1056.7	1.0	0.0363	0.001	4.0	ug/L	568	Standard
|	Pb	206	573.7	5.9	0.0528	0.009	16.3	ug/L	334	Standard
|	Pb	207	504.0	1.0	0.0544	0.003	4.7	ug/L	300	Standard
|	Pb	208	625.0	4.1	0.0565	0.006	10.9	ug/L	368	Standard
	U	238	64.0	5.4	0.0158	0.001	5.7	ug/L	4	Standard
>	Bi	209	425409.4	0.9				ug/L	431904	Standard

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Na	23	3.3	86.6	0.1466	3.925	2677.7	mg/L	0	Standard
Mg	24	155.0	8.5	3.7337	0.285	7.6	mg/L	25	Standard
K	39	51.7	20.1	0.3973	0.152	38.4	mg/L	17	Standard
Ca	43	56.7	18.4	3.7203	2.051	55.1	mg/L	58	Standard
Fe	54	19.7	50.4	0.0441	0.098	221.0	mg/L	23	Standard
Fe	57	278.3	19.2	1.7201	1.691	98.3	mg/L	255	Standard
Sc-1	45	21987.6	1.9				mg/L	23084	Standard
Cl	35	3.3	34.6				ug/L	1	Standard
Kr	83	2.0	0.0				ug/L	3	Standard
Br	81	4437.3	6.9				ug/L	1807	Standard
P	31	53.3	44.3				ug/L	32	Standard
S	34	5.0	100.0				ug/L	8	Standard
Sr	88	126.7	26.3				ug/L	143	Standard
C	12	30.0	66.7				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	56.7	20.4				mg/L	3	Standard
Dy	164	160.1	13.3				mg/L	16	Standard
Ho-1	165	116.7	6.5				mg/L	5	Standard
Er	166	136.7	21.1				mg/L	7	Standard
I	127	496845.2	3.7				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		93.929	
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		93.849	
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	94.306
[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	98.496
[	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

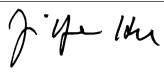
Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704001902SDL WG609052-02

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Method 6020 - Summary Report

Sample ID: L1704001902SDL WG609052-02

Sample Date/Time: Thursday, April 06, 2017 11:17:55

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	170797.5	1.9				ug/L	187001	Standard
|	Be	9	40.0	25.0	0.0039	0.007	174.7	ug/L	17	Standard
|	Al	27	49291.7	1.2	0.6209	0.019	3.0	ug/L	1055	Standard
|	Sc	45	21829.0	1.3				ug/L	23084	Standard
|	Ti	47	34.3	11.8	0.1373	0.038	27.9	ug/L	24	Standard
|	V	51	777.8	16.0	-0.0027	0.033	1240.1	ug/L	975	Standard
|	Cr	52	3690.4	0.9	-0.1191	0.026	21.7	ug/L	4542	Standard
|	Cr	53	495.0	8.1	-0.1246	0.091	73.4	ug/L	657	Standard
|	Mn	55	247433.0	0.3	37.7468	0.664	1.8	ug/L	1886	Standard
|	Co	59	8052.8	1.3	1.4641	0.041	2.8	ug/L	343	Standard
|	Ni	60	346.3	6.8	0.1949	0.015	7.7	ug/L	120	Standard
|	Cu	65	390.3	2.6	0.0290	0.012	41.3	ug/L	405	Standard
|	Zn	66	916.4	5.5	0.9089	0.061	6.7	ug/L	263	Standard
>	Ge	72	489061.4	1.9				ug/L	524310	Standard
|	As	75	-21.7	50.3	-0.0000	0.011	185300.4	ug/L	4	Standard
|	Se	82	9.9	35.5	-0.0072	0.050	700.3	ug/L	16	Standard
|	Se-1	77	77.0	8.5	-0.1584	0.154	96.9	ug/L	97	Standard
>	Ga	71	40.0	12.5				mg/L	23	Standard
|	Rb	85	2323.5	3.2				ug/L	35	Standard
|	Y	89	339355.1	0.8				ug/L	364600	Standard
>	Rh	103	11.7	49.5				ug/L	10	Standard
|	Mo	98	16.1	17.8	-0.0119	0.001	9.7	ug/L	45	Standard
|	Ag	107	79.7	11.9	-0.0043	0.002	51.9	ug/L	86	Standard
|	Cd	111	11.3	48.7	0.0090	0.005	56.3	mg/L	4	Standard
|	Cd	114	40.8	104.4	-0.0016	0.015	924.2	ug/L	25	Standard
>	In	115	391121.7	0.7				ug/L	418958	Standard
|	Sn	118	220.3	11.6	0.1545	0.041	26.7	ug/L	139	Standard
|	Sb	123	235.5	36.4	0.0400	0.029	72.6	ug/L	278	Standard
|	Ba	135	2155.5	1.0	1.9148	0.033	1.7	ug/L	48	Standard
|	Ce	140	568.3	14.9				ug/L	30	Standard
>	Tb	159	643319.9	1.3				ug/L	683588	Standard
|	Ho	165	13.3	108.3				ug/L	5	Standard
|	Tl	203	200.0	10.0	-0.0037	0.004	107.4	ug/L	251	Standard
|	Tl	205	521.7	6.9	-0.0048	0.003	63.3	ug/L	568	Standard
|	Pb	206	395.3	2.7	0.0114	0.003	26.3	ug/L	334	Standard
|	Pb	207	298.3	9.7	0.0012	0.008	685.3	ug/L	300	Standard
|	Pb	208	407.3	3.9	0.0112	0.004	33.1	ug/L	368	Standard
	U	238	8.0	54.5	0.0013	0.001	90.7	ug/L	4	Standard
>	Bi	209	420027.8	0.5				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.0787	3.995	192.2	mg/L	0	Standard
Mg	24	43.3	35.3	0.7151	0.422	59.0	mg/L	25	Standard
K	39	18.3	41.7	-0.0706	0.110	155.8	mg/L	17	Standard
Ca	43	48.3	26.0	2.2265	2.412	108.3	mg/L	58	Standard
Fe	54	11.4	50.9	-0.0347	0.055	159.5	mg/L	23	Standard
Fe	57	245.0	7.4	0.7837	0.460	58.7	mg/L	255	Standard
Sc-1	45	21829.0	1.3				mg/L	23084	Standard
Cl	35	2.0	0.0				ug/L	1	Standard
Kr	83	4.0	43.3				ug/L	3	Standard
Br	81	2250.2	9.6				ug/L	1807	Standard
P	31	38.3	41.9				ug/L	32	Standard
S	34	8.3	34.6				ug/L	8	Standard
Sr	88	130.0	6.7				ug/L	143	Standard
C	12	50.0	0.0				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	69.3				mg/L	3	Standard
Dy	164	31.7	64.7				mg/L	16	Standard
Ho-1	165	13.3	108.3				mg/L	5	Standard
Er	166	33.3	45.8				mg/L	7	Standard
I	127	115965.5	1.4				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		91.335	
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		93.277	
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	93.356
[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	97.250
[	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: L1704001902SDL WG609052-02

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Thursday, April 06, 2017 11:21:02

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	183960.5	2.6				ug/L	187001	Standard
|	Be	9	75011.9	1.0	48.8884	1.231	2.5	ug/L	17	Standard
|	Al	27	4227260.3	1.6	50.0169	0.498	1.0	ug/L	1055	Standard
|	Sc	45	23414.7	0.6				ug/L	23084	Standard
|	Ti	47	11787.3	1.8	101.4646	0.296	0.3	ug/L	24	Standard
|	V	51	209015.2	0.5	49.4611	0.845	1.7	ug/L	975	Standard
|	Cr	52	197512.8	1.2	49.0198	0.782	1.6	ug/L	4542	Standard
|	Cr	53	25309.5	1.7	48.7315	0.452	0.9	ug/L	657	Standard
|	Mn	55	338442.8	1.6	49.4475	0.442	0.9	ug/L	1886	Standard
|	Co	59	275046.2	1.2	49.6629	0.482	1.0	ug/L	343	Standard
|	Ni	60	58520.1	1.6	49.4893	0.328	0.7	ug/L	120	Standard
|	Cu	65	62811.0	1.8	50.0882	0.233	0.5	ug/L	405	Standard
|	Zn	66	38308.7	2.2	49.2969	0.884	1.8	ug/L	263	Standard
>	Ge	72	511400.7	2.1				ug/L	524310	Standard
|	As	75	40911.5	1.6	49.6563	0.464	0.9	ug/L	4	Standard
|	Se	82	3891.4	0.9	51.4129	0.626	1.2	ug/L	16	Standard
|	Se-1	77	2737.2	2.6	51.0682	1.691	3.3	ug/L	97	Standard
>	Ga	71	48.3	29.9				mg/L	23	Standard
|	Rb	85	255.0	7.8				ug/L	35	Standard
|	Y	89	356335.7	3.1				ug/L	364600	Standard
>	Rh	103	15.0	33.3				ug/L	10	Standard
|	Mo	98	254952.8	0.2	100.4473	2.007	2.0	ug/L	45	Standard
|	Ag	107	209639.1	1.2	49.9952	0.615	1.2	ug/L	86	Standard
|	Cd	111	57940.0	1.4	50.4565	0.623	1.2	mg/L	4	Standard
|	Cd	114	150192.1	1.2	50.8902	0.520	1.0	ug/L	25	Standard
>	In	115	407489.1	2.2				ug/L	418958	Standard
|	Sn	118	32957.1	1.1	50.2728	0.605	1.2	ug/L	139	Standard
|	Sb	123	155022.4	0.6	49.7060	0.864	1.7	ug/L	278	Standard
|	Ba	135	56416.2	0.5	49.1385	0.875	1.8	ug/L	48	Standard
|	Ce	140	148.3	28.7				ug/L	30	Standard
>	Tb	159	674049.5	0.9				ug/L	683588	Standard
|	Ho	165	5.0	100.0				ug/L	5	Standard
|	Tl	203	268782.1	0.5	49.2972	0.481	1.0	ug/L	251	Standard
|	Tl	205	650931.9	1.4	49.6459	0.526	1.1	ug/L	568	Standard
|	Pb	206	211812.3	0.2	49.4714	0.246	0.5	ug/L	334	Standard
|	Pb	207	193731.4	0.4	50.0248	0.535	1.1	ug/L	300	Standard
|	Pb	208	235893.6	0.6	49.2393	0.539	1.1	ug/L	368	Standard
	U	238	200936.1	1.2	51.2533	0.803	1.6	ug/L	4	Standard
>	Bi	209	434149.7	0.7				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.2503	3.698	164.3	mg/L	0	Standard
Mg	24	208.3	10.0	4.8399	0.520	10.8	mg/L	25	Standard
K	39	320.0	15.9	3.9051	0.696	17.8	mg/L	17	Standard
Ca	43	40.0	45.1	0.1570	3.156	2010.9	mg/L	58	Standard
Fe	54	530.7	24.4	4.5702	1.165	25.5	mg/L	23	Standard
Fe	57	370.0	10.7	3.6969	1.042	28.2	mg/L	255	Standard
Sc-1	45	23414.7	0.6				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	2.3	24.7				ug/L	3	Standard
Br	81	1936.8	9.5				ug/L	1807	Standard
P	31	36.7	34.3				ug/L	32	Standard
S	34	5.0	0.0				ug/L	8	Standard
Sr	88	108.3	9.6				ug/L	143	Standard
C	12	30.0	33.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	3	Standard
Dy	164	19.2	137.3				mg/L	16	Standard
Ho-1	165	5.0	100.0				mg/L	5	Standard
Er	166	16.7	34.6				mg/L	7	Standard
I	127	11352.7	19.0				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	97.777		
Al	27	100.034		
Sc	45			
Ti	47	101.465		
V	51	98.922		
Cr	52	98.040		
Cr	53			
Mn	55	98.895		
Co	59	99.326		
Ni	60	98.979		
Cu	65	100.176		
Zn	66	98.594		
Ge	72		97.538	
As	75	99.313		
Se	82	102.826		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.447	
[Ag	107	99.990	
[Cd	111	100.913	
[Cd	114		
>	In	115		97.263
[Sn	118	100.546	
[	Sb	123	99.412	
[	Ba	135	98.277	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	98.594	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	98.479	
[	U	238	102.507	
>	Bi	209		100.520
[	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: Thursday, April 06, 2017 11:24:08

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	180027.8	4.2				ug/L	187001	Standard
|	Be	9	43.3	59.2	0.0043	0.016	373.2	ug/L	17	Standard
|	Al	27	1096.7	13.6	0.0058	0.002	27.0	ug/L	1055	Standard
|	Sc	45	22735.4	4.9				ug/L	23084	Standard
|	Ti	47	20.3	33.5	0.0077	0.062	810.6	ug/L	24	Standard
|	V	51	807.6	8.0	0.0000	0.010	36388.2	ug/L	975	Standard
|	Cr	52	3775.5	0.7	-0.1176	0.021	17.9	ug/L	4542	Standard
|	Cr	53	451.7	7.4	-0.2329	0.086	36.7	ug/L	657	Standard
|	Mn	55	1877.1	3.1	0.0282	0.006	22.4	ug/L	1886	Standard
|	Co	59	255.3	4.5	-0.0112	0.002	15.4	ug/L	343	Standard
|	Ni	60	105.3	19.3	-0.0205	0.017	85.1	ug/L	120	Standard
|	Cu	65	383.0	1.7	0.0160	0.005	32.8	ug/L	405	Standard
|	Zn	66	393.7	8.0	0.1893	0.027	14.5	ug/L	263	Standard
>	Ge	72	499606.7	2.7				ug/L	524310	Standard
|	As	75	-10.3	125.1	0.0148	0.016	109.2	ug/L	4	Standard
|	Se	82	9.9	31.4	-0.0113	0.041	359.7	ug/L	16	Standard
|	Se-1	77	77.3	12.8	-0.1819	0.233	128.2	ug/L	97	Standard
>	Ga	71	23.3	75.3				mg/L	23	Standard
|	Rb	85	26.7	39.0				ug/L	35	Standard
|	Y	89	349831.5	3.0				ug/L	364600	Standard
>	Rh	103	13.3	21.7				ug/L	10	Standard
|	Mo	98	142.2	17.6	0.0385	0.008	21.8	ug/L	45	Standard
|	Ag	107	96.3	16.8	-0.0007	0.003	425.6	ug/L	86	Standard
|	Cd	111	5.8	33.8	0.0038	0.002	41.5	mg/L	4	Standard
|	Cd	114	37.3	7.9	-0.0031	0.001	42.8	ug/L	25	Standard
>	In	115	399155.4	3.4				ug/L	418958	Standard
|	Sn	118	162.3	1.6	0.0569	0.005	8.7	ug/L	139	Standard
|	Sb	123	467.7	32.0	0.1154	0.053	46.2	ug/L	278	Standard
|	Ba	135	42.3	8.9	-0.0049	0.003	62.2	ug/L	48	Standard
|	Ce	140	16.7	34.6				ug/L	30	Standard
>	Tb	159	658881.2	3.0				ug/L	683588	Standard
|	Ho	165	3.3	173.2				ug/L	5	Standard
|	Tl	203	117.0	13.8	-0.0197	0.003	16.0	ug/L	251	Standard
|	Tl	205	305.0	14.8	-0.0222	0.004	17.9	ug/L	568	Standard
|	Pb	206	415.3	9.9	0.0148	0.007	45.7	ug/L	334	Standard
|	Pb	207	338.7	9.9	0.0106	0.006	57.5	ug/L	300	Standard
|	Pb	208	461.0	5.8	0.0214	0.003	13.0	ug/L	368	Standard
	U	238	27.0	59.6	0.0061	0.004	64.4	ug/L	4	Standard
>	Bi	209	425649.9	3.0				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.1121	3.937	186.4	mg/L	0	Standard
Mg	24	20.0	25.0	0.0581	0.152	261.4	mg/L	25	Standard
K	39	11.7	24.7	-0.1734	0.031	17.8	mg/L	17	Standard
Ca	43	60.0	33.3	4.0706	4.005	98.4	mg/L	58	Standard
Fe	54	19.6	68.0	0.0336	0.118	349.7	mg/L	23	Standard
Fe	57	228.3	11.0	0.0466	0.805	1730.3	mg/L	255	Standard
Sc-1	45	22735.4	4.9				mg/L	23084	Standard
Cl	35	4.0	86.6				ug/L	1	Standard
Kr	83	1.7	34.6				ug/L	3	Standard
Br	81	1880.1	9.6				ug/L	1807	Standard
P	31	45.0	22.2				ug/L	32	Standard
S	34	11.7	24.7				ug/L	8	Standard
Sr	88	115.0	4.3				ug/L	143	Standard
C	12	36.7	15.7				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	6.3	93.2				mg/L	16	Standard
Ho-1	165	3.3	173.2				mg/L	5	Standard
Er	166	6.7	86.6				mg/L	7	Standard
I	127	7973.8	5.5				mg/L	2930	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		95.288	
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	95.273
[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	98.552
[	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: L1703160101

Sample Date/Time: Thursday, April 06, 2017 11:27:15

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	223642.1	1.9				ug/L	187001	Standard
|	Be	9	35.0	14.3	-0.0054	0.002	43.7	ug/L	17	Standard
|	Al	27	61634886.5	0.1	599.9844	10.807	1.8	ug/L	1055	Standard
|	Sc	45	21660.5	1.7				ug/L	23084	Standard
|	Ti	47	101.3	17.4	0.7943	0.172	21.6	ug/L	24	Standard
|	V	51	-632.1	57.0	-0.3625	0.095	26.3	ug/L	975	Standard
|	Cr	52	7417.2	7.3	0.9832	0.161	16.4	ug/L	4542	Standard
|	Cr	53	8295.7	30.9	16.9514	5.658	33.4	ug/L	657	Standard
|	Mn	55	38983.1	0.7	6.0769	0.060	1.0	ug/L	1886	Standard
|	Co	59	1511.1	2.7	0.2436	0.008	3.2	ug/L	343	Standard
|	Ni	60	9950.9	0.8	9.2157	0.113	1.2	ug/L	120	Standard
|	Cu	65	3195.0	4.3	2.5363	0.135	5.3	ug/L	405	Standard
|	Zn	66	5289.9	5.8	7.2479	0.476	6.6	ug/L	263	Standard
>	Ge	72	462409.9	0.5				ug/L	524310	Standard
|	As	75	1716.6	6.5	2.3309	0.160	6.9	ug/L	4	Standard
|	Se	82	759.2	7.1	10.9809	0.839	7.6	ug/L	16	Standard
|	Se-1	77	1417.1	20.2	28.5188	6.228	21.8	ug/L	97	Standard
>	Ga	71	70.0	18.9				mg/L	23	Standard
|	Rb	85	3993.9	4.7				ug/L	35	Standard
|	Y	89	336179.0	1.3				ug/L	364600	Standard
>	Rh	103	533.3	13.7				ug/L	10	Standard
|	Mo	98	130.3	8.6	0.0392	0.005	12.0	ug/L	45	Standard
|	Ag	107	106.3	16.0	0.0044	0.005	106.0	ug/L	86	Standard
|	Cd	111	57.5	4.0	0.0549	0.002	3.6	mg/L	4	Standard
|	Cd	114	196.3	36.5	0.0585	0.026	45.3	ug/L	25	Standard
>	In	115	362755.3	1.3				ug/L	418958	Standard
|	Sn	118	263.0	27.0	0.2544	0.116	45.4	ug/L	139	Standard
|	Sb	123	329.5	29.2	0.0801	0.036	44.6	ug/L	278	Standard
|	Ba	135	5338.9	4.0	5.1866	0.271	5.2	ug/L	48	Standard
|	Ce	140	421.7	7.7				ug/L	30	Standard
>	Tb	159	640315.5	1.5				ug/L	683588	Standard
|	Ho	165	26.7	28.6				ug/L	5	Standard
|	Tl	203	623.7	21.2	0.0880	0.029	32.7	ug/L	251	Standard
|	Tl	205	1413.4	27.2	0.0762	0.034	45.2	ug/L	568	Standard
|	Pb	206	461.3	0.9	0.0378	0.001	2.0	ug/L	334	Standard
|	Pb	207	408.0	5.3	0.0407	0.006	15.4	ug/L	300	Standard
|	Pb	208	532.3	3.3	0.0490	0.005	10.7	ug/L	368	Standard
	U	238	2255.2	4.2	0.6493	0.021	3.2	ug/L	4	Standard
>	Bi	209	384006.3	1.0				ug/L	431904	Standard

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Na	23	70.0	18.9	92.9760	16.940	18.2	mg/L	0	Standard
Mg	24	15372.8	1.0	423.2707	3.069	0.7	mg/L	25	Standard
K	39	200.0	15.2	2.5324	0.463	18.3	mg/L	17	Standard
Ca	43	160.0	16.5	23.3270	4.760	20.4	mg/L	58	Standard
Fe	54	34.7	38.4	0.1905	0.130	68.2	mg/L	23	Standard
Fe	57	551.7	13.5	9.8686	2.361	23.9	mg/L	255	Standard
Sc-1	45	21660.5	1.7				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	0.3	173.2				ug/L	3	Standard
Br	81	424304.7	2.4				ug/L	1807	Standard
P	31	23.3	12.4				ug/L	32	Standard
S	34	8.3	34.6				ug/L	8	Standard
Sr	88	561.7	6.3				ug/L	143	Standard
C	12	40.0	25.0				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	34.6	88.0				mg/L	16	Standard
Ho-1	165	26.7	28.6				mg/L	5	Standard
Er	166	43.3	35.3				mg/L	7	Standard
I	127	107519.8	7.2				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		119.594	
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		88.194	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703160101

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	86.585
[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	88.910
[	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

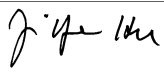
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1703160101

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Method 6020 - Summary Report

Sample ID: L1703160102

Sample Date/Time: Thursday, April 06, 2017 11:30:19

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	255217.0	1.9				ug/L	187001	Standard
|	Be	9	61.7	23.4	0.0048	0.007	140.4	ug/L	17	Standard
|	Al	27	68821348.6	1.9	587.0686	15.633	2.7	ug/L	1055	Standard
|	Sc	45	22091.1	2.0				ug/L	23084	Standard
|	Ti	47	69.0	13.3	0.4728	0.079	16.7	ug/L	24	Standard
|	V	51	-476.6	89.6	-0.3191	0.111	34.8	ug/L	975	Standard
|	Cr	52	7722.0	1.1	1.0277	0.026	2.5	ug/L	4542	Standard
|	Cr	53	10316.8	3.1	20.9246	0.947	4.5	ug/L	657	Standard
|	Mn	55	6279.0	5.2	0.7463	0.040	5.4	ug/L	1886	Standard
|	Co	59	1408.4	4.5	0.2178	0.010	4.6	ug/L	343	Standard
|	Ni	60	9629.7	1.5	8.7452	0.084	1.0	ug/L	120	Standard
|	Cu	65	2970.0	3.4	2.2868	0.076	3.3	ug/L	405	Standard
|	Zn	66	6796.2	0.3	9.2230	0.132	1.4	ug/L	263	Standard
>	Ge	72	471234.9	1.2				ug/L	524310	Standard
|	As	75	1200.5	8.8	1.6073	0.126	7.9	ug/L	4	Standard
|	Se	82	563.4	1.2	7.9549	0.117	1.5	ug/L	16	Standard
|	Se-1	77	1503.7	6.9	29.7666	2.541	8.5	ug/L	97	Standard
>	Ga	71	31.7	9.1				mg/L	23	Standard
|	Rb	85	7463.5	1.5				ug/L	35	Standard
|	Y	89	342189.5	1.0				ug/L	364600	Standard
>	Rh	103	880.0	5.2				ug/L	10	Standard
|	Mo	98	210.1	11.3	0.0738	0.011	14.7	ug/L	45	Standard
|	Ag	107	88.0	9.7	-0.0007	0.002	283.0	ug/L	86	Standard
|	Cd	111	129.7	5.8	0.1245	0.008	6.4	mg/L	4	Standard
|	Cd	114	286.5	11.6	0.0921	0.012	13.0	ug/L	25	Standard
>	In	115	365826.2	0.7				ug/L	418958	Standard
|	Sn	118	192.3	2.1	0.1311	0.008	6.2	ug/L	139	Standard
|	Sb	123	228.8	27.8	0.0430	0.023	54.1	ug/L	278	Standard
|	Ba	135	4176.6	2.3	4.0122	0.099	2.5	ug/L	48	Standard
|	Ce	140	268.3	13.5				ug/L	30	Standard
>	Tb	159	660028.6	0.9				ug/L	683588	Standard
|	Ho	165	65.0	33.5				ug/L	5	Standard
|	Tl	203	396.0	10.1	0.0386	0.008	19.6	ug/L	251	Standard
|	Tl	205	1071.7	5.9	0.0444	0.005	10.5	ug/L	568	Standard
|	Pb	206	516.7	2.9	0.0494	0.005	9.7	ug/L	334	Standard
|	Pb	207	424.0	3.7	0.0426	0.005	11.0	ug/L	300	Standard
|	Pb	208	585.3	6.5	0.0584	0.009	15.8	ug/L	368	Standard
	U	238	3464.1	2.2	0.9755	0.020	2.0	ug/L	4	Standard
>	Bi	209	392881.1	0.8				ug/L	431904	Standard

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Na	23	103.3	24.8	137.0119	36.378	26.6	mg/L	0	Standard
Mg	24	12538.5	2.8	338.4435	10.359	3.1	mg/L	25	Standard
K	39	218.3	17.5	2.7269	0.496	18.2	mg/L	17	Standard
Ca	43	136.7	27.5	18.5059	7.316	39.5	mg/L	58	Standard
Fe	54	29.3	17.8	0.1330	0.053	39.7	mg/L	23	Standard
Fe	57	566.7	2.8	9.9771	0.778	7.8	mg/L	255	Standard
Sc-1	45	22091.1	2.0				mg/L	23084	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	1.7	34.6				ug/L	3	Standard
Br	81	303693.4	0.3				ug/L	1807	Standard
P	31	40.0	37.5				ug/L	32	Standard
S	34	13.3	57.3				ug/L	8	Standard
Sr	88	711.7	8.3				ug/L	143	Standard
C	12	46.7	53.9				mg/L	33	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	56.2	35.6				mg/L	16	Standard
Ho-1	165	65.0	33.5				mg/L	5	Standard
Er	166	80.0	21.7				mg/L	7	Standard
I	127	27807.2	2.1				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		136.479	
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		89.877	
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	87.318
[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	90.965
[	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

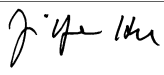
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	

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Method 6020 - Summary Report

Sample ID: L1703160103

Sample Date/Time: Thursday, April 06, 2017 11:33:25

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	227350.1	2.0				ug/L	187001	Standard
|	Be	9	238.3	23.1	0.1019	0.031	30.4	ug/L	17	Standard
|	Al	27	11332995.1	0.8	108.5327	3.053	2.8	ug/L	1055	Standard
|	Sc	45	22593.5	3.5				ug/L	23084	Standard
|	Ti	47	978.4	6.4	8.7325	0.700	8.0	ug/L	24	Standard
|	V	51	3791.2	11.9	0.7533	0.106	14.1	ug/L	975	Standard
|	Cr	52	10866.6	3.4	1.8097	0.095	5.3	ug/L	4542	Standard
|	Cr	53	14947.4	2.5	29.9295	1.006	3.4	ug/L	657	Standard
|	Mn	55	1248712.5	0.3	193.1860	3.096	1.6	ug/L	1886	Standard
|	Co	59	5596.0	5.4	1.0091	0.071	7.0	ug/L	343	Standard
|	Ni	60	8136.5	0.9	7.1626	0.078	1.1	ug/L	120	Standard
|	Cu	65	3096.3	0.7	2.3216	0.030	1.3	ug/L	405	Standard
|	Zn	66	14006.8	1.5	18.8065	0.030	0.2	ug/L	263	Standard
>	Ge	72	484837.4	1.6				ug/L	524310	Standard
|	As	75	1792.6	10.6	2.3239	0.273	11.8	ug/L	4	Standard
|	Se	82	749.8	0.7	10.3335	0.208	2.0	ug/L	16	Standard
|	Se-1	77	1613.4	3.4	31.1004	1.262	4.1	ug/L	97	Standard
>	Ga	71	711.7	6.5				mg/L	23	Standard
|	Rb	85	26165.9	3.0				ug/L	35	Standard
|	Y	89	359616.4	1.3				ug/L	364600	Standard
>	Rh	103	195.0	8.9				ug/L	10	Standard
|	Mo	98	375.0	16.7	0.1404	0.028	19.6	ug/L	45	Standard
|	Ag	107	167.7	35.3	0.0189	0.016	82.0	ug/L	86	Standard
|	Cd	111	352.9	7.7	0.3290	0.026	8.0	mg/L	4	Standard
|	Cd	114	900.6	12.5	0.3124	0.045	14.5	ug/L	25	Standard
>	In	115	379107.5	1.5				ug/L	418958	Standard
|	Sn	118	228.3	4.6	0.1790	0.023	12.7	ug/L	139	Standard
|	Sb	123	390.3	20.5	0.0959	0.029	30.2	ug/L	278	Standard
|	Ba	135	77950.7	0.8	72.9930	1.412	1.9	ug/L	48	Standard
|	Ce	140	63345.5	1.3				ug/L	30	Standard
>	Tb	159	668645.5	1.4				ug/L	683588	Standard
|	Ho	165	933.4	7.8				ug/L	5	Standard
|	Tl	203	754.4	5.6	0.1052	0.008	7.7	ug/L	251	Standard
|	Tl	205	1741.8	0.6	0.0951	0.003	2.9	ug/L	568	Standard
|	Pb	206	6250.3	1.9	1.4672	0.039	2.7	ug/L	334	Standard
|	Pb	207	4983.5	0.7	1.2886	0.018	1.4	ug/L	300	Standard
|	Pb	208	6728.6	1.0	1.4154	0.022	1.6	ug/L	368	Standard
	U	238	1734.1	1.1	0.4684	0.007	1.5	ug/L	4	Standard
>	Bi	209	409282.6	1.4				ug/L	431904	Standard

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Na	23	31.7	18.2	37.8321	6.904	18.2	mg/L	0	Standard
Mg	24	8615.8	3.8	227.5700	16.301	7.2	mg/L	25	Standard
K	39	125.0	14.4	1.3789	0.200	14.5	mg/L	17	Standard
Ca	43	103.3	2.8	11.8686	0.721	6.1	mg/L	58	Standard
Fe	54	74.2	7.0	0.5404	0.066	12.3	mg/L	23	Standard
Fe	57	341.7	10.3	3.2600	0.809	24.8	mg/L	255	Standard
Sc-1	45	22593.5	3.5				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	3.7	31.5				ug/L	3	Standard
Br	81	417122.2	2.2				ug/L	1807	Standard
P	31	33.3	34.6				ug/L	32	Standard
S	34	8.3	34.6				ug/L	8	Standard
Sr	88	283.3	16.4				ug/L	143	Standard
C	12	73.3	43.8				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	1412.4	4.9				mg/L	16	Standard
Ho-1	165	933.4	7.8				mg/L	5	Standard
Er	166	856.7	12.9				mg/L	7	Standard
I	127	635006.4	6.9				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		121.577	
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		92.471	
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	90.488
[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	94.762
[	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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Method 6020 - Summary Report

Sample ID: L1703160104

Sample Date/Time: Thursday, April 06, 2017 11:36:30

Number of Replicates: 3

Autosampler Position: 218

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	185264.6	2.6				ug/L	187001	Standard
|	Be	9	190.0	22.8	0.0986	0.027	27.4	ug/L	17	Standard
|	Al	27	161105.9	3.2	1.8870	0.103	5.5	ug/L	1055	Standard
|	Sc	45	24162.6	1.3				ug/L	23084	Standard
|	Ti	47	1297.4	5.0	11.0444	0.743	6.7	ug/L	24	Standard
|	V	51	11960.1	2.0	2.6507	0.072	2.7	ug/L	975	Standard
|	Cr	52	10605.7	2.9	1.5972	0.041	2.6	ug/L	4542	Standard
|	Cr	53	2105.1	11.9	3.0071	0.431	14.3	ug/L	657	Standard
|	Mn	55	372658.9	0.4	54.5834	0.878	1.6	ug/L	1886	Standard
|	Co	59	5693.4	2.1	0.9726	0.008	0.8	ug/L	343	Standard
|	Ni	60	1617.1	0.4	1.2617	0.032	2.5	ug/L	120	Standard
|	Cu	65	2724.9	3.3	1.8911	0.031	1.7	ug/L	405	Standard
|	Zn	66	26394.3	0.8	33.9299	0.444	1.3	ug/L	263	Standard
>	Ge	72	510419.0	1.9				ug/L	524310	Standard
|	As	75	774.7	4.4	0.9689	0.024	2.5	ug/L	4	Standard
|	Se	82	42.8	14.4	0.4218	0.070	16.7	ug/L	16	Standard
|	Se-1	77	134.0	13.7	0.8726	0.308	35.3	ug/L	97	Standard
>	Ga	71	1068.4	3.5				mg/L	23	Standard
|	Rb	85	16986.2	1.7				ug/L	35	Standard
|	Y	89	371283.2	1.7				ug/L	364600	Standard
>	Rh	103	20.0	86.6				ug/L	10	Standard
|	Mo	98	179.9	12.1	0.0523	0.007	13.7	ug/L	45	Standard
|	Ag	107	165.0	12.2	0.0153	0.005	32.7	ug/L	86	Standard
|	Cd	111	83.1	14.1	0.0712	0.011	16.0	mg/L	4	Standard
|	Cd	114	229.1	6.5	0.0616	0.004	6.1	ug/L	25	Standard
>	In	115	407140.5	1.9				ug/L	418958	Standard
|	Sn	118	221.7	0.7	0.1428	0.006	4.0	ug/L	139	Standard
|	Sb	123	294.4	17.5	0.0559	0.018	32.5	ug/L	278	Standard
|	Ba	135	19297.6	0.3	16.7948	0.360	2.1	ug/L	48	Standard
|	Ce	140	62038.4	0.9				ug/L	30	Standard
>	Tb	159	695786.5	0.9				ug/L	683588	Standard
|	Ho	165	930.0	7.9				ug/L	5	Standard
|	Tl	203	576.3	12.9	0.0602	0.012	20.1	ug/L	251	Standard
|	Tl	205	1320.1	13.0	0.0510	0.012	23.2	ug/L	568	Standard
|	Pb	206	7633.6	0.6	1.6362	0.017	1.0	ug/L	334	Standard
|	Pb	207	5971.2	1.4	1.4090	0.028	2.0	ug/L	300	Standard
|	Pb	208	7995.5	1.5	1.5333	0.022	1.4	ug/L	368	Standard
	U	238	898.4	2.3	0.2199	0.005	2.1	ug/L	4	Standard
>	Bi	209	450708.8	1.1				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.3094	3.596	155.7	mg/L	0	Standard
Mg	24	121.7	20.7	2.5309	0.597	23.6	mg/L	25	Standard
K	39	20.0	90.1	-0.0733	0.236	321.7	mg/L	17	Standard
Ca	43	43.3	43.7	0.5283	3.317	627.8	mg/L	58	Standard
Fe	54	223.0	18.3	1.7715	0.326	18.4	mg/L	23	Standard
Fe	57	273.3	16.6	0.8527	1.289	151.2	mg/L	255	Standard
Sc-1	45	24162.6	1.3				mg/L	23084	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	2.0	0.0				ug/L	3	Standard
Br	81	11591.1	8.9				ug/L	1807	Standard
P	31	33.3	22.9				ug/L	32	Standard
S	34	5.0	100.0				ug/L	8	Standard
Sr	88	123.3	22.3				ug/L	143	Standard
C	12	43.3	74.2				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	124.9				mg/L	3	Standard
Dy	164	1474.3	9.3				mg/L	16	Standard
Ho-1	165	930.0	7.9				mg/L	5	Standard
Er	166	816.7	6.7				mg/L	7	Standard
I	127	36120.0	10.0				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.072	
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		97.351	
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	97.179
[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	104.354
[	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: L1703160104

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Method 6020 - Summary Report

Sample ID: L1703160105

Sample Date/Time: Thursday, April 06, 2017 11:39:35

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	191357.9	2.4				ug/L	187001	Standard
|	Be	9	616.7	7.9	0.3624	0.031	8.7	ug/L	17	Standard
|	Al	27	554463.1	0.6	6.3012	0.128	2.0	ug/L	1055	Standard
|	Sc	45	27085.9	3.0				ug/L	23084	Standard
|	Ti	47	3634.8	1.7	30.8598	0.970	3.1	ug/L	24	Standard
|	V	51	30284.8	1.2	6.9260	0.181	2.6	ug/L	975	Standard
|	Cr	52	22670.6	0.7	4.5954	0.052	1.1	ug/L	4542	Standard
|	Cr	53	4242.3	1.5	7.1298	0.074	1.0	ug/L	657	Standard
|	Mn	55	53754.5	0.9	7.5608	0.162	2.1	ug/L	1886	Standard
|	Co	59	9266.2	0.1	1.5997	0.026	1.6	ug/L	343	Standard
|	Ni	60	3269.4	1.0	2.6311	0.014	0.6	ug/L	120	Standard
|	Cu	65	9922.2	1.0	7.5806	0.073	1.0	ug/L	405	Standard
|	Zn	66	83653.6	0.4	106.9546	2.012	1.9	ug/L	263	Standard
>	Ge	72	516632.6	1.5				ug/L	524310	Standard
|	As	75	1008.1	1.6	1.2381	0.014	1.1	ug/L	4	Standard
|	Se	82	72.7	14.5	0.8088	0.142	17.5	ug/L	16	Standard
|	Se-1	77	173.3	7.8	1.5964	0.274	17.1	ug/L	97	Standard
>	Ga	71	4585.7	2.9				mg/L	23	Standard
|	Rb	85	59105.1	0.5				ug/L	35	Standard
|	Y	89	447893.5	2.7				ug/L	364600	Standard
>	Rh	103	26.7	10.8				ug/L	10	Standard
|	Mo	98	465.4	4.9	0.1640	0.007	4.4	ug/L	45	Standard
|	Ag	107	269.7	3.2	0.0399	0.002	4.5	ug/L	86	Standard
|	Cd	111	53.7	8.4	0.0453	0.004	9.3	mg/L	4	Standard
|	Cd	114	169.4	16.4	0.0411	0.009	22.4	ug/L	25	Standard
>	In	115	409356.2	1.6				ug/L	418958	Standard
|	Sn	118	208.7	6.0	0.1209	0.014	11.6	ug/L	139	Standard
|	Sb	123	255.0	19.1	0.0428	0.017	39.2	ug/L	278	Standard
|	Ba	135	85320.2	0.8	73.9910	1.417	1.9	ug/L	48	Standard
|	Ce	140	621070.4	0.6				ug/L	30	Standard
>	Tb	159	714390.0	2.1				ug/L	683588	Standard
|	Ho	165	5984.5	0.9				ug/L	5	Standard
|	Tl	203	898.4	1.6	0.1168	0.004	3.6	ug/L	251	Standard
|	Tl	205	2115.1	9.6	0.1089	0.012	11.2	ug/L	568	Standard
|	Pb	206	15949.4	1.6	3.5007	0.112	3.2	ug/L	334	Standard
|	Pb	207	12873.8	2.4	3.1202	0.124	4.0	ug/L	300	Standard
|	Pb	208	16874.3	0.9	3.3117	0.065	2.0	ug/L	368	Standard
	U	238	4953.8	0.7	1.2128	0.016	1.3	ug/L	4	Standard
>	Bi	209	452052.1	1.7				ug/L	431904	Standard

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Na	23	3.3	86.6	-0.6053	3.274	540.9	mg/L	0	Standard
Mg	24	625.0	11.2	13.3402	1.905	14.3	mg/L	25	Standard
K	39	55.0	15.7	0.3000	0.116	38.7	mg/L	17	Standard
Ca	43	58.3	21.6	1.9483	1.703	87.4	mg/L	58	Standard
Fe	54	356.0	5.9	2.5903	0.195	7.5	mg/L	23	Standard
Fe	57	286.7	1.0	0.3836	0.243	63.5	mg/L	255	Standard
Sc-1	45	27085.9	3.0				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	1.7	124.9				ug/L	3	Standard
Br	81	27732.1	4.6				ug/L	1807	Standard
P	31	41.7	27.7				ug/L	32	Standard
S	34	0.0					ug/L	8	Standard
Sr	88	126.7	9.9				ug/L	143	Standard
C	12	43.3	58.1				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	16.7	69.3				mg/L	3	Standard
Dy	164	9971.5	0.5				mg/L	16	Standard
Ho-1	165	5984.5	0.9				mg/L	5	Standard
Er	166	5677.7	2.1				mg/L	7	Standard
I	127	355519.1	6.1				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.330	
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		98.536	
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	97.708
[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	104.665
[	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
Zn 66 Upper, S, EEE	Zn	66	

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Method 6020 - Summary Report

Sample ID: L1703160106

Sample Date/Time: Thursday, April 06, 2017 11:42:40

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	229858.1	2.9				ug/L	187001	Standard
|	Be	9	251.7	14.1	0.1069	0.015	14.1	ug/L	17	Standard
|	Al	27	57105206.9	1.6	540.9708	14.251	2.6	ug/L	1055	Standard
|	Sc	45	23002.5	3.3				ug/L	23084	Standard
|	Ti	47	2426.5	2.2	22.8494	0.286	1.3	ug/L	24	Standard
|	V	51	7695.4	6.1	1.8155	0.129	7.1	ug/L	975	Standard
|	Cr	52	14521.3	2.4	2.9552	0.037	1.2	ug/L	4542	Standard
|	Cr	53	20387.1	8.5	43.0268	2.983	6.9	ug/L	657	Standard
|	Mn	55	15888252.7	0.5	2567.3266	35.287	1.4	ug/L	1886	Standard
|	Co	59	8131.5	1.5	1.5589	0.009	0.6	ug/L	343	Standard
|	Ni	60	9682.8	3.4	8.9171	0.198	2.2	ug/L	120	Standard
|	Cu	65	13599.8	1.4	11.7066	0.144	1.2	ug/L	405	Standard
|	Zn	66	29633.0	1.5	41.9079	0.096	0.2	ug/L	263	Standard
>	Ge	72	464754.9	1.7				ug/L	524310	Standard
|	As	75	9667.2	1.3	12.9318	0.152	1.2	ug/L	4	Standard
|	Se	82	1808.1	2.9	26.2085	0.381	1.5	ug/L	16	Standard
|	Se-1	77	2508.2	4.4	51.4782	1.632	3.2	ug/L	97	Standard
>	Ga	71	1235.1	3.9				mg/L	23	Standard
|	Rb	85	15633.1	4.0				ug/L	35	Standard
|	Y	89	365887.8	3.1				ug/L	364600	Standard
>	Rh	103	773.4	2.3				ug/L	10	Standard
|	Mo	98	1881.4	2.0	0.8219	0.001	0.1	ug/L	45	Standard
|	Ag	107	246.0	4.3	0.0424	0.003	7.3	ug/L	86	Standard
|	Cd	111	353.2	1.4	0.3475	0.008	2.2	mg/L	4	Standard
|	Cd	114	933.0	7.0	0.3422	0.017	5.1	ug/L	25	Standard
>	In	115	359363.4	2.0				ug/L	418958	Standard
|	Sn	118	448.0	2.3	0.5811	0.026	4.5	ug/L	139	Standard
|	Sb	123	474.4	6.2	0.1337	0.009	7.1	ug/L	278	Standard
|	Ba	135	76780.4	0.1	75.8570	1.597	2.1	ug/L	48	Standard
|	Ce	140	63064.3	0.9				ug/L	30	Standard
>	Tb	159	651948.4	1.1				ug/L	683588	Standard
|	Ho	165	2115.1	4.2				ug/L	5	Standard
|	Tl	203	530.7	14.3	0.0679	0.014	21.0	ug/L	251	Standard
|	Tl	205	1335.1	8.9	0.0687	0.009	12.9	ug/L	568	Standard
|	Pb	206	17823.8	1.3	4.6104	0.013	0.3	ug/L	334	Standard
|	Pb	207	13819.6	0.9	3.9457	0.086	2.2	ug/L	300	Standard
|	Pb	208	18828.9	1.1	4.3555	0.101	2.3	ug/L	368	Standard
	U	238	3222.7	1.6	0.9248	0.026	2.8	ug/L	4	Standard
>	Bi	209	385629.3	1.3				ug/L	431904	Standard

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Na	23	95.0	10.5	120.1688	10.519	8.8	mg/L	0	Standard
Mg	24	15846.6	1.1	411.2158	18.021	4.4	mg/L	25	Standard
K	39	73.3	32.2	0.6573	0.325	49.5	mg/L	17	Standard
Ca	43	230.0	14.3	34.0661	6.250	18.3	mg/L	58	Standard
Fe	54	1177.7	6.8	10.5177	1.004	9.6	mg/L	23	Standard
Fe	57	991.7	4.3	21.1240	2.078	9.8	mg/L	255	Standard
Sc-1	45	23002.5	3.3				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.7	43.3				ug/L	3	Standard
Br	81	1125145.1	1.7				ug/L	1807	Standard
P	31	36.7	15.7				ug/L	32	Standard
S	34	6.7	43.3				ug/L	8	Standard
Sr	88	640.0	3.9				ug/L	143	Standard
C	12	100.0	36.1				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	53.3	57.3				mg/L	3	Standard
Dy	164	3087.8	3.3				mg/L	16	Standard
Ho-1	165	2115.1	4.2				mg/L	5	Standard
Er	166	2070.1	2.5				mg/L	7	Standard
I	127	418395.8	7.8				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		122.918	
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		88.641	
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	85.776
[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	89.286
[	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

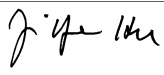
Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1703160106

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Method 6020 - Summary Report

Sample ID: L1704003601

Sample Date/Time: Thursday, April 06, 2017 11:45:45

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	219473.9	2.7				ug/L	187001	Standard
|	Be	9	1223.4	1.7	0.6447	0.028	4.3	ug/L	17	Standard
|	Al	27	28959430.6	1.0	287.3247	8.055	2.8	ug/L	1055	Standard
|	Sc	45	23116.0	1.8				ug/L	23084	Standard
|	Ti	47	1513.1	10.6	13.8472	1.623	11.7	ug/L	24	Standard
|	V	51	230.8	89.5	-0.1376	0.053	38.2	ug/L	975	Standard
|	Cr	52	26535.6	0.7	6.1323	0.187	3.1	ug/L	4542	Standard
|	Cr	53	23448.1	1.2	48.4854	1.576	3.3	ug/L	657	Standard
|	Mn	55	15835631.4	0.7	2496.9009	38.892	1.6	ug/L	1886	Standard
|	Co	59	302953.8	0.4	58.7531	1.301	2.2	ug/L	343	Standard
|	Ni	60	39311.9	0.6	35.6721	0.824	2.3	ug/L	120	Standard
|	Cu	65	2961.3	1.4	2.2532	0.090	4.0	ug/L	405	Standard
|	Zn	66	14396.8	1.1	19.6954	0.340	1.7	ug/L	263	Standard
>	Ge	72	476314.7	2.2				ug/L	524310	Standard
|	As	75	5967.3	4.5	7.8064	0.514	6.6	ug/L	4	Standard
|	Se	82	1670.9	3.3	23.6395	1.284	5.4	ug/L	16	Standard
|	Se-1	77	2071.1	4.6	41.1962	2.874	7.0	ug/L	97	Standard
>	Ga	71	735.0	10.0				mg/L	23	Standard
|	Rb	85	13317.5	3.3				ug/L	35	Standard
|	Y	89	364749.0	1.7				ug/L	364600	Standard
>	Rh	103	245.0	18.4				ug/L	10	Standard
|	Mo	98	225.4	7.1	0.0788	0.008	10.4	ug/L	45	Standard
|	Ag	107	808.7	3.2	0.1870	0.003	1.4	ug/L	86	Standard
|	Cd	111	105.7	11.8	0.0996	0.013	13.3	mg/L	4	Standard
|	Cd	114	340.1	1.8	0.1102	0.004	3.6	ug/L	25	Standard
>	In	115	372254.1	1.9				ug/L	418958	Standard
|	Sn	118	492.0	2.1	0.6279	0.025	4.0	ug/L	139	Standard
|	Sb	123	307.5	9.7	0.0691	0.011	15.2	ug/L	278	Standard
|	Ba	135	15042.5	0.6	14.3122	0.312	2.2	ug/L	48	Standard
|	Ce	140	81485.2	0.7				ug/L	30	Standard
>	Tb	159	661255.6	1.0				ug/L	683588	Standard
|	Ho	165	1448.4	5.2				ug/L	5	Standard
|	Tl	203	290.7	8.0	0.0155	0.005	29.7	ug/L	251	Standard
|	Tl	205	670.0	12.0	0.0087	0.006	70.0	ug/L	568	Standard
|	Pb	206	1374.1	3.7	0.2599	0.010	3.8	ug/L	334	Standard
|	Pb	207	1079.4	2.3	0.2202	0.005	2.0	ug/L	300	Standard
|	Pb	208	1435.0	1.9	0.2443	0.003	1.4	ug/L	368	Standard
	U	238	720.7	1.2	0.1960	0.004	2.0	ug/L	4	Standard
>	Bi	209	405568.2	0.8				ug/L	431904	Standard

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Na	23	30.0	44.1	34.9745	17.703	50.6	mg/L	0	Standard
Mg	24	9332.9	3.2	240.6511	10.215	4.2	mg/L	25	Standard
K	39	60.0	22.0	0.4736	0.182	38.5	mg/L	17	Standard
Ca	43	93.3	16.4	9.6864	2.838	29.3	mg/L	58	Standard
Fe	54	462.7	1.3	4.0173	0.033	0.8	mg/L	23	Standard
Fe	57	455.0	5.5	6.1751	0.803	13.0	mg/L	255	Standard
Sc-1	45	23116.0	1.8				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	2.3	49.5				ug/L	3	Standard
Br	81	999864.2	6.1				ug/L	1807	Standard
P	31	30.0	50.0				ug/L	32	Standard
S	34	6.7	114.6				ug/L	8	Standard
Sr	88	265.0	18.0				ug/L	143	Standard
C	12	100.0	20.0				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	26.7	57.3				mg/L	3	Standard
Dy	164	2027.1	8.1				mg/L	16	Standard
Ho-1	165	1448.4	5.2				mg/L	5	Standard
Er	166	1316.7	7.1				mg/L	7	Standard
I	127	19267579.3	9.3				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		117.365	
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		90.846	
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	88.852
[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	93.902
[	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: L1704003601

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Method 6020 - Summary Report

Sample ID: L1704003602

Sample Date/Time: Thursday, April 06, 2017 11:48:51

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	202485.0	3.2				ug/L	187001	Standard
|	Be	9	238.3	16.8	0.1166	0.019	16.5	ug/L	17	Standard
|	Al	27	17805024.6	0.6	191.5014	5.402	2.8	ug/L	1055	Standard
|	Sc	45	23543.3	3.8				ug/L	23084	Standard
|	Ti	47	506.3	8.0	4.4459	0.366	8.2	ug/L	24	Standard
|	V	51	-1623.5	25.4	-0.6030	0.096	15.9	ug/L	975	Standard
|	Cr	52	10179.1	1.0	1.6339	0.065	4.0	ug/L	4542	Standard
|	Cr	53	18973.5	0.4	38.4094	0.570	1.5	ug/L	657	Standard
|	Mn	55	1227915.8	0.2	190.5130	3.498	1.8	ug/L	1886	Standard
|	Co	59	3329.4	0.8	0.5782	0.008	1.4	ug/L	343	Standard
|	Ni	60	25145.8	0.6	22.4362	0.426	1.9	ug/L	120	Standard
|	Cu	65	1484.1	1.5	0.9608	0.017	1.7	ug/L	405	Standard
|	Zn	66	3797.1	2.1	4.8720	0.149	3.1	ug/L	263	Standard
>	Ge	72	483467.3	1.8				ug/L	524310	Standard
|	As	75	1624.5	4.6	2.1129	0.116	5.5	ug/L	4	Standard
|	Se	82	600.0	6.1	8.2677	0.599	7.2	ug/L	16	Standard
|	Se-1	77	1577.1	5.1	30.4683	2.120	7.0	ug/L	97	Standard
>	Ga	71	191.7	8.4				mg/L	23	Standard
|	Rb	85	9272.8	4.9				ug/L	35	Standard
|	Y	89	352527.3	3.6				ug/L	364600	Standard
>	Rh	103	116.7	19.8				ug/L	10	Standard
|	Mo	98	80.5	4.4	0.0157	0.002	12.9	ug/L	45	Standard
|	Ag	107	88.7	4.0	-0.0013	0.000	36.9	ug/L	86	Standard
|	Cd	111	66.9	21.7	0.0617	0.015	23.8	mg/L	4	Standard
|	Cd	114	208.4	17.1	0.0603	0.014	23.9	ug/L	25	Standard
>	In	115	377868.3	2.3				ug/L	418958	Standard
|	Sn	118	184.0	6.4	0.1067	0.014	13.3	ug/L	139	Standard
|	Sb	123	88.9	26.1	-0.0080	0.009	108.7	ug/L	278	Standard
|	Ba	135	13879.7	1.6	13.0042	0.165	1.3	ug/L	48	Standard
|	Ce	140	26227.7	3.2				ug/L	30	Standard
>	Tb	159	665776.3	1.9				ug/L	683588	Standard
|	Ho	165	528.3	6.0				ug/L	5	Standard
|	Tl	203	340.7	4.7	0.0241	0.003	10.5	ug/L	251	Standard
|	Tl	205	846.7	5.9	0.0220	0.005	21.8	ug/L	568	Standard
|	Pb	206	1077.7	2.9	0.1809	0.004	2.2	ug/L	334	Standard
|	Pb	207	880.0	0.2	0.1607	0.003	2.1	ug/L	300	Standard
|	Pb	208	1132.4	4.0	0.1721	0.009	5.4	ug/L	368	Standard
	U	238	171.0	1.8	0.0450	0.000	0.6	ug/L	4	Standard
>	Bi	209	412903.9	1.4				ug/L	431904	Standard

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Na	23	20.0	75.0	21.1858	19.481	92.0	mg/L	0	Standard
Mg	24	6311.3	0.8	159.7244	6.254	3.9	mg/L	25	Standard
K	39	46.7	6.2	0.2838	0.056	19.8	mg/L	17	Standard
Ca	43	78.3	3.7	6.7741	0.598	8.8	mg/L	58	Standard
Fe	54	52.8	14.5	0.3213	0.053	16.6	mg/L	23	Standard
Fe	57	280.0	14.6	1.2427	1.356	109.1	mg/L	255	Standard
Sc-1	45	23543.3	3.8				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	2.7	57.3				ug/L	3	Standard
Br	81	353335.9	0.7				ug/L	1807	Standard
P	31	46.7	32.7				ug/L	32	Standard
S	34	1.7	173.2				ug/L	8	Standard
Sr	88	208.3	13.2				ug/L	143	Standard
C	12	90.0	55.6				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	700.4	11.3				mg/L	16	Standard
Ho-1	165	528.3	6.0				mg/L	5	Standard
Er	166	480.0	5.5				mg/L	7	Standard
I	127	476295.5	41.7				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		108.280	
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		92.210	
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	90.192
[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	95.601
[	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

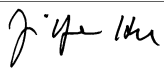
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
V 51 Lower	V	51	
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704003602

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Method 6020 - Summary Report

Sample ID: L1704012302

Sample Date/Time: Thursday, April 06, 2017 11:51:56

Number of Replicates: 3

Autosampler Position: 223

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	196691.1	3.4				ug/L	187001	Standard
|	Be	9	53.3	23.6	0.0083	0.007	86.5	ug/L	17	Standard
|	Al	27	270130.4	1.4	2.9833	0.073	2.5	ug/L	1055	Standard
|	Sc	45	23039.2	2.5				ug/L	23084	Standard
|	Ti	47	198.3	14.3	1.5462	0.212	13.7	ug/L	24	Standard
|	V	51	1458.7	4.0	0.1528	0.020	13.4	ug/L	975	Standard
|	Cr	52	6632.8	4.8	0.5947	0.052	8.8	ug/L	4542	Standard
|	Cr	53	1660.1	4.2	2.1464	0.078	3.7	ug/L	657	Standard
|	Mn	55	23447.1	2.2	3.2112	0.026	0.8	ug/L	1886	Standard
|	Co	59	550.0	0.9	0.0416	0.001	2.6	ug/L	343	Standard
|	Ni	60	519.3	3.5	0.3311	0.012	3.7	ug/L	120	Standard
|	Cu	65	834.4	6.0	0.3751	0.039	10.3	ug/L	405	Standard
|	Zn	66	1680.1	2.7	1.8589	0.076	4.1	ug/L	263	Standard
>	Ge	72	508104.5	2.0				ug/L	524310	Standard
|	As	75	28.1	137.0	0.0626	0.048	76.2	ug/L	4	Standard
|	Se	82	28.4	10.8	0.2345	0.042	18.1	ug/L	16	Standard
|	Se-1	77	127.7	11.4	0.7656	0.290	37.9	ug/L	97	Standard
>	Ga	71	131.7	35.3				mg/L	23	Standard
|	Rb	85	2265.2	2.3				ug/L	35	Standard
|	Y	89	359873.7	3.5				ug/L	364600	Standard
>	Rh	103	21.7	70.5				ug/L	10	Standard
|	Mo	98	45.9	11.1	-0.0002	0.002	942.2	ug/L	45	Standard
|	Ag	107	88.7	19.0	-0.0027	0.003	129.1	ug/L	86	Standard
|	Cd	111	9.6	21.6	0.0072	0.002	22.3	mg/L	4	Standard
|	Cd	114	43.4	15.1	-0.0011	0.002	224.3	ug/L	25	Standard
>	In	115	401257.2	2.6				ug/L	418958	Standard
|	Sn	118	185.0	18.5	0.0900	0.046	51.6	ug/L	139	Standard
|	Sb	123	79.7	3.8	-0.0128	0.002	12.4	ug/L	278	Standard
|	Ba	135	4148.6	2.3	3.6298	0.066	1.8	ug/L	48	Standard
|	Ce	140	4170.6	4.3				ug/L	30	Standard
>	Tb	159	689291.0	1.6				ug/L	683588	Standard
|	Ho	165	65.0	27.7				ug/L	5	Standard
|	Tl	203	236.0	24.3	0.0003	0.009	3207.9	ug/L	251	Standard
|	Tl	205	625.0	33.3	0.0002	0.015	9498.3	ug/L	568	Standard
|	Pb	206	751.4	10.8	0.0863	0.016	18.5	ug/L	334	Standard
|	Pb	207	623.3	3.5	0.0779	0.004	5.5	ug/L	300	Standard
|	Pb	208	815.3	3.8	0.0886	0.005	5.6	ug/L	368	Standard
	U	238	44.3	1.3	0.0101	0.000	0.8	ug/L	4	Standard
>	Bi	209	447186.7	1.9				ug/L	431904	Standard

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Na	23	5.0	100.0	2.0894	6.376	305.2	mg/L	0	Standard
Mg	24	50.0	10.0	0.8266	0.159	19.3	mg/L	25	Standard
K	39	18.3	78.7	-0.0838	0.197	234.9	mg/L	17	Standard
Ca	43	46.7	32.7	1.4342	2.676	186.6	mg/L	58	Standard
Fe	54	36.2	20.9	0.1841	0.075	40.9	mg/L	23	Standard
Fe	57	221.7	5.2	-0.2294	0.391	170.5	mg/L	255	Standard
Sc-1	45	23039.2	2.5				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	2.0	100.0				ug/L	3	Standard
Br	81	7928.8	13.7				ug/L	1807	Standard
P	31	46.7	22.3				ug/L	32	Standard
S	34	8.3	124.9				ug/L	8	Standard
Sr	88	110.0	20.8				ug/L	143	Standard
C	12	43.3	35.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	97.3	19.2				mg/L	16	Standard
Ho-1	165	65.0	27.7				mg/L	5	Standard
Er	166	56.7	50.9				mg/L	7	Standard
I	127	51472.0	15.6				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		105.182	
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		96.909	
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	95.775
[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	103.538
[	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

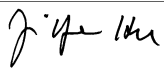
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: L1704012305

Sample Date/Time: Thursday, April 06, 2017 11:55:01

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	192258.1	3.6				ug/L	187001	Standard
|	Be	9	258.3	4.9	0.1369	0.003	2.4	ug/L	17	Standard
|	Al	27	268231.9	0.6	3.0316	0.102	3.4	ug/L	1055	Standard
|	Sc	45	23126.0	3.0				ug/L	23084	Standard
|	Ti	47	138.7	9.9	1.0349	0.131	12.7	ug/L	24	Standard
|	V	51	1956.1	3.2	0.2729	0.022	8.2	ug/L	975	Standard
|	Cr	52	6560.4	3.6	0.5808	0.037	6.4	ug/L	4542	Standard
|	Cr	53	1268.4	3.1	1.3780	0.112	8.2	ug/L	657	Standard
|	Mn	55	19971.9	8.3	2.7094	0.311	11.5	ug/L	1886	Standard
|	Co	59	1180.7	2.8	0.1571	0.011	6.9	ug/L	343	Standard
|	Ni	60	675.7	2.2	0.4660	0.011	2.4	ug/L	120	Standard
|	Cu	65	955.0	7.3	0.4738	0.039	8.2	ug/L	405	Standard
|	Zn	66	1873.8	1.5	2.1174	0.043	2.0	ug/L	263	Standard
>	Ge	72	506843.0	2.3				ug/L	524310	Standard
|	As	75	106.6	29.4	0.1585	0.040	25.0	ug/L	4	Standard
|	Se	82	18.7	12.8	0.1058	0.038	35.9	ug/L	16	Standard
|	Se-1	77	128.0	11.8	0.7762	0.273	35.1	ug/L	97	Standard
>	Ga	71	96.7	15.8				mg/L	23	Standard
|	Rb	85	2080.1	3.8				ug/L	35	Standard
|	Y	89	360423.5	2.7				ug/L	364600	Standard
>	Rh	103	21.7	26.6				ug/L	10	Standard
|	Mo	98	41.3	5.2	-0.0021	0.001	52.3	ug/L	45	Standard
|	Ag	107	86.7	2.9	-0.0033	0.001	24.8	ug/L	86	Standard
|	Cd	111	158.3	8.6	0.1374	0.009	6.3	mg/L	4	Standard
|	Cd	114	411.8	6.2	0.1246	0.011	8.5	ug/L	25	Standard
>	In	115	404528.1	2.3				ug/L	418958	Standard
|	Sn	118	182.7	6.2	0.0849	0.021	24.8	ug/L	139	Standard
|	Sb	123	118.8	3.6	-0.0004	0.002	344.2	ug/L	278	Standard
|	Ba	135	4186.9	1.0	3.6339	0.047	1.3	ug/L	48	Standard
|	Ce	140	3540.4	3.9				ug/L	30	Standard
>	Tb	159	680229.6	1.5				ug/L	683588	Standard
|	Ho	165	55.0	9.1				ug/L	5	Standard
|	Tl	203	774.4	2.0	0.0981	0.002	1.6	ug/L	251	Standard
|	Tl	205	1793.4	6.3	0.0887	0.011	11.8	ug/L	568	Standard
|	Pb	206	1120.0	6.9	0.1733	0.014	8.0	ug/L	334	Standard
|	Pb	207	921.4	3.1	0.1556	0.007	4.6	ug/L	300	Standard
|	Pb	208	1233.0	3.3	0.1767	0.011	6.2	ug/L	368	Standard
	U	238	484.0	2.5	0.1205	0.003	2.9	ug/L	4	Standard
>	Bi	209	441641.7	1.5				ug/L	431904	Standard

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Na	23	5.0	100.0	2.1142	6.595	311.9	mg/L	0	Standard
Mg	24	60.0	8.3	1.0808	0.173	16.0	mg/L	25	Standard
K	39	11.7	107.9	-0.1777	0.163	91.5	mg/L	17	Standard
Ca	43	38.3	19.9	-0.0666	1.239	1859.9	mg/L	58	Standard
Fe	54	43.0	23.6	0.2429	0.093	38.4	mg/L	23	Standard
Fe	57	215.0	20.3	-0.4546	1.083	238.2	mg/L	255	Standard
Sc-1	45	23126.0	3.0				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.7	34.6				ug/L	3	Standard
Br	81	4577.4	5.6				ug/L	1807	Standard
P	31	28.3	10.2				ug/L	32	Standard
S	34	8.3	124.9				ug/L	8	Standard
Sr	88	123.3	29.9				ug/L	143	Standard
C	12	70.0	62.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	79.2	26.4				mg/L	16	Standard
Ho-1	165	55.0	9.1				mg/L	5	Standard
Er	166	86.7	53.3				mg/L	7	Standard
I	127	34257.1	4.7				mg/L	2930	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.811	
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		96.669	
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	96.556
[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	102.255
[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

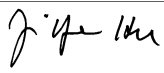
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1704012305

Report Date/Time: Thursday, April 06, 2017 15:41:57

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Thursday, April 06, 2017 11:58:08

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	186725.9	2.9				ug/L	187001	Standard
|	Be	9	76929.8	0.8	49.3969	1.081	2.2	ug/L	17	Standard
|	Al	27	4169819.5	0.7	48.6201	1.148	2.4	ug/L	1055	Standard
|	Sc	45	23247.8	1.2				ug/L	23084	Standard
|	Ti	47	11723.2	0.7	102.1678	0.808	0.8	ug/L	24	Standard
|	V	51	204204.3	0.6	48.9137	0.728	1.5	ug/L	975	Standard
|	Cr	52	195522.5	0.8	49.1239	0.417	0.8	ug/L	4542	Standard
|	Cr	53	25147.5	0.4	49.0299	0.842	1.7	ug/L	657	Standard
|	Mn	55	336274.1	0.7	49.7454	1.000	2.0	ug/L	1886	Standard
|	Co	59	270620.2	1.0	49.4674	0.721	1.5	ug/L	343	Standard
|	Ni	60	58039.6	1.4	49.6898	0.596	1.2	ug/L	120	Standard
|	Cu	65	61273.3	0.8	49.4654	0.498	1.0	ug/L	405	Standard
|	Zn	66	38100.5	0.5	49.6415	0.803	1.6	ug/L	263	Standard
>	Ge	72	505144.0	1.4				ug/L	524310	Standard
|	As	75	40148.4	1.1	49.3311	0.261	0.5	ug/L	4	Standard
|	Se	82	3834.0	1.6	51.2732	0.276	0.5	ug/L	16	Standard
|	Se-1	77	2683.2	3.2	50.6759	2.397	4.7	ug/L	97	Standard
>	Ga	71	56.7	33.4				mg/L	23	Standard
|	Rb	85	261.7	10.5				ug/L	35	Standard
|	Y	89	356378.2	1.7				ug/L	364600	Standard
>	Rh	103	10.0	100.0				ug/L	10	Standard
|	Mo	98	250687.1	0.9	100.0781	2.396	2.4	ug/L	45	Standard
|	Ag	107	205880.1	1.2	49.7481	0.498	1.0	ug/L	86	Standard
|	Cd	111	56789.7	0.4	50.1150	0.855	1.7	mg/L	4	Standard
|	Cd	114	146570.3	1.2	50.3209	0.584	1.2	ug/L	25	Standard
>	In	115	402157.9	2.1				ug/L	418958	Standard
|	Sn	118	32191.8	2.6	49.7511	1.216	2.4	ug/L	139	Standard
|	Sb	123	150831.8	0.8	49.0005	0.736	1.5	ug/L	278	Standard
|	Ba	135	55341.9	0.7	48.8426	1.030	2.1	ug/L	48	Standard
|	Ce	140	186.7	19.4				ug/L	30	Standard
>	Tb	159	682689.8	0.5				ug/L	683588	Standard
|	Ho	165	5.0	100.0				ug/L	5	Standard
|	Tl	203	270321.9	0.9	49.1892	0.468	1.0	ug/L	251	Standard
|	Tl	205	648434.7	1.4	49.0711	0.946	1.9	ug/L	568	Standard
|	Pb	206	213606.2	0.3	49.4999	0.494	1.0	ug/L	334	Standard
|	Pb	207	194039.9	0.4	49.7107	0.540	1.1	ug/L	300	Standard
|	Pb	208	238531.7	0.3	49.3994	0.502	1.0	ug/L	368	Standard
	U	238	207229.2	0.2	52.4420	0.282	0.5	ug/L	4	Standard
>	Bi	209	437587.2	0.8				ug/L	431904	Standard

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Na	23	5.0	100.0	2.1539	6.583	305.7	mg/L	0	Standard
Mg	24	208.3	10.8	4.8828	0.634	13.0	mg/L	25	Standard
K	39	340.0	9.6	4.2023	0.481	11.4	mg/L	17	Standard
Ca	43	53.3	14.3	2.5475	1.354	53.2	mg/L	58	Standard
Fe	54	548.6	9.2	4.7592	0.421	8.8	mg/L	23	Standard
Fe	57	395.0	9.9	4.4613	1.134	25.4	mg/L	255	Standard
Sc-1	45	23247.8	1.2				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.0	100.0				ug/L	3	Standard
Br	81	3157.0	7.4				ug/L	1807	Standard
P	31	30.0	57.7				ug/L	32	Standard
S	34	13.3	43.3				ug/L	8	Standard
Sr	88	116.7	25.1				ug/L	143	Standard
C	12	20.0	100.0				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	12.7	46.9				mg/L	16	Standard
Ho-1	165	5.0	100.0				mg/L	5	Standard
Er	166	13.3	114.6				mg/L	7	Standard
I	127	19437.5	5.9				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	98.794		
Al	27	97.240		
Sc	45			
Ti	47	102.168		
V	51	97.827		
Cr	52	98.248		
Cr	53			
Mn	55	99.491		
Co	59	98.935		
Ni	60	99.380		
Cu	65	98.931		
Zn	66	99.283		
Ge	72		96.345	
As	75	98.662		
Se	82	102.546		
Se-1	77			
Ga	71			

Sample ID: QC Std 6

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	100.078	
[Ag	107	99.496	
[Cd	111	100.230	
[Cd	114		
>	In	115		95.990
[Sn	118	99.502	
[	Sb	123	98.001	
[	Ba	135	97.685	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	98.378	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	98.799	
[	U	238	104.884	
>	Bi	209		101.316
[	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

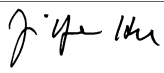
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Thursday, April 06, 2017 12:01:14

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	186749.0	1.7				ug/L	187001	Standard
|	Be	9	45.0	40.1	0.0047	0.011	242.7	ug/L	17	Standard
|	Al	27	1166.7	19.6	0.0061	0.002	39.8	ug/L	1055	Standard
|	Sc	45	22760.4	2.1				ug/L	23084	Standard
|	Ti	47	24.3	15.6	0.0446	0.039	87.2	ug/L	24	Standard
|	V	51	709.0	7.8	-0.0225	0.013	59.5	ug/L	975	Standard
|	Cr	52	3818.1	1.7	-0.0994	0.013	13.5	ug/L	4542	Standard
|	Cr	53	695.0	3.1	0.2683	0.080	29.6	ug/L	657	Standard
|	Mn	55	1915.1	4.0	0.0359	0.007	18.8	ug/L	1886	Standard
|	Co	59	225.7	4.3	-0.0163	0.002	15.2	ug/L	343	Standard
|	Ni	60	148.0	5.5	0.0174	0.004	21.2	ug/L	120	Standard
|	Cu	65	417.7	3.0	0.0473	0.019	40.7	ug/L	405	Standard
|	Zn	66	450.3	8.0	0.2701	0.061	22.4	ug/L	263	Standard
>	Ge	72	495974.7	2.7				ug/L	524310	Standard
|	As	75	-9.1	399.4	0.0161	0.045	282.6	ug/L	4	Standard
|	Se	82	13.6	39.1	0.0413	0.076	184.5	ug/L	16	Standard
|	Se-1	77	97.7	12.0	0.2264	0.188	82.9	ug/L	97	Standard
>	Ga	71	26.7	47.2				mg/L	23	Standard
|	Rb	85	28.3	27.0				ug/L	35	Standard
|	Y	89	350697.0	2.4				ug/L	364600	Standard
>	Rh	103	20.0	43.3				ug/L	10	Standard
|	Mo	98	111.4	14.9	0.0261	0.006	21.5	ug/L	45	Standard
|	Ag	107	97.7	2.4	-0.0004	0.001	157.0	ug/L	86	Standard
|	Cd	111	5.9	61.9	0.0039	0.003	83.4	mg/L	4	Standard
|	Cd	114	29.0	55.9	-0.0061	0.005	89.8	ug/L	25	Standard
>	In	115	399829.0	2.3				ug/L	418958	Standard
|	Sn	118	163.0	2.8	0.0575	0.013	21.8	ug/L	139	Standard
|	Sb	123	255.4	39.4	0.0449	0.034	75.7	ug/L	278	Standard
|	Ba	135	35.7	15.9	-0.0109	0.004	39.4	ug/L	48	Standard
|	Ce	140	21.7	81.0				ug/L	30	Standard
>	Tb	159	671329.3	0.9				ug/L	683588	Standard
|	Ho	165	1.7	173.2				ug/L	5	Standard
|	Tl	203	97.3	7.4	-0.0238	0.001	5.1	ug/L	251	Standard
|	Tl	205	246.7	18.4	-0.0271	0.004	13.7	ug/L	568	Standard
|	Pb	206	396.7	4.9	0.0087	0.005	51.9	ug/L	334	Standard
|	Pb	207	352.7	2.7	0.0127	0.002	12.9	ug/L	300	Standard
|	Pb	208	446.3	6.5	0.0166	0.005	31.8	ug/L	368	Standard
	U	238	29.0	42.0	0.0066	0.003	48.4	ug/L	4	Standard
>	Bi	209	433670.0	1.5				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	31.7	39.7	0.3579	0.328	91.6	mg/L	25	Standard
K	39	13.3	21.7	-0.1494	0.042	28.3	mg/L	17	Standard
Ca	43	63.3	43.5	4.5429	4.959	109.2	mg/L	58	Standard
Fe	54	21.3	34.6	0.0523	0.072	136.8	mg/L	23	Standard
Fe	57	181.7	17.9	-1.2694	0.975	76.8	mg/L	255	Standard
Sc-1	45	22760.4	2.1				mg/L	23084	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	1.3	114.6				ug/L	3	Standard
Br	81	2470.2	12.0				ug/L	1807	Standard
P	31	25.0	40.0				ug/L	32	Standard
S	34	11.7	24.7				ug/L	8	Standard
Sr	88	128.3	31.5				ug/L	143	Standard
C	12	30.0	115.5				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	16.2	74.0				mg/L	16	Standard
Ho-1	165	1.7	173.2				mg/L	5	Standard
Er	166	10.0	173.2				mg/L	7	Standard
I	127	14899.0	8.8				mg/L	2930	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		94.596	
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	95.434
[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	100.409
[	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

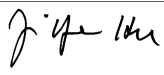
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: QC Std 7

Report Date/Time: Thursday, April 06, 2017 15:42:02

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Method 6020 - Summary Report

Sample ID: L1704012308

Sample Date/Time: Thursday, April 06, 2017 12:04:20

Number of Replicates: 3

Autosampler Position: 225

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	192145.1	3.7				ug/L	187001	Standard
|	Be	9	65.0	7.7	0.0165	0.004	23.5	ug/L	17	Standard
|	Al	27	275819.1	2.7	3.1215	0.193	6.2	ug/L	1055	Standard
|	Sc	45	23343.0	3.6				ug/L	23084	Standard
|	Ti	47	121.3	4.1	0.8845	0.019	2.1	ug/L	24	Standard
|	V	51	1349.4	3.7	0.1278	0.011	8.5	ug/L	975	Standard
|	Cr	52	5897.1	1.9	0.4141	0.052	12.5	ug/L	4542	Standard
|	Cr	53	1008.4	6.0	0.8653	0.164	19.0	ug/L	657	Standard
|	Mn	55	24584.5	12.7	3.3979	0.504	14.8	ug/L	1886	Standard
|	Co	59	587.3	19.3	0.0491	0.022	45.0	ug/L	343	Standard
|	Ni	60	486.7	5.0	0.3052	0.027	8.8	ug/L	120	Standard
|	Cu	65	838.4	7.2	0.3806	0.036	9.3	ug/L	405	Standard
|	Zn	66	1650.8	1.3	1.8299	0.076	4.2	ug/L	263	Standard
>	Ge	72	506063.3	2.3				ug/L	524310	Standard
|	As	75	-8.4	899.5	0.0184	0.092	502.9	ug/L	4	Standard
|	Se	82	18.4	56.2	0.1019	0.141	138.7	ug/L	16	Standard
|	Se-1	77	99.7	17.3	0.2270	0.312	137.4	ug/L	97	Standard
>	Ga	71	73.3	7.9				mg/L	23	Standard
|	Rb	85	1755.1	2.5				ug/L	35	Standard
|	Y	89	358063.0	2.3				ug/L	364600	Standard
>	Rh	103	18.3	56.8				ug/L	10	Standard
|	Mo	98	61.0	28.2	0.0058	0.007	126.6	ug/L	45	Standard
|	Ag	107	99.0	19.7	-0.0004	0.004	1216.2	ug/L	86	Standard
|	Cd	111	26.3	15.9	0.0217	0.003	14.7	mg/L	4	Standard
|	Cd	114	76.1	40.5	0.0099	0.011	106.2	ug/L	25	Standard
>	In	115	404399.7	2.3				ug/L	418958	Standard
|	Sn	118	208.7	5.1	0.1252	0.023	18.2	ug/L	139	Standard
|	Sb	123	129.9	30.6	0.0033	0.014	415.1	ug/L	278	Standard
|	Ba	135	3974.9	0.7	3.4491	0.064	1.9	ug/L	48	Standard
|	Ce	140	2720.2	1.0				ug/L	30	Standard
>	Tb	159	682342.1	2.5				ug/L	683588	Standard
|	Ho	165	38.3	7.5				ug/L	5	Standard
|	Tl	203	169.3	6.4	-0.0110	0.002	22.3	ug/L	251	Standard
|	Tl	205	461.7	13.6	-0.0112	0.005	46.9	ug/L	568	Standard
|	Pb	206	608.3	8.3	0.0562	0.012	21.3	ug/L	334	Standard
|	Pb	207	532.7	2.9	0.0573	0.002	2.8	ug/L	300	Standard
|	Pb	208	656.7	6.6	0.0585	0.007	11.3	ug/L	368	Standard
	U	238	68.7	25.7	0.0165	0.005	27.9	ug/L	4	Standard
>	Bi	209	440057.2	1.7				ug/L	431904	Standard

Sample ID: L1704012308

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Na	23	1.7	173.2	-2.2025	3.781	171.7	mg/L	0	Standard
Mg	24	50.0	30.0	0.7996	0.339	42.3	mg/L	25	Standard
K	39	20.0	100.0	-0.0718	0.255	355.2	mg/L	17	Standard
Ca	43	51.7	20.1	2.2018	1.726	78.4	mg/L	58	Standard
Fe	54	21.4	57.4	0.0484	0.114	236.2	mg/L	23	Standard
Fe	57	230.0	14.3	-0.0881	0.860	975.7	mg/L	255	Standard
Sc-1	45	23343.0	3.6				mg/L	23084	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	3.0	33.3				ug/L	3	Standard
Br	81	3393.7	4.1				ug/L	1807	Standard
P	31	35.0	28.6				ug/L	32	Standard
S	34	13.3	57.3				ug/L	8	Standard
Sr	88	143.3	13.2				ug/L	143	Standard
C	12	30.0	66.7				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	173.2				mg/L	3	Standard
Dy	164	67.9	14.4				mg/L	16	Standard
Ho-1	165	38.3	7.5				mg/L	5	Standard
Er	166	43.3	13.3				mg/L	7	Standard
I	127	18054.1	1.2				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.751	
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		96.520	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704012308

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	96.525
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
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[S	34	
[Sr	88	
[C	12	
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[Ho-1	165	
[Er	166	
[I	127	

QC Out of Limits

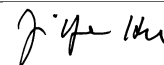
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1704012308

Report Date/Time: Thursday, April 06, 2017 15:42:04

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Method 6020 - Summary Report

Sample ID: L1704012320

Sample Date/Time: Thursday, April 06, 2017 12:07:25

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	187610.0	3.0				ug/L	187001	Standard
|	Be	9	53.3	42.3	0.0099	0.015	147.1	ug/L	17	Standard
|	Al	27	8676.1	39.4	0.0925	0.036	39.1	ug/L	1055	Standard
|	Sc	45	22586.8	3.2				ug/L	23084	Standard
|	Ti	47	25.0	8.0	0.0465	0.013	26.9	ug/L	24	Standard
|	V	51	911.2	9.9	0.0245	0.029	119.3	ug/L	975	Standard
|	Cr	52	5622.0	3.6	0.3510	0.003	0.7	ug/L	4542	Standard
|	Cr	53	1021.7	9.4	0.8983	0.125	13.9	ug/L	657	Standard
|	Mn	55	9053.8	130.3	1.0557	1.676	158.7	ug/L	1886	Standard
|	Co	59	456.7	59.9	0.0243	0.046	189.9	ug/L	343	Standard
|	Ni	60	279.3	38.0	0.1267	0.081	63.9	ug/L	120	Standard
|	Cu	65	935.4	12.9	0.4623	0.070	15.1	ug/L	405	Standard
|	Zn	66	1253.7	14.3	1.3139	0.171	13.0	ug/L	263	Standard
>	Ge	72	503245.4	3.8				ug/L	524310	Standard
|	As	75	33.1	166.2	0.0669	0.065	97.1	ug/L	4	Standard
|	Se	82	17.2	38.3	0.0855	0.079	92.0	ug/L	16	Standard
|	Se-1	77	86.7	10.3	-0.0170	0.112	660.8	ug/L	97	Standard
>	Ga	71	38.3	7.5				mg/L	23	Standard
|	Rb	85	83.3	19.3				ug/L	35	Standard
|	Y	89	351270.2	6.2				ug/L	364600	Standard
>	Rh	103	20.0	50.0				ug/L	10	Standard
|	Mo	98	70.2	99.3	0.0091	0.026	292.1	ug/L	45	Standard
|	Ag	107	128.0	51.7	0.0066	0.015	222.9	ug/L	86	Standard
|	Cd	111	27.2	60.8	0.0225	0.014	60.6	mg/L	4	Standard
|	Cd	114	84.3	75.6	0.0125	0.021	165.2	ug/L	25	Standard
>	In	115	400527.1	3.5				ug/L	418958	Standard
|	Sn	118	211.7	1.2	0.1329	0.008	6.0	ug/L	139	Standard
|	Sb	123	109.4	27.7	-0.0032	0.009	280.6	ug/L	278	Standard
|	Ba	135	664.3	7.3	0.5461	0.026	4.8	ug/L	48	Standard
|	Ce	140	61.7	49.5				ug/L	30	Standard
>	Tb	159	674896.5	3.5				ug/L	683588	Standard
|	Ho	165	8.3	91.7				ug/L	5	Standard
|	Tl	203	140.0	42.7	-0.0163	0.010	61.8	ug/L	251	Standard
|	Tl	205	316.7	43.4	-0.0221	0.010	43.7	ug/L	568	Standard
|	Pb	206	506.0	14.4	0.0334	0.014	41.0	ug/L	334	Standard
|	Pb	207	411.3	9.6	0.0271	0.007	25.5	ug/L	300	Standard
|	Pb	208	520.0	7.0	0.0313	0.004	14.2	ug/L	368	Standard
	U	238	59.3	39.2	0.0141	0.005	38.6	ug/L	4	Standard
>	Bi	209	436336.5	3.1				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.2231	3.745	168.5	mg/L	0	Standard
Mg	24	61.7	12.4	1.1605	0.216	18.6	mg/L	25	Standard
K	39	3.3	173.2	-0.2858	0.079	27.6	mg/L	17	Standard
Ca	43	33.3	8.7	-0.7846	0.682	86.9	mg/L	58	Standard
Fe	54	16.3	78.6	0.0052	0.113	2159.4	mg/L	23	Standard
Fe	57	230.0	18.8	0.1073	1.040	969.5	mg/L	255	Standard
Sc-1	45	22586.8	3.2				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	3.3	62.4				ug/L	3	Standard
Br	81	2583.6	2.7				ug/L	1807	Standard
P	31	41.7	60.4				ug/L	32	Standard
S	34	11.7	65.5				ug/L	8	Standard
Sr	88	93.3	13.5				ug/L	143	Standard
C	12	26.7	43.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	9.4	173.2				mg/L	16	Standard
Ho-1	165	8.3	91.7				mg/L	5	Standard
Er	166	13.3	173.2				mg/L	7	Standard
I	127	12697.0	3.9				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.326	
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		95.982	
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	95.601
[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	101.026
[	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

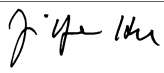
Measurement Type	Analyte	Mass	Out of Limits Message
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Report Date/Time: Thursday, April 06, 2017 15:42:09

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Method 6020 - Summary Report

Sample ID: L1704012323

Sample Date/Time: Thursday, April 06, 2017 12:10:31

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	185875.3	5.3				ug/L	187001	Standard
|	Be	9	61.7	23.4	0.0160	0.011	68.9	ug/L	17	Standard
|	Al	27	6438.0	6.4	0.0679	0.003	3.9	ug/L	1055	Standard
|	Sc	45	23074.2	3.1				ug/L	23084	Standard
|	Ti	47	34.3	21.9	0.1336	0.070	52.2	ug/L	24	Standard
|	V	51	1023.3	12.2	0.0541	0.024	44.8	ug/L	975	Standard
|	Cr	52	5598.7	2.3	0.3667	0.020	5.4	ug/L	4542	Standard
|	Cr	53	890.0	6.3	0.6652	0.140	21.1	ug/L	657	Standard
|	Mn	55	2273.2	0.9	0.0904	0.008	9.0	ug/L	1886	Standard
|	Co	59	360.3	4.2	0.0088	0.004	45.7	ug/L	343	Standard
|	Ni	60	292.7	4.5	0.1439	0.005	3.3	ug/L	120	Standard
|	Cu	65	875.4	5.6	0.4253	0.022	5.2	ug/L	405	Standard
|	Zn	66	1028.7	4.2	1.0423	0.052	5.0	ug/L	263	Standard
>	Ge	72	495849.5	2.6				ug/L	524310	Standard
|	As	75	9.9	168.3	0.0401	0.021	52.0	ug/L	4	Standard
|	Se	82	22.1	33.1	0.1557	0.095	61.0	ug/L	16	Standard
|	Se-1	77	90.7	9.4	0.0943	0.216	229.6	ug/L	97	Standard
>	Ga	71	31.7	24.1				mg/L	23	Standard
|	Rb	85	58.3	34.6				ug/L	35	Standard
|	Y	89	349674.6	3.0				ug/L	364600	Standard
>	Rh	103	6.7	43.3				ug/L	10	Standard
|	Mo	98	26.6	18.9	-0.0076	0.002	26.6	ug/L	45	Standard
|	Ag	107	156.0	12.8	0.0147	0.006	41.2	ug/L	86	Standard
|	Cd	111	30.6	21.2	0.0263	0.005	19.3	mg/L	4	Standard
|	Cd	114	86.1	8.5	0.0143	0.003	21.9	ug/L	25	Standard
>	In	115	391875.0	3.1				ug/L	418958	Standard
|	Sn	118	208.3	6.6	0.1352	0.030	21.9	ug/L	139	Standard
|	Sb	123	82.8	18.0	-0.0111	0.006	52.1	ug/L	278	Standard
|	Ba	135	438.3	6.9	0.3545	0.019	5.3	ug/L	48	Standard
|	Ce	140	115.0	23.0				ug/L	30	Standard
>	Tb	159	670510.1	2.7				ug/L	683588	Standard
|	Ho	165	5.0	173.2				ug/L	5	Standard
|	Tl	203	143.3	7.0	-0.0152	0.002	10.3	ug/L	251	Standard
|	Tl	205	348.3	4.1	-0.0192	0.002	9.4	ug/L	568	Standard
|	Pb	206	426.0	7.0	0.0161	0.004	25.7	ug/L	334	Standard
|	Pb	207	349.0	6.5	0.0122	0.003	28.2	ug/L	300	Standard
|	Pb	208	444.7	3.0	0.0169	0.005	28.7	ug/L	368	Standard
	U	238	63.0	13.6	0.0153	0.002	11.4	ug/L	4	Standard
>	Bi	209	431094.1	3.1				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.1460	3.879	180.7	mg/L	0	Standard
Mg	24	56.7	45.3	0.9845	0.617	62.7	mg/L	25	Standard
K	39	13.3	21.7	-0.1529	0.035	23.2	mg/L	17	Standard
Ca	43	63.3	19.9	4.4023	2.359	53.6	mg/L	58	Standard
Fe	54	29.4	32.1	0.1212	0.084	69.4	mg/L	23	Standard
Fe	57	203.3	19.9	-0.7273	1.234	169.6	mg/L	255	Standard
Sc-1	45	23074.2	3.1				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	1.7	34.6				ug/L	3	Standard
Br	81	4617.4	5.5				ug/L	1807	Standard
P	31	36.7	28.4				ug/L	32	Standard
S	34	11.7	49.5				ug/L	8	Standard
Sr	88	113.3	13.5				ug/L	143	Standard
C	12	50.0	40.0				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	-0.2	173.2				mg/L	16	Standard
Ho-1	165	5.0	173.2				mg/L	5	Standard
Er	166	3.3	173.2				mg/L	7	Standard
I	127	10828.9	2.5				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.398	
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		94.572	
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	93.536
[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	99.813
[	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

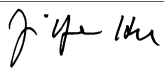
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1704012323

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Method 6020 - Summary Report

Sample ID: L1704002403

Sample Date/Time: Thursday, April 06, 2017 12:13:35

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	186914.2	0.3				ug/L	187001	Standard
|	Be	9	993.4	7.1	0.6130	0.044	7.1	ug/L	17	Standard
|	Al	27	236391.6	3.8	2.7451	0.099	3.6	ug/L	1055	Standard
|	Sc	45	26072.4	2.0				ug/L	23084	Standard
|	Ti	47	1981.8	4.7	17.5699	0.938	5.3	ug/L	24	Standard
|	V	51	93885.7	1.3	22.9523	0.198	0.9	ug/L	975	Standard
|	Cr	52	35729.4	0.8	8.3117	0.115	1.4	ug/L	4542	Standard
|	Cr	53	4659.1	3.2	8.3871	0.384	4.6	ug/L	657	Standard
|	Mn	55	3343263.9	0.8	509.3769	5.532	1.1	ug/L	1886	Standard
|	Co	59	184999.0	1.4	34.6537	0.465	1.3	ug/L	343	Standard
|	Ni	60	9776.8	0.5	8.4898	0.023	0.3	ug/L	120	Standard
|	Cu	65	12784.4	1.7	10.3474	0.203	2.0	ug/L	405	Standard
|	Zn	66	17494.8	0.3	23.1937	0.119	0.5	ug/L	263	Standard
>	Ge	72	492648.0	0.8				ug/L	524310	Standard
|	As	75	2122.2	3.8	2.6995	0.085	3.1	ug/L	4	Standard
|	Se	82	27.2	17.4	0.2294	0.068	29.6	ug/L	16	Standard
|	Se-1	77	102.7	1.1	0.3423	0.011	3.2	ug/L	97	Standard
>	Ga	71	10463.6	2.2				mg/L	23	Standard
|	Rb	85	29508.7	2.2				ug/L	35	Standard
|	Y	89	443983.1	0.9				ug/L	364600	Standard
>	Rh	103	8.3	34.6				ug/L	10	Standard
|	Mo	98	283.0	17.5	0.0981	0.021	21.3	ug/L	45	Standard
|	Ag	107	211.0	2.2	0.0285	0.001	4.6	ug/L	86	Standard
|	Cd	111	42.0	19.1	0.0369	0.007	20.1	mg/L	4	Standard
|	Cd	114	125.3	19.0	0.0284	0.009	30.2	ug/L	25	Standard
>	In	115	389743.6	0.7				ug/L	418958	Standard
|	Sn	118	114.7	15.4	-0.0133	0.029	219.0	ug/L	139	Standard
|	Sb	123	64.5	32.9	-0.0172	0.007	42.1	ug/L	278	Standard
|	Ba	135	10017.6	1.1	9.0860	0.120	1.3	ug/L	48	Standard
|	Ce	140	4947098.4	0.5				ug/L	30	Standard
>	Tb	159	670160.5	0.6				ug/L	683588	Standard
|	Ho	165	8999.3	3.2				ug/L	5	Standard
|	Tl	203	1331.1	1.3	0.2071	0.004	1.7	ug/L	251	Standard
|	Tl	205	3247.0	6.5	0.2064	0.017	8.1	ug/L	568	Standard
|	Pb	206	81494.6	0.6	19.3260	0.183	0.9	ug/L	334	Standard
|	Pb	207	63276.2	0.6	16.5806	0.146	0.9	ug/L	300	Standard
|	Pb	208	83371.2	0.2	17.6664	0.064	0.4	ug/L	368	Standard
	U	238	1924.5	4.4	0.4988	0.020	4.1	ug/L	4	Standard
>	Bi	209	426463.6	0.5				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	25.0	69.3	0.1019	0.399	391.7	mg/L	25	Standard
K	39	25.0	52.9	-0.0342	0.159	463.6	mg/L	17	Standard
Ca	43	51.7	22.3	1.2746	1.843	144.6	mg/L	58	Standard
Fe	54	1854.5	6.1	14.6325	0.599	4.1	mg/L	23	Standard
Fe	57	816.7	12.0	13.6130	2.784	20.5	mg/L	255	Standard
Sc-1	45	26072.4	2.0				mg/L	23084	Standard
Cl	35	4.7	24.7				ug/L	1	Standard
Kr	83	4.3	48.0				ug/L	3	Standard
Br	81	2130.1	2.6				ug/L	1807	Standard
P	31	31.7	36.5				ug/L	32	Standard
S	34	6.7	114.6				ug/L	8	Standard
Sr	88	126.7	12.7				ug/L	143	Standard
C	12	33.3	45.8				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	90.0	29.4				mg/L	3	Standard
Dy	164	14285.2	1.7				mg/L	16	Standard
Ho-1	165	8999.3	3.2				mg/L	5	Standard
Er	166	8599.1	3.7				mg/L	7	Standard
I	127	13207.4	0.5				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.954	
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		93.961	
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	93.027
[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	98.740
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[Ca	43	
[Fe	54	
[Fe	57	
>	Sc-1	45	
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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

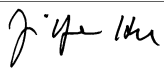
Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002403

Report Date/Time: Thursday, April 06, 2017 15:42:27

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Method 6020 - Summary Report

Sample ID: L1704002405

Sample Date/Time: Thursday, April 06, 2017 12:16:41

Number of Replicates: 3

Autosampler Position: 229

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	190343.3	1.6				ug/L	187001	Standard
|	Be	9	3267.0	4.3	2.0351	0.120	5.9	ug/L	17	Standard
|	Al	27	344166.8	0.8	3.9285	0.049	1.2	ug/L	1055	Standard
|	Sc	45	26954.0	2.5				ug/L	23084	Standard
|	Ti	47	1518.7	3.2	13.1632	0.536	4.1	ug/L	24	Standard
|	V	51	91917.9	0.1	22.0334	0.173	0.8	ug/L	975	Standard
|	Cr	52	95942.8	0.8	23.6849	0.229	1.0	ug/L	4542	Standard
|	Cr	53	12718.7	1.0	24.3741	0.437	1.8	ug/L	657	Standard
|	Mn	55	334383.6	1.3	49.7380	0.470	0.9	ug/L	1886	Standard
|	Co	59	13359.9	1.5	2.4005	0.053	2.2	ug/L	343	Standard
|	Ni	60	20966.2	1.0	17.9804	0.176	1.0	ug/L	120	Standard
|	Cu	65	12418.1	1.4	9.8445	0.206	2.1	ug/L	405	Standard
|	Zn	66	26076.4	0.5	34.0625	0.440	1.3	ug/L	263	Standard
>	Ge	72	502284.2	0.8				ug/L	524310	Standard
|	As	75	1840.7	3.1	2.3006	0.052	2.3	ug/L	4	Standard
|	Se	82	42.1	9.0	0.4229	0.053	12.6	ug/L	16	Standard
|	Se-1	77	148.0	5.1	1.1920	0.124	10.4	ug/L	97	Standard
>	Ga	71	13752.9	2.6				mg/L	23	Standard
|	Rb	85	40759.8	2.2				ug/L	35	Standard
|	Y	89	851547.0	1.1				ug/L	364600	Standard
>	Rh	103	18.3	31.5				ug/L	10	Standard
|	Mo	98	193.8	12.7	0.0600	0.011	17.9	ug/L	45	Standard
|	Ag	107	228.0	10.0	0.0318	0.006	18.9	ug/L	86	Standard
|	Cd	111	97.1	14.7	0.0856	0.014	15.9	mg/L	4	Standard
|	Cd	114	263.5	20.8	0.0758	0.020	26.5	ug/L	25	Standard
>	In	115	396875.4	1.0				ug/L	418958	Standard
|	Sn	118	116.7	9.4	-0.0135	0.018	134.8	ug/L	139	Standard
|	Sb	123	62.7	62.6	-0.0181	0.013	72.9	ug/L	278	Standard
|	Ba	135	11975.7	1.1	10.6738	0.036	0.3	ug/L	48	Standard
|	Ce	140	545421.8	0.3				ug/L	30	Standard
>	Tb	159	704018.9	1.5				ug/L	683588	Standard
|	Ho	165	38477.1	0.9				ug/L	5	Standard
|	Tl	203	610.7	7.5	0.0724	0.008	11.1	ug/L	251	Standard
|	Tl	205	1448.4	7.9	0.0666	0.009	13.0	ug/L	568	Standard
|	Pb	206	33616.6	1.5	7.9224	0.126	1.6	ug/L	334	Standard
|	Pb	207	25865.1	1.1	6.7308	0.040	0.6	ug/L	300	Standard
|	Pb	208	34176.6	0.5	7.1967	0.054	0.8	ug/L	368	Standard
	U	238	523.3	5.8	0.1350	0.007	5.4	ug/L	4	Standard
>	Bi	209	426465.0	0.6				ug/L	431904	Standard

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Na	23	0.0		-4.3853	0.000	0.0	mg/L	0	Standard
Mg	24	18.3	41.7	-0.0673	0.164	244.2	mg/L	25	Standard
K	39	26.7	21.7	-0.0239	0.072	302.0	mg/L	17	Standard
Ca	43	46.7	24.7	0.2251	1.586	704.9	mg/L	58	Standard
Fe	54	2213.4	3.9	16.9355	0.937	5.5	mg/L	23	Standard
Fe	57	783.4	2.1	12.1512	0.823	6.8	mg/L	255	Standard
Sc-1	45	26954.0	2.5				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	1.0	100.0				ug/L	3	Standard
Br	81	1990.1	5.3				ug/L	1807	Standard
P	31	35.0	28.6				ug/L	32	Standard
S	34	16.7	34.6				ug/L	8	Standard
Sr	88	150.0	15.3				ug/L	143	Standard
C	12	23.3	24.7				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	86.6				mg/L	3	Standard
Dy	164	57719.4	1.1				mg/L	16	Standard
Ho-1	165	38477.1	0.9				mg/L	5	Standard
Er	166	36751.2	3.4				mg/L	7	Standard
I	127	11839.6	2.6				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.787	
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		95.799	
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	94.729
[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	98.741
[	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: L1704002406

Sample Date/Time: Thursday, April 06, 2017 12:19:47

Number of Replicates: 3

Autosampler Position: 230

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	188541.0	1.3				ug/L	187001	Standard
|	Be	9	12621.9	1.6	8.0049	0.233	2.9	ug/L	17	Standard
|	Al	27	277413.3	0.7	3.1956	0.062	1.9	ug/L	1055	Standard
|	Sc	45	29936.2	2.2				ug/L	23084	Standard
|	Ti	47	1121.4	4.5	9.5547	0.323	3.4	ug/L	24	Standard
|	V	51	126433.0	0.4	30.0253	0.330	1.1	ug/L	975	Standard
|	Cr	52	79391.5	0.7	19.1707	0.145	0.8	ug/L	4542	Standard
|	Cr	53	10365.2	1.2	19.4080	0.109	0.6	ug/L	657	Standard
|	Mn	55	808846.0	0.5	119.2716	1.268	1.1	ug/L	1886	Standard
|	Co	59	37909.7	0.7	6.8375	0.099	1.5	ug/L	343	Standard
|	Ni	60	9409.6	1.2	7.9131	0.030	0.4	ug/L	120	Standard
|	Cu	65	14079.9	0.7	11.0672	0.081	0.7	ug/L	405	Standard
|	Zn	66	15297.7	0.8	19.6112	0.337	1.7	ug/L	263	Standard
>	Ge	72	508220.7	1.4				ug/L	524310	Standard
|	As	75	3568.3	1.2	4.3840	0.111	2.5	ug/L	4	Standard
|	Se	82	97.3	5.6	1.1529	0.092	8.0	ug/L	16	Standard
|	Se-1	77	281.7	3.4	3.7539	0.260	6.9	ug/L	97	Standard
>	Ga	71	16951.1	0.6				mg/L	23	Standard
|	Rb	85	51290.0	0.7				ug/L	35	Standard
|	Y	89	1648371.8	1.1				ug/L	364600	Standard
>	Rh	103	16.7	45.8				ug/L	10	Standard
|	Mo	98	313.2	10.7	0.1080	0.013	11.8	ug/L	45	Standard
|	Ag	107	431.7	2.6	0.0815	0.002	2.6	ug/L	86	Standard
|	Cd	111	222.6	2.7	0.1976	0.007	3.4	mg/L	4	Standard
|	Cd	114	595.7	8.1	0.1910	0.016	8.1	ug/L	25	Standard
>	In	115	397187.5	0.7				ug/L	418958	Standard
|	Sn	118	99.3	14.3	-0.0409	0.023	56.6	ug/L	139	Standard
|	Sb	123	50.3	37.0	-0.0223	0.006	27.1	ug/L	278	Standard
|	Ba	135	16434.6	1.8	14.6516	0.185	1.3	ug/L	48	Standard
|	Ce	140	951219.7	0.8				ug/L	30	Standard
>	Tb	159	787250.3	0.9				ug/L	683588	Standard
|	Ho	165	124386.9	1.1				ug/L	5	Standard
|	Tl	203	1279.7	0.8	0.1975	0.004	1.8	ug/L	251	Standard
|	Tl	205	3075.3	4.1	0.1930	0.011	5.5	ug/L	568	Standard
|	Pb	206	79497.4	1.1	18.8488	0.240	1.3	ug/L	334	Standard
|	Pb	207	61754.6	0.6	16.1787	0.123	0.8	ug/L	300	Standard
|	Pb	208	80867.7	1.1	17.1316	0.051	0.3	ug/L	368	Standard
	U	238	990.4	2.2	0.2563	0.006	2.5	ug/L	4	Standard
>	Bi	209	426505.6	1.0				ug/L	431904	Standard

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Na	23	8.3	69.3	4.0414	5.889	145.7	mg/L	0	Standard
Mg	24	13.3	57.3	-0.2068	0.148	71.8	mg/L	25	Standard
K	39	23.3	12.4	-0.0894	0.035	38.8	mg/L	17	Standard
Ca	43	50.0	26.5	-0.0236	1.692	7178.1	mg/L	58	Standard
Fe	54	2177.1	1.9	14.9779	0.486	3.2	mg/L	23	Standard
Fe	57	795.0	10.6	10.5752	2.145	20.3	mg/L	255	Standard
Sc-1	45	29936.2	2.2				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	0.7	173.2				ug/L	3	Standard
Br	81	2493.5	7.9				ug/L	1807	Standard
P	31	26.7	47.2				ug/L	32	Standard
S	34	15.0	57.7				ug/L	8	Standard
Sr	88	136.7	16.9				ug/L	143	Standard
C	12	36.7	83.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	233.3	6.5				mg/L	3	Standard
Dy	164	188955.8	1.4				mg/L	16	Standard
Ho-1	165	124386.9	1.1				mg/L	5	Standard
Er	166	121673.3	1.0				mg/L	7	Standard
I	127	12988.9	3.1				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.824	
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		96.931	
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	94.804
[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	98.750
[	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

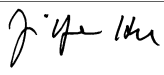
Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

Sample ID: L1704002406

Report Date/Time: Thursday, April 06, 2017 15:42:34

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Method 6020 - Summary Report

Sample ID: L1704002410

Sample Date/Time: Thursday, April 06, 2017 12:22:52

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

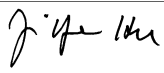
IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	191475.9	1.8				ug/L	187001	Standard
|	Be	9	673.3	2.4	0.3976	0.012	3.1	ug/L	17	Standard
|	Al	27	147513.0	1.1	1.6696	0.024	1.4	ug/L	1055	Standard
|	Sc	45	27249.5	1.2				ug/L	23084	Standard
|	Ti	47	1806.8	1.4	15.5246	0.268	1.7	ug/L	24	Standard
|	V	51	105087.3	0.9	24.9542	0.349	1.4	ug/L	975	Standard
|	Cr	52	57915.2	1.2	13.7066	0.244	1.8	ug/L	4542	Standard
|	Cr	53	7276.7	2.1	13.3056	0.481	3.6	ug/L	657	Standard
|	Mn	55	576743.5	0.7	85.0768	0.686	0.8	ug/L	1886	Standard
|	Co	59	26964.3	1.3	4.8522	0.056	1.2	ug/L	343	Standard
|	Ni	60	10551.7	2.0	8.8980	0.122	1.4	ug/L	120	Standard
|	Cu	65	14879.6	0.5	11.7280	0.115	1.0	ug/L	405	Standard
|	Zn	66	18678.5	0.9	24.0477	0.311	1.3	ug/L	263	Standard
>	Ge	72	507591.5	1.4				ug/L	524310	Standard
|	As	75	2517.7	1.2	3.1050	0.064	2.1	ug/L	4	Standard
|	Se	82	18.8	31.3	0.1068	0.081	75.5	ug/L	16	Standard
|	Se-1	77	92.0	6.8	0.0738	0.095	129.0	ug/L	97	Standard
>	Ga	71	17373.3	2.0				mg/L	23	Standard
|	Rb	85	50562.6	2.0				ug/L	35	Standard
|	Y	89	415354.7	0.8				ug/L	364600	Standard
>	Rh	103	16.7	62.4				ug/L	10	Standard
|	Mo	98	198.8	10.2	0.0606	0.009	14.8	ug/L	45	Standard
|	Ag	107	166.7	2.3	0.0160	0.001	6.4	ug/L	86	Standard
|	Cd	111	27.7	13.0	0.0231	0.003	13.5	mg/L	4	Standard
|	Cd	114	70.2	14.6	0.0080	0.004	47.9	ug/L	25	Standard
>	In	115	403696.0	1.4				ug/L	418958	Standard
|	Sn	118	118.7	5.9	-0.0135	0.013	99.0	ug/L	139	Standard
|	Sb	123	50.6	10.5	-0.0224	0.002	8.5	ug/L	278	Standard
|	Ba	135	7533.5	0.4	6.5854	0.061	0.9	ug/L	48	Standard
|	Ce	140	1355513.6	1.0				ug/L	30	Standard
>	Tb	159	674531.2	1.9				ug/L	683588	Standard
|	Ho	165	5177.6	2.6				ug/L	5	Standard
|	Tl	203	844.4	2.7	0.1149	0.002	1.7	ug/L	251	Standard
|	Tl	205	2035.1	2.8	0.1109	0.003	2.7	ug/L	568	Standard
|	Pb	206	35500.9	0.5	8.3077	0.167	2.0	ug/L	334	Standard
|	Pb	207	27537.7	0.9	7.1161	0.074	1.0	ug/L	300	Standard
|	Pb	208	35568.1	0.4	7.4354	0.094	1.3	ug/L	368	Standard
	U	238	2206.5	1.8	0.5678	0.013	2.2	ug/L	4	Standard
>	Bi	209	429776.8	1.6				ug/L	431904	Standard

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Na	23	3.3	86.6	-0.7143	3.179	445.1	mg/L	0	Standard
Mg	24	30.0	28.9	0.1846	0.182	98.7	mg/L	25	Standard
K	39	43.3	56.9	0.1632	0.284	174.1	mg/L	17	Standard
Ca	43	38.3	41.9	-1.0816	2.398	221.7	mg/L	58	Standard
Fe	54	2126.2	6.0	16.0700	0.847	5.3	mg/L	23	Standard
Fe	57	750.0	6.8	11.1567	1.128	10.1	mg/L	255	Standard
Sc-1	45	27249.5	1.2				mg/L	23084	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	4.0	43.3				ug/L	3	Standard
Br	81	2093.5	3.5				ug/L	1807	Standard
P	31	36.7	41.7				ug/L	32	Standard
S	34	13.3	21.7				ug/L	8	Standard
Sr	88	171.7	37.1				ug/L	143	Standard
C	12	10.0	100.0				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	46.7	32.7				mg/L	3	Standard
Dy	164	7959.9	6.9				mg/L	16	Standard
Ho-1	165	5177.6	2.6				mg/L	5	Standard
Er	166	5127.5	2.4				mg/L	7	Standard
I	127	12183.2	1.0				mg/L	2930	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.393	
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		96.811	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1704002410

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	96.357
[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	99.508
[	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

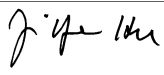
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: L1704002410

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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Thursday, April 06, 2017 12:26:00

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	185828.2	2.9				ug/L	187001	Standard
|	Be	9	76965.0	1.5	49.6717	1.877	3.8	ug/L	17	Standard
|	Al	27	4229955.1	0.8	49.5678	1.595	3.2	ug/L	1055	Standard
|	Sc	45	23162.7	0.8				ug/L	23084	Standard
|	Ti	47	11957.7	1.9	103.0215	1.498	1.5	ug/L	24	Standard
|	V	51	209861.1	1.2	49.6953	0.342	0.7	ug/L	975	Standard
|	Cr	52	198528.7	1.3	49.3133	0.191	0.4	ug/L	4542	Standard
|	Cr	53	25381.2	1.1	48.9141	0.249	0.5	ug/L	657	Standard
|	Mn	55	341484.6	1.6	49.9324	0.059	0.1	ug/L	1886	Standard
|	Co	59	275442.5	1.6	49.7705	0.243	0.5	ug/L	343	Standard
|	Ni	60	58778.8	1.3	49.7488	0.168	0.3	ug/L	120	Standard
|	Cu	65	62642.2	0.9	49.9970	0.340	0.7	ug/L	405	Standard
|	Zn	66	38775.6	1.3	49.9423	0.295	0.6	ug/L	263	Standard
>	Ge	72	510964.6	1.6				ug/L	524310	Standard
|	As	75	40561.3	1.0	49.2720	0.281	0.6	ug/L	4	Standard
|	Se	82	3847.5	1.2	50.8686	0.380	0.7	ug/L	16	Standard
|	Se-1	77	2740.6	3.5	51.1561	1.240	2.4	ug/L	97	Standard
>	Ga	71	50.0	52.0				mg/L	23	Standard
|	Rb	85	368.3	17.0				ug/L	35	Standard
|	Y	89	359251.3	1.3				ug/L	364600	Standard
>	Rh	103	18.3	68.6				ug/L	10	Standard
|	Mo	98	254072.8	1.0	99.2307	1.242	1.3	ug/L	45	Standard
|	Ag	107	209908.7	1.9	49.6252	0.419	0.8	ug/L	86	Standard
|	Cd	111	57879.5	1.7	49.9673	0.162	0.3	mg/L	4	Standard
|	Cd	114	148620.3	0.7	49.9273	0.548	1.1	ug/L	25	Standard
>	In	115	410980.3	1.5				ug/L	418958	Standard
|	Sn	118	32943.4	1.4	49.8202	0.841	1.7	ug/L	139	Standard
|	Sb	123	155423.5	1.1	49.4012	0.316	0.6	ug/L	278	Standard
|	Ba	135	56652.4	0.7	48.9165	0.431	0.9	ug/L	48	Standard
|	Ce	140	825.0	121.4				ug/L	30	Standard
>	Tb	159	675350.9	1.7				ug/L	683588	Standard
|	Ho	165	20.0	109.0				ug/L	5	Standard
|	Tl	203	268701.4	0.4	49.3095	0.127	0.3	ug/L	251	Standard
|	Tl	205	651671.0	0.4	49.7325	0.176	0.4	ug/L	568	Standard
|	Pb	206	212138.5	0.8	49.5758	0.342	0.7	ug/L	334	Standard
|	Pb	207	193596.1	1.3	50.0166	0.577	1.2	ug/L	300	Standard
|	Pb	208	232950.4	0.8	48.6503	0.318	0.7	ug/L	368	Standard
	U	238	202176.3	0.3	51.5977	0.199	0.4	ug/L	4	Standard
>	Bi	209	433892.7	0.2				ug/L	431904	Standard

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Na	23	6.7	86.6	4.3248	7.544	174.4	mg/L	0	Standard
Mg	24	203.3	11.1	4.7698	0.582	12.2	mg/L	25	Standard
K	39	331.7	5.3	4.1045	0.233	5.7	mg/L	17	Standard
Ca	43	56.7	22.2	3.1790	2.302	72.4	mg/L	58	Standard
Fe	54	495.7	5.5	4.3059	0.278	6.5	mg/L	23	Standard
Fe	57	375.0	10.4	3.9527	1.163	29.4	mg/L	255	Standard
Sc-1	45	23162.7	0.8				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	2.3	49.5				ug/L	3	Standard
Br	81	1970.1	4.0				ug/L	1807	Standard
P	31	38.3	39.8				ug/L	32	Standard
S	34	10.0					ug/L	8	Standard
Sr	88	105.0	25.2				ug/L	143	Standard
C	12	20.0	100.0				mg/L	33	Standard
N	14	6.7	86.6				mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	25.4	147.0				mg/L	16	Standard
Ho-1	165	20.0	109.0				mg/L	5	Standard
Er	166	26.7	43.3				mg/L	7	Standard
I	127	5005.8	3.8				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.343		
Al	27	99.136		
Sc	45			
Ti	47	103.021		
V	51	99.391		
Cr	52	98.627		
Cr	53			
Mn	55	99.865		
Co	59	99.541		
Ni	60	99.498		
Cu	65	99.994		
Zn	66	99.885		
Ge	72		97.455	
As	75	98.544		
Se	82	101.737		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	99.231	
[Ag	107	99.250	
[Cd	111	99.935	
[Cd	114		
>	In	115		98.096
[Sn	118	99.640	
[	Sb	123	98.802	
[	Ba	135	97.833	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	98.619	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	97.301	
[	U	238	103.195	
>	Bi	209		100.460
[	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

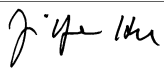
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Thursday, April 06, 2017 12:29:05

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	182454.0	2.3				ug/L	187001	Standard
|	Be	9	55.0	48.1	0.0118	0.017	140.8	ug/L	17	Standard
|	Al	27	1003.4	7.5	0.0045	0.001	15.7	ug/L	1055	Standard
|	Sc	45	23146.0	4.3				ug/L	23084	Standard
|	Ti	47	21.3	16.5	0.0144	0.030	211.9	ug/L	24	Standard
|	V	51	540.9	9.2	-0.0655	0.014	22.0	ug/L	975	Standard
|	Cr	52	3086.0	1.9	-0.3033	0.005	1.5	ug/L	4542	Standard
|	Cr	53	438.3	15.5	-0.2695	0.119	44.0	ug/L	657	Standard
|	Mn	55	1788.4	2.7	0.0127	0.002	17.1	ug/L	1886	Standard
|	Co	59	240.0	4.8	-0.0144	0.001	10.2	ug/L	343	Standard
|	Ni	60	129.7	5.5	-0.0002	0.008	3922.5	ug/L	120	Standard
|	Cu	65	385.0	10.9	0.0148	0.029	194.8	ug/L	405	Standard
|	Zn	66	401.7	8.1	0.1958	0.033	17.0	ug/L	263	Standard
>	Ge	72	503573.5	1.9				ug/L	524310	Standard
|	As	75	-11.8	7.2	0.0131	0.001	7.4	ug/L	4	Standard
|	Se	82	11.4	73.7	0.0092	0.114	1244.8	ug/L	16	Standard
|	Se-1	77	83.3	5.9	-0.0815	0.068	83.6	ug/L	97	Standard
>	Ga	71	26.7	28.6				mg/L	23	Standard
|	Rb	85	48.3	26.0				ug/L	35	Standard
|	Y	89	356070.4	2.6				ug/L	364600	Standard
>	Rh	103	11.7	65.5				ug/L	10	Standard
|	Mo	98	115.1	36.7	0.0275	0.016	56.8	ug/L	45	Standard
|	Ag	107	93.3	5.9	-0.0014	0.001	80.7	ug/L	86	Standard
|	Cd	111	5.9	73.6	0.0038	0.004	95.0	mg/L	4	Standard
|	Cd	114	29.1	41.9	-0.0060	0.004	73.6	ug/L	25	Standard
>	In	115	399716.5	2.9				ug/L	418958	Standard
|	Sn	118	159.7	9.9	0.0527	0.031	58.2	ug/L	139	Standard
|	Sb	123	272.8	23.5	0.0508	0.024	46.6	ug/L	278	Standard
|	Ba	135	43.3	25.4	-0.0042	0.009	211.1	ug/L	48	Standard
|	Ce	140	20.0	66.1				ug/L	30	Standard
>	Tb	159	664865.9	2.7				ug/L	683588	Standard
|	Ho	165	1.7	173.2				ug/L	5	Standard
|	Tl	203	61.3	19.1	-0.0303	0.002	7.6	ug/L	251	Standard
|	Tl	205	148.3	24.8	-0.0346	0.003	7.2	ug/L	568	Standard
|	Pb	206	413.3	5.9	0.0131	0.006	47.6	ug/L	334	Standard
|	Pb	207	342.3	2.9	0.0106	0.005	50.1	ug/L	300	Standard
|	Pb	208	426.0	4.9	0.0127	0.002	16.3	ug/L	368	Standard
	U	238	19.7	49.9	0.0042	0.002	56.7	ug/L	4	Standard
>	Bi	209	431571.3	3.0				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.1007	3.957	188.4	mg/L	0	Standard
Mg	24	28.3	53.9	0.2531	0.378	149.5	mg/L	25	Standard
K	39	15.0	57.7	-0.1293	0.118	91.6	mg/L	17	Standard
Ca	43	51.7	20.1	2.2550	1.529	67.8	mg/L	58	Standard
Fe	54	21.3	53.2	0.0464	0.095	204.4	mg/L	23	Standard
Fe	57	233.3	15.2	0.0773	1.085	1404.8	mg/L	255	Standard
Sc-1	45	23146.0	4.3				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	4.0	66.1				ug/L	3	Standard
Br	81	2050.1	5.4				ug/L	1807	Standard
P	31	40.0	54.5				ug/L	32	Standard
S	34	5.0	100.0				ug/L	8	Standard
Sr	88	170.0	12.8				ug/L	143	Standard
C	12	26.7	57.3				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	6.2	93.6				mg/L	16	Standard
Ho-1	165	1.7	173.2				mg/L	5	Standard
Er	166	10.0	100.0				mg/L	7	Standard
I	127	5115.9	1.4				mg/L	2930	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		96.045	
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	95.407
[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	99.923
[	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

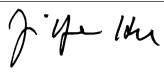
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: QC Std 7

Report Date/Time: Thursday, April 06, 2017 15:42:42

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Method 6020 - Summary Report

Sample ID: PBW 83 WG608583-02

Sample Date/Time: Thursday, April 06, 2017 12:32:13

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	186220.0	3.6				ug/L	187001	Standard
|	Be	9	13.3	21.7	-0.0156	0.002	12.5	ug/L	17	Standard
|	Al	27	5586.0	3.8	0.0578	0.002	3.6	ug/L	1055	Standard
|	Sc	45	23159.4	2.9				ug/L	23084	Standard
|	Ti	47	25.0	24.3	0.0444	0.049	109.9	ug/L	24	Standard
|	V	51	565.8	8.6	-0.0606	0.014	22.3	ug/L	975	Standard
|	Cr	52	4325.0	1.9	0.0077	0.016	213.4	ug/L	4542	Standard
|	Cr	53	616.7	5.2	0.0807	0.084	104.2	ug/L	657	Standard
|	Mn	55	2900.9	2.0	0.1754	0.002	1.0	ug/L	1886	Standard
|	Co	59	274.7	2.1	-0.0084	0.000	4.0	ug/L	343	Standard
|	Ni	60	203.3	8.0	0.0617	0.011	17.1	ug/L	120	Standard
|	Cu	65	682.3	1.1	0.2534	0.017	6.7	ug/L	405	Standard
|	Zn	66	986.7	1.6	0.9566	0.042	4.3	ug/L	263	Standard
>	Ge	72	507360.5	2.1				ug/L	524310	Standard
|	As	75	-11.3	89.0	0.0141	0.012	86.2	ug/L	4	Standard
|	Se	82	14.2	30.8	0.0462	0.062	133.3	ug/L	16	Standard
|	Se-1	77	77.7	0.7	-0.2025	0.041	20.4	ug/L	97	Standard
>	Ga	71	26.7	39.0				mg/L	23	Standard
|	Rb	85	85.0	27.0				ug/L	35	Standard
|	Y	89	357012.1	2.4				ug/L	364600	Standard
>	Rh	103	8.3	91.7				ug/L	10	Standard
|	Mo	98	44.7	6.0	-0.0008	0.001	103.8	ug/L	45	Standard
|	Ag	107	88.0	17.8	-0.0031	0.003	110.4	ug/L	86	Standard
|	Cd	111	4.9	60.7	0.0030	0.003	84.5	mg/L	4	Standard
|	Cd	114	44.2	30.4	-0.0009	0.005	509.3	ug/L	25	Standard
>	In	115	406100.9	2.3				ug/L	418958	Standard
|	Sn	118	215.7	10.3	0.1341	0.029	21.8	ug/L	139	Standard
|	Sb	123	95.5	29.6	-0.0080	0.010	122.6	ug/L	278	Standard
|	Ba	135	98.7	2.1	0.0438	0.003	7.7	ug/L	48	Standard
|	Ce	140	83.3	45.0				ug/L	30	Standard
>	Tb	159	672963.0	1.0				ug/L	683588	Standard
|	Ho	165	10.0	86.6				ug/L	5	Standard
|	Tl	203	45.7	17.8	-0.0333	0.001	4.2	ug/L	251	Standard
|	Tl	205	85.0	48.1	-0.0395	0.003	7.7	ug/L	568	Standard
|	Pb	206	377.0	9.4	0.0039	0.007	185.4	ug/L	334	Standard
|	Pb	207	341.7	4.3	0.0097	0.003	27.5	ug/L	300	Standard
|	Pb	208	433.0	2.8	0.0137	0.004	27.3	ug/L	368	Standard
	U	238	5.3	39.0	0.0005	0.001	102.4	ug/L	4	Standard
>	Bi	209	434255.5	1.3				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.1395	3.890	181.8	mg/L	0	Standard
Mg	24	31.7	32.9	0.3400	0.248	73.0	mg/L	25	Standard
K	39	16.7	45.8	-0.1100	0.097	87.8	mg/L	17	Standard
Ca	43	35.0	49.5	-0.5907	3.286	556.2	mg/L	58	Standard
Fe	54	22.8	78.5	0.0638	0.166	260.7	mg/L	23	Standard
Fe	57	200.0	8.7	-0.8666	0.327	37.7	mg/L	255	Standard
Sc-1	45	23159.4	2.9				mg/L	23084	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.3	49.5				ug/L	3	Standard
Br	81	2133.5	3.1				ug/L	1807	Standard
P	31	38.3	15.1				ug/L	32	Standard
S	34	6.7	43.3				ug/L	8	Standard
Sr	88	130.0	30.0				ug/L	143	Standard
C	12	16.7	34.6				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	3	Standard
Dy	164	12.9	89.8				mg/L	16	Standard
Ho-1	165	10.0	86.6				mg/L	5	Standard
Er	166	10.0					mg/L	7	Standard
I	127	8670.8	4.4				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.583	
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		96.767	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: PBW 83 WG608583-02

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	96.931
[Sn	118	
[Sb	123	
[Ba	135	
[Ce	140	
>	Tb	159	
[Ho	165	
[Tl	203	
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[Pb	206	
[Pb	207	
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[U	238	
>	Bi	209	100.544
[Na	23	
[Mg	24	
[K	39	
[Ca	43	
[Fe	54	
[Fe	57	
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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: PBW 83 WG608583-02

Report Date/Time: Thursday, April 06, 2017 15:42:43

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Method 6020 - Summary Report

Sample ID: LCSW 83 WG608583-03

Sample Date/Time: Thursday, April 06, 2017 12:35:18

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	185723.1	0.9				ug/L	187001	Standard
|	Be	9	76355.3	2.4	49.2697	0.893	1.8	ug/L	17	Standard
|	Al	27	4964.1	1.3	0.0507	0.001	1.5	ug/L	1055	Standard
|	Sc	45	23264.5	3.2				ug/L	23084	Standard
|	Ti	47	33.0	12.1	0.1149	0.029	25.1	ug/L	24	Standard
|	V	51	207287.2	2.4	49.5851	0.227	0.5	ug/L	975	Standard
|	Cr	52	200029.4	2.8	50.2083	0.076	0.2	ug/L	4542	Standard
|	Cr	53	25256.0	2.5	49.1741	0.337	0.7	ug/L	657	Standard
|	Mn	55	339245.8	2.5	50.1123	0.141	0.3	ug/L	1886	Standard
|	Co	59	275027.8	2.6	50.2026	0.125	0.2	ug/L	343	Standard
|	Ni	60	59550.5	2.4	50.9207	0.565	1.1	ug/L	120	Standard
|	Cu	65	63099.8	2.3	50.8805	0.304	0.6	ug/L	405	Standard
|	Zn	66	38578.4	2.2	50.1983	0.334	0.7	ug/L	263	Standard
>	Ge	72	505826.7	2.8				ug/L	524310	Standard
|	As	75	39707.1	2.1	48.7286	0.386	0.8	ug/L	4	Standard
|	Se	82	3803.2	0.8	50.8103	1.028	2.0	ug/L	16	Standard
|	Se-1	77	2652.6	4.0	49.9751	0.855	1.7	ug/L	97	Standard
>	Ga	71	11.7	24.7				mg/L	23	Standard
|	Rb	85	41.7	30.2				ug/L	35	Standard
|	Y	89	353978.4	2.1				ug/L	364600	Standard
>	Rh	103	21.7	35.3				ug/L	10	Standard
|	Mo	98	43.2	11.6	-0.0014	0.002	176.6	ug/L	45	Standard
|	Ag	107	207420.1	2.8	49.7404	0.330	0.7	ug/L	86	Standard
|	Cd	111	57599.0	3.2	50.4344	0.248	0.5	mg/L	4	Standard
|	Cd	114	144302.1	2.8	49.1659	0.334	0.7	ug/L	25	Standard
>	In	115	405233.8	3.4				ug/L	418958	Standard
|	Sn	118	206.0	5.5	0.1208	0.027	22.6	ug/L	139	Standard
|	Sb	123	148808.3	3.0	47.9704	0.215	0.4	ug/L	278	Standard
|	Ba	135	55578.8	2.1	48.6803	0.664	1.4	ug/L	48	Standard
|	Ce	140	65.0	61.5				ug/L	30	Standard
>	Tb	159	671950.9	2.1				ug/L	683588	Standard
|	Ho	165	23.3	12.4				ug/L	5	Standard
|	Tl	203	276167.1	1.4	50.8176	0.878	1.7	ug/L	251	Standard
|	Tl	205	666513.5	0.9	51.0087	1.131	2.2	ug/L	568	Standard
|	Pb	206	217741.2	1.0	51.0290	1.072	2.1	ug/L	334	Standard
|	Pb	207	188828.8	1.3	48.9163	0.893	1.8	ug/L	300	Standard
|	Pb	208	234305.7	1.3	49.0670	0.883	1.8	ug/L	368	Standard
	U	238	195230.3	1.5	49.9592	0.918	1.8	ug/L	4	Standard
>	Bi	209	432880.8	3.1				ug/L	431904	Standard

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Na	23	3.3	86.6	0.0184	3.814	20751.2	mg/L	0	Standard
Mg	24	35.0	37.8	0.4280	0.347	81.1	mg/L	25	Standard
K	39	15.0	57.7	-0.1332	0.113	84.6	mg/L	17	Standard
Ca	43	36.7	47.9	-0.3408	3.191	936.4	mg/L	58	Standard
Fe	54	23.1	36.5	0.0636	0.080	125.2	mg/L	23	Standard
Fe	57	251.7	10.9	0.5264	0.707	134.3	mg/L	255	Standard
Sc-1	45	23264.5	3.2				mg/L	23084	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	2.0	0.0				ug/L	3	Standard
Br	81	2260.2	3.5				ug/L	1807	Standard
P	31	48.3	15.8				ug/L	32	Standard
S	34	6.7	43.3				ug/L	8	Standard
Sr	88	135.0	25.9				ug/L	143	Standard
C	12	46.7	32.7				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	16.2	73.9				mg/L	16	Standard
Ho-1	165	23.3	12.4				mg/L	5	Standard
Er	166	10.0	100.0				mg/L	7	Standard
I	127	8999.3	5.0				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		99.317	
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		96.475	
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	96.724
[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	100.226
[	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 83 WG608583-03

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Method 6020 - Summary Report

Sample ID: L1703167604 WG608583-01

Sample Date/Time: Thursday, April 06, 2017 12:38:24

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	189449.4	3.1				ug/L	187001	Standard
|	Be	9	81.7	39.4	0.0279	0.022	77.2	ug/L	17	Standard
|	Al	27	8316454.2	2.8	95.5518	1.385	1.4	ug/L	1055	Standard
|	Sc	45	24359.6	2.8				ug/L	23084	Standard
|	Ti	47	999.4	5.7	8.6354	0.530	6.1	ug/L	24	Standard
|	V	51	21576.5	2.9	5.0405	0.039	0.8	ug/L	975	Standard
|	Cr	52	13600.4	0.7	2.4284	0.058	2.4	ug/L	4542	Standard
|	Cr	53	2105.1	8.0	3.1007	0.436	14.1	ug/L	657	Standard
|	Mn	55	40122.7	2.5	5.7667	0.082	1.4	ug/L	1886	Standard
|	Co	59	1085.4	5.1	0.1421	0.011	7.5	ug/L	343	Standard
|	Ni	60	1352.7	0.5	1.0600	0.022	2.1	ug/L	120	Standard
|	Cu	65	1767.8	3.0	1.1505	0.021	1.8	ug/L	405	Standard
|	Zn	66	64837.8	1.7	85.5052	0.566	0.7	ug/L	263	Standard
>	Ge	72	500448.2	2.4				ug/L	524310	Standard
|	As	75	885.2	6.6	1.1250	0.071	6.3	ug/L	4	Standard
|	Se	82	58.5	17.1	0.6478	0.146	22.6	ug/L	16	Standard
|	Se-1	77	114.3	11.9	0.5451	0.318	58.3	ug/L	97	Standard
>	Ga	71	328.3	4.7				mg/L	23	Standard
|	Rb	85	13117.3	3.2				ug/L	35	Standard
|	Y	89	349457.7	1.1				ug/L	364600	Standard
>	Rh	103	161.7	6.4				ug/L	10	Standard
|	Mo	98	1725.7	2.0	0.6821	0.003	0.4	ug/L	45	Standard
|	Ag	107	118.7	12.0	0.0051	0.004	74.7	ug/L	86	Standard
|	Cd	111	19.1	28.9	0.0159	0.005	31.4	mg/L	4	Standard
|	Cd	114	78.1	11.3	0.0112	0.003	24.0	ug/L	25	Standard
>	In	115	395395.5	1.7				ug/L	418958	Standard
|	Sn	118	256.7	5.3	0.2081	0.023	11.2	ug/L	139	Standard
|	Sb	123	2015.1	32.4	0.6300	0.229	36.3	ug/L	278	Standard
|	Ba	135	97702.4	1.6	87.7136	0.234	0.3	ug/L	48	Standard
|	Ce	140	13037.3	2.1				ug/L	30	Standard
>	Tb	159	669156.3	1.6				ug/L	683588	Standard
|	Ho	165	210.0	16.5				ug/L	5	Standard
|	Tl	203	341.0	11.7	0.0223	0.008	35.4	ug/L	251	Standard
|	Tl	205	821.7	15.6	0.0181	0.010	56.7	ug/L	568	Standard
|	Pb	206	997.7	2.3	0.1541	0.005	3.2	ug/L	334	Standard
|	Pb	207	853.7	5.7	0.1468	0.013	9.1	ug/L	300	Standard
|	Pb	208	1115.7	1.1	0.1613	0.004	2.7	ug/L	368	Standard
	U	238	14407.2	0.2	3.7505	0.020	0.5	ug/L	4	Standard
>	Bi	209	425293.1	0.7				ug/L	431904	Standard

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Na	23	33.3	60.6	36.8877	24.553	66.6	mg/L	0	Standard
Mg	24	283.3	10.2	6.4629	0.523	8.1	mg/L	25	Standard
K	39	106.7	24.1	1.0214	0.300	29.4	mg/L	17	Standard
Ca	43	93.3	3.1	8.8244	0.052	0.6	mg/L	58	Standard
Fe	54	46.1	34.8	0.2496	0.132	52.9	mg/L	23	Standard
Fe	57	381.7	10.7	3.6312	1.248	34.4	mg/L	255	Standard
Sc-1	45	24359.6	2.8				mg/L	23084	Standard
Cl	35	2.0	100.0				ug/L	1	Standard
Kr	83	1.3	43.3				ug/L	3	Standard
Br	81	18004.0	0.6				ug/L	1807	Standard
P	31	51.7	20.1				ug/L	32	Standard
S	34	8.3	69.3				ug/L	8	Standard
Sr	88	230.0	13.2				ug/L	143	Standard
C	12	73.3	41.7				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	284.9	12.1				mg/L	16	Standard
Ho-1	165	210.0	16.5				mg/L	5	Standard
Er	166	176.7	32.2				mg/L	7	Standard
I	127	75062.2	2.8				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		101.309	
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		95.449	
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	94.376
[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	98.469
[	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: L1703167605S WG608583-05

Sample Date/Time: Thursday, April 06, 2017 12:41:29

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	188303.3	2.4				ug/L	187001	Standard
|	Be	9	75983.4	2.1	48.3616	0.129	0.3	ug/L	17	Standard
|	Al	27	8148415.2	1.8	94.1965	1.655	1.8	ug/L	1055	Standard
|	Sc	45	24306.2	2.9				ug/L	23084	Standard
|	Ti	47	1904.1	5.8	16.8445	0.811	4.8	ug/L	24	Standard
|	V	51	225277.2	1.9	55.2812	0.797	1.4	ug/L	975	Standard
|	Cr	52	204281.7	1.4	52.6356	0.276	0.5	ug/L	4542	Standard
|	Cr	53	26586.6	2.5	53.1858	1.892	3.6	ug/L	657	Standard
|	Mn	55	407890.6	0.6	61.8506	0.743	1.2	ug/L	1886	Standard
|	Co	59	262742.6	0.8	49.1834	0.492	1.0	ug/L	343	Standard
|	Ni	60	57861.6	1.1	50.7357	0.651	1.3	ug/L	120	Standard
|	Cu	65	61261.3	1.2	50.6528	0.361	0.7	ug/L	405	Standard
|	Zn	66	60666.2	0.7	81.1548	1.099	1.4	ug/L	263	Standard
>	Ge	72	493272.2	1.8				ug/L	524310	Standard
|	As	75	41440.5	0.9	52.1482	0.705	1.4	ug/L	4	Standard
|	Se	82	3879.1	0.6	53.1458	1.257	2.4	ug/L	16	Standard
|	Se-1	77	2676.2	1.5	51.7861	1.319	2.5	ug/L	97	Standard
>	Ga	71	743.4	4.9				mg/L	23	Standard
|	Rb	85	20251.9	0.7				ug/L	35	Standard
|	Y	89	350154.1	1.9				ug/L	364600	Standard
>	Rh	103	195.0	6.8				ug/L	10	Standard
|	Mo	98	1890.2	3.3	0.7527	0.021	2.8	ug/L	45	Standard
|	Ag	107	197464.8	0.7	48.7747	0.779	1.6	ug/L	86	Standard
|	Cd	111	56520.5	0.6	50.9783	0.508	1.0	mg/L	4	Standard
|	Cd	114	141368.9	0.8	49.6113	0.601	1.2	ug/L	25	Standard
>	In	115	393407.6	1.3				ug/L	418958	Standard
|	Sn	118	283.3	4.4	0.2524	0.020	8.0	ug/L	139	Standard
|	Sb	123	150666.8	0.2	50.0322	0.711	1.4	ug/L	278	Standard
|	Ba	135	157169.7	0.6	141.8552	2.148	1.5	ug/L	48	Standard
|	Ce	140	29213.2	3.4				ug/L	30	Standard
>	Tb	159	662170.1	0.2				ug/L	683588	Standard
|	Ho	165	418.3	10.8				ug/L	5	Standard
|	Tl	203	275722.2	0.4	51.1333	0.448	0.9	ug/L	251	Standard
|	Tl	205	661018.1	0.2	50.9794	0.479	0.9	ug/L	568	Standard
|	Pb	206	216735.2	0.9	51.1898	0.857	1.7	ug/L	334	Standard
|	Pb	207	188114.2	0.2	49.1125	0.465	0.9	ug/L	300	Standard
|	Pb	208	234557.4	0.6	49.5060	0.683	1.4	ug/L	368	Standard
	U	238	216288.9	0.5	55.7812	0.443	0.8	ug/L	4	Standard
>	Bi	209	429381.4	0.8				ug/L	431904	Standard

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Na	23	38.3	19.9	43.2478	9.737	22.5	mg/L	0	Standard
Mg	24	285.0	6.3	6.5242	0.238	3.6	mg/L	25	Standard
K	39	90.0	34.7	0.8100	0.374	46.1	mg/L	17	Standard
Ca	43	85.0	48.1	7.4646	6.984	93.6	mg/L	58	Standard
Fe	54	80.0	33.2	0.5451	0.244	44.8	mg/L	23	Standard
Fe	57	416.7	4.2	4.5577	0.531	11.7	mg/L	255	Standard
Sc-1	45	24306.2	2.9				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	3.3	34.6				ug/L	3	Standard
Br	81	29775.9	4.5				ug/L	1807	Standard
P	31	21.7	35.3				ug/L	32	Standard
S	34	8.3	91.7				ug/L	8	Standard
Sr	88	190.0	7.0				ug/L	143	Standard
C	12	50.0	0.0				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	13.3	114.6				mg/L	3	Standard
Dy	164	556.7	11.2				mg/L	16	Standard
Ho-1	165	418.3	10.8				mg/L	5	Standard
Er	166	416.7	12.3				mg/L	7	Standard
I	127	117052.9	5.3				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		100.697	
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		94.080	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703167605S WG608583-05

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	93.901
[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	99.416
[	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

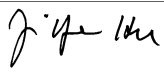
Measurement Type	Analyte	Mass	Out of Limits Message
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1703167605S WG608583-05

Report Date/Time: Thursday, April 06, 2017 15:42:54

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Method 6020 - Summary Report

Sample ID: L1703167606SD WG608583-06

Sample Date/Time: Thursday, April 06, 2017 12:44:34

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

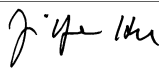
IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	184515.5	2.4				ug/L	187001	Standard
|	Be	9	75732.2	1.7	49.1953	0.376	0.8	ug/L	17	Standard
|	Al	27	8009573.3	1.8	94.5044	2.511	2.7	ug/L	1055	Standard
|	Sc	45	23740.3	3.2				ug/L	23084	Standard
|	Ti	47	1020.7	3.7	9.0337	0.296	3.3	ug/L	24	Standard
|	V	51	219105.5	2.0	54.2433	0.447	0.8	ug/L	975	Standard
|	Cr	52	197426.9	1.9	51.2958	0.105	0.2	ug/L	4542	Standard
|	Cr	53	25456.4	2.8	51.3222	0.643	1.3	ug/L	657	Standard
|	Mn	55	365212.4	2.1	55.8419	0.277	0.5	ug/L	1886	Standard
|	Co	59	256701.2	2.0	48.4789	0.624	1.3	ug/L	343	Standard
|	Ni	60	55983.3	1.6	49.5241	0.552	1.1	ug/L	120	Standard
|	Cu	65	59784.8	2.3	49.8660	0.544	1.1	ug/L	405	Standard
|	Zn	66	52097.1	2.6	70.2559	0.520	0.7	ug/L	263	Standard
>	Ge	72	488895.5	2.0				ug/L	524310	Standard
|	As	75	40500.1	2.8	51.4093	0.485	0.9	ug/L	4	Standard
|	Se	82	3747.1	3.1	51.7769	1.127	2.2	ug/L	16	Standard
|	Se-1	77	2577.9	2.8	50.2646	0.488	1.0	ug/L	97	Standard
>	Ga	71	428.3	7.8				mg/L	23	Standard
|	Rb	85	14688.8	2.7				ug/L	35	Standard
|	Y	89	343970.5	2.5				ug/L	364600	Standard
>	Rh	103	158.3	17.4				ug/L	10	Standard
|	Mo	98	1774.5	2.3	0.7182	0.021	3.0	ug/L	45	Standard
|	Ag	107	193073.1	1.0	48.5079	0.216	0.4	ug/L	86	Standard
|	Cd	111	54999.7	1.2	50.4601	0.382	0.8	mg/L	4	Standard
|	Cd	114	138341.6	1.2	49.3881	0.917	1.9	ug/L	25	Standard
>	In	115	386734.9	1.2				ug/L	418958	Standard
|	Sn	118	269.3	5.7	0.2376	0.026	11.1	ug/L	139	Standard
|	Sb	123	147597.7	1.1	49.8534	0.223	0.4	ug/L	278	Standard
|	Ba	135	152349.5	1.2	139.8690	1.866	1.3	ug/L	48	Standard
|	Ce	140	15779.9	0.8				ug/L	30	Standard
>	Tb	159	658798.4	0.8				ug/L	683588	Standard
|	Ho	165	236.7	26.6				ug/L	5	Standard
|	Tl	203	270434.8	0.6	50.8020	0.072	0.1	ug/L	251	Standard
|	Tl	205	648339.4	1.5	50.6470	0.495	1.0	ug/L	568	Standard
|	Pb	206	210762.2	0.9	50.4194	0.230	0.5	ug/L	334	Standard
|	Pb	207	183840.3	0.4	48.6178	0.237	0.5	ug/L	300	Standard
|	Pb	208	232384.7	0.4	49.6817	0.143	0.3	ug/L	368	Standard
	U	238	212305.1	0.8	55.4629	0.203	0.4	ug/L	4	Standard
>	Bi	209	423874.8	0.6				ug/L	431904	Standard

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Na	23	30.0	16.7	33.6661	5.276	15.7	mg/L	0	Standard
Mg	24	300.0	4.4	7.0849	0.564	8.0	mg/L	25	Standard
K	39	108.3	50.8	1.0694	0.672	62.8	mg/L	17	Standard
Ca	43	103.3	26.6	11.0129	5.081	46.1	mg/L	58	Standard
Fe	54	56.8	23.9	0.3561	0.129	36.3	mg/L	23	Standard
Fe	57	315.0	6.3	2.0926	0.595	28.4	mg/L	255	Standard
Sc-1	45	23740.3	3.2				mg/L	23084	Standard
Cl	35	2.7	114.6				ug/L	1	Standard
Kr	83	1.7	69.3				ug/L	3	Standard
Br	81	24369.6	1.4				ug/L	1807	Standard
P	31	26.7	10.8				ug/L	32	Standard
S	34	11.7	24.7				ug/L	8	Standard
Sr	88	211.7	9.5				ug/L	143	Standard
C	12	53.3	10.8				mg/L	33	Standard
N	14	3.3	173.2				mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	391.8	21.9				mg/L	16	Standard
Ho-1	165	236.7	26.6				mg/L	5	Standard
Er	166	240.0	8.3				mg/L	7	Standard
I	127	144674.8	3.9				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		98.671	
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		93.245	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703167606SD WG608583-06

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	92.309
[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	98.141
[	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

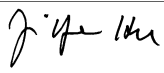
Measurement Type	Analyte	Mass	Out of Limits Message
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1703167606SD WG608583-06

Report Date/Time: Thursday, April 06, 2017 15:42:56

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Method 6020 - Summary Report

Sample ID: L1703168901

Sample Date/Time: Thursday, April 06, 2017 12:47:39

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	192424.4	1.6				ug/L	187001	Standard
|	Be	9	386.7	6.0	0.2170	0.018	8.3	ug/L	17	Standard
|	Al	27	18875376.9	1.0	213.5126	1.432	0.7	ug/L	1055	Standard
|	Sc	45	23980.6	1.7				ug/L	23084	Standard
|	Ti	47	484.3	7.9	4.2438	0.360	8.5	ug/L	24	Standard
|	V	51	-1765.4	27.9	-0.6391	0.121	19.0	ug/L	975	Standard
|	Cr	52	69624.9	0.9	17.5778	0.186	1.1	ug/L	4542	Standard
|	Cr	53	33097.8	3.5	67.8195	2.697	4.0	ug/L	657	Standard
|	Mn	55	4398818.7	0.5	682.6746	1.177	0.2	ug/L	1886	Standard
|	Co	59	59204.8	0.6	11.2562	0.099	0.9	ug/L	343	Standard
|	Ni	60	22889.9	2.0	20.3992	0.377	1.9	ug/L	120	Standard
|	Cu	65	9644.1	0.9	7.8808	0.062	0.8	ug/L	405	Standard
|	Zn	66	182936.1	0.5	250.2263	2.337	0.9	ug/L	263	Standard
>	Ge	72	483690.1	0.6				ug/L	524310	Standard
|	As	75	1440.6	7.9	1.8747	0.134	7.2	ug/L	4	Standard
|	Se	82	260.4	7.1	3.5010	0.239	6.8	ug/L	16	Standard
|	Se-1	77	2403.2	2.2	47.2688	1.076	2.3	ug/L	97	Standard
>	Ga	71	228.3	10.3				mg/L	23	Standard
|	Rb	85	9898.2	1.3				ug/L	35	Standard
|	Y	89	357987.6	2.1				ug/L	364600	Standard
>	Rh	103	130.0	17.6				ug/L	10	Standard
|	Mo	98	5307.0	0.3	2.2316	0.027	1.2	ug/L	45	Standard
|	Ag	107	218.0	5.9	0.0319	0.003	10.7	ug/L	86	Standard
|	Cd	111	750.2	2.7	0.7016	0.015	2.1	mg/L	4	Standard
|	Cd	114	1845.4	4.5	0.6569	0.024	3.6	ug/L	25	Standard
>	In	115	378636.1	1.0				ug/L	418958	Standard
|	Sn	118	236.7	5.4	0.1929	0.018	9.4	ug/L	139	Standard
|	Sb	123	654.8	9.1	0.1873	0.022	11.9	ug/L	278	Standard
|	Ba	135	373173.8	0.7	350.0075	5.523	1.6	ug/L	48	Standard
|	Ce	140	32055.5	0.4				ug/L	30	Standard
>	Tb	159	657104.2	1.1				ug/L	683588	Standard
|	Ho	165	738.4	7.6				ug/L	5	Standard
|	Tl	203	491.7	11.2	0.0562	0.011	19.0	ug/L	251	Standard
|	Tl	205	1190.0	18.6	0.0525	0.018	34.4	ug/L	568	Standard
|	Pb	206	2971.0	1.6	0.6697	0.014	2.0	ug/L	334	Standard
|	Pb	207	2460.5	1.1	0.6116	0.008	1.4	ug/L	300	Standard
|	Pb	208	3125.1	1.2	0.6318	0.010	1.6	ug/L	368	Standard
	U	238	2812.3	2.0	0.7772	0.017	2.2	ug/L	4	Standard
>	Bi	209	400286.7	0.3				ug/L	431904	Standard

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Na	23	40.0	21.7	46.0857	11.777	25.6	mg/L	0	Standard
Mg	24	7663.6	4.5	190.3754	9.759	5.1	mg/L	25	Standard
K	39	96.7	28.5	0.9154	0.347	37.9	mg/L	17	Standard
Ca	43	100.0	13.2	10.1908	2.047	20.1	mg/L	58	Standard
Fe	54	540.5	2.7	4.5402	0.064	1.4	mg/L	23	Standard
Fe	57	516.7	11.6	7.3647	1.693	23.0	mg/L	255	Standard
Sc-1	45	23980.6	1.7				mg/L	23084	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	2.3	24.7				ug/L	3	Standard
Br	81	148060.2	2.3				ug/L	1807	Standard
P	31	50.0	10.0				ug/L	32	Standard
S	34	10.0	50.0				ug/L	8	Standard
Sr	88	208.3	10.8				ug/L	143	Standard
C	12	80.0	50.0				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	3	Standard
Dy	164	1027.5	3.6				mg/L	16	Standard
Ho-1	165	738.4	7.6				mg/L	5	Standard
Er	166	610.0	7.5				mg/L	7	Standard
I	127	363274.8	7.3				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.900	
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		92.253	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703168901

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	90.376
[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	92.680
[	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

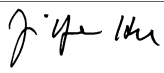
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
V 51 Lower	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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Zn 66 Upper, S, EEE	Zn	66
Ba 135 Upper, S, EEE	Ba	135

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Method 6020 - Summary Report

Sample ID: L1703169001

Sample Date/Time: Thursday, April 06, 2017 13:12:57

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	203224.1	1.8				ug/L	187001	Standard
|	Be	9	48.3	26.0	0.0043	0.007	164.3	ug/L	17	Standard
|	Al	27	9884631.4	1.6	105.8778	2.250	2.1	ug/L	1055	Standard
|	Sc	45	24122.5	2.6				ug/L	23084	Standard
|	Ti	47	532.0	3.7	4.7534	0.148	3.1	ug/L	24	Standard
|	V	51	-12331.3	10.4	-3.3434	0.348	10.4	ug/L	975	Standard
|	Cr	52	24229.7	4.9	5.5050	0.366	6.6	ug/L	4542	Standard
|	Cr	53	63622.5	9.6	133.5610	13.876	10.4	ug/L	657	Standard
|	Mn	55	292820.7	1.2	45.9288	0.863	1.9	ug/L	1886	Standard
|	Co	59	10076.4	1.8	1.8979	0.050	2.6	ug/L	343	Standard
|	Ni	60	7791.7	2.3	6.9813	0.212	3.0	ug/L	120	Standard
|	Cu	65	2667.9	4.2	2.0003	0.109	5.5	ug/L	405	Standard
|	Zn	66	21645.8	2.1	29.7861	0.851	2.9	ug/L	263	Standard
>	Ge	72	476172.2	0.7				ug/L	524310	Standard
|	As	75	-102.9	129.0	-0.1066	0.173	161.9	ug/L	4	Standard
|	Se	82	81.2	8.1	1.0103	0.093	9.2	ug/L	16	Standard
|	Se-1	77	5805.5	8.8	118.5320	11.435	9.6	ug/L	97	Standard
>	Ga	71	153.3	16.7				mg/L	23	Standard
|	Rb	85	25616.6	1.3				ug/L	35	Standard
|	Y	89	337199.7	1.3				ug/L	364600	Standard
>	Rh	103	311.7	14.5				ug/L	10	Standard
|	Mo	98	3128.4	1.7	1.3372	0.032	2.4	ug/L	45	Standard
|	Ag	107	158.0	6.7	0.0173	0.002	14.2	ug/L	86	Standard
|	Cd	111	115.3	13.1	0.1092	0.015	13.8	mg/L	4	Standard
|	Cd	114	337.5	6.5	0.1098	0.009	8.0	ug/L	25	Standard
>	In	115	370491.3	0.9				ug/L	418958	Standard
|	Sn	118	217.0	8.3	0.1685	0.032	19.0	ug/L	139	Standard
|	Sb	123	1416.2	9.7	0.4612	0.053	11.5	ug/L	278	Standard
|	Ba	135	78472.7	1.3	75.1881	1.611	2.1	ug/L	48	Standard
|	Ce	140	1183.4	9.6				ug/L	30	Standard
>	Tb	159	636661.0	0.4				ug/L	683588	Standard
|	Ho	165	40.0	43.3				ug/L	5	Standard
|	Tl	203	352.7	16.8	0.0335	0.012	36.8	ug/L	251	Standard
|	Tl	205	843.4	22.8	0.0287	0.017	58.3	ug/L	568	Standard
|	Pb	206	585.0	0.5	0.0747	0.001	1.1	ug/L	334	Standard
|	Pb	207	494.7	1.4	0.0699	0.001	2.1	ug/L	300	Standard
|	Pb	208	664.7	2.3	0.0845	0.004	4.8	ug/L	368	Standard
	U	238	1061.0	4.6	0.3133	0.014	4.3	ug/L	4	Standard
>	Bi	209	374023.2	0.4				ug/L	431904	Standard

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Na	23	8.3	91.7	6.0024	9.400	156.6	mg/L	0	Standard
Mg	24	35899.2	4.7	888.2688	43.948	4.9	mg/L	25	Standard
K	39	110.0	25.3	1.0837	0.366	33.8	mg/L	17	Standard
Ca	43	73.3	30.7	5.5720	3.662	65.7	mg/L	58	Standard
Fe	54	55.8	33.9	0.3350	0.155	46.3	mg/L	23	Standard
Fe	57	383.3	14.7	3.7514	1.417	37.8	mg/L	255	Standard
Sc-1	45	24122.5	2.6				mg/L	23084	Standard
Cl	35	1.3	173.2				ug/L	1	Standard
Kr	83	4.0	75.0				ug/L	3	Standard
Br	81	99566.1	0.7				ug/L	1807	Standard
P	31	63.3	25.4				ug/L	32	Standard
S	34	21.7	26.6				ug/L	8	Standard
Sr	88	193.3	14.2				ug/L	143	Standard
C	12	350.0	7.6				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	10.0	100.0				mg/L	3	Standard
Dy	164	58.6	46.4				mg/L	16	Standard
Ho-1	165	40.0	43.3				mg/L	5	Standard
Er	166	30.0	66.7				mg/L	7	Standard
I	127	343249.3	9.3				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		108.676	
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		90.819	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703169001

Report Date/Time: Thursday, April 06, 2017 15:43:01

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	88.432
[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	86.599
[	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

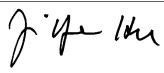
Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
V 51 Lower	V	51	
Cr 53 Upper, S, EEE	Cr	53	

Sample ID: L1703169001


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Sample ID: L1703169001
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Method 6020 - Summary Report

Sample ID: L1703169001PS WG608658-03

Sample Date/Time: Thursday, April 06, 2017 13:16:02

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	207013.9	3.2				ug/L	187001	Standard
|	Be	9	84449.7	1.1	48.9120	1.020	2.1	ug/L	17	Standard
|	Al	27	9928916.4	1.1	104.4331	2.177	2.1	ug/L	1055	Standard
|	Sc	45	25701.8	0.2				ug/L	23084	Standard
|	Ti	47	562.3	2.6	4.9736	0.231	4.6	ug/L	24	Standard
|	V	51	211084.5	1.0	53.0018	1.458	2.8	ug/L	975	Standard
|	Cr	52	226215.3	0.6	59.7977	1.662	2.8	ug/L	4542	Standard
|	Cr	53	92094.0	0.7	191.4153	5.543	2.9	ug/L	657	Standard
|	Mn	55	630273.9	0.9	97.9515	2.946	3.0	ug/L	1886	Standard
|	Co	59	279690.9	0.2	53.5810	1.296	2.4	ug/L	343	Standard
|	Ni	60	64323.3	0.6	57.7329	1.557	2.7	ug/L	120	Standard
|	Cu	65	61242.9	1.0	51.8270	1.391	2.7	ug/L	405	Standard
|	Zn	66	58681.1	1.3	80.3098	1.360	1.7	ug/L	263	Standard
>	Ge	72	482155.9	2.2				ug/L	524310	Standard
|	As	75	40895.9	0.8	52.6542	0.888	1.7	ug/L	4	Standard
|	Se	82	3687.6	1.3	51.6780	0.784	1.5	ug/L	16	Standard
|	Se-1	77	8987.3	3.6	182.1897	10.431	5.7	ug/L	97	Standard
>	Ga	71	165.0	6.1				mg/L	23	Standard
|	Rb	85	25140.8	1.3				ug/L	35	Standard
|	Y	89	333840.4	2.0				ug/L	364600	Standard
>	Rh	103	368.3	27.2				ug/L	10	Standard
|	Mo	98	3123.7	1.8	1.3094	0.037	2.8	ug/L	45	Standard
|	Ag	107	180846.2	0.4	46.5275	0.829	1.8	ug/L	86	Standard
|	Cd	111	52750.0	0.1	49.5585	0.763	1.5	mg/L	4	Standard
|	Cd	114	133246.0	1.0	48.7112	1.188	2.4	ug/L	25	Standard
>	In	115	377709.7	1.4				ug/L	418958	Standard
|	Sn	118	213.3	7.0	0.1552	0.020	13.0	ug/L	139	Standard
|	Sb	123	146550.2	1.0	50.6844	0.267	0.5	ug/L	278	Standard
|	Ba	135	134056.8	0.6	126.0161	1.460	1.2	ug/L	48	Standard
|	Ce	140	1236.7	8.4				ug/L	30	Standard
>	Tb	159	651576.0	1.6				ug/L	683588	Standard
|	Ho	165	35.0	51.5				ug/L	5	Standard
|	Tl	203	244256.6	1.1	51.7548	0.416	0.8	ug/L	251	Standard
|	Tl	205	589969.3	1.1	51.9867	0.562	1.1	ug/L	568	Standard
|	Pb	206	191935.7	0.1	51.7982	0.878	1.7	ug/L	334	Standard
|	Pb	207	172965.7	1.1	51.5970	0.279	0.5	ug/L	300	Standard
|	Pb	208	213216.3	1.5	51.4149	0.311	0.6	ug/L	368	Standard
	U	238	189946.0	1.3	55.9685	0.239	0.4	ug/L	4	Standard
>	Bi	209	375825.4	1.6				ug/L	431904	Standard

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Na	23	13.3	57.3	11.2715	8.975	79.6	mg/L	0	Standard
Mg	24	38627.5	2.2	896.7676	18.754	2.1	mg/L	25	Standard
K	39	130.0	13.9	1.2356	0.218	17.7	mg/L	17	Standard
Ca	43	61.7	16.9	2.9731	1.638	55.1	mg/L	58	Standard
Fe	54	52.4	28.8	0.2805	0.123	43.7	mg/L	23	Standard
Fe	57	368.3	18.5	2.7644	1.694	61.3	mg/L	255	Standard
Sc-1	45	25701.8	0.2				mg/L	23084	Standard
Cl	35	4.0	50.0				ug/L	1	Standard
Kr	83	2.0	50.0				ug/L	3	Standard
Br	81	99069.6	1.6				ug/L	1807	Standard
P	31	68.3	18.4				ug/L	32	Standard
S	34	20.0	50.0				ug/L	8	Standard
Sr	88	240.0	10.8				ug/L	143	Standard
C	12	370.0	15.0				mg/L	33	Standard
N	14	10.0	100.0				mg/L	0	Standard
Hg	202	13.3	114.6				mg/L	3	Standard
Dy	164	44.4	14.2				mg/L	16	Standard
Ho-1	165	35.0	51.5				mg/L	5	Standard
Er	166	46.7	24.7				mg/L	7	Standard
I	127	359822.7	6.6				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		110.702	
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		91.960	
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	90.155
[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	87.016
[	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	
Cr 53 Upper, S, EEE	Cr	53	
Se-1 77 Upper, S, EEE	Se-1	77	

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Method 6020 - Summary Report

Sample ID: L1703169001SDL WG608658-04

Sample Date/Time: Thursday, April 06, 2017 13:19:08

Number of Replicates: 3

Autosampler Position: 240

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	191656.5	1.8				ug/L	187001	Standard
|	Be	9	51.7	68.0	0.0079	0.022	272.7	ug/L	17	Standard
|	Al	27	1707913.7	0.5	19.3930	0.363	1.9	ug/L	1055	Standard
|	Sc	45	23913.9	0.4				ug/L	23084	Standard
|	Ti	47	130.7	6.7	0.9944	0.068	6.8	ug/L	24	Standard
|	V	51	-3728.5	2.2	-1.1137	0.025	2.2	ug/L	975	Standard
|	Cr	52	9096.4	1.4	1.2923	0.013	1.0	ug/L	4542	Standard
|	Cr	53	22056.0	1.9	43.8858	1.176	2.7	ug/L	657	Standard
|	Mn	55	59451.4	1.4	8.7895	0.057	0.6	ug/L	1886	Standard
|	Co	59	2224.2	1.5	0.3580	0.004	1.0	ug/L	343	Standard
|	Ni	60	1732.1	3.0	1.4090	0.050	3.6	ug/L	120	Standard
|	Cu	65	872.7	3.6	0.4266	0.021	5.0	ug/L	405	Standard
|	Zn	66	5378.3	0.8	6.8854	0.020	0.3	ug/L	263	Standard
>	Ge	72	493646.5	0.9				ug/L	524310	Standard
|	As	75	-38.1	319.4	-0.0209	0.153	731.9	ug/L	4	Standard
|	Se	82	41.9	5.8	0.4306	0.029	6.7	ug/L	16	Standard
|	Se-1	77	1647.4	2.1	31.1855	0.452	1.4	ug/L	97	Standard
>	Ga	71	61.7	57.5				mg/L	23	Standard
|	Rb	85	5237.6	2.4				ug/L	35	Standard
|	Y	89	335372.9	0.9				ug/L	364600	Standard
>	Rh	103	116.7	16.2				ug/L	10	Standard
|	Mo	98	633.1	3.8	0.2445	0.007	2.8	ug/L	45	Standard
|	Ag	107	104.3	6.2	0.0021	0.002	71.0	ug/L	86	Standard
|	Cd	111	31.5	9.1	0.0276	0.002	8.5	mg/L	4	Standard
|	Cd	114	90.1	21.2	0.0161	0.007	40.3	ug/L	25	Standard
>	In	115	386376.9	1.2				ug/L	418958	Standard
|	Sn	118	119.0	6.3	-0.0048	0.014	283.8	ug/L	139	Standard
|	Sb	123	1189.3	28.0	0.3644	0.118	32.3	ug/L	278	Standard
|	Ba	135	16035.5	0.9	14.6987	0.292	2.0	ug/L	48	Standard
|	Ce	140	285.0	9.8				ug/L	30	Standard
>	Tb	159	644142.5	0.4				ug/L	683588	Standard
|	Ho	165	3.3	86.6				ug/L	5	Standard
|	Tl	203	214.7	4.0	0.0020	0.001	72.6	ug/L	251	Standard
|	Tl	205	470.0	11.1	-0.0062	0.004	70.7	ug/L	568	Standard
|	Pb	206	421.7	3.7	0.0252	0.005	20.1	ug/L	334	Standard
|	Pb	207	358.3	4.3	0.0242	0.005	20.7	ug/L	300	Standard
|	Pb	208	455.0	7.0	0.0286	0.007	23.2	ug/L	368	Standard
	U	238	246.7	12.0	0.0690	0.009	12.9	ug/L	4	Standard
>	Bi	209	391571.6	1.0				ug/L	431904	Standard

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Na	23	3.3	86.6	-0.1843	3.638	1973.8	mg/L	0	Standard
Mg	24	6301.3	1.6	156.8411	2.344	1.5	mg/L	25	Standard
K	39	46.7	52.9	0.2722	0.316	116.1	mg/L	17	Standard
Ca	43	58.3	21.6	3.1444	2.189	69.6	mg/L	58	Standard
Fe	54	22.7	46.7	0.0536	0.092	172.2	mg/L	23	Standard
Fe	57	270.0	20.6	0.8246	1.448	175.7	mg/L	255	Standard
Sc-1	45	23913.9	0.4				mg/L	23084	Standard
Cl	35	0.7	173.2				ug/L	1	Standard
Kr	83	4.0	43.3				ug/L	3	Standard
Br	81	21365.1	1.5				ug/L	1807	Standard
P	31	83.3	9.2				ug/L	32	Standard
S	34	16.7	45.8				ug/L	8	Standard
Sr	88	153.3	15.1				ug/L	143	Standard
C	12	96.7	23.9				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	9.0	5.3				mg/L	16	Standard
Ho-1	165	3.3	86.6				mg/L	5	Standard
Er	166	20.0	50.0				mg/L	7	Standard
I	127	89503.8	3.3				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		102.490	
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		94.152	
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: L1703169001SDL WG608658-04

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[Rb	85	
[Y	89	
>	Rh	103	
[Mo	98	
[Ag	107	
[Cd	111	
[Cd	114	
>	In	115	92.223
[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	90.662
[	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
V 51 Lower	V	51	

Sample ID: L1703169001SDL WG608658-04

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Method 6020 - Summary Report

Sample ID: F BLANK WG608583-04

Sample Date/Time: Thursday, April 06, 2017 13:22:13

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	200105.2	3.0				ug/L	187001	Standard
|	Be	9	33.3	8.7	-0.0042	0.001	34.0	ug/L	17	Standard
|	Al	27	8959.3	11.6	0.0900	0.012	13.1	ug/L	1055	Standard
|	Sc	45	24640.1	6.9				ug/L	23084	Standard
|	Ti	47	38.3	8.4	0.1558	0.036	22.9	ug/L	24	Standard
|	V	51	1010.8	5.4	0.0419	0.012	29.5	ug/L	975	Standard
|	Cr	52	7041.3	4.8	0.6715	0.030	4.5	ug/L	4542	Standard
|	Cr	53	1948.5	24.1	2.6441	0.796	30.1	ug/L	657	Standard
|	Mn	55	6088.6	6.7	0.6315	0.033	5.2	ug/L	1886	Standard
|	Co	59	277.0	9.2	-0.0087	0.005	61.3	ug/L	343	Standard
|	Ni	60	485.7	6.1	0.2959	0.013	4.5	ug/L	120	Standard
|	Cu	65	1036.0	3.6	0.5251	0.005	0.9	ug/L	405	Standard
|	Zn	66	2064.5	2.6	2.3187	0.016	0.7	ug/L	263	Standard
>	Ge	72	515963.8	3.1				ug/L	524310	Standard
|	As	75	-32.6	149.1	-0.0122	0.060	493.6	ug/L	4	Standard
|	Se	82	17.2	34.2	0.0809	0.076	93.5	ug/L	16	Standard
|	Se-1	77	170.7	11.5	1.5432	0.273	17.7	ug/L	97	Standard
>	Ga	71	25.0	20.0				mg/L	23	Standard
|	Rb	85	63.3	4.6				ug/L	35	Standard
|	Y	89	354734.5	4.3				ug/L	364600	Standard
>	Rh	103	33.3	37.7				ug/L	10	Standard
|	Mo	98	27.3	17.5	-0.0080	0.002	26.7	ug/L	45	Standard
|	Ag	107	106.0	14.5	0.0005	0.004	680.5	ug/L	86	Standard
|	Cd	111	5.0	60.5	0.0029	0.003	87.3	mg/L	4	Standard
|	Cd	114	55.5	37.7	0.0022	0.007	303.3	ug/L	25	Standard
>	In	115	418148.4	2.7				ug/L	418958	Standard
|	Sn	118	230.7	5.6	0.1477	0.029	19.6	ug/L	139	Standard
|	Sb	123	801.3	41.1	0.2137	0.111	51.9	ug/L	278	Standard
|	Ba	135	122.3	13.1	0.0612	0.012	18.9	ug/L	48	Standard
|	Ce	140	90.0	14.7				ug/L	30	Standard
>	Tb	159	681512.2	3.3				ug/L	683588	Standard
|	Ho	165	8.3	69.3				ug/L	5	Standard
|	Tl	203	256.7	29.3	0.0056	0.012	224.0	ug/L	251	Standard
|	Tl	205	515.0	40.0	-0.0067	0.015	218.7	ug/L	568	Standard
|	Pb	206	574.7	8.0	0.0511	0.007	13.0	ug/L	334	Standard
|	Pb	207	510.3	5.9	0.0542	0.004	6.8	ug/L	300	Standard
|	Pb	208	657.3	8.5	0.0614	0.008	12.7	ug/L	368	Standard
	U	238	15.7	41.0	0.0032	0.002	51.4	ug/L	4	Standard
>	Bi	209	431060.4	3.2				ug/L	431904	Standard

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Na	23	3.3	86.6	-0.1679	3.665	2182.1	mg/L	0	Standard
Mg	24	45.0	50.9	0.6485	0.647	99.8	mg/L	25	Standard
K	39	21.7	26.6	-0.0573	0.080	139.0	mg/L	17	Standard
Ca	43	48.3	47.8	1.3857	4.536	327.3	mg/L	58	Standard
Fe	54	31.1	8.8	0.1197	0.024	19.8	mg/L	23	Standard
Fe	57	280.0	7.8	0.9156	0.961	105.0	mg/L	255	Standard
Sc-1	45	24640.1	6.9				mg/L	23084	Standard
Cl	35	2.7	43.3				ug/L	1	Standard
Kr	83	2.0	50.0				ug/L	3	Standard
Br	81	3367.0	8.0				ug/L	1807	Standard
P	31	31.7	107.5				ug/L	32	Standard
S	34	13.3	78.1				ug/L	8	Standard
Sr	88	120.0	12.5				ug/L	143	Standard
C	12	40.0	43.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	6.7	86.6				mg/L	3	Standard
Dy	164	30.0	33.3				mg/L	16	Standard
Ho-1	165	8.3	69.3				mg/L	5	Standard
Er	166	0.0					mg/L	7	Standard
I	127	11070.7	12.0				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		107.008	
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		98.408	
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	99.807
[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: F BLANK WG608583-04
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Method 6020 - Summary Report

Sample ID: QC Std 6

Sample Date/Time: Thursday, April 06, 2017 13:25:20

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	191608.2	3.4				ug/L	187001	Standard
|	Be	9	79305.4	2.5	49.6166	0.785	1.6	ug/L	17	Standard
|	Al	27	4416170.7	2.2	50.1743	0.889	1.8	ug/L	1055	Standard
|	Sc	45	24186.0	3.1				ug/L	23084	Standard
|	Ti	47	12226.6	2.0	104.5980	0.607	0.6	ug/L	24	Standard
|	V	51	217634.6	0.9	51.1843	0.508	1.0	ug/L	975	Standard
|	Cr	52	206587.6	0.9	50.9969	0.575	1.1	ug/L	4542	Standard
|	Cr	53	26725.2	1.4	51.1958	0.254	0.5	ug/L	657	Standard
|	Mn	55	348746.1	0.9	50.6481	0.703	1.4	ug/L	1886	Standard
|	Co	59	279005.5	0.6	50.0694	0.659	1.3	ug/L	343	Standard
|	Ni	60	59378.8	1.3	49.9067	0.288	0.6	ug/L	120	Standard
|	Cu	65	63347.5	0.8	50.2106	0.604	1.2	ug/L	405	Standard
|	Zn	66	38661.6	0.8	49.4484	0.592	1.2	ug/L	263	Standard
>	Ge	72	514571.3	1.9				ug/L	524310	Standard
|	As	75	40705.9	0.6	49.1061	0.625	1.3	ug/L	4	Standard
|	Se	82	3808.8	0.9	50.0142	1.222	2.4	ug/L	16	Standard
|	Se-1	77	2738.6	1.9	50.7542	0.203	0.4	ug/L	97	Standard
>	Ga	71	33.3	62.5				mg/L	23	Standard
|	Rb	85	250.0	10.6				ug/L	35	Standard
|	Y	89	354376.4	0.7				ug/L	364600	Standard
>	Rh	103	46.7	37.6				ug/L	10	Standard
|	Mo	98	252049.3	0.7	97.9023	1.624	1.7	ug/L	45	Standard
|	Ag	107	209323.0	0.6	49.2213	0.774	1.6	ug/L	86	Standard
|	Cd	111	58438.6	0.9	50.1770	0.568	1.1	mg/L	4	Standard
|	Cd	114	152448.5	1.1	50.9292	0.493	1.0	ug/L	25	Standard
>	In	115	413287.6	2.0				ug/L	418958	Standard
|	Sn	118	33058.4	1.8	49.7143	0.728	1.5	ug/L	139	Standard
|	Sb	123	155097.6	1.4	49.0269	0.740	1.5	ug/L	278	Standard
|	Ba	135	57004.7	1.0	48.9536	0.992	2.0	ug/L	48	Standard
|	Ce	140	168.3	10.4				ug/L	30	Standard
>	Tb	159	677887.5	1.2				ug/L	683588	Standard
|	Ho	165	10.0	50.0				ug/L	5	Standard
|	Tl	203	265660.0	1.2	49.4633	0.725	1.5	ug/L	251	Standard
|	Tl	205	638981.2	1.7	49.4760	0.954	1.9	ug/L	568	Standard
|	Pb	206	210405.7	1.2	49.8907	0.862	1.7	ug/L	334	Standard
|	Pb	207	189338.8	1.1	49.6296	0.540	1.1	ug/L	300	Standard
|	Pb	208	229826.8	0.5	48.7015	0.759	1.6	ug/L	368	Standard
	U	238	197326.0	0.9	51.0977	0.900	1.8	ug/L	4	Standard
>	Bi	209	427705.3	1.8				ug/L	431904	Standard

Sample ID: QC Std 6

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Na	23	1.7	173.2	-2.2705	3.663	161.3	mg/L	0	Standard
Mg	24	226.7	8.4	5.1217	0.400	7.8	mg/L	25	Standard
K	39	396.7	14.6	4.7433	0.667	14.1	mg/L	17	Standard
Ca	43	68.3	27.7	4.7501	3.403	71.6	mg/L	58	Standard
Fe	54	501.2	8.9	4.1665	0.412	9.9	mg/L	23	Standard
Fe	57	418.3	18.1	4.6205	1.672	36.2	mg/L	255	Standard
Sc-1	45	24186.0	3.1				mg/L	23084	Standard
Cl	35	0.0					ug/L	1	Standard
Kr	83	3.7	56.8				ug/L	3	Standard
Br	81	1920.1	6.6				ug/L	1807	Standard
P	31	50.0	26.5				ug/L	32	Standard
S	34	28.3	36.7				ug/L	8	Standard
Sr	88	143.3	25.7				ug/L	143	Standard
C	12	26.7	57.3				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	9.0	113.3				mg/L	16	Standard
Ho-1	165	10.0	50.0				mg/L	5	Standard
Er	166	20.0	50.0				mg/L	7	Standard
I	127	3802.1	8.6				mg/L	2930	Standard

QC Calculated Values


Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	99.233		
Al	27	100.349		
Sc	45			
Ti	47	104.598		
V	51	102.369		
Cr	52	101.994		
Cr	53			
Mn	55	101.296		
Co	59	100.139		
Ni	60	99.813		
Cu	65	100.421		
Zn	66	98.897		
Ge	72		98.143	
As	75	98.212		
Se	82	100.028		
Se-1	77			
Ga	71			

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98	97.902	
[Ag	107	98.443	
[Cd	111	100.354	
[Cd	114		
>	In	115		98.647
[Sn	118	99.429	
[	Sb	123	98.054	
[	Ba	135	97.907	
[	Ce	140		
>	Tb	159		
[	Ho	165		
[	Tl	203	98.927	
[	Tl	205		
[	Pb	206		
[	Pb	207		
[	Pb	208	97.403	
[	U	238	102.195	
>	Bi	209		99.028
[	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

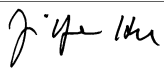
Measurement Type	Analyte	Mass	Out of Limits Message
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Method 6020 - Summary Report

Sample ID: QC Std 7

Sample Date/Time: Thursday, April 06, 2017 13:28:25

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	191235.4	3.8				ug/L	187001	Standard
|	Be	9	23.3	61.9	-0.0093	0.010	104.2	ug/L	17	Standard
|	Al	27	1616.8	38.5	0.0111	0.008	70.3	ug/L	1055	Standard
|	Sc	45	23558.3	4.4				ug/L	23084	Standard
|	Ti	47	31.3	38.3	0.1012	0.108	106.4	ug/L	24	Standard
|	V	51	683.3	7.0	-0.0323	0.015	45.9	ug/L	975	Standard
|	Cr	52	3726.1	0.9	-0.1449	0.020	13.7	ug/L	4542	Standard
|	Cr	53	673.3	8.2	0.1929	0.107	55.6	ug/L	657	Standard
|	Mn	55	2055.5	0.8	0.0504	0.004	8.7	ug/L	1886	Standard
|	Co	59	266.0	1.6	-0.0099	0.002	18.0	ug/L	343	Standard
|	Ni	60	175.0	5.5	0.0377	0.008	20.4	ug/L	120	Standard
|	Cu	65	445.3	3.1	0.0617	0.006	10.0	ug/L	405	Standard
|	Zn	66	441.0	4.5	0.2437	0.014	5.8	ug/L	263	Standard
>	Ge	72	507128.1	2.2				ug/L	524310	Standard
|	As	75	9.4	303.7	0.0391	0.035	89.6	ug/L	4	Standard
|	Se	82	12.9	26.6	0.0275	0.044	159.4	ug/L	16	Standard
|	Se-1	77	101.0	5.5	0.2527	0.135	53.6	ug/L	97	Standard
>	Ga	71	26.7	39.0				mg/L	23	Standard
|	Rb	85	36.7	61.5				ug/L	35	Standard
|	Y	89	349795.0	2.5				ug/L	364600	Standard
>	Rh	103	35.0	14.3				ug/L	10	Standard
|	Mo	98	142.7	23.2	0.0385	0.014	37.2	ug/L	45	Standard
|	Ag	107	115.7	30.2	0.0040	0.010	243.0	ug/L	86	Standard
|	Cd	111	12.1	68.8	0.0096	0.008	82.6	mg/L	4	Standard
|	Cd	114	38.8	26.2	-0.0027	0.004	149.9	ug/L	25	Standard
>	In	115	403663.9	4.0				ug/L	418958	Standard
|	Sn	118	167.7	5.9	0.0628	0.026	40.9	ug/L	139	Standard
|	Sb	123	364.7	38.9	0.0806	0.052	63.9	ug/L	278	Standard
|	Ba	135	52.7	22.0	0.0037	0.009	248.7	ug/L	48	Standard
|	Ce	140	20.0	50.0				ug/L	30	Standard
>	Tb	159	665352.4	2.5				ug/L	683588	Standard
|	Ho	165	8.3	91.7				ug/L	5	Standard
|	Tl	203	140.7	15.4	-0.0152	0.005	29.6	ug/L	251	Standard
|	Tl	205	355.0	25.9	-0.0182	0.008	43.7	ug/L	568	Standard
|	Pb	206	444.0	2.1	0.0221	0.005	21.1	ug/L	334	Standard
|	Pb	207	342.0	3.6	0.0119	0.006	46.8	ug/L	300	Standard
|	Pb	208	435.0	6.4	0.0162	0.007	41.6	ug/L	368	Standard
	U	238	38.3	62.8	0.0093	0.007	71.5	ug/L	4	Standard
>	Bi	209	424799.7	2.8				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.1693	3.838	176.9	mg/L	0	Standard
Mg	24	31.7	32.9	0.3321	0.272	81.9	mg/L	25	Standard
K	39	8.3	91.7	-0.2232	0.097	43.5	mg/L	17	Standard
Ca	43	56.7	5.1	3.0152	0.721	23.9	mg/L	58	Standard
Fe	54	19.6	1.2	0.0294	0.007	24.9	mg/L	23	Standard
Fe	57	275.0	15.5	1.0880	1.285	118.1	mg/L	255	Standard
Sc-1	45	23558.3	4.4				mg/L	23084	Standard
Cl	35	1.3	86.6				ug/L	1	Standard
Kr	83	3.7	41.7				ug/L	3	Standard
Br	81	1953.5	7.5				ug/L	1807	Standard
P	31	51.7	11.2				ug/L	32	Standard
S	34	20.0	25.0				ug/L	8	Standard
Sr	88	121.7	14.4				ug/L	143	Standard
C	12	33.3	34.6				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	6.2	180.0				mg/L	16	Standard
Ho-1	165	8.3	91.7				mg/L	5	Standard
Er	166	10.0	100.0				mg/L	7	Standard
I	127	3880.5	8.5				mg/L	2930	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		96.723	
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	96.350
[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	98.355
[	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: QC Std 8

Sample Date/Time: Thursday, April 06, 2017 13:31:33

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	187394.3	5.8				ug/L	187001	Standard
|	Be	9	350.0	0.0	0.2003	0.013	6.4	ug/L	17	Standard
|	Al	27	3992.8	130.6	0.0369	0.056	153.0	ug/L	1055	Standard
|	Sc	45	23773.7	4.0				ug/L	23084	Standard
|	Ti	47	34.0	12.8	0.1255	0.028	22.2	ug/L	24	Standard
|	V	51	2386.3	6.3	0.3807	0.012	3.2	ug/L	975	Standard
|	Cr	52	7654.3	2.6	0.8802	0.047	5.3	ug/L	4542	Standard
|	Cr	53	1206.7	4.4	1.2780	0.116	9.1	ug/L	657	Standard
|	Mn	55	5386.7	29.6	0.5459	0.201	36.7	ug/L	1886	Standard
|	Co	59	2413.5	13.7	0.3847	0.042	10.9	ug/L	343	Standard
|	Ni	60	1944.1	4.4	1.5663	0.041	2.6	ug/L	120	Standard
|	Cu	65	1390.4	9.2	0.8356	0.055	6.6	ug/L	405	Standard
|	Zn	66	5194.6	2.9	6.5229	0.113	1.7	ug/L	263	Standard
>	Ge	72	502232.8	4.5				ug/L	524310	Standard
|	As	75	322.5	9.5	0.4255	0.025	6.0	ug/L	4	Standard
|	Se	82	47.5	14.5	0.4964	0.089	17.9	ug/L	16	Standard
|	Se-1	77	119.3	9.9	0.6273	0.145	23.1	ug/L	97	Standard
>	Ga	71	13.3	78.1				mg/L	23	Standard
|	Rb	85	68.3	65.6				ug/L	35	Standard
|	Y	89	346311.2	5.0				ug/L	364600	Standard
>	Rh	103	23.3	32.7				ug/L	10	Standard
|	Mo	98	123.4	125.0	0.0292	0.058	199.8	ug/L	45	Standard
|	Ag	107	1781.1	12.9	0.4053	0.036	8.9	ug/L	86	Standard
|	Cd	111	267.8	21.3	0.2340	0.040	17.1	mg/L	4	Standard
|	Cd	114	779.7	25.1	0.2501	0.055	21.8	ug/L	25	Standard
>	In	115	402177.1	4.5				ug/L	418958	Standard
|	Sn	118	135.0	11.5	0.0127	0.026	203.1	ug/L	139	Standard
|	Sb	123	1342.9	9.4	0.3973	0.027	6.9	ug/L	278	Standard
|	Ba	135	888.4	10.0	0.7406	0.043	5.8	ug/L	48	Standard
|	Ce	140	175.0	155.9				ug/L	30	Standard
>	Tb	159	659376.8	3.8				ug/L	683588	Standard
|	Ho	165	10.0	86.6				ug/L	5	Standard
|	Tl	203	552.7	28.5	0.0622	0.026	41.2	ug/L	251	Standard
|	Tl	205	1308.4	38.0	0.0561	0.035	62.5	ug/L	568	Standard
|	Pb	206	1217.4	13.9	0.2082	0.029	14.0	ug/L	334	Standard
|	Pb	207	1016.7	11.3	0.1916	0.021	10.9	ug/L	300	Standard
|	Pb	208	1230.7	10.1	0.1876	0.017	8.8	ug/L	368	Standard
	U	238	1510.1	8.0	0.3952	0.017	4.3	ug/L	4	Standard
>	Bi	209	421833.6	4.0				ug/L	431904	Standard

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Na	23	1.7	173.2	-2.2269	3.739	167.9	mg/L	0	Standard
Mg	24	31.7	50.8	0.3143	0.365	116.2	mg/L	25	Standard
K	39	16.7	34.6	-0.1120	0.082	73.3	mg/L	17	Standard
Ca	43	56.7	22.2	2.9322	2.319	79.1	mg/L	58	Standard
Fe	54	24.7	52.4	0.0758	0.120	157.8	mg/L	23	Standard
Fe	57	231.7	3.3	-0.1480	0.334	225.6	mg/L	255	Standard
Sc-1	45	23773.7	4.0				mg/L	23084	Standard
Cl	35	2.7	114.6				ug/L	1	Standard
Kr	83	2.3	65.5				ug/L	3	Standard
Br	81	1933.5	9.4				ug/L	1807	Standard
P	31	35.0	14.3				ug/L	32	Standard
S	34	18.3	31.5				ug/L	8	Standard
Sr	88	131.7	20.9				ug/L	143	Standard
C	12	33.3	34.6				mg/L	33	Standard
N	14	0.0					mg/L	0	Standard
Hg	202	3.3	173.2				mg/L	3	Standard
Dy	164	12.4	40.1				mg/L	16	Standard
Ho-1	165	10.0	86.6				mg/L	5	Standard
Er	166	20.0	100.0				mg/L	7	Standard
I	127	3648.8	7.1				mg/L	2930	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9	100.140		
Al	27			
Sc	45			
Ti	47			
V	51	95.178		
Cr	52	110.020		
Cr	53			
Mn	55	109.175		
Co	59	96.175		
Ni	60	97.892		
Cu	65	104.450		
Zn	66	104.367		
Ge	72		95.789	
As	75	106.380		
Se	82	124.100		
Se-1	77			
Ga	71			

Sample ID: QC Std 8

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[Rb	85		
[Y	89		
>	Rh	103		
[Mo	98		
	Ag	107	101.333	
	Cd	111	97.497	
	Cd	114		
>	In	115		95.995
	Sn	118		
	Sb	123	99.318	
[	Ba	135	98.752	
[	Ce	140		
>	Tb	159		
[	Ho	165		
	Tl	203	77.699	
	Tl	205		
	Pb	206		
	Pb	207		
	Pb	208	93.784	
	U	238	98.802	
>	Bi	209		97.668
[	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

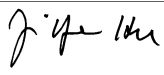
Measurement Type	Analyte	Mass	Out of Limits Message
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Sample ID: QC Std 8

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2.4 General Chemistry Data

2.4.1 Method 9056

2.4.1.1 Summary Data

Lab Report #: L17031690

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L17031690-01	PrePrep Method: N/A	Instrument: IC3
Client ID: LH18/24-SP650-6428-GRAB	Prep Method: 9056	Prep Date: 04/03/2017 15:00
Matrix: Water	Analytical Method: 9056	Cal Date: 12/01/2016 17:22
Workgroup #: WG608568	Analyst: LJH	Run Date: 04/03/2017 19:25
Collect Date: 03/29/2017 15:00	Dilution: 20	File ID: I3_040317-13
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Sulfate	14808-79-8	91.1		40.0	20.0	10.0
J	Estimated value ; the analyte concentration was greater than the highest standard					

Lab Report #: L17031690

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L17031690-01

PrePrep Method: N/A

Instrument: IC3

Client ID: LH18/24-SP650-6428-GRAB

Prep Method: 9056

Prep Date: 04/03/2017 15:00

Matrix: Water

Analytical Method: 9056

Cal Date: 12/01/2016 17:22

Workgroup #: WG608568

Analyst: LJH

Run Date: 04/03/2017 19:45

Collect Date: 03/29/2017 15:00

Dilution: 200

File ID: I3_040317-14

Sample Tag: DL02

Units: mg/L

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chloride	16887-00-6	2580		80.0	40.0	20.0
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: IC3 Dataset: 120116 IC3 ICAL.SEQ_OL
 Analyst1: CAS Analyst2: NA
 Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT385836

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
 Analytical WGs: 593355 (LOD/LOQ Waters) 593356 (LOD/LOQ Soils)
 Internal STD: NA Surrogate STD: NA Calibration STD STD77046 01-DEC-2016
 CCV STD: STD77046 LCS STD: STD79166 MS/MSD STD: NA

Comments: System Backpressure: 2166 psi

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I3_120116-01	ELUENT	1	1		12/01/16 15:00
2	I3_120116-02	DI WATER	1	1		12/01/16 15:20
3	I3_120116-03	WG593545-01 STD	1	1	STD77046	12/01/16 15:40
4	I3_120116-04	WG593545-02 STD	1	1	STD77046	12/01/16 16:01
5	I3_120116-05	WG593545-03 STD	1	1	STD77046	12/01/16 16:21
6	I3_120116-06	WG593545-04 STD	1	1	STD77046	12/01/16 16:41
7	I3_120116-07	WG593545-05 STD	1	1	STD77046	12/01/16 17:02
8	I3_120116-08	WG593545-06 STD	1	1	STD77046	12/01/16 17:22
9	I3_120116-09	WG593545-07 SSCV	1	1	STD79166	12/01/16 17:43
10	I3_120116-10	LCRV @ Lvl 6	1	1	STD79166	12/01/16 18:03
11	I3_120116-11	LCRV @ Lvl 4	1	1	STD79166	12/01/16 18:23
12	I3_120116-12	LCRV @ Lvl 2	1	1	STD79166	12/01/16 18:44
13	I3_120116-13	LCRV @ Lvl 0	1	1		12/01/16 19:04
14	I3_120116-14	WG593357-01 ANION CCV	1	1	STD77046	12/01/16 19:24
15	I3_120116-15	WG593357-02 ANION CCB	1	1		12/01/16 19:45
16	I3_120116-16	WG593355-01 ANION BLANK	1	1		12/01/16 20:05
17	I3_120116-17	WG593355-02 ANION LCS	1	1	STD79166	12/01/16 20:25
18	I3_120116-18	WG593355-03 ANION LCS2	1	1	STD79166	12/01/16 20:46
19	I3_120116-19	L16100002-01 LOD (F,CL,BR,SO4)	1	1		12/01/16 21:06
20	I3_120116-20	L16100002-01 LOD (NO2,NO3)	1	1		12/01/16 21:27
21	I3_120116-21	L16100004-01 LOQ (F,CL,BR,SO4)	1	1		12/01/16 21:47
22	I3_120116-22	L16100004-01 LOQ (NO2,NO3)	1	1		12/01/16 22:07
23	I3_120116-23	L16100004-09 LOQ (F,CL,BR,SO4)	1	1		12/01/16 22:28
24	I3_120116-24	L16100004-09 LOQ (NO2,NO3)	1	1		12/01/16 22:48
25	I3_120116-25	WG593357-03 ANION CCV	1	1	STD77046	12/01/16 23:08
26	I3_120116-26	WG593357-04 ANION CCB	1	1		12/01/16 23:29
27	I3_120116-27	WG593356-01 ANION BLANK-SOIL	7	1		12/01/16 23:49
28	I3_120116-28	WG593356-02 ANION LCS-SOIL	7	1	STD79166	12/02/16 00:09
29	I3_120116-29	WG593356-03 ANION LCS2-SOIL	7	1	STD79166	12/02/16 00:30
30	I3_120116-30	L16100003-01 LOD (F,CL,BR,SO4)	7	1		12/02/16 00:50
31	I3_120116-31	L16100003-01 LOD (NO2,NO3)	7	1		12/02/16 01:11
32	I3_120116-32	L16100005-01 LOQ (F,CL,BR,SO4)	7	1		12/02/16 01:31
33	I3_120116-33	L16100005-01 LOQ (NO2,NO3)	7	1		12/02/16 01:51

Page: 1

Approved: 05-DEC-16




Microbac Laboratories Inc.
Instrument Run Log

Instrument: IC3 Dataset: 120116 IC3 ICAL.SEQ_OL
 Analyst1: CAS Analyst2: NA
 Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT385836

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
 Analytical WGs: 593355 (LOD/LOQ Waters) 593356 (LOD/LOQ Soils)
 Internal STD: NA Surrogate STD: NA STD77046 01-DEC-2016
 CCV STD: STD77046 LCS STD: STD79166 NA

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
34	I3_120116-34	L16100005-10 LOQ (F,CL,BR,SO4)	7	1		12/02/16 02:12
35	I3_120116-35	L16100005-10 LOQ (NO2,NO3)	7	1		12/02/16 02:32
36	I3_120116-36	WG593357-05 ANION CCV	1	1	STD77046	12/02/16 02:52
37	I3_120116-37	WG593357-06 ANION CCB	1	1		12/02/16 03:13
38	I3_120116-38	END	1	1		12/02/16 03:33

Comments

Seq.	Rerun	Dil.	Reason	Analytes
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Eri C. Zimm



Microbac Laboratories Inc.
Instrument Run Log

Instrument: IC3 Dataset: 040317 IC3.SEQ
 Analyst1: LJH Analyst2: NA
 Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT39747, 39767

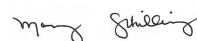
Workgroups: _____ Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
WG608568
 Internal STD: NA Surrogate STD: NA Calibration STD STD74524 07-JUN-2016
 CCV STD: STD77046 LCS STD: STD77045 MS/MSD STD: STD77045

Comments: All samples that were ran at a dilution were due to the pre-screening analysis performed. Anything over 200ppm for CL and SO4 was automatically diluted for the safety of the instrument.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I3_040317-01	ELUENT	1	1		04/03/17 15:21
2	I3_040317-02	DI WATER	1	1		04/03/17 15:41
3	I3_040317-03	WG608569-01 ANION CCV	1	1		04/03/17 16:01
4	I3_040317-04	WG608569-02 ANION CCB	1	1		04/03/17 16:22
5	I3_040317-05	WG608568-01 ANION BLANK	1	1		04/03/17 16:42
6	I3_040317-06	WG608568-02 ANION LCS	1	1		04/03/17 17:02
45	I3_040317-07	L17031693-01 REF	1	1		04/03/17 17:23
8	I3_040317-08	WG608568-04 MS	1	1		04/03/17 17:43
9	I3_040317-09	WG608568-05 MSD	1	1		04/03/17 18:03
10	I3_040317-10	WG608568-06 DUP	1	1		04/03/17 18:24
11	I3_040317-11	L17031689-01 10X	1	10		04/03/17 18:44
12	I3_040317-12	L17031689-01 100X	1	100		04/03/17 19:05
13	I3_040317-13	L17031690-01 20X	1	20		04/03/17 19:25
14	I3_040317-14	L17031690-01 200X	1	200		04/03/17 19:45
15	I3_040317-15	WG608569-03 ANION CCV	1	1		04/03/17 20:06
16	I3_040317-16	WG608569-04 ANION CCB	1	1		04/03/17 20:26
17	I3_040317-17	L17031705-01	2	1		04/03/17 20:46
18	I3_040317-18	L17031705-02	2	1		04/03/17 21:07
19	I3_040317-19	L17031705-03	2	1		04/03/17 21:27
20	I3_040317-20	L17040017-01 20X	2	20		04/03/17 21:47
21	I3_040317-21	L17040017-01 200X	2	200		04/03/17 22:08
22	I3_040317-22	L17040017-02 30X	2	30		04/03/17 22:28
23	I3_040317-23	L17040017-02 300X	2	300		04/03/17 22:48
24	I3_040317-24	L17040017-03 50X	2	50		04/03/17 23:09
25	I3_040317-25	L17040017-03 500X	2	500		04/03/17 23:29
26	I3_040317-26	L17040017-04 30X	2	30		04/03/17 23:50
27	I3_040317-27	WG608569-05 ANION CCV	1	1		04/04/17 00:10
28	I3_040317-28	WG608569-06 ANION CCB	1	1		04/04/17 00:30
29	I3_040317-29	L17040017-04 300X	2	300		04/04/17 00:51
30	I3_040317-30	L17040017-05 30X	2	30		04/04/17 01:11
31	I3_040317-31	L17040017-05 300X	2	300		04/04/17 01:31
32	I3_040317-32	L17040017-06 30X	2	30		04/04/17 01:52
33	I3_040317-33	L17040017-06 300X	2	300		04/04/17 02:12

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Approved: 05-APR-17




Microbac Laboratories Inc.
Instrument Run Log

Instrument: IC3 Dataset: 040317 IC3.SEQ
 Analyst1: LJH Analyst2: NA
 Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: _____ Syringe Filter Lot#: 160109254
 Eluent ID#: RGT39747, 39767

Workgroups: _____ Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
WG608568
 Internal STD: NA Surrogate STD: NA STD74524 07-JUN-2016
 CCV STD: STD77046 LCS STD: STD77045 STD77045

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
34	I3_040317-34	WG608569-07 ANION CCV	1	1		04/04/17 02:32
35	I3_040317-35	WG608569-08 ANION CCB	1	1		04/04/17 02:53
36	I3_040317-36	WG608569-09 ANION CCV	1	1		04/04/17 11:42
37	I3_040317-37	WG608569-10 ANION CCB	1	1		04/04/17 12:02
38	I3_040317-38	L17031705-01 2X	2	2		04/04/17 12:22
39	I3_040317-39	L17031705-02 2X	2	2		04/04/17 12:43
40	I3_040317-40	L17031705-03 2X	2	2		04/04/17 13:03
41	I3_040317-41	L17040017-01 300X	2	300		04/04/17 13:23
42	I3_040317-42	WG608569-11 CCV	1	1		04/04/17 13:44
43	I3_040317-43	WG608569-12 CCB	1	1		04/04/17 14:04
44	I3_040317-44	END	1	1		04/04/17 14:24

Comments

Seq.	Rerun	Dil.	Reason	Analytes
17	X	2		
			L17031705-01 will need to be re-ran due to being over 24ppm for CL.	
18	X	2		
			L17031705-02 will need to be re-ran due to being over 24ppm for CL.	
19	X	2		
			L17031705-03 will need to be re-ran due to being over 24ppm for CL.	
21	X	300		
			L17040017-01 200X was over the 24ppm for CL.	

Microbac Laboratories Inc.

Data Checklist


Date: 01-DEC-2016
 Analyst: CAS
 Analyst: NA
 Method: 300/9056
 Instrument: IC3
 Curve Workgroup: WG593545
 Runlog ID: 79020
 Analytical Workgroups: L16100002, L16100003, L16100004, 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)	2166PSI
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	NA
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	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	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	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:
05-DEC-2016



Secondary Reviewer:
05-DEC-2016




Microbac Laboratories Inc.

Data Checklist

Date: 03-APR-2017
 Analyst: LJH
 Analyst: NA
 Method: 300/9056
 Instrument: IC3
 Curve Workgroup: NA
 Runlog ID: 81342
 Analytical Workgroups: L17031689, -1690, -1693, -1705, L17040017

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)	X
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	X
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	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	LJH
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	MES

Primary Reviewer:
04-APR-2017

Lacey J. Bendoric

Secondary Reviewer:
05-APR-2017

Mary Schilling



Analytical Method:9056
Login Number:L17031690

AAB#:WG608568

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
LH18/24-SP650-6428-GRAB	01	03/29/17					04/03/2017	5	2	*	04/03/17	5.2	2	*
LH18/24-SP650-6428-GRAB	01	03/29/17					04/03/2017	5	2	*	04/03/17	5.2	2	*

* = SEE PROJECT QAPP REQUIREMENTS



METHOD BLANK SUMMARY

Login Number: L17031690
 Blank File ID: I3_040317-05
 Prep Date: 04/03/17 15:00
 Analyzed Date: 04/03/17 16:42
 Analyst: LJH

Work Group: WG608568
 Blank Sample ID: WG608568-01
 Instrument ID: IC3
 Method: 9056

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG608568-02	I3_040317-06	04/03/17 17:02	01
DUP	WG608568-06	I3_040317-10	04/03/17 18:24	01
LH18/24-SP650-6428-GRAB	L17031690-01	I3_040317-13	04/03/17 19:25	DL01
LH18/24-SP650-6428-GRAB	L17031690-01	I3_040317-14	04/03/17 19:45	DL02

Report Name: BLANK_SUMMARY
 PDF File ID: 5230326
 Report generated 04/05/2017 09:49



Login Number: L17031690 Prep Date: 04/03/17 15:00 Sample ID: WG608568-01
 Instrument ID: IC3 Run Date: 04/03/17 16:42 Prep Method: 9056
 File ID: I3 040317-05 Analyst: LJH Method: 9056
 Workgroup (AAB#): WG608568 Matrix: Water Units: mg/L
 Contract #: _____ Cal ID: IC3-01-DEC-16

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Chloride	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: 5230327
 05-APR-2017 09:49



Login Number: L17031690 Run Date: 04/03/2017 Sample ID: WG608568-02
Instrument ID: IC3 Run Time: 17:02 Prep Method: 9056
File ID: I3 040317-06 Analyst: LJH Method: 9056
Workgroup (AAB#): WG608568 Matrix: Water Units: mg/L
QC Key: DOD4 Lot#: STD79166 Cal ID: IC3-01-DEC-16

Analytes	Expected	Found	% Rec	LCS Limits	Q
Chloride	8.00	8.27	103	90 - 110	
Sulfate	40.0	41.5	104	90 - 110	

LCS - Modified 03/06/2008
PDF File ID: 5230328
Report generated: 04/05/2017 09:49



Login Number: L17031690
Analytical Method: 9056
ICAL Workgroup: WG593545

Instrument ID: IC3
Initial Calibration Date: 01-DEC-16 17:22
Column ID: F

Analyte	AVG RF	% RSD	LINEAR (R)	QUAD (R ²)
Chloride	5.791	5.91		1.00000
Sulfate	7.754	8.18		1.00000

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

INT_CAL - Modified 03/06/2008
PDF File ID: 5230329
Report generated 04/05/2017 09:49



Login Number: L17031690
 Analytical Method: 9056

Instrument ID: IC3
 Initial Calibration Date: 01-DEC-16 17:22
 Column ID: F

Analyte	WG593545-01			WG593545-02			WG593545-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	0.200	0.034300000 0	5.831	1.00	0.162700000	6.146	4.00	0.663600000	6.028
Sulfate	1.00	0.121500000	8.230	5.00	0.598000000	8.361	20.0	2.485600000	8.046

INT_CAL - Modified 03/06/2008
 PDF File ID: 5230329
 Report generated 04/05/2017 09:49



Login Number: L17031690
 Analytical Method: 9056

Instrument ID: IC3
 Initial Calibration Date: 01-DEC-16 17:22
 Column ID: F

Analyte	WG593545-04			WG593545-05			WG593545-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	8.00	1.36840000	5.846	12.0	2.11410000	5.676	24.0	4.60140000	5.216
Sulfate	40.0	5.18840000	7.710	60.0	8.07990000	7.426	120	17.7738000	6.752

INT_CAL - Modified 03/06/2008
 PDF File ID: 5230329
 Report generated 04/05/2017 09:49



Login Number: L17031690 Run Date: 12/01/2016 Sample ID: WG593545-07
 Instrument ID: IC3 Run Time: 17:43 Method: 9056
 File ID: I3 120116-09 Analyst: CAS QC Key: DOD4
 ICal Workgroup: WG593545 Cal ID: IC3 - 01-DEC-16

Analyte	Expected	Found	Units	RF	%D	UCL	Q
Chloride	8.00	8.01	mg/L	5.85	0.100	10	
Sulfate	40.0	40.2	mg/L	7.71	0.500	10	

* Exceeds %D Limit



Login Number: L17031690 Run Date: 04/03/2017 Sample ID: WG608569-02
Instrument ID: IC3 Run Time: 16:22 Method: 9056
File ID: I3 040317-04 Analyst: LJH Units: mg/L
Workgroup (AAB#): WG608568 Cal ID: IC3 - 01-DEC-16
Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	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: 5230322
Report generated 04/05/2017 09:49



Login Number: L17031690 Run Date: 04/03/2017 Sample ID: WG608569-04
 Instrument ID: IC3 Run Time: 20:26 Method: 9056
 File ID: I3 040317-16 Analyst: LJH Units: mg/L
 Workgroup (AAB#): WG608568 Cal ID: IC3 - 01-DEC-16
 Matrix: WATER QAPP: DOD4

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	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: L17031690 Run Date: 04/03/2017 Sample ID: WG608569-01
Instrument ID: IC3 Run Time: 16:01 Method: 9056
File ID: I3 040317-03 Analyst: LJH QC Key: DOD4
Workgroup (AAB#): WG608568 Cal ID: IC3 - 01-DEC-16
Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
Chloride	8.00	8.16	mg/L	5.73	2.04	10	
Sulfate	40.0	40.9	mg/L	7.57	2.22	10	

* Exceeds %D Criteria



Login Number: L17031690 Run Date: 04/03/2017 Sample ID: WG608569-03
 Instrument ID: IC3 Run Time: 20:06 Method: 9056
 File ID: I3 040317-15 Analyst: LJH QC Key: DOD4
 Workgroup (AAB#): WG608568 Cal ID: IC3 - 01-DEC-16
 Matrix: WATER

Analyte	Expected	Found	UNITS	RF	%D	UCL	Q
Chloride	8.00	8.18	mg/L	5.72	2.29	10	
Sulfate	40.0	41.0	mg/L	7.56	2.39	10	

* Exceeds %D Criteria

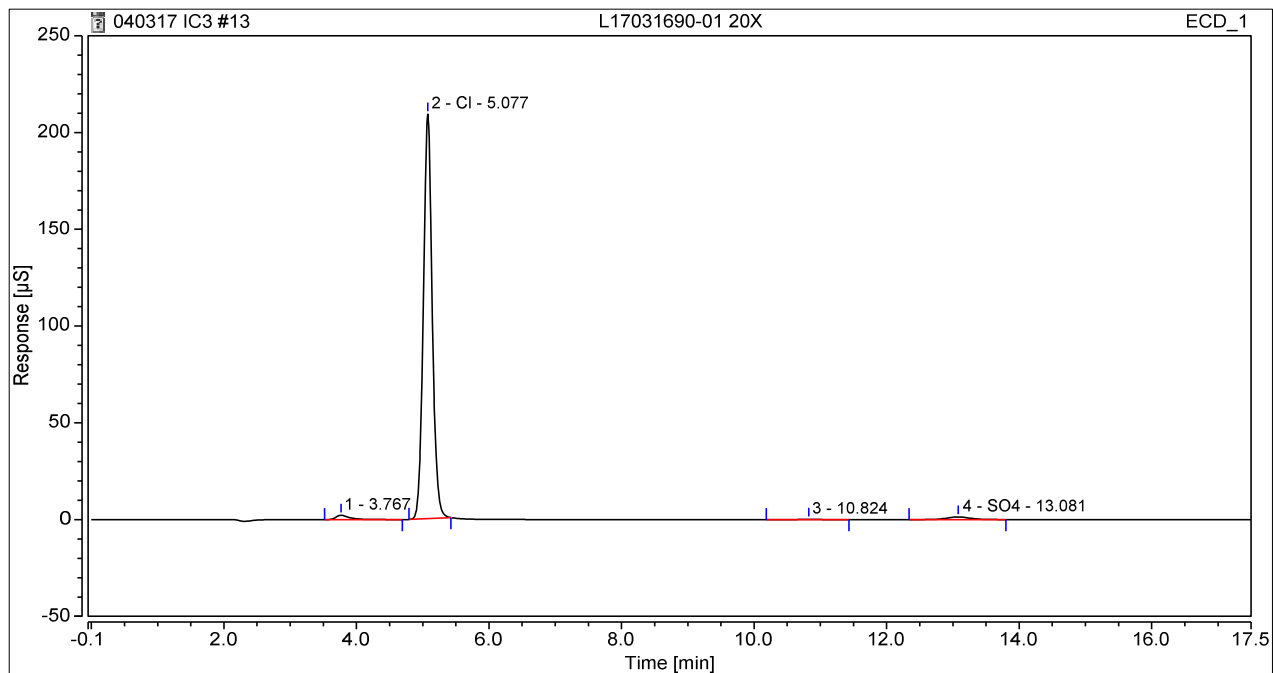
CCV - Modified 03/05/2008
 PDF File ID: 5230331
 Report generated 04/05/2017 09:49



2.4.1.3 Sample Data

13 L17031690-01 20X**1,20 LJH**

Sample Name:	L17031690-01 20X	Injection Volume:	5000.0
Vial Number:	13	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 19:25	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000

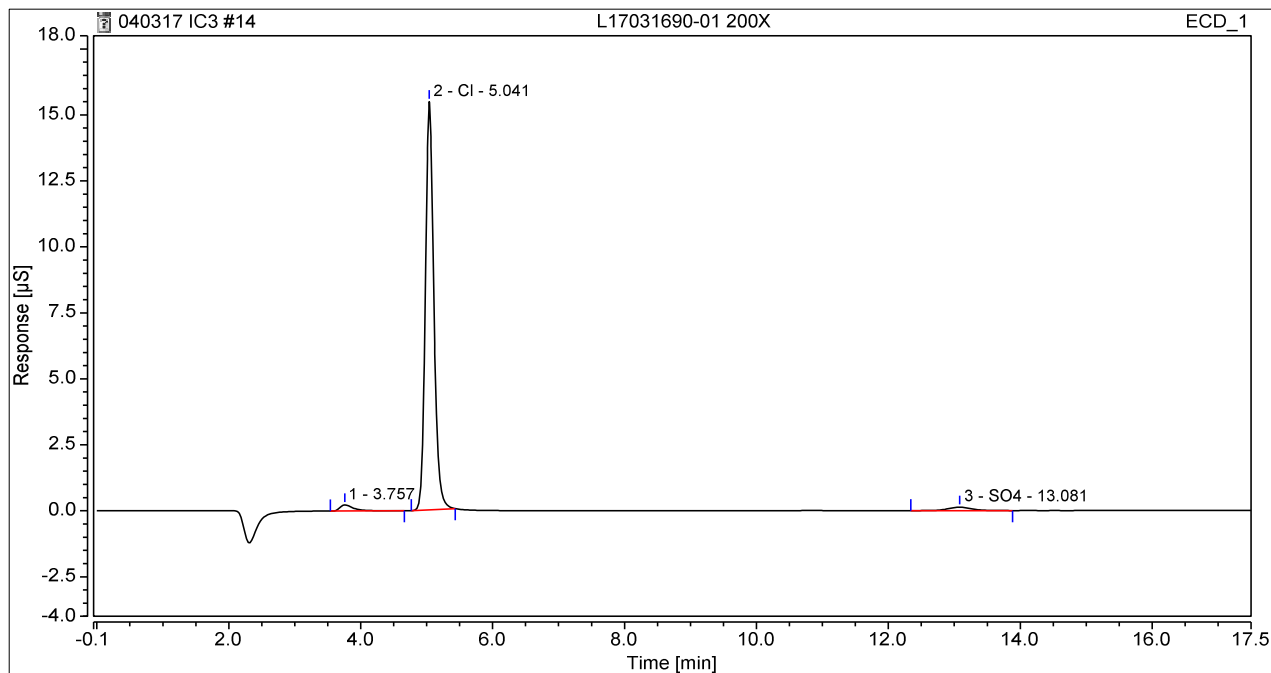


No.	Ret. Time min	Peak Name	Height µS	Area µS*min	Rel. Area %	Amount mg/L	Type
2	5.08	Cl	209.0319	32.4309	96.7	106.991	M
4	13.08	SO4	1.3280	0.5500	1.6	4.557	M
Total:			210.36	32.98	98	111.55	

14 L17031690-01 200X

1,200 LJH

Sample Name:	L17031690-01 200X	Injection Volume:	5000.0
Vial Number:	14	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 19:45	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



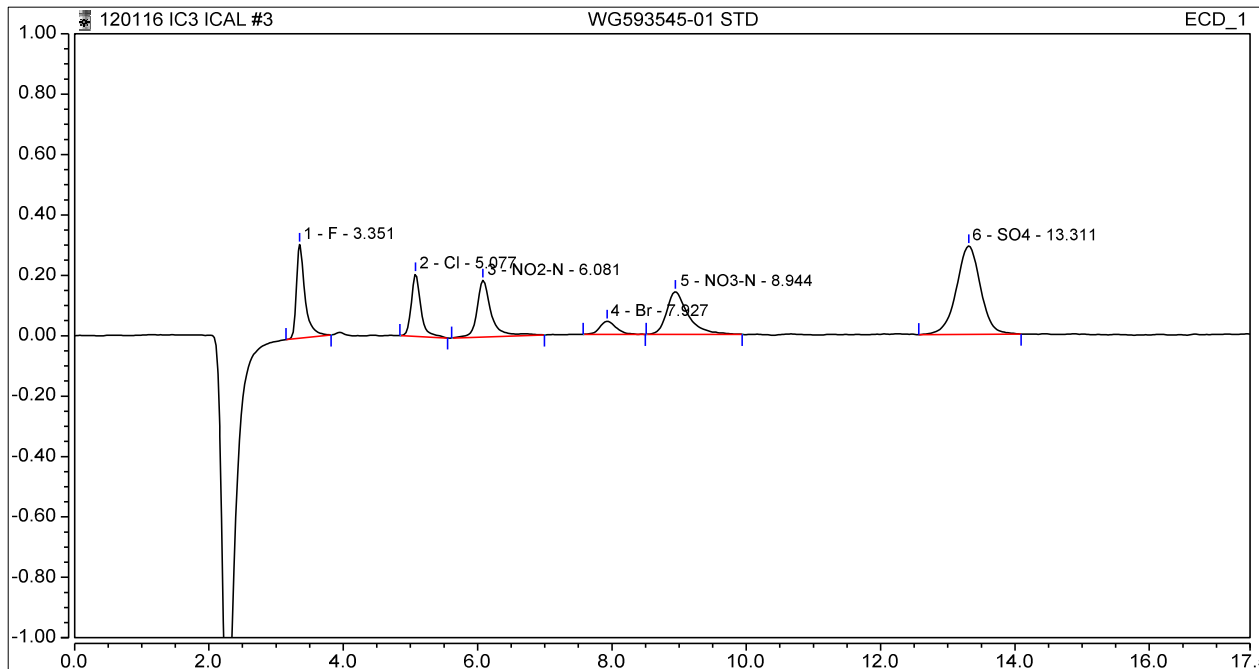
No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
2	5.04	Cl	15.4703	2.2862	95.3	12.904	BMB
3	13.08	SO4	0.1281	0.0550	2.3	0.445	BMB
Total:			15.60	2.34	98	13.35	

2.4.1.4 Standards Data

3 WG593545-01 STD

1,1 CAS STD77046

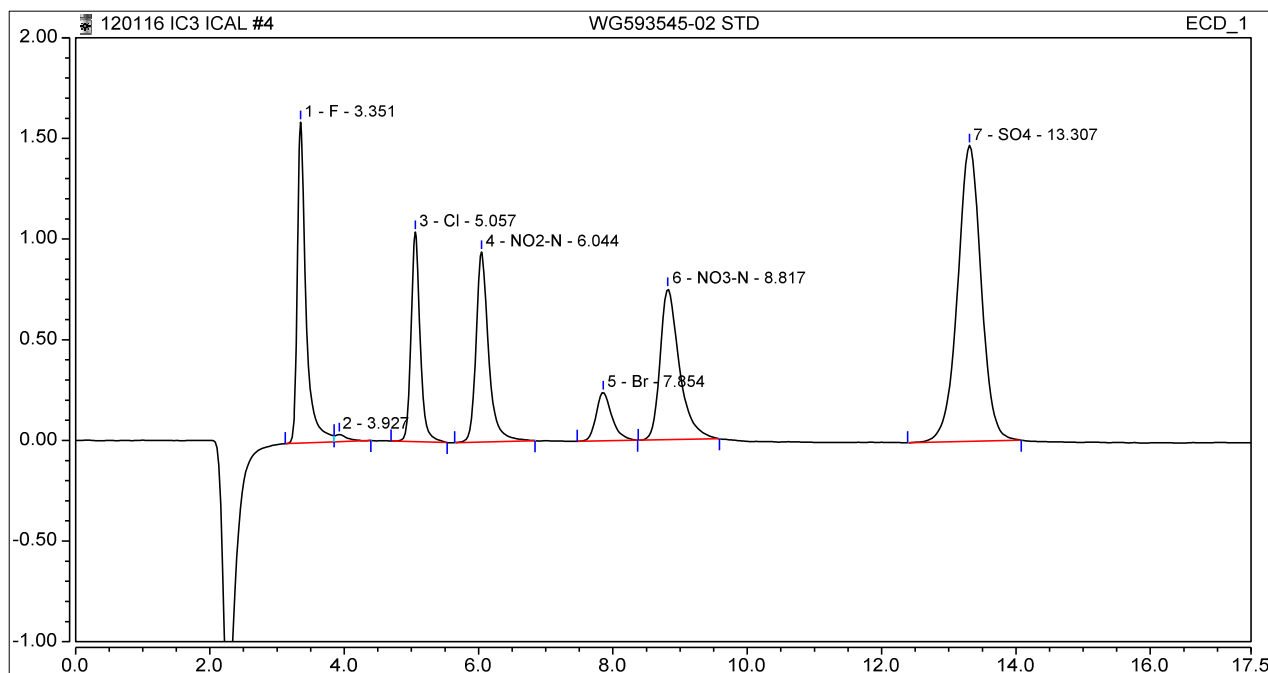
Sample Name:	WG593545-01 STD	Injection Volume:	5000.0
Vial Number:	3	Channel:	ECD_1
Sample Type:	Calibration Standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	12/01/2016 15:40	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height µS	Area µS*min	Rel. Area %	Amount mg/L	Type
1	3.35	F	0.3102	0.0458	14.6	0.201	M
2	5.08	Cl	0.2073	0.0343	11.0	0.200	M
3	6.08	NO2-N	0.1872	0.0460	14.7	0.122	M
4	7.93	Br	0.0436	0.0125	4.0	0.200	M
5	8.94	NO3-N	0.1417	0.0526	16.8	0.135	M
6	13.31	SO4	0.2923	0.1215	38.9	1.002	M
Total:			1.18	0.31	100	1.86	

4 WG593545-02 STD**1,1 CAS STD77046**

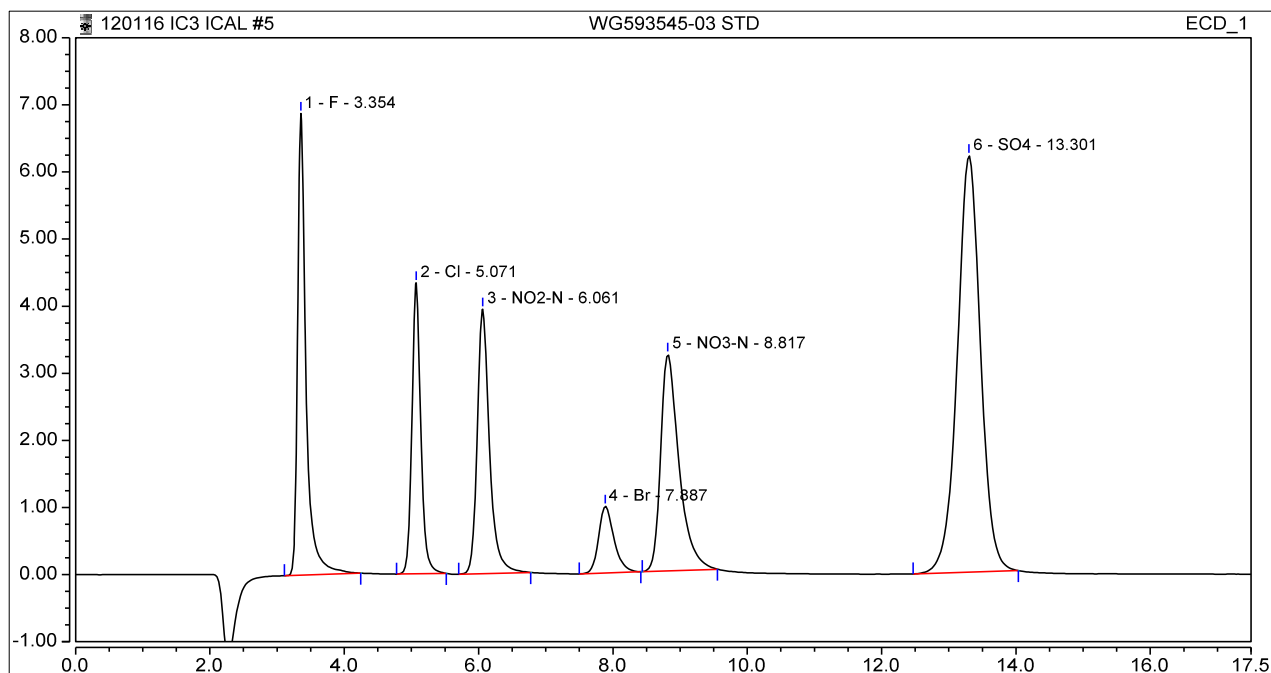
Sample Name:	WG593545-02 STD	Injection Volume:	5000.0
Vial Number:	4	Channel:	ECD_1
Sample Type:	Calibration Standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	12/01/2016 16:01	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height μS	Area μS*min	Rel. Area %	Amount mg/L	Type
1	3.35	F	1.5946	0.2386	15.6	0.983	M
3	5.06	Cl	1.0416	0.1627	10.7	0.996	M
4	6.04	NO2-N	0.9439	0.2048	13.4	0.598	M
5	7.85	Br	0.2409	0.0658	4.3	1.010	M
6	8.82	NO3-N	0.7490	0.2494	16.3	0.669	M
7	13.31	SO4	1.4700	0.5980	39.2	4.952	M
Total:			6.04	1.52	100	9.21	

5 WG593545-03 STD**1,1 CAS STD77046**

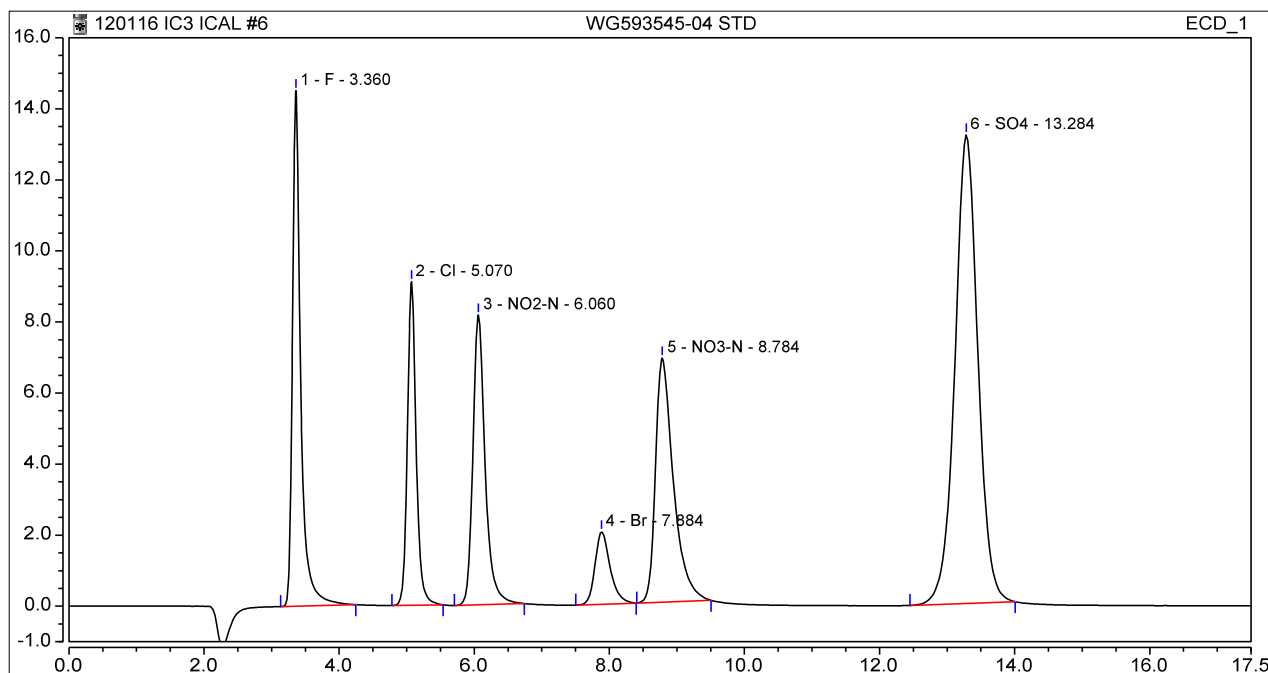
Sample Name:	WG593545-03 STD	Injection Volume:	5000.0
Vial Number:	5	Channel:	ECD_1
Sample Type:	Calibration Standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	12/01/2016 16:21	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height μS	Area μS*min	Rel. Area %	Amount mg/L	Type
1	3.35	F	6.8792	0.9972	15.9	4.002	M
2	5.07	Cl	4.3366	0.6636	10.6	4.006	M
3	6.06	NO2-N	3.9403	0.8357	13.3	2.447	M
4	7.89	Br	0.9936	0.2638	4.2	3.993	M
5	8.82	NO3-N	3.2267	1.0254	16.4	2.709	M
6	13.30	SO4	6.2072	2.4856	39.6	20.018	M
Total:			25.58	6.27	100	37.18	

6 WG593545-04 STD**1,1 CAS STD77046**

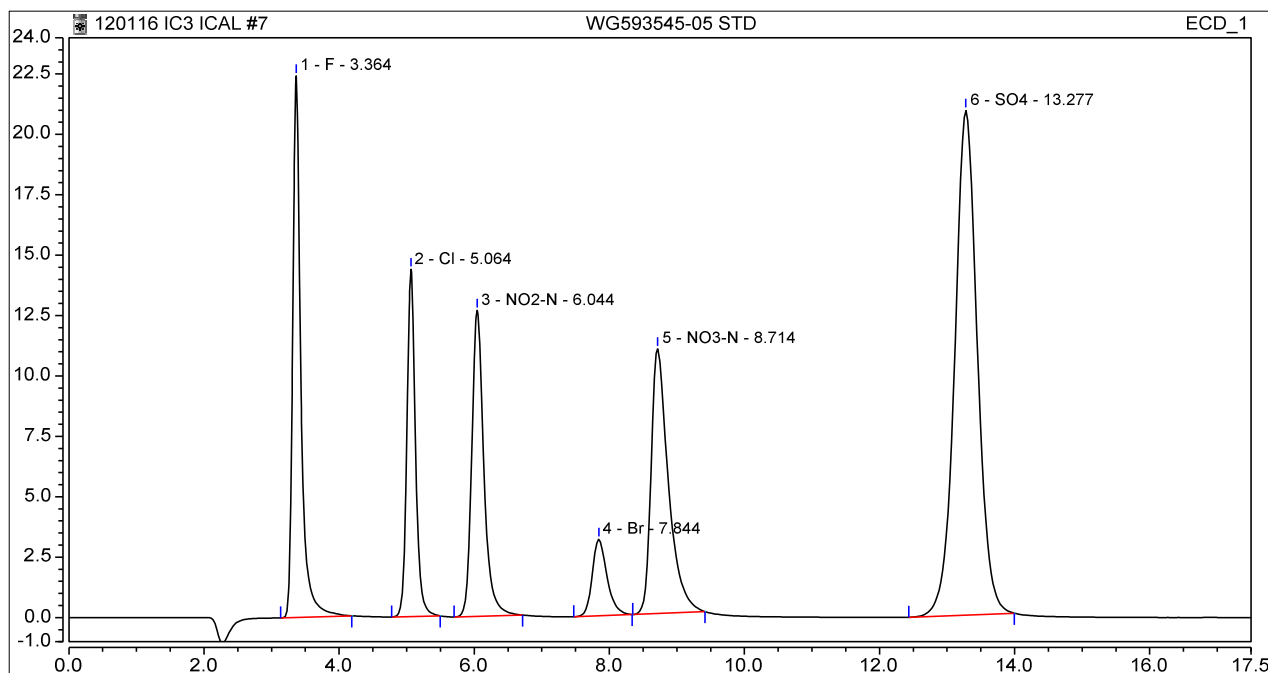
Sample Name:	WG593545-04 STD	Injection Volume:	5000.0
Vial Number:	6	Channel:	ECD_1
Sample Type:	Calibration Standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	12/01/2016 16:41	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height μS	Area μS*min	Rel. Area %	Amount mg/L	Type
1	3.36	F	14.5129	2.0600	15.9	8.082	M
2	5.07	Cl	9.1102	1.3684	10.6	8.015	M
3	6.06	NO2-N	8.1623	1.7115	13.2	4.908	M
4	7.88	Br	2.0434	0.5309	4.1	7.960	M
5	8.78	NO3-N	6.8691	2.1105	16.3	5.418	M
6	13.28	SO4	13.1891	5.1884	40.0	40.195	M
Total:			53.89	12.97	100	74.58	

7 WG593545-05 STD**1,1 CAS STD77046**

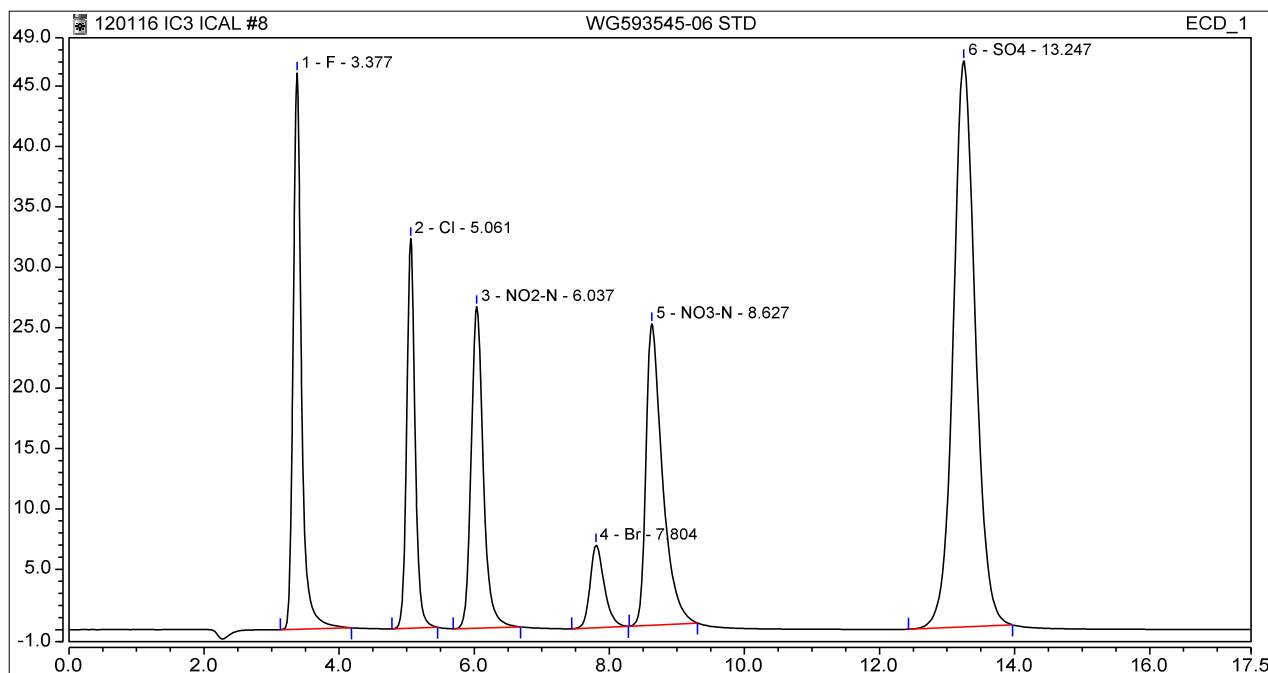
Sample Name:	WG593545-05 STD	Injection Volume:	5000.0
Vial Number:	7	Channel:	ECD_1
Sample Type:	Calibration Standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	12/01/2016 17:02	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height μS	Area μS*min	Rel. Area %	Amount mg/L	Type
1	3.36	F	22.4169	3.1530	15.7	12.113	M
2	5.06	Cl	14.3675	2.1141	10.6	12.013	M
3	6.04	NO2-N	12.6638	2.6236	13.1	7.357	M
4	7.84	Br	3.1722	0.8036	4.0	11.941	M
5	8.71	NO3-N	10.9613	3.2605	16.3	8.131	M
6	13.28	SO4	20.8901	8.0799	40.3	60.294	M
Total:			84.47	20.03	100	111.85	

8 WG593545-06 STD**1,1 CAS STD77046**

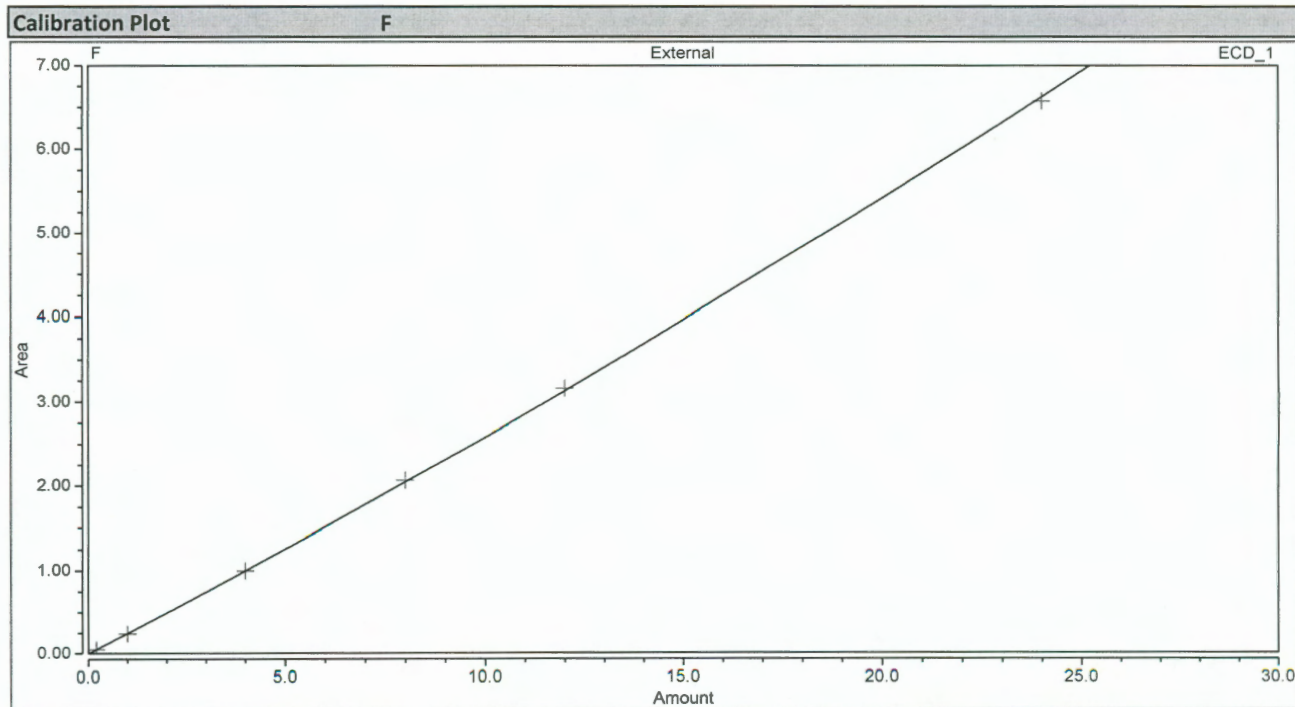
Sample Name:	WG593545-06 STD	Injection Volume:	5000.0
Vial Number:	8	Channel:	ECD_1
Sample Type:	Calibration Standard	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	12/01/2016 17:22	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height μS	Area μS*min	Rel. Area %	Amount mg/L	Type
1	3.38	F	46.0328	6.5724	15.2	23.838	M
2	5.06	Cl	32.2540	4.6014	10.6	23.975	M
3	6.04	NO2-N	26.6066	5.5326	12.8	14.537	M
4	7.80	Br	6.8536	1.6634	3.8	24.092	M
5	8.63	NO3-N	24.9522	7.0863	16.4	16.269	M
6	13.25	SO4	46.8610	17.7738	41.1	119.621	M
Total:			183.56	43.23	100	222.33	

Calibration

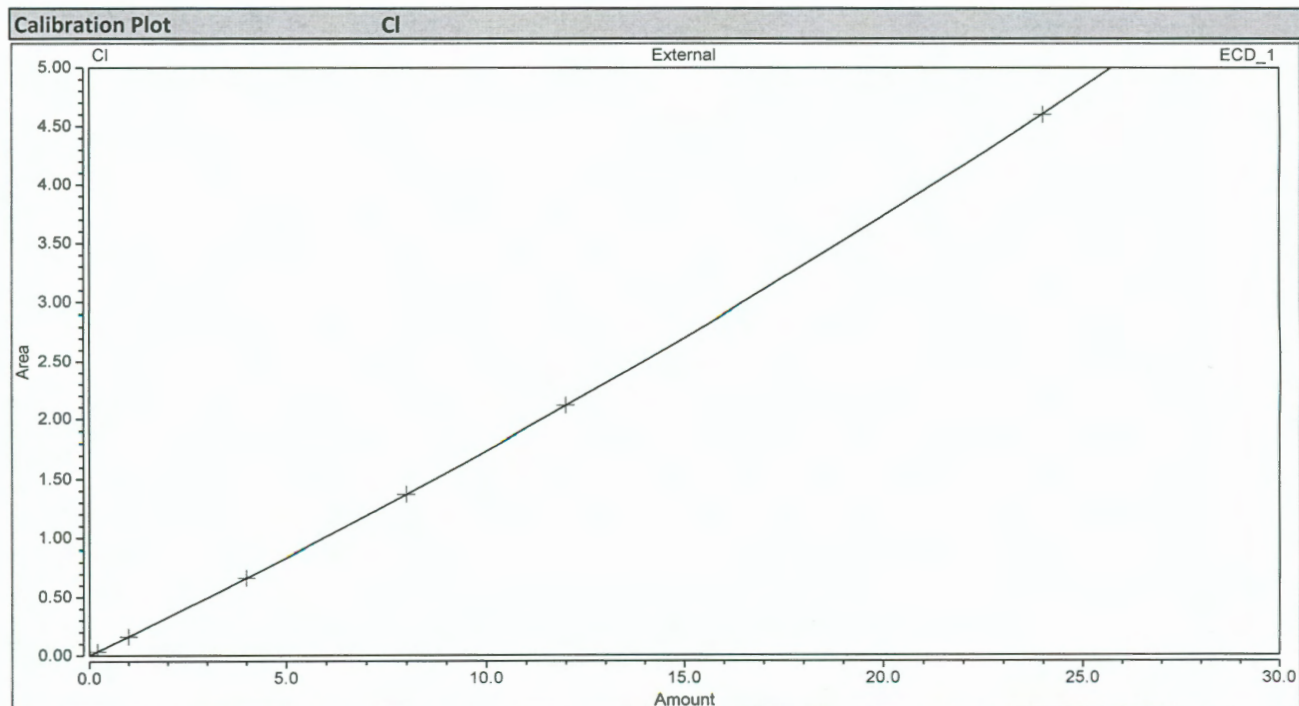
Calibration Details		F	
Calibration Type	Quad, WithOffset, 1/A ²	Offset (C0)	-0.0034
Evaluation Type	Area	Slope (C1)	0.2448
Number of Calibration Points	6	Curve (C2)	0.0013
Number of disabled Calibration Points	0	R-Square	0.9999



Calibration Results		F					
No.	Injection Name	Calibration Level	X Value	Y Value	Y Value	Area	Height
			ECD_1	ECD_1	ECD_1	μS*min	μS
			F	F	F	ECD_1	ECD_1
						F	F
1	WG593352-01 STD	01	0.2000	0.0458	0.0458	0.046	0.310
2	WG593352-02 STD	02	1.0000	0.2386	0.2386	0.239	1.595
3	WG593352-03 STD	03	4.0000	0.9972	0.9972	0.997	6.879
4	WG593352-04 STD	04	8.0000	2.0600	2.0600	2.060	14.513
5	WG593352-05 STD	05	12.0000	3.1530	3.1530	3.153	22.417
6	WG593352-06 STD	06	24.0000	6.5724	6.5724	6.572	46.033

Calibration

Calibration Details		CI	
Calibration Type	Quad, WithOffset, 1/A ²	Offset (C0)	0.0023
Evaluation Type	Area	Slope (C1)	0.1597
Number of Calibration Points	6	Curve (C2)	0.0013
Number of disabled Calibration Points	0	R-Square	1.0000

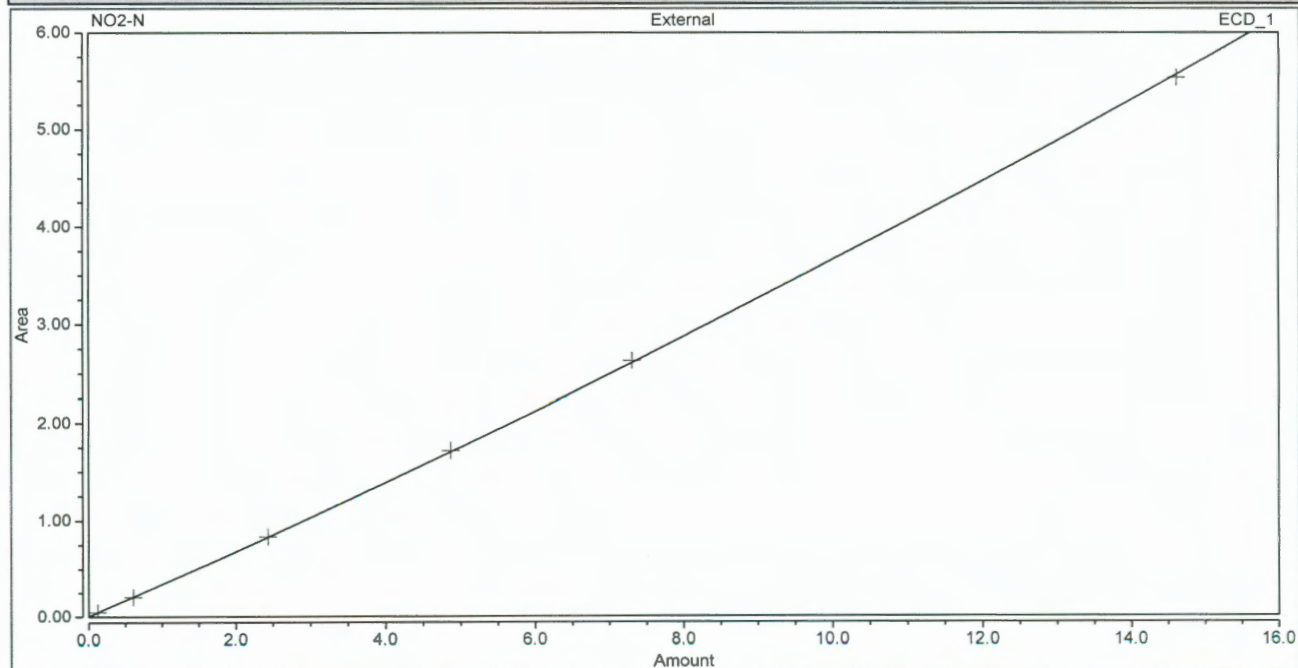


Calibration Results		CI					
No.	Injection Name	Calibration Level	X Value	Y Value	Y Value	Area	Height
			ECD_1	ECD_1	ECD_1	$\mu\text{S}\cdot\text{min}$	μS
			CI	CI	CI	ECD_1	ECD_1
						CI	CI
1	WG593352-01 STD	01	0.2000	0.0343	0.0343	0.034	0.207
2	WG593352-02 STD	02	1.0000	0.1627	0.1627	0.163	1.042
3	WG593352-03 STD	03	4.0000	0.6636	0.6636	0.664	4.337
4	WG593352-04 STD	04	8.0000	1.3684	1.3684	1.368	9.110
5	WG593352-05 STD	05	12.0000	2.1141	2.1141	2.114	14.367
6	WG593352-06 STD	06	24.0000	4.6014	4.6014	4.601	32.254

Calibration

Calibration Details		NO2-N	
Calibration Type	Quad, WithOffset, 1/A ²	Offset (C0)	0.0055
Evaluation Type	Area	Slope (C1)	0.3309
Number of Calibration Points	6	Curve (C2)	0.0034
Number of disabled Calibration Points	0	R-Square	0.9999

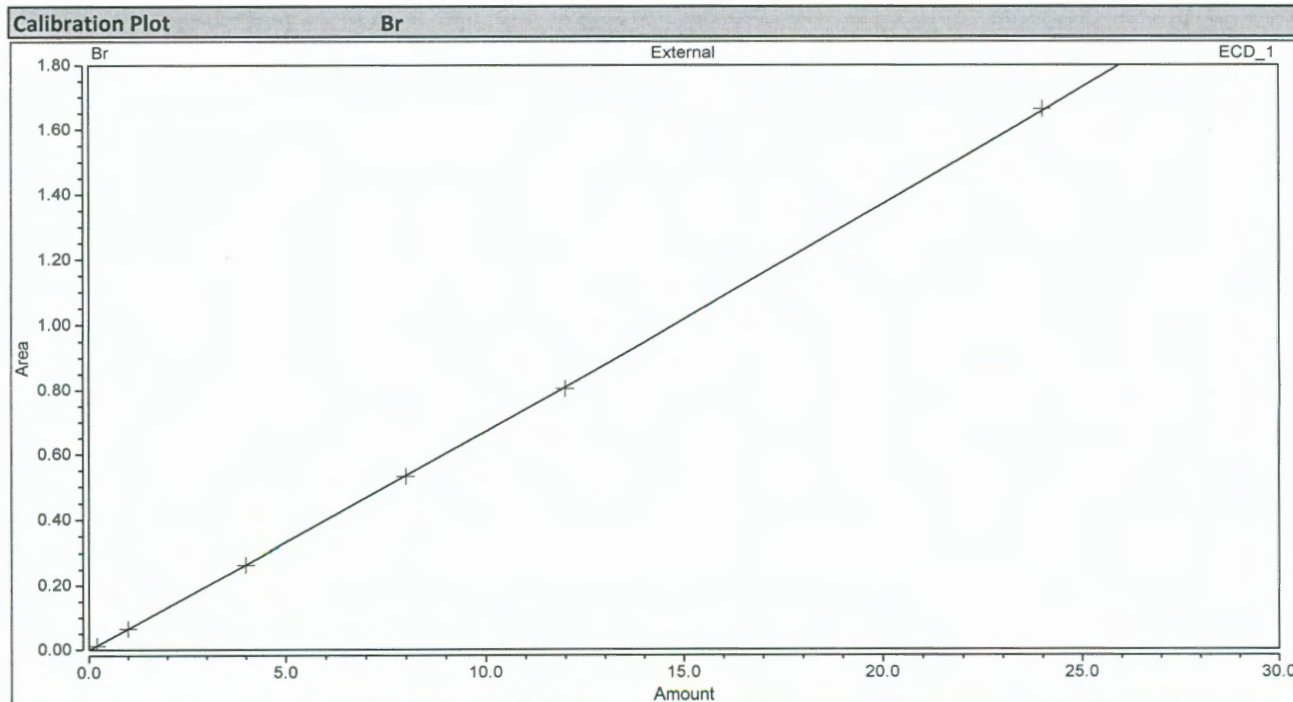
Calibration Plot



Calibration Results		NO2-N					
No.	Injection Name	Calibration Level	X Value	Y Value	Y Value	Area	Height
			ECD_1	ECD_1	ECD_1	μS*min	μS
			NO2-N	NO2-N	NO2-N	ECD_1	ECD_1
						NO2-N	NO2-N
1	WG593352-01 STD	01	0.1218	0.0460	0.0460	0.046	0.187
2	WG593352-02 STD	02	0.6089	0.2048	0.2048	0.205	0.944
3	WG593352-03 STD	03	2.4356	0.8357	0.8357	0.836	3.940
4	WG593352-04 STD	04	4.8714	1.7115	1.7115	1.711	8.162
5	WG593352-05 STD	05	7.3070	2.6236	2.6236	2.624	12.664
6	WG593352-06 STD	06	14.6140	5.5326	5.5326	5.533	26.607

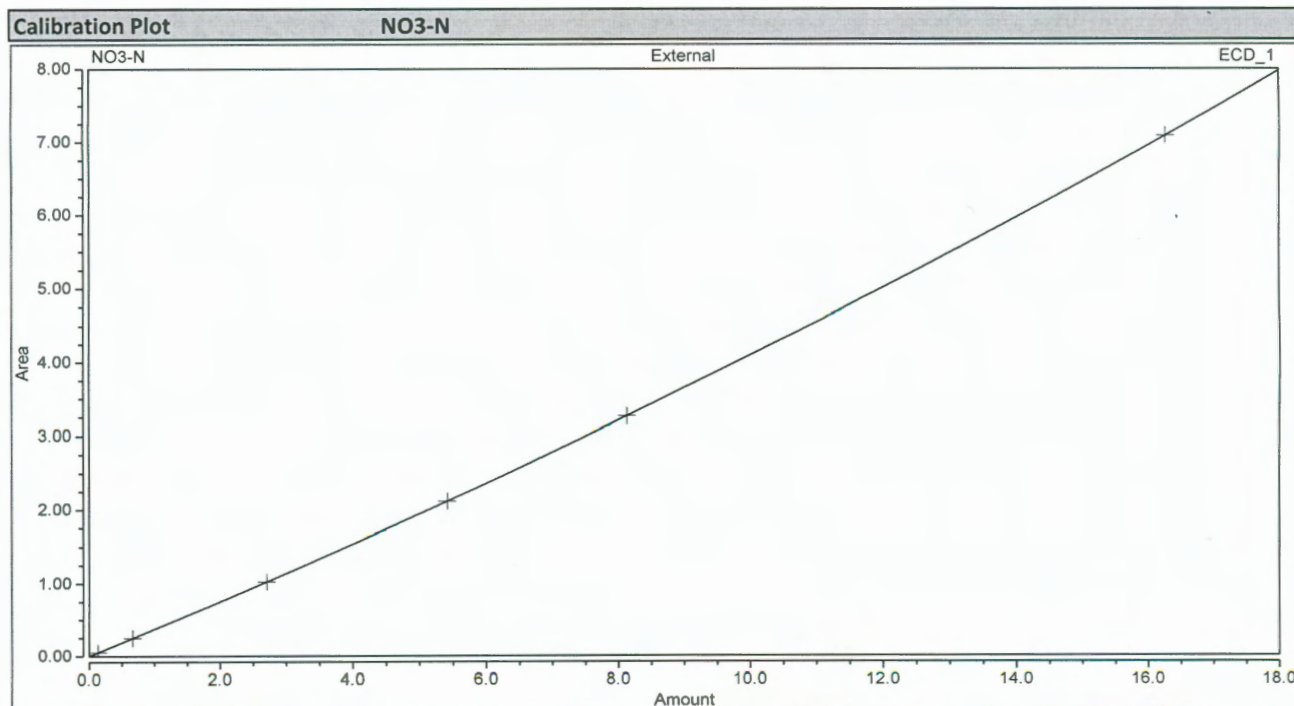
Calibration

Calibration Details		Br	
Calibration Type	Quad, WithOffset, 1/A ²	Offset (C0)	-0.0007
Evaluation Type	Area	Slope (C1)	0.0657
Number of Calibration Points	6	Curve (C2)	0.0001
Number of disabled Calibration Points	0	R-Square	1.0000



Calibration Results		Br					
No.	Injection Name	Calibration Level	X Value	Y Value	Y Value	Area	Height
			ECD_1	ECD_1	ECD_1	$\mu\text{S}\cdot\text{min}$	μS
			Br	Br	Br	ECD_1	ECD_1
						Br	Br
1	WG593352-01 STD	01	0.2000	0.0125	0.0125	0.012	0.044
2	WG593352-02 STD	02	1.0000	0.0658	0.0658	0.066	0.241
3	WG593352-03 STD	03	4.0000	0.2638	0.2638	0.264	0.994
4	WG593352-04 STD	04	8.0000	0.5309	0.5309	0.531	2.043
5	WG593352-05 STD	05	12.0000	0.8036	0.8036	0.804	3.172
6	WG593352-06 STD	06	24.0000	1.6634	1.6634	1.663	6.854

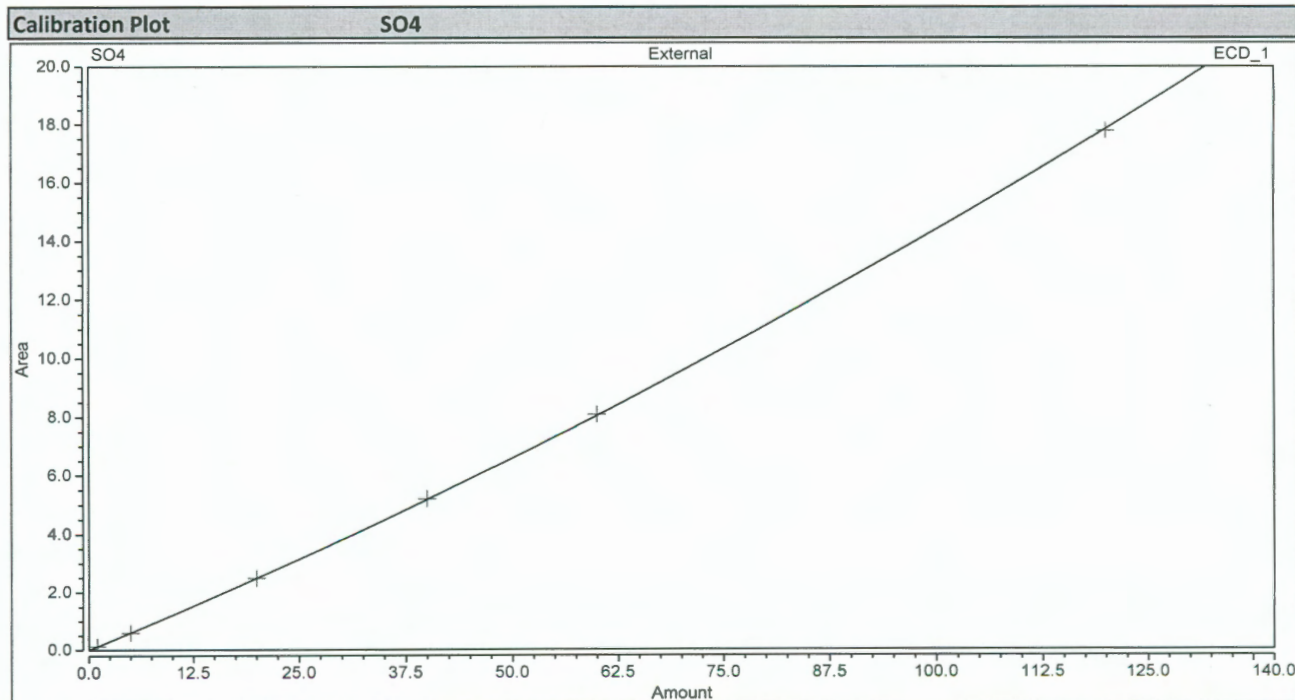
Calibration			
Calibration Details		NO3-N	
Calibration Type	Quad, WithOffset, 1/A ²	Offset (C0)	0.0029
Evaluation Type	Area	Slope (C1)	0.3659
Number of Calibration Points	6	Curve (C2)	0.0043
Number of disabled Calibration Points	0	R-Square	1.0000



Calibration Results		NO3-N					
No.	Injection Name	Calibration Level	X Value	Y Value	Y Value	Area $\mu\text{S}^*\text{min}$	Height μS
			ECD_1	ECD_1	ECD_1	ECD_1	ECD_1
			NO3-N	NO3-N	NO3-N	NO3-N	NO3-N
1	WG593352-01 STD	01	0.1355	0.0526	0.0526	0.053	0.142
2	WG593352-02 STD	02	0.6675	0.2494	0.2494	0.249	0.749
3	WG593352-03 STD	03	2.7108	1.0254	1.0254	1.025	3.227
4	WG593352-04 STD	04	5.4216	2.1105	2.1105	2.111	6.869
5	WG593352-05 STD	05	8.1322	3.2605	3.2605	3.260	10.961
6	WG593352-06 STD	06	16.2644	7.0863	7.0863	7.086	24.952

Calibration

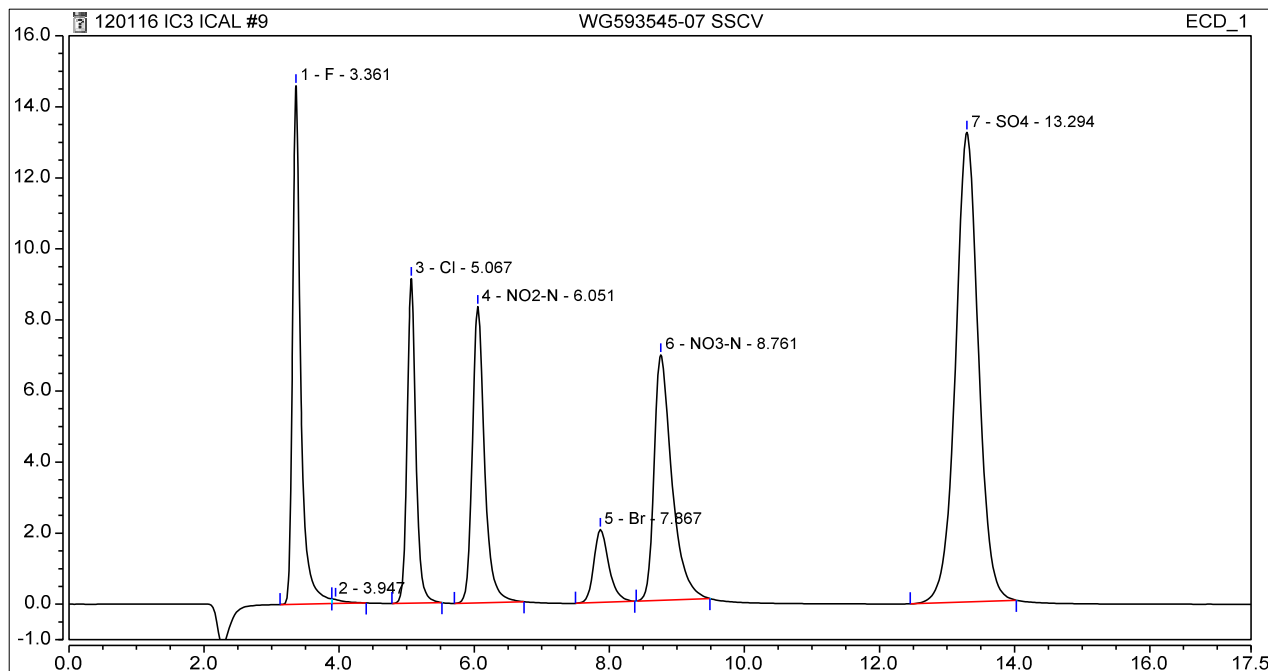
Calibration Details		SO4	
Calibration Type	Quad, WithOffset, 1/A ²	Offset (C0)	0.0019
Evaluation Type	Area	Slope (C1)	0.1192
Number of Calibration Points	6	Curve (C2)	0.0002
Number of disabled Calibration Points	0	R-Square	1.0000



Calibration Results		SO4					
No.	Injection Name	Calibration Level	X Value	Y Value	Y Value	Area $\mu\text{S}\cdot\text{min}$	Height μS
			ECD_1 SO4	ECD_1 SO4	ECD_1 SO4	ECD_1 SO4	ECD_1 SO4
1	WG593352-01 STD	01	1.0000	0.1215	0.1215	0.121	0.292
2	WG593352-02 STD	02	5.0000	0.5980	0.5980	0.598	1.470
3	WG593352-03 STD	03	20.0000	2.4856	2.4856	2.486	6.207
4	WG593352-04 STD	04	40.0000	5.1884	5.1884	5.188	13.189
5	WG593352-05 STD	05	60.0000	8.0799	8.0799	8.080	20.890
6	WG593352-06 STD	06	120.0000	17.7738	17.7738	17.774	46.861

9 WG593545-07 SSCV**1,1 CAS STD79166**

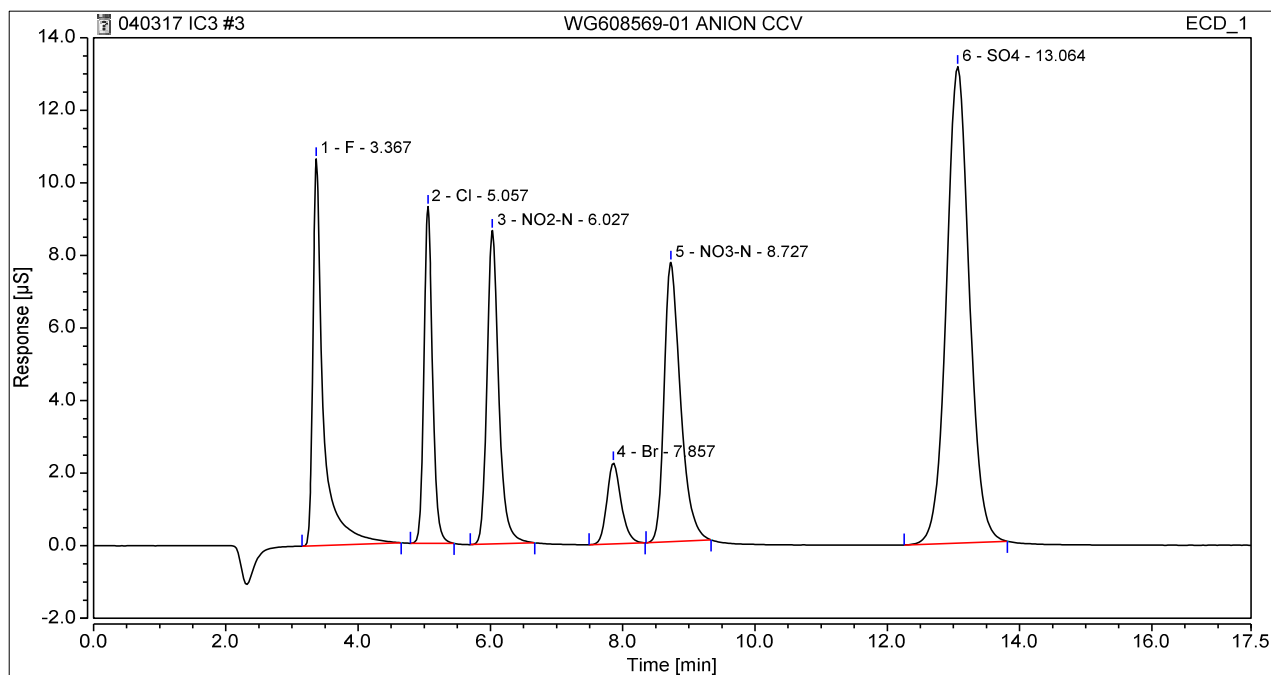
Sample Name:	WG593545-07 SSCV	Injection Volume:	5000.0
Vial Number:	9	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	12/01/2016 17:43	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		μS	μS*min	%	mg/L	
1	3.36	F	14.5966	2.0475	15.7	8.035	M
3	5.07	Cl	9.1392	1.3673	10.5	8.009	M
4	6.05	NO ₂ -N	8.3363	1.7389	13.4	4.984	M
5	7.87	Br	2.0521	0.5299	4.1	7.945	M
6	8.76	NO ₃ -N	6.9052	2.1121	16.2	5.421	M
7	13.29	SO ₄	13.2162	5.1895	39.9	40.203	M
Total:			54.25	12.99	100	74.60	

3 WG608569-01 ANION CCV**1,1 LJH STD77046 BP=psi**

Sample Name:	WG608569-01 ANION CCV	Injection Volume:	5000.0
Vial Number:	3	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 16:01	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height µS	Area µS*min	Rel. Area %	Amount mg/L	Type
1	3.37	F	10.6592	1.9395	14.7	7.627	M
2	5.06	Cl	9.2797	1.3952	10.6	8.163	M
3	6.03	NO2-N	8.6368	1.7868	13.6	5.115	M
4	7.86	Br	2.2304	0.5587	4.2	8.368	M
5	8.73	NO3-N	7.6985	2.2150	16.8	5.670	M
6	13.06	SO4	13.1299	5.2850	40.1	40.889	M
Total:			51.63	13.18	100	75.83	

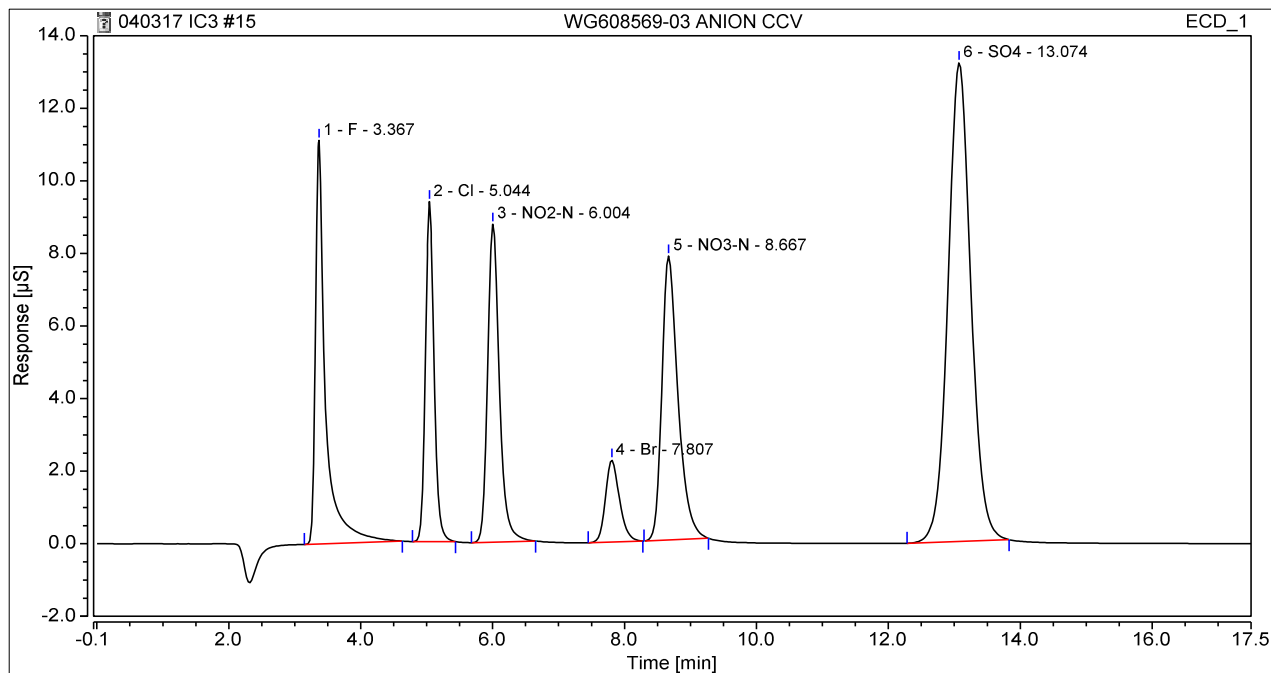
3 WG608569-01 ANION CCV			
1,1 LJH STD77046 BP=psi			
Sequence Details			
Name:	WG608569-01 ANION CCV	Run Time:	17.50
Vial Number:	3	Injection Volume:	10.00
Instrument Method:	9056	Channel:	ECD_1
Processing Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Injection Date/Time:	4/3/2017 16:01	Sample Weight:	1.0000

WG608569-	Actual mg/L	Recovered mg/L	% Difference	Pass/Fail
F	8.00	7.627249223	-4.659384718	PASS
CL	8.00	8.162710479	2.033880985	PASS
NO2	4.87	5.114742762	5.025518728	PASS
BR	8.00	8.368148152	4.601851897	PASS
NO3	5.42	5.6703742	4.601000002	PASS
SO4	40.00	40.88890019	2.222250479	PASS

15 WG608569-03 ANION CCV

1,1 LJH STD77046

Sample Name:	WG608569-03 ANION CCV	Injection Volume:	5000.0
Vial Number:	15	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 20:06	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



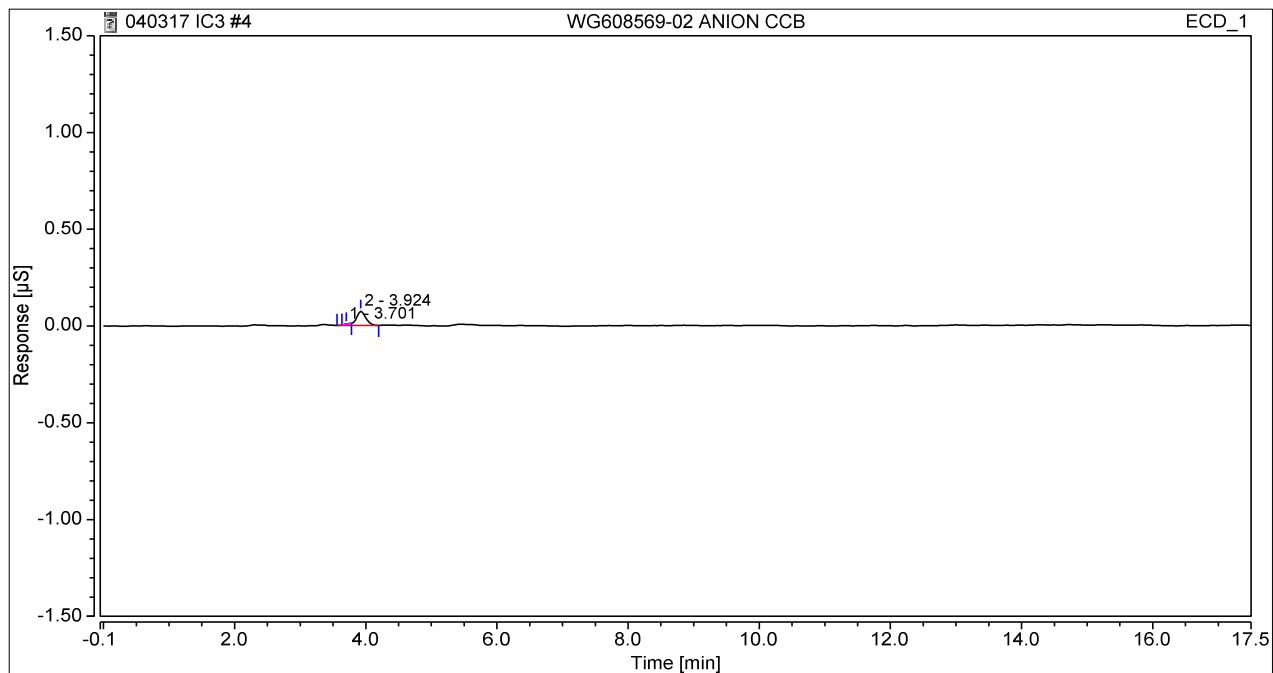
No.	Ret. Time min	Peak Name	Height µS	Area µS*min	Rel. Area %	Amount mg/L	Type
1	3.37	F	11.1224	1.9612	14.8	7.709	M
2	5.04	Cl	9.3676	1.3988	10.6	8.183	M
3	6.00	NO2-N	8.7591	1.7952	13.6	5.138	M
4	7.81	Br	2.2617	0.5591	4.2	8.373	M
5	8.67	NO3-N	7.8266	2.2223	16.8	5.688	M
6	13.07	SO4	13.1961	5.2945	40.0	40.957	M
Total:			52.53	13.23	100	76.05	

15 WG608569-03 ANION CCV			
1,1 LJH STD77046			
Sequence Details			
Name:	WG608569-03 ANION CCV	Run Time:	17.50
Vial Number:	15	Injection Volume:	10.00
Instrument Method:	9056	Channel:	ECD_1
Processing Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Injection Date/Time:	4/3/2017 20:06	Sample Weight:	1.0000

WG608569-	Actual mg/L	Recovered mg/L	% Difference	Pass/Fail
F	8.00	7.709256397	-3.634295043	PASS
CL	8.00	8.182719973	2.283999659	PASS
NO2	4.87	5.137597196	5.494808956	PASS
BR	8.00	8.373431546	4.667894323	PASS
NO3	5.42	5.688144615	4.928867435	PASS
SO4	40.00	40.95693358	2.392333959	PASS

4 WG608569-02 ANION CCB**1,1 LJH**

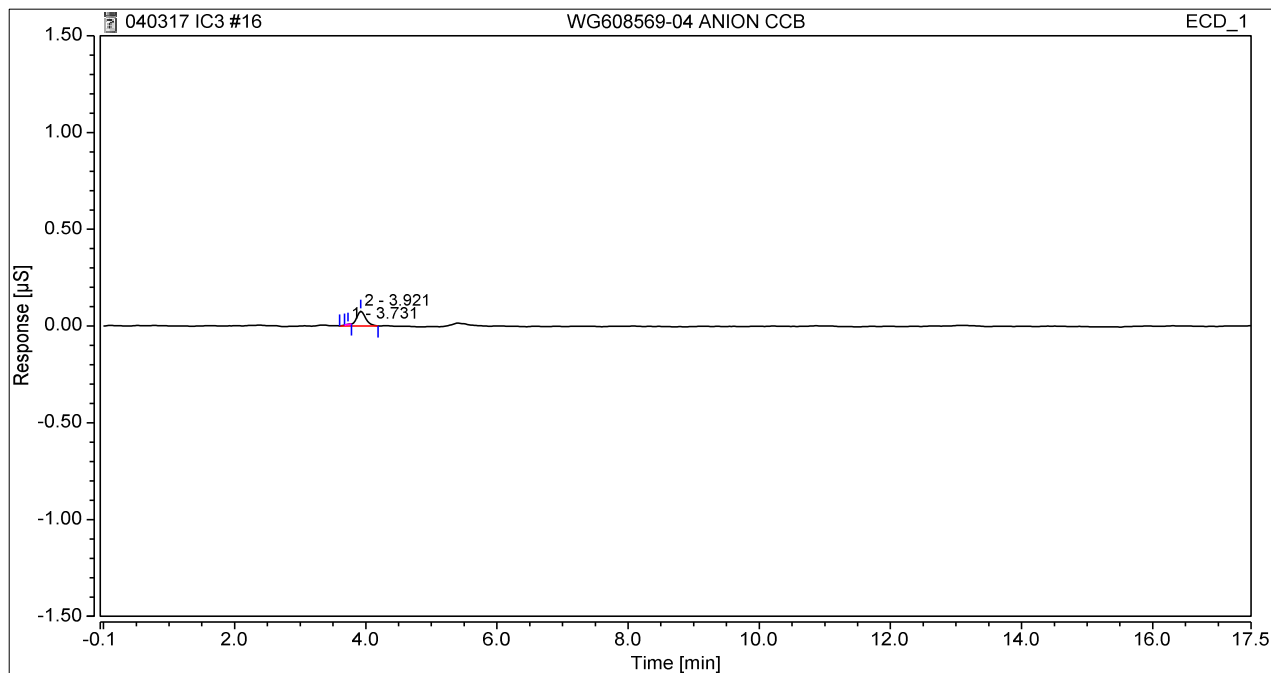
Sample Name:	WG608569-02 ANION CCB	Injection Volume:	5000.0
Vial Number:	4	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 16:22	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
Total:			0.00	0.00	0	0.00	

16 WG608569-04 ANION CCB**1,1 LJH**

Sample Name:	WG608569-04 ANION CCB	Injection Volume:	5000.0
Vial Number:	16	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 20:26	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
Total:			0.00	0.00	0	0.00	

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

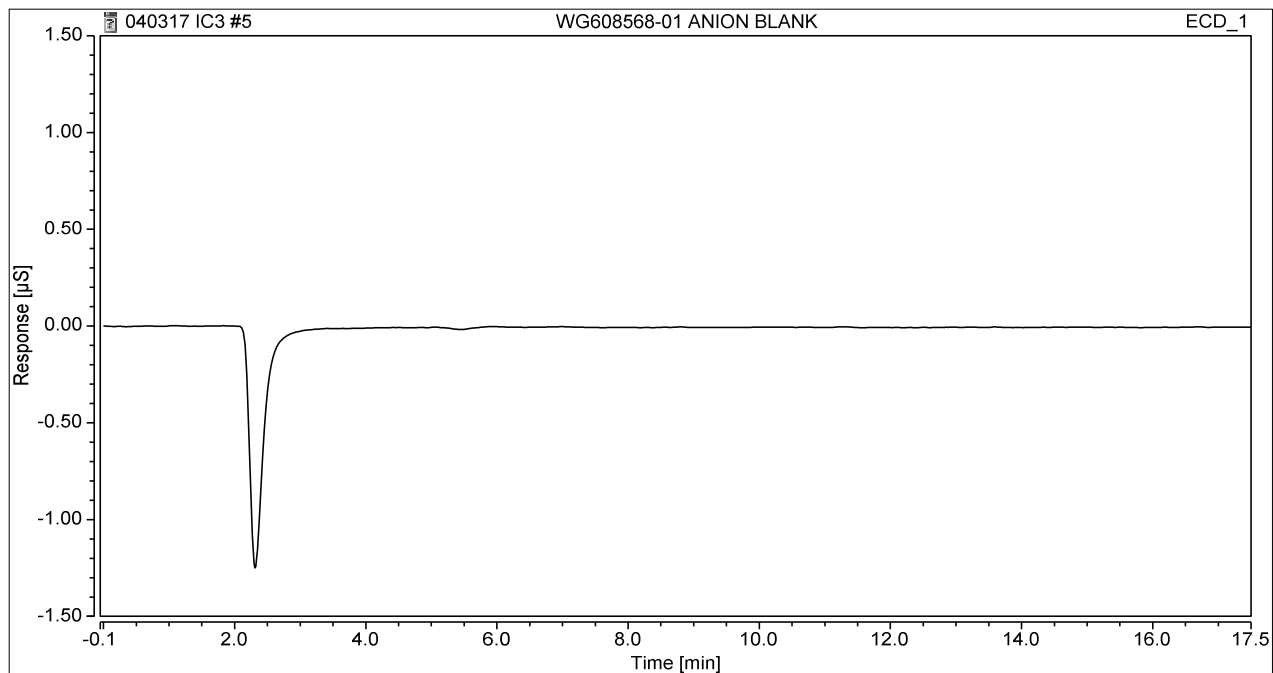
COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
F	3.41	3.41	3.41	0.000
Cl	5.11	5.09	5.07	0.050
NO2-N	6.14	6.11	6.07	0.101
Br	7.90	7.84	7.75	0.220
NO3-N	8.94	8.86	8.76	0.271
SO4	13.35	13.39	13.42	0.101

Page 1

2.4.1.5 Raw QC Data

5 WG608568-01 ANION BLANK**1,1 LJH**

Sample Name:	WG608568-01 ANION BLANK	Injection Volume:	5000.0
Vial Number:	5	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 16:42	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000

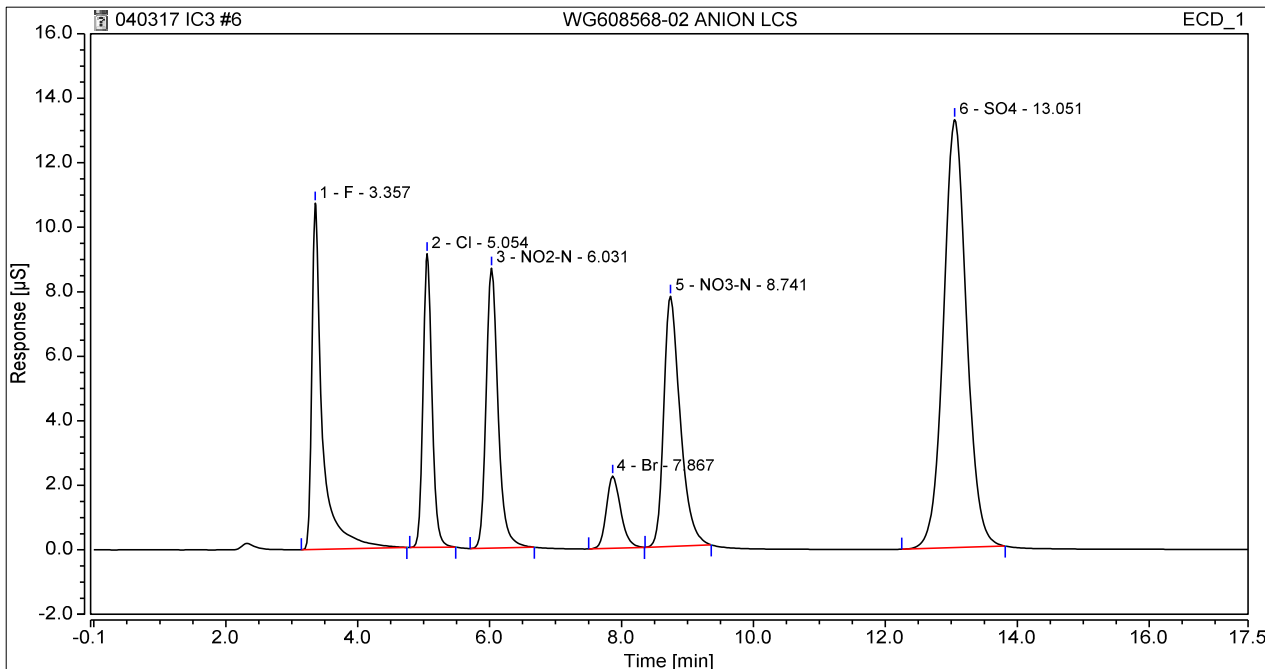


No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
Total:			0.00	0.00	0	0.00	

6 WG608568-02 ANION LCS

1,1 LJH STD79166

Sample Name:	WG608568-02 ANION LCS	Injection Volume:	5000.0
Vial Number:	6	Channel:	ECD_1
Sample Type:	Unknown	Wavelength:	n.a.
Control Program:	9056	Bandwidth:	n.a.
Quantif. Method:	IC3_120116_9056QNT	Dilution Factor:	1.0000
Recording Time:	04/03/2017 17:02	Sample Weight:	1.0000
Run Time:	17.5	Sample Amount:	1.0000



No.	Ret. Time min	Peak Name	Height µS	Area µS*min	Rel. Area %	Amount mg/L	Type
1	3.36	F	10.7316	1.9898	14.8	7.817	M
2	5.05	Cl	9.1063	1.4148	10.6	8.271	M
3	6.03	NO2-N	8.6783	1.8115	13.5	5.182	M
4	7.87	Br	2.2348	0.5633	4.2	8.436	M
5	8.74	NO3-N	7.7561	2.2556	16.8	5.768	M
6	13.05	SO4	13.2711	5.3738	40.1	41.526	M
Total:			51.78	13.41	100	77.00	

2.4.2 COD Data

2.4.2.1 Summary Data

Lab Report #: L17031690

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L17031690-01	PrePrep Method: N/A	Instrument: V-1200
Client ID: LH18/24-SP650-6428-GRAB	Prep Method: HACH	Prep Date: N/A
Matrix: Water	Analytical Method: 410.4 MOD	Cal Date: 02/27/2017 11:45
Workgroup #: WG608825	Analyst: TMM	Run Date: 04/05/2017 10:00
Collect Date: 03/29/2017 15:00	Dilution: 1	File ID: 00.1704051000-19
Sample Tag:	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
Chemical Oxygen Demand	COD	807		150	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: 05-APR-2017
 Analyst: TMM
 Analyst: NA
 Method: COD-HIGH
 Instrument: V-1200
 Curve Workgroup: NA
 Runlog ID: _____
 Analytical Workgroups: WG608825

Calibration/Linearity	3/17
Second Source Check	
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	
Case Narratives	
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	TMM
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
06-APR-2017

Jammy Morris

Secondary Reviewer:
10-APR-2017

Dennis Johnson



Analytical Method: 410.4 MOD
Login Number: L17031690

AAB#: WG608825

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
LH18/24-SP650-6428-GRAB	01	03/29/17					04/05/2017	6.8	28		04/05/17	6.8	28	

* = SEE PROJECT QAPP REQUIREMENTS



METHOD BLANK SUMMARY

Login Number: L17031690 Work Group: WG608825
 Blank File ID: 00.1704051000-03 Blank Sample ID: WG608825-01
 Prep Date: 04/05/17 10:00 Instrument ID: V-1200
 Analyzed Date: 04/05/17 10:00 Method: 410.4 MOD
 Analyst: TMM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG608825-02	00.1704051000-04	04/05/17 10:00	
LCS2	WG608825-03	00.1704051000-05	04/05/17 10:00	
LH18/24-SP650-6428-GRAB	L17031690-01	00.1704051000-19	04/05/17 10:00	
DUP	WG608825-05	00.1704051000-20	04/05/17 10:00	

Report Name: BLANK_SUMMARY
 PDF File ID: 5233453
 Report generated 04/06/2017 14:24



Login Number: L17031690 Prep Date: 04/05/17 10:00 Sample ID: WG608825-01
Instrument ID: V-1200 Run Date: 04/05/17 10:00 Prep Method: HACH
File ID: 00.1704051000-03 Analyst: TMM Method: 410.4 MOD
Workgroup (AAB#): WG608825 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: V-1200-16-MAR-17

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
Chemical Oxygen Demand	10.0	150	-45.8	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: 5233454
06-APR-2017 14:24



Login Number: L17031690 Analyst: TMM Prep Method: HACH
 Instrument ID: V-1200 Matrix: Water Method: 410.4 MOD
 Workgroup (AAB#): WG608825 Units: mg/L
 QC Key: DOD4 Lot #: STD77863
 Sample ID: WG608825-02 LCS File ID: 00.1704051000-04 Run Date: 04/05/2017 10:00
 Sample ID: WG608825-03 LCS2 File ID: 00.1704051000-05 Run Date: 04/05/2017 10:00

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Chemical Oxygen Demand	1000	974	97.4	1000	981	98.1	0.634	90 - 110	20	

LCS_LCS2 - Modified 03/06/2008
 PDF File ID: 5233455
 Report generated: 04/06/2017 14:24



2.4.2.3 Raw Data

W6604328

Curves

Parameter: COD-High

Spectrophotometer: V-1200

Calibration (Curve) standard stock: STD 80541

Concentration: 10,000mg/L

Recipe for preparation of curve standards found in:

SOP: 64105 Revision: 17 Page: 10

Second Source Stock: 77863 (concentration: 1000mg/L)

Daily Preparation: 2(1000)12

concentration = 1000

Calibration Standards (mg/L)	Volume (mL)	Cell Size (cm)	Wavelength (nm)	Absorbance	
1 (1500)				0.500	0.506
2 (1000)				0.343	0.340
3 (500)				0.179	0.177
4 (300)				0.109	0.113
5 (150)				0.061	0.059
Blk				0.011	0.008
2nd Source (1000)				0.348	0.354

Analyst: Shelby Cowley

Date/Time: 2-27-17 1145

DCN#124222



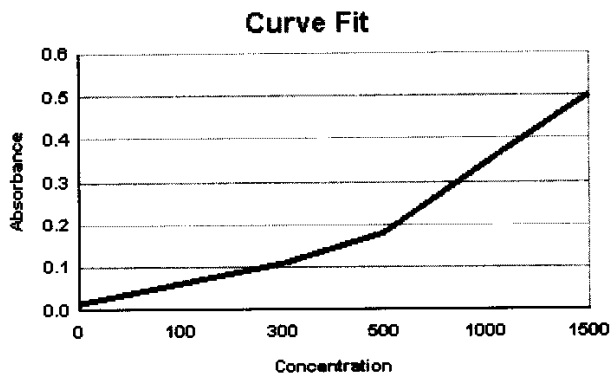
Microbac Laboratories Inc.
INITIAL CALIBRATION

Workgroup: WG604328
Analytical Method: 400
Instrument ID: V-1200

Analyst: SDC
Initial Calibration Date: 02/27/2017

Analyte: **CHEMICAL OXYGEN DEMAND**
Number of Points: 6
Slope: 0.000322470
Y-Intercept: 0.0177669
Coef. Of Correlation (R^2): 0.998814
Coef. Of Correlation (R): 0.999407

Concentration X	Absorbance Y	X ²	X * Y	Y-Fitted (mX^2+B)
0.00	0.0110	0.00	0.00	0.0177669
100	0.0610	10000	6.10	0.0500139
300	0.109	90000	32.7	0.114508
500	0.179	250000	89.5	0.179002
1000	0.343	1000000	343	0.340237
1500	0.500	2250000	750	0.501472



WG_ICAL_CAL_WET - Modified 03/06/2008
Report generated 02/28/2017 08:29



Microbac Laboratories Inc.
ALTERNATE SOURCE REPORT

Workgroup #: WG604328Instrument ID: V-1200File ID: 00.1702271145-07Run Date: 02/27/2017CCV ID: WG604328-07Run Time: 11:45Units: mg/LAnalyst: SDCAnalyte: CHEMICAL OXYGEN DEMANDCal ID: V-1200 - 27-FEB-17 11:45:06

Analyte	Expected	Found	RF	%D	Q
Chemical Oxygen Demand	1000	1020	0.000348	2.0	

* Exceeds %D Limit

CCC Calibration Check Compounds

SPCC System Performance Check Compounds

WET_WG_SSCV - Modified 03/06/2008
Report generated 02/28/2017 08:30



COD-high

EPA 410.4/SM5220D/HACH 8000 CCV: 80541 LCS: Std 77863 Spike: Std 80541
 SOP K4105 Revision #: 17 Daily dilution: 3(10,000)/50 Daily dilution: 2 Daily dilution: 0.1(10,000)/2
 Curve ID: 604320 Daily dilution: =1000 Daily dilution: =1000 Daily dilution: =500
 Wavelength (nm): 620 Hot Block Temp: 150 C Spectrophotometer: V-1200
 All samples use 2ml Hot Block ID: 001 COD vial Lot # A6355

SAMPLE	DILUTION	ABSORBANCE 1	ABSORBANCE 2
CCV: <u>600</u> mg/L		<u>0.213</u>	
BLANK:		<u>0.003</u>	
LCS: <u>1000</u> mg/L		<u>0.332</u>	
LCS DUP: <u>1000</u> mg/L		<u>0.334</u>	
<u>04-089-01</u>		<u>0.072</u>	
<u>02</u>		<u>0.132</u>	
<u>04</u>		<u>0.073</u>	
<u>05</u>		<u>0.105</u>	
<u>04-101-01</u>	<u>1/2 CL</u>	<u>0.048</u>	
<u>03-1523-01</u>	<u>1/100</u>	<u>0.181</u>	
<u>02</u>	<u>1/10</u>	<u>0.112</u>	
<u>03</u>	<u>1/100 1/140</u>	<u>0.138 / 0.286</u>	
<u>04</u>	<u>1/100</u>	<u>0.142</u>	
<u>06</u>	<u>1/2</u>	<u>0.144</u>	
<u>07</u>	<u>1/200 Diss</u>	<u>0.093</u>	
<u>08</u>	<u>1/20 Diss</u>	<u>0.304</u>	
<u>09</u>	<u>1/20 Diss</u>	<u>0.090</u>	
<u>04-089-07</u>	<u>1/2</u>	<u>0.302</u>	
<u>03-1690-01</u>		<u>0.278</u>	
DUP: <u>04-89-05</u>		<u>0.107</u>	
MS: <u>(500)</u> ↓		<u>0.252</u>	
MDS: <u>(500)</u> ↓		<u>0.254</u>	
CCV: <u>600</u> mg/L		<u>0.208</u>	

Ramon Law

ANALYST: Jammy M...

DATE/TIME: (on) 4/5/17 @ 10:00
 DATE/TIME: (off) 12:00

DCN#124980



Microbac Laboratories Inc.
SAMPLE REPORT

Workgroup: WG608825Analyst: TMMAnalyte: CHEMICAL OXYGEN DEMANDDate: 04/05/2017

Sample ID	I Vol	F Vol	Response	Slope	Y Intercept	Anal. Conc.	Rep. Conc.	Dil	Units
WG608825-01	2	2	0.00300	0.0003225	0.01777	-45.793	-45.793	1	mg/L
WG608825-02	2	2	0.332	0.0003225	0.01777	974.46	974.46	1	mg/L
WG608825-03	2	2	0.334	0.0003225	0.01777	980.66	980.66	1	mg/L
L17040089-01	2	2	0.0720	0.0003225	0.01777	168.18	168.18	1	mg/L
L17040089-02	2	2	0.132	0.0003225	0.01777	354.24	354.24	1	mg/L
L17040089-04	2	2	0.0730	0.0003225	0.01777	171.28	171.28	1	mg/L
L17040089-05	2	2	0.105	0.0003225	0.01777	270.52	270.52	1	mg/L
WG608825-04	2	2	0.105	0.0003225	0.01777	270.52	270.52	1	mg/L
L17031523-01	2	2	0.181	0.0003225	0.01777	506.20	50620	100	mg/L
L17031523-02	2	2	0.112	0.0003225	0.01777	292.22	2922.2	10	mg/L
L17031523-03	2	2	0.286	0.0003225	0.01777	831.81	33272	40	mg/L
L17031523-04	2	2	0.142	0.0003225	0.01777	385.25	38525	100	mg/L
L17031523-06	2	2	0.144	0.0003225	0.01777	391.46	782.91	2	mg/L
L17031523-07	2	2	0.0930	0.0003225	0.01777	233.30	4666.0	20	mg/L
L17031523-08	2	2	0.304	0.0003225	0.01777	887.63	17753	20	mg/L
L17031523-09	2	2	0.0900	0.0003225	0.01777	224.00	4480.0	20	mg/L
L17040089-07	2	2	0.302	0.0003225	0.01777	881.42	1762.8	2	mg/L
L17031690-01	2	2	0.278	0.0003225	0.01777	807.00	807.00	1	mg/L
WG608825-05	2	2	0.107	0.0003225	0.01777	276.72	276.72	1	mg/L
WG608825-06	2	2	0.252	0.0003225	0.01777	726.37	726.37	1	mg/L
WG608825-07	2	2	0.254	0.0003225	0.01777	732.57	732.57	1	mg/L

UV_SAMPLE_REPORT - Modified 03/06/2008

Report generated 04/06/2017 07:50

Microbac Laboratories Inc.
CONTINUING CALIBRATION REPORT

00852856

Workgroup #: WG608996
File ID: 00.1704051000-23
CCV ID: WG608996-03
Units: mg/L
Analyte: CHEMICAL OXYGEN DEMAND

Instrument ID: V-1200
Run Date: 04/05/2017
Run Time: 10:00
Analyst: TMM
Cal ID: V-1200 - 16-MAR-17

Analyte	Expected	Found	RF	%D	Q
Chemical Oxygen Demand	600	590	0.000347	1.7	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

WET_WG_CCV - Modified 03/06/2008

Report generated 04/06/2017 07:51



Microbac Laboratories Inc.
CONTINUING CALIBRATION REPORT

00852857

Workgroup #: WG608996 Instrument ID: V-1200
File ID: 00.1704051000-01 Run Date: 04/05/2017
CCV ID: WG608996-01 Run Time: 10:00
Units: mg/L Analyst: TMM
Analyte: CHEMICAL OXYGEN DEMAND Cal ID: V-1200 - 16-MAR-17

Analyte	Expected	Found	RF	%D	Q
Chemical Oxygen Demand	600	605	0.000355	0.8	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

WET_WG_CCV - Modified 03/06/2008

Report generated 04/05/2017 07:51



2.4.3 Oil and Grease Data

2.4.3.1 Summary Data

Lab Report #: L17031690

Lab Project #: 2551.096

Project Name: Longhorn Army Ammunition

Lab Contact: Adriane Steed

Certificate of Analysis

Sample #: L17031690-01	PrePrep Method: N/A	Instrument: HORIZON
Client ID: LH18/24-SP650-6428-GRAB	Prep Method: 1664A	Prep Date: N/A
Matrix: Water	Analytical Method: 1664A	Cal Date:
Workgroup #: WG608382	Analyst: AWE	Run Date: 03/31/2017 09:19
Collect Date: 03/29/2017 15:00	Dilution: 1	File ID: ON.1703310919-20
Sample Tag:	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD	DL
n-Hexane Extractable Material (HEM)	OILGREASE	2.80	U	5.60	2.80	1.40
U	Analyte was not detected. The concentration is below the reported LOD.					

2.4.3.2 QC Summary Data

Example Oil and Grease - HEM Calculations

$$[(WT2 - WT1) * 1000000]/\text{volume} = \text{mg/L}$$

where:

WT1 = weight (grams) of empty container.

WT2 = weight (grams) of dried sample and container.

1000000 = factor to get to mg/L.

volume = mL of sample used.

The samples are not blank corrected.

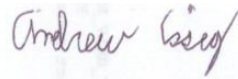
Microbac Laboratories Inc.

Data Checklist

Date: 31-MAR-2017
 Analyst: AWE
 Analyst: NA
 Method: HEM
 Instrument: HORIZON
 Curve Workgroup: NA
 Runlog ID: _____
 Analytical Workgroups: WG608382

Calibration/Linearity	03/31/17
Second Source Check	
ICV/CCV (std)	
ICB/CCB	
Blank	X
LCS/LCS Dup	X
MS/MSD	
Duplicate	
Upload Results	X
Client Forms	X
QC Violation Sheet	
Case Narratives	
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	AWE
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
31-MAR-2017



Secondary Reviewer:
04-APR-2017




Analytical Method:1664A
Login Number:L17031690

AAB#:WG608382

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
LH18/24-SP650-6428-GRAB	01	03/29/17					03/31/2017	1.8	28		03/31/17	1.8	28	

* = SEE PROJECT QAPP REQUIREMENTS



METHOD BLANK SUMMARY

Login Number: L17031690 Work Group: WG608382
 Blank File ID: ON.1703310919-01 Blank Sample ID: WG608382-01
 Prep Date: 03/31/17 09:19 Instrument ID: HORIZON
 Analyzed Date: 03/31/17 09:19 Method: 1664A
 Analyst: AWE

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG608382-02	ON.1703310919-02	03/31/17 09:19	
LCS2	WG608382-03	ON.1703310919-03	03/31/17 09:19	
LH18/24-SP650-6428-GRAB	L17031690-01	ON.1703310919-20	03/31/17 09:19	

Report Name: BLANK_SUMMARY
 PDF File ID: 5239412
 Report generated 04/11/2017 08:33



Login Number: L17031690 Prep Date: 03/31/17 09:19 Sample ID: WG608382-01
Instrument ID: HORIZON Run Date: 03/31/17 09:19 Prep Method: 1664A
File ID: ON.1703310919-01 Analyst: AWE Method: 1664A
Workgroup (AAB#): WG608382 Matrix: Water Units: mg/L
Contract #: _____ Cal ID: HORIZO - _____

Analytes	DL	LOQ	Concentration	Dilution	Qualifier
n-Hexane Extractable Material (HEM)	1.40	5.60	1.40	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: 5239414
11-APR-2017 08:33



Login Number: L17031690 Analyst: AWE Prep Method: 1664A
 Instrument ID: HORIZON Matrix: Water Method: 1664A
 Workgroup (AAB#): WG608382 Units: mg/L
 QC Key: DOD4 Lot #: STD80426
 Sample ID: WG608382-02 LCS File ID: ON.1703310919-02 Run Date: 03/31/2017 09:19
 Sample ID: WG608382-03 LCS2 File ID: ON.1703310919-03 Run Date: 03/31/2017 09:19

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
n-Hexane Extractable Material (HEM)	40.0	33.7	84.3	40.0	32.6	81.5	3.32	78 - 114	18	

LCS_LCS2 - Modified 03/06/2008
 PDF File ID: 5239416
 Report generated: 04/11/2017 08:33



2.4.3.3 Raw Data

Hexane Extractable Material

SOP K1664 Revision #: 12
 EPA Method 1664A ~~HEM~~ or NPM

LCS: STD80426
 Daily Dilution: 5(8000)/1000=40

Speed Vap Temperature: 40
 Balance: ANDGR-202 / other
 Instrument: Horizon 3000XL ~~PF90~~

Matrix Spike: _____
 Daily Dilution: _____
 All results are mg/L

Sample	Disk Type	pH Check	EXT. #	Volume (mL)	Initial Weight WT1 (g)	Dry Weight WT2 (g)	Comments
BLANK	/	/	1	1000			Beginning weight check
LCS: _____ mg/L	/	/	2	1000			
LCSDUP: _____ mg/L	/	/	3	1000			
031540-02	/	/	1	1000			2 mg <u>0.0020</u>
-03	/	/	2	970			1 g <u>1.0000</u>
031541-03	/	/	3	970			
* 031566-01	/	/	1				Sample too thick to pass all volume through filter
031567-02	/	/	2	960			
-04	/	/	3	940			
-06	/	/	2	920			
031592-01	/	/	3	930			
-03	/	/	1	910			
-07	/	/	2	940			
-09	/	/	3	900			
2* 031594-01							
-02	/	/	2	1000			
031612-01	/	/	3	1000			
031685-01	/	/	✓	950			
031689-01	/	/	2	1000			
031690-01	/	/	3	1000			
							Ending weight check
							2 mg <u>0.0019</u>
DUP							1 g <u>1.0000</u>

Disk Type:			
P47 (Pacific 47mm)	P90 (Pacific 90mm)	PF (pre filter)	Hexane
Lot: _____	Lot: <u>516274</u>	Lot: <u>70016210</u>	Lot: <u>19521</u>
			Silica Gel: _____
pH paper <u>15A1562</u>	Lot #: _____		Lot: _____

Analyst: Andrew Ewing Date / Time: 3-31-17 0919 Daily Maintenance Witness: Jmm
 *Duplicates/MS/MSD are analyzed only if sufficient volume is submitted by the client.

* lost sample due to thickness

2* Had organic layer

DCN#124894



Workgroup (AAB#): WG608382
 Analyst: AWE
 Analyte: OIL & GREASE
 Balance: BAL004

Method: 1664A
 SOP: 1664A Revision 12
 Spike Solution: STD80426
 Daily Dilution: _____

SAMPLE ID	Instrument#	HORIZONTAL VOL	INITIAL WT	DRY WT A	DRY WT B	DRY WT C	Anal. Conc	Rep. Conc.	Units
WG608382-01	B	1000	2.2168	2.2169	2.217		0.2000	0.2000	mg/L
WG608382-02	L	1000	2.1995	2.2331	2.2332		33.70	33.70	mg/L
WG608382-03	L2	1000	2.2257	2.258	2.2583		32.60	32.60	mg/L
L17031540-02	1	1000	2.2492	2.2699	2.2701		20.90	20.90	mg/L
L17031540-03	2	970	2.2318	2.2358	2.2362		4.536	4.536	mg/L
L17031541-03	3	970	2.246	2.2465	2.2468		0.8247	ND	mg/L
L17031566-01	4	1000	2.2042						mg/L
L17031567-02	5	960	2.2109	2.2113	2.2115		0.6250	ND	mg/L
L17031567-04	6	940	2.2146	2.2149	2.2152		0.6383	ND	mg/L
L17031567-06	7	920	2.2422	2.2425	2.2429		0.7609	ND	mg/L
L17031592-01	8	930	2.2097	2.2102	2.2101		0.4301	ND	mg/L
L17031592-03	9	910	2.2285	2.2289	2.2287		0.2198	ND	mg/L
L17031592-07	10	940	2.2491	2.2491	2.2493		0.2128	ND	mg/L
L17031592-09	11	900	2.2161	2.2164	2.2166		0.5556	ND	mg/L
L17031594-01	12	1000	2.2668						mg/L
L17031594-02	13	1000	2.225	2.2253	2.2253		0.3000	ND	mg/L
L17031612-01	14	1000	2.2275	2.2277	2.2278		0.3000	ND	mg/L
L17031685-01	16	950	2.2262	2.2262	2.2264		0.2105	ND	mg/L
L17031689-01	17	1000	2.2387	2.2392	2.2394		0.7000	ND	mg/L
L17031690-01	18	1000	2.2516	2.252	2.252		0.4000	ND	mg/L

L17031540-02 Clear shiny layer in bottom of pan.

Analyst: Andrew King

Date/Time (on) : 03/31/2017 09:19
 Date/Time (off) : 03/31/2017 11:41
 Date/Time (off) : 03/31/2017 12:11
 Date/Time (off) : _____

*Duplicate required on 10% of samples



3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
April 11, 2017

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
ALS - ADRIANE L. STEED	AWE - ANDREW W. ESSIG
AZH - AFTER HOURS	BJO - BRIAN J. OGDEN
BLG - BRENDA L. GREENWALT	BNB - Brandi N. Bentley
BRG - BRENDA R. GREGORY	CAS - Craig A. Smith
CEB - CHAD E. BARNES	CLC - CHRYS L. CRAWFORD
CLS - CARA L. STRICKLER	CPD - CHAD P. DAVIS
CSH - CHRIS S. HILL	CV - Carl Volkman
DAK - DEAN A. KETELSEN	DCM - DAVID C. MERCKLE
DEV - DAVID E. VANDENBERG	DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER	DLP - DOROTHY L. PAYNE
DSM - DAVID S. MOSSOR	DTG - DOMINIC T. GEHRET
ECL - ERIC C. LAWSON	EPT - ETHAN P. TIDD
ERP - ERIN R. PORTER	FJB - FRANCES J. BOLDEN
HRF - HEATHER R. FAIRCHILD	JDH - JUSTIN D. HESSON
JDS - JARED D. SMITH	JKP - JACQUELINE K. PARSONS
JLD - JESSICA L. DELONG	JST - JOSHUA S. TAYLOR
JTP - JOSHUA T. PEMBERTON	JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES	JYH - JI Y. HU
KAK - KATHY A. KIRBY	KDD - Katelyn D. Daley
KEB - KATIE E. BARNES	KHR - KIM H. RHODES
KKB - KERRI K. BUCK	KRA - KATHY R. ALBERTSON
KRP - KATHY R. PARSONS	LJH - Lacey J. Hendershot
LLS - LARRY L. STEPHENS	LSB - LESLIE S. BUCINA
LSJ - LAURA S. JONES	MAP - MARLA A. PORTER
MBK - MORGAN B. KNOWLTON	MES - MARY E. SCHILLING
MMB - MAREN M. BEERY	MRT - MICHELLE R. TAYLOR
PDM - PIERCE D. MORRIS	PIT - MICROBAC WARRENDALE
REK - BOB E. KYER	RLB - BOB BUCHANAN
RNP - RICK N. PETTY	SAV - SARAH A. VANDENBERG
SCB - SARAH C. BOGOLIN	SCJ - SUE ELLEN C. JOHNSON
SDC - SHALYN D. CONLEY	TB - TODD BOYLE
TMB - TIFFANY M. BAILEY	TMM - TAMMY M. MORRIS
VC - VICKI COLLIER	WTD - WADE T. DELONG
XXX - UNAVAILABLE OR SUBCONTRACT	

List of Valid Qualifiers

April 11, 2017

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

April 11, 2017

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


Name Of Lab Shipping To: MICROBAC (740) 373-4071 ATTN: STEPHANIE MOSSBURG

Project: AECOM LONGHORN ARMY AMMIN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS		Project No.: 60256135.GWTP HRUMAR16	Lab I.D.#
Job: GROUNDWATER TREATMENT PLANT QUARTERLY EFFLUENT SAMPLES			
Prepared By: Scott Beesinger		P. O. Number	Remarks (Preservatives, etc.)
Field Sample I.D.			
LH18/24-SP650-6428-GRAB	Water	03/29/17 / 15:00	HCL
LH18/24-SP650-6428-GRAB	Water	03/29/17 / 15:00	HNO3
LH18/24-SP650-6428-GRAB	Water	03/29/17 / 15:00	NONE
LH18/24-SP650-6428-GRAB	Water	03/29/17 / 15:00	H2SO4
Trip Blank	Water	03/29/17	HCL

STANDARD TURN AROUND TIME

Reinquired By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
<i>Scott Beesinger</i>	03/29/17	15:45									

Received At Lab By:		For Lab Use Only	
Date 03/31/2017 09:51	Time 09:51	Date 03/31/2017 09:51	Time 09:51
By: CARA STRICKLER		221000098990	
Microbac OVD		Received: 03/31/2017 09:51 By: CARA STRICKLER	


 Received: 03/31/2017 09:51
 By: CARA STRICKLER
 221000098990

Cara Strickler

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17031690

Account: 2551

Project: 2551.096

Samples: 2

Due Date: 11-APR-2017

Samplenum Container ID Products

L17031690-01 888306

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	31-MAR-2017 13:46	CLS		
2	ANALYZ	V1	ORG4	31-MAR-2017 14:09	HRF	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	31-MAR-2017 13:46	CLS		
2	ANALYZ	V1	ORG4	31-MAR-2017 14:09	HRF	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	31-MAR-2017 13:46	CLS		
2	ANALYZ	V1	ORG4	31-MAR-2017 14:10	HRF	CLS	

Samplenum Container ID Products

L17031690-01 888307

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAR-2017 13:46	CLS		
2	PREP	W1	EXT	03-APR-2017 11:43	JDH	CLS	
3	ANALYZ*	EXT	SEMI	04-APR-2017 17:40	SCB	JDH	

**Sample extract/digestate/leachate*

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		31-MAR-2017 13:46	CLS		

**Sample extract/digestate/leachate*Samplenum Container ID Products

L17031690-01 888308

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	A1	31-MAR-2017 13:46	CLS		
2	PREP	A1	SEM	03-APR-2017 10:41	LJH	CLS	
3	ANALYZ*	SEM	SEMI	04-APR-2017 17:40	SCB	LJH	

**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: L17031690

Account: 2551

Project: 2551.096

Samples: 2

Due Date: 11-APR-2017

Samplenum **Container ID** **Products**
L17031690-01 888309 COD-HIGH COD-LOW

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAR-2017 13:46	CLS		
2	ANALYZ	W1	WET	05-APR-2017 07:54	TMM	CLS	

Samplenum **Container ID** **Products**
L17031690-01 888310 826-SPE 827-DIOXANE 9056 OG-HEM

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAR-2017 13:46	CLS		
2	ANALYZ	W1	WET	31-MAR-2017 14:02	AWE	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAR-2017 13:46	CLS		
2	STORE	W1	A1	06-APR-2017 09:37	BRG	BRG	

Samplenum **Container ID** **Products**
L17031690-01 888311 AG-MS AL AS-MS BA-MS CD-MS CO-MS CR-MS FE MN-N

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	31-MAR-2017 13:46	CLS		
2	PREP	W1	DIG	31-MAR-2017 14:53	ERP	CLS	
3	STORE	DIG	A1	03-APR-2017 13:57	CLS	ERP	
4	ANALYZ*	DIG	METALS	04-APR-2017 09:10	JYH	ERP	

*Sample extract/digestate/leachate

Samplenum **Container ID** **Products**
L17031690-02 888312 826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	31-MAR-2017 13:46	CLS		
2	ANALYZ	V1	ORG4	31-MAR-2017 14:10	HRF	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	31-MAR-2017 13:46	CLS		
2	ANALYZ	V1	ORG4	31-MAR-2017 14:10	HRF	CLS	

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



NELAP Addendum - January 4, 2016

Non-NELAP LIMS Product and Description

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

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

SOLID AND HAZARDOUS CHEMICALS

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

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD HPLC02/HPLC-UV

Nitroglycerin
 Acetic acid
 Butyric acid
 Lactic acid
 Propionic acid
 Pyruvic acid

OVD MSS01/GC-MS

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

NELAP Accreditation by Laboratory SOP**NONPOTABLE WATER**OVD MSV01/GC-MS

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

OVD HPLC07/HPLC-MS-MS

Hexamethylphosphoramide (XMPA-LCMS)

OVD HPLC12/HPLC/UV

Acetate
Formate

OVD RSK01/GC-FID

Acetylene
Propane

OVD K9305/ISE

Fluoroborate

SOLID AND HAZARDOUS 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)

APPENDIX D: Air Monitoring Data – 1st Quarter 2017

Attachment A

Air Monitoring Calculations

Longhorn Army Ammunition Plant
Groundwater Treatment Plant
Ambient Air Data - March 28, 2017

Pollutant	CAS	Short Term ESL March 2012 µg/m ³	AMCVs (ST Health) µg/m ³	GWTP Ambient Air Concentrations (1) µg/m ³	Status (3)	Downwind Ambient Air Concentrations (2) µg/m ³	Status (3)
1,1-Dichloroethane	75-34-3	4000	4047	0.77	U PASS	0.78	U PASS
1,1-Dichloroethene	75-35-4	210	714	0.77	U PASS	0.78	U PASS
1,2-Dichloroethane	107-06-2	160	162	0.77	U PASS	0.78	U PASS
Acetone	67-64-1	5900	NA	7.7	U PASS	7.8	U PASS
Benzene	71-43-2	170	575	0.82	U PASS	0.78	U PASS
Carbon disulfide	75-15-0	30	NA	7.7	U PASS	7.8	U PASS
Chloroform	67-66-3	100	98	0.72	U PASS	0.78	U PASS
cis-1,2-Dichloroethene	540-59-0	7900	NA	5.1	U PASS	0.78	U PASS
Methylene chloride	75-09-2	3600	12158	6.6	U PASS	0.78	U PASS
Tetrachloroethene	127-18-4	2000	6782	0.72	U PASS	0.78	U PASS
trans-1,2-Dichloroethene	540-59-0	7900	NA	0.72	U PASS	0.78	U PASS
Trichloroethene	79-01-6	540	537	18.0	U PASS	0.78	U PASS
Vinyl chloride	75-01-4	20000	66460	0.72	U PASS	0.78	U PASS
n-Hexane	110-54-3	5300	6336	2.3	U PASS	0.83	U PASS
Styrene	100-42-5	110	21725	0.72	U PASS	0.78	U PASS
Toluene	108-88-3	640	15074	2.1	U PASS	0.78	U PASS
Ethylbenzene	100-41-4	740	86844	0.72	U PASS	0.78	U PASS
m,p-Xylenes	179601-23-1	180	7382	1.4	U PASS	1.6	U PASS
o-Xylene	95-47-6	1600	7382	0.72	U PASS	0.78	U PASS
1,3-Dichlorobenzene	541-73-1	720	NA	0.72	U PASS	0.78	U PASS
Propene (C3 H6)	115-07-1	Asphyxiant	Asphyxiant	0.72	U NA	0.78	U NA
Dichlorodifluoromethane (CCl2F2)	75-71-8	50000	49452	2.6	U PASS	2.5	U PASS
Ethanol	64-17-5	18800	NA	18	U PASS	7.8	U PASS
Trichlorofluoromethane (CCl3F)	75-69-4	28000	56184	1.4	U PASS	1.3	U PASS
Trichlorotrifluoroethane (C2Cl3F3)	76-13-1	38000	NA	10	U PASS	9.6	U PASS
alpha-Pinene	80-56-8	60	3499	0.92	U PASS	0.92	U PASS
d-Limonene	5989-27-5	1100	NA	0.72	U PASS	0.78	U PASS

(1) Sample collected over an 8-hour period on March 28, 2017 between 8 AM and 4 PM

(2) Sample collected over a 24-hour period beginning on March 27, 2017 at 8 AM and ending on March 28, 2017 at 8 AM

(3) Status based on comparison of air sample result to Air Monitoring Comparison Values (AMCVs). When there is no AMCV value for a chemical, the air sample concentration is compared to the short-term ESL.

Longhorn Army Ammunition Plant
Groundwater Treatment Plant
Emission Stack Air Data - March 28, 2017

Pollutant	CAS	Measured Air	Air	Air	Allowable	Status (4)	TLV (L) mg/m ³	TLV Reference	Compliance section	Downwind	(K) value	Hourly Emission Limit at	Status (8)
		Stripper Stack Concentration s (1) µg/m ³	Stripper Emission Rates (2) lb/hr	Stripper Emission Rates(2a) tpy	Annual Emission (3) tpy					Distance to nearest off- site Receptor (D) ft		Nearest off-site Receptor (6)(7) (E) = L/K lb/hr	
1,1-Dichloroethane	75-34-3	130 U	1.07E-03 U	6.93E-04 U	5	PASS	405	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
1,1-Dichloroethene	75-35-4	200	3.28E-03	2.13E-03	5	PASS	20	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.4	PASS
1,2-Dichloroethane	107-06-2	160	2.62E-03	1.71E-03	5	PASS	40	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	2.9	PASS
Acetone	67-64-1	1300 U	1.07E-02 U	6.93E-03 U	5	PASS	590	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Benzene	71-43-2	130 U	1.07E-03 U	6.93E-04 U	5	PASS	3	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	0.21	PASS
Carbon disulfide	75-15-0	1300 U	1.07E-02 U	6.93E-03 U	5	PASS	31	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	2.2	PASS
Chloroform	67-66-3	130 U	1.07E-03 U	6.93E-04 U	5	PASS	10	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	0.71	PASS
cis-1,2-Dichloroethene	540-59-0	9900	1.62E-01	1.06E-01	5	PASS	793	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Methylene chloride	75-09-2	17000	2.79E-01	1.81E-01	5	PASS	26	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.9	PASS
Tetrachloroethene	127-18-4	130 U	1.07E-03 U	6.93E-04 U	5	PASS	33.5	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	2.4	PASS
trans-1,2-Dichloroethene	540-59-0	130 U	1.07E-03 U	6.93E-04 U	5	PASS	793	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Trichloroethene	79-01-6	24000	3.93E-01	2.56E-01	5	PASS	135	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	6.0	PASS
Vinyl chloride	75-01-4	420	6.89E-03	4.48E-03	5	PASS	2	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	0.14	PASS
n-Hexane	110-54-3	130 U	1.07E-03 U	6.93E-04 U	5	PASS	1800	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Styrene	100-42-5	130 U	1.07E-03 U	6.93E-04 U	5	PASS	21	106.262 List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.5	PASS
Toluene	108-88-3	130 U	1.07E-03 U	6.93E-04 U	5	PASS	188	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	6.0	PASS
Ethylbenzene	100-41-4	130 U	1.07E-03 U	6.93E-04 U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
m,p-Xylenes	179601-23-1	250 U	2.05E-03 U	1.33E-03 U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
o-Xylene	95-47-6	130 U	1.07E-03 U	6.93E-04 U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
1,3-Dichlorobenzene	541-73-1	130 U	1.07E-03 U	6.93E-04 U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Propene (C3 H6)	115-07-1	130 U	1.07E-03 U	6.93E-04 U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	6.0	PASS
Dichlorodifluoromethane (CCl2F2)	75-71-8	130 U	1.07E-03 U	6.93E-04 U	5	PASS	4950	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Ethanol	64-17-5	1300 U	1.07E-02 U	6.93E-03 U	5	PASS	1880	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Trichlorofluoromethane (CCl3F)	75-69-4	130 U	1.07E-03 U	6.93E-04 U	5	PASS	5620	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Trichlorotrifluoroethane (C2Cl3F3)	76-13-1	4700	7.71E-02	5.01E-02	5	PASS	7670	ACGIH List	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
alpha-Pinene	80-56-8	130 U	1.07E-03 U	6.93E-04 U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
d-Limonene	5989-27-5	130 U	1.07E-03 U	6.93E-04 U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
TOTAL				0.975									

(1) Sample collected on March 28, 2017 at 2:00 PM

(2) Based on a blower flow rate of 4390 cfm. Note that plant operations is less than or equal to 25 hours per week 1/2 of detection limit was used for estimating mass rate.

(2a) Based on operation of 25 hours per week, 52 weeks per year.

(3) Per 30TAC 106.533(f)(1)(B)

(4) Based on comparing the calculated air stripper stacksample emission rate in tons per year (tpy) to the allowable annual emission limit per chemical of 5 tpy.

(5) No TLVs for these chemicals

(6) The maximum hourly limit allowed by 30 TAC 106.262, per pollutant, is 6 lbs/hr per "Figure 1: 30 TAC 106.262(a)". The E value was overridden with 6 lb/hr when the calculated E was higher.

(7) The maximum hourly emission rate allowed by 30 TAC 106.261(a)(3) for chemicals with a limit value (L) greater than 200 mg/m³ is 1 lb/hr.

(8) Based on comparing the calculated air stripper stacksample emission rate in pounds per hour (lb/hr) to the allowable maximum emission limit per chemical based on distance downwind to nearest off-site receptor.

Attachment B

**PID Readings and Calibration
Logs**

Photoionization Detector Measurements During GWTP Operation - 1st Quarter 2017

Date	Time	Location	Air Flow Rate at Blower	Instrument ID	Person Collecting	PID Reading	Weather Conditions
1/4/2017	8:00	Outside GWTP Office	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 37 degrees
1/4/2017	8:00	Downwind	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 37 degrees
1/4/2017	8:00	Stripper	4880 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.2 ppm Steady State 3.9 ppm	Cloudy 37 degrees
1/4/2017	14:00	Outside GWTP Office	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 48 degrees
1/4/2017	14:00	Downwind	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 48 degrees
1/4/2017	14:00	Stripper	4760 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.5 ppm Steady State 3.2 ppm	Cloudy 48 degrees
1/5/2017	8:00	Outside GWTP Office	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 40 degrees
1/5/2017	8:00	Downwind	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 40 degrees
1/5/2017	8:00	Stripper	4875 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.7 ppm Steady State 3.5 ppm	Cloudy 40 degrees
1/5/2017	14:00	Outside GWTP Office	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 41 degrees
1/5/2017	14:00	Downwind	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 41 degrees
1/5/2017	14:00	Stripper	4710 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.1 ppm Steady State 3.1 ppm	Cloudy 41 degrees
1/6/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 31 degrees
1/6/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 31 degrees
1/6/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.2 ppm Steady State 2.9 ppm	Cloudy 31 degrees
1/6/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 32 degrees
1/6/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 32 degrees
1/6/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm Steady State 2.5 ppm	Cloudy 32 degrees
1/10/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 63 degrees
1/10/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 63 degrees
1/10/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.0 ppm Steady State 2.7 ppm	Cloudy 63 degrees
1/10/2017	14:00	Outside GWTP Office	4645 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
1/10/2017	14:00	Downwind	4645 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
1/10/2017	14:00	Stripper	4645 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.6 ppm Steady State 2.3 ppm	Clear 73 degrees
1/11/2017	8:00	Outside GWTP Office	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 66 degrees
1/11/2017	8:00	Downwind	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 66 degrees
1/11/2017	8:00	Stripper	4875 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.3 ppm Steady State 2.5 ppm	Cloudy 66 degrees
1/11/2017	14:00	Outside GWTP Office	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/11/2017	14:00	Downwind	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/11/2017	14:00	Stripper	4690 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.2 ppm Steady State 2.9 ppm	Clear 75 degrees
1/12/2017	8:00	Outside GWTP Office	4865 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/12/2017	8:00	Downwind	4865 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/12/2017	8:00	Stripper	4865 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.7 ppm Steady State 3.8 ppm	Clear 70 degrees
1/12/2017	14:00	Outside GWTP Office	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 76 degrees
1/12/2017	14:00	Downwind	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 76 degrees
1/12/2017	14:00	Stripper	4715 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.9 ppm Steady State 2.9 ppm	Clear 76 degrees
1/13/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 62 degrees
1/13/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 62 degrees
1/13/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.0 ppm Steady State 2.2 ppm	Cloudy 62 degrees
1/13/2017	14:00	Outside GWTP Office	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 68 degrees
1/13/2017	14:00	Downwind	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 68 degrees
1/13/2017	14:00	Stripper	4775 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm Steady State 2.4 ppm	Cloudy 68 degrees
1/16/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy / Rain 62 degrees
1/16/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy / Rain 62 degrees
1/16/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.3 ppm Steady State 2.9 ppm	Cloudy / Rain 62 degrees
1/16/2017	14:00	Outside GWTP Office	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70 degrees
1/16/2017	14:00	Downwind	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70 degrees
1/16/2017	14:00	Stripper	4675 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.0 ppm Steady State 2.1 ppm	Cloudy 70 degrees
1/17/2017	8:00	Outside GWTP Office	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy / Rain 50 degrees
1/17/2017	8:00	Downwind	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy / Rain 50 degrees
1/17/2017	8:00	Stripper	4810 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.7 ppm Steady State 1.9 ppm	Cloudy / Rain 50 degrees
1/17/2017	14:00	Outside GWTP Office	4650 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy / Rain 52 degrees
1/17/2017	14:00	Downwind	4650 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy / Rain 52 degrees
1/17/2017	14:00	Stripper	4650 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.2 ppm Steady State 2.5 ppm	Cloudy / Rain 52 degrees
1/18/2017	8:00	Outside GWTP Office	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy / Rain 51 degrees
1/18/2017	8:00	Downwind	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy / Rain 51 degrees
1/18/2017	8:00	Stripper	4835 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.5 ppm Steady State 1.7 ppm	Cloudy / Rain 51 degrees
1/18/2017	14:00	Outside GWTP Office	4705 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy / Rain 55 degrees
1/18/2017	14:00	Downwind	4705 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy / Rain 55 degrees
1/18/2017	14:00	Stripper	4705 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.3 ppm Steady State 2.2 ppm	Cloudy / Rain 55 degrees
1/19/2017	8:00	Outside GWTP Office	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 51 degrees
1/19/2017	8:00	Downwind	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 51 degrees
1/19/2017	8:00	Stripper	4860 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.6 ppm Steady State 1.9 ppm	Cloudy 51 degrees
1/19/2017	14:00	Outside GWTP Office	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 58 degrees
1/19/2017	14:00	Downwind	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 58 degrees
1/19/2017	14:00	Stripper	4715 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.0 ppm Steady State 2.8 ppm	Cloudy 58 degrees

Photoionization Detector Measurements During GWTP Operation - 1st Quarter 2017

Date	Time	Location	Air Flow Rate at Blower	Instrument ID	Person Collecting	PID Reading	Weather Conditions
1/20/2017	8:00	Outside GWTP Office	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 58 degrees
1/20/2017	8:00	Downwind	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 58 degrees
1/20/2017	8:00	Stripper	4870 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm Steady State 3.1 ppm	Clear 58 degrees
1/20/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
1/20/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
1/20/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.1 ppm Steady State 2.4 ppm	Clear 73 degrees
1/23/2017	8:00	Outside GWTP Office	4890 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 42 degrees
1/23/2017	8:00	Downwind	4890 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 42 degrees
1/23/2017	8:00	Stripper	4890 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.9 ppm Steady State 2.7 ppm	Clear 42 degrees
1/23/2017	14:00	Outside GWTP Office	4725 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 64 degrees
1/23/2017	14:00	Downwind	4725 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 64 degrees
1/23/2017	14:00	Stripper	4725 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.1 ppm Steady State 3.2 ppm	Clear 64 degrees
1/24/2017	11:00	Outside GWTP Office	4800 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/24/2017	11:00	Downwind	4800 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/24/2017	11:00	Stripper	4800 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 4.0 ppm	Clear 70 degrees
1/24/2017	14:00	Outside GWTP Office	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/24/2017	14:00	Downwind	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/24/2017	14:00	Stripper	4710 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.2 ppm Steady State 3.3 ppm	Clear 75 degrees
1/25/2017	8:00	Outside GWTP Office	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 65 degrees
1/25/2017	8:00	Downwind	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 65 degrees
1/25/2017	8:00	Stripper	4825 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 2.9 ppm	Clear 65 degrees
1/25/2017	14:00	Outside GWTP Office	4745 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
1/25/2017	14:00	Downwind	4745 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
1/25/2017	14:00	Stripper	4745 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.8 ppm Steady State 2.6 ppm	Clear 67 degrees
1/26/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 35 degrees
1/26/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 35 degrees
1/26/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.9 ppm Steady State 1.6 ppm	Clear 35 degrees
1/26/2017	14:00	Outside GWTP Office	4740 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/26/2017	14:00	Downwind	4740 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/26/2017	14:00	Stripper	4740 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm Steady State 2.5 ppm	Clear 53 degrees
1/27/2017	8:00	Outside GWTP Office	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 28 degrees
1/27/2017	8:00	Downwind	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 28 degrees
1/27/2017	8:00	Stripper	4870 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm Steady State 2.6 ppm	Clear 28 degrees
1/27/2017	14:00	Outside GWTP Office	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/27/2017	14:00	Downwind	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/27/2017	14:00	Stripper	4775 ACFM	MiniRAE 3000	Scott Beesinger	Max. 11.0 ppm Steady State 4.1 ppm	Clear 53 degrees
1/30/2017	8:00	Outside GWTP Office	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 34 degrees
1/30/2017	8:00	Downwind	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 34 degrees
1/30/2017	8:00	Stripper	4810 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.7 ppm Steady State 4.4 ppm	Clear 34 degrees
1/30/2017	14:00	Outside GWTP Office	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 72 degrees
1/30/2017	14:00	Downwind	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 72 degrees
1/30/2017	14:00	Stripper	4675 ACFM	MiniRAE 3000	Scott Beesinger	Max. 12.0 ppm Steady State 4.9 ppm	Clear 72 degrees
1/31/2017	8:00	Outside GWTP Office	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 48 degrees
1/31/2017	8:00	Downwind	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 48 degrees
1/31/2017	8:00	Stripper	4820 ACFM	MiniRAE 3000	Kennie Moore	Max. 12.2 ppm Steady State 4.3 ppm	Clear 48 degrees
1/31/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/31/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/31/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.9 ppm Steady State 3.2 ppm	Clear 75 degrees
2/1/2017	8:00	Outside GWTP Office	4885 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 56 degrees
2/1/2017	8:00	Downwind	4885 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 56 degrees
2/1/2017	8:00	Stripper	4885 ACFM	MiniRAE 3000	Kennie Moore	Max. 12.7 ppm Steady State 5.9 ppm	Clear 56 degrees
2/1/2017	14:00	Outside GWTP Office	4760 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
2/1/2017	14:00	Downwind	4760 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
2/1/2017	14:00	Stripper	4760 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.6 ppm Steady State 5.4 ppm	Clear 70 degrees
2/2/2017	8:00	Outside GWTP Office	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/2/2017	8:00	Downwind	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/2/2017	8:00	Stripper	4880 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.9 ppm Steady State 5.1 ppm	Overcast 56 degrees
2/2/2017	14:00	Outside GWTP Office	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 45 degrees
2/2/2017	14:00	Downwind	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 45 degrees
2/2/2017	14:00	Stripper	4720 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.3 ppm Steady State 4.3 ppm	Overcast 45 degrees
2/3/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 39 degrees
2/3/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 39 degrees
2/3/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.9 ppm Steady State 4.7 ppm	Cloudy 39 degrees
2/3/2017	14:00	Outside GWTP Office	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 52 degrees
2/3/2017	14:00	Downwind	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 52 degrees
2/3/2017	14:00	Stripper	4690 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.8 ppm Steady State 3.1 ppm	Clear 52 degrees

Photoionization Detector Measurements During GWTP Operation - 1st Quarter 2017

Date	Time	Location	Air Flow Rate at Blower	Instrument ID	Person Collecting	PID Reading	Weather Conditions
2/6/2017	8:00	Outside GWTP Office	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/6/2017	8:00	Downwind	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/6/2017	8:00	Stripper	4860 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.8 ppm Steady State 3.5 ppm	Cloudy 67 degrees
2/6/2017	14:00	Outside GWTP Office	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 71 degrees
2/6/2017	14:00	Downwind	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 71 degrees
2/6/2017	14:00	Stripper	4710 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.9 ppm Steady State 1.8 ppm	Clear 71 degrees
2/7/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71 degrees
2/7/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71 degrees
2/7/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.0 ppm Steady State 2.1 ppm	Clear 71 degrees
2/7/2017	13:00	Outside GWTP Office	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 79 degrees
2/7/2017	13:00	Downwind	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 79 degrees
2/7/2017	13:00	Stripper	4775 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.1 ppm Steady State 1.7 ppm	Clear 79 degrees
2/10/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 37 degrees
2/10/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 37 degrees
2/10/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.4 ppm Steady State 3.9 ppm	Overcast 37 degrees
2/10/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 68 degrees
2/10/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 68 degrees
2/10/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.7 ppm Steady State 1.8 ppm	Cloudy 68 degrees
2/13/2017	8:00	Outside GWTP Office	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 55 degrees
2/13/2017	8:00	Downwind	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 55 degrees
2/13/2017	8:00	Stripper	4820 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm Steady State 1.9 ppm	Overcast 55 degrees
2/13/2017	14:00	Outside GWTP Office	4750 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 61 degrees
2/13/2017	14:00	Downwind	4750 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 61 degrees
2/13/2017	14:00	Stripper	4750 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.8 ppm Steady State 1.4 ppm	Overcast 61 degrees
2/14/2017	8:00	Outside GWTP Office	4845 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/14/2017	8:00	Downwind	4845 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/14/2017	8:00	Stripper	4845 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.6 ppm Steady State 1.6 ppm	Overcast 56 degrees
2/14/2017	13:00	Outside GWTP Office	4790 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 49 degrees
2/14/2017	13:00	Downwind	4790 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 49 degrees
2/14/2017	13:00	Stripper	4790 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.0 ppm Steady State 1.2 ppm	Rain 49 degrees
2/17/2017	8:00	Outside GWTP Office	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 45 degrees
2/17/2017	8:00	Downwind	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 45 degrees
2/17/2017	8:00	Stripper	4835 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.3 ppm Steady State 1.4 ppm	Clear 45 degrees
2/17/2017	14:00	Outside GWTP Office	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 66 degrees
2/17/2017	14:00	Downwind	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 66 degrees
2/17/2017	14:00	Stripper	4715 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.2 ppm Steady State 1.9 ppm	Clear 66 degrees
2/20/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 57 degrees
2/20/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 57 degrees
2/20/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.9 ppm Steady State 2.2 ppm	Overcast 57 degrees
2/20/2017	14:00	Outside GWTP Office	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 62 degrees
2/20/2017	14:00	Downwind	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 62 degrees
2/20/2017	14:00	Stripper	4765 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.7 ppm Steady State 1.7 ppm	Rain 62 degrees
2/21/2017	8:00	Outside GWTP Office	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 56 degrees
2/21/2017	8:00	Downwind	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 56 degrees
2/21/2017	8:00	Stripper	4810 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 3.6 ppm	Cloudy 56 degrees
2/21/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 65 degrees
2/21/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 65 degrees
2/21/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.9 ppm Steady State 3.3 ppm	Clear 65 degrees
2/24/2017	8:00	Outside GWTP Office	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 58 degrees
2/24/2017	8:00	Downwind	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 58 degrees
2/24/2017	8:00	Stripper	4825 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.2 ppm Steady State 3.9 ppm	Clear 58 degrees
2/24/2017	14:00	Outside GWTP Office	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 68 degrees
2/24/2017	14:00	Downwind	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 68 degrees
2/24/2017	14:00	Stripper	4760 ACFM	MiniRAE 3000	Scott Beesinger	Max. 11.9 ppm Steady State 4.2 ppm	Clear 68 degrees
2/27/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 57 degrees
2/27/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 57 degrees
2/27/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 12.2 ppm Steady State 4.3 ppm	Rain 57 degrees
2/27/2017	14:00	Outside GWTP Office	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70 degrees
2/27/2017	14:00	Downwind	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70 degrees
2/27/2017	14:00	Stripper	4720 ACFM	MiniRAE 3000	Scott Beesinger	Max. 11.3 ppm Steady State 2.9 ppm	Cloudy 70 degrees
2/28/2017	8:00	Outside GWTP Office	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/28/2017	8:00	Downwind	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/28/2017	8:00	Stripper	4880 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.5 ppm Steady State 3.6 ppm	Cloudy 67 degrees
2/28/2017	13:00	Outside GWTP Office	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 77 degrees
2/28/2017	13:00	Downwind	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 77 degrees
2/28/2017	13:00	Stripper	4765 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.7 ppm Steady State 2.4 ppm	Clear 77 degrees

Photoionization Detector Measurements During GWTP Operation - 1st Quarter 2017

Date	Time	Location	Air Flow Rate at Blower	Instrument ID	Person Collecting	PID Reading	Weather Conditions
3/3/2017	8:00	Outside GWTP Office	4675 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 36 degrees
3/3/2017	8:00	Downwind	4675 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 36 degrees
3/3/2017	8:00	Stripper	4675 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.5 ppm Steady State 4.3 ppm	Clear 36 degrees
3/3/2017	13:00	Outside GWTP Office	4545 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
3/3/2017	13:00	Downwind	4545 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
3/3/2017	13:00	Stripper	4545 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm Steady State 3.4 ppm	Clear 67 degrees
3/6/2017	9:00	Outside GWTP Office	4650 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 65 degrees
3/6/2017	9:00	Downwind	4650 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 65 degrees
3/6/2017	9:00	Stripper	4650 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.7 ppm Steady State 4.1 ppm	Rain 65 degrees
3/6/2017	14:00	Outside GWTP Office	4555 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 71 degrees
3/6/2017	14:00	Downwind	4555 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 71 degrees
3/6/2017	14:00	Stripper	4555 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.1 ppm Steady State 2.8 ppm	Overcast 71 degrees
3/7/2017	8:00	Outside GWTP Office	4540 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 70 degrees
3/7/2017	8:00	Downwind	4540 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 70 degrees
3/7/2017	8:00	Stripper	4540 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm Steady State 2.3 ppm	Rain 70 degrees
3/7/2017	12:30	Outside GWTP Office	4455 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 61 degrees
3/7/2017	12:30	Downwind	4455 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 61 degrees
3/7/2017	12:30	Stripper	4455 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.5 ppm Steady State 3.4 ppm	Clear 61 degrees
3/10/2017	8:00	Outside GWTP Office	4570 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 65 degrees
3/10/2017	8:00	Downwind	4570 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 65 degrees
3/10/2017	8:00	Stripper	4570 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.8 ppm Steady State 4.1 ppm	Cloudy 65 degrees
3/10/2017	14:00	Outside GWTP Office	4485 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 70 degrees
3/10/2017	14:00	Downwind	4485 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 70 degrees
3/10/2017	14:00	Stripper	4485 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.0 ppm Steady State 3.2 ppm	Clear 70 degrees
3/13/2017	8:00	Outside GWTP Office	4520 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 46 degrees
3/13/2017	8:00	Downwind	4520 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 46 degrees
3/13/2017	8:00	Stripper	4520 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.3 ppm Steady State 4.4 ppm	Rain 46 degrees
3/13/2017	14:00	Outside GWTP Office	4430 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 50 degrees
3/13/2017	14:00	Downwind	4430 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 50 degrees
3/13/2017	14:00	Stripper	4430 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.5 ppm Steady State 3.7 ppm	Overcast 50 degrees
3/17/2017	8:00	Outside GWTP Office	4590 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 60 degrees
3/17/2017	8:00	Downwind	4590 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 60 degrees
3/17/2017	8:00	Stripper	4590 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 3.0 ppm	Overcast 60 degrees
3/17/2017	14:00	Outside GWTP Office	4410 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 72 degrees
3/17/2017	14:00	Downwind	4410 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 72 degrees
3/17/2017	14:00	Stripper	4410 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.5 ppm Steady State 2.2 ppm	Cloudy 72 degrees
3/20/2017	8:00	Outside GWTP Office	4505 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 64 degrees
3/20/2017	8:00	Downwind	4505 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 64 degrees
3/20/2017	8:00	Stripper	4505 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.2 ppm Steady State 3.9 ppm	Clear 64 degrees
3/20/2017	14:00	Outside GWTP Office	4400 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 83 degrees
3/20/2017	14:00	Downwind	4400 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 83 degrees
3/20/2017	14:00	Stripper	4400 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.3 ppm Steady State 3.1 ppm	Clear 83 degrees
3/28/2017	9:00	Outside GWTP Office	4470 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 66 degrees
3/28/2017	9:00	Downwind	4470 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 66 degrees
3/28/2017	9:00	Stripper	4470 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.3 ppm Steady State 6.9 ppm	Cloudy 66 degrees
3/28/2017	14:00	Outside GWTP Office	4390 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 77 degrees
3/28/2017	14:00	Downwind	4390 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 77 degrees
3/28/2017	14:00	Stripper	4390 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm Steady State 7.5 ppm	Cloudy 77 degrees

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/4/17

Project Number: 60256135.GWTPTRUMAR16

Project Name: LHAAP GWTP

Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RAC 3000</u>		Bulb: <u>11.7</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0710</u>	Time:	Time:
					Initials: <u>SB</u>	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: <u>TO ZERO</u> <u>SB</u>	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	<u>100ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-242-100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/5/17	Project Name: LHAAP GUTP
Project Number: 60256135.GWPTHRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini RA4 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0720	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/6/17	Project Name: LHAAP GwTP
Project Number: 60256135.GWTPTRJ MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini RA4 3000	Bulb: 10.6 11.7 meV			Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0700	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/10/17

Project Name: LHAAP GUTP

Project Number: 60256135.GWTPTRJ MAR 16

Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RA4 3000</u>		Bulb: <u>11.7</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0640</u>	Time:	Time:
					Initials: <u>SB</u>	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: <u>To zero SB</u>	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	<u>100ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-242-100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/11/17 Project Name: LHAPP GUTP
 Project Number: 60256135.GWPTHRU MAR 16 Recorded By: Scott Beesinger

PID	Model: <u>Mini RA4 3000</u>		Bulb: <u>11.7</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0705</u>	Time:	Time:
					Initials: <u>SB</u>	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: <u>To zero SB</u>	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	<u>100ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-249-100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/12/17	Project Name: LHAAP GUTP
Project Number: 60256135.GWTPTRJ MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini RA4 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0700	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: TO ZERO SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)		NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/3/17	Project Name: LHAAP GWTP
Project Number: 60256/35. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini RAE 3000		Bulb: 11.7 10.5 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0650	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: <u>1/16/17</u>	Project Name: <u>LHAAP GWTP</u>
Project Number: <u>60256/35. GWTP THRU MAR 16</u>	Recorded By: <u>SCOTT BEESINGER</u>

PID	Model: <u>Mini RAE 3000</u> Bulb: <u>11.7</u> <small>10.6 meV</small>				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0700</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>TO ZERO SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	Q2 (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/17/17	Project Name: LHAAP GWTP
Project Number: 60256/35. GWTPTRV MAR16	Recorded By: SCOTT BEESINGER

PID	Model: Mini RAE3000		Bulb: 11:7 10:6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0710	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: TO ZERO SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/18/17 Project Name: LHAAP GWTP
 Project Number: 60256/35. GWTPTRV MAR16 Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RAE3000</u> Bulb: <u>11.7</u> meV				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0700</u>	Time:	Time:
					Initials: <u>SB</u>	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: <u>TO ZERO</u> <u>SB</u>	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/19/17	Project Name: LHAAP GWTP
Project Number: 60256/35. GWTPTRV MAR16	Recorded By: SCOTT BEESINGER

PID	Model: Mini. RAE3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0645	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/20/17 Project Name: LHAAP GWTP
 Project Number: 60256/35. GWTP THRU MAR 16 Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RAE3000</u>		Bulb: <u>11.7</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0715</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>TO ZERO SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/23/17 Project Name: LHAAP GWTP
 Project Number: 60256/35. GWTP THRU MAR 16 Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RAE 3000</u>		Bulb: <u>11.7</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0700</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>TO ZERO SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/24/17 Project Name: LHAAP GWTP
 Project Number: 60256/35. GWTPTRV MAR16 Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RAE3000</u> Bulb: <u>11.7</u> 10.6 meV		Equipment ID #: <u>1112989</u>		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0655</u> Initials: <u>SB</u>	Time: Initials:	Time: Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: <u>TO ZERO</u> Initials: <u>SB</u>	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:		Equipment ID #:		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Parameter	Standard	Exp. Date	Lot #	Time: Initials:	Time: Initials:	Time: Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:		Equipment ID #:		Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Parameter	Standard	Exp. Date	Lot #	Time: Initials:	Time: Initials:	Time: Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/25/17 Project Name: LHAAP GWTP
 Project Number: 60256/35. GWTP THRU MAR 16 Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RAE3000</u> Bulb: <u>11.7</u> <small>10.6 meV</small>				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0705</u>	Time:	Time:
					Initials: <u>SB</u>	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: <u>TO ZERO</u> <u>SB</u>	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/26/17	Project Name: LHAAP GWTP
Project Number: 60256/35. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: MINI 14E 3000		Bulb: 11.7 10.6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0650	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: TO ZERO SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/27/17 Project Name: LHAAP GWTP
 Project Number: 60256/35. GWTP THRU MAR 16 Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini RAE 3000</u>		Bulb: <u>11.7</u> <u>10.6 meV</u>		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0700</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>TO ZERO SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/30/17

Project Number: 60256/35. GWTPTHRU MAR 16

Project Name: LHAAP GWTP

Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini 14E 3000</u>		Bulb: <u>11.7</u> 10.6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0700</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u> Value: <u>To zero SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 1/31/17

Project Number: 60256/35. GWTPTRV MAR16

Project Name: LHAAP GWTP

Recorded By: SCOTT BEESINGER

PID	Model: <u>Mini 14E 3000</u>		Bulb: <u>11.7</u> <u>10.6 meV</u>		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0710</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>TO ZERO</u> <u>SB</u>	Value:	Value:
					Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/1/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini. RAE 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0650	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: TO ZERO SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/2/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MARIB	Recorded By: SCOTT BEESINGER

PID	Model: Mini. RAE 3000		Bulb: 10.0 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989				Time: 0700	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/3/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MARIB	Recorded By: SCOTT BEESINGER

PID	Model: Mini RAE 3000		Bulb: 10.6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0715	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/6/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini. RAE 3000		Bulb: 10eV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989				Time: 0705	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG	
Date: 2/7/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini RAE 3000	Bulb: He³			Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989				Time: 0700	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:	Equipment ID #:			Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:	Equipment ID #:			Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/10/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP TRU MARIB	Recorded By: SCOTT BEESINGER

PID	Model: Mini RAE 3000	Bulb: ^{10}B meV			Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989	Parameter	Standard	Exp. Date				Lot #
					Time: 0645	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248- 100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:	Parameter	Standard	Exp. Date				Lot #
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:	Parameter	Standard	Exp. Date				Lot #
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG					
Date: 2/13/17	Project Name: LHAAP GWTP				
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER				

PID	Model: Mini. RAE 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0710	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:
					Initials: SB	Initials:	Initials:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:
					Initials:	Initials:	Initials:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

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EQUIPMENT CALIBRATION DAILY LOG					
Date: <u>2/14/17</u>			Project Name: <u>LHAAP GWTP</u>		
Project Number: <u>60256135. GWTP THRU MAR 16</u>			Recorded By: <u>SCOTT BEESINGER</u>		

PID	Model: <u>Mini. RAE 3000</u>		Bulb: <u>H₂</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>				Time: <u>0655</u>	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: <u>SB</u>	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: <u>TO ZERO</u> <u>SB</u>	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	<u>100ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248</u> <u>100-4</u>	Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/17/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: Mini RAE 3000 Bulb: 11.7 meV				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0710	Time:	Time:
				Initials: SB	Initials:	Initials:	
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/20/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: Scott Beersinger

PID	Model: MiniRate 3000		Bulb: 40.6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0650	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: <u>2/21/17</u>	Project Name: <u>LHAAP GWTP</u>
Project Number: <u>60256135. GWTP THRU MAR 16</u>	Recorded By: <u>Scott Bessinger</u>

PID	Model: <u>MiniRae 3000</u>		Bulb: <u>4.6 meV</u>		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0700</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>To zero SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/24/17 Project Name: LHAAP GWTP
 Project Number: 60256135. GWTP THRU MAR 16 Recorded By: Scott Beesinger

PID	Model: <u>MiniRAE 3000</u>		Bulb: <u>4.7</u> <u>10.6 meV</u>		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0700</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>To zero SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/27/17

Project Number: 60256135. GWPTTHRU MAR 16

Project Name: LHAAP GWTP

Recorded By: Scott Beersinger

PID	Model: <u>MiniRae 3000</u>		Bulb: <u>16.7</u>		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0645</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>To zero SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/28/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: Scott Beesinger

PID	Model: MiniRAE 3000		Bulb: 4.67 10.0 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0710	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: To zero SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/3/17	Project Name: LHAAP GWTP
Project Number: 60256/35. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: M.I.N. RAE 3000 Bulb: 11.7 10.6 meV				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0650	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/6/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: M.I.N. PAF 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0700	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/7/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: Scott BEESINGER

PID	Model: MIN. PAA 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0700	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: TO ZERO SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/10/17	Project Name: LHAAP GWTP
Project Number: 6025635. GWTP TRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: MIN. PAF 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989				Time: 0645	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration	O ₂ (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/13/17 Project Name: LHAAP GWTP
 Project Number: 60256135. GWTP THRU MAR 16 Recorded By: Scott BESSINGER

PID	Model: <u>MiN. RA4 3000</u>		Bulb: <u>11.7</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
	Parameter	Standard	Exp. Date	Lot #	Time: <u>0715</u>	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>TO ZERO</u> <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/17/17	Project Name: LHAAP GWTP
Project Number: 6025635. GWTP THRU MAR 16	Recorded By: SCOTT BEESINGER

PID	Model: MIN. PAA 3000		Bulb: 4.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0700	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: TO ZERO SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/20/17	Project Name: LHAAP GWTP
Project Number: 60256135. GWTP THRU MAR 16	Recorded By: SCOTT BESSINGER

PID	Model: MiN. PAF 3000		Bulb: 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 0655	Time:	Time:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: SB	Initials:	Initials:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: TO ZERO SB	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration	O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
First Point Calibration (Auto)	pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 3/28/17 Project Name: LHAAP GWTP
 Project Number: 60256135. GWTP THRU MAR 16 Recorded By: SCOTT BEESINGER

PID	Model: <u>MIN. PAA 3000</u>		Bulb: <u>4.7</u> meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: <u>1112989</u>						
First Point Calibration	Parameter	Standard	Exp. Date	Lot #	Time: <u>0710</u>	Time:	Time:
		Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Initials: <u>SB</u>	Initials:
	Vapor conc. (ppm)	<u>100 ppm</u> (isobutylene)	<u>2/6/19</u>	<u>CAP-248-100-4</u>	Value: <u>TO ZERO</u> <u>SB</u>	Value:	Value:
	Vapor conc. (ppm)				Value: <u>SB</u>	Value:	Value:

COMB. GAS/O ₂ METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
First Point Calibration	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
		O ₂ (%)				Initials:	Initials:	Initials:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
First Point Calibration (Auto)	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
		pH	4.00			Initials:	Initials:	Initials:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

Attachment C

**Air Analytical Laboratory
Report**



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

April 20, 2017

Linda Raabe
AECOM
112 E. Pecan Street Suite 400
San Antonio, TX 78205

RE: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

Dear Linda:

Enclosed are the results of the samples submitted to our laboratory on April 3, 2017. For your reference, these analyses have been assigned our service request number P1701582.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Kate Kaneko at 12:41 pm, 04/20/17

Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
 Simi Valley, CA 93065
 T: +1 805 526 7161
 F: +1 805 526 7270
www.alsglobal.com

Client: AECOM Service Request No: P1701582
 Project: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

CASE NARRATIVE

The samples were received intact under chain of custody on April 3, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The spike recovery of trichlorofluoromethane and carbon disulfide for the Laboratory Control Sample (LCS) analyzed on April 17, 2017 was outside the Laboratory generated control criterion. The recovery error equates to a potential high bias. However, the spike recovery of the analyte in question was within the method criteria; therefore, the data quality is not significantly affected.

The upper control criterion was exceeded also for 2-hexanone in the Laboratory Control Sample (LCS) analyzed on April 17, 2017. The analyte in question was not detected in the associated field samples. Since the error associated with the elevated recovery equates to a high bias, the sample data has not been significantly affected. The data has been flagged accordingly. No corrective action was required. No corrective action was taken.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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

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



2655 Park Center Dr., Suite A
 Simi Valley, CA 93065
 T: +1 805 526 7161
 F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-004
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA01627201 6-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: AECOM
 Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

Service Request: P1701582

Date Received: 4/3/2017
 Time Received: 09:25

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
LH18/24-AIR-5427-STRIPPER	P1701582-001	Air	3/28/2017	14:00	AC01217	-0.33	3.60	X
LH18/24-AIR-5427-STRIPPER-DUP	P1701582-002	Air	3/28/2017	14:00	SC01889	-0.26	3.54	X
LH18/24-AIR-5427-GWTP	P1701582-003	Air	3/28/2017	16:00	SSC00117	-1.98	3.56	X
LH18/24-AIR-5427-DOWNWIND-NORTH	P1701582-004	Air	3/28/2017	08:00	AC01867	-2.88	3.68	X



Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle:
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day Standard

ALS Project No P1701582

Company Name & Address (Reporting Information) <u>Aecom</u> <u>112 E. PECAN, Suite 400</u> <u>SAN ANTONIO, TX. 78205</u>				Project Name <u>LHARP GWTP</u>				ALS Contact:		Analysis Method	Comments e.g. Actual Preservative or specific instructions
Project Manager <u>ELSPETH SHARP</u>				Project Number <u>60256135, GWTP HRUMAR16</u>				15 10			
Phone <u>210-253-7518</u>		Fax		P.O. # / Billing Information <u>Aecom</u> <u>112 E. PECAN, Suite 400</u> <u>SAN ANTONIO, TX. 78205</u>							
Email Address for Result Reporting <u>Linda.raabe@aecom.com</u>				Sampler (Print & Sign) <u>Scott Beesinger</u> <i>Scott Beesinger</i>							
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume			
<u>1</u> <u>LH8121-Air-5427-Stripper</u>		<u>3/28/17</u>	<u>1400</u>	<u>AC01217</u>		<u>-27</u>	<u>0</u>	<u>6L</u>	<u>✓</u>		
<u>2</u> <u>LH8124-Air-5427-Stripper-Dup</u>		<u>3/28/17</u>	<u>1400</u>	<u>SC01889</u>		<u>-27</u>	<u>0</u>	<u>6L</u>	<u>✓</u>		
<u>3</u> <u>LH8124-Air-5427-GWTP</u>		<u>3/28/17</u>	<u>1600</u>	<u>SC00117</u>	<u>DA02129</u>	<u>-27</u>	<u>-3</u>	<u>6L</u>	<u>✓</u>		
<u>4</u> <u>LH8124-Air-5427-Downwind-North</u>		<u>3/29/17</u>	<u>0800</u>	<u>AC01867</u>	<u>FCR00193</u>	<u>-27</u>	<u>-7</u>	<u>6L</u>	<u>✓</u>		

Report Tier Levels - please select
 Tier I - Results (Default in not specified) _____ Tier III (Results + QC & Calibration Summaries) _____
 Tier II (Results + QC Summaries) _____ Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No _____
 Type: _____ Units: _____

Chain of Custody Seal: (Circle)
 INTACT INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) <u>Scott Beesinger</u>	Date: <u>3/29/17</u>	Time: <u>0820</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>3/29/17</u>	Time: <u>0925</u>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature _____ °C

**ALS Environmental
Sample Acceptance Check Form**

Client: AECOM Work order: P1701582
 Project: LHAAP GWTP / 60256135.GWTPTHRVMAR16
 Sample(s) received on: 4/3/17 Date opened: 4/3/17 by: KKELPE

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|----|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8 | Were custody seals on outside of cooler/Box/Container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9 | Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 | Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1701582-001.01	6.0 L Ambient Can					
P1701582-002.01	6.0 L Source Can					
P1701582-003.01	6.0 L Silonite Can					
P1701582-004.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers): _____

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: AECOM**Client Sample ID:** LH18/24-AIR-5427-STRIPPER**Client Project ID:** LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-001

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 0.0050 Liter(s)

Test Notes:

Container ID: AC01217

Initial Pressure (psig): -0.33 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.27

CAS #	Compound	Result	MRL	Result	MRL	Data Qualifier
		µg/m ³	µg/m ³	ppbV	ppbV	
115-07-1	Propene	ND	130	ND	74	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	130	ND	26	
74-87-3	Chloromethane	ND	130	ND	62	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	130	ND	18	
75-01-4	Vinyl Chloride	420	130	160	50	
106-99-0	1,3-Butadiene	ND	130	ND	57	
74-83-9	Bromomethane	ND	130	ND	33	
75-00-3	Chloroethane	ND	130	ND	48	
64-17-5	Ethanol	ND	1,300	ND	670	
75-05-8	Acetonitrile	ND	130	ND	76	
107-02-8	Acrolein	ND	510	ND	220	
67-64-1	Acetone	ND	1,300	ND	530	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	130	ND	23	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1,300	ND	520	
107-13-1	Acrylonitrile	ND	130	ND	59	
75-35-4	1,1-Dichloroethene	200	130	51	32	
75-09-2	Methylene Chloride	17,000	130	4,800	37	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	130	ND	41	
76-13-1	Trichlorotrifluoroethane (CFC 113)	4,700	130	620	17	
75-15-0	Carbon Disulfide	ND	1,300	ND	410	
156-60-5	trans-1,2-Dichloroethene	ND	130	ND	32	
75-34-3	1,1-Dichloroethane	ND	130	ND	31	
1634-04-4	Methyl tert-Butyl Ether	ND	130	ND	35	
108-05-4	Vinyl Acetate	ND	1,300	ND	360	
78-93-3	2-Butanone (MEK)	ND	1,300	ND	430	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-STRIPPER

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-001

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 0.0050 Liter(s)

Test Notes:

Container ID: AC01217

Initial Pressure (psig): -0.33 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.27

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	9,900	130	2,500	32	
141-78-6	Ethyl Acetate	ND	250	ND	71	
110-54-3	n-Hexane	ND	130	ND	36	
67-66-3	Chloroform	ND	130	ND	26	
109-99-9	Tetrahydrofuran (THF)	ND	130	ND	43	
107-06-2	1,2-Dichloroethane	160	130	38	31	
71-55-6	1,1,1-Trichloroethane	ND	130	ND	23	
71-43-2	Benzene	ND	130	ND	40	
56-23-5	Carbon Tetrachloride	ND	130	ND	20	
110-82-7	Cyclohexane	ND	250	ND	74	
78-87-5	1,2-Dichloropropane	ND	130	ND	27	
75-27-4	Bromodichloromethane	ND	130	ND	19	
79-01-6	Trichloroethene	24,000	130	4,500	24	
123-91-1	1,4-Dioxane	ND	130	ND	35	
80-62-6	Methyl Methacrylate	ND	250	ND	62	
142-82-5	n-Heptane	ND	130	ND	31	
10061-01-5	cis-1,3-Dichloropropene	ND	130	ND	28	
108-10-1	4-Methyl-2-pentanone	ND	130	ND	31	
10061-02-6	trans-1,3-Dichloropropene	ND	130	ND	28	
79-00-5	1,1,2-Trichloroethane	ND	130	ND	23	
108-88-3	Toluene	ND	130	ND	34	
591-78-6	2-Hexanone	ND	130	ND	31	L
124-48-1	Dibromochloromethane	ND	130	ND	15	
106-93-4	1,2-Dibromoethane	ND	130	ND	17	
123-86-4	n-Butyl Acetate	ND	130	ND	27	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM**Client Sample ID:** LH18/24-AIR-5427-STRIPPER**Client Project ID:** LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-001

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 0.0050 Liter(s)

Test Notes:

Container ID: AC01217

Initial Pressure (psig): -0.33 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.27

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	130	ND	27	
127-18-4	Tetrachloroethene	ND	130	ND	19	
108-90-7	Chlorobenzene	ND	130	ND	28	
100-41-4	Ethylbenzene	ND	130	ND	29	
179601-23-1	m,p-Xylenes	ND	250	ND	59	
75-25-2	Bromoform	ND	130	ND	12	
100-42-5	Styrene	ND	130	ND	30	
95-47-6	o-Xylene	ND	130	ND	29	
111-84-2	n-Nonane	ND	130	ND	24	
79-34-5	1,1,2,2-Tetrachloroethane	ND	130	ND	19	
98-82-8	Cumene	ND	130	ND	26	
80-56-8	alpha-Pinene	ND	130	ND	23	
103-65-1	n-Propylbenzene	ND	130	ND	26	
622-96-8	4-Ethyltoluene	ND	130	ND	26	
108-67-8	1,3,5-Trimethylbenzene	ND	130	ND	26	
95-63-6	1,2,4-Trimethylbenzene	ND	130	ND	26	
100-44-7	Benzyl Chloride	ND	130	ND	25	
541-73-1	1,3-Dichlorobenzene	ND	130	ND	21	
106-46-7	1,4-Dichlorobenzene	ND	130	ND	21	
95-50-1	1,2-Dichlorobenzene	ND	130	ND	21	
5989-27-5	d-Limonene	ND	130	ND	23	
96-12-8	1,2-Dibromo-3-chloropropane	ND	130	ND	13	
120-82-1	1,2,4-Trichlorobenzene	ND	130	ND	17	
91-20-3	Naphthalene	ND	130	ND	24	
87-68-3	Hexachlorobutadiene	ND	130	ND	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-STRIPPER-DUP

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-002

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 0.0050 Liter(s)

Test Notes:

Container ID: SC01889

Initial Pressure (psig): -0.26 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.26

CAS #	Compound	Result	MRL	Result	MRL	Data Qualifier
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	ppbV	ppbV	
115-07-1	Propene	ND	130	ND	73	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	130	ND	25	
74-87-3	Chloromethane	ND	130	ND	61	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	130	ND	18	
75-01-4	Vinyl Chloride	420	130	160	49	
106-99-0	1,3-Butadiene	ND	130	ND	57	
74-83-9	Bromomethane	ND	130	ND	32	
75-00-3	Chloroethane	ND	130	ND	48	
64-17-5	Ethanol	ND	1,300	ND	670	
75-05-8	Acetonitrile	ND	130	ND	75	
107-02-8	Acrolein	ND	500	ND	220	
67-64-1	Acetone	ND	1,300	ND	530	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	130	ND	22	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1,300	ND	510	
107-13-1	Acrylonitrile	ND	130	ND	58	
75-35-4	1,1-Dichloroethene	190	130	48	32	
75-09-2	Methylene Chloride	16,000	130	4,700	36	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	130	ND	40	
76-13-1	Trichlorotrifluoroethane (CFC 113)	4,700	130	610	16	
75-15-0	Carbon Disulfide	ND	1,300	ND	400	
156-60-5	trans-1,2-Dichloroethene	ND	130	ND	32	
75-34-3	1,1-Dichloroethane	ND	130	ND	31	
1634-04-4	Methyl tert-Butyl Ether	ND	130	ND	35	
108-05-4	Vinyl Acetate	ND	1,300	ND	360	
78-93-3	2-Butanone (MEK)	ND	1,300	ND	430	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-STRIPPER-DUP

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-002

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 0.0050 Liter(s)

Test Notes:

Container ID: SC01889

Initial Pressure (psig): -0.26 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	9,600	130	2,400	32	
141-78-6	Ethyl Acetate	ND	250	ND	70	
110-54-3	n-Hexane	ND	130	ND	36	
67-66-3	Chloroform	ND	130	ND	26	
109-99-9	Tetrahydrofuran (THF)	ND	130	ND	43	
107-06-2	1,2-Dichloroethane	150	130	38	31	
71-55-6	1,1,1-Trichloroethane	ND	130	ND	23	
71-43-2	Benzene	ND	130	ND	39	
56-23-5	Carbon Tetrachloride	ND	130	ND	20	
110-82-7	Cyclohexane	ND	250	ND	73	
78-87-5	1,2-Dichloropropane	ND	130	ND	27	
75-27-4	Bromodichloromethane	ND	130	ND	19	
79-01-6	Trichloroethene	23,000	130	4,300	23	
123-91-1	1,4-Dioxane	ND	130	ND	35	
80-62-6	Methyl Methacrylate	ND	250	ND	62	
142-82-5	n-Heptane	ND	130	ND	31	
10061-01-5	cis-1,3-Dichloropropene	ND	130	ND	28	
108-10-1	4-Methyl-2-pentanone	ND	130	ND	31	
10061-02-6	trans-1,3-Dichloropropene	ND	130	ND	28	
79-00-5	1,1,2-Trichloroethane	ND	130	ND	23	
108-88-3	Toluene	ND	130	ND	33	
591-78-6	2-Hexanone	ND	130	ND	31	L
124-48-1	Dibromochloromethane	ND	130	ND	15	
106-93-4	1,2-Dibromoethane	ND	130	ND	16	
123-86-4	n-Butyl Acetate	ND	130	ND	27	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM**Client Sample ID:** LH18/24-AIR-5427-STRIPPER-DUP**Client Project ID:** LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-002

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 0.0050 Liter(s)

Test Notes:

Container ID: SC01889

Initial Pressure (psig): -0.26 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	130	ND	27	
127-18-4	Tetrachloroethene	ND	130	ND	19	
108-90-7	Chlorobenzene	ND	130	ND	27	
100-41-4	Ethylbenzene	ND	130	ND	29	
179601-23-1	m,p-Xylenes	ND	250	ND	58	
75-25-2	Bromoform	ND	130	ND	12	
100-42-5	Styrene	ND	130	ND	30	
95-47-6	o-Xylene	ND	130	ND	29	
111-84-2	n-Nonane	ND	130	ND	24	
79-34-5	1,1,2,2-Tetrachloroethane	ND	130	ND	18	
98-82-8	Cumene	ND	130	ND	26	
80-56-8	alpha-Pinene	ND	130	ND	23	
103-65-1	n-Propylbenzene	ND	130	ND	26	
622-96-8	4-Ethyltoluene	ND	130	ND	26	
108-67-8	1,3,5-Trimethylbenzene	ND	130	ND	26	
95-63-6	1,2,4-Trimethylbenzene	ND	130	ND	26	
100-44-7	Benzyl Chloride	ND	130	ND	24	
541-73-1	1,3-Dichlorobenzene	ND	130	ND	21	
106-46-7	1,4-Dichlorobenzene	ND	130	ND	21	
95-50-1	1,2-Dichlorobenzene	ND	130	ND	21	
5989-27-5	d-Limonene	ND	130	ND	23	
96-12-8	1,2-Dibromo-3-chloropropane	ND	130	ND	13	
120-82-1	1,2,4-Trichlorobenzene	ND	130	ND	17	
91-20-3	Naphthalene	ND	130	ND	24	
87-68-3	Hexachlorobutadiene	ND	130	ND	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-GWTP

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-003

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Silonite Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: SSC00117

Initial Pressure (psig): -1.98 Final Pressure (psig): 3.56

Canister Dilution Factor: 1.44

CAS #	Compound	Result	MRL	Result	MRL	Data Qualifier
		µg/m ³	µg/m ³	ppbV	ppbV	
115-07-1	Propene	ND	0.72	ND	0.42	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.6	0.72	0.52	0.15	
74-87-3	Chloromethane	ND	0.72	ND	0.35	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.72	ND	0.10	
75-01-4	Vinyl Chloride	ND	0.72	ND	0.28	
106-99-0	1,3-Butadiene	ND	0.72	ND	0.33	
74-83-9	Bromomethane	ND	0.72	ND	0.19	
75-00-3	Chloroethane	ND	0.72	ND	0.27	
64-17-5	Ethanol	18	7.2	9.8	3.8	
75-05-8	Acetonitrile	ND	0.72	ND	0.43	
107-02-8	Acrolein	ND	2.9	ND	1.3	
67-64-1	Acetone	18	7.2	7.7	3.0	
75-69-4	Trichlorofluoromethane (CFC 11)	1.4	0.72	0.24	0.13	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	7.2	ND	2.9	
107-13-1	Acrylonitrile	ND	0.72	ND	0.33	
75-35-4	1,1-Dichloroethene	ND	0.72	ND	0.18	
75-09-2	Methylene Chloride	6.6	0.72	1.9	0.21	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.72	ND	0.23	
76-13-1	Trichlorotrifluoroethane (CFC 113)	10	0.72	1.3	0.094	
75-15-0	Carbon Disulfide	ND	7.2	ND	2.3	
156-60-5	trans-1,2-Dichloroethene	ND	0.72	ND	0.18	
75-34-3	1,1-Dichloroethane	ND	0.72	ND	0.18	
1634-04-4	Methyl tert-Butyl Ether	ND	0.72	ND	0.20	
108-05-4	Vinyl Acetate	ND	7.2	ND	2.0	
78-93-3	2-Butanone (MEK)	ND	7.2	ND	2.4	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-GWTP

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-003

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Silonite Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: SSC00117

Initial Pressure (psig): -1.98 Final Pressure (psig): 3.56

Canister Dilution Factor: 1.44

CAS #	Compound	Result $\mu\text{g}/\text{m}^3$	MRL $\mu\text{g}/\text{m}^3$	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	5.1	0.72	1.3	0.18	
141-78-6	Ethyl Acetate	ND	1.4	ND	0.40	
110-54-3	n-Hexane	2.3	0.72	0.66	0.20	
67-66-3	Chloroform	ND	0.72	ND	0.15	
109-99-9	Tetrahydrofuran (THF)	6.3	0.72	2.1	0.24	
107-06-2	1,2-Dichloroethane	ND	0.72	ND	0.18	
71-55-6	1,1,1-Trichloroethane	ND	0.72	ND	0.13	
71-43-2	Benzene	1.1	0.72	0.33	0.23	
56-23-5	Carbon Tetrachloride	ND	0.72	ND	0.11	
110-82-7	Cyclohexane	ND	1.4	ND	0.42	
78-87-5	1,2-Dichloropropane	ND	0.72	ND	0.16	
75-27-4	Bromodichloromethane	ND	0.72	ND	0.11	
79-01-6	Trichloroethene	18	0.72	3.3	0.13	
123-91-1	1,4-Dioxane	ND	0.72	ND	0.20	
80-62-6	Methyl Methacrylate	ND	1.4	ND	0.35	
142-82-5	n-Heptane	1.0	0.72	0.26	0.18	
10061-01-5	cis-1,3-Dichloropropene	ND	0.72	ND	0.16	
108-10-1	4-Methyl-2-pentanone	ND	0.72	ND	0.18	
10061-02-6	trans-1,3-Dichloropropene	ND	0.72	ND	0.16	
79-00-5	1,1,2-Trichloroethane	ND	0.72	ND	0.13	
108-88-3	Toluene	2.1	0.72	0.57	0.19	
591-78-6	2-Hexanone	ND	0.72	ND	0.18	L
124-48-1	Dibromochloromethane	ND	0.72	ND	0.085	
106-93-4	1,2-Dibromoethane	ND	0.72	ND	0.094	
123-86-4	n-Butyl Acetate	ND	0.72	ND	0.15	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-GWTP

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-003

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Silonite Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: SSC00117

Initial Pressure (psig): -1.98 Final Pressure (psig): 3.56

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.72	ND	0.15	
127-18-4	Tetrachloroethene	ND	0.72	ND	0.11	
108-90-7	Chlorobenzene	ND	0.72	ND	0.16	
100-41-4	Ethylbenzene	ND	0.72	ND	0.17	
179601-23-1	m,p-Xylenes	ND	1.4	ND	0.33	
75-25-2	Bromoform	ND	0.72	ND	0.070	
100-42-5	Styrene	ND	0.72	ND	0.17	
95-47-6	o-Xylene	ND	0.72	ND	0.17	
111-84-2	n-Nonane	ND	0.72	ND	0.14	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.72	ND	0.10	
98-82-8	Cumene	ND	0.72	ND	0.15	
80-56-8	alpha-Pinene	0.92	0.72	0.17	0.13	
103-65-1	n-Propylbenzene	ND	0.72	ND	0.15	
622-96-8	4-Ethyltoluene	ND	0.72	ND	0.15	
108-67-8	1,3,5-Trimethylbenzene	ND	0.72	ND	0.15	
95-63-6	1,2,4-Trimethylbenzene	0.73	0.72	0.15	0.15	
100-44-7	Benzyl Chloride	ND	0.72	ND	0.14	
541-73-1	1,3-Dichlorobenzene	ND	0.72	ND	0.12	
106-46-7	1,4-Dichlorobenzene	ND	0.72	ND	0.12	
95-50-1	1,2-Dichlorobenzene	ND	0.72	ND	0.12	
5989-27-5	d-Limonene	ND	0.72	ND	0.13	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.72	ND	0.075	
120-82-1	1,2,4-Trichlorobenzene	ND	0.72	ND	0.097	
91-20-3	Naphthalene	ND	0.72	ND	0.14	
87-68-3	Hexachlorobutadiene	ND	0.72	ND	0.068	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-DOWNWIND-NORTH

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-004

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: AC01867

Initial Pressure (psig): -2.88 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.55

CAS #	Compound	Result	MRL	Result	MRL	Data Qualifier
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	ppbV	ppbV	
115-07-1	Propene	ND	0.78	ND	0.45	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.5	0.78	0.50	0.16	
74-87-3	Chloromethane	ND	0.78	ND	0.38	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.78	ND	0.11	
75-01-4	Vinyl Chloride	ND	0.78	ND	0.30	
106-99-0	1,3-Butadiene	ND	0.78	ND	0.35	
74-83-9	Bromomethane	ND	0.78	ND	0.20	
75-00-3	Chloroethane	ND	0.78	ND	0.29	
64-17-5	Ethanol	ND	7.8	ND	4.1	
75-05-8	Acetonitrile	ND	0.78	ND	0.46	
107-02-8	Acrolein	ND	3.1	ND	1.4	
67-64-1	Acetone	ND	7.8	ND	3.3	
75-69-4	Trichlorofluoromethane (CFC 11)	1.3	0.78	0.22	0.14	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	7.8	ND	3.2	
107-13-1	Acrylonitrile	ND	0.78	ND	0.36	
75-35-4	1,1-Dichloroethene	ND	0.78	ND	0.20	
75-09-2	Methylene Chloride	ND	0.78	ND	0.22	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.78	ND	0.25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	9.6	0.78	1.3	0.10	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
156-60-5	trans-1,2-Dichloroethene	ND	0.78	ND	0.20	
75-34-3	1,1-Dichloroethane	ND	0.78	ND	0.19	
1634-04-4	Methyl tert-Butyl Ether	ND	0.78	ND	0.22	
108-05-4	Vinyl Acetate	ND	7.8	ND	2.2	
78-93-3	2-Butanone (MEK)	ND	7.8	ND	2.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-DOWNWIND-NORTH

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-004

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: AC01867

Initial Pressure (psig): -2.88 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.55

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.78	ND	0.20	
141-78-6	Ethyl Acetate	ND	1.6	ND	0.43	
110-54-3	n-Hexane	0.83	0.78	0.24	0.22	
67-66-3	Chloroform	ND	0.78	ND	0.16	
109-99-9	Tetrahydrofuran (THF)	ND	0.78	ND	0.26	
107-06-2	1,2-Dichloroethane	ND	0.78	ND	0.19	
71-55-6	1,1,1-Trichloroethane	ND	0.78	ND	0.14	
71-43-2	Benzene	ND	0.78	ND	0.24	
56-23-5	Carbon Tetrachloride	ND	0.78	ND	0.12	
110-82-7	Cyclohexane	ND	1.6	ND	0.45	
78-87-5	1,2-Dichloropropane	ND	0.78	ND	0.17	
75-27-4	Bromodichloromethane	ND	0.78	ND	0.12	
79-01-6	Trichloroethene	ND	0.78	ND	0.14	
123-91-1	1,4-Dioxane	ND	0.78	ND	0.22	
80-62-6	Methyl Methacrylate	ND	1.6	ND	0.38	
142-82-5	n-Heptane	ND	0.78	ND	0.19	
10061-01-5	cis-1,3-Dichloropropene	ND	0.78	ND	0.17	
108-10-1	4-Methyl-2-pentanone	ND	0.78	ND	0.19	
10061-02-6	trans-1,3-Dichloropropene	ND	0.78	ND	0.17	
79-00-5	1,1,2-Trichloroethane	ND	0.78	ND	0.14	
108-88-3	Toluene	ND	0.78	ND	0.21	
591-78-6	2-Hexanone	ND	0.78	ND	0.19	L
124-48-1	Dibromochloromethane	ND	0.78	ND	0.091	
106-93-4	1,2-Dibromoethane	ND	0.78	ND	0.10	
123-86-4	n-Butyl Acetate	ND	0.78	ND	0.16	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM

Client Sample ID: LH18/24-AIR-5427-DOWNWIND-NORTH

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P1701582-004

Test Code: EPA TO-15

Date Collected: 3/28/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Date Received: 4/3/17

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: AC01867

Initial Pressure (psig): -2.88 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.55

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.78	ND	0.17	
127-18-4	Tetrachloroethene	ND	0.78	ND	0.11	
108-90-7	Chlorobenzene	ND	0.78	ND	0.17	
100-41-4	Ethylbenzene	ND	0.78	ND	0.18	
179601-23-1	m,p-Xylenes	ND	1.6	ND	0.36	
75-25-2	Bromoform	ND	0.78	ND	0.075	
100-42-5	Styrene	ND	0.78	ND	0.18	
95-47-6	o-Xylene	ND	0.78	ND	0.18	
111-84-2	n-Nonane	ND	0.78	ND	0.15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.78	ND	0.11	
98-82-8	Cumene	ND	0.78	ND	0.16	
80-56-8	alpha-Pinene	0.92	0.78	0.17	0.14	
103-65-1	n-Propylbenzene	ND	0.78	ND	0.16	
622-96-8	4-Ethyltoluene	ND	0.78	ND	0.16	
108-67-8	1,3,5-Trimethylbenzene	ND	0.78	ND	0.16	
95-63-6	1,2,4-Trimethylbenzene	ND	0.78	ND	0.16	
100-44-7	Benzyl Chloride	ND	0.78	ND	0.15	
541-73-1	1,3-Dichlorobenzene	ND	0.78	ND	0.13	
106-46-7	1,4-Dichlorobenzene	ND	0.78	ND	0.13	
95-50-1	1,2-Dichlorobenzene	ND	0.78	ND	0.13	
5989-27-5	d-Limonene	ND	0.78	ND	0.14	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.78	ND	0.080	
120-82-1	1,2,4-Trichlorobenzene	ND	0.78	ND	0.10	
91-20-3	Naphthalene	ND	0.78	ND	0.15	
87-68-3	Hexachlorobutadiene	ND	0.78	ND	0.073	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM
Client Sample ID: Method Blank
Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582
 ALS Sample ID: P170417-MB

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 4/17/17
 Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result	MRL	Result	MRL	Data Qualifier
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	ppbV	ppbV	
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM
Client Sample ID: Method Blank
Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582
 ALS Sample ID: P170417-MB

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
 Analyst: Wida Ang
 Sample Type: 6.0 L Summa Canister
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 4/17/17
 Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	L
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: AECOM**Client Sample ID:** Method Blank**Client Project ID:** LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

ALS Sample ID: P170417-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Wida Ang

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 4/17/17

Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: AECOM
Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 3/28/17

Date(s) Received: 4/3/17

Date(s) Analyzed: 4/17/17

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P170417-MB	106	101	92	70-130	
Lab Control Sample	P170417-LCS	105	100	93	70-130	
LH18/24-AIR-5427-STRIPPER	P1701582-001	106	101	91	70-130	
LH18/24-AIR-5427-STRIPPER-DUP	P1701582-002	107	99	91	70-130	
LH18/24-AIR-5427-GWTP	P1701582-003	109	101	91	70-130	
LH18/24-AIR-5427-DOWNWIND-NORTH	P1701582-004	107	100	91	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: AECOM
Client Sample ID: Lab Control Sample
Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582
ALS Sample ID: P170417-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/17/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount $\mu\text{g}/\text{m}^3$	Result $\mu\text{g}/\text{m}^3$	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
115-07-1	Propene	210	248	118	52-127	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	212	101	68-109	
74-87-3	Chloromethane	210	237	113	51-130	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	189	90	66-114	
75-01-4	Vinyl Chloride	210	213	101	61-125	
106-99-0	1,3-Butadiene	210	234	111	62-144	
74-83-9	Bromomethane	210	226	108	73-123	
75-00-3	Chloroethane	210	234	111	69-122	
64-17-5	Ethanol	1,060	1190	112	62-124	
75-05-8	Acetonitrile	213	228	107	57-114	
107-02-8	Acrolein	212	242	114	62-116	
67-64-1	Acetone	1,060	1150	108	57-117	
75-69-4	Trichlorofluoromethane (CFC 11)	210	207	99	63-98	L
67-63-0	2-Propanol (Isopropyl Alcohol)	424	475	112	66-121	
107-13-1	Acrylonitrile	213	251	118	68-123	
75-35-4	1,1-Dichloroethene	213	222	104	76-118	
75-09-2	Methylene Chloride	212	223	105	60-118	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	240	113	65-126	
76-13-1	Trichlorotrifluoroethane (CFC 113)	212	208	98	73-114	
75-15-0	Carbon Disulfide	213	227	107	57-102	L
156-60-5	trans-1,2-Dichloroethene	213	234	110	74-123	
75-34-3	1,1-Dichloroethane	212	220	104	69-111	
1634-04-4	Methyl tert-Butyl Ether	213	214	100	69-113	
108-05-4	Vinyl Acetate	1,060	1120	106	76-128	
78-93-3	2-Butanone (MEK)	212	233	110	63-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result. Reported results are shown in concentration units and as a result of the calculation, may vary slightly. L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: AECOM
Client Sample ID: Lab Control Sample
Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582
ALS Sample ID: P170417-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/17/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
156-59-2	cis-1,2-Dichloroethene	212	228	108	72-117	
141-78-6	Ethyl Acetate	426	531	125	68-127	
110-54-3	n-Hexane	213	217	102	55-116	
67-66-3	Chloroform	212	212	100	70-109	
109-99-9	Tetrahydrofuran (THF)	213	229	108	72-113	
107-06-2	1,2-Dichloroethane	212	221	104	69-113	
71-55-6	1,1,1-Trichloroethane	212	216	102	72-115	
71-43-2	Benzene	212	203	96	65-107	
56-23-5	Carbon Tetrachloride	213	230	108	71-113	
110-82-7	Cyclohexane	425	409	96	71-115	
78-87-5	1,2-Dichloropropane	212	218	103	71-115	
75-27-4	Bromodichloromethane	214	237	111	75-118	
79-01-6	Trichloroethene	212	212	100	68-114	
123-91-1	1,4-Dioxane	213	232	109	81-131	
80-62-6	Methyl Methacrylate	424	476	112	72-130	
142-82-5	n-Heptane	213	212	100	68-116	
10061-01-5	cis-1,3-Dichloropropene	210	249	119	77-126	
108-10-1	4-Methyl-2-pentanone	213	265	124	69-126	
10061-02-6	trans-1,3-Dichloropropene	213	249	117	79-125	
79-00-5	1,1,2-Trichloroethane	212	219	103	75-119	
108-88-3	Toluene	212	206	97	59-118	
591-78-6	2-Hexanone	213	283	133	69-129	L
124-48-1	Dibromochloromethane	213	252	118	74-136	
106-93-4	1,2-Dibromoethane	212	239	113	73-131	
123-86-4	n-Butyl Acetate	216	265	123	69-130	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.
L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: AECOM
Client Sample ID: Lab Control Sample
Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

ALS Project ID: P1701582
ALS Sample ID: P170417-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/17/17
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
111-65-9	n-Octane	212	225	106	66-120	
127-18-4	Tetrachloroethene	213	211	99	65-130	
108-90-7	Chlorobenzene	212	208	98	68-120	
100-41-4	Ethylbenzene	212	221	104	68-122	
179601-23-1	m,p-Xylenes	424	440	104	68-123	
75-25-2	Bromoform	212	248	117	69-130	
100-42-5	Styrene	212	245	116	71-133	
95-47-6	o-Xylene	212	219	103	68-122	
111-84-2	n-Nonane	212	236	111	65-120	
79-34-5	1,1,2,2-Tetrachloroethane	212	225	106	69-130	
98-82-8	Cumene	212	215	101	70-123	
80-56-8	alpha-Pinene	213	227	107	70-128	
103-65-1	n-Propylbenzene	214	225	105	69-125	
622-96-8	4-Ethyltoluene	212	231	109	67-130	
108-67-8	1,3,5-Trimethylbenzene	212	212	100	67-124	
95-63-6	1,2,4-Trimethylbenzene	212	222	105	67-129	
100-44-7	Benzyl Chloride	212	262	124	79-138	
541-73-1	1,3-Dichlorobenzene	212	220	104	65-136	
106-46-7	1,4-Dichlorobenzene	213	216	101	66-141	
95-50-1	1,2-Dichlorobenzene	212	216	102	67-136	
5989-27-5	d-Limonene	212	253	119	71-134	
96-12-8	1,2-Dibromo-3-chloropropane	212	233	110	73-136	
120-82-1	1,2,4-Trichlorobenzene	212	235	111	64-134	
91-20-3	Naphthalene	214	248	116	62-136	
87-68-3	Hexachlorobutadiene	213	208	98	60-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: AECOM

ALS Project ID: P1701582

Client Project ID: LHAAP GWTP / 60256135.0004AE GWTP 16-17 NTVL

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Lab File ID: 04171703.D

Analyst: Wida Ang

Date Analyzed: 4/17/17

Sample Type: 6.0 L Summa Canister(s)

Time Analyzed: 08:05

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
24 Hour Standard	117590	8.80	565104	10.54	253333	14.56
Upper Limit	164626	9.13	791146	10.87	354666	14.89
Lower Limit	70554	8.47	339062	10.21	152000	14.23

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
01	Method Blank	114280	8.80	563271	10.53	252066	14.56
02	Lab Control Sample	123089	8.81	580101	10.54	267131	14.57
03	LH18/24-AIR-5427-STRIPPER-DUP	113992	8.80	549544	10.54	254214	14.56
04	LH18/24-AIR-5427-STRIPPER	114786	8.80	551575	10.54	250887	14.56
05	LH18/24-AIR-5427-GWTP	109098	8.80	541078	10.54	246648	14.57
06	LH18/24-AIR-5427-DOWNWIND-NORTH	110969	8.80	543906	10.53	250990	14.56
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

Data File: I:\MS08\Data\2017 04\17\04171718.D

Acq On : 17 Apr 2017 17:27

Operator: WA

Sample : P1701582-001 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:47:22 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

WA 4/18/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane (IS1)	8.80	130	114786	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.54	114	551575	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	250887	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	219511	13.275	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	106.16%
57) Toluene-d8 (SS2)	12.77	98	596095	12.644	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.12%
73) Bromofluorobenzene (SS3)	16.07	174	175128	11.329	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	90.64%

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	4.52	62	28152	1.651	ng	98
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	0.00	45	0	N.D.		
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	5.91	58	2195	N.D.		
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	6.20	45	7864	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	6.67	96	7842	0.794	ng	93
18) 2-Methyl-2-Propanol (t...	6.68	59	420	N.D.		
19) Methylene Chloride	6.79	84	669102	65.924	ng	93
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	7.07	151	169577	18.691	ng	99
22) Carbon Disulfide	7.07	76	2545	N.D.		
23) trans-1,2-Dichloroethene	7.70	61	1683	N.D.		
24) 1,1-Dichloroethane	7.89	63	3607	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	8.65	61	591622	38.812	ng	95
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	8.92	83	2989	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	9.59	62	10141	0.612	ng	97
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	10.24	78	966	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	11.17	63	3825	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	11.17	130	1071119	94.229	ng	99
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

Data File: I:\MS08\Data\2017 04\17\04171718.D

Acq On : 17 Apr 2017 17:27

Operator: WA

Sample : P1701582-001 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:47:22 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	12.87	91	1382	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	13.95	166	1307	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	15.02	91	500	N.D.		
67) m- & p-Xylenes	15.18	91	1279	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	15.65	91	764	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D.		
78) 4-Ethyltoluene	0.00	105	0	N.D.		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	0.00	128	0	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171718.D

Acq On : 17 Apr 2017 17:27

Operator: WA

Sample : P1701582-001 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:47:22 2017

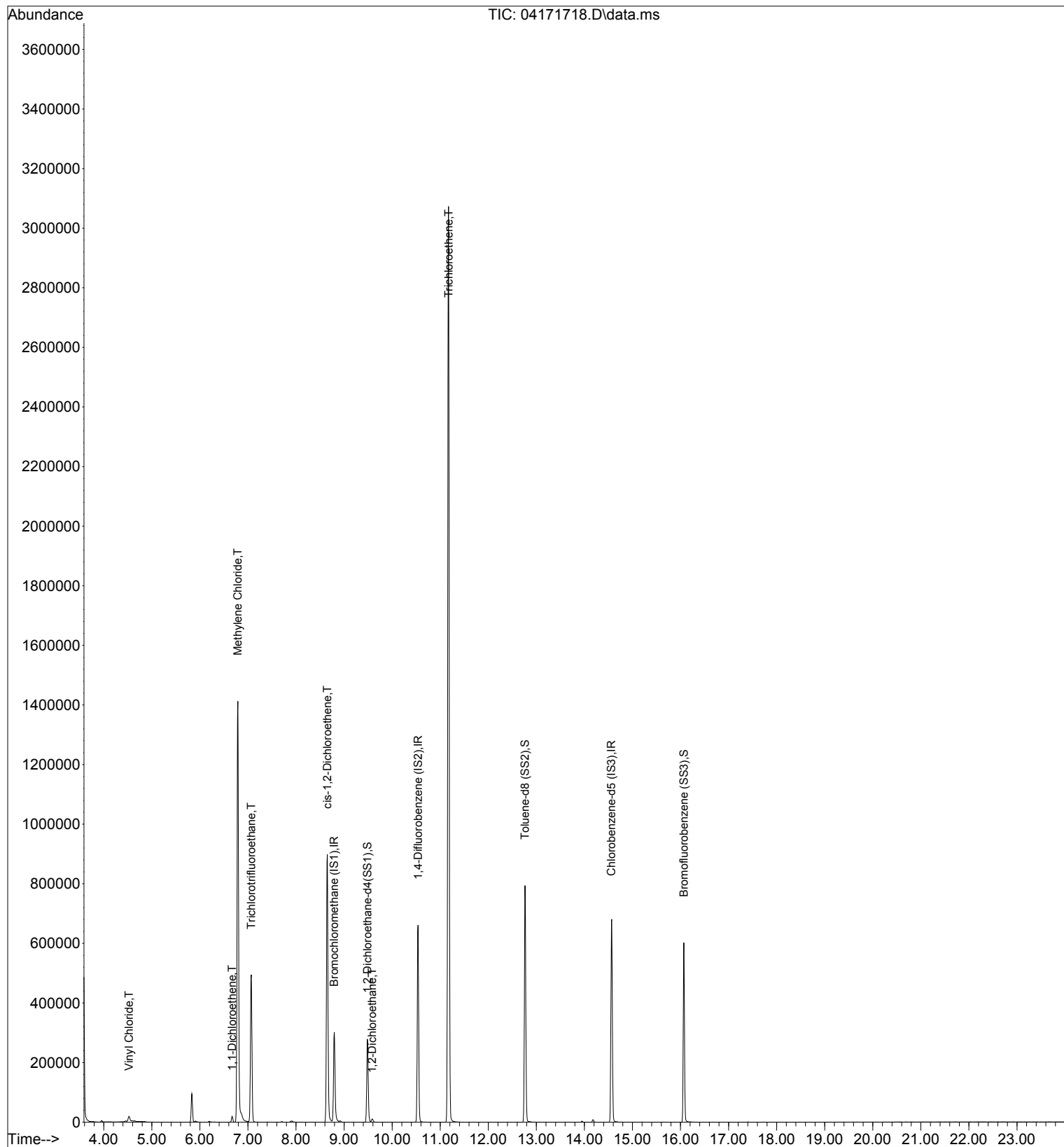
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 04\17\04171718.D

Acq On : 17 Apr 2017 17:27

Operator: WA

Sample : P1701582-001 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:47:22 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

WA 4/18/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	114786	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.54	114	551575	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	250887	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	219511	13.275	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	106.16%
57) Toluene-d8 (SS2)	12.77	98	596095	12.644	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.12%
73) Bromofluorobenzene (SS3)	16.07	174	175128	11.329	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	90.64%

Target Compounds

						Qvalue
6) Vinyl Chloride	4.52	62	28152	1.651	ng	98
17) 1,1-Dichloroethene	6.67	96	7842	0.794	ng	93
19) Methylene Chloride	6.79	84	669102	65.924	ng	93
21) Trichlorotrifluoroethane	7.07	151	169577	18.691	ng	99
28) cis-1,2-Dichloroethene	8.65	61	591622	38.812	ng	95
36) 1,2-Dichloroethane	9.59	62	10141	0.612	ng	97
47) Trichloroethene	11.17	130	1071119	94.229	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171718.D

Acq On : 17 Apr 2017 17:27

Operator: WA

Sample : P1701582-001 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:47:22 2017

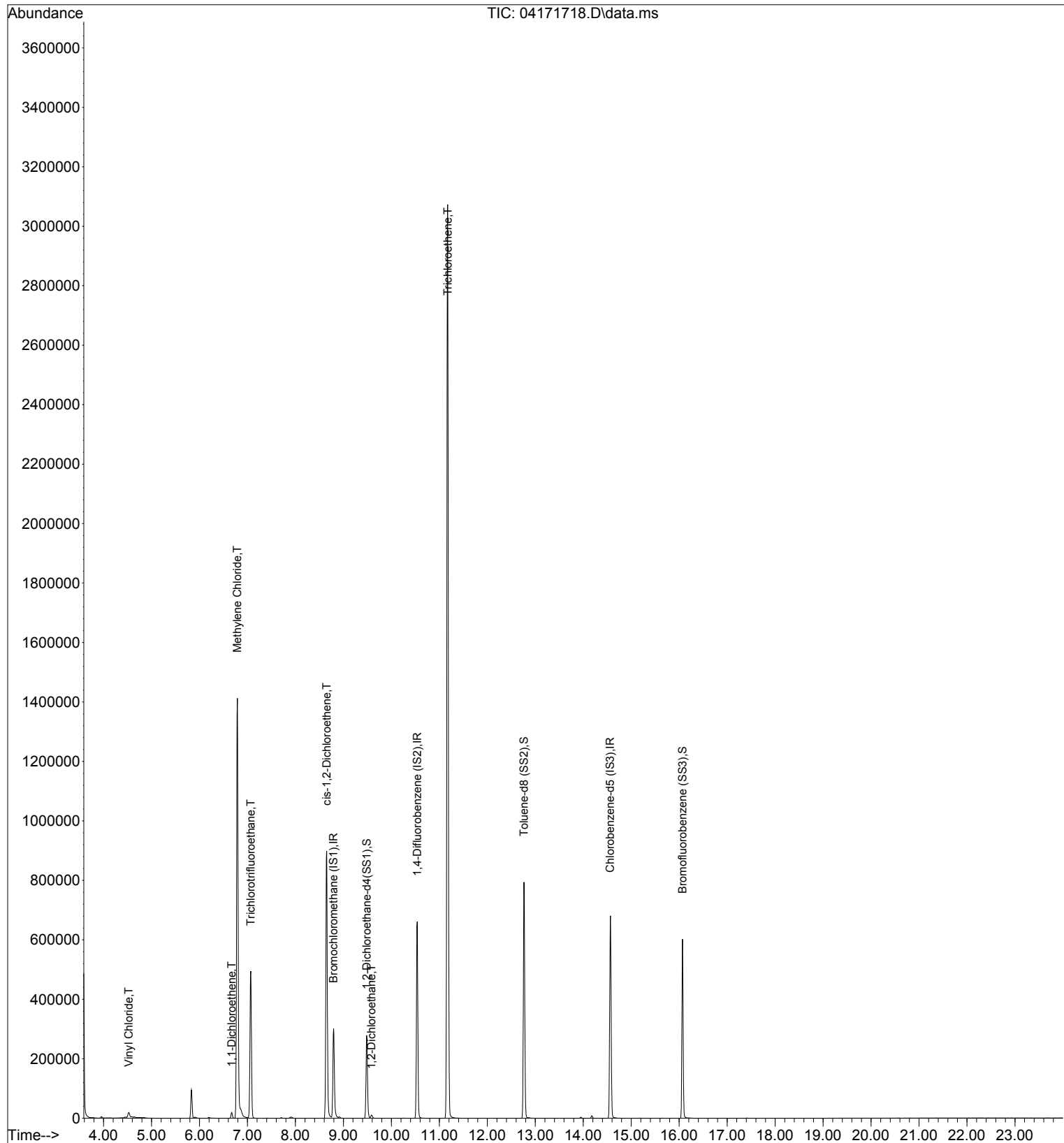
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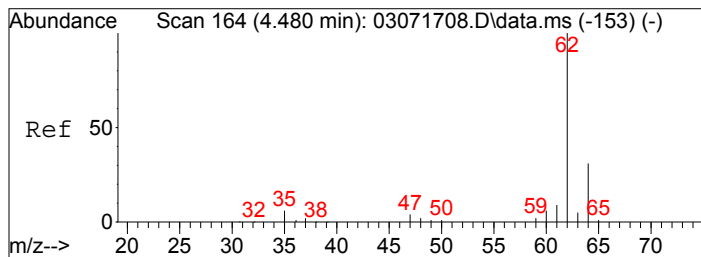
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

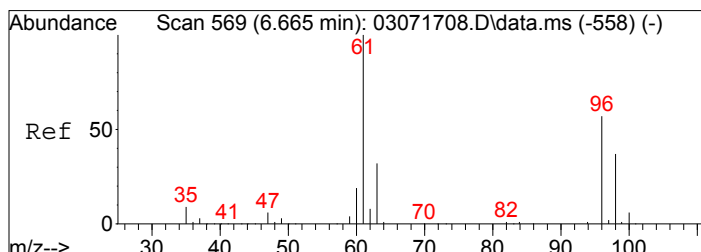
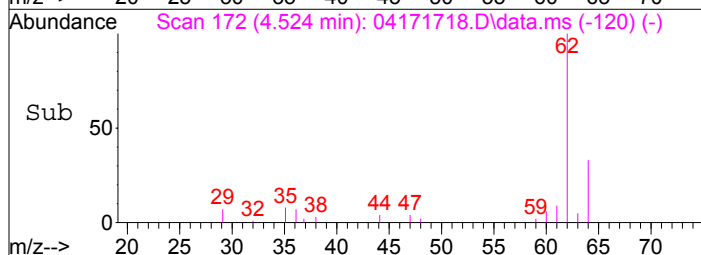
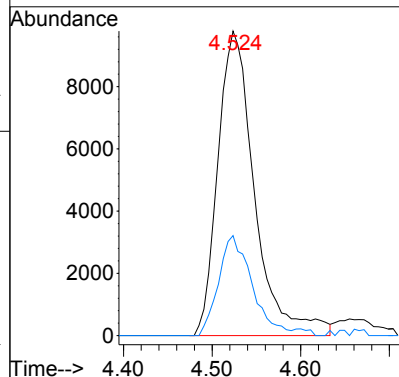
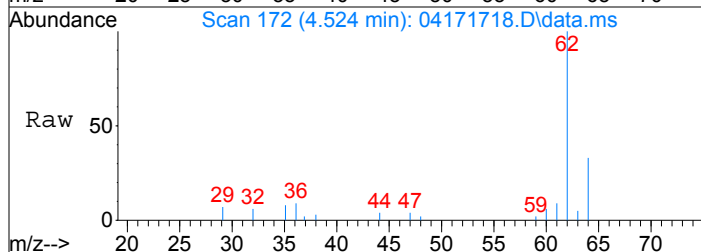
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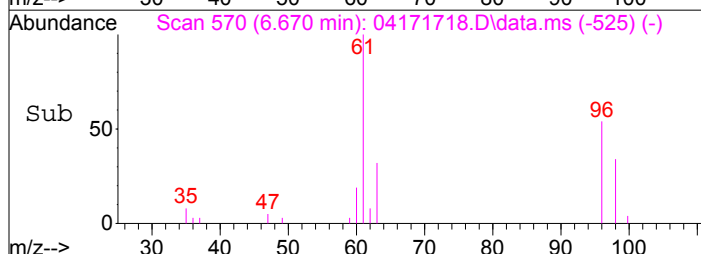
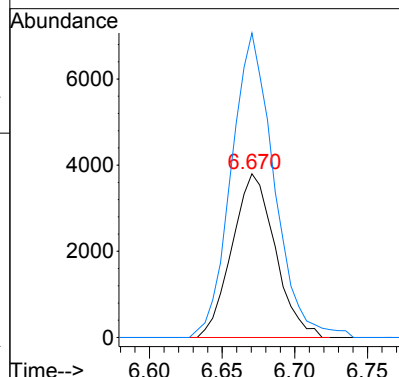
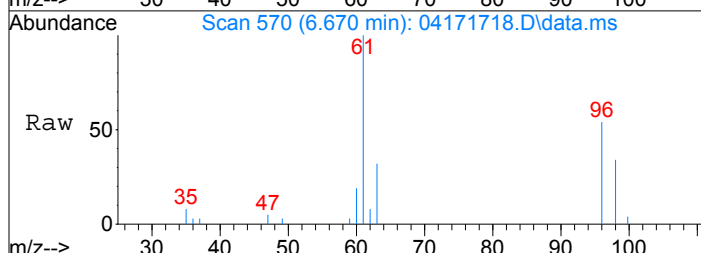
#6
 Vinyl Chloride
 Concen: 1.65 ng
 RT: 4.52 min Scan# 172
 Delta R.T. 0.033 min
 Lab File: 04171718.D
 Acq: 17 Apr 2017 17:27

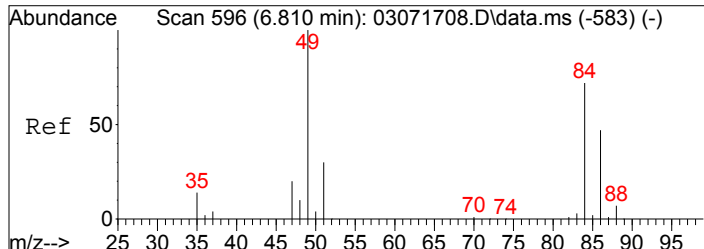
Tgt Ion	Resp	Lower	Upper
62	100		
64	29.8	11.0	51.0



#17
 1,1-Dichloroethene
 Concen: 0.79 ng
 RT: 6.67 min Scan# 570
 Delta R.T. -0.005 min
 Lab File: 04171718.D
 Acq: 17 Apr 2017 17:27

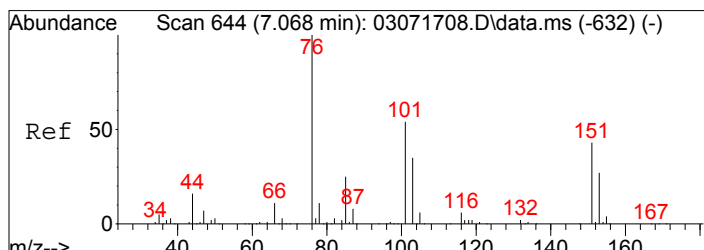
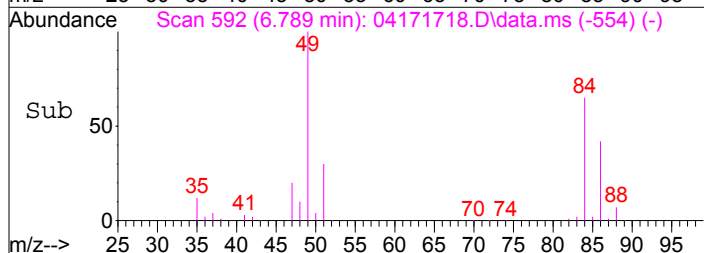
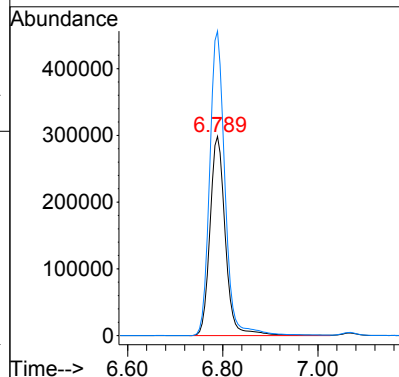
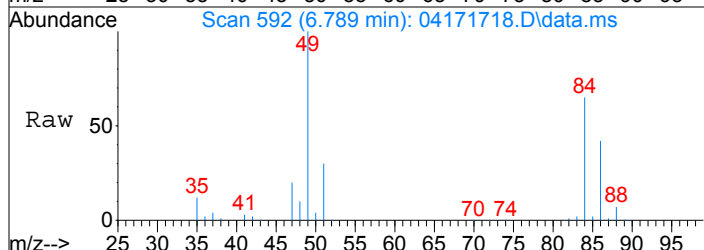
Tgt Ion	Resp	Lower	Upper
96	100		
61	184.9	155.1	195.1





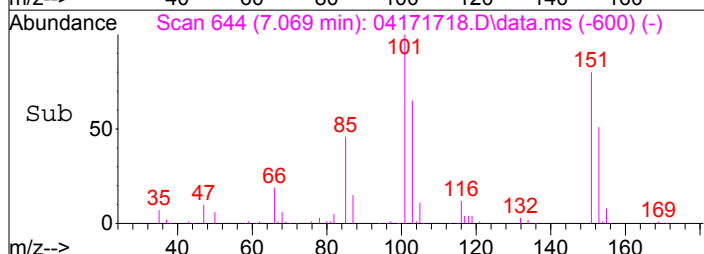
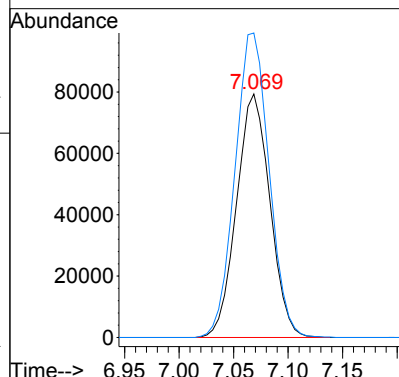
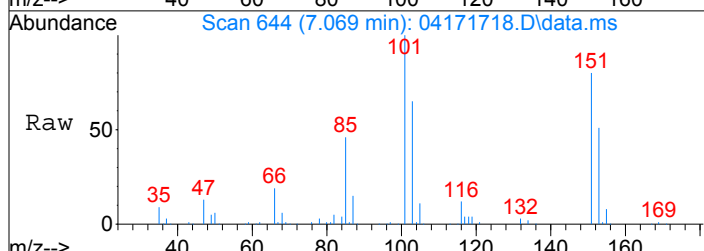
#19
 Methylene Chloride
 Concen: 65.92 ng
 RT: 6.79 min Scan# 592
 Delta R.T. -0.043 min
 Lab File: 04171718.D
 Acq: 17 Apr 2017 17:27

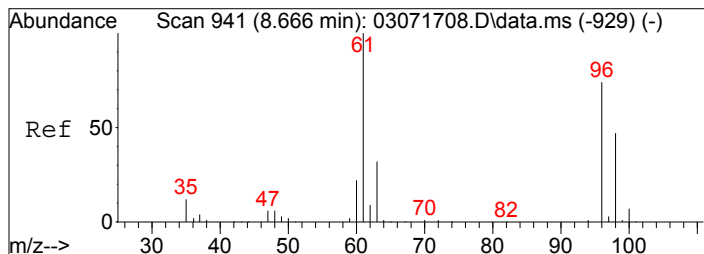
Tgt Ion: 84 Resp: 669102
 Ion Ratio Lower Upper
 84 100
 49 152.3 118.2 168.2



#21
 Trichlorotrifluoroethane
 Concen: 18.69 ng
 RT: 7.07 min Scan# 644
 Delta R.T. -0.011 min
 Lab File: 04171718.D
 Acq: 17 Apr 2017 17:27

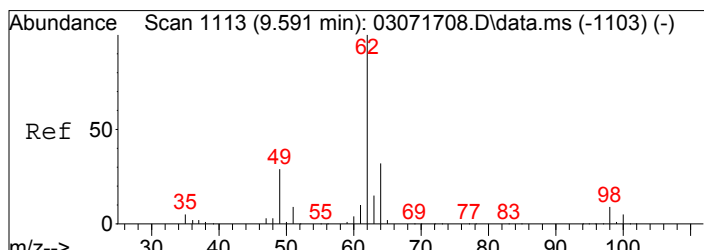
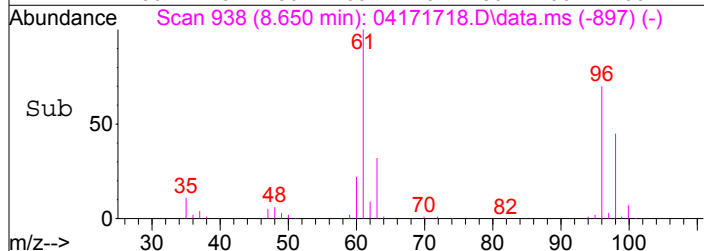
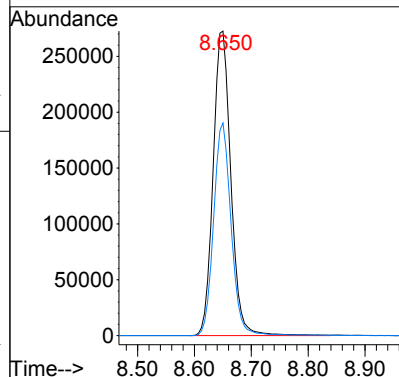
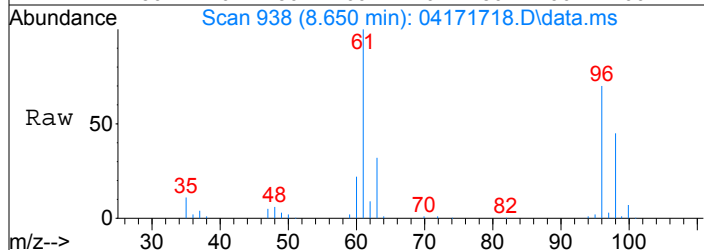
Tgt Ion: 151 Resp: 169577
 Ion Ratio Lower Upper
 151 100
 101 127.6 106.7 146.7





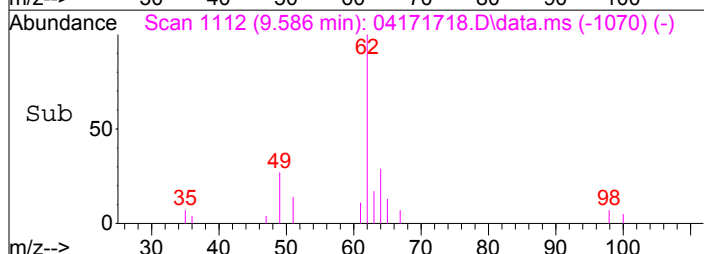
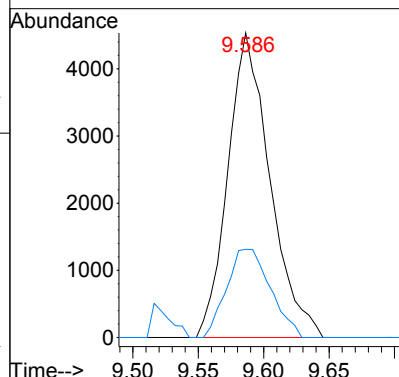
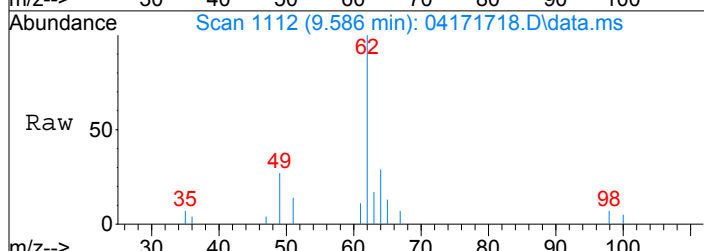
#28
 cis-1,2-Dichloroethene
 Concen: 38.81 ng
 RT: 8.65 min Scan# 938
 Delta R.T. -0.027 min
 Lab File: 04171718.D
 Acq: 17 Apr 2017 17:27

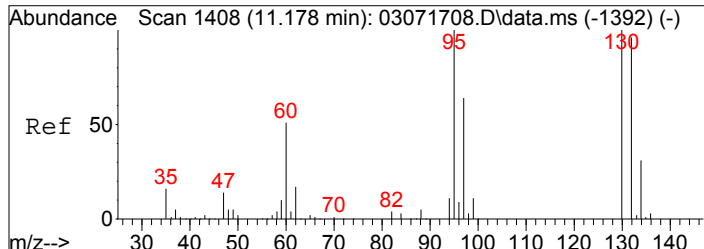
Tgt Ion: 61 Resp: 591622
 Ion Ratio Lower Upper
 61 100
 96 69.0 53.5 93.5



#36
 1,2-Dichloroethane
 Concen: 0.61 ng
 RT: 9.59 min Scan# 1112
 Delta R.T. -0.022 min
 Lab File: 04171718.D
 Acq: 17 Apr 2017 17:27

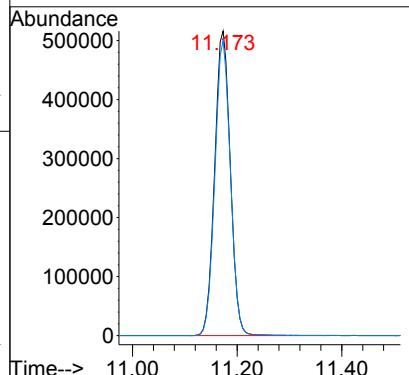
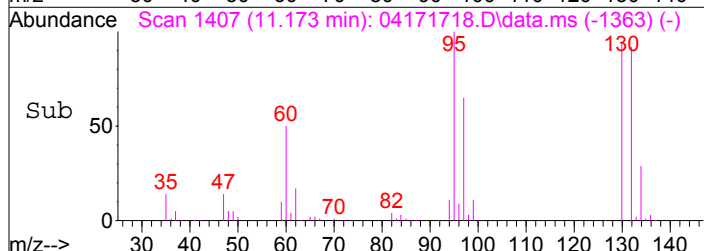
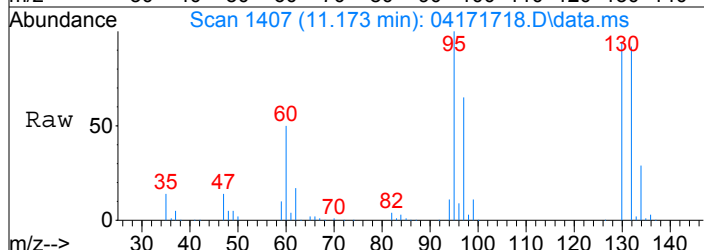
Tgt Ion: 62 Resp: 10141
 Ion Ratio Lower Upper
 62 100
 64 30.2 11.9 51.9





#47
Trichloroethene
Concen: 94.23 ng
RT: 11.17 min Scan# 1407
Delta R.T. -0.011 min
Lab File: 04171718.D
Acq: 17 Apr 2017 17:27

Tgt Ion:130 Resp: 1071119
Ion Ratio Lower Upper
130 100
132 96.2 75.6 115.6



Data File: I:\MS08\Data\2017 04\17\04171717.D

Acq On : 17 Apr 2017 16:55

Operator: WA

Sample : P1701582-002 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:46:29 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

4/18/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Bromochloromethane (IS1)	8.80	130	113992	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.54	114	549544	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	254214	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	219337	13.357	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	106.88%
57) Toluene-d8 (SS2)	12.77	98	592220	12.398	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.20%
73) Bromofluorobenzene (SS3)	16.07	174	178206	11.377	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	91.04%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	4.52	62	27893	1.647	ng	98
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	0.00	45	0	N.D.		
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	5.91	58	2067	N.D.		
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	6.19	45	7854	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	6.66	96	7387	0.753	ng	91
18) 2-Methyl-2-Propanol (t...	6.67	59	352	N.D.		
19) Methylene Chloride	6.78	84	656945	65.177	ng	93
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	7.06	151	166479	18.477	ng	98
22) Carbon Disulfide	7.07	76	2334	N.D.		
23) trans-1,2-Dichloroethene	7.71	61	1466	N.D.		
24) 1,1-Dichloroethane	7.89	63	3322	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	8.64	61	579165	38.259	ng	95
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	8.92	83	2768	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	9.59	62	10036	0.610	ng	99
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	10.24	78	921	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	11.17	63	3716	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	11.17	130	1044924	92.265	ng	99
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

Data File: I:\MS08\Data\2017 04\17\04171717.D

Acq On : 17 Apr 2017 16:55

Operator: WA

Sample : P1701582-002 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:46:29 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	12.87	91	1394	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	13.95	166	1397	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	15.02	91	494	N.D.		
67) m- & p-Xylenes	15.18	91	1273	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	15.64	91	713	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D.		
78) 4-Ethyltoluene	0.00	105	0	N.D.		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	17.41	57	452	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	0.00	128	0	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171717.D

Acq On : 17 Apr 2017 16:55

Operator: WA

Sample : P1701582-002 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:46:29 2017

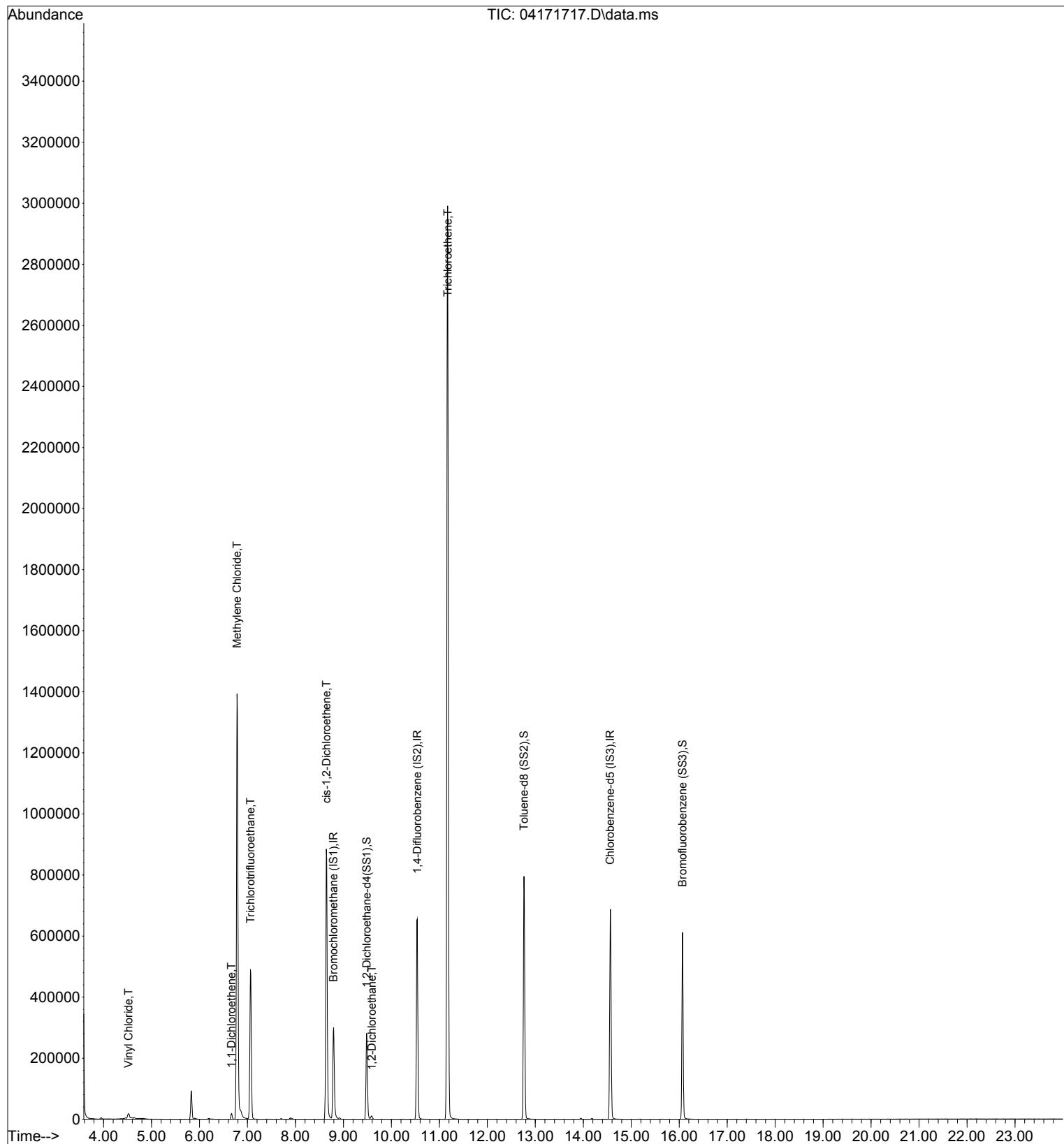
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 04\17\04171717.D

Acq On : 17 Apr 2017 16:55

Operator: WA

Sample : P1701582-002 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:46:29 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

WA 4/18/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	113992	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.54	114	549544	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	254214	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	219337	13.357	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	106.88%
57) Toluene-d8 (SS2)	12.77	98	592220	12.398	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.20%
73) Bromofluorobenzene (SS3)	16.07	174	178206	11.377	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	91.04%

Target Compounds

						Qvalue
6) Vinyl Chloride	4.52	62	27893	1.647	ng	98
17) 1,1-Dichloroethene	6.66	96	7387	0.753	ng	91
19) Methylene Chloride	6.78	84	656945	65.177	ng	93
21) Trichlorotrifluoroethane	7.06	151	166479	18.477	ng	98
28) cis-1,2-Dichloroethene	8.64	61	579165	38.259	ng	95
36) 1,2-Dichloroethane	9.59	62	10036	0.610	ng	99
47) Trichloroethene	11.17	130	1044924	92.265	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171717.D

Acq On : 17 Apr 2017 16:55

Operator: WA

Sample : P1701582-002 (5.0mL)

Misc : S31-04031701

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 18 07:46:29 2017

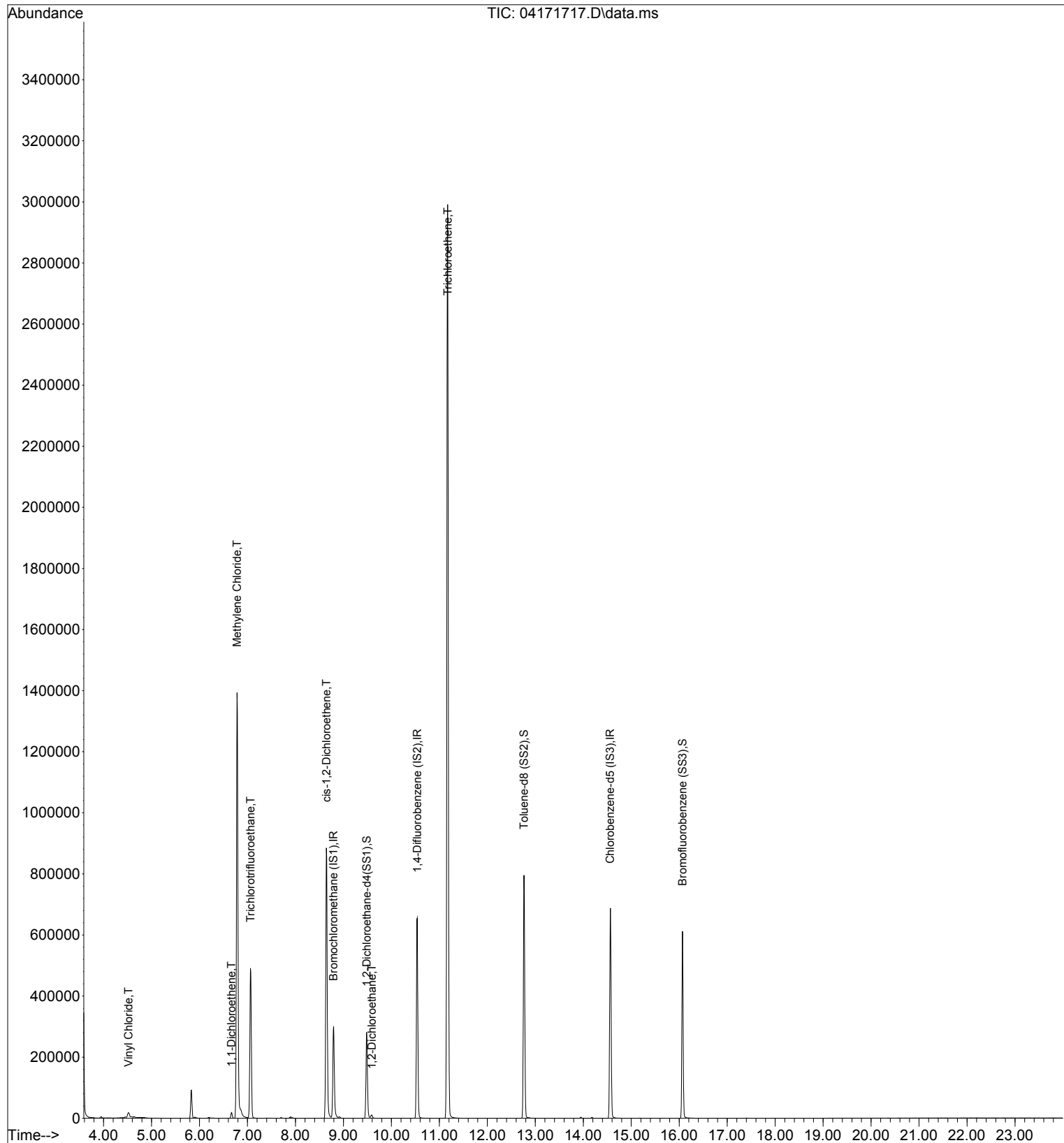
Quant Method : I:\MS08\Methods\R8030717.M

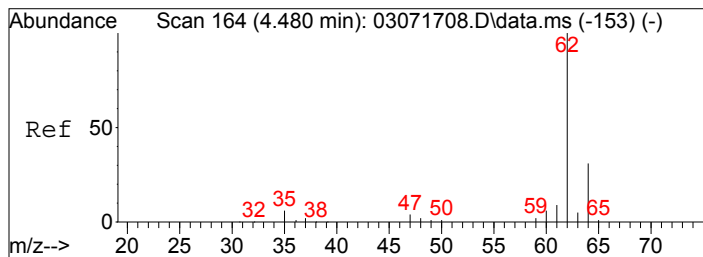
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

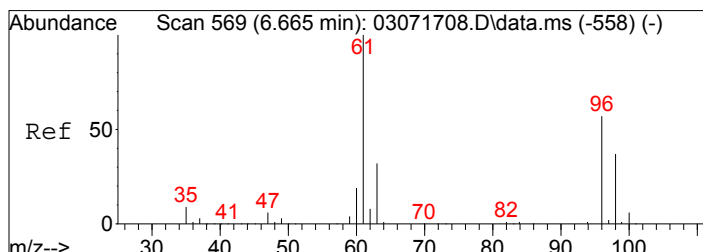
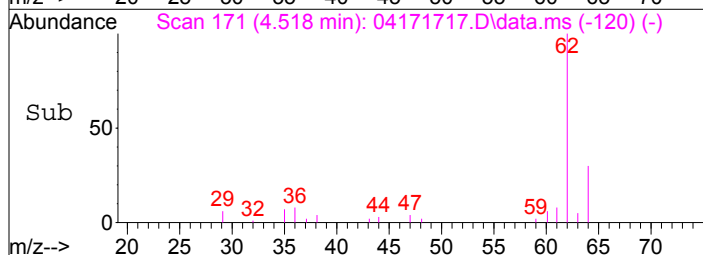
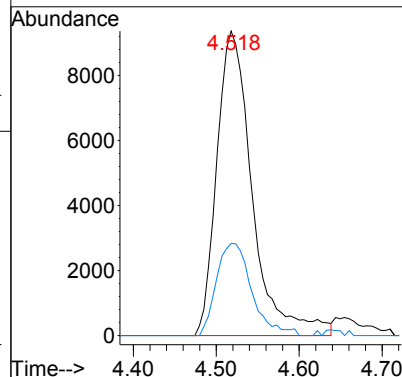
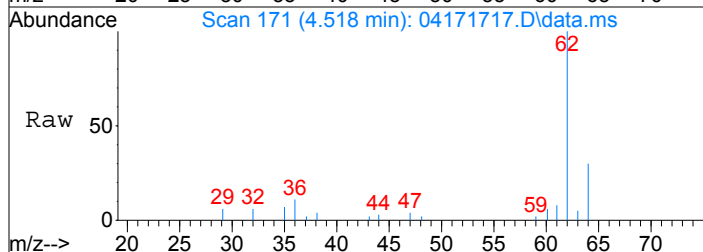
DataAcq Meth:TO15.M





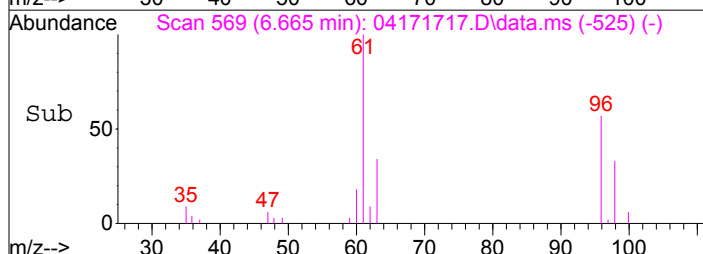
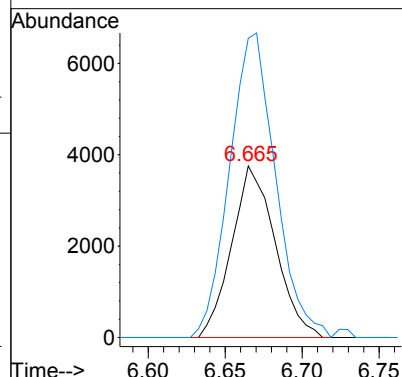
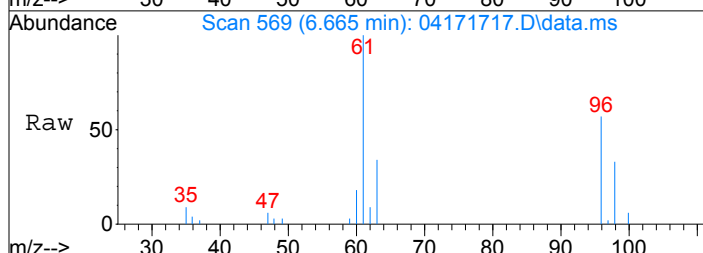
#6
 Vinyl Chloride
 Concen: 1.65 ng
 RT: 4.52 min Scan# 171
 Delta R.T. 0.027 min
 Lab File: 04171717.D
 Acq: 17 Apr 2017 16:55

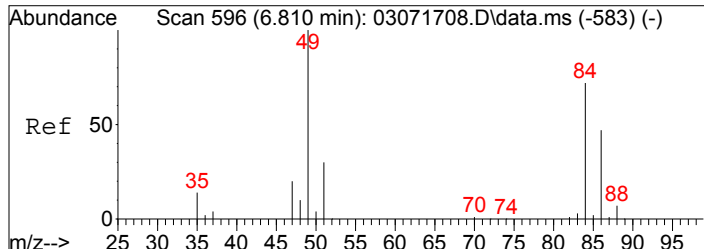
Tgt Ion: 62 Resp: 27893
 Ion Ratio Lower Upper
 62 100
 64 30.0 11.0 51.0



#17
 1,1-Dichloroethene
 Concen: 0.75 ng
 RT: 6.66 min Scan# 569
 Delta R.T. -0.011 min
 Lab File: 04171717.D
 Acq: 17 Apr 2017 16:55

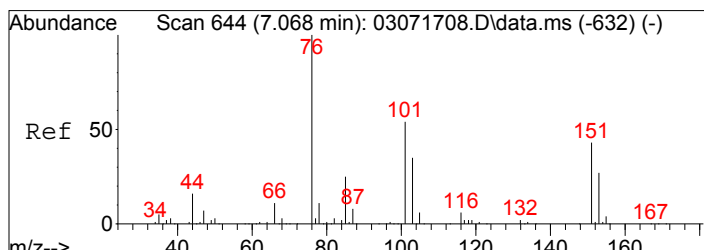
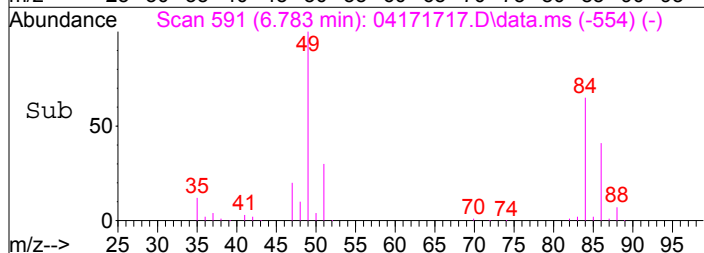
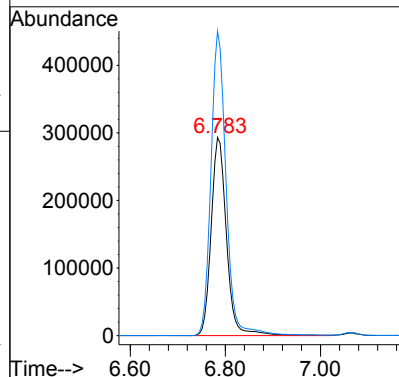
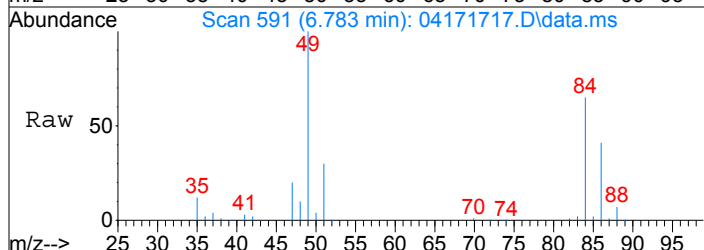
Tgt Ion: 96 Resp: 7387
 Ion Ratio Lower Upper
 96 100
 61 187.2 155.1 195.1





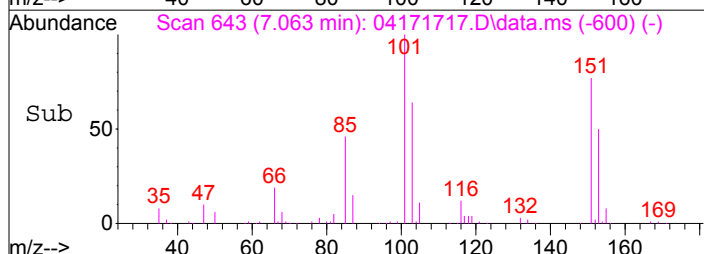
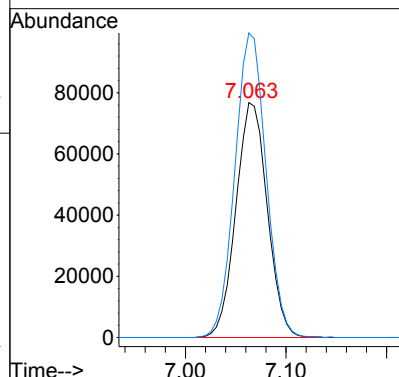
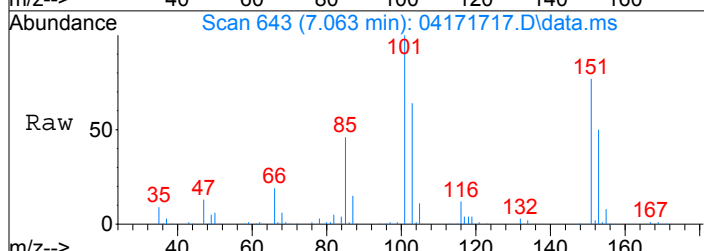
#19
 Methylene Chloride
 Concen: 65.18 ng
 RT: 6.78 min Scan# 591
 Delta R.T. -0.049 min
 Lab File: 04171717.D
 Acq: 17 Apr 2017 16:55

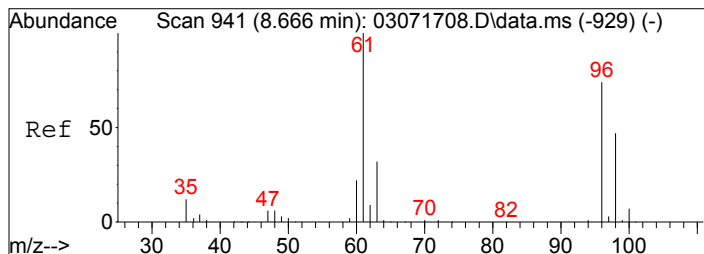
Tgt Ion: 84 Resp: 656945
 Ion Ratio Lower Upper
 84 100
 49 151.6 118.2 168.2



#21
 Trichlorotrifluoroethane
 Concen: 18.48 ng
 RT: 7.06 min Scan# 643
 Delta R.T. -0.016 min
 Lab File: 04171717.D
 Acq: 17 Apr 2017 16:55

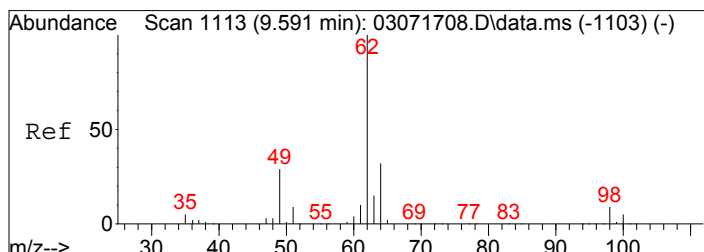
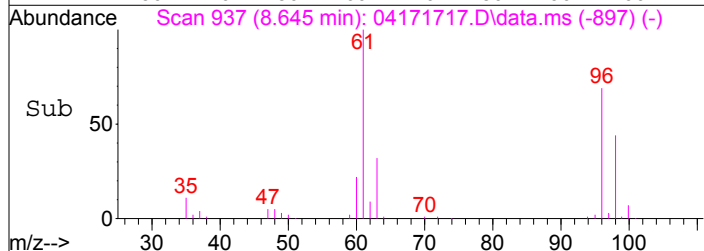
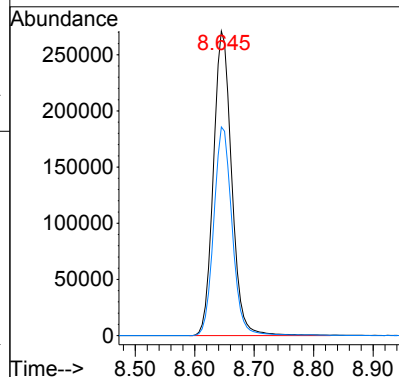
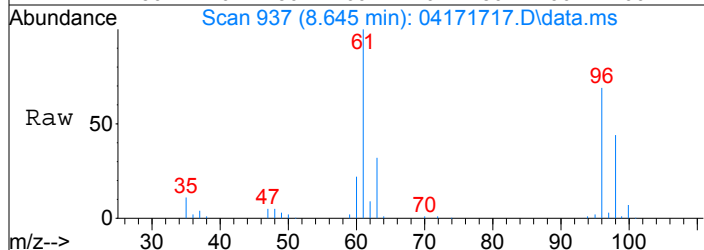
Tgt Ion: 151 Resp: 166479
 Ion Ratio Lower Upper
 151 100
 101 128.9 106.7 146.7





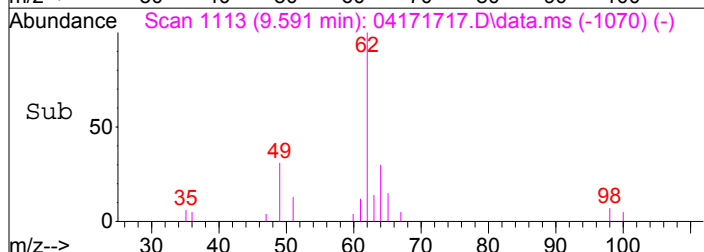
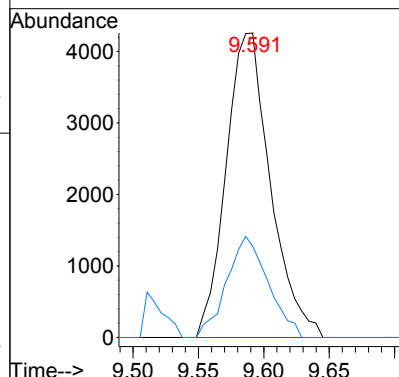
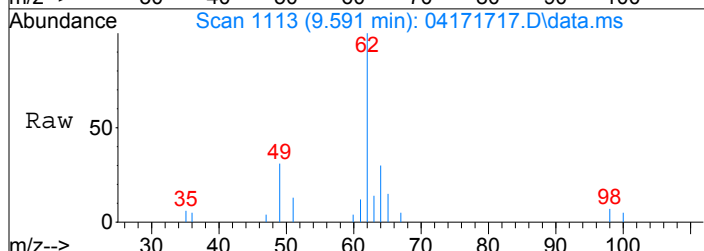
#28
 cis-1,2-Dichloroethene
 Concen: 38.26 ng
 RT: 8.64 min Scan# 937
 Delta R.T. -0.032 min
 Lab File: 04171717.D
 Acq: 17 Apr 2017 16:55

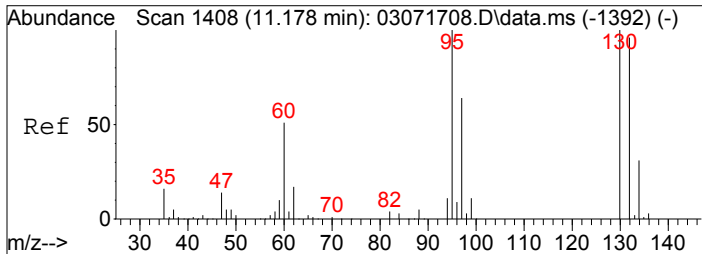
Tgt Ion	Resp	Lower	Upper
61	579165		
96	68.9	53.5	93.5



#36
 1,2-Dichloroethane
 Concen: 0.61 ng
 RT: 9.59 min Scan# 1113
 Delta R.T. -0.016 min
 Lab File: 04171717.D
 Acq: 17 Apr 2017 16:55

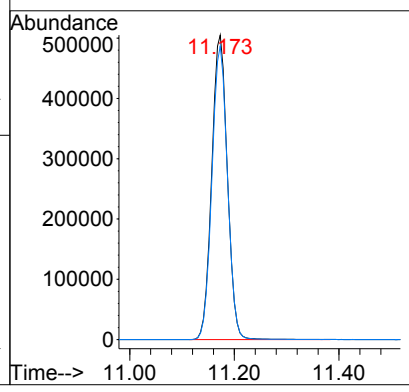
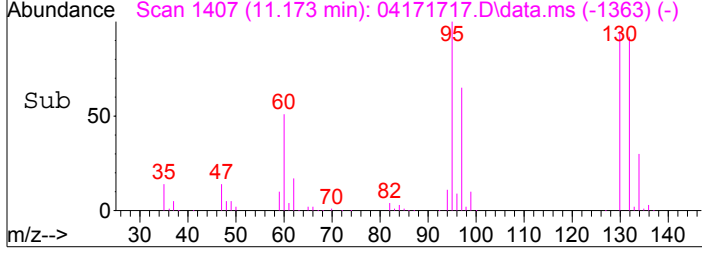
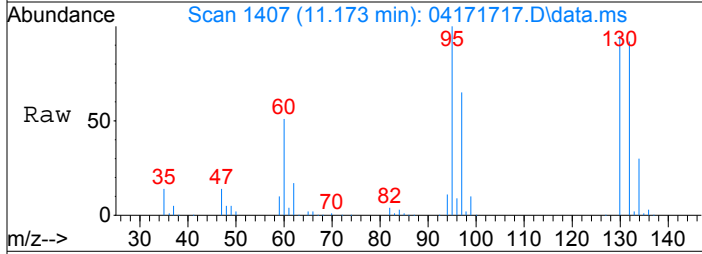
Tgt Ion	Resp	Lower	Upper
62	10036		
64	31.1	11.9	51.9





#47
Trichloroethene
Concen: 92.26 ng
RT: 11.17 min Scan# 1407
Delta R.T. -0.011 min
Lab File: 04171717.D
Acq: 17 Apr 2017 16:55

Tgt Ion:130 Resp: 1044924
Ion Ratio Lower Upper
130 100
132 96.2 75.6 115.6



Data File: I:\MS08\Data\2017 04\17\04171719.D

Acq On : 17 Apr 2017 17:59

Operator: WA

Sample : P1701582-003 (1000mL)

Misc : S31-04031701

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 18 07:48:43 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

WA 4/18/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	109098	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.54	114	541078	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.57	82	246648	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	214332	13.637	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	109.12%
57) Toluene-d8 (SS2)	12.77	98	583949	12.599	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.80%
73) Bromofluorobenzene (SS3)	16.07	174	172467	11.348	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	90.80%

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.	d	
3) Dichlorodifluoromethan...	4.01	85	37439	1.784	ng	98
4) Chloromethane	4.23	50	5691	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.38	135	647	N.D.		
6) Vinyl Chloride	4.52	62	4578	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.38	45	103461	12.817	ng	99
11) Acetonitrile	5.61	41	9962	0.465	ng	100
12) Acrolein	5.73	56	1724	N.D.		
13) Acetone	5.85	58	100811	12.744	ng	# 64
14) Trichlorofluoromethane	6.02	101	17718	0.954	ng	100
15) 2-Propanol (Isopropanol)	6.16	45	13013	N.D.		
16) Acrylonitrile	6.40	53	1512	N.D.		
17) 1,1-Dichloroethene	6.67	96	1505	N.D.		
18) 2-Methyl-2-Propanol (t...	6.77	59	3828	N.D.		
19) Methylene Chloride	6.79	84	44092	4.571	ng	94
20) 3-Chloro-1-propene (Al...	6.85	41	1262	N.D.		
21) Trichlorotrifluoroethane	7.07	151	60569	7.024	ng	99
22) Carbon Disulfide	7.05	76	157255	4.551	ng	99
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	8.25	72	16481	2.465	ng	# 92
28) cis-1,2-Dichloroethene	8.65	61	50839	3.509	ng	94
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	8.86	57	27776	1.608	ng	98
32) Chloroform	8.91	83	1610	N.D.		
34) Tetrahydrofuran (THF)	9.27	72	29076	4.354	ng	# 88
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	9.59	62	1215	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	10.23	78	31509	0.737	ng	99
42) Carbon Tetrachloride	10.37	117	4721	N.D.		
43) Cyclohexane	10.48	84	6920	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	11.17	63	431	N.D.		
46) Bromodichloromethane	11.17	83	2279	N.D.		
47) Trichloroethene	11.17	130	139272	12.490	ng	100
48) 1,4-Dioxane	11.17	88	664	N.D.		
49) 2,2,4-Trimethylpentane...	11.23	57	5933	N.D.		

Data File: I:\MS08\Data\2017 04\17\04171719.D

Acq On : 17 Apr 2017 17:59

Operator: WA

Sample : P1701582-003 (1000mL)

Misc : S31-04031701

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 18 07:48:43 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	11.45	71	7915	0.726	ng	98
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	11.99	58	829	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	12.86	91	63949	1.483	ng	100
59) 2-Hexanone	13.08	43	2768	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	13.69	43	1616	N.D.		
63) n-Octane	13.79	57	2517	N.D.		
64) Tetrachloroethene	13.95	166	2344	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	14.99	91	12289	N.D.		
67) m- & p-Xylenes	15.16	91	32130	0.835	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	15.53	104	3123	N.D.		
70) o-Xylene	15.63	91	12078	N.D.		
71) n-Nonane	15.84	43	8368	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	16.21	105	1093	N.D.		
75) alpha-Pinene	16.58	93	16576	0.639	ng	# 49
76) n-Propylbenzene	16.70	91	4960	N.D.		
77) 3-Ethyltoluene	16.79	105	13221	N.D.		
78) 4-Ethyltoluene	16.84	105	5976	N.D.		
79) 1,3,5-Trimethylbenzene	16.91	105	5082	N.D.		
80) alpha-Methylstyrene	17.26	118	2590	N.D.		
81) 2-Ethyltoluene	17.09	105	5047	N.D.		
82) 1,2,4-Trimethylbenzene	17.31	105	20543	0.505	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	17.53	91	421	N.D.		
85) 1,3-Dichlorobenzene	17.52	146	4019	N.D.		
86) 1,4-Dichlorobenzene	17.52	146	4019	N.D.		
87) sec-Butylbenzene	17.56	105	829	N.D.		
88) 4-Isopropyltoluene (p-...	17.71	119	6992	N.D.		
89) 1,2,3-Trimethylbenzene	17.71	105	5730	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	17.85	68	5020	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	19.57	128	9307	N.D.		
96) n-Dodecane	19.58	57	4715	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	15.33	55	2342	N.D.		
99) tert-Butylbenzene	17.26	119	5183	N.D.		
100) n-Butylbenzene	18.11	91	5032	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171719.D

Acq On : 17 Apr 2017 17:59

Operator: WA

Sample : P1701582-003 (1000mL)

Misc : S31-04031701

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 18 07:48:43 2017

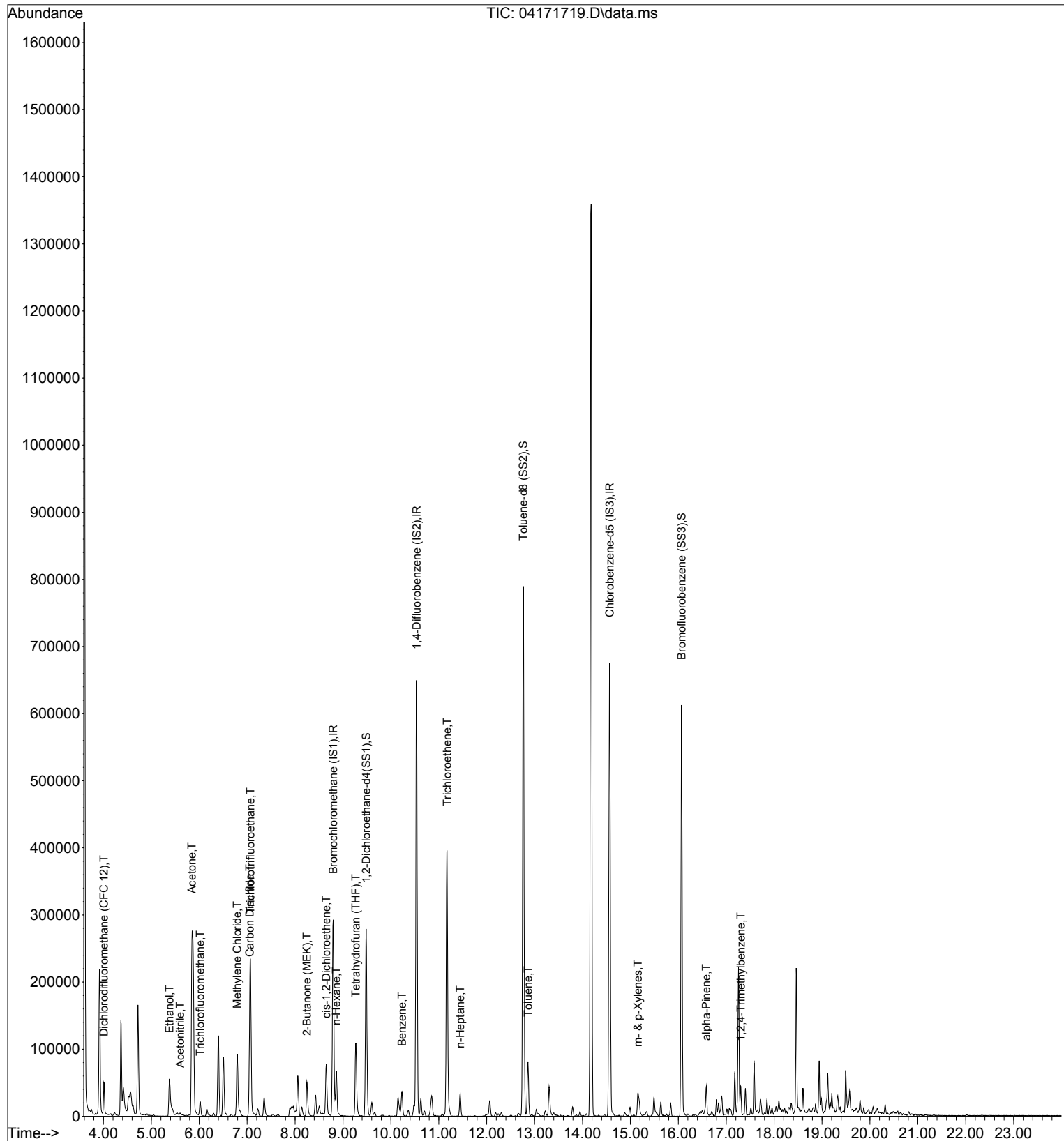
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 04\17\04171719.D

Acq On : 17 Apr 2017 17:59

Operator: WA

Sample : P1701582-003 (1000mL)

Misc : S31-04031701

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 18 07:48:43 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

4/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	109098	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.54	114	541078	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.57	82	246648	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	214332	13.637	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	109.12%
57) Toluene-d8 (SS2)	12.77	98	583949	12.599	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.80%
73) Bromofluorobenzene (SS3)	16.07	174	172467	11.348	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	90.80%

Target Compounds

						Qvalue
3) Dichlorodifluoromethan...	4.01	85	37439	1.784	ng	98
10) Ethanol	5.38	45	103461	12.817	ng	99
11) Acetonitrile	5.61	41	9962	0.465	ng	100
13) Acetone	5.85	58	100811	12.744	ng	# 64
14) Trichlorofluoromethane	6.02	101	17718	0.954	ng	100
19) Methylene Chloride	6.79	84	44092	4.571	ng	94
21) Trichlorotrifluoroethane	7.07	151	60569	7.024	ng	99
22) Carbon Disulfide	7.05	76	157255	4.551	ng	99
27) 2-Butanone (MEK)	8.25	72	16481	2.465	ng	# 92
28) cis-1,2-Dichloroethene	8.65	61	50839	3.509	ng	94
31) n-Hexane	8.86	57	27776	1.608	ng	98
34) Tetrahydrofuran (THF)	9.27	72	29076	4.354	ng	# 88
41) Benzene	10.23	78	31509	0.737	ng	99
47) Trichloroethene	11.17	130	139272	12.490	ng	100
51) n-Heptane	11.45	71	7915	0.726	ng	98
58) Toluene	12.86	91	63949	1.483	ng	100
67) m- & p-Xylenes	15.16	91	32130	0.835	ng	98
75) alpha-Pinene	16.58	93	16576	0.639	ng	# 49
82) 1,2,4-Trimethylbenzene	17.31	105	20543	0.505	ng	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171719.D

Acq On : 17 Apr 2017 17:59

Operator: WA

Sample : P1701582-003 (1000mL)

Misc : S31-04031701

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Apr 18 07:48:43 2017

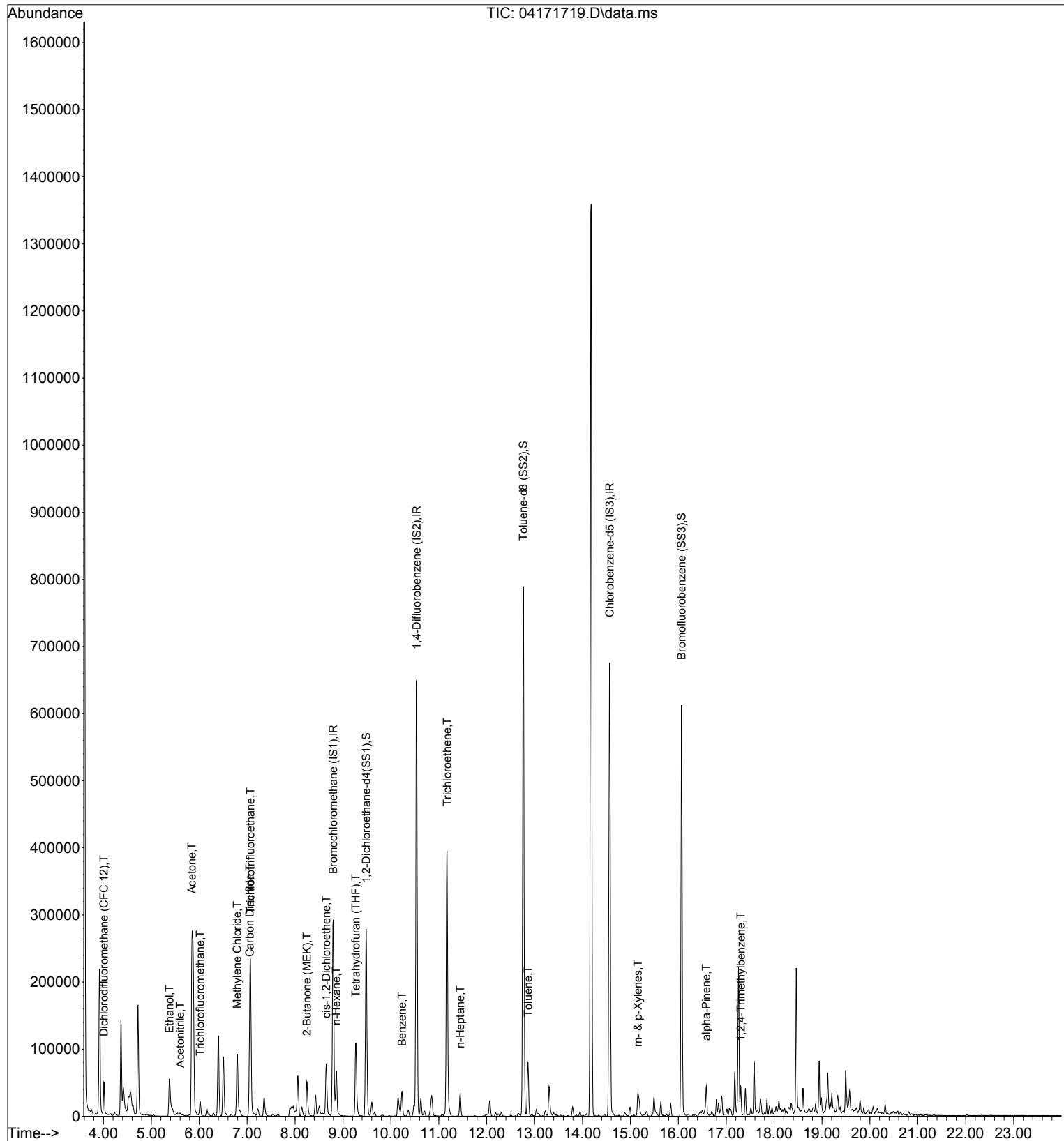
Quant Method : I:\MS08\Methods\R8030717.M

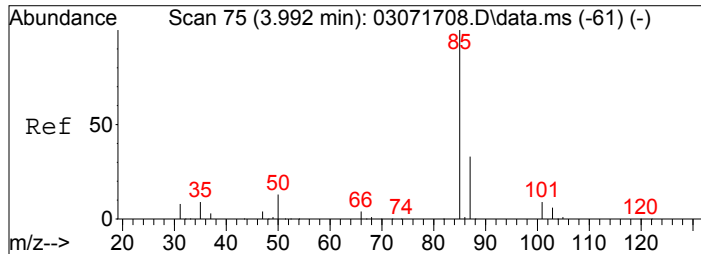
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

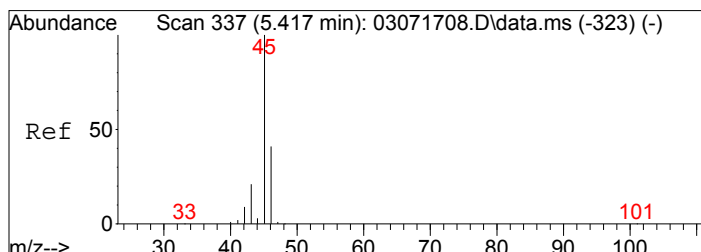
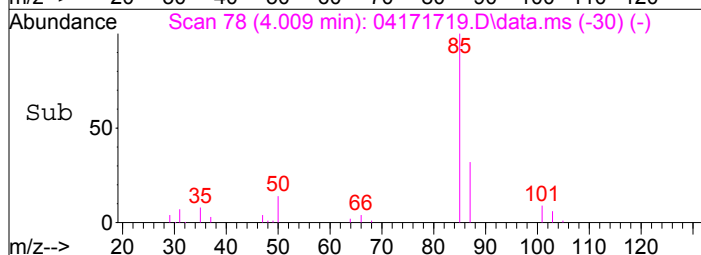
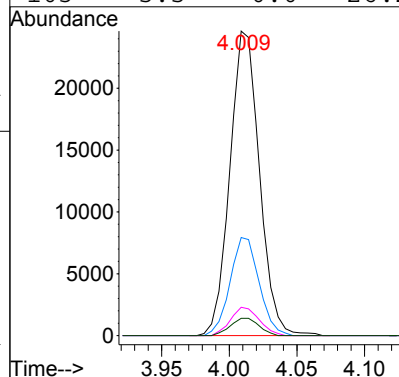
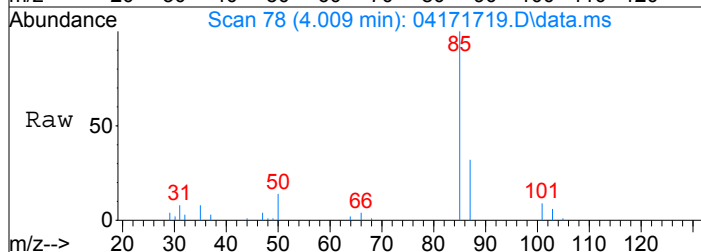
DataAcq Meth:TO15.M





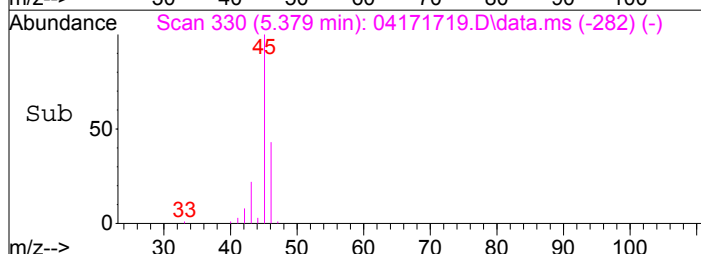
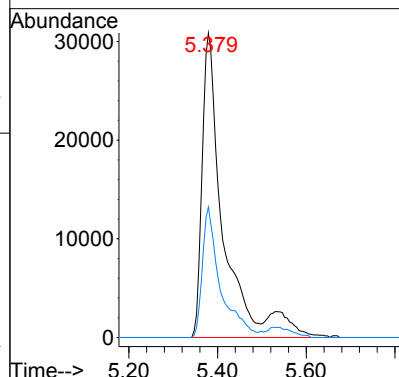
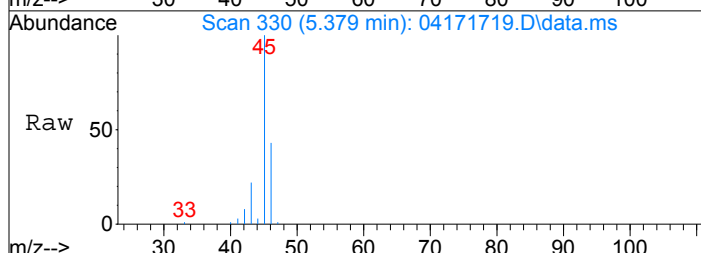
#3
 Dichlorodifluoromethane (CFC 12)
 Concen: 1.78 ng
 RT: 4.01 min Scan# 78
 Delta R.T. 0.011 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

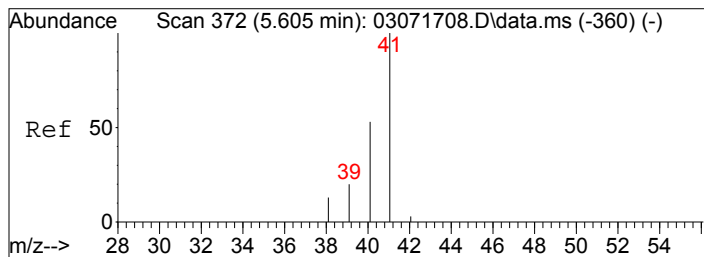
Tgt Ion	85	Resp	37439
Ion	Ratio	Lower	Upper
85	100		
87	31.6	12.6	52.6
101	9.0	0.0	29.6
103	5.5	0.0	26.2



#10
 Ethanol
 Concen: 12.82 ng
 RT: 5.38 min Scan# 330
 Delta R.T. -0.092 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

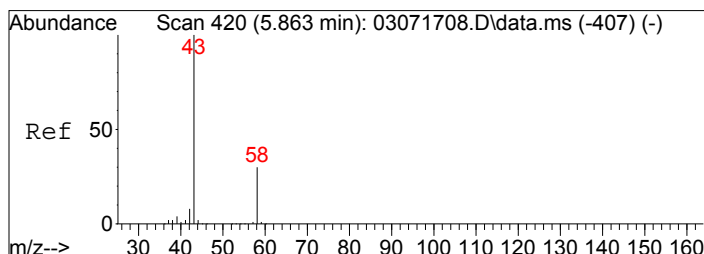
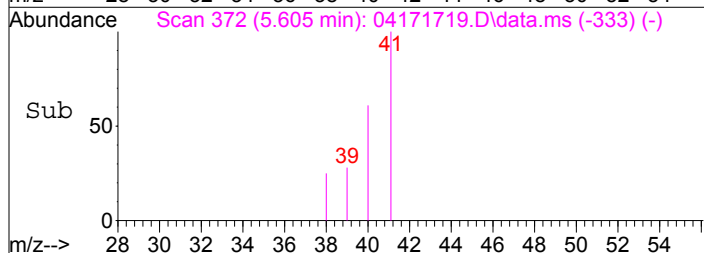
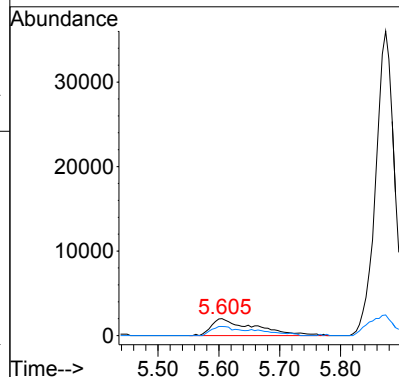
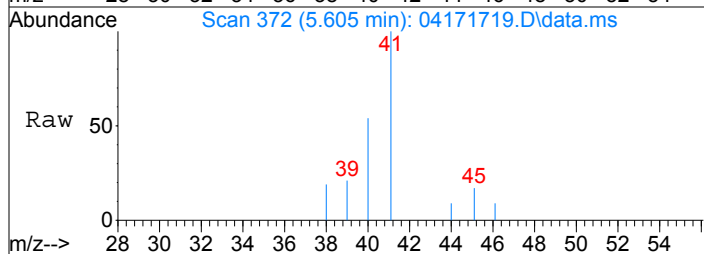
Tgt Ion	45	Resp	103461
Ion	Ratio	Lower	Upper
45	100		
46	40.3	20.6	60.6





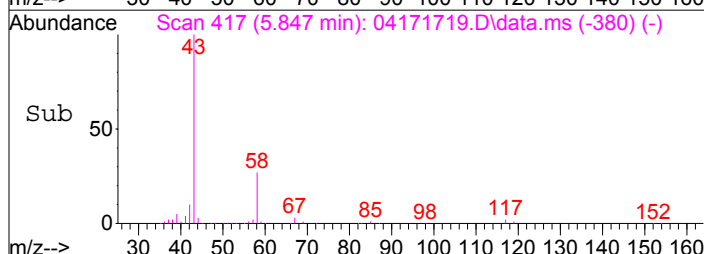
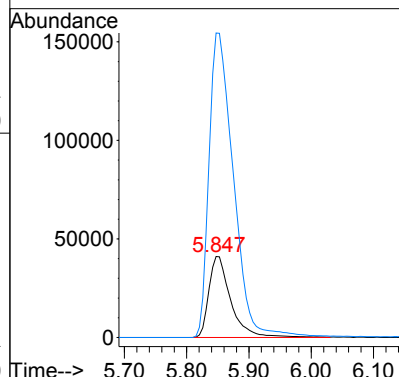
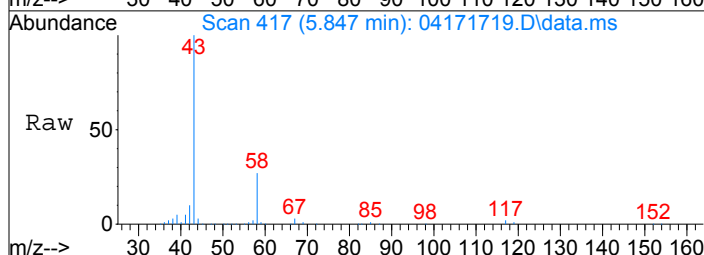
#11
 Acetonitrile
 Concen: 0.46 ng
 RT: 5.61 min Scan# 372
 Delta R.T. -0.043 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

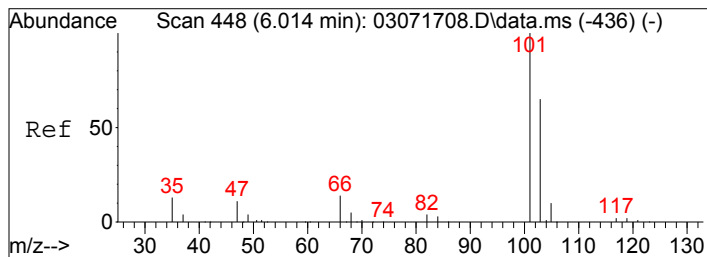
Tgt Ion	Resp	Lower	Upper
41	9962		
40	54.0	33.9	73.9



#13
 Acetone
 Concen: 12.74 ng
 RT: 5.85 min Scan# 417
 Delta R.T. -0.049 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

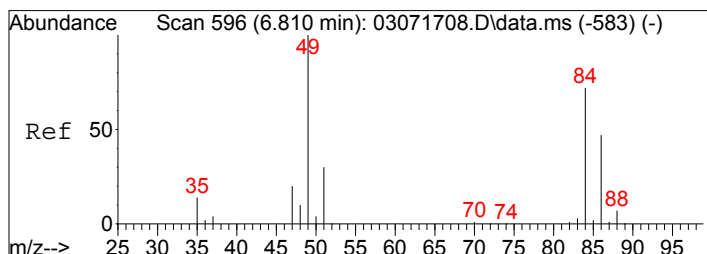
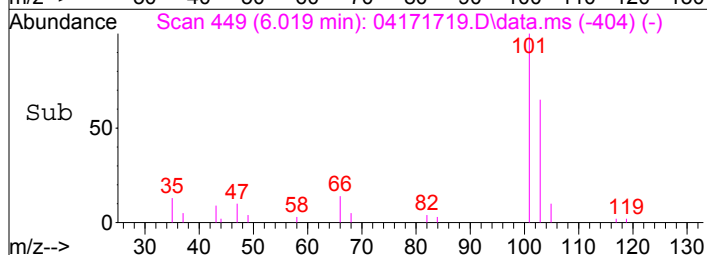
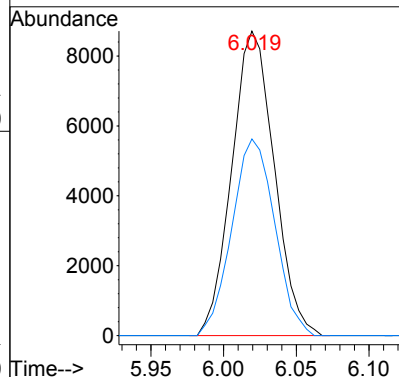
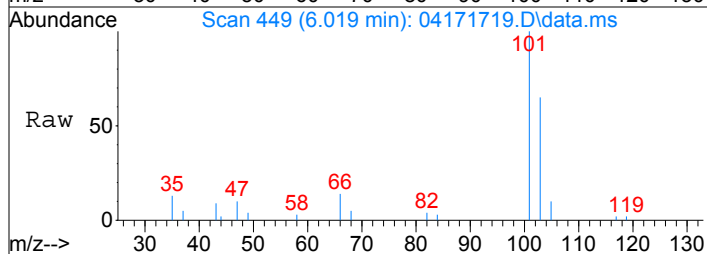
Tgt Ion	Resp	Lower	Upper
58	100811		
43	420.3	313.9	373.9#





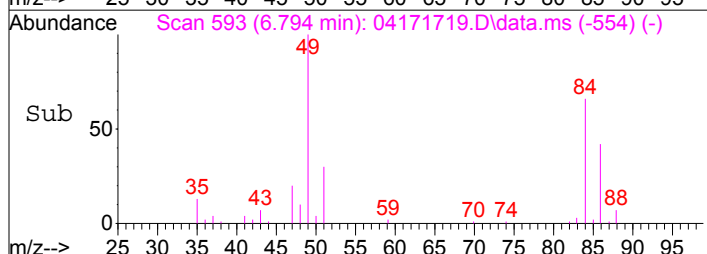
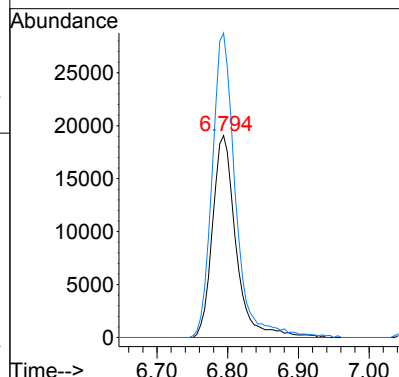
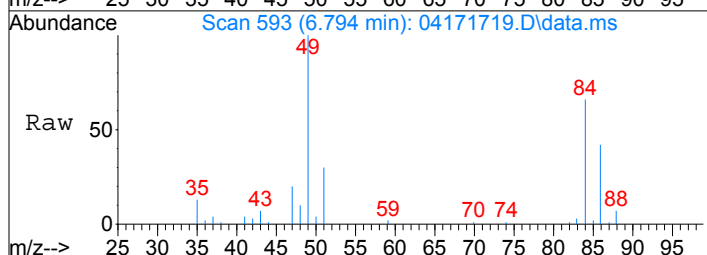
#14
 Trichlorofluoromethane
 Concen: 0.95 ng
 RT: 6.02 min Scan# 449
 Delta R.T. -0.006 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

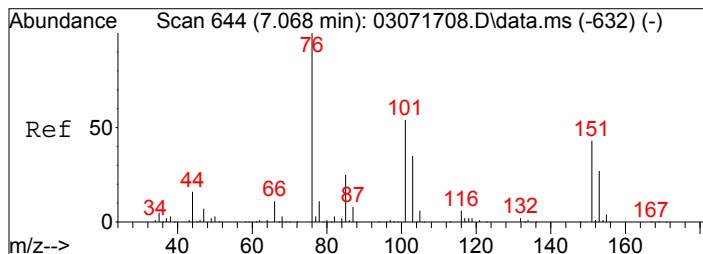
Tgt Ion	Resp	Lower	Upper
101	17718		
103	65.1	44.9	84.9



#19
 Methylene Chloride
 Concen: 4.57 ng
 RT: 6.79 min Scan# 593
 Delta R.T. -0.038 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

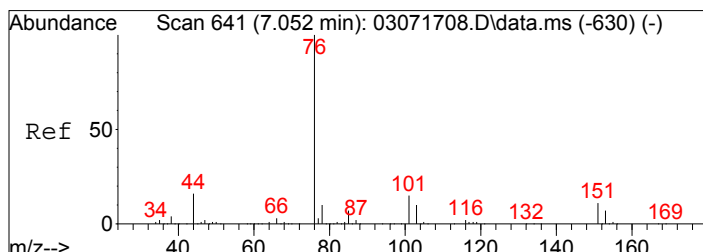
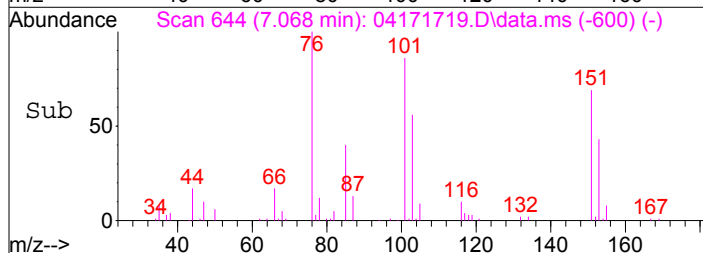
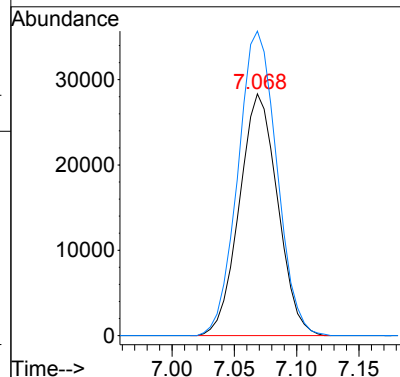
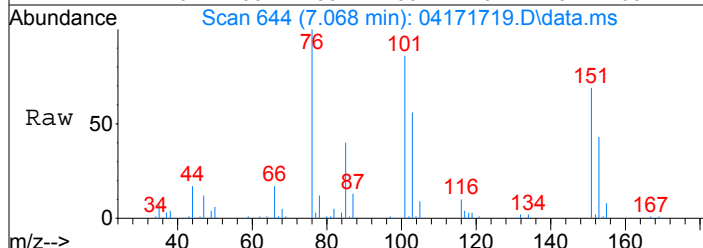
Tgt Ion	Resp	Lower	Upper
84	44092		
49	150.2	118.2	168.2





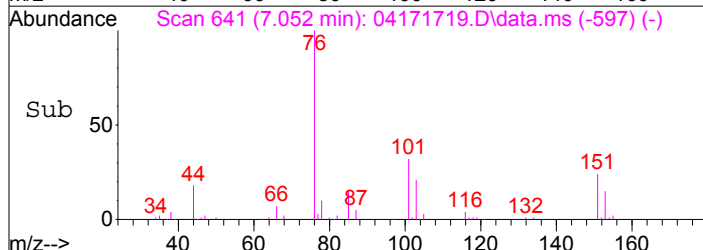
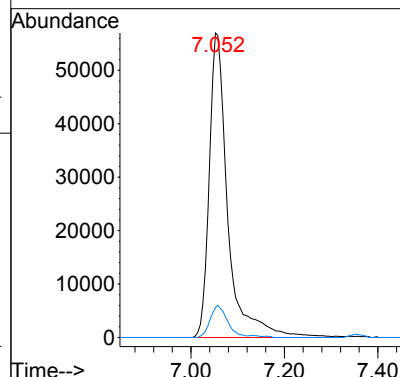
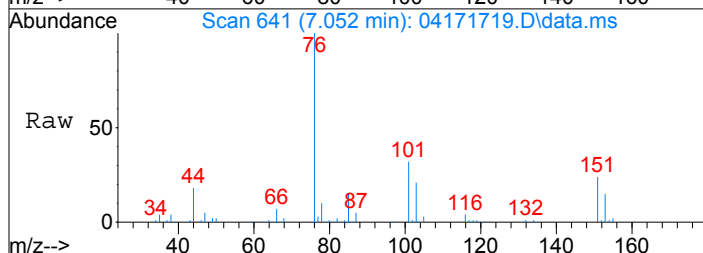
#21
 Trichlorotrifluoroethane
 Concen: 7.02 ng
 RT: 7.07 min Scan# 644
 Delta R.T. -0.011 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

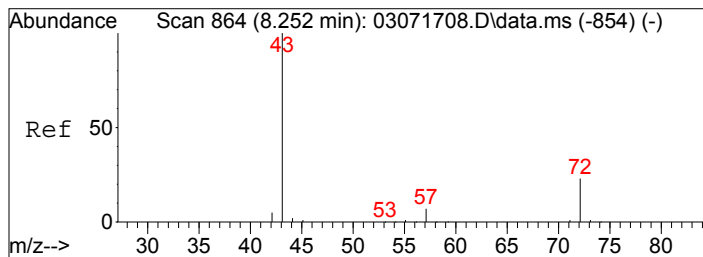
Tgt Ion: 151 Resp: 60569
 Ion Ratio Lower Upper
 151 100
 101 128.1 106.7 146.7



#22
 Carbon Disulfide
 Concen: 4.55 ng
 RT: 7.05 min Scan# 641
 Delta R.T. -0.011 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

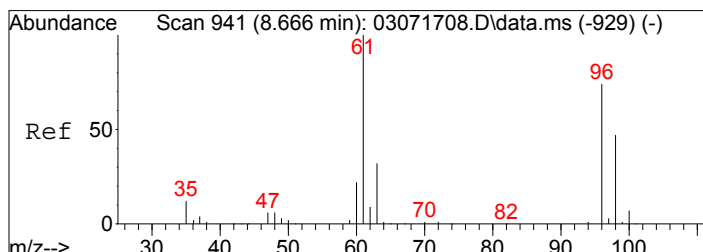
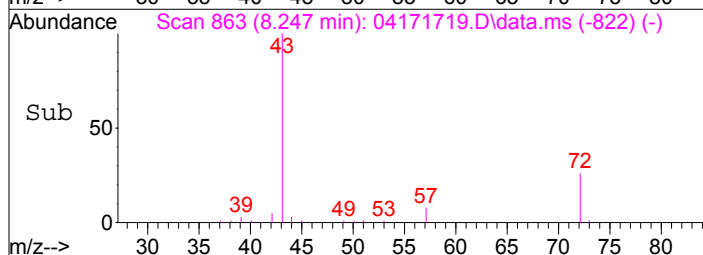
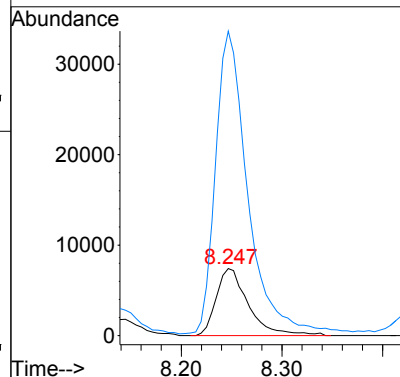
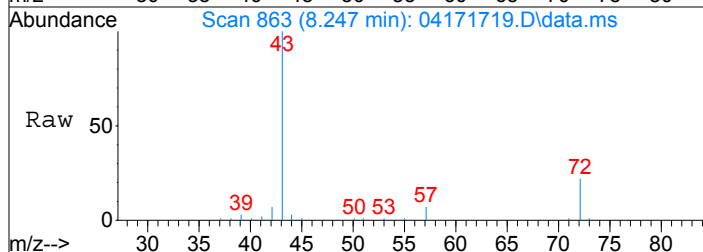
Tgt Ion: 76 Resp: 157255
 Ion Ratio Lower Upper
 76 100
 78 9.8 0.0 30.0





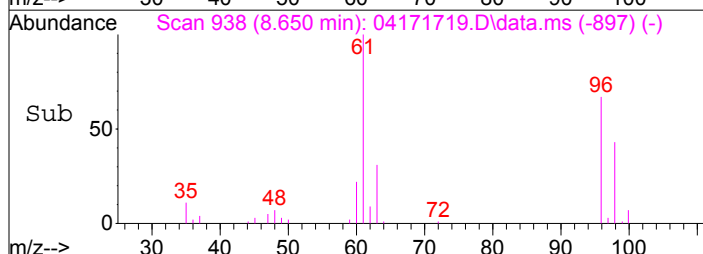
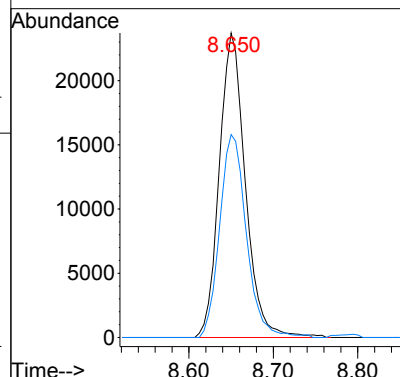
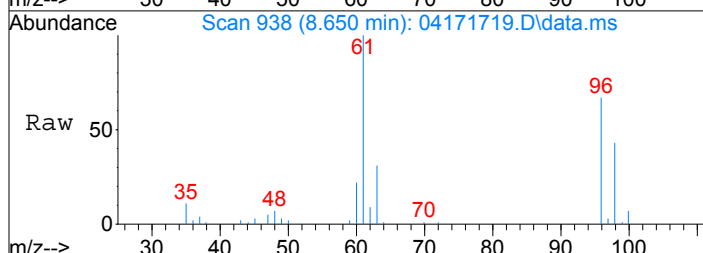
#27
 2-Butanone (MEK)
 Concen: 2.47 ng
 RT: 8.25 min Scan# 863
 Delta R.T. -0.027 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

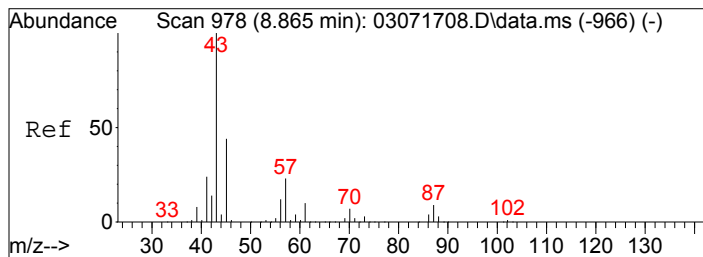
Tgt Ion	Resp	Lower	Upper
72	16481		
72	100		
43	452.0	412.0	452.0#



#28
 cis-1,2-Dichloroethene
 Concen: 3.51 ng
 RT: 8.65 min Scan# 938
 Delta R.T. -0.027 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

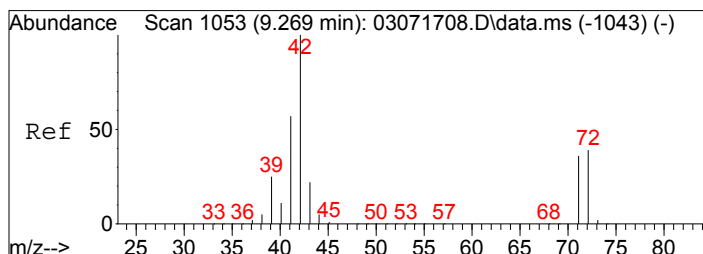
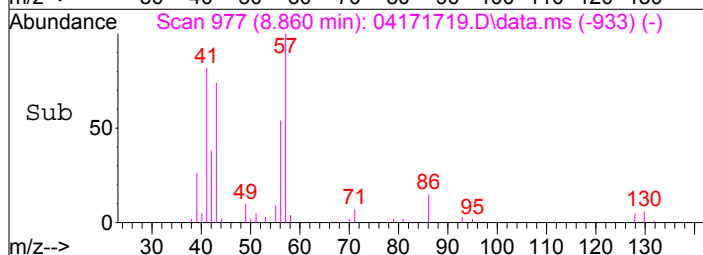
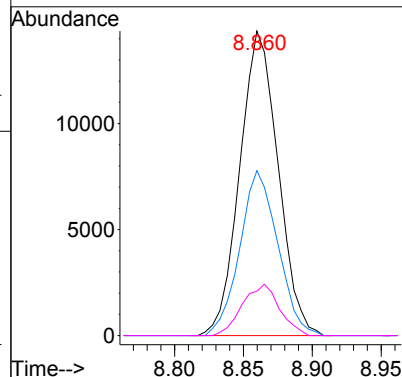
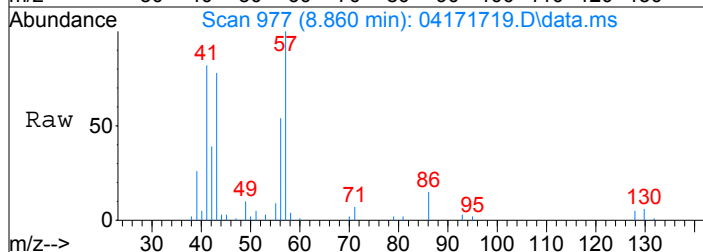
Tgt Ion	Resp	Lower	Upper
61	50839		
61	100		
96	68.5	53.5	93.5





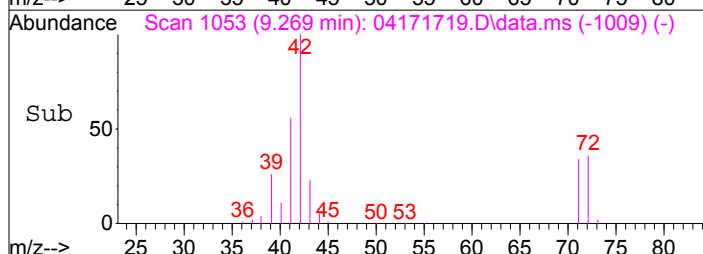
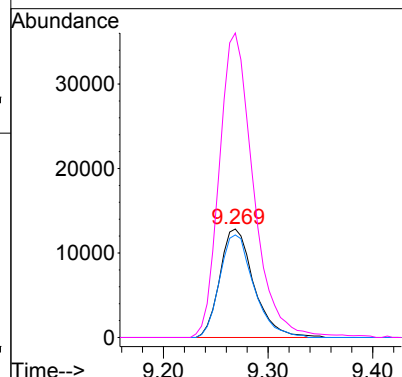
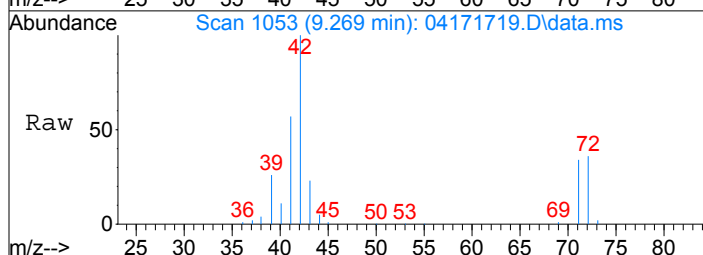
#31
 n-Hexane
 Concen: 1.61 ng
 RT: 8.86 min Scan# 977
 Delta R.T. -0.011 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

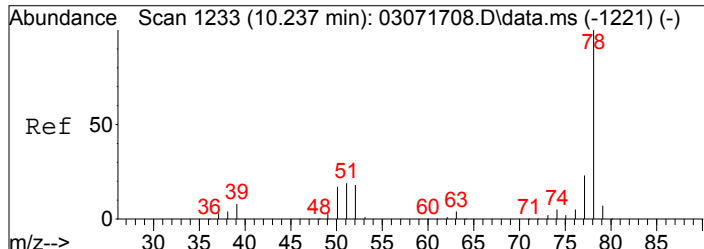
Tgt Ion:	Resp:	Lower	Upper
57	27776		
57	100		
56	53.8	42.3	63.5
86	16.3	13.9	20.9



#34
 Tetrahydrofuran (THF)
 Concen: 4.35 ng
 RT: 9.27 min Scan# 1053
 Delta R.T. -0.011 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

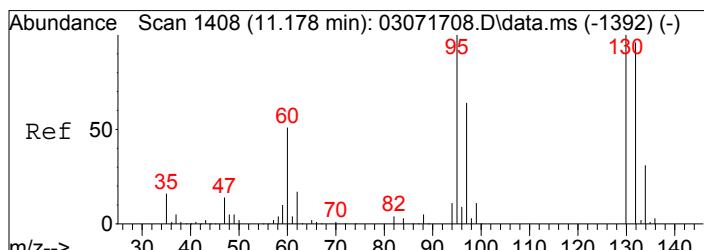
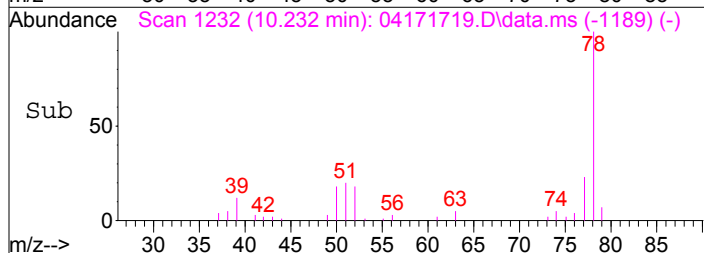
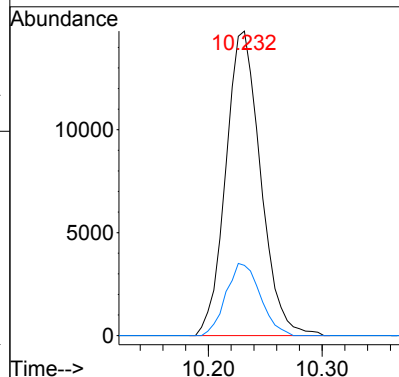
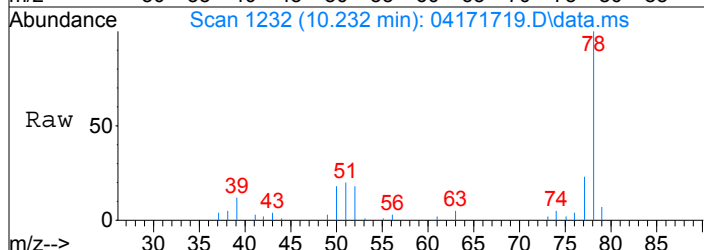
Tgt Ion:	Resp:	Lower	Upper
72	29076		
72	100		
71	94.4	72.6	112.6
42	281.5	234.6	274.6#





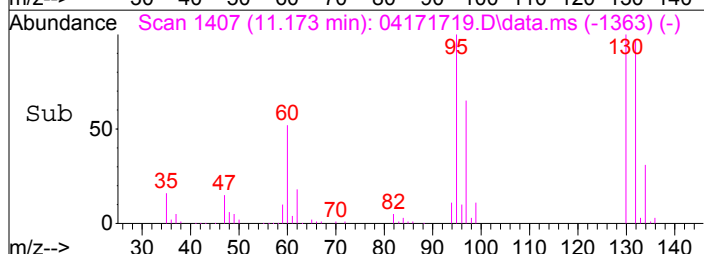
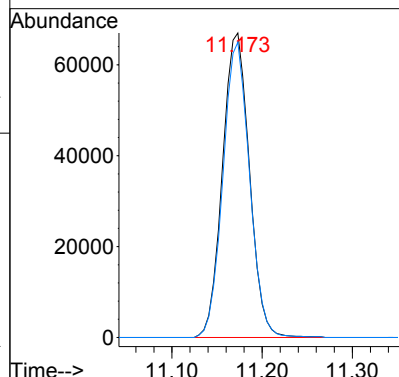
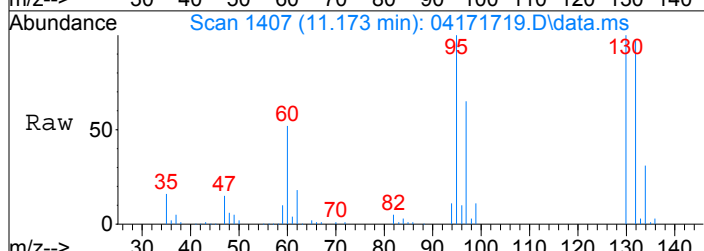
#41
Benzene
Concen: 0.74 ng
RT: 10.23 min Scan# 1232
Delta R.T. -0.016 min
Lab File: 04171719.D
Acq: 17 Apr 2017 17:59

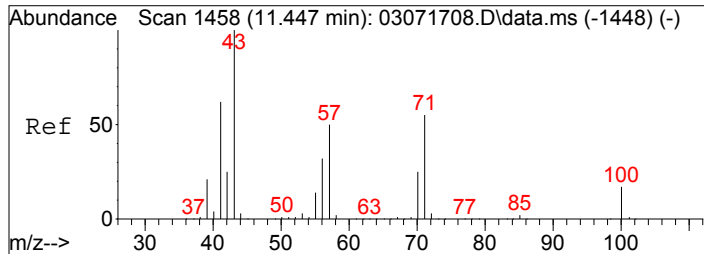
Tgt Ion	Resp	Lower	Upper
78	31509		
78	100		
77	23.3	3.6	43.6



#47
Trichloroethene
Concen: 12.49 ng
RT: 11.17 min Scan# 1407
Delta R.T. -0.011 min
Lab File: 04171719.D
Acq: 17 Apr 2017 17:59

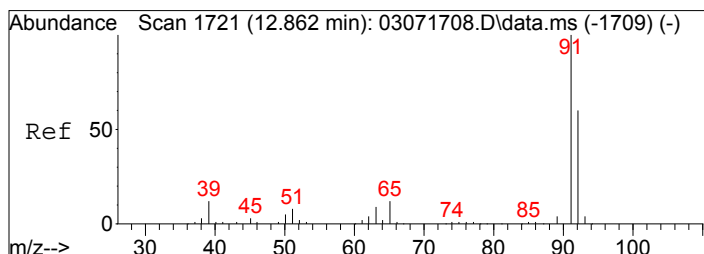
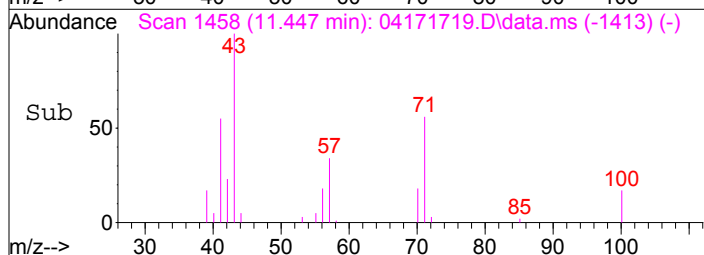
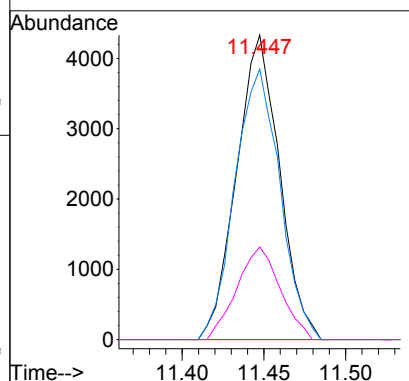
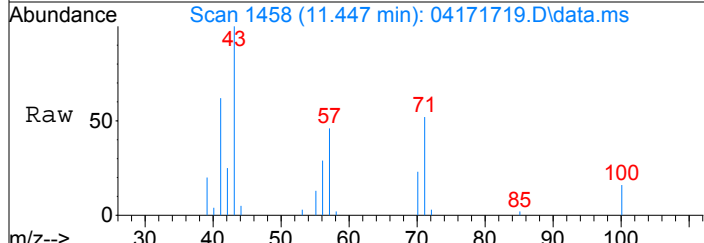
Tgt Ion	Resp	Lower	Upper
130	139272		
130	100		
132	95.6	75.6	115.6





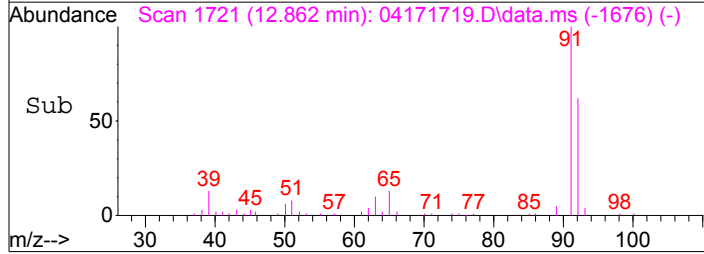
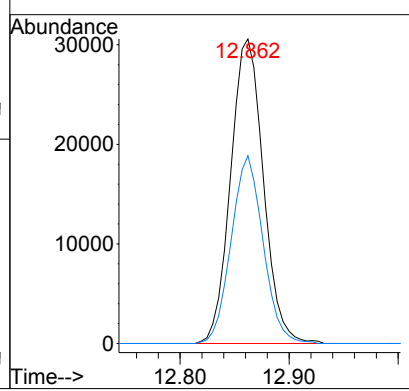
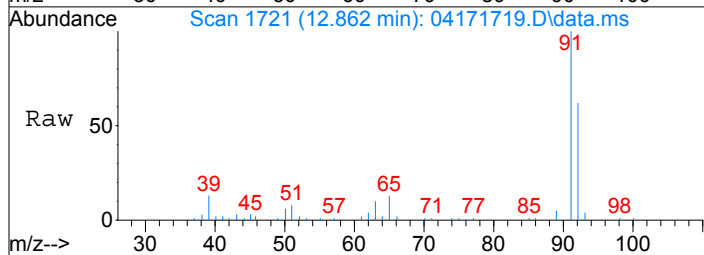
#51
 n-Heptane
 Concen: 0.73 ng
 RT: 11.45 min Scan# 1458
 Delta R.T. -0.006 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

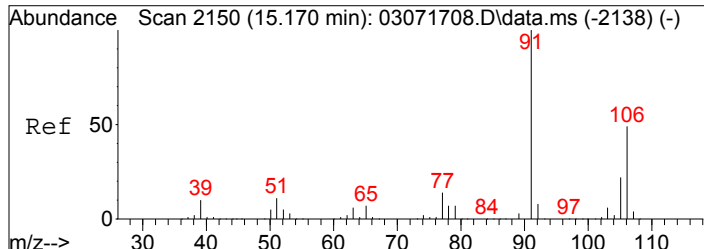
Tgt Ion:	Resp:	Lower	Upper
71	7915		
71	100		
57	93.1	72.1	112.1
100	30.7	12.7	52.7



#58
 Toluene
 Concen: 1.48 ng
 RT: 12.86 min Scan# 1721
 Delta R.T. -0.006 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

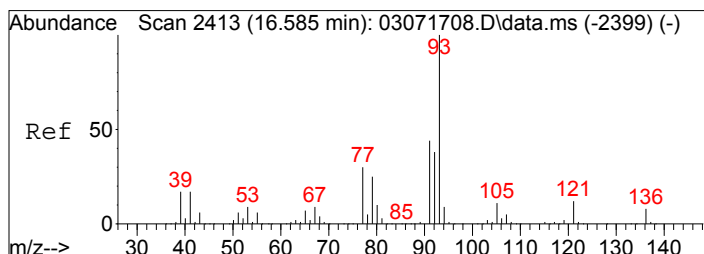
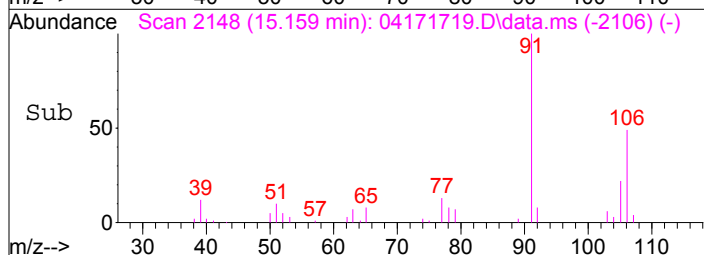
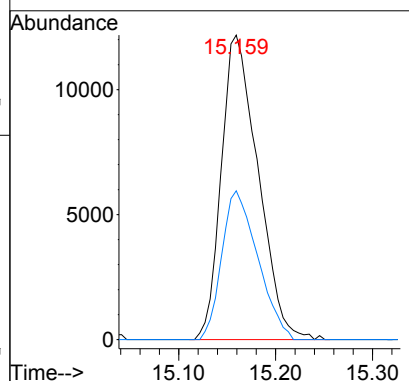
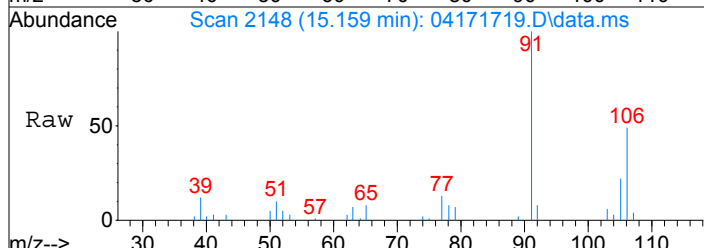
Tgt Ion:	Resp:	Lower	Upper
91	63949		
91	100		
92	60.0	40.4	80.4





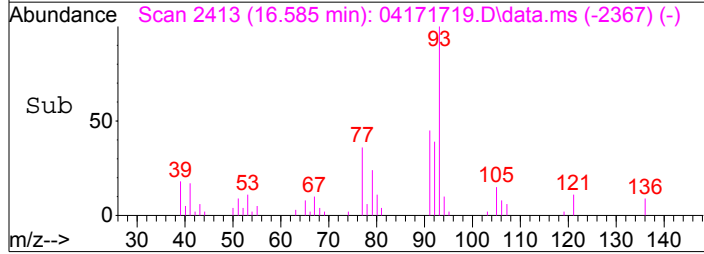
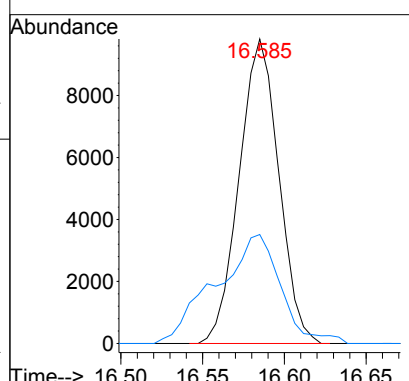
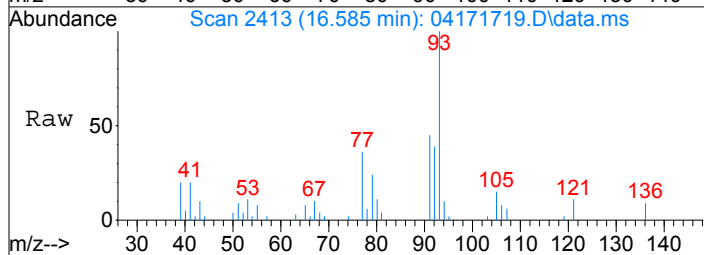
#67
 m- & p-Xylenes
 Concen: 0.84 ng
 RT: 15.16 min Scan# 2148
 Delta R.T. -0.022 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

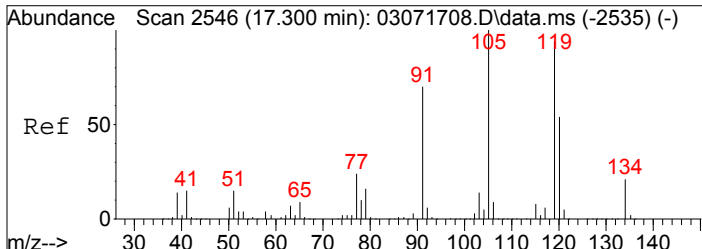
Tgt Ion	Resp	Lower	Upper
91	32130		
106	47.7	29.1	69.1



#75
 alpha-Pinene
 Concen: 0.64 ng
 RT: 16.58 min Scan# 2413
 Delta R.T. -0.000 min
 Lab File: 04171719.D
 Acq: 17 Apr 2017 17:59

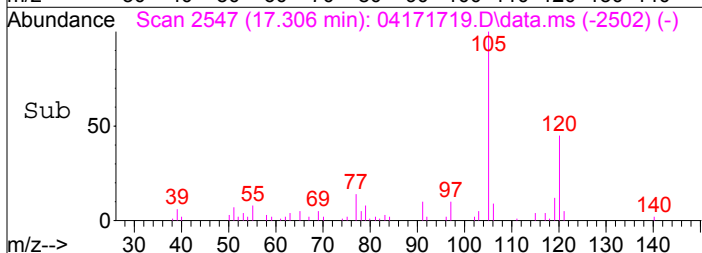
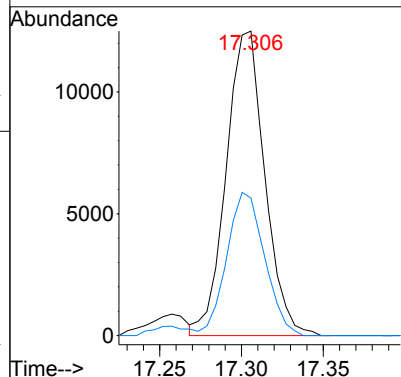
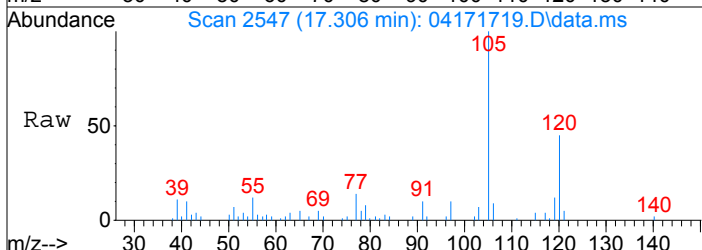
Tgt Ion	Resp	Lower	Upper
93	16576		
77	58.5	10.6	50.6#





#82
1,2,4-Trimethylbenzene
Concen: 0.51 ng
RT: 17.31 min Scan# 2547
Delta R.T. -0.006 min
Lab File: 04171719.D
Acq: 17 Apr 2017 17:59

Tgt Ion	Resp	Lower	Upper
105	20543		
105	100		
120	46.0	34.5	74.5



Data File: I:\MS08\Data\2017 04\17\04171720.D

Acq On : 17 Apr 2017 18:31

Operator: WA

Sample : P1701582-004 (1000mL)

Misc : S31-04031701

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 18 07:50:13 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DA 4/18/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	110969	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.53	114	543906	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	250990	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	213957	13.384	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	107.04%
57) Toluene-d8 (SS2)	12.77	98	588584	12.480	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.84%
73) Bromofluorobenzene (SS3)	16.07	174	175115	11.323	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	90.56%

Target Compounds

						Qvalue
2) Propene	3.92	42	5537	0.479	ng	# 1
3) Dichlorodifluoromethan...	4.01	85	34266	1.606	ng	99
4) Chloromethane	4.25	50	4565	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.38	135	659	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.40	45	16517	2.012	ng	98
11) Acetonitrile	5.66	41	5371	N.D.		
12) Acrolein	5.75	56	647	N.D.		
13) Acetone	5.86	58	35031	4.354	ng	# 71
14) Trichlorofluoromethane	6.02	101	15348	0.812	ng	99
15) 2-Propanol (Isopropanol)	6.17	45	6033	N.D.		
16) Acrylonitrile	6.40	53	317	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	6.79	59	2104	N.D.		
19) Methylene Chloride	6.80	84	3416	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	7.07	151	54296	6.190	ng	99
22) Carbon Disulfide	7.08	76	4101	N.D.		
23) trans-1,2-Dichloroethene	7.89	61	995	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	8.05	86	515	N.D.		
27) 2-Butanone (MEK)	8.26	72	3645	0.536	ng	# 73
28) cis-1,2-Dichloroethene	8.66	61	1645	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	8.87	57	9409	0.535	ng	99
32) Chloroform	8.92	83	948	N.D.		
34) Tetrahydrofuran (THF)	9.29	72	1511	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	9.58	62	509	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	10.18	56	2201	N.D.		
41) Benzene	10.23	78	14817	N.D.		
42) Carbon Tetrachloride	10.36	117	4097	N.D.		
43) Cyclohexane	10.48	84	3045	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	11.17	130	2048	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	11.23	57	1265	N.D.		

Data File: I:\MS08\Data\2017 04\17\04171720.D

Acq On : 17 Apr 2017 18:31

Operator: WA

Sample : P1701582-004 (1000mL)

Misc : S31-04031701

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 18 07:50:13 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.45	100	747	N.D.		
51) n-Heptane	11.45	71	2594	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	12.86	91	14254	N.D.		
59) 2-Hexanone	13.03	43	2945	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	13.69	43	574	N.D.		
63) n-Octane	13.80	57	1084	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	14.99	91	1960	N.D.		
67) m- & p-Xylenes	15.16	91	5246	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	15.54	104	697	N.D.		
70) o-Xylene	15.63	91	2087	N.D.		
71) n-Nonane	15.84	43	2115	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	16.59	93	15682	0.594 ng		75
76) n-Propylbenzene	16.70	91	902	N.D.		
77) 3-Ethyltoluene	16.80	105	2112	N.D.		
78) 4-Ethyltoluene	16.84	105	1109	N.D.		
79) 1,3,5-Trimethylbenzene	16.91	105	751	N.D.		
80) alpha-Methylstyrene	17.26	118	414	N.D.		
81) 2-Ethyltoluene	17.10	105	763	N.D.		
82) 1,2,4-Trimethylbenzene	17.31	105	3109	N.D.		
83) n-Decane	17.40	57	2393	N.D.		
84) Benzyl Chloride	17.24	91	2702	N.D.		
85) 1,3-Dichlorobenzene	17.52	146	405	N.D.		
86) 1,4-Dichlorobenzene	17.52	146	405	N.D.		
87) sec-Butylbenzene	17.71	105	827	N.D.		
88) 4-Isopropyltoluene (p-...	17.71	119	1878	N.D.		
89) 1,2,3-Trimethylbenzene	17.71	105	827	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	17.85	68	1895	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	18.60	57	2985	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	19.58	128	2869	N.D.		
96) n-Dodecane	19.58	57	7686	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	15.33	55	1621	N.D.		
99) tert-Butylbenzene	17.26	119	850	N.D.		
100) n-Butylbenzene	18.10	91	1029	N.D.		

(#)= qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171720.D

Acq On : 17 Apr 2017 18:31

Operator: WA

Sample : P1701582-004 (1000mL)

Misc : S31-04031701

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 18 07:50:13 2017

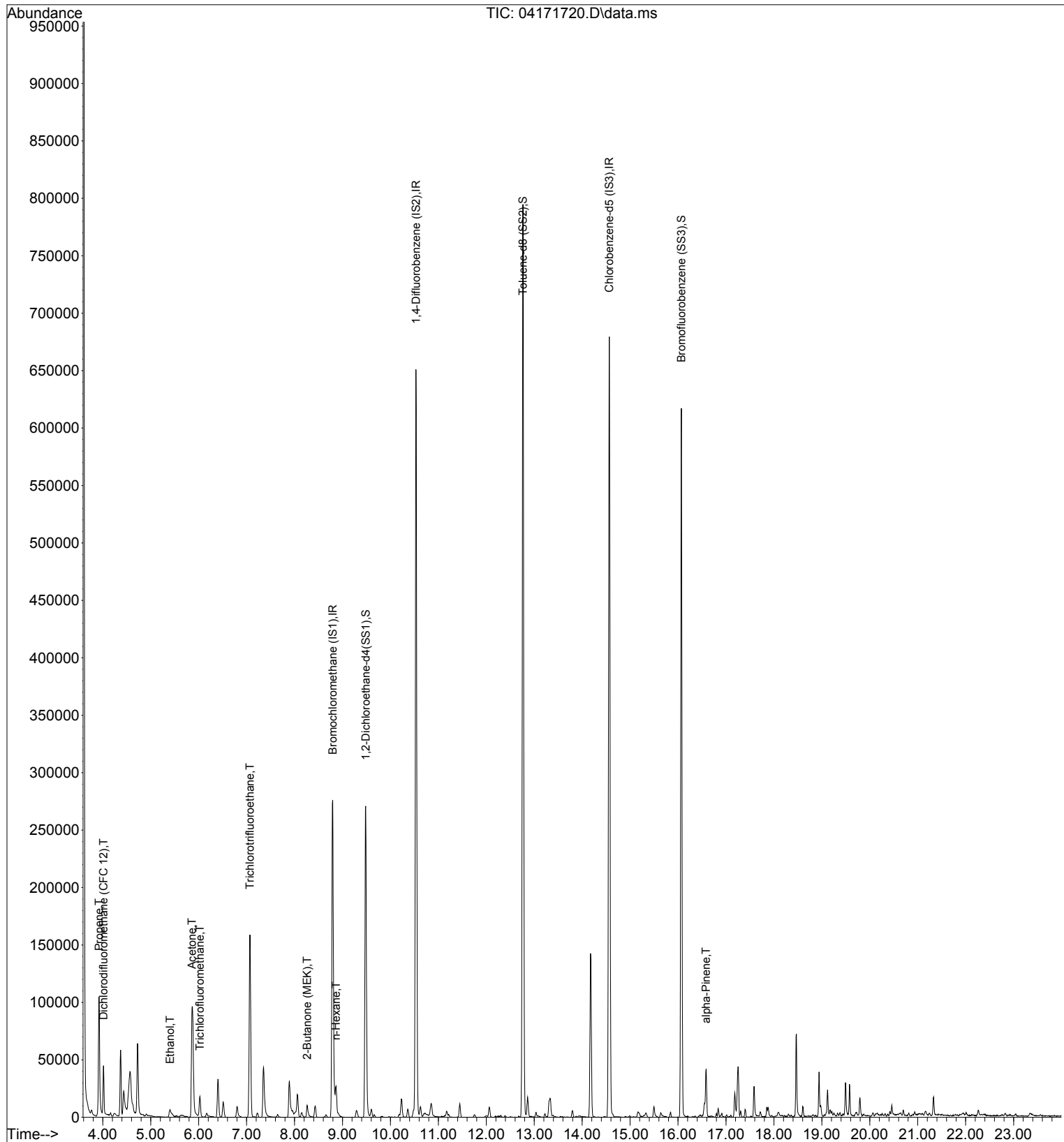
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 04\17\04171720.D

Acq On : 17 Apr 2017 18:31

Operator: WA

Sample : P1701582-004 (1000mL)

Misc : S31-04031701

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 18 07:50:13 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

~~IDA~~ 4/18/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	110969	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.53	114	543906	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	250990	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	9.48	65	213957	13.384	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	107.04%
57) Toluene-d8 (SS2)	12.77	98	588584	12.480	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.84%
73) Bromofluorobenzene (SS3)	16.07	174	175115	11.323	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	90.56%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propene	3.92	42	5537	0.479	ng	# 1
3) Dichlorodifluoromethan...	4.01	85	34266	1.606	ng	99
10) Ethanol	5.40	45	16517	2.012	ng	98
13) Acetone	5.86	58	35031	4.354	ng	# 71
14) Trichlorofluoromethane	6.02	101	15348	0.812	ng	99
21) Trichlorotrifluoroethane	7.07	151	54296	6.190	ng	99
27) 2-Butanone (MEK)	8.26	72	3645	0.536	ng	# 73
31) n-Hexane	8.87	57	9409	0.535	ng	99
75) alpha-Pinene	16.59	93	15682	0.594	ng	75

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171720.D

Acq On : 17 Apr 2017 18:31

Operator: WA

Sample : P1701582-004 (1000mL)

Misc : S31-04031701

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 18 07:50:13 2017

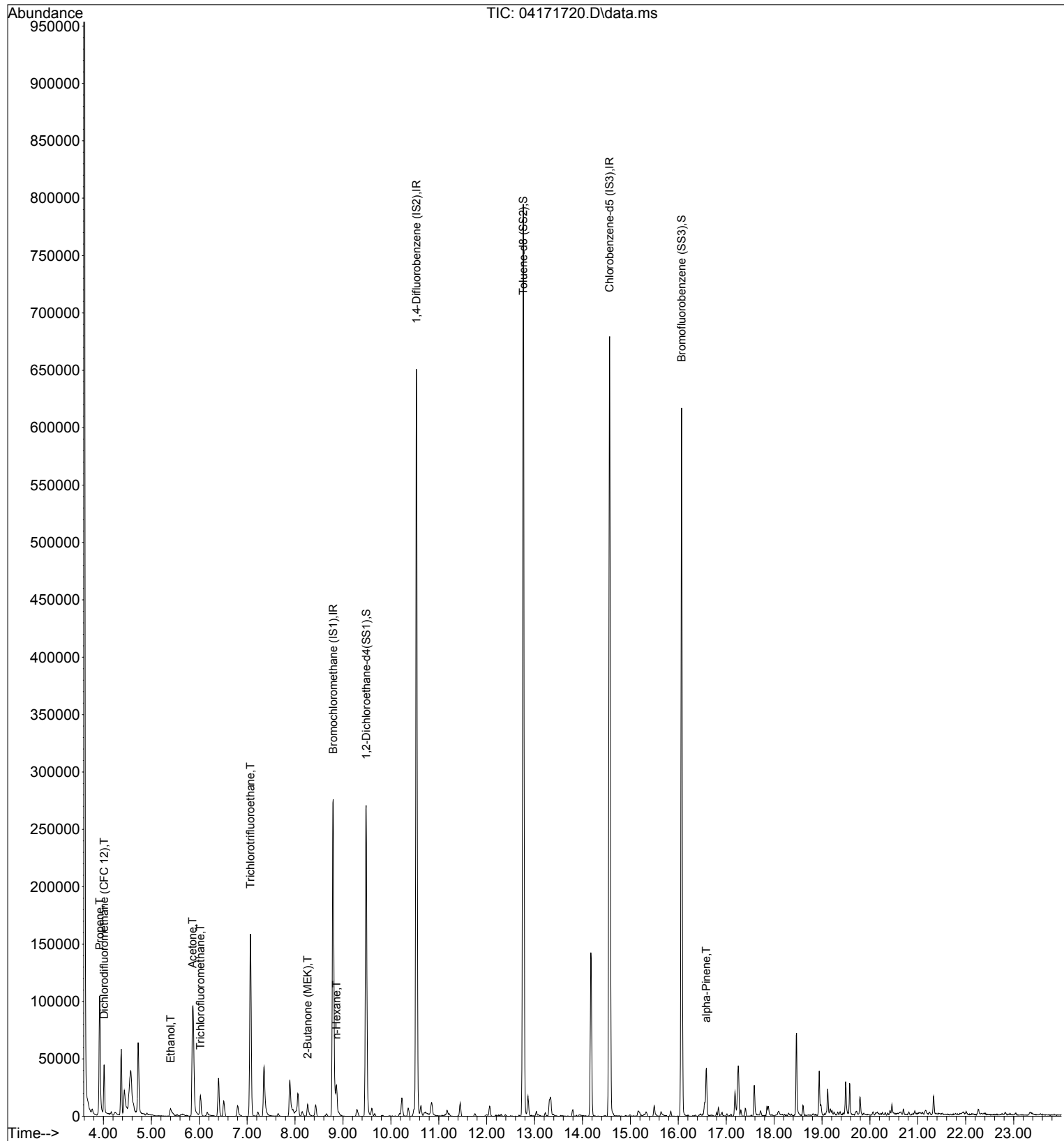
Quant Method : I:\MS08\Methods\R8030717.M

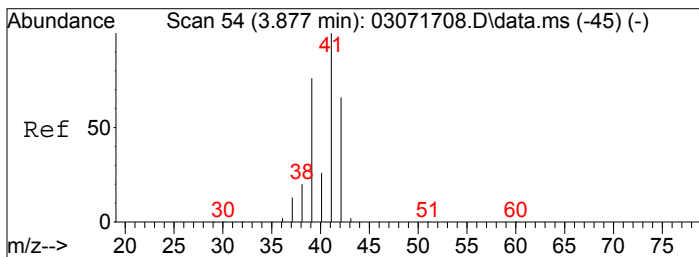
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

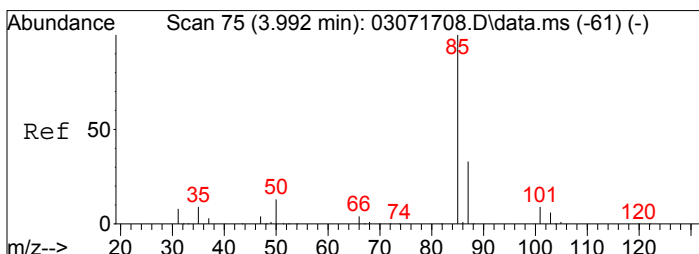
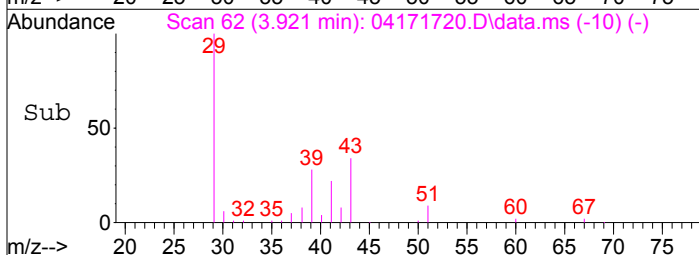
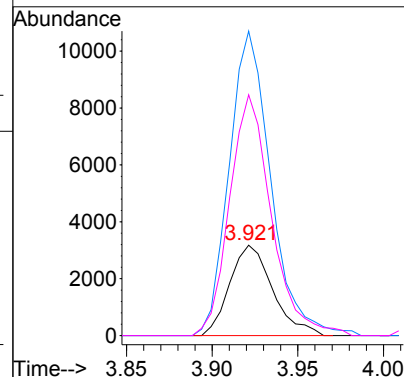
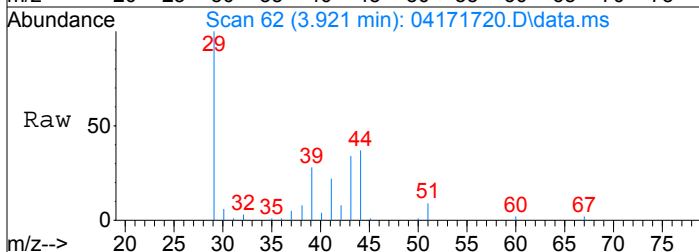
DataAcq Meth:TO15.M





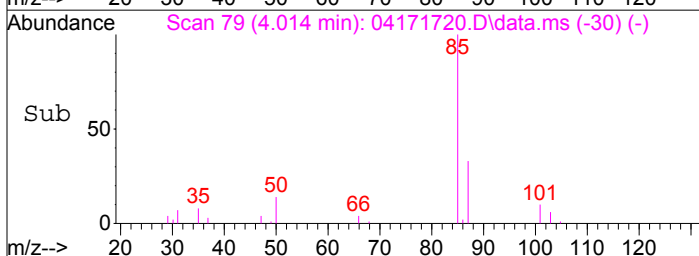
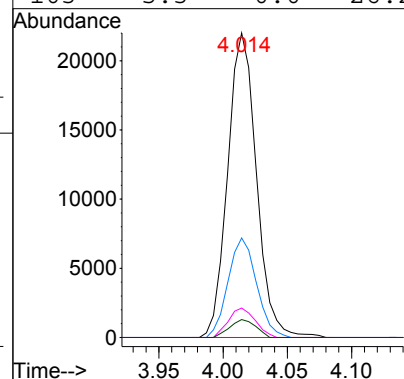
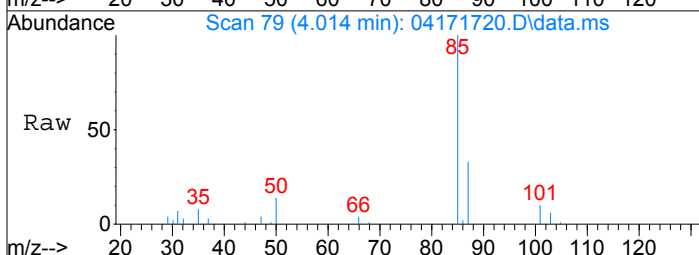
#2
 Propene
 Concen: 0.48 ng
 RT: 3.92 min Scan# 62
 Delta R.T. 0.033 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

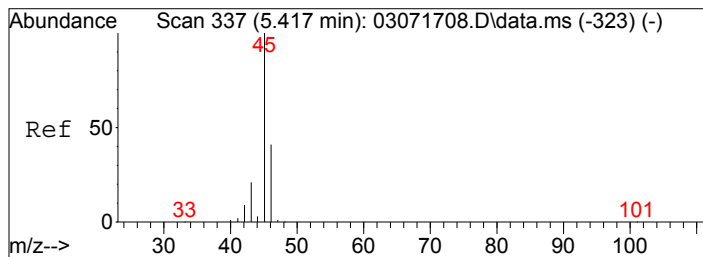
Tgt Ion:	42	Resp:	5537
Ion Ratio	Lower	Upper	
42	100		
39	326.9	95.0	135.0#
41	259.5	130.2	170.2#



#3
 Dichlorodifluoromethane (CFC 12)
 Concen: 1.61 ng
 RT: 4.01 min Scan# 79
 Delta R.T. 0.016 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

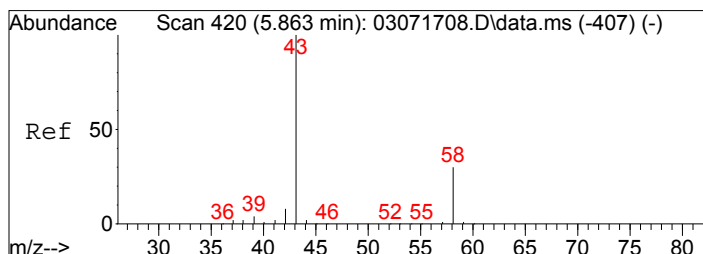
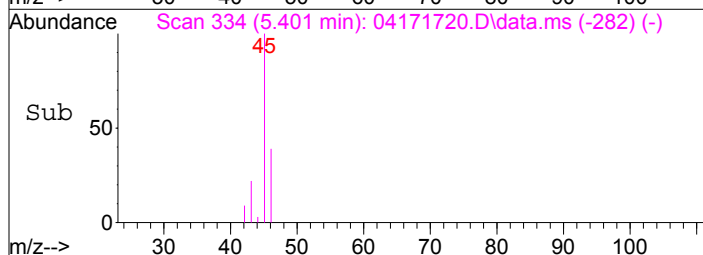
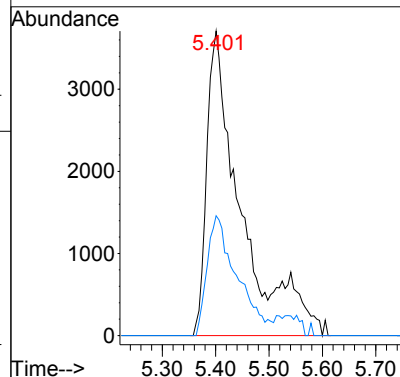
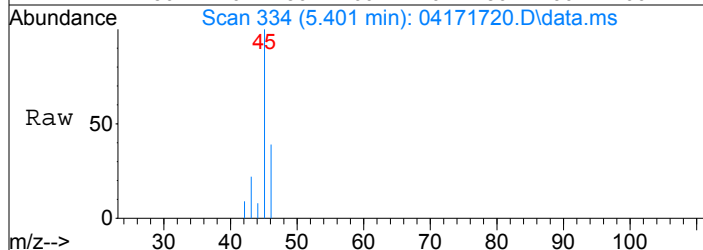
Tgt Ion:	85	Resp:	34266
Ion Ratio	Lower	Upper	
85	100		
87	32.2	12.6	52.6
101	9.0	0.0	29.6
103	5.3	0.0	26.2





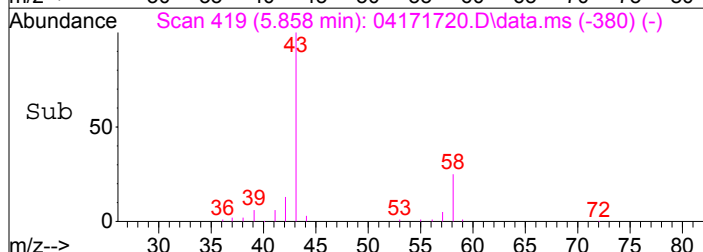
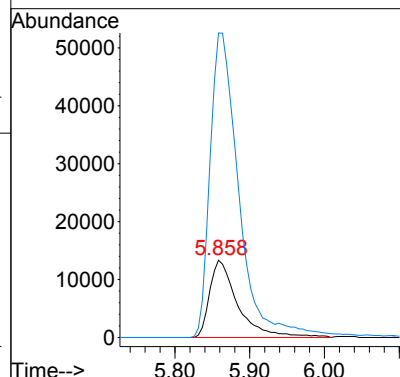
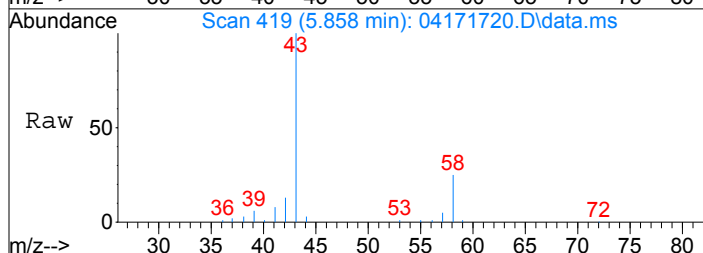
#10
 Ethanol
 Concen: 2.01 ng
 RT: 5.40 min Scan# 334
 Delta R.T. -0.070 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

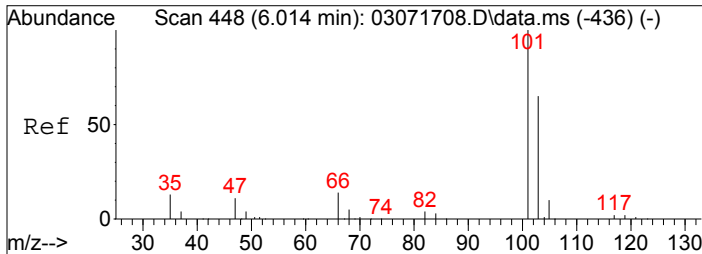
Tgt Ion	Resp	Lower	Upper
45	16517		
45	100		
46	39.1	20.6	60.6



#13
 Acetone
 Concen: 4.35 ng
 RT: 5.86 min Scan# 419
 Delta R.T. -0.038 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

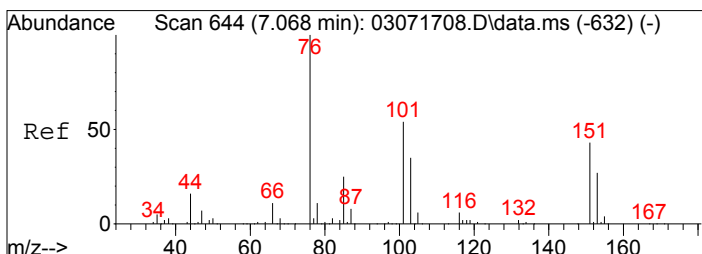
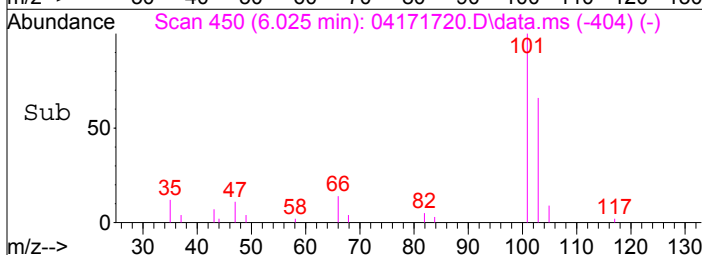
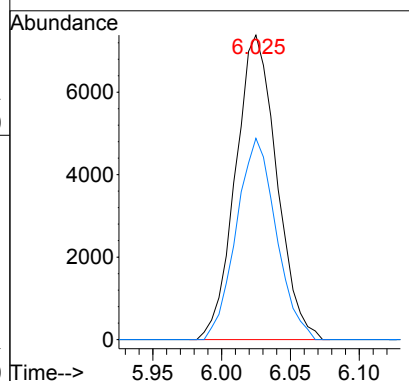
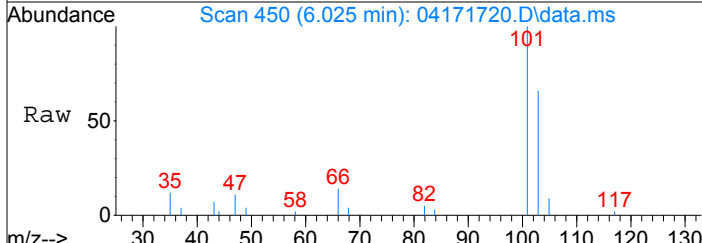
Tgt Ion	Resp	Lower	Upper
58	35031		
58	100		
43	406.6	313.9	373.9#





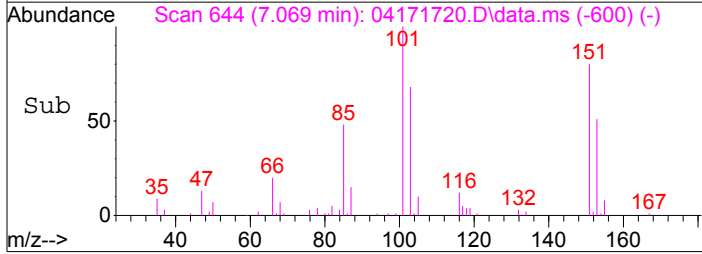
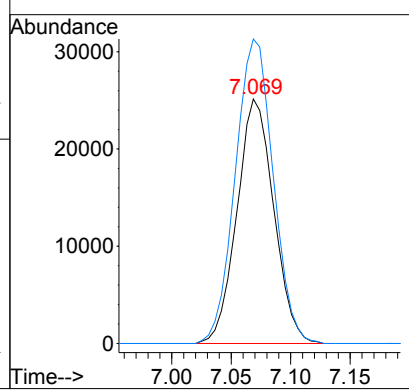
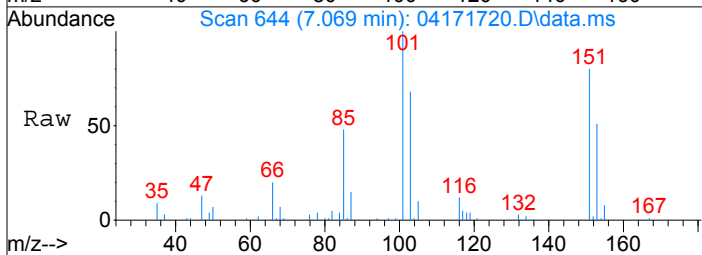
#14
 Trichlorofluoromethane
 Concen: 0.81 ng
 RT: 6.02 min Scan# 450
 Delta R.T. -0.000 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

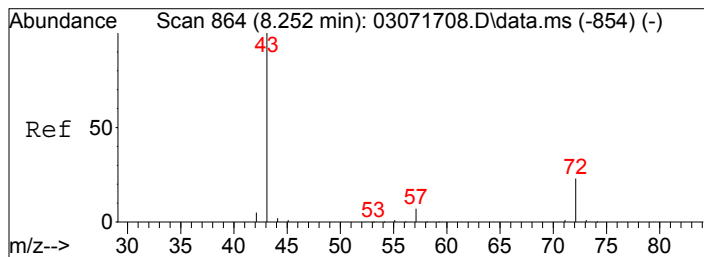
Tgt Ion	Resp	Lower	Upper
101	15348		
101	100		
103	63.9	44.9	84.9



#21
 Trichlorotrifluoroethane
 Concen: 6.19 ng
 RT: 7.07 min Scan# 644
 Delta R.T. -0.011 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

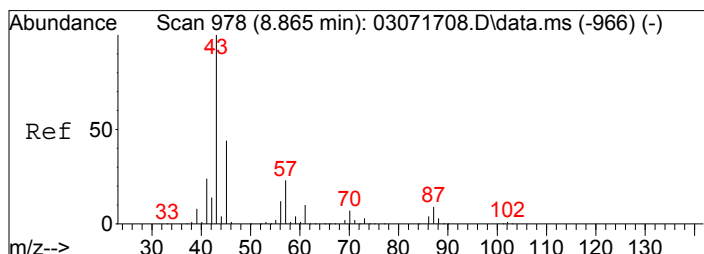
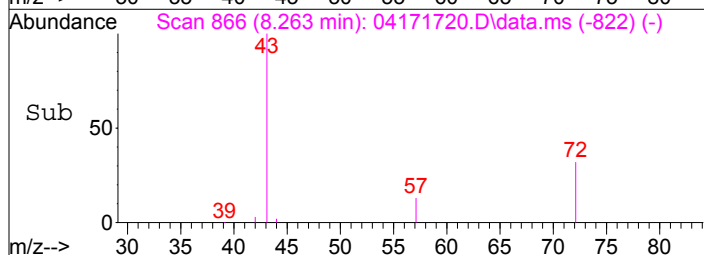
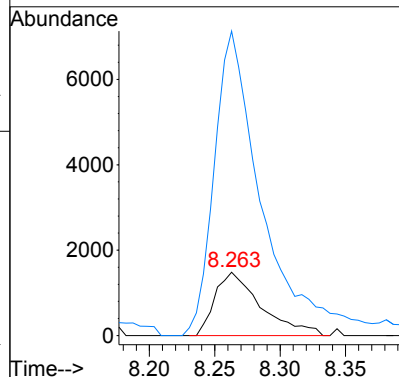
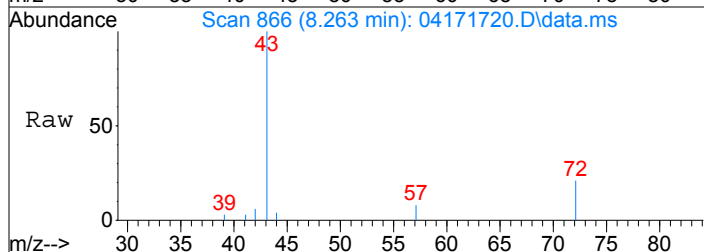
Tgt Ion	Resp	Lower	Upper
151	54296		
151	100		
101	128.2	106.7	146.7





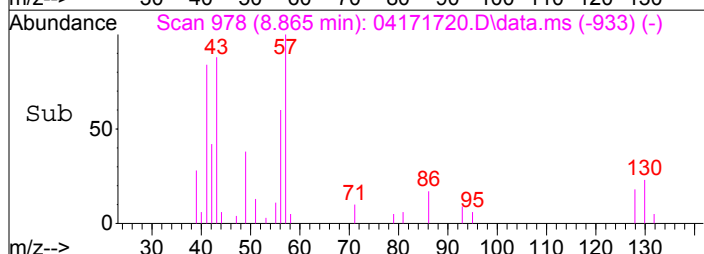
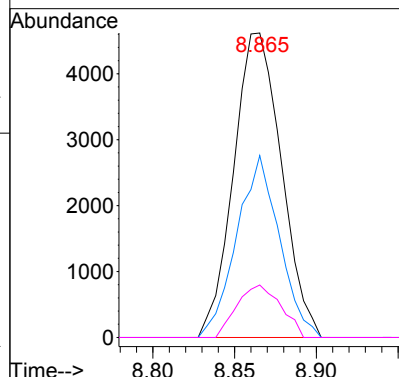
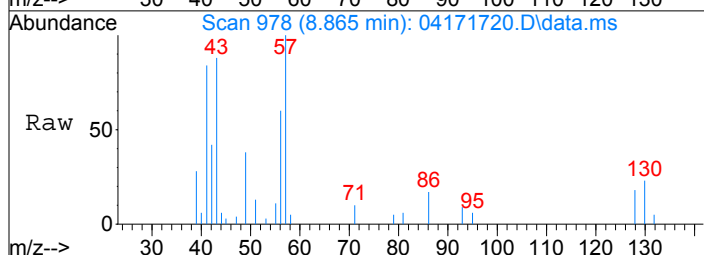
#27
 2-Butanone (MEK)
 Concen: 0.54 ng
 RT: 8.26 min Scan# 866
 Delta R.T. -0.011 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

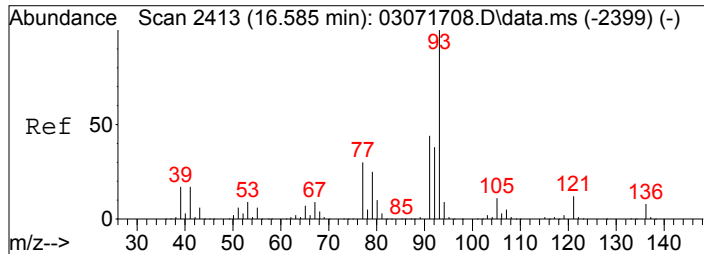
Tgt Ion	Resp	Lower	Upper
72	3645		
72	100		
43	500.6	412.0	452.0#



#31
 n-Hexane
 Concen: 0.54 ng
 RT: 8.87 min Scan# 978
 Delta R.T. -0.005 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

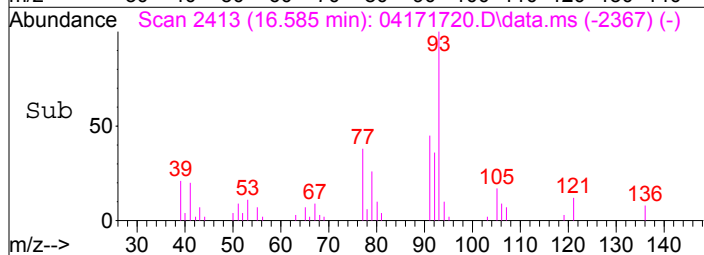
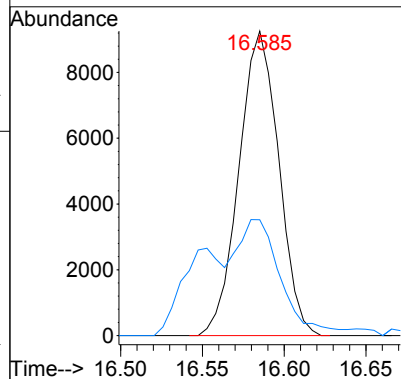
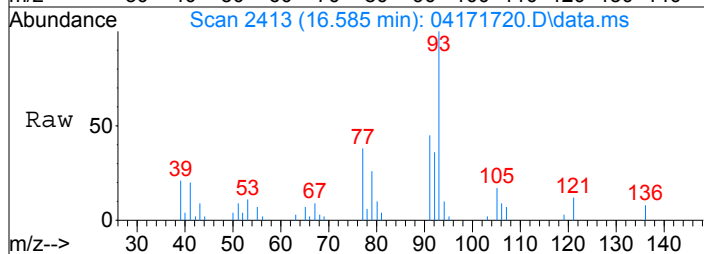
Tgt Ion	Resp	Lower	Upper
57	9409		
57	100		
56	53.3	42.3	63.5
86	15.8	13.9	20.9





#75
 alpha-Pinene
 Concen: 0.59 ng
 RT: 16.59 min Scan# 2413
 Delta R.T. -0.000 min
 Lab File: 04171720.D
 Acq: 17 Apr 2017 18:31

Tgt Ion	Resp	Lower	Upper
93	15682		
93	100		
77	44.5	10.6	50.6



Data File: I:\MS08\Data\2017 04\17\04171704.D

Acq On : 17 Apr 2017 8:37

Operator: WA

Sample : MB R8041717 1000mL

Misc : S31-04031701 AS00703

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Apr 17 09:22:44 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

IDA 4/17/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	114280	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.53	114	563271	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	252066	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	217324	13.201	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	105.60%
57) Toluene-d8 (SS2)	12.77	98	600318	12.674	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.36%
73) Bromofluorobenzene (SS3)	16.07	174	178748	11.509	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	92.08%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.44	45	1004	0.119	ng	# 43
11) Acetonitrile	5.69	41	351	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	5.93	58	892	0.108	ng	# 67
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	6.23	45	103	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	7.09	76	1583	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	0.00	78	0	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

Data File: I:\MS08\Data\2017 04\17\04171704.D

Acq On : 17 Apr 2017 8:37

Operator: WA

Sample : MB R8041717 1000mL

Misc : S31-04031701 AS00703

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Apr 17 09:22:44 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	0.00	91	0	N.D.		
67) m- & p-Xylenes	15.20	91	453	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D.		
78) 4-Ethyltoluene	0.00	105	0	N.D.		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	19.49	180	632	N.D.		
95) Naphthalene	0.00	128	0	N.D.	d	
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171704.D

Acq On : 17 Apr 2017 8:37

Operator: WA

Sample : MB R8041717 1000mL

Misc : S31-04031701 AS00703

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Apr 17 09:22:44 2017

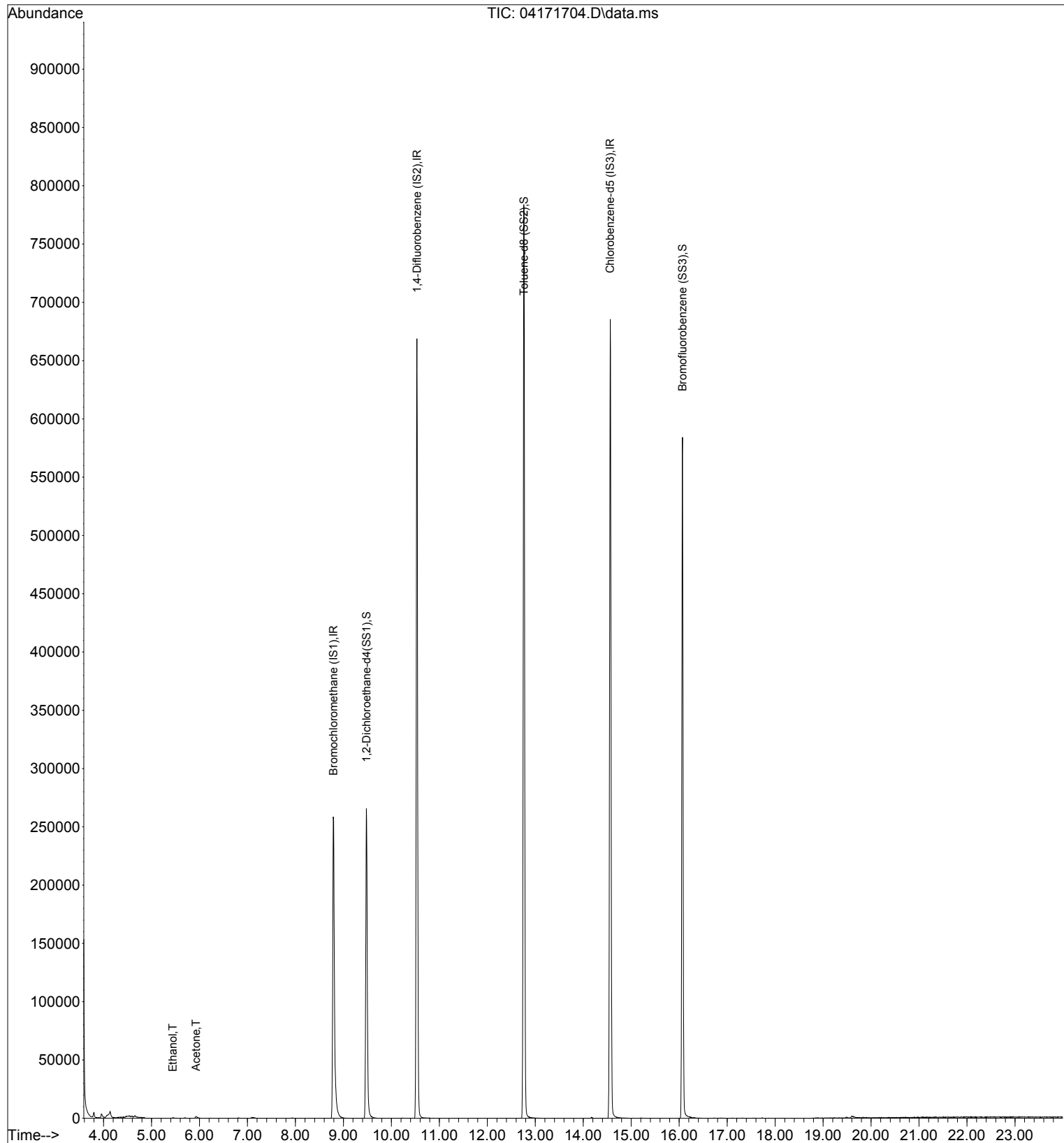
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 04\17\04171705.D

Acq On : 17 Apr 2017 9:09 Operator: WA
Sample : LCS R8041717 25ng
Misc : S31-04031701/S29-03271707 (4/25)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Apr 17 09:34:55 2017
Quant Method : I:\MS08\Methods\R8030717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 07 07:25:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15.M

4/17/17

Table with 7 columns: Internal Standards, R.T., QIon, Response, Conc, Units, Dev (Min). Rows include Bromochloromethane (IS1), 1,4-Difluorobenzene (IS2), and Chlorobenzene-d5 (IS3).

System Monitoring Compounds table with 7 columns: Compound Name, R.T., QIon, Response, Conc, Units, Dev (Min). Includes 1,2-Dichloroethane-d4, Toluene-d8 (SS2), and Bromofluorobenzene (SS3).

Target Compounds table with 7 columns: Compound Name, R.T., QIon, Response, Conc, Units, Qvalue. Lists 49 various compounds such as Propene, Dichlorodifluoromethane, and Benzene.

Data File: I:\MS08\Data\2017 04\17\04171705.D

Acq On : 17 Apr 2017 9:09

Operator: WA

Sample : LCS R8041717 25ng

Misc : S31-04031701/S29-03271707 (4/25)

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Apr 17 09:34:55 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.33	100	261160	59.528	ng	96
51) n-Heptane	11.45	71	310495	26.554	ng	98
52) cis-1,3-Dichloropropene	11.94	75	524579	31.082	ng	99
53) 4-Methyl-2-pentanone	11.96	58	328174	33.115	ng	97
54) trans-1,3-Dichloropropene	12.42	75	506108	31.151	ng	100
55) 1,1,2-Trichloroethane	12.58	97	293704	27.416	ng	99
58) Toluene	12.86	91	1203506	25.770	ng	100
59) 2-Hexanone	13.07	43	859040	35.378	ng	98
60) Dibromochloromethane	13.25	129	354954	31.512	ng	99
61) 1,2-Dibromoethane	13.49	107	329047	29.921	ng	100
62) n-Butyl Acetate	13.66	43	971803	33.072	ng	99
63) n-Octane	13.79	57	291112	28.160	ng	97
64) Tetrachloroethene	13.94	166	327153	26.404	ng	99
65) Chlorobenzene	14.61	112	794894	26.032	ng	100
66) Ethylbenzene	14.99	91	1447137	27.666	ng	99
67) m- & p-Xylenes	15.17	91	2291007	54.975	ng	99
68) Bromoform	15.24	173	283674	31.026	ng	100
69) Styrene	15.52	104	892788	30.684	ng	99
70) o-Xylene	15.63	91	1173950	27.368	ng	99
71) n-Nonane	15.84	43	763332	29.513	ng	97
72) 1,1,2,2-Tetrachloroethane	15.61	83	519356	28.063	ng	100
74) Cumene	16.20	105	1460863	26.851	ng	99
75) alpha-Pinene	16.59	93	796528	28.370	ng	100
76) n-Propylbenzene	16.69	91	1796393	28.123	ng	99
77) 3-Ethyltoluene	16.79	105	1396073	26.678	ng	99
78) 4-Ethyltoluene	16.83	105	1458371	28.932	ng	100
79) 1,3,5-Trimethylbenzene	16.91	105	1219160	26.487	ng	99
80) alpha-Methylstyrene	17.05	118	664299	31.346	ng	99
81) 2-Ethyltoluene	17.09	105	1425713	26.944	ng	99
82) 1,2,4-Trimethylbenzene	17.30	105	1219777	27.688	ng	99
83) n-Decane	17.40	57	741816	29.536	ng	98
84) Benzyl Chloride	17.42	91	1158280	32.735	ng	99
85) 1,3-Dichlorobenzene	17.45	146	666723	27.496	ng	100
86) 1,4-Dichlorobenzene	17.51	146	678569	27.011	ng	100
87) sec-Butylbenzene	17.56	105	1613416	27.188	ng	99
88) 4-Isopropyltoluene (p-...	17.71	119	1485403	26.975	ng	99
89) 1,2,3-Trimethylbenzene	17.71	105	1252261	27.877	ng	98
90) 1,2-Dichlorobenzene	17.84	146	627748	26.994	ng	100
91) d-Limonene	17.85	68	539714	31.566	ng	98
92) 1,2-Dibromo-3-Chloropr...	18.25	157	235819	29.139	ng	91
93) n-Undecane	18.60	57	772169	31.039	ng	99
94) 1,2,4-Trichlorobenzene	19.46	180	473791	29.385	ng	99
95) Naphthalene	19.56	128	1569476	30.943	ng	100
96) n-Dodecane	19.58	57	759787	33.337	ng	98
97) Hexachlorobutadiene	19.90	225	288759	26.002	ng	100
98) Cyclohexanone	15.31	55	515547	31.102	ng	97
99) tert-Butylbenzene	17.30	119	1175494	26.377	ng	100
100) n-Butylbenzene	18.11	91	1364132	29.363	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171705.D

Acq On : 17 Apr 2017 9:09

Operator: WA

Sample : LCS R8041717 25ng

Misc : S31-04031701/S29-03271707 (4/25)

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Apr 17 09:34:55 2017

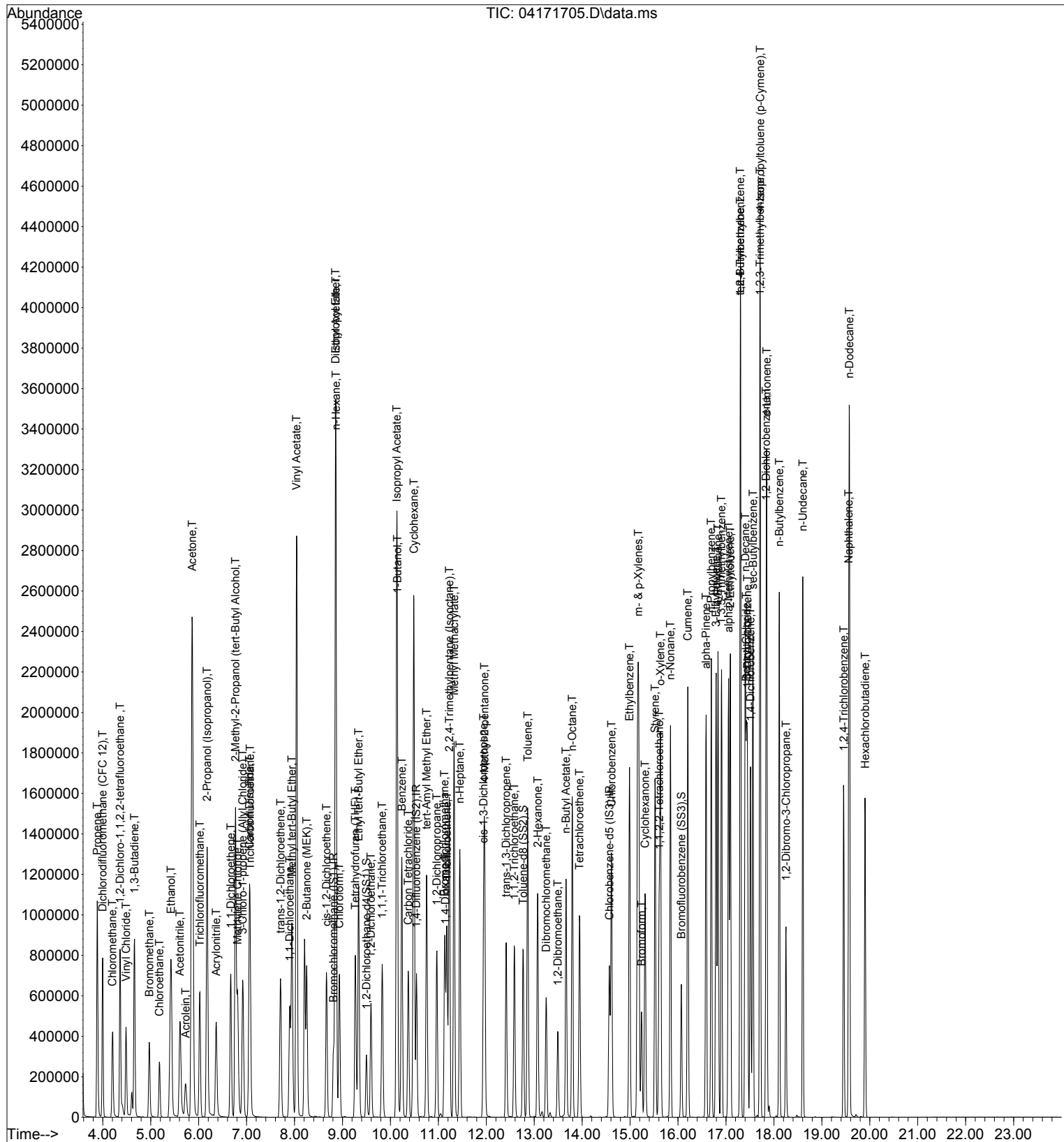
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Method Path : I:\MS08\Methods\
 Method File : R8030717.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Mar 07 07:25:36 2017
 Response Via : Initial Calibration

Calibration Files

0.08=03071702.D 0.10=03071703.D 0.20=03071704.D 0.40=03071705.D 1.0 =03071706.D 5.0 =03071707.D 25 =03071708.D
 50 =03071709.D 100 =03071710.D

Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
-----ISTD-----											
1) IR Bromochloromethane...			1.425	1.263	1.393	1.125	1.240	1.223	1.442	1.302	9.21
2) T Propene			2.559	2.367	2.584	2.129	2.156	2.056	1.962	2.404	14.99
3) T Dichlorodifluo...	2.995	2.827	2.004	1.807	1.978	1.446	1.674	1.558	1.295	1.680	15.89
4) T Chloromethane			1.509	1.399	1.222	1.328	1.081	1.093	1.003	0.940	16.16
5) T 1,2-Dichloro-1...	1.943	1.955	1.849	2.127	1.778	1.826	1.431	1.673	1.579	1.857	9.03
6) T Vinyl Chloride	1.716	1.597	1.512	1.373	1.647	1.323	1.431	1.333	1.253	1.465	11.01
7) T 1,3-Butadiene	0.968	0.900	1.047	1.015	1.086	0.966	1.003	0.924	0.869	0.975	7.20
8) T Bromomethane	0.879	0.911	0.896	0.827	0.949	0.834	0.844	0.828	0.822	0.866	5.22
9) T Chloroethane	1.129	1.036	0.870	1.024	0.781	0.871	0.871	0.857	0.831	0.925	13.17
10) T Ethanol			2.990	2.499	2.622	2.165	2.340	2.287	2.281	2.455	11.42
11) T Acetonitrile			0.718	0.736	0.638	0.735	0.717	0.705	0.708	0.708	5.12
12) T Acrolein			0.963	1.032	0.864	0.930	0.850	0.850	0.800	0.906	9.34
13) T Acetone			2.597	2.566	2.342	2.093	2.250	1.874	1.888	1.770	15.27
14) T Trichlorofluor...	3.954	3.721	3.496	3.155	3.553	3.108	3.509	3.307	2.671	3.386	11.14
15) T 2-Propanol (Is...	1.318	1.355	1.458	1.430	1.633	1.425	1.632	1.560	1.539	1.483	7.69
16) T Acrylonitrile	1.185	1.157	1.149	0.998	1.128	0.979	1.067	1.018	1.005	1.076	7.38
17) T 1,1-Dichloroet...	3.815	3.597	3.404	3.144	3.545	3.088	3.442	3.262	3.004	3.367	7.88
18) T 2-Methyl-2-Pro...			1.145	1.257	1.024	1.125	1.125	1.065	1.017	1.105	8.18
19) T Methylene Chlo...	2.094	2.064	2.048	1.840	2.125	1.837	2.028	1.960	1.918	1.990	5.37
20) T 3-Chloro-1-pro...	1.123	1.153	1.061	0.975	1.047	0.885	0.929	0.878	0.841	0.988	11.44
21) T Trichlorotrifl...			4.265	4.485	3.614	3.987	3.755	3.647	3.959	3.959	8.96
22) T Carbon Disulfide	1.848	1.723	1.803	1.641	1.850	1.572	1.706	1.636	1.607	1.709	6.11
23) T trans-1,2-Dich...	2.494	2.500	2.203	2.030	2.258	1.868	1.969	1.900	1.888	2.123	11.85
24) T 1,1-Dichloroet...	4.678	4.527	3.988	3.641	3.966	3.382	3.632	3.466	3.370	3.850	12.54
25) T Methyl tert-Bu...			0.285	0.281	0.334	0.306	0.324	0.304	0.277	0.302	7.30
26) T Vinyl Acetate			0.748	0.700	0.840	0.759	0.804	0.761	0.750	0.766	5.83
27) T 2-Butanone (MEK)	1.860	1.761	1.731	1.602	1.773	1.498	1.631	1.553	1.530	1.660	7.57
28) T cis-1,2-Dichlo...	1.264	1.127	1.071	0.984	1.063	0.925	0.964	0.895	0.792	1.009	13.81
29) T Diisopropyl Ether	0.323	0.256	0.349	0.374	0.428	0.386	0.415	0.401	0.355	0.365	14.47
30) T Ethyl Acetate	2.563	2.366	2.128	1.952	2.103	1.782	1.764	1.665	1.489	1.979	17.43
31) T n-Hexane	2.531	2.388	2.159	2.019	2.233	1.862	1.964	1.871	1.834	2.096	11.86
32) T Chloroform	1.807	1.838	1.859	1.856	1.801	1.820	1.723	1.736	1.766	1.801	2.76
33) S 1,2-Dichloroet...	0.823	0.768	0.773	0.727	0.820	0.724	0.776	0.741	0.735	0.765	4.87
34) T Tetrahydrofura...	1.831	1.775	1.638	1.470	1.642	1.401	1.502	1.418	1.384	1.562	10.63
35) T Ethyl tert-But...	2.081	2.145	1.904	1.734	1.907	1.621	1.665	1.601	1.579	1.804	11.80
36) T 1,2-Dichloroet...											
-----ISTD-----											
37) IR 1,4-Difluorobenzen...			0.495	0.463	0.424	0.380	0.448	0.370	0.403	0.372	11.56
38) T 1,1,1-Trichlor...	0.152	0.162	0.149	0.136	0.162	0.141	0.162	0.149	0.138	0.150	6.78
39) T Isopropyl Acetate			0.200	0.282	0.268	0.362	0.362	0.331	0.305	0.291	19.26
40) T 1-Butanol	1.277	1.186	1.045	0.919	1.035	0.852	0.919	0.842	0.809	0.987	16.39
41) T Benzene	0.360	0.364	0.344	0.316	0.364	0.312	0.352	0.325	0.311	0.339	6.67
42) T Carbon Tetrach...											

IDA 3/7/17

Method Path	Method File	Title	0.554	0.527	0.449	0.397	0.445	0.368	0.406	0.368	0.332	0.427
I:\MS08\Methods\	R8030717.M	EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)	0.923	0.843	0.774	0.693	0.804	0.688	0.771	0.710	0.663	0.763
		Cyclohexane	0.282	0.288	0.240	0.234	0.258	0.214	0.233	0.220	0.213	0.242
		tert-Amyl Meth...	0.340	0.341	0.319	0.298	0.354	0.305	0.349	0.327	0.309	0.327
		1,2-Dichloropr...	0.310	0.278	0.271	0.248	0.276	0.232	0.250	0.233	0.220	0.258
		Bromodichlorom...	0.202	0.204	0.183	0.175	0.227	0.191	0.218	0.202	0.192	0.199
		Trichloroethene	1.401	1.341	1.207	1.073	1.216	1.008	1.136	1.047	0.970	1.155
		1,4-Dioxane	0.298	0.296	0.266	0.253	0.269	0.224	0.233	0.216	0.212	0.252
		2,2,4-Trimethyl...	0.361	0.331	0.343	0.316	0.400	0.361	0.410	0.386	0.366	0.364
		Methyl Methacr...	0.181	0.171	0.171	0.199	0.250	0.220	0.258	0.241	0.229	0.214
		n-Heptane	0.283	0.278	0.244	0.230	0.251	0.209	0.237	0.221	0.210	0.231
		cis-1,3-Dichlo...	2.383	2.390	2.367	2.375	2.320	2.350	2.315	2.323	2.315	2.349
		4-Methyl-2-pen...	2.798	2.567	2.284	2.057	2.267	1.914	2.061	1.913	1.807	2.185
		trans-1,3-Dich...	0.950	0.812	0.944	0.965	1.354	1.224	1.410	1.324	1.244	1.136
		1,1,2-Trichloro...	0.498	0.484	0.480	0.463	0.574	0.527	0.605	0.572	0.541	0.527
		Chlorobenzene-d5	0.488	0.476	0.497	0.473	0.568	0.506	0.571	0.539	0.513	0.515
		Toluene-d8 (SS2)	1.038	1.472	1.472	1.356	1.552	1.460	1.372	1.375	1.310	1.375
		Toluene	0.600	0.524	0.502	0.452	0.495	0.429	0.469	0.450	0.432	0.484
		2-Hexanone	0.681	0.670	0.605	0.557	0.614	0.520	0.558	0.523	0.490	0.580
		Dibromochlorom...	1.800	1.664	1.463	1.330	1.500	1.268	1.383	1.272	1.179	1.429
		1,2-Dibromoethane	2.838	2.667	2.516	2.255	2.614	2.234	2.484	2.291	2.127	2.448
		n-Butyl Acetate	2.374	2.218	1.992	1.826	2.038	1.763	1.941	1.786	1.613	1.950
		n-Octane	0.309	0.418	0.418	0.419	0.503	0.472	0.445	0.445	0.428	0.428
		Tetrachloroethene	1.374	1.291	1.229	1.152	1.481	1.396	1.560	1.430	1.342	1.362
		Chlorobenzene	2.429	2.169	2.014	1.846	2.149	1.864	2.024	1.859	1.711	2.007
		Ethylbenzene	1.465	1.308	1.219	1.128	1.278	1.121	1.224	1.128	1.021	1.210
		m- & p-Xylenes	0.941	0.875	0.815	0.787	0.932	0.843	0.935	0.861	0.804	0.866
		Bromoform	0.769	0.759	0.764	0.765	0.768	0.779	0.783	0.776	0.768	0.770
		Styrene	3.175	2.872	2.577	2.353	2.653	2.357	2.544	2.307	2.074	2.546
		o-Xylene	1.503	1.399	1.272	1.188	1.387	1.244	1.375	1.274	1.183	1.314
		n-Nonane	3.462	3.295	2.958	2.752	3.249	2.848	3.069	2.783	2.484	2.989
		1,1,2,2-Tetrac...	2.767	2.580	2.443	2.329	2.634	2.362	2.494	2.384	2.046	2.449
		Bromofluoroben...	2.930	2.517	2.310	2.046	2.567	2.294	2.465	2.120	1.979	2.359
		Cumene	2.610	2.458	2.180	1.976	2.300	2.018	2.141	1.953	1.748	2.154
		alpha-Pinene	0.919	0.882	0.879	0.819	1.121	1.075	1.179	1.074	0.976	0.992
		n-Propylbenzene	3.009	2.704	2.524	2.311	2.689	2.357	2.457	2.239	1.996	2.476
		3-Ethyltoluene	2.345	2.224	2.014	1.924	2.300	2.044	2.185	1.941	1.577	2.061
		4-Ethyltoluene	1.271	1.263	1.160	1.100	1.278	1.135	1.235	1.136	1.000	1.175
		1,3,5-Trimethyl...	1.006	1.517	1.669	2.072	1.950	1.721	1.950	1.721	1.656	22.69
		alpha-Methylst...	1.246	1.261	1.078	1.051	1.242	1.119	1.193	1.071	0.949	1.135
		1,2,4-Trimethyl...	1.386	1.272	1.101	1.069	1.297	1.132	1.223	1.100	1.000	1.176
		n-Decane	3.223	3.005	2.782	2.649	3.036	2.711	2.821	2.538	2.227	2.777
		Benzyl Chloride	2.985	2.797	2.544	2.422	2.937	2.603	2.702	2.344	1.857	2.577
		1,3-Dichlororob...	2.471	2.246	2.067	1.972	2.348	2.077	2.207	1.955	1.575	2.102
		1,4-Dichlororob...	1.253	1.160	1.070	1.000	1.233	1.084	1.141	1.011	0.840	1.088
		sec-Butylbenzene	0.812	0.711	0.719	0.681	0.878	0.853	0.947	0.877	0.721	0.800
		4-Isopropyltol...	0.266	0.383	0.383	0.385	0.451	0.411	0.377	0.377	0.379	16.31
		1,2,3-Trimethyl...	1.257	1.093	1.088	0.996	1.267	1.152	1.335	1.219	1.069	1.164
		1,2-Dichlororob...	0.784	0.700	0.616	0.584	0.830	0.767	0.922	0.838	0.749	14.29
		d-Limonene										
		1,2-Dibromo-3-...										
		n-Undecane										
		1,2,4-Trichloro...										

Method Path : I:\MS08\Methods\
 Method File : R8030717.M

Title	EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)													
95) T Naphthalene	2.885	2.038	1.838	1.795	2.505	2.397	3.019	2.706	2.178	2.373	18.72			
96) T n-Dodecane	1.237	0.913	0.867	0.856	1.087	1.040	1.381	1.247	0.972	1.066	17.50			
97) T Hexachlorobuta...	0.622	0.537	0.526	0.474	0.572	0.491	0.536	0.485	0.435	0.520	10.77			
98) T Cyclohexanone	0.860	0.718	0.646	0.608	0.829	0.771	0.904	0.845	0.801	0.776	12.89			
99) T tert-Butylbenzene	2.522	2.315	2.155	2.001	2.294	2.026	2.100	1.852	1.504	2.085	14.13			
100) T n-Butylbenzene	2.335	2.120	2.082	1.941	2.453	2.214	2.380	2.152	1.887	2.174	8.85			

(#) = Out of Range

ADA 3/7/17

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: S29-03021707
 4ng/L Std. ID: S29-03021707
 20ng/L Std. ID: S29-03021706
 200ng/L Std. ID: S29-03021702

Compounds	Source Std. mg/m ³	Primary Working Standards				Working STD Conc.(ng/L):	Injection (L):	ICAL Points:	4				20				200				200											
		200ng/L	20ng/L	4ng/L	1ng/L				0.020	0.025	0.050	0.100	0.050	0.125	0.250	0.500	1.000	0.025	0.050	0.100	0.200	0.400	0.800	1.600	3.200	6.400	12.800	25.600	51.200	102.400		
Propene	1.036	207.2	20.72	4.144	1.036	0.08288	0.1036	0.2072	0.4144	1.036	5.180	25.900	51.80	103.6	0.08288	0.1036	0.2072	0.4144	1.036	5.180	25.900	51.80	103.6	0.08288	0.1036	0.2072	0.4144	1.036	5.180	25.900	51.80	103.6
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.08376	0.1047	0.2094	0.4188	1.047	5.235	26.175	52.35	104.7	0.08376	0.1047	0.2094	0.4188	1.047	5.235	26.175	52.35	104.7	0.08376	0.1047	0.2094	0.4188	1.047	5.235	26.175	52.35	104.7
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5
Freon-114	1.005	201.0	20.10	4.020	1.005	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.08184	0.1023	0.2046	0.4092	1.023	5.115	25.575	51.15	102.3	0.08184	0.1023	0.2046	0.4092	1.023	5.115	25.575	51.15	102.3	0.08184	0.1023	0.2046	0.4092	1.023	5.115	25.575	51.15	102.3
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.07944	0.0993	0.1986	0.3972	0.993	4.965	24.825	49.65	99.3	0.07944	0.0993	0.1986	0.3972	0.993	4.965	24.825	49.65	99.3	0.07944	0.0993	0.1986	0.3972	0.993	4.965	24.825	49.65	99.3
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.08072	0.1009	0.2018	0.4036	1.009	5.045	25.225	50.45	100.9	0.08072	0.1009	0.2018	0.4036	1.009	5.045	25.225	50.45	100.9	0.08072	0.1009	0.2018	0.4036	1.009	5.045	25.225	50.45	100.9
Ethanol	5.207	1041.4	104.14	20.828	5.207	0.41656	0.5207	1.0414	2.0828	5.207	26.035	130.175	260.35	520.7	0.41656	0.5207	1.0414	2.0828	5.207	26.035	130.175	260.35	520.7	0.41656	0.5207	1.0414	2.0828	5.207	26.035	130.175	260.35	520.7
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.08368	0.1046	0.2092	0.4184	1.046	5.230	26.150	52.30	104.6	0.08368	0.1046	0.2092	0.4184	1.046	5.230	26.150	52.30	104.6	0.08368	0.1046	0.2092	0.4184	1.046	5.230	26.150	52.30	104.6
Acrolein	1.041	208.2	20.82	4.164	1.041	0.08328	0.1041	0.2082	0.4164	1.041	5.205	26.025	52.05	104.1	0.08328	0.1041	0.2082	0.4164	1.041	5.205	26.025	52.05	104.1	0.08328	0.1041	0.2082	0.4164	1.041	5.205	26.025	52.05	104.1
Acetone	5.313	1062.6	106.26	21.252	5.313	0.42504	0.5313	1.0626	2.1252	5.313	26.565	132.825	265.65	531.3	0.42504	0.5313	1.0626	2.1252	5.313	26.565	132.825	265.65	531.3	0.42504	0.5313	1.0626	2.1252	5.313	26.565	132.825	265.65	531.3
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.16840	0.2105	0.4210	0.8420	2.105	10.525	52.625	105.25	210.5	0.16840	0.2105	0.4210	0.8420	2.105	10.525	52.625	105.25	210.5	0.16840	0.2105	0.4210	0.8420	2.105	10.525	52.625	105.25	210.5
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5	0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5	0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9	0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9	0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.16912	0.2114	0.4228	0.8456	2.114	10.570	52.850	105.70	211.4	0.16912	0.2114	0.4228	0.8456	2.114	10.570	52.850	105.70	211.4	0.16912	0.2114	0.4228	0.8456	2.114	10.570	52.850	105.70	211.4
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2	0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2	0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2
Trichlorofluoroethane	1.049	209.8	20.98	4.196	1.049	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7	0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7	0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.08160	0.1020	0.2040	0.4080	1.020	5.100	25.500	51.00	102.0	0.08160	0.1020	0.2040	0.4080	1.020	5.100	25.500	51.00	102.0	0.08160	0.1020	0.2040	0.4080	1.020	5.100	25.500	51.00	102.0
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.660	53.30	106.6	0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.660	53.30	106.6	0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.660	53.30	106.6
Methyl Acetate	5.265	1053.0	105.30	21.060	5.265	0.42120	0.5265	1.0530	2.1060	5.265	26.325	131.625	263.25	526.5	0.42120	0.5265	1.0530	2.1060	5.265	26.325	131.625	263.25	526.5	0.42120	0.5265	1.0530	2.1060	5.265	26.325	131.625	263.25	526.5
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4	0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4	0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.17032	0.2129	0.4258	0.8516	2.129	10.645	53.225	106.45	212.9	0.17032	0.2129	0.4258	0.8516	2.129	10.645	53.225	106.45	212.9	0.17032	0.2129	0.4258	0.8516	2.129	10.645	53.225	106.45	212.9
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	0.08504	0.1063	0.2126	0.					

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: S29-03021707
 4ng/L Std. ID: S29-03021707
 20ng/L Std. ID: S29-03021706
 200ng/L Std. ID: S29-03021702

Compounds	Source Std. mg/m ³	Primary Working Standards				Working STD Conc.(ng/L):	Injection (L):	ICAL Points:	4		20		200		200		200		
		200ng/L	20ng/L	4ng/L	1ng/L				0.025	0.100	0.050	0.125	0.25	0.50	0.025	0.100	0.25	0.50	0.025	0.100	0.25	0.50
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	0.08448	0.1056	0.2112	0.4224	1.056
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	0.08512	0.1064	0.2128	0.4256	1.064
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.08456	0.1057	0.2114	0.4228	1.064	5.285	26.425	52.85	105.7	0.08488	0.1061	0.2122	0.4244	1.061
n-Octane	1.057	211.4	21.14	4.228	1.057	0.08456	0.1061	0.2114	0.4244	1.057	5.305	26.525	53.05	106.1	0.08488	0.1061	0.2122	0.4244	1.061
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	0.08448	0.1055	0.2110	0.4220	1.055
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.16984	0.2123	0.4246	0.8492	2.123	10.615	53.075	106.15	215.3	0.08504	0.1063	0.2126	0.4252	1.063
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	0.08488	0.1061	0.2122	0.4244	1.061
m- <i>p</i> -Xylene	1.063	212.6	21.26	4.252	1.063	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	0.08432	0.1054	0.2108	0.4216	1.054
Bromoform	1.063	212.6	21.26	4.252	1.063	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	0.08448	0.1056	0.2112	0.4224	1.056
Styrene	1.054	210.8	21.08	4.216	1.054	0.08400	0.1050	0.2100	0.4200	1.050	5.250	26.250	52.50	105.0	0.08352	0.1044	0.2088	0.4176	1.044
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	0.08400	0.1050	0.2100	0.4200	1.050
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08392	0.1049	0.2098	0.4196	1.049
Cumene	1.050	210.0	21.00	4.200	1.050	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	0.08400	0.1050	0.2100	0.4200	1.050
alpha-Phene	1.044	208.8	20.88	4.176	1.044	0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	0.08416	0.1052	0.2104	0.4208	1.052
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3	0.08488	0.1061	0.2122	0.4244	1.061
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.08488	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	0.08392	0.1049	0.2098	0.4196	1.049
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	0.08464	0.1058	0.2116	0.4232	1.058
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	0.08464	0.1058	0.2116	0.4232	1.058
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	0.08496	0.1062	0.2124	0.4248	1.062
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2	0.08424	0.1053	0.2106	0.4212	1.053
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3	0.08488	0.1061	0.2122	0.4244	1.061
n-Decane	1.053	210.6	21.06	4.212	1.053	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	0.08464	0.1058	0.2116	0.4232	1.058
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	0.08432	0.1054	0.2108	0.4216	1.054
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	0.08432	0.1054	0.2108	0.4216	1.054
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.08216	0.1027	0.2054	0.4108	1.027	5.135	25.675	51.35	102.7	0.08216	0.1027	0.2054	0.4108	1.027
sec-Butyltoluene	1.027	205.4	20.54	4.108	1.027	0.08216	0.1027	0.2054	0.4108	1.027	5.135	25.675	51.35	102.7	0.08216	0.1027	0.2054	0.4108	1.027
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	0.08464	0.1058	0.2116	0.4232	1.058
1,2,3-Trimethylbenzene	1.058	211.6	21.16	4.232	1.058	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	0.08040	0.1005	0.2010	0.4020	1.005
1,2-Dichlorobenzene	1.005	201.0	20.10	4.020	1.005	0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3	0.08424	0.1053	0.2106	0.4212	1.053
tert-Butylbenzene	1.053	210.6	21.06	4.212	1.053	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	0.08432	0.1054	0.2108	0.4216	1.054
1,2-Dibromo-3-chloropropane	1.054	210.8	21.08	4.216	1.054	0.08344	0.1043	0.2086	0.4172	1.043	5.215	26.075	52.15	104.3	0.08344	0.1043	0.2086	0.4172	1.043
n-Undecane	1.043	208.6	20.86	4.172	1.043	0.08360	0.1045	0.2090	0.4180	1.045	5.225	26.125	52.25	104.5	0.08360	0.1045	0.2090	0.4180	1.045
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9	0.08472	0.1059	0.2118	0.4236	1.059
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.08360	0.1045	0.2090	0.4180	1.045	5.225	26.125	52.25	104.5	0.08472	0.1059	0.2118	0.4236	1.059
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.08520	0.1065	0.2130	0.4260	1.065	5.325	26.625	53.25	106.5	0.08520	0.1065	0.2130	0.4260	1.065
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	0.08448	0.1056	0.2112	0.4224	1.056
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.08408	0.1051	0.2102	0.4204	1.051	5.255	26.275	52.55	105.1	0.08408	0.1051	0.2102	0.4204	1.051
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	0.08448	0.1056	0.2112	0.4224	1.056
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	0.08448	0.1056	0.2112	0.4224	1.056
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	0.08448	0.1056	0.2112	0.4224	1.056

Method : I:\MS08\Methods\R8030717.M (RTE Integrator)
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Mar 07 07:25:36 2017
 Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.08	0	13	I:\MS08\Data\2017_03\07\03071702.D
2	0.10	0	13	I:\MS08\Data\2017_03\07\03071703.D
3	0.20	0	13	I:\MS08\Data\2017_03\07\03071704.D
4	0.40	0	13	I:\MS08\Data\2017_03\07\03071705.D
5	1.0	1	13	I:\MS08\Data\2017_03\07\03071706.D
6	5.0	5	13	I:\MS08\Data\2017_03\07\03071707.D
7	25	26	13	I:\MS08\Data\2017_03\07\03071708.D
8	50	52	13	I:\MS08\Data\2017_03\07\03071709.D
9	100	104	13	I:\MS08\Data\2017_03\07\03071710.D

DA 3/7/17

#	ID	Update Time	Quant Time	Acquisition Time
1	0.08	Mar 07 07:22 2017	Mar 07 07:08 2017	7 Mar 2017 00:34
2	0.10	Mar 07 07:22 2017	Mar 07 07:08 2017	7 Mar 2017 1:06
3	0.20	Mar 07 07:23 2017	Mar 07 07:08 2017	7 Mar 2017 1:38
4	0.40	Mar 07 07:23 2017	Mar 07 07:14 2017	7 Mar 2017 2:10
5	1.0	Mar 07 07:23 2017	Mar 07 07:16 2017	7 Mar 2017 2:42
6	5.0	Mar 07 07:23 2017	Mar 07 07:19 2017	7 Mar 2017 3:14
7	25	Mar 07 07:24 2017	Mar 07 07:08 2017	7 Mar 2017 3:46
8	50	Mar 07 07:25 2017	Mar 07 07:08 2017	7 Mar 2017 4:17
9	100	Mar 07 07:25 2017	Mar 07 07:08 2017	7 Mar 2017 4:49

R8030717.M

Tue Mar 07 08:35:04 2017

Data File: I:\MS08\Data\2017 03\07\03071702.D

Acq On : 7 Mar 2017 00:34

Operator: WA

Sample : 0.08ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:17 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

WA 3/7/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.79	130	156682	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	10.53	114	731235	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	341820	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	283054	14.094	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	112.72%
57) Toluene-d8 (SS2)	12.76	98	814624	12.575	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.56%
73) Bromofluorobenzene (SS3)	16.07	174	262697	10.980	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.84%

Target Compounds

						Qvalue
2) Propene	3.93	42	1919	0.114	ng	90
3) Dichlorodifluoromethan...	4.03	85	3144	0.104	ng	# 91
4) Chloromethane	4.26	50	2409	0.111	ng	79
5) 1,2-Dichloro-1,1,2,2-t...	4.38	135	1521	0.082	ng	# 42
6) Vinyl Chloride	4.54	62	1993	0.072	ng	83
7) 1,3-Butadiene	4.70	54	1819	0.094	ng	87
8) Bromomethane	5.01	94	964	0.076	ng	93
9) Chloroethane	5.22	64	889	0.080	ng	# 43
10) Ethanol	5.42	45	7083	0.615	ng	92
11) Acetonitrile	5.67	41	4028	0.145	ng	79
12) Acrolein	5.76	56	600	0.064	ng	93
13) Acetone	5.87	58	8263	0.669	ng	90
14) Trichlorofluoromethane	6.03	101	2732	0.098	ng	96
15) 2-Propanol (Isopropanol)	6.17	45	8346	0.225	ng	96
16) Acrylonitrile	6.42	53	1394	0.072	ng	93
17) 1,1-Dichloroethene	6.69	96	1258	0.088	ng	92
18) 2-Methyl-2-Propanol (t...	6.78	59	8087	0.207	ng	96
19) Methylene Chloride	6.80	84	1858	0.118	ng	97
20) 3-Chloro-1-propene (Al...	6.92	41	2209	0.122	ng	83
21) Trichlorotrifluoroethane	7.08	151	1181	0.086	ng	93
22) Carbon Disulfide	7.08	76	8367	0.149	ng	# 73
23) trans-1,2-Dichloroethene	7.71	61	1977	0.100	ng	96
24) 1,1-Dichloroethane	7.89	63	2551	0.097	ng	93
25) Methyl tert-Butyl Ether	7.97	73	5001	0.104	ng	92
26) Vinyl Acetate	8.04	86	1451	0.329	ng	# 23
27) 2-Butanone (MEK)	8.30	72	642	0.061	ng	# 1
28) cis-1,2-Dichloroethene	8.65	61	1984	0.097	ng	100
29) Diisopropyl Ether	8.86	87	1346	0.096	ng	# 83
30) Ethyl Acetate	8.88	61	689	0.120	ng	78
31) n-Hexane	8.86	57	2732	0.101	ng	# 88
32) Chloroform	8.91	83	2685	0.100	ng	97
34) Tetrahydrofuran (THF)	9.30	72	876	0.091	ng	# 79
35) Ethyl tert-Butyl Ether	9.34	87	1941	0.097	ng	98
36) 1,2-Dichloroethane	9.59	62	2195	0.100	ng	99
38) 1,1,1-Trichloroethane	9.82	97	2488	0.102	ng	98
39) Isopropyl Acetate	10.14	61	1494	0.150	ng	# 80
40) 1-Butanol	10.19	56	1843	0.114	ng	92
41) Benzene	10.23	78	6288	0.102	ng	97
42) Carbon Tetrachloride	10.36	117	1778	0.086	ng	100
43) Cyclohexane	10.48	84	5519	0.205	ng	87
44) tert-Amyl Methyl Ether	10.76	73	4553	0.103	ng	96
45) 1,2-Dichloropropane	10.96	63	1401	0.098	ng	84
46) Bromodichloromethane	11.12	83	1698	0.085	ng	96
47) Trichloroethene	11.17	130	1536	0.089	ng	99
48) 1,4-Dioxane	11.17	88	1006	0.082	ng	# 59
49) 2,2,4-Trimethylpentane...	11.22	57	6944	0.105	ng	97

Data File: I:\MS08\Data\2017 03\07\03071702.D

Acq On : 7 Mar 2017 00:34

Operator: WA

Sample : 0.08ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:17 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.35	100	529	0.078	ng	# 17
51) n-Heptane	11.45	71	1482	0.093	ng	95
52) cis-1,3-Dichloropropene	11.96	75	1883	0.077	ng	94
53) 4-Methyl-2-pentanone	12.01	58	897	0.062	ng	# 34
54) trans-1,3-Dichloropropene	12.44	75	1108	0.053	ng	# 43
55) 1,1,2-Trichloroethane	12.59	97	1303	0.091	ng	93
58) Toluene	12.86	91	6446	0.097	ng	93
59) 2-Hexanone	13.14	43	2205	0.063	ng	# 26
60) Dibromochloromethane	13.26	129	1157	0.071	ng	90
61) 1,2-Dibromoethane	13.50	107	1127	0.074	ng	95
62) n-Butyl Acetate	13.70	43	2331	0.060	ng	# 84
63) n-Octane	13.80	57	1387	0.102	ng	92
64) Tetrachloroethene	13.95	166	1581	0.083	ng	94
65) Chlorobenzene	14.61	112	4179	0.093	ng	87
66) Ethylbenzene	14.99	91	6551	0.088	ng	98
67) m- & p-Xylenes	15.18	91	11026	0.186	ng	96
68) Bromoform	15.24	173	773	0.053	ng	# 28
69) Styrene	15.54	104	3189	0.077	ng	94
70) o-Xylene	15.64	91	5600	0.093	ng	94
71) n-Nonane	15.84	43	3377	0.107	ng	94
72) 1,1,2,2-Tetrachloroethane	15.61	83	2175	0.085	ng	98
74) Cumene	16.20	105	7294	0.094	ng	98
75) alpha-Pinene	16.59	93	3432	0.086	ng	98
76) n-Propylbenzene	16.70	91	8050	0.089	ng	98
77) 3-Ethyltoluene	16.79	105	6356	0.084	ng	99
78) 4-Ethyltoluene	16.84	105	6723	0.093	ng	97
79) 1,3,5-Trimethylbenzene	16.91	105	5990	0.091	ng	96
80) alpha-Methylstyrene	17.06	118	2110	0.061	ng	# 81
81) 2-Ethyltoluene	17.09	105	6991	0.093	ng	93
82) 1,2,4-Trimethylbenzene	17.31	105	5397	0.084	ng	100
83) n-Decane	17.40	57	2927	0.089	ng	98
84) Benzyl Chloride	17.44	91	2948	0.062	ng	# 56
85) 1,3-Dichlorobenzene	17.45	146	2885	0.081	ng	99
86) 1,4-Dichlorobenzene	17.52	146	3209	0.085	ng	100
87) sec-Butylbenzene	17.56	105	7432	0.087	ng	97
88) 4-Isopropyltoluene (p-...	17.71	119	6706	0.082	ng	98
89) 1,2,3-Trimethylbenzene	17.71	105	5552	0.086	ng	94
90) 1,2-Dichlorobenzene	17.84	146	2901	0.082	ng	96
91) d-Limonene	17.85	68	1786	0.071	ng	96
92) 1,2-Dibromo-3-Chloropr...	18.26	157	659	0.053	ng	# 69
93) n-Undecane	18.60	57	2899	0.082	ng	99
94) 1,2,4-Trichlorobenzene	19.47	180	1790	0.062	ng	# 85
95) Naphthalene	19.58	128	6836	0.076	ng	88
96) n-Dodecane	19.58	57	2827	0.086	ng	94
97) Hexachlorobutadiene	19.90	225	1440	0.083	ng	99
98) Cyclohexanone	15.33	55	1986	0.090	ng	97
99) tert-Butylbenzene	17.30	119	5798	0.087	ng	98
100) n-Butylbenzene	18.12	91	5394	0.083	ng	94

(#)= qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071702.D

Acq On : 7 Mar 2017 00:34

Operator: WA

Sample : 0.08ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:17 2017

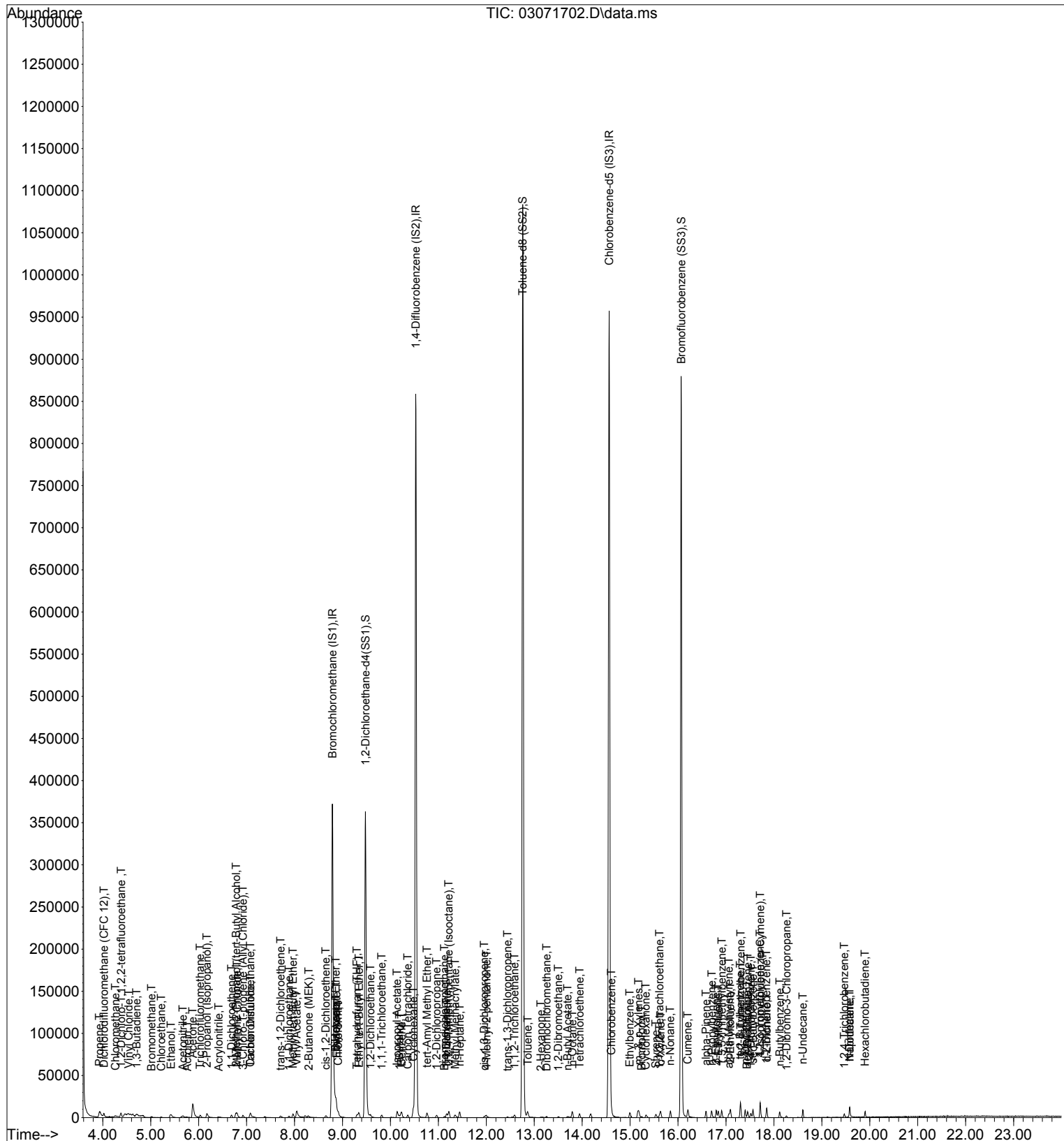
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071703.D

Acq On : 7 Mar 2017 1:06

Operator: WA

Sample : 0.10ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:18 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

IDA 3/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.79	130	150976	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	10.53	114	713186	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	14.56	82	333498	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	277483	14.339	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	114.72%
57) Toluene-d8 (SS2)	12.76	98	797144	12.612	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.88%
73) Bromofluorobenzene (SS3)	16.07	174	253127	10.844	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.72%

Target Compounds

						Qvalue
2) Propene	3.94	42	2247	0.139	ng	98
3) Dichlorodifluoromethan...	4.03	85	3575	0.122	ng	# 90
4) Chloromethane	4.27	50	2669	0.128	ng	88
5) 1,2-Dichloro-1,1,2,2-t...	4.38	135	1655	0.092	ng	98
6) Vinyl Chloride	4.55	62	2415	0.090	ng	96
7) 1,3-Butadiene	4.70	54	2039	0.110	ng	# 85
8) Bromomethane	5.01	94	1079	0.088	ng	84
9) Chloroethane	5.23	64	1110	0.103	ng	# 43
10) Ethanol	5.41	45	7101	0.640	ng	95
11) Acetonitrile	5.67	41	4330	0.162	ng	# 72
12) Acrolein	5.77	56	596	0.066	ng	83
13) Acetone	5.88	58	8935	0.750	ng	89
14) Trichlorofluoromethane	6.04	101	3251	0.121	ng	99
15) 2-Propanol (Isopropanol)	6.17	45	9461	0.265	ng	85
16) Acrylonitrile	6.42	53	1726	0.093	ng	91
17) 1,1-Dichloroethene	6.69	96	1480	0.107	ng	91
18) 2-Methyl-2-Propanol (t...	6.77	59	9183	0.244	ng	95
19) Methylene Chloride	6.81	84	1966	0.129	ng	87
20) 3-Chloro-1-propene (Al...	6.93	41	2622	0.151	ng	91
21) Trichlorotrifluoroethane	7.08	151	1461	0.111	ng	95
22) Carbon Disulfide	7.09	76	8578	0.158	ng	89
23) trans-1,2-Dichloroethene	7.70	61	2220	0.116	ng	98
24) 1,1-Dichloroethane	7.89	63	3080	0.121	ng	93
25) Methyl tert-Butyl Ether	7.97	73	5829	0.126	ng	93
26) Vinyl Acetate	8.05	86	1743	0.410	ng	# 38
27) 2-Butanone (MEK)	8.29	72	840	0.083	ng	# 19
28) cis-1,2-Dichloroethene	8.66	61	2263	0.115	ng	98
29) Diisopropyl Ether	8.87	87	1446	0.107	ng	97
30) Ethyl Acetate	8.87	61	658	0.119	ng	80
31) n-Hexane	8.86	57	3038	0.116	ng	98
32) Chloroform	8.91	83	3051	0.118	ng	97
34) Tetrahydrofuran (THF)	9.30	72	985	0.106	ng	# 67
35) Ethyl tert-Butyl Ether	9.34	87	2266	0.118	ng	99
36) 1,2-Dichloroethane	9.58	62	2725	0.129	ng	93
38) 1,1,1-Trichloroethane	9.82	97	2835	0.119	ng	99
39) Isopropyl Acetate	10.14	61	1942	0.200	ng	96
40) 1-Butanol	10.19	56	2259	0.143	ng	84
41) Benzene	10.23	78	7116	0.118	ng	95
42) Carbon Tetrachloride	10.37	117	2190	0.108	ng	99
43) Cyclohexane	10.48	84	6409	0.244	ng	84
44) tert-Amyl Methyl Ether	10.76	73	5067	0.118	ng	94
45) 1,2-Dichloropropane	10.96	63	1748	0.125	ng	86
46) Bromodichloromethane	11.13	83	2077	0.106	ng	100
47) Trichloroethene	11.17	130	1683	0.100	ng	99
48) 1,4-Dioxane	11.17	88	1238	0.104	ng	# 73
49) 2,2,4-Trimethylpentane...	11.22	57	8101	0.125	ng	99

Data File: I:\MS08\Data\2017 03\07\03071703.D

Acq On : 7 Mar 2017 1:06 Operator: WA
 Sample : 0.10ng TO-15 ICAL Std
 Misc : S29-01231701/S29-03021707 (3/31)
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:18 2017
 Quant Method : I:\MS08\Methods\R8030717.M
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 QLast Update : Tue Mar 07 07:07:50 2017
 Response via : Initial Calibration
 DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.35	100	702	0.106	ng #	69
51) n-Heptane	11.45	71	1791	0.115	ng	99
52) cis-1,3-Dichloropropene	11.96	75	2110	0.088	ng	92
53) 4-Methyl-2-pentanone	12.00	58	1034	0.073	ng #	44
54) trans-1,3-Dichloropropene	12.44	75	1365	0.067	ng #	43
55) 1,1,2-Trichloroethane	12.59	97	1478	0.105	ng	90
58) Toluene	12.86	91	7211	0.111	ng	98
59) 2-Hexanone	13.15	43	2298	0.067	ng #	66
60) Dibromochloromethane	13.26	129	1370	0.086	ng	95
61) 1,2-Dibromoethane	13.50	107	1342	0.090	ng	97
62) n-Butyl Acetate	13.71	43	2681	0.071	ng #	86
63) n-Octane	13.80	57	1479	0.112	ng	98
64) Tetrachloroethene	13.95	166	1896	0.102	ng	94
65) Chlorobenzene	14.61	112	4710	0.107	ng	97
66) Ethylbenzene	14.99	91	7508	0.104	ng	98
67) m- & p-Xylenes	15.16	91	12561	0.217	ng	97
68) Bromoform	15.24	173	952	0.067	ng #	28
69) Styrene	15.54	104	3654	0.090	ng	94
70) o-Xylene	15.63	91	6100	0.103	ng	100
71) n-Nonane	15.84	43	3679	0.119	ng	99
72) 1,1,2,2-Tetrachloroethane	15.61	83	2466	0.099	ng	100
74) Cumene	16.21	105	8045	0.107	ng	97
75) alpha-Pinene	16.59	93	3896	0.101	ng	99
76) n-Propylbenzene	16.70	91	9345	0.105	ng	95
77) 3-Ethyltoluene	16.80	105	7227	0.098	ng	96
78) 4-Ethyltoluene	16.84	105	7044	0.100	ng	99
79) 1,3,5-Trimethylbenzene	16.91	105	6878	0.107	ng	97
80) alpha-Methylstyrene	17.06	118	2472	0.073	ng	94
81) 2-Ethyltoluene	17.09	105	7661	0.104	ng	99
82) 1,2,4-Trimethylbenzene	17.31	105	6243	0.100	ng	99
83) n-Decane	17.40	57	3548	0.111	ng	95
84) Benzyl Chloride	17.44	91	2906	0.062	ng	88
85) 1,3-Dichlorobenzene	17.46	146	3559	0.102	ng	91
86) 1,4-Dichlorobenzene	17.52	146	3591	0.097	ng	94
87) sec-Butylbenzene	17.56	105	8449	0.101	ng	98
88) 4-Isopropyltoluene (p-...	17.71	119	7663	0.096	ng	98
89) 1,2,3-Trimethylbenzene	17.71	105	6154	0.098	ng	96
90) 1,2-Dichlorobenzene	17.84	146	3274	0.095	ng	99
91) d-Limonene	17.85	68	1907	0.078	ng	97
92) 1,2-Dibromo-3-Chloropr...	18.26	157	693	0.057	ng #	57
93) n-Undecane	18.60	57	3074	0.089	ng	97
94) 1,2,4-Trichlorobenzene	19.47	180	1947	0.069	ng #	96
95) Naphthalene	19.59	128	5889	0.067	ng #	71
96) n-Dodecane	19.58	57	2545	0.080	ng	96
97) Hexachlorobutadiene	19.90	225	1518	0.089	ng	99
98) Cyclohexanone	15.33	55	2023	0.094	ng	98
99) tert-Butylbenzene	17.30	119	6492	0.100	ng	97
100) n-Butylbenzene	18.12	91	5973	0.094	ng	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071703.D

Acq On : 7 Mar 2017 1:06

Operator: WA

Sample : 0.10ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:18 2017

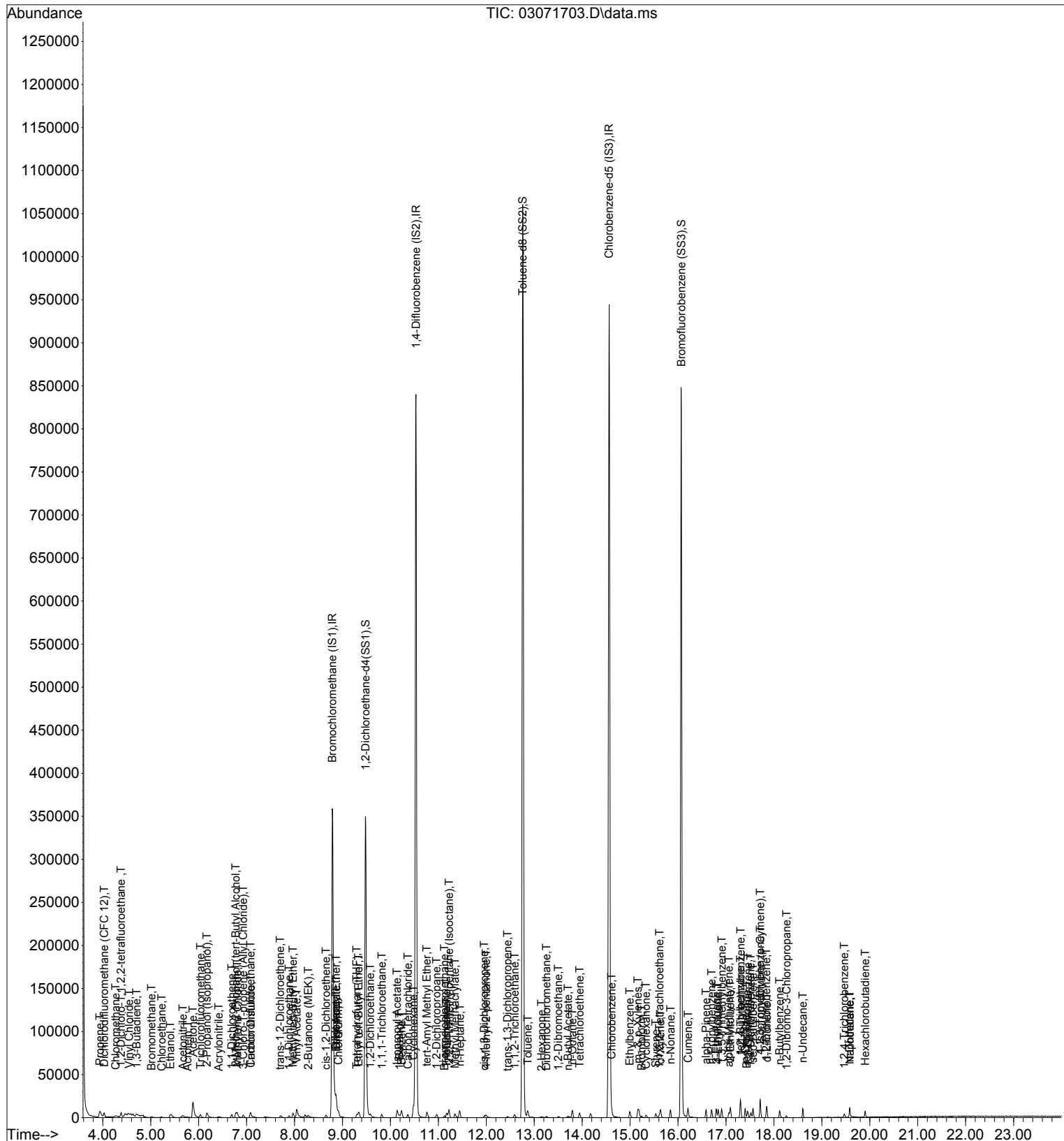
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071704.D

Acq On : 7 Mar 2017 1:38 Operator: WA
 Sample : 0.20ng TO-15 ICAL Std
 Misc : S29-01231701/S29-03021707 (3/31)
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:20 2017
 Quant Method : I:\MS08\Methods\R8030717.M
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 QLast Update : Tue Mar 07 07:07:50 2017
 Response via : Initial Calibration
 DataAcq Meth:TO15.M

407A 3/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.79	130	146868	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	10.53	114	700425	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	14.56	82	328409	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	273058	14.505	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	116.00%
57) Toluene-d8 (SS2)	12.76	98	777420	12.491	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.92%
73) Bromofluorobenzene (SS3)	16.07	174	250906	10.916	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.36%

Target Compounds

						Qvalue
2) Propene	3.93	42	3470	0.220	ng	92
3) Dichlorodifluoromethan...	4.03	85	6296	0.222	ng	# 95
4) Chloromethane	4.25	50	4732	0.233	ng	89
5) 1,2-Dichloro-1,1,2,2-t...	4.38	135	3305	0.190	ng	96
6) Vinyl Chloride	4.53	62	4773	0.183	ng	97
7) 1,3-Butadiene	4.70	54	3755	0.208	ng	94
8) Bromomethane	5.00	94	2442	0.205	ng	98
9) Chloroethane	5.21	64	2124	0.203	ng	96
10) Ethanol	5.40	45	12680	1.175	ng	94
11) Acetonitrile	5.66	41	7349	0.282	ng	83
12) Acrolein	5.76	56	1324	0.152	ng	100
13) Acetone	5.87	58	14819	1.279	ng	92
14) Trichlorofluoromethane	6.03	101	5773	0.220	ng	99
15) 2-Propanol (Isopropanol)	6.15	45	17291	0.498	ng	90
16) Acrylonitrile	6.37	53	3614	0.200	ng	96
17) 1,1-Dichloroethene	6.69	96	2860	0.213	ng	98
18) 2-Methyl-2-Propanol (t...	6.76	59	16909	0.462	ng	97
19) Methylene Chloride	6.80	84	3258	0.220	ng	96
20) 3-Chloro-1-propene (Al...	6.92	41	5063	0.299	ng	93
21) Trichlorotrifluoroethane	7.08	151	2616	0.203	ng	97
22) Carbon Disulfide	7.08	76	13347	0.253	ng	91
23) trans-1,2-Dichloroethene	7.70	61	4521	0.243	ng	93
24) 1,1-Dichloroethane	7.89	63	5280	0.213	ng	99
25) Methyl tert-Butyl Ether	7.96	73	9991	0.223	ng	95
26) Vinyl Acetate	8.04	86	3528	0.854	ng	# 75
27) 2-Butanone (MEK)	8.27	72	1844	0.187	ng	# 89
28) cis-1,2-Dichloroethene	8.65	61	4327	0.226	ng	100
29) Diisopropyl Ether	8.86	87	2673	0.203	ng	# 96
30) Ethyl Acetate	8.87	61	1746	0.324	ng	94
31) n-Hexane	8.86	57	5315	0.209	ng	97
32) Chloroform	8.91	83	5367	0.214	ng	99
34) Tetrahydrofuran (THF)	9.30	72	1930	0.213	ng	# 83
35) Ethyl tert-Butyl Ether	9.34	87	4068	0.218	ng	98
36) 1,2-Dichloroethane	9.59	62	4706	0.229	ng	100
38) 1,1,1-Trichloroethane	9.82	97	5103	0.218	ng	99
39) Isopropyl Acetate	10.13	61	3520	0.369	ng	98
40) 1-Butanol	10.17	56	4508	0.290	ng	# 51
41) Benzene	10.23	78	12321	0.209	ng	96
42) Carbon Tetrachloride	10.37	117	4065	0.205	ng	100
43) Cyclohexane	10.48	84	10721	0.416	ng	96
44) tert-Amyl Methyl Ether	10.76	73	9142	0.216	ng	95
45) 1,2-Dichloropropane	10.96	63	2855	0.208	ng	96
46) Bromodichloromethane	11.12	83	3813	0.199	ng	99
47) Trichloroethene	11.17	130	3220	0.195	ng	95
48) 1,4-Dioxane	11.17	88	2166	0.185	ng	86
49) 2,2,4-Trimethylpentane...	11.22	57	14328	0.226	ng	98

Data File: I:\MS08\Data\2017 03\07\03071704.D

Acq On : 7 Mar 2017 1:38 Operator: WA
 Sample : 0.20ng TO-15 ICAL Std
 Misc : S29-01231701/S29-03021707 (3/31)
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:20 2017
 Quant Method : I:\MS08\Methods\R8030717.M
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 QLast Update : Tue Mar 07 07:07:50 2017
 Response via : Initial Calibration
 DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.33	100	1694	0.261	ng	# 82
51) n-Heptane	11.44	71	3163	0.206	ng	98
52) cis-1,3-Dichloropropene	11.95	75	4288	0.182	ng	96
53) 4-Methyl-2-pentanone	11.98	58	2164	0.157	ng	# 68
54) trans-1,3-Dichloropropene	12.43	75	2917	0.146	ng	94
55) 1,1,2-Trichloroethane	12.59	97	2732	0.198	ng	97
58) Toluene	12.86	91	12640	0.197	ng	97
59) 2-Hexanone	13.10	43	5262	0.156	ng	85
60) Dibromochloromethane	13.25	129	2676	0.171	ng	98
61) 1,2-Dibromoethane	13.50	107	2755	0.187	ng	98
62) n-Butyl Acetate	13.69	43	5929	0.160	ng	92
63) n-Octane	13.79	57	2790	0.214	ng	98
64) Tetrachloroethene	13.94	166	3374	0.183	ng	95
65) Chlorobenzene	14.61	112	8154	0.188	ng	96
66) Ethylbenzene	14.99	91	13949	0.195	ng	95
67) m- & p-Xylenes	15.18	91	22217	0.390	ng	98
68) Bromoform	15.24	173	1770	0.127	ng	98
69) Styrene	15.53	104	6854	0.172	ng	98
70) o-Xylene	15.63	91	11155	0.192	ng	100
71) n-Nonane	15.84	43	6749	0.222	ng	96
72) 1,1,2,2-Tetrachloroethane	15.61	83	4520	0.184	ng	98
74) Cumene	16.20	105	14219	0.191	ng	99
75) alpha-Pinene	16.58	93	6976	0.183	ng	95
76) n-Propylbenzene	16.70	91	16524	0.189	ng	99
77) 3-Ethyltoluene	16.79	105	13478	0.186	ng	96
78) 4-Ethyltoluene	16.83	105	12731	0.184	ng	96
79) 1,3,5-Trimethylbenzene	16.91	105	12017	0.190	ng	99
80) alpha-Methylstyrene	17.06	118	4849	0.146	ng	89
81) 2-Ethyltoluene	17.09	105	14082	0.194	ng	100
82) 1,2,4-Trimethylbenzene	17.30	105	11133	0.180	ng	98
83) n-Decane	17.40	57	6417	0.203	ng	99
84) Benzyl Chloride	17.43	91	5657	0.123	ng	93
85) 1,3-Dichlorobenzene	17.45	146	5993	0.174	ng	96
86) 1,4-Dichlorobenzene	17.52	146	6119	0.168	ng	98
87) sec-Butylbenzene	17.56	105	15410	0.187	ng	97
88) 4-Isopropyltoluene (p-...	17.71	119	13731	0.174	ng	100
89) 1,2,3-Trimethylbenzene	17.71	105	11153	0.180	ng	100
90) 1,2-Dichlorobenzene	17.84	146	5947	0.175	ng	97
91) d-Limonene	17.85	68	3798	0.158	ng	99
92) 1,2-Dibromo-3-Chloropr...	18.26	157	1471	0.122	ng	# 69
93) n-Undecane	18.60	57	6027	0.177	ng	97
94) 1,2,4-Trichlorobenzene	19.47	180	3376	0.122	ng	98
95) Naphthalene	19.58	128	10459	0.121	ng	90
96) n-Dodecane	19.58	57	4758	0.151	ng	98
97) Hexachlorobutadiene	19.90	225	2925	0.175	ng	95
98) Cyclohexanone	15.33	55	3584	0.170	ng	96
99) tert-Butylbenzene	17.30	119	11903	0.187	ng	97
100) n-Butylbenzene	18.12	91	11554	0.186	ng	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071704.D

Acq On : 7 Mar 2017 1:38

Operator: WA

Sample : 0.20ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:20 2017

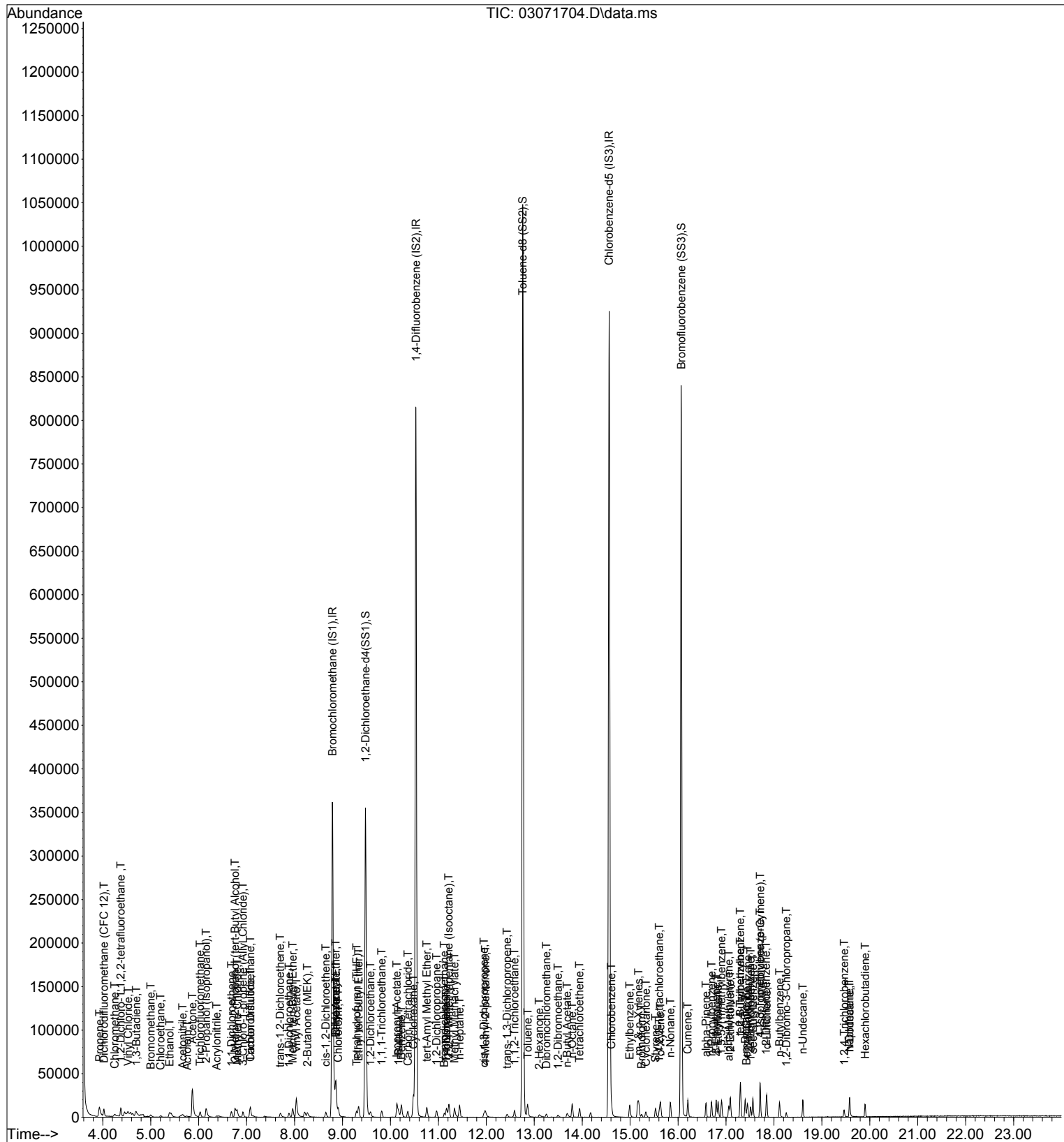
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071705.D

Acq On : 7 Mar 2017 2:10 Operator: WA
Sample : 0.40ng TO-15 ICAL Std
Misc : S29-01231701/S29-03021707 (3/31)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:14:05 2017
Quant Method : I:\MS08\Methods\R8030717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 07 07:07:50 2017
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 3/7/17

Table with 7 columns: Internal Standards, R.T., QIon, Response, Conc, Units, Dev (Min). Rows include Bromochloromethane (IS1), 1,4-Difluorobenzene (IS2), and Chlorobenzene-d5 (IS3).

System Monitoring Compounds table with 7 columns: Compound Name, R.T., QIon, Response, Conc, Units, Dev (Min). Includes 1,2-Dichloroethane-d4, Toluene-d8 (SS2), and Bromofluorobenzene (SS3).

Target Compounds table with 7 columns: Compound Name, R.T., QIon, Response, Conc, Units, Qvalue. Lists 49 various compounds such as Propene, Dichlorodifluoromethane, and Benzene.

Data File: I:\MS08\Data\2017 03\07\03071705.D

Acq On : 7 Mar 2017 2:10 Operator: WA
 Sample : 0.40ng TO-15 ICAL Std
 Misc : S29-01231701/S29-03021707 (3/31)
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:14:05 2017
 Quant Method : I:\MS08\Methods\R8030717.M
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 QLast Update : Tue Mar 07 07:07:50 2017
 Response via : Initial Calibration
 DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.33	100	3873	0.558	ng	92
51) n-Heptane	11.44	71	6451	0.393	ng	97
52) cis-1,3-Dichloropropene	11.95	75	8464	0.336	ng	97
53) 4-Methyl-2-pentanone	11.97	58	5044	0.341	ng	90
54) trans-1,3-Dichloropropene	12.43	75	7233	0.337	ng	97
55) 1,1,2-Trichloroethane	12.58	97	5431	0.368	ng	100
58) Toluene	12.86	91	24301	0.356	ng	98
59) 2-Hexanone	13.09	43	11486	0.320	ng	96
60) Dibromochloromethane	13.25	129	5519	0.330	ng	97
61) 1,2-Dibromoethane	13.49	107	5605	0.357	ng	99
62) n-Butyl Acetate	13.67	43	12388	0.313	ng	96
63) n-Octane	13.79	57	5358	0.385	ng	98
64) Tetrachloroethene	13.94	166	6637	0.338	ng	100
65) Chlorobenzene	14.61	112	15839	0.343	ng	95
66) Ethylbenzene	14.99	91	26699	0.350	ng	100
67) m- & p-Xylenes	15.17	91	43500	0.714	ng	97
68) Bromoform	15.24	173	3688	0.248	ng	98
69) Styrene	15.52	104	13711	0.323	ng	99
70) o-Xylene	15.63	91	21830	0.352	ng	99
71) n-Nonane	15.84	43	13339	0.410	ng	98
72) 1,1,2,2-Tetrachloroethane	15.61	83	9322	0.356	ng	100
74) Cumene	16.20	105	27718	0.349	ng	99
75) alpha-Pinene	16.58	93	13915	0.342	ng	95
76) n-Propylbenzene	16.70	91	32827	0.352	ng	100
77) 3-Ethyltoluene	16.79	105	27441	0.355	ng	96
78) 4-Ethyltoluene	16.83	105	24087	0.326	ng	96
79) 1,3,5-Trimethylbenzene	16.91	105	23257	0.345	ng	98
80) alpha-Methylstyrene	17.06	118	9655	0.272	ng	96
81) 2-Ethyltoluene	17.09	105	27536	0.355	ng	99
82) 1,2,4-Trimethylbenzene	17.30	105	22706	0.345	ng	99
83) n-Decane	17.40	57	13000	0.385	ng	99
84) Benzyl Chloride	17.43	91	11975	0.244	ng	98
85) 1,3-Dichlorobenzene	17.45	146	12472	0.340	ng	97
86) 1,4-Dichlorobenzene	17.51	146	12685	0.327	ng	95
87) sec-Butylbenzene	17.56	105	31327	0.357	ng	99
88) 4-Isopropyltoluene (p-...	17.71	119	27912	0.332	ng	99
89) 1,2,3-Trimethylbenzene	17.71	105	22722	0.343	ng	98
90) 1,2-Dichlorobenzene	17.84	146	11874	0.327	ng	100
91) d-Limonene	17.85	68	7683	0.299	ng	97
92) 1,2-Dibromo-3-Chloropr...	18.26	157	3138	0.244	ng	# 78
93) n-Undecane	18.60	57	11777	0.324	ng	99
94) 1,2,4-Trichlorobenzene	19.46	180	6833	0.232	ng	93
95) Naphthalene	19.57	128	21818	0.237	ng	94
96) n-Dodecane	19.58	57	10034	0.299	ng	100
97) Hexachlorobutadiene	19.90	225	5630	0.315	ng	98
98) Cyclohexanone	15.32	55	7206	0.320	ng	96
99) tert-Butylbenzene	17.30	119	23595	0.347	ng	98
100) n-Butylbenzene	18.11	91	22999	0.346	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071705.D

Acq On : 7 Mar 2017 2:10

Operator: WA

Sample : 0.40ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:14:05 2017

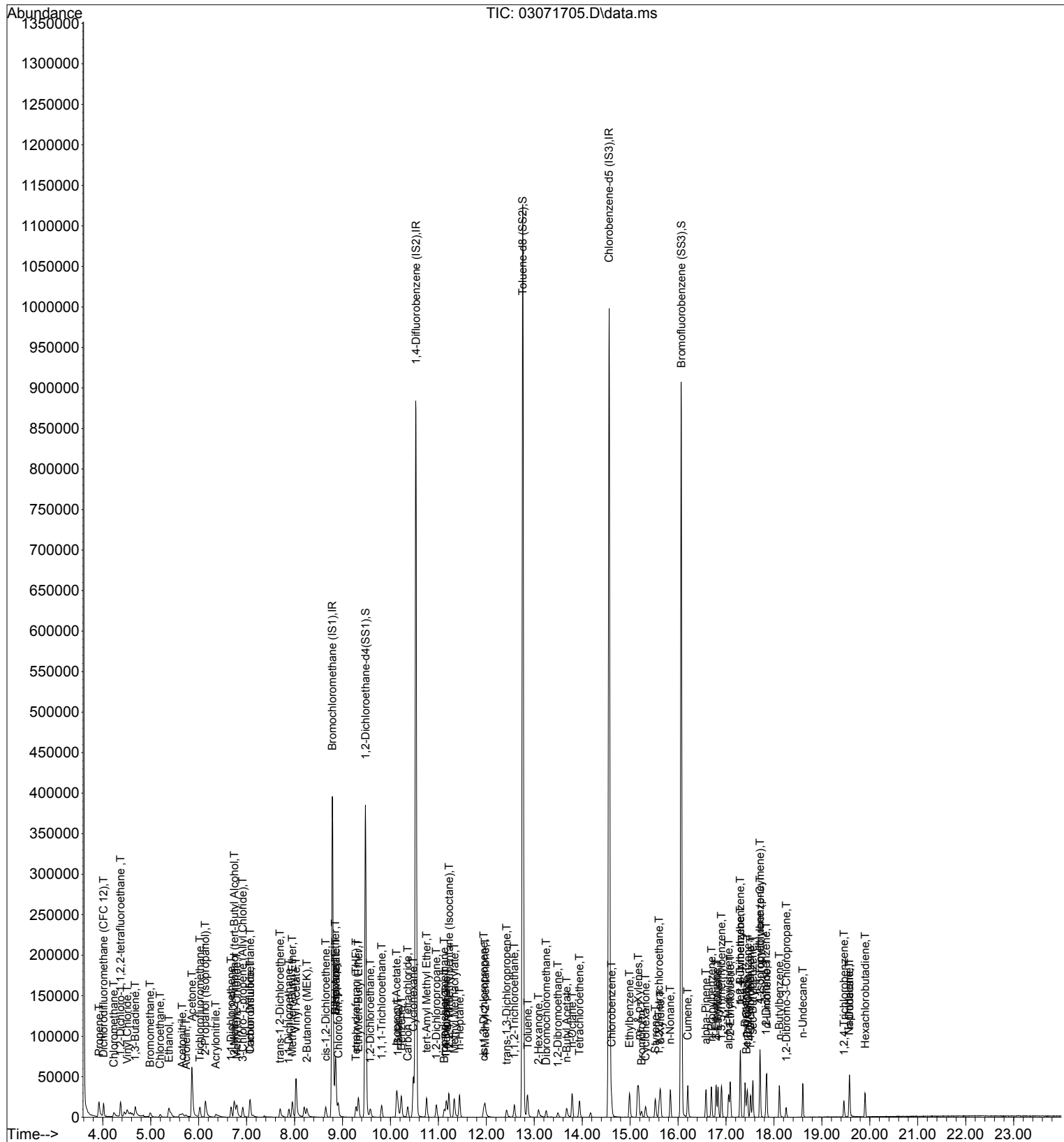
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071705.D

Acq On : 7 Mar 2017 2:10

Operator: WA

Sample : 0.40ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:22 2017

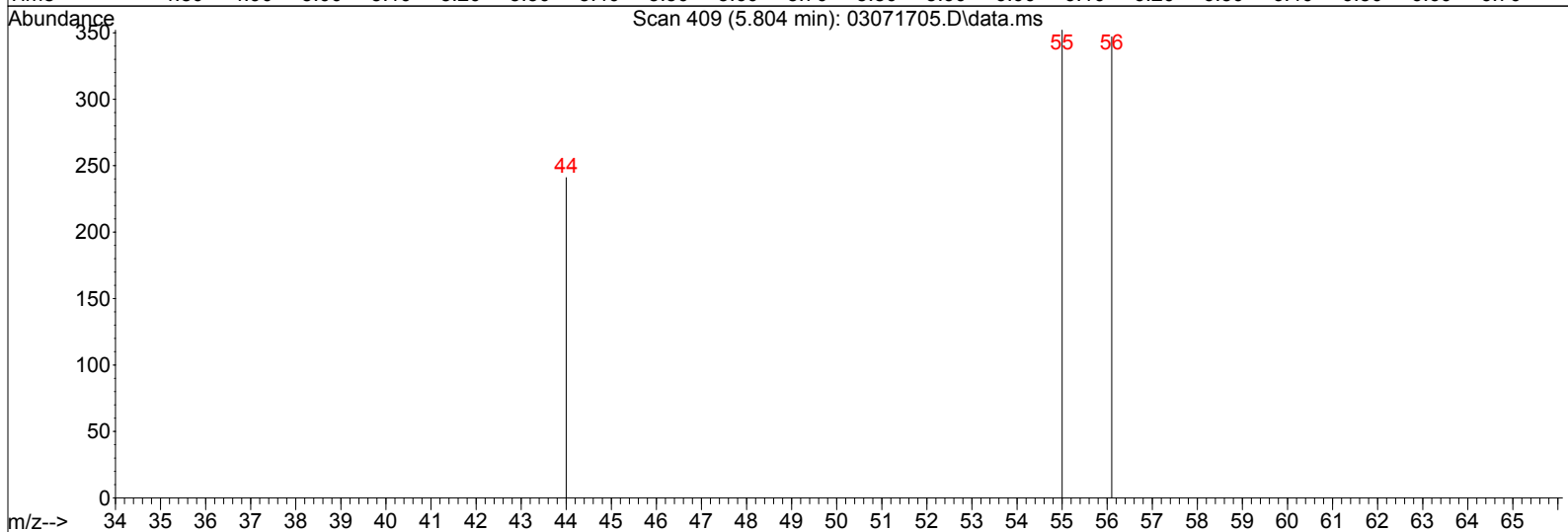
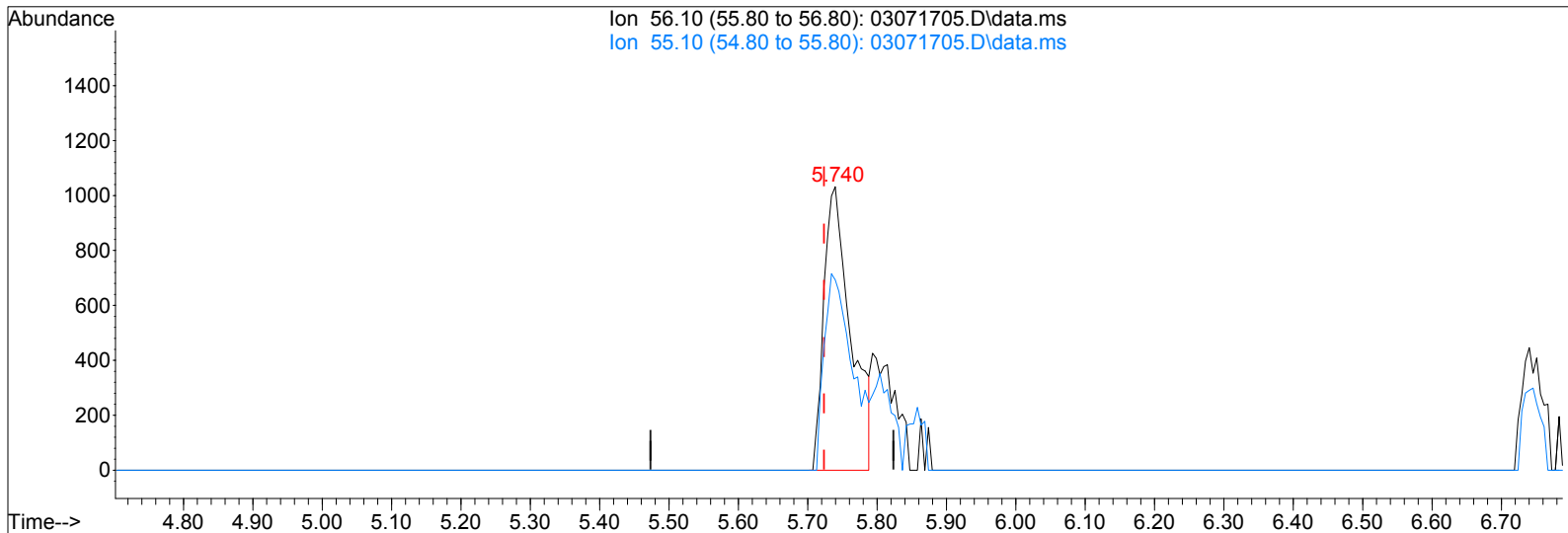
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 03071705.D\data.ms

(12) Acrolein (T)

5.740min (+0.016) 0.30ng

response 2781

Ion	Exp%	Act%
56.10	100	100
55.10	70.40	72.96
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2017 03\07\03071705.D

Acq On : 7 Mar 2017 2:10

Operator: WA

Sample : 0.40ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021707 (3/31)

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 07 07:08:22 2017

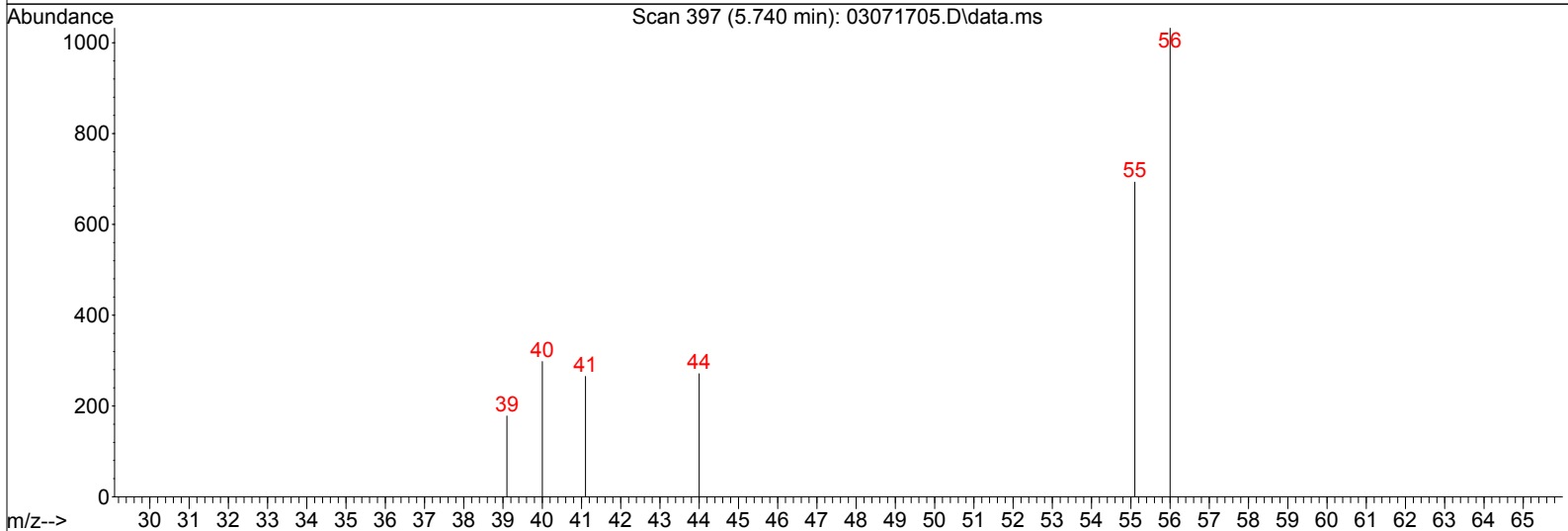
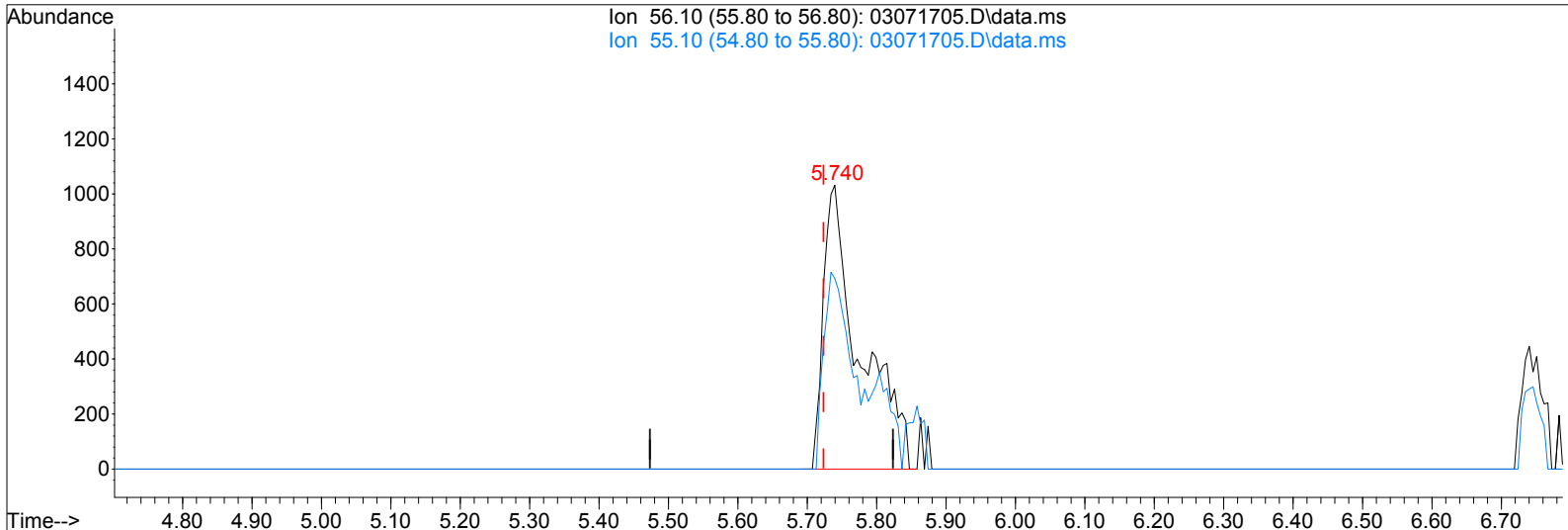
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 03071705.D\data.ms

(12) Acrolein (T)

5.740min (+0.016) 0.40ng m

response 3763

SP

Ion	Exp%	Act%
56.10	100	100
55.10	70.40	53.92
0.00	0.00	0.00
0.00	0.00	0.00

WA 3/7/17

WA 3/7/17

Data File: I:\MS08\Data\2017 03\07\03071706.D

Acq On : 7 Mar 2017 2:42 Operator: WA
Sample : 1.0ng TO-15 ICAL Std
Misc : S29-01231701/S29-03021706 (3/31)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:16:18 2017
Quant Method : I:\MS08\Methods\R8030717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 07 07:07:50 2017
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 3/7/17

Table with 7 columns: Internal Standards, R.T., QIon, Response, Conc, Units, Dev(Min). Rows include Bromochloromethane (IS1), 1,4-Difluorobenzene (IS2), and Chlorobenzene-d5 (IS3).

System Monitoring Compounds

Table with 7 columns: Compound Name, R.T., QIon, Response, Conc, Units, Dev(Min). Includes 1,2-Dichloroethane-d4, Toluene-d8 (SS2), and Bromofluorobenzene (SS3) with spiked amounts and recovery percentages.

Target Compounds

Table with 7 columns: Compound Name, R.T., QIon, Response, Conc, Units, Qvalue. Lists 49 target compounds such as Propene, Dichlorodifluoromethane, Chloromethane, etc.

Data File: I:\MS08\Data\2017 03\07\03071706.D

Acq On : 7 Mar 2017 2:42

Operator: WA

Sample : 1.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:16:18 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.33	100	11482	1.832	ng	94
51) n-Heptane	11.44	71	15454	1.044	ng	99
52) cis-1,3-Dichloropropene	11.94	75	24133	1.062	ng	100
53) 4-Methyl-2-pentanone	11.96	58	14344	1.075	ng	94
54) trans-1,3-Dichloropropene	12.42	75	20689	1.070	ng	99
55) 1,1,2-Trichloroethane	12.58	97	14396	1.081	ng	96
58) Toluene	12.86	91	62207	0.980	ng	98
59) 2-Hexanone	13.08	43	37419	1.121	ng	96
60) Dibromochloromethane	13.25	129	15894	1.022	ng	100
61) 1,2-Dibromoethane	13.49	107	15634	1.072	ng	100
62) n-Butyl Acetate	13.67	43	40813	1.109	ng	98
63) n-Octane	13.79	57	13630	1.053	ng	99
64) Tetrachloroethene	13.94	166	16963	0.930	ng	98
65) Chlorobenzene	14.61	112	41475	0.966	ng	100
66) Ethylbenzene	14.99	91	71864	1.015	ng	99
67) m- & p-Xylenes	15.16	91	112729	1.993	ng	99
68) Bromoform	15.24	173	11586	0.840	ng	98
69) Styrene	15.52	104	40931	1.037	ng	100
70) o-Xylene	15.63	91	59017	1.024	ng	99
71) n-Nonane	15.84	43	35094	1.162	ng	98
72) 1,1,2,2-Tetrachloroethane	15.61	83	25650	1.054	ng	99
74) Cumene	16.20	105	72591	0.985	ng	99
75) alpha-Pinene	16.58	93	37733	0.997	ng	95
76) n-Propylbenzene	16.69	91	90004	1.040	ng	99
77) 3-Ethyltoluene	16.79	105	72051	1.003	ng	97
78) 4-Ethyltoluene	16.83	105	70169	1.021	ng	95
79) 1,3,5-Trimethylbenzene	16.90	105	62865	1.003	ng	100
80) alpha-Methylstyrene	17.05	118	30664	0.930	ng	97
81) 2-Ethyltoluene	17.09	105	74409	1.034	ng	98
82) 1,2,4-Trimethylbenzene	17.30	105	63050	1.030	ng	100
83) n-Decane	17.40	57	35056	1.118	ng	99
84) Benzyl Chloride	17.42	91	41947	0.919	ng	99
85) 1,3-Dichlorobenzene	17.45	146	34250	1.005	ng	100
86) 1,4-Dichlorobenzene	17.51	146	35753	0.992	ng	99
87) sec-Butylbenzene	17.56	105	83368	1.022	ng	100
88) 4-Isopropyltoluene (p-...	17.71	119	78592	1.005	ng	100
89) 1,2,3-Trimethylbenzene	17.71	105	62822	1.022	ng	100
90) 1,2-Dichlorobenzene	17.84	146	34002	1.009	ng	100
91) d-Limonene	17.85	68	22998	0.963	ng	98
92) 1,2-Dibromo-3-Chloropr...	18.25	157	10514	0.882	ng	88
93) n-Undecane	18.60	57	34801	1.030	ng	100
94) 1,2,4-Trichlorobenzene	19.46	180	22562	0.823	ng	98
95) Naphthalene	19.57	128	70683	0.825	ng	97
96) n-Dodecane	19.58	57	29597	0.949	ng	100
97) Hexachlorobutadiene	19.90	225	15781	0.950	ng	99
98) Cyclohexanone	15.32	55	22797	1.088	ng	98
99) tert-Butylbenzene	17.30	119	62816	0.995	ng	99
100) n-Butylbenzene	18.11	91	67496	1.093	ng	100

(#)= qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071706.D

Acq On : 7 Mar 2017 2:42

Operator: WA

Sample : 1.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:08:24 2017

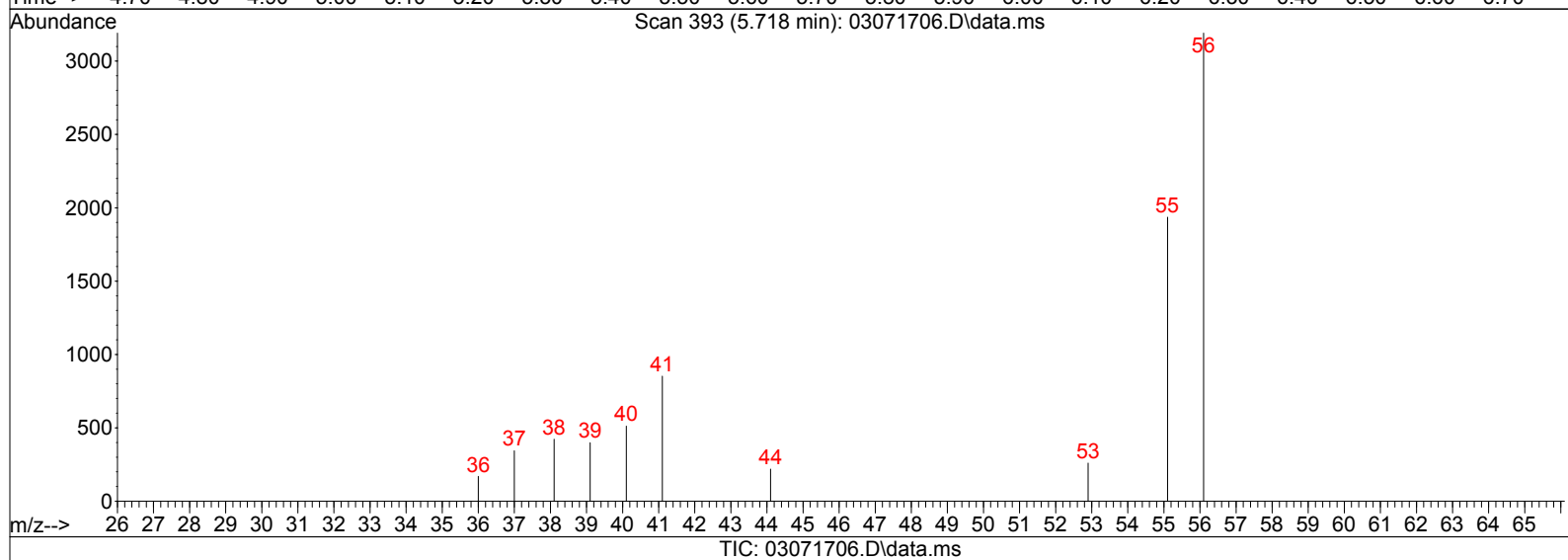
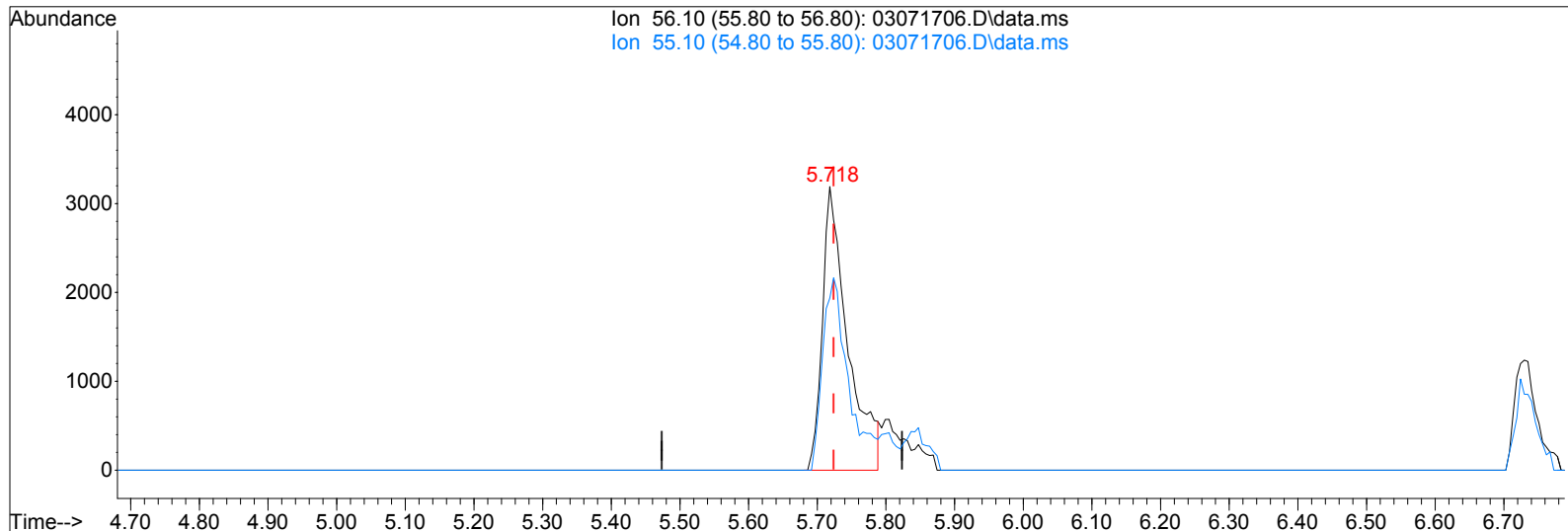
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



(12) Acrolein (T)

5.718min (-0.005) 0.93ng

response 8144

Ion	Exp%	Act%
56.10	100	100
55.10	70.40	69.97
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2017 03\07\03071706.D

Acq On : 7 Mar 2017 2:42

Operator: WA

Sample : 1.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:08:24 2017

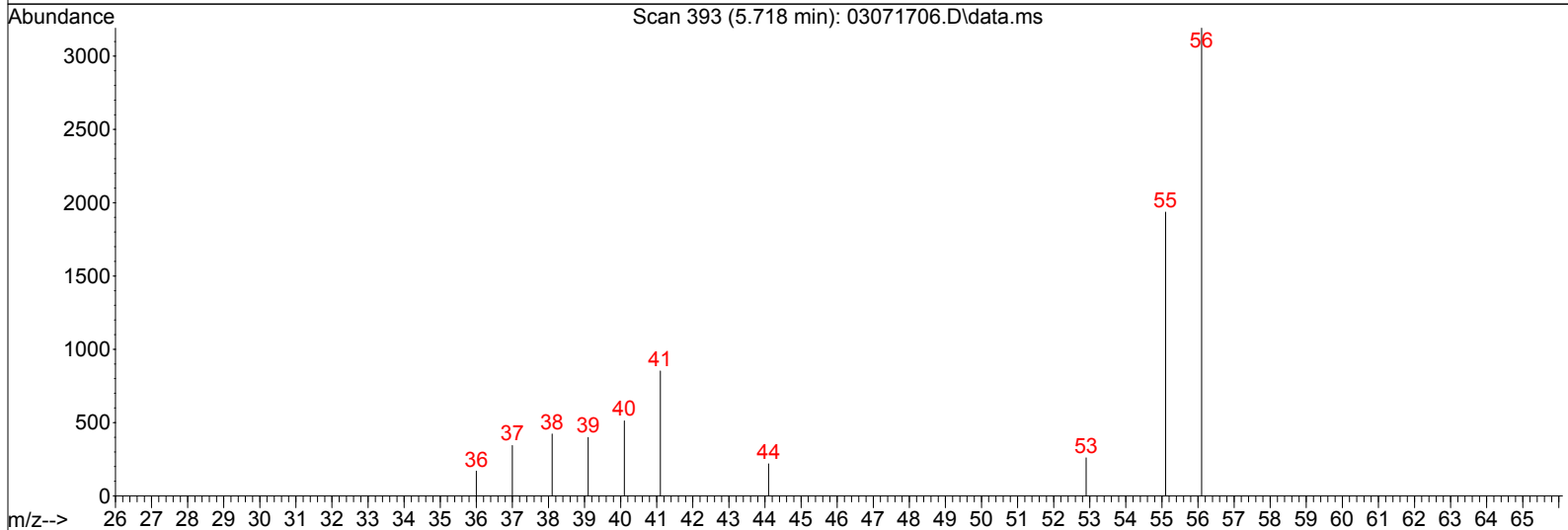
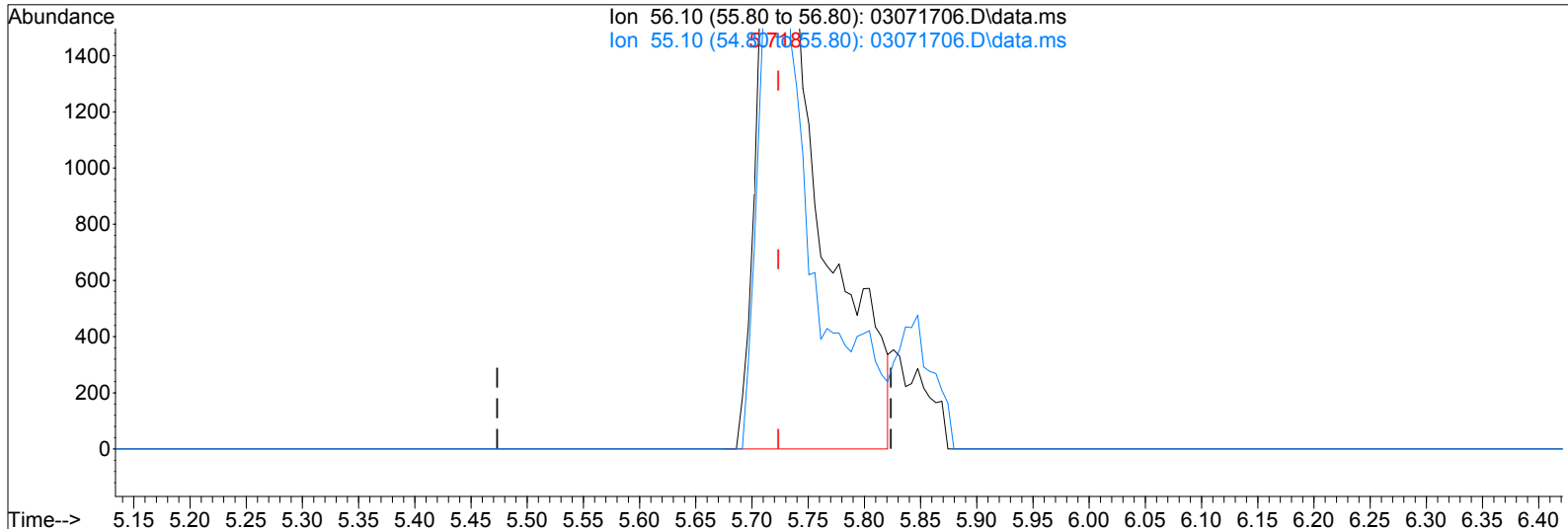
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 03071706.D\data.ms

(12) Acrolein (T)

5.718min (-0.005) 1.03ng m

response 9046

BLC

Ion	Exp%	Act%
56.10	100	100
55.10	70.40	62.99
0.00	0.00	0.00
0.00	0.00	0.00

WA 3/7/17

WA 3/7/17

Data File: I:\MS08\Data\2017 03\07\03071707.D

Acq On : 7 Mar 2017 3:14

Operator: WA

Sample : 5.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:19:20 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

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Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	164060	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	10.54	114	772022	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	14.56	82	363195	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.49	65	298587	14.199	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	113.60%
57) Toluene-d8 (SS2)	12.77	98	853648	12.402	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.20%
73) Bromofluorobenzene (SS3)	16.07	174	283065	11.135	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	89.12%

Target Compounds

						Qvalue
2) Propene	3.89	42	76474	4.344	ng	98
3) Dichlorodifluoromethan...	4.00	85	146281	4.609	ng	99
4) Chloromethane	4.20	50	95380	4.203	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.36	135	71270	3.663	ng	100
6) Vinyl Chloride	4.48	62	119355	4.098	ng	99
7) 1,3-Butadiene	4.65	54	91737	4.547	ng	99
8) Bromomethane	4.97	94	62936	4.719	ng	99
9) Chloroethane	5.17	64	55226	4.729	ng	98
10) Ethanol	5.38	45	266913	22.141	ng	99
11) Acetonitrile	5.59	41	148630	5.110	ng	99
12) Acrolein	5.72	56	43607m	4.473	ng	
13) Acetone	5.85	58	301131	23.269	ng	93
14) Trichlorofluoromethane	6.01	101	128988	4.407	ng	99
15) 2-Propanol (Isopropanol)	6.14	45	429388	11.068	ng	96
16) Acrylonitrile	6.34	53	98656	4.888	ng	99
17) 1,1-Dichloroethene	6.67	96	68046	4.533	ng	98
18) 2-Methyl-2-Propanol (t...	6.74	59	428407	10.473	ng	98
19) Methylene Chloride	6.79	84	71042	4.297	ng	99
20) 3-Chloro-1-propene (Al...	6.91	41	126795	6.699	ng	99
21) Trichlorotrifluoroethane	7.07	151	60957	4.243	ng	99
22) Carbon Disulfide	7.05	76	251602	4.276	ng	100
23) trans-1,2-Dichloroethene	7.70	61	110038	5.303	ng	98
24) 1,1-Dichloroethane	7.89	63	125065	4.524	ng	100
25) Methyl tert-Butyl Ether	7.94	73	236608	4.720	ng	98
26) Vinyl Acetate	8.03	86	105566	22.878	ng	97
27) 2-Butanone (MEK)	8.25	72	52219	4.729	ng	97
28) cis-1,2-Dichloroethene	8.66	61	104621	4.898	ng	100
29) Diisopropyl Ether	8.85	87	64470	4.386	ng	96
30) Ethyl Acetate	8.85	61	53952	8.965	ng	99
31) n-Hexane	8.86	57	124344	4.384	ng	99
32) Chloroform	8.92	83	129283	4.609	ng	99
34) Tetrahydrofuran (THF)	9.27	72	50491	4.984	ng	92
35) Ethyl tert-Butyl Ether	9.33	87	97164	4.660	ng	100
36) 1,2-Dichloroethane	9.59	62	111919	4.869	ng	100
38) 1,1,1-Trichloroethane	9.82	97	122793	4.749	ng	99
39) Isopropyl Acetate	10.12	61	91588	8.705	ng	97
40) 1-Butanol	10.13	56	174413	10.176	ng	92
41) Benzene	10.23	78	276811	4.253	ng	100
42) Carbon Tetrachloride	10.37	117	101716	4.646	ng	99
43) Cyclohexane	10.48	84	241857	8.506	ng	97
44) tert-Amyl Methyl Ether	10.75	73	223813	4.802	ng	99
45) 1,2-Dichloropropane	10.96	63	70218	4.641	ng	99
46) Bromodichloromethane	11.12	83	100439	4.754	ng	99
47) Trichloroethene	11.17	130	75911	4.161	ng	99
48) 1,4-Dioxane	11.14	88	62570	4.847	ng	99
49) 2,2,4-Trimethylpentane...	11.22	57	329655	4.711	ng	99

Data File: I:\MS08\Data\2017 03\07\03071707.D

Acq On : 7 Mar 2017 3:14

Operator: WA

Sample : 5.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:19:20 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.32	100	60548	8.467	ng	98
51) n-Heptane	11.44	71	73625	4.358	ng	100
52) cis-1,3-Dichloropropene	11.94	75	124276	4.792	ng	99
53) 4-Methyl-2-pentanone	11.96	58	72032	4.729	ng	97
54) trans-1,3-Dichloropropene	12.42	75	111076	5.033	ng	99
55) 1,1,2-Trichloroethane	12.58	97	68457	4.504	ng	100
58) Toluene	12.86	91	292731	4.135	ng	100
59) 2-Hexanone	13.07	43	188686	5.068	ng	100
60) Dibromochloromethane	13.24	129	81340	4.691	ng	99
61) 1,2-Dibromoethane	13.49	107	77694	4.779	ng	100
62) n-Butyl Acetate	13.66	43	209587	5.106	ng	99
63) n-Octane	13.79	57	65887	4.566	ng	100
64) Tetrachloroethene	13.94	166	80124	3.939	ng	100
65) Chlorobenzene	14.61	112	195476	4.083	ng	100
66) Ethylbenzene	14.99	91	342421	4.338	ng	100
67) m- & p-Xylenes	15.17	91	543747	8.622	ng	99
68) Bromoform	15.23	173	64712	4.206	ng	100
69) Styrene	15.52	104	215138	4.887	ng	99
70) o-Xylene	15.63	91	285475	4.442	ng	100
71) n-Nonane	15.84	43	171706	5.100	ng	99
72) 1,1,2,2-Tetrachloroethane	15.61	83	129398	4.767	ng	100
74) Cumene	16.20	105	359549	4.376	ng	100
75) alpha-Pinene	16.58	93	188643	4.471	ng	98
76) n-Propylbenzene	16.69	91	439846	4.557	ng	100
77) 3-Ethyltoluene	16.79	105	360354	4.500	ng	97
78) 4-Ethyltoluene	16.83	105	349649	4.563	ng	96
79) 1,3,5-Trimethylbenzene	16.91	105	307498	4.398	ng	99
80) alpha-Methylstyrene	17.05	118	163926	4.460	ng	98
81) 2-Ethyltoluene	17.09	105	363599	4.531	ng	100
82) 1,2,4-Trimethylbenzene	17.30	105	312347	4.577	ng	99
83) n-Decane	17.40	57	173681	4.967	ng	99
84) Benzyl Chloride	17.42	91	257210	5.054	ng	99
85) 1,3-Dichlorobenzene	17.45	146	172064	4.527	ng	99
86) 1,4-Dichlorobenzene	17.51	146	174049	4.332	ng	100
87) sec-Butylbenzene	17.56	105	415182	4.566	ng	99
88) 4-Isopropyltoluene (p-...	17.71	119	388408	4.456	ng	99
89) 1,2,3-Trimethylbenzene	17.71	105	309922	4.523	ng	98
90) 1,2-Dichlorobenzene	17.84	146	166687	4.434	ng	100
91) d-Limonene	17.85	68	124533	4.675	ng	100
92) 1,2-Dibromo-3-Chloropr...	18.25	157	58940	4.432	ng	97
93) n-Undecane	18.60	57	176391	4.684	ng	99
94) 1,2,4-Trichlorobenzene	19.46	180	116246	3.803	ng	99
95) Naphthalene	19.57	128	377107	3.947	ng	99
96) n-Dodecane	19.58	57	157913	4.540	ng	99
97) Hexachlorobutadiene	19.90	225	75525	4.078	ng	100
98) Cyclohexanone	15.31	55	118275	5.064	ng	98
99) tert-Butylbenzene	17.30	119	309295	4.392	ng	99
100) n-Butylbenzene	18.11	91	339661	4.933	ng	99

(#)= qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071707.D

Acq On : 7 Mar 2017 3:14

Operator: WA

Sample : 5.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:19:20 2017

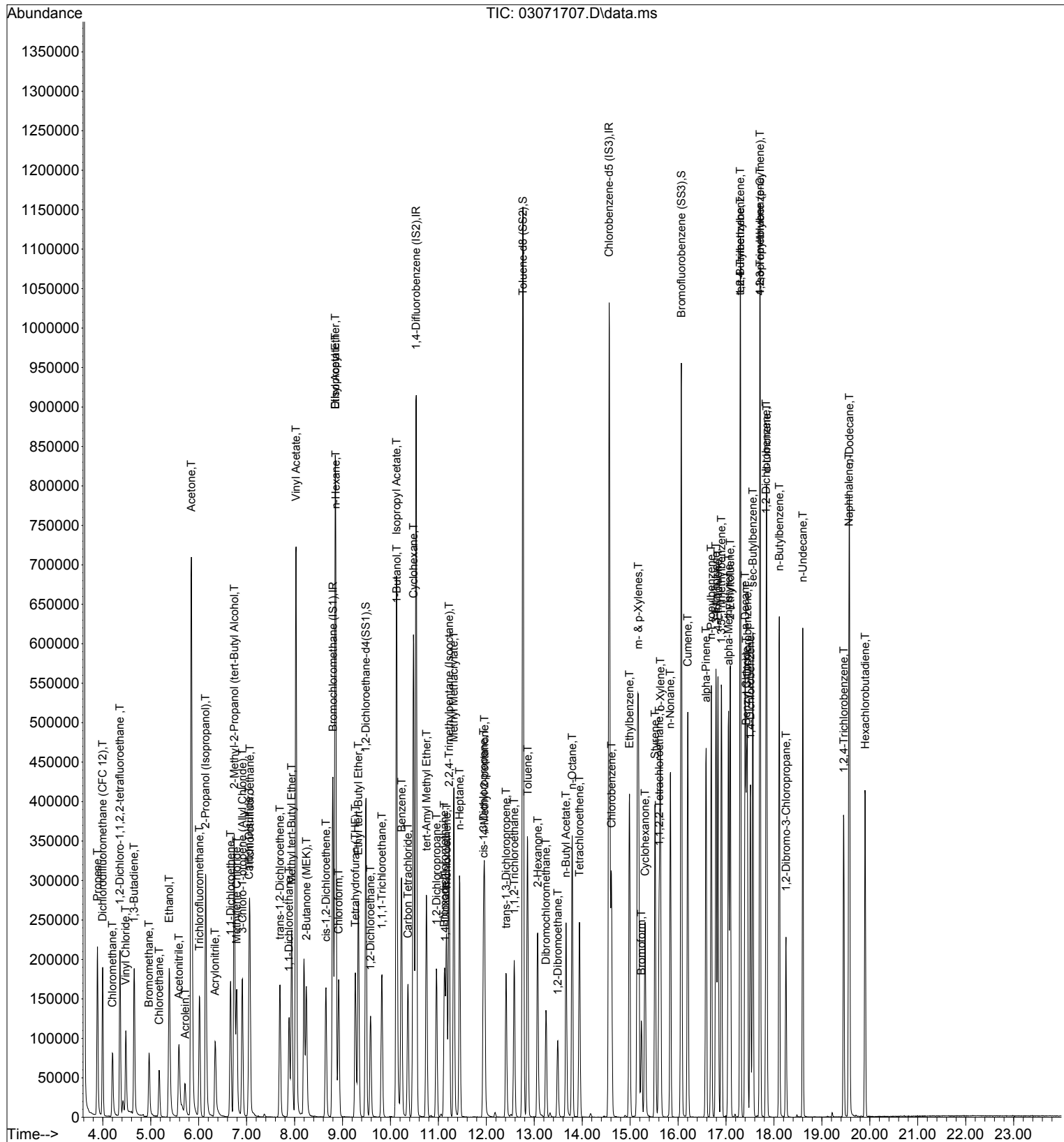
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071707.D

Acq On : 7 Mar 2017 3:14

Operator: WA

Sample : 5.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:08:26 2017

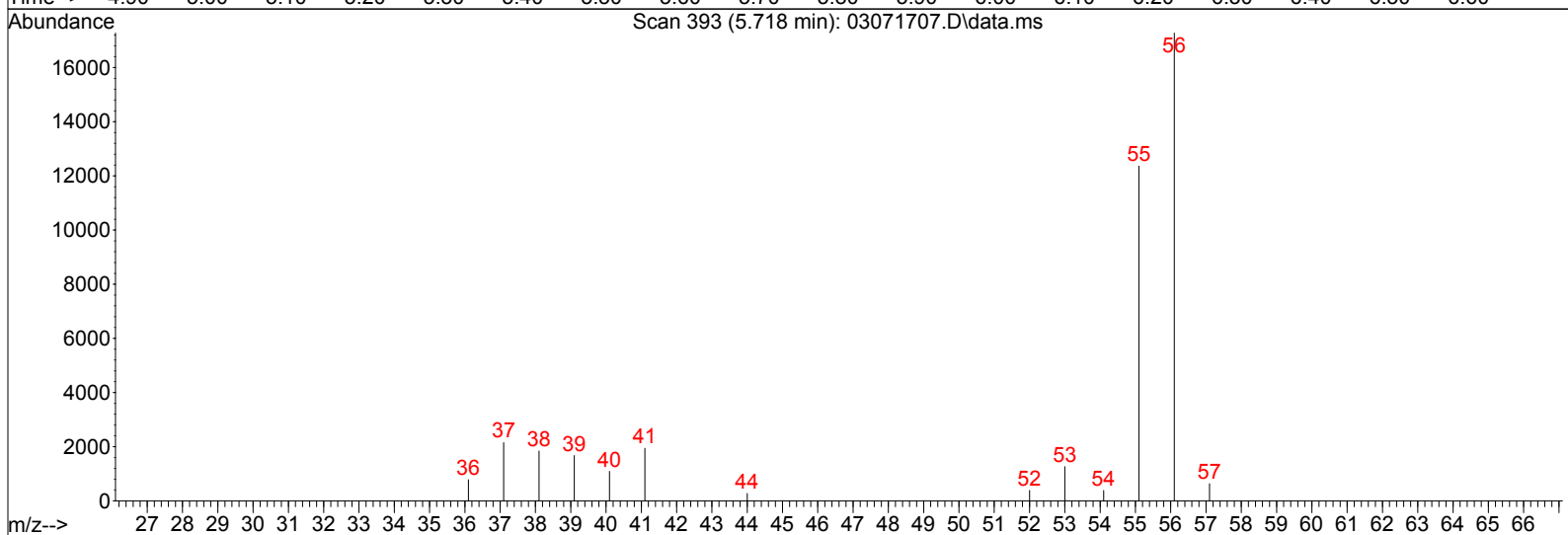
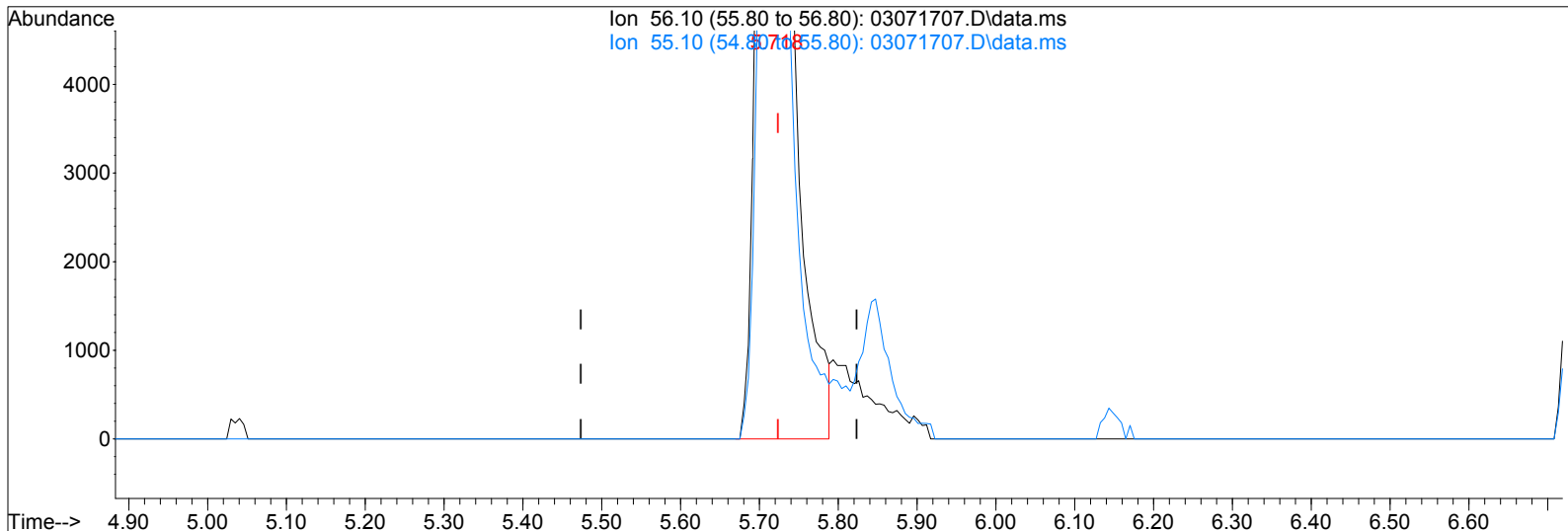
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 03071707.D\data.ms

(12) Acrolein (T)

5.718min (-0.005) 4.32ng

response 42107

Ion	Exp%	Act%
56.10	100	100
55.10	70.40	69.40
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2017 03\07\03071707.D

Acq On : 7 Mar 2017 3:14

Operator: WA

Sample : 5.0ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021706 (3/31)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 07 07:08:26 2017

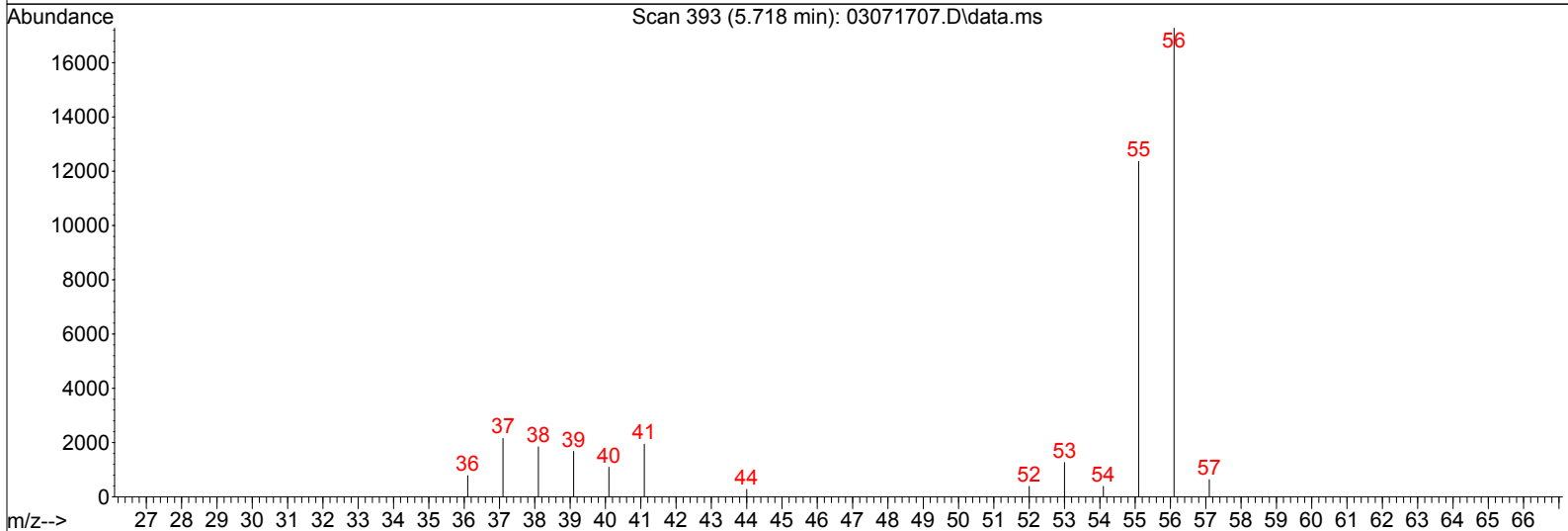
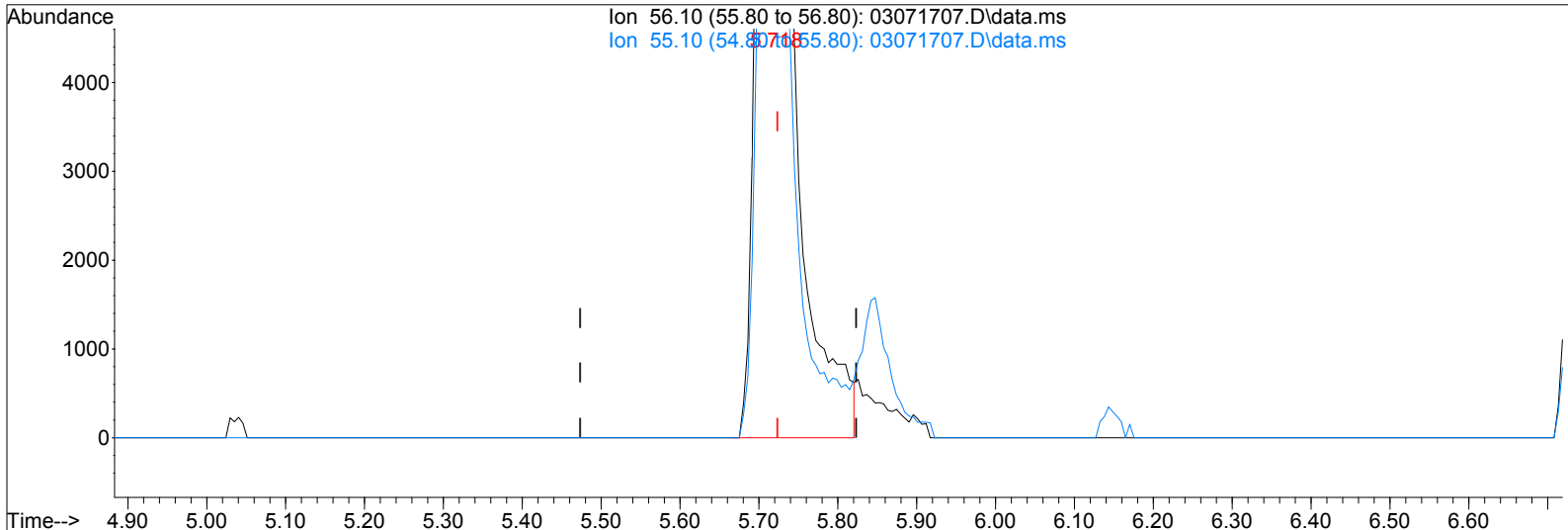
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 03071707.D\data.ms

(12) Acrolein (T)

5.718min (-0.005) 4.47ng m

BLC

response 43607

Ion	Exp%	Act%
56.10	100	100
55.10	70.40	67.01
0.00	0.00	0.00
0.00	0.00	0.00

WA 3/7/17

WA 3/7/17

Data File: I:\MS08\Data\2017 03\07\03071708.D

Acq On : 7 Mar 2017 3:46

Operator: WA

Sample : 25ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:28 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

IDA 3/7/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.81	130	175306	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	10.54	114	793281	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	14.57	82	378396	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.50	65	302117	13.445	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	107.60%
57) Toluene-d8 (SS2)	12.77	98	876058	12.216	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.76%
73) Bromofluorobenzene (SS3)	16.07	174	296372	11.190	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	89.52%

Target Compounds

						Qvalue
2) Propene	3.88	42	450400	23.944	ng	100
3) Dichlorodifluoromethan...	3.99	85	791540	23.339	ng	100
4) Chloromethane	4.19	50	590032	24.333	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.35	135	385066	18.523	ng	100
6) Vinyl Chloride	4.48	62	654766	21.040	ng	100
7) 1,3-Butadiene	4.65	54	530262	24.598	ng	100
8) Bromomethane	4.96	94	349318	24.511	ng	100
9) Chloroethane	5.17	64	298503	23.921	ng	100
10) Ethanol	5.42	45	1589455	123.391	ng	100
11) Acetonitrile	5.61	41	858040	27.609	ng	100
12) Acrolein	5.72	56	268284	25.757	ng	100
13) Acetone	5.86	58	1732324	125.272	ng	100
14) Trichlorofluoromethane	6.01	101	694549	22.209	ng	100
15) 2-Propanol (Isopropanol)	6.17	45	2589454	62.464	ng	100
16) Acrylonitrile	6.36	53	603531	27.984	ng	100
17) 1,1-Dichloroethene	6.66	96	396081	24.691	ng	100
18) 2-Methyl-2-Propanol (t...	6.76	59	2550993	58.365	ng	100
19) Methylene Chloride	6.81	84	416793	23.594	ng	100
20) 3-Chloro-1-propene (Al...	6.92	41	748059	36.985	ng	100
21) Trichlorotrifluoroethane	7.07	151	341616	22.255	ng	100
22) Carbon Disulfide	7.05	76	1483184	23.592	ng	100
23) trans-1,2-Dichloroethene	7.70	61	638144	28.781	ng	100
24) 1,1-Dichloroethane	7.90	63	704253	23.840	ng	100
25) Methyl tert-Butyl Ether	7.95	73	1357350	25.342	ng	100
26) Vinyl Acetate	8.04	86	598387	121.362	ng	100
27) 2-Butanone (MEK)	8.25	72	295709	25.060	ng	100
28) cis-1,2-Dichloroethene	8.67	61	608540	26.662	ng	100
29) Diisopropyl Ether	8.85	87	358884	22.848	ng	100
30) Ethyl Acetate	8.86	61	310013	48.208	ng	100
31) n-Hexane	8.87	57	657603	21.697	ng	100
32) Chloroform	8.94	83	728710	24.310	ng	100
34) Tetrahydrofuran (THF)	9.27	72	288961	26.694	ng	100
35) Ethyl tert-Butyl Ether	9.33	87	556594	24.981	ng	100
36) 1,2-Dichloroethane	9.59	62	613986	24.999	ng	100
38) 1,1,1-Trichloroethane	9.83	97	686327	25.835	ng	100
39) Isopropyl Acetate	10.13	61	539169	49.873	ng	100
40) 1-Butanol	10.15	56	1208451	68.619	ng	100
41) Benzene	10.24	78	1534277	22.940	ng	100
42) Carbon Tetrachloride	10.37	117	588963	26.178	ng	100
43) Cyclohexane	10.48	84	1370975	46.925	ng	100
44) tert-Amyl Methyl Ether	10.75	73	1289392	26.925	ng	100
45) 1,2-Dichloropropane	10.97	63	392124	25.225	ng	100
46) Bromodichloromethane	11.13	83	590132	27.182	ng	100
47) Trichloroethene	11.18	130	420308	22.420	ng	100
48) 1,4-Dioxane	11.15	88	366594	27.635	ng	100
49) 2,2,4-Trimethylpentane...	11.23	57	1908918	26.549	ng	100

Data File: I:\MS08\Data\2017 03\07\03071708.D

Acq On : 7 Mar 2017 3:46

Operator: WA

Sample : 25ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:28 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.33	100	355473	48.380	ng	100
51) n-Heptane	11.45	71	393166	22.647	ng	100
52) cis-1,3-Dichloropropene	11.94	75	726417	27.260	ng	100
53) 4-Methyl-2-pentanone	11.96	58	433600	27.706	ng	100
54) trans-1,3-Dichloropropene	12.42	75	666174	29.374	ng	100
55) 1,1,2-Trichloroethane	12.58	97	399726	25.597	ng	100
58) Toluene	12.86	91	1642719	22.273	ng	100
59) 2-Hexanone	13.07	43	1132358	29.193	ng	100
60) Dibromochloromethane	13.25	129	485943	26.900	ng	100
61) 1,2-Dibromoethane	13.49	107	456640	26.962	ng	100
62) n-Butyl Acetate	13.66	43	1249897	29.229	ng	100
63) n-Octane	13.79	57	375249	24.962	ng	100
64) Tetrachloroethene	13.94	166	448347	21.154	ng	100
65) Chlorobenzene	14.61	112	1110461	22.263	ng	100
66) Ethylbenzene	14.99	91	1983533	24.118	ng	100
67) m- & p-Xylenes	15.17	91	3118329	47.460	ng	100
68) Bromoform	15.24	173	404520	25.236	ng	100
69) Styrene	15.52	104	1252800	27.317	ng	100
70) o-Xylene	15.63	91	1614183	24.106	ng	100
71) n-Nonane	15.84	43	976727	27.846	ng	100
72) 1,1,2,2-Tetrachloroethane	15.61	83	747265	26.425	ng	100
74) Cumene	16.20	105	2021543	23.616	ng	100
75) alpha-Pinene	16.58	93	1086765	24.720	ng	100
76) n-Propylbenzene	16.69	91	2469105	24.552	ng	100
77) 3-Ethyltoluene	16.79	105	1981896	23.757	ng	100
78) 4-Ethyltoluene	16.83	105	1957054	24.512	ng	100
79) 1,3,5-Trimethylbenzene	16.91	105	1700020	23.338	ng	100
80) alpha-Methylstyrene	17.05	118	937235	24.474	ng	100
81) 2-Ethyltoluene	17.09	105	1974451	23.617	ng	100
82) 1,2,4-Trimethylbenzene	17.30	105	1739621	24.470	ng	100
83) n-Decane	17.40	57	983819	27.006	ng	100
84) Benzyl Chloride	17.42	91	1663634	31.378	ng	100
85) 1,3-Dichlorobenzene	17.45	146	955382	24.126	ng	100
86) 1,4-Dichlorobenzene	17.51	146	979122	23.389	ng	100
87) sec-Butylbenzene	17.56	105	2249831	23.750	ng	100
88) 4-Isopropyltoluene (p-...	17.71	119	2099722	23.119	ng	100
89) 1,2,3-Trimethylbenzene	17.71	105	1715503	24.032	ng	100
90) 1,2-Dichlorobenzene	17.84	146	913917	23.337	ng	100
91) d-Limonene	17.85	68	720552	25.964	ng	100
92) 1,2-Dibromo-3-Chloropr...	18.25	157	359225	25.925	ng	100
93) n-Undecane	18.60	57	1064590	27.133	ng	100
94) 1,2,4-Trichlorobenzene	19.46	180	727446	22.844	ng	100
95) Naphthalene	19.57	128	2474057	24.852	ng	100
96) n-Dodecane	19.58	57	1092086	30.135	ng	100
97) Hexachlorobutadiene	19.90	225	429593	22.266	ng	100
98) Cyclohexanone	15.31	55	722261	29.680	ng	100
99) tert-Butylbenzene	17.30	119	1670394	22.768	ng	100
100) n-Butylbenzene	18.11	91	1902376	26.521	ng	100

(#)= qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071708.D

Acq On : 7 Mar 2017 3:46

Operator: WA

Sample : 25ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:28 2017

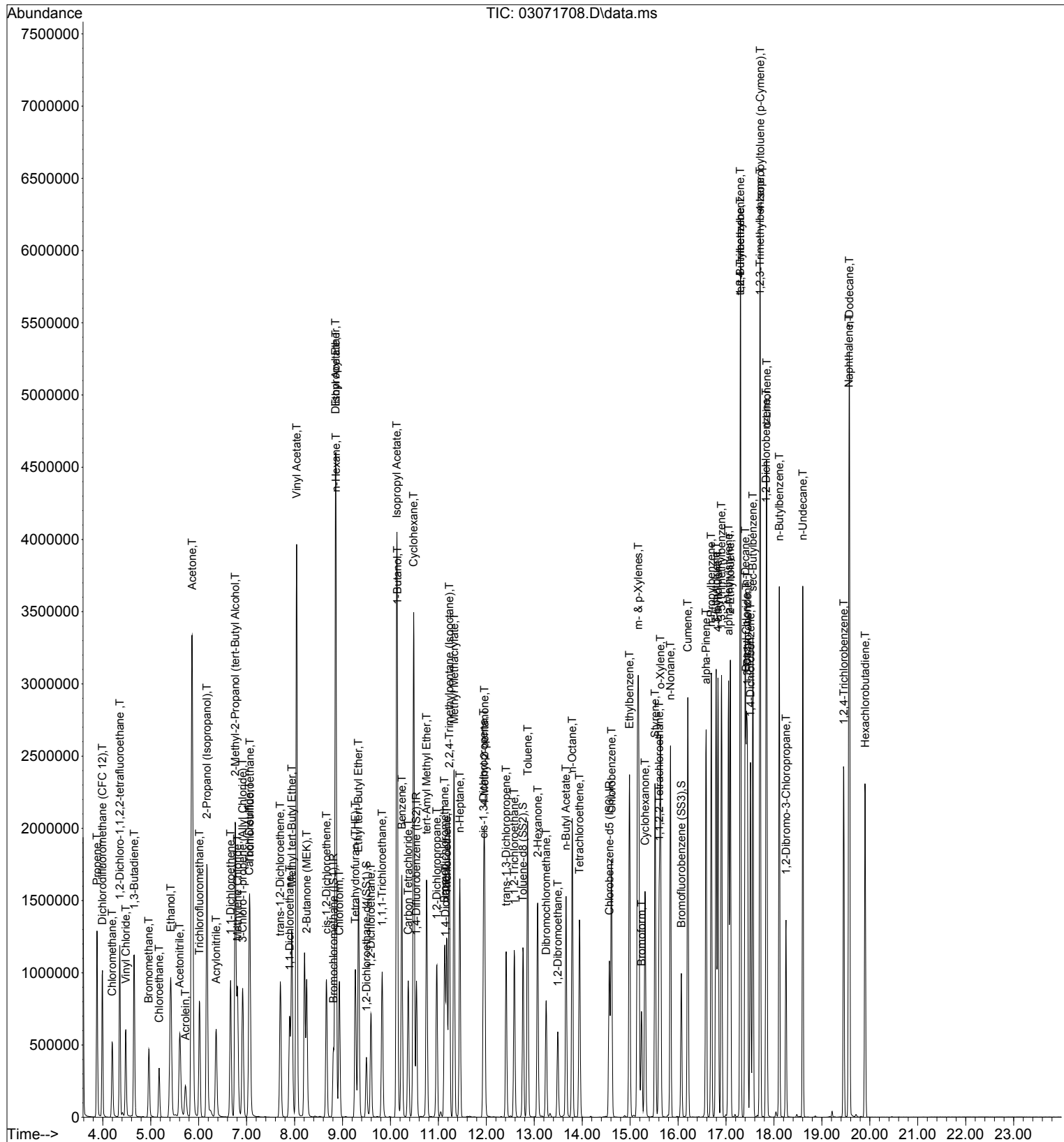
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071709.D

Acq On : 7 Mar 2017 4:17

Operator: WA

Sample : 50ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:30 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

WA 3/7/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.82	130	185056	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	10.55	114	860713	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	14.56	82	401073	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.50	65	321168	13.540	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	108.32%
57) Toluene-d8 (SS2)	12.77	98	931592	12.256	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	98.08%
73) Bromofluorobenzene (SS3)	16.07	174	311394	11.093	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	88.72%

Target Compounds

						Qvalue
2) Propene	3.88	42	937817	47.229	ng	99
3) Dichlorodifluoromethan...	3.99	85	1593456	44.508	ng	100
4) Chloromethane	4.20	50	1158730	45.269	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.35	135	746527	34.018	ng	100
6) Vinyl Chloride	4.48	62	1267149	38.573	ng	100
7) 1,3-Butadiene	4.66	54	1043148	45.840	ng	99
8) Bromomethane	4.97	94	678895	45.127	ng	100
9) Chloroethane	5.18	64	618697	46.968	ng	100
10) Ethanol	5.44	45	3302628	242.879	ng	100
11) Acetonitrile	5.63	41	1771148	53.988	ng	99
12) Acrolein	5.73	56	552200	50.221	ng	100
13) Acetone	5.87	58	3341741	228.925	ng	96
14) Trichlorofluoromethane	6.02	101	1382393	41.875	ng	100
15) 2-Propanol (Isopropanol)	6.19	45	5153134	117.757	ng	99
16) Acrylonitrile	6.37	53	1218053	53.503	ng	99
17) 1,1-Dichloroethene	6.67	96	797884	47.118	ng	100
18) 2-Methyl-2-Propanol (t...	6.78	59	5104401	110.631	ng	99
19) Methylene Chloride	6.82	84	832961	44.667	ng	100
20) 3-Chloro-1-propene (Al...	6.92	41	1526577	71.500	ng	99
21) Trichlorotrifluoroethane	7.07	151	681592	42.063	ng	99
22) Carbon Disulfide	7.06	76	2949210	44.439	ng	100
23) trans-1,2-Dichloroethene	7.71	61	1291855	55.194	ng	100
24) 1,1-Dichloroethane	7.90	63	1434196	45.991	ng	100
25) Methyl tert-Butyl Ether	7.95	73	2734691	48.368	ng	99
26) Vinyl Acetate	8.05	86	1183898	227.462	ng	# 89
27) 2-Butanone (MEK)	8.26	72	591078	47.451	ng	99
28) cis-1,2-Dichloroethene	8.67	61	1223450	50.779	ng	100
29) Diisopropyl Ether	8.86	87	703795	42.446	ng	# 96
30) Ethyl Acetate	8.87	61	632385	93.157	ng	99
31) n-Hexane	8.87	57	1310066	40.947	ng	100
32) Chloroform	8.94	83	1464925	46.296	ng	100
34) Tetrahydrofuran (THF)	9.27	72	582433	50.971	ng	98
35) Ethyl tert-Butyl Ether	9.34	87	1109707	47.181	ng	100
36) 1,2-Dichloroethane	9.60	62	1247066	48.101	ng	100
38) 1,1,1-Trichloroethane	9.83	97	1375553	47.722	ng	100
39) Isopropyl Acetate	10.14	61	1077435	91.854	ng	# 94
40) 1-Butanol	10.16	56	2396750	125.431	ng	98
41) Benzene	10.24	78	3048763	42.013	ng	100
42) Carbon Tetrachloride	10.38	117	1181284	48.392	ng	100
43) Cyclohexane	10.49	84	2700901	85.203	ng	100
44) tert-Amyl Methyl Ether	10.76	73	2576261	49.583	ng	100
45) 1,2-Dichloropropane	10.97	63	804616	47.705	ng	100
46) Bromodichloromethane	11.13	83	1198578	50.882	ng	99
47) Trichloroethene	11.18	130	850892	41.832	ng	100
48) 1,4-Dioxane	11.15	88	738982	51.343	ng	99
49) 2,2,4-Trimethylpentane...	11.23	57	3816291	48.919	ng	99

Data File: I:\MS08\Data\2017 03\07\03071709.D

Acq On : 7 Mar 2017 4:17

Operator: WA

Sample : 50ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:30 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.33	100	711158	89.205	ng	99
51) n-Heptane	11.45	71	790238	41.952	ng	99
52) cis-1,3-Dichloropropene	11.94	75	1481934	51.255	ng	100
53) 4-Methyl-2-pentanone	11.96	58	878466	51.735	ng	99
54) trans-1,3-Dichloropropene	12.42	75	1358899	55.224	ng	100
55) 1,1,2-Trichloroethane	12.59	97	805757	47.555	ng	100
58) Toluene	12.86	91	3231423	41.335	ng	100
59) 2-Hexanone	13.07	43	2253228	54.805	ng	100
60) Dibromochloromethane	13.25	129	975380	50.940	ng	100
61) 1,2-Dibromoethane	13.49	107	912700	50.843	ng	100
62) n-Butyl Acetate	13.66	43	2492330	54.988	ng	99
63) n-Octane	13.79	57	762670	47.865	ng	99
64) Tetrachloroethene	13.94	166	889482	39.595	ng	100
65) Chlorobenzene	14.61	112	2165626	40.962	ng	100
66) Ethylbenzene	14.99	91	3878149	44.488	ng	100
67) m- & p-Xylenes	15.17	91	6084593	87.369	ng	100
68) Bromoform	15.24	173	805491	47.409	ng	100
69) Styrene	15.52	104	2433574	50.062	ng	99
70) o-Xylene	15.63	91	3143298	44.288	ng	100
71) n-Nonane	15.84	43	1907956	51.319	ng	99
72) 1,1,2,2-Tetrachloroethane	15.61	83	1458760	48.669	ng	100
74) Cumene	16.20	105	3886668	42.838	ng	100
75) alpha-Pinene	16.59	93	2133965	45.796	ng	100
76) n-Propylbenzene	16.69	91	4745443	44.520	ng	100
77) 3-Ethyltoluene	16.79	105	4015735	45.415	ng	96
78) 4-Ethyltoluene	16.83	105	3568562	42.169	ng	96
79) 1,3,5-Trimethylbenzene	16.91	105	3287282	42.577	ng	100
80) alpha-Methylstyrene	17.05	118	1809494	44.579	ng	99
81) 2-Ethyltoluene	17.09	105	3814394	43.046	ng	100
82) 1,2,4-Trimethylbenzene	17.31	105	3275077	43.463	ng	100
83) n-Decane	17.40	57	1919722	49.717	ng	100
84) Benzyl Chloride	17.43	91	3318828	59.057	ng	100
85) 1,3-Dichlorobenzene	17.45	146	1818426	43.324	ng	100
86) 1,4-Dichlorobenzene	17.51	146	1866688	42.069	ng	100
87) sec-Butylbenzene	17.56	105	4291160	42.737	ng	100
88) 4-Isopropyltoluene (p-...	17.71	119	3862632	40.125	ng	99
89) 1,2,3-Trimethylbenzene	17.71	105	3220580	42.565	ng	99
90) 1,2-Dichlorobenzene	17.84	146	1716146	41.344	ng	99
91) d-Limonene	17.85	68	1413695	48.060	ng	100
92) 1,2-Dibromo-3-Chloropr...	18.25	157	693546	47.222	ng	98
93) n-Undecane	18.60	57	2061589	49.572	ng	100
94) 1,2,4-Trichlorobenzene	19.46	180	1402251	41.545	ng	99
95) Naphthalene	19.57	128	4702139	44.563	ng	100
96) n-Dodecane	19.58	57	2090775	54.430	ng	99
97) Hexachlorobutadiene	19.90	225	823801	40.284	ng	100
98) Cyclohexanone	15.32	55	1431641	55.505	ng	99
99) tert-Butylbenzene	17.30	119	3122208	40.151	ng	100
100) n-Butylbenzene	18.11	91	3646567	47.963	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071709.D

Acq On : 7 Mar 2017 4:17

Operator: WA

Sample : 50ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:30 2017

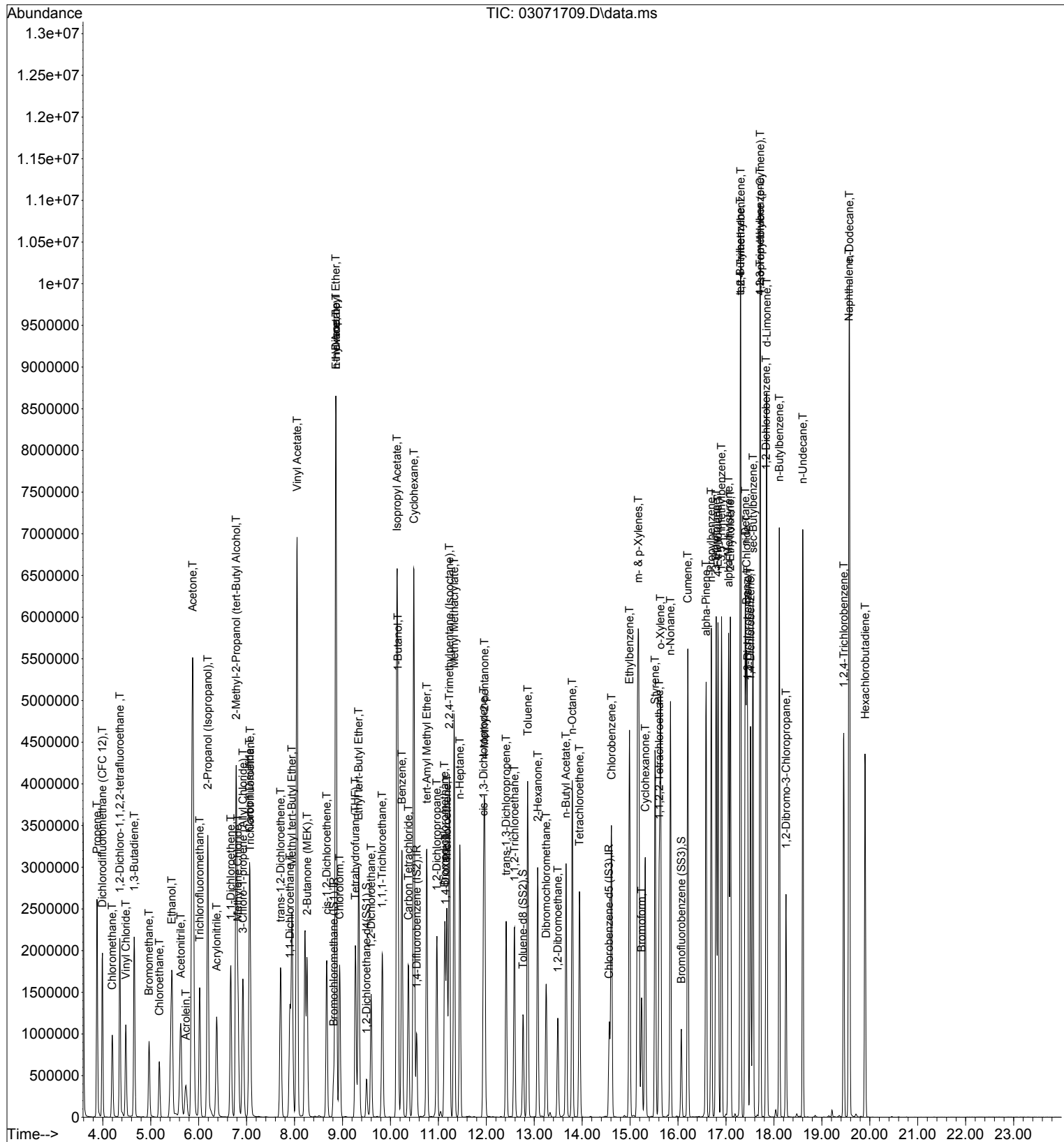
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071710.D

Acq On : 7 Mar 2017 4:49

Operator: WA

Sample : 100ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:32 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

IDA 3/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.83	130	189543	12.500	ng	0.02
37) 1,4-Difluorobenzene (IS2)	10.55	114	903636	12.500	ng	0.01
56) Chlorobenzene-d5 (IS3)	14.57	82	419114	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.51	65	334795	13.780	ng	0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	110.24%
57) Toluene-d8 (SS2)	12.77	98	970142	12.214	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.68%
73) Bromofluorobenzene (SS3)	16.07	174	321681	10.966	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.76%

Target Compounds

						Qvalue
2) Propene	3.89	42	2265688	111.401	ng	98
3) Dichlorodifluoromethan...	4.00	85	3114838	84.942	ng	99
4) Chloromethane	4.21	50	1973262	75.266	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.36	135	1432467	63.730	ng	100
6) Vinyl Chloride	4.49	62	2449333	72.794	ng	100
7) 1,3-Butadiene	4.67	54	2008769	86.184	ng	98
8) Bromomethane	4.98	94	1308672	84.930	ng	100
9) Chloroethane	5.19	64	1257995	93.239	ng	100
10) Ethanol	5.47	45	6562641	471.199	ng	99
11) Acetonitrile	5.65	41	3617949	107.671	ng	99
12) Acrolein	5.75	56	1112426	98.777	ng	100
13) Acetone	5.90	58	6444615	431.035	ng	86
14) Trichlorofluoromethane	6.02	101	2815517	83.267	ng	100
15) 2-Propanol (Isopropanol)	6.22	45	8526352	190.228	ng	99
16) Acrylonitrile	6.40	53	2462091	105.587	ng	100
17) 1,1-Dichloroethene	6.68	96	1613041	93.001	ng	99
18) 2-Methyl-2-Propanol (t...	6.81	59	9628106	203.737	ng	98
19) Methylene Chloride	6.83	84	1629816	85.330	ng	99
20) 3-Chloro-1-propene (Al...	6.93	41	3059067	139.885	ng	99
21) Trichlorotrifluoroethane	7.08	151	1337630	80.595	ng	99
22) Carbon Disulfide	7.06	76	5867393	86.318	ng	99
23) trans-1,2-Dichloroethene	7.72	61	2599609	108.437	ng	100
24) 1,1-Dichloroethane	7.91	63	2919768	91.414	ng	99
25) Methyl tert-Butyl Ether	7.96	73	5447266	94.063	ng	99
26) Vinyl Acetate	8.07	86	2213365	415.185	ng	# 71
27) 2-Butanone (MEK)	8.27	72	1193324	93.531	ng	100
28) cis-1,2-Dichloroethene	8.68	61	2469082	100.053	ng	100
29) Diisopropyl Ether	8.87	87	1275223	75.088	ng	# 85
30) Ethyl Acetate	8.88	61	1147342	165.015	ng	99
31) n-Hexane	8.87	57	2400338	73.249	ng	100
32) Chloroform	8.96	83	2942991	90.805	ng	99
34) Tetrahydrofuran (THF)	9.28	72	1183337	101.106	ng	99
35) Ethyl tert-Butyl Ether	9.34	87	2218279	92.082	ng	99
36) 1,2-Dichloroethane	9.61	62	2519116	94.865	ng	99
38) 1,1,1-Trichloroethane	9.84	97	2783432	91.978	ng	99
39) Isopropyl Acetate	10.14	61	2105311	170.958	ng	# 84
40) 1-Butanol	10.18	56	4645094	231.549	ng	95
41) Benzene	10.25	78	6152039	80.750	ng	99
42) Carbon Tetrachloride	10.38	117	2370321	92.490	ng	100
43) Cyclohexane	10.50	84	5112100	153.606	ng	99
44) tert-Amyl Methyl Ether	10.76	73	5051237	92.599	ng	99
45) 1,2-Dichloropropane	10.97	63	1636974	92.445	ng	100
46) Bromodichloromethane	11.14	83	2379686	96.224	ng	99
47) Trichloroethene	11.18	130	1685544	78.930	ng	100
48) 1,4-Dioxane	11.16	88	1472591	97.453	ng	99
49) 2,2,4-Trimethylpentane...	11.23	57	7425477	90.662	ng	98

Data File: I:\MS08\Data\2017 03\07\03071710.D

Acq On : 7 Mar 2017 4:49

Operator: WA

Sample : 100ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:32 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.34	100	1421075	169.788	ng	100
51) n-Heptane	11.45	71	1628453	82.345	ng	99
52) cis-1,3-Dichloropropene	11.95	75	2953496	97.300	ng	99
53) 4-Methyl-2-pentanone	11.97	58	1754392	98.413	ng	95
54) trans-1,3-Dichloropropene	12.42	75	2725249	105.491	ng	99
55) 1,1,2-Trichloroethane	12.59	97	1612209	90.630	ng	99
58) Toluene	12.87	91	6379455	78.091	ng	99
59) 2-Hexanone	13.08	43	4425254	103.002	ng	98
60) Dibromochloromethane	13.26	129	1925916	96.253	ng	99
61) 1,2-Dibromoethane	13.50	107	1816114	96.814	ng	100
62) n-Butyl Acetate	13.67	43	4894411	103.337	ng	98
63) n-Octane	13.80	57	1532783	92.055	ng	98
64) Tetrachloroethene	13.95	166	1743262	74.260	ng	99
65) Chlorobenzene	14.61	112	4193774	75.910	ng	99
66) Ethylbenzene	14.99	91	7523980	82.595	ng	99
67) m- & p-Xylenes	15.18	91	11482229	157.777	ng	100
68) Bromoform	15.25	173	1587231	89.399	ng	100
69) Styrene	15.53	104	4772350	93.949	ng	99
70) o-Xylene	15.64	91	6047278	81.537	ng	100
71) n-Nonane	15.84	43	3608418	92.880	ng	97
72) 1,1,2,2-Tetrachloroethane	15.61	83	2846684	90.886	ng	100
74) Cumene	16.21	105	7303232	77.029	ng	99
75) alpha-Pinene	16.59	93	4139884	85.019	ng	100
76) n-Propylbenzene	16.70	91	8854950	79.498	ng	99
77) 3-Ethyltoluene	16.79	105	7201413	77.937	ng	97
78) 4-Ethyltoluene	16.84	105	6959913	78.703	ng	95
79) 1,3,5-Trimethylbenzene	16.91	105	6148945	76.214	ng	100
80) alpha-Methylstyrene	17.06	118	3437628	81.044	ng	98
81) 2-Ethyltoluene	17.10	105	7107609	76.757	ng	99
82) 1,2,4-Trimethylbenzene	17.31	105	5562177	70.638	ng	99
83) n-Decane	17.41	57	3530097	87.488	ng	99
84) Benzyl Chloride	17.44	91	6122160	104.252	ng	99
85) 1,3-Dichlorobenzene	17.46	146	3367890	76.786	ng	100
86) 1,4-Dichlorobenzene	17.52	146	3548272	76.524	ng	100
87) sec-Butylbenzene	17.56	105	7870065	75.007	ng	98
88) 4-Isopropyltoluene (p-...	17.72	119	6393195	63.554	ng	98
89) 1,2,3-Trimethylbenzene	17.71	105	5424606	68.609	ng	99
90) 1,2-Dichlorobenzene	17.84	146	2979674	68.694	ng	99
91) d-Limonene	17.85	68	2429990	79.054	ng	98
92) 1,2-Dibromo-3-Chloropr...	18.26	157	1330116	86.667	ng	97
93) n-Undecane	18.60	57	3779338	86.965	ng	99
94) 1,2,4-Trichlorobenzene	19.46	180	2620088	74.284	ng	99
95) Naphthalene	19.57	128	7907198	71.712	ng	99
96) n-Dodecane	19.58	57	3404231	84.809	ng	96
97) Hexachlorobutadiene	19.90	225	1544388	72.270	ng	100
98) Cyclohexanone	15.32	55	2835618	105.205	ng	98
99) tert-Butylbenzene	17.31	119	5300109	65.224	ng	99
100) n-Butylbenzene	18.12	91	6681477	84.098	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071710.D

Acq On : 7 Mar 2017 4:49

Operator: WA

Sample : 100ng TO-15 ICAL Std

Misc : S29-01231701/S29-03021702 (3/31)

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 07 07:08:32 2017

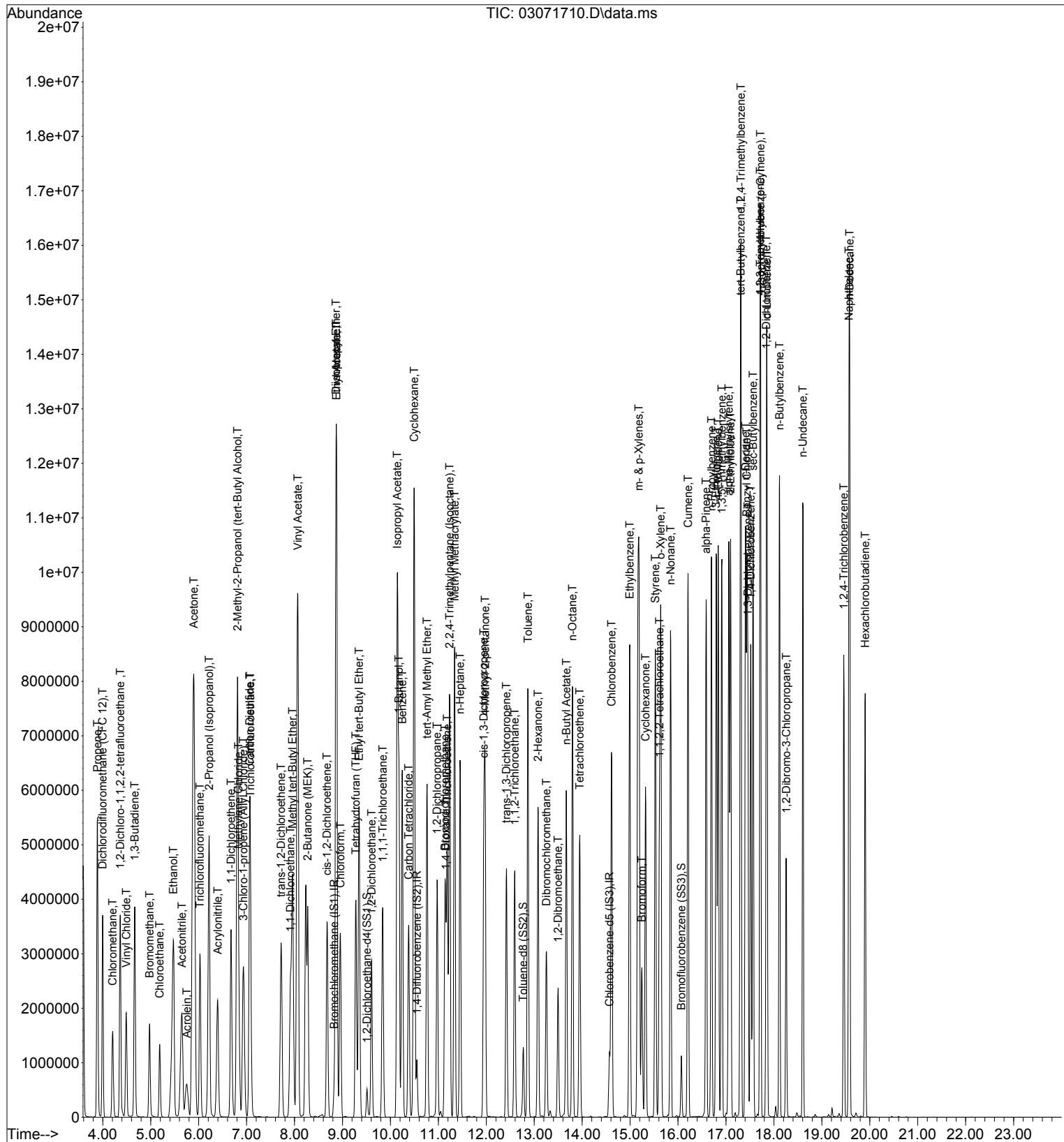
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:07:50 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2017 03\07\03071712.D

Acq On : 7 Mar 2017 5:53

Operator: WA

Sample : 25ng TO-15 ICV Std

Misc : S29-01231701/S29-02201703 (3/21)

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 07:56:41 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

107 3/7/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.81	130	200186	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	10.54	114	924312	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	14.56	82	428935	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.49	65	345687	11.987	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.92%
57) Toluene-d8 (SS2)	12.77	98	997624	12.377	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.04%
73) Bromofluorobenzene (SS3)	16.07	174	331507	12.543	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.32%

Target Compounds

						Qvalue
2) Propene	3.88	42	493726	23.687	ng	99
3) Dichlorodifluoromethan...	3.99	85	832964	21.637	ng	100
4) Chloromethane	4.20	50	628155	23.343	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.35	135	395457	20.316	ng	100
6) Vinyl Chloride	4.47	62	668604	22.479	ng	100
7) 1,3-Butadiene	4.65	54	532687	22.704	ng	100
8) Bromomethane	4.96	94	377303	24.159	ng	100
9) Chloroethane	5.18	64	336157	24.251	ng	100
10) Ethanol	5.41	45	1629181	109.991	ng	100
11) Acetonitrile	5.61	41	921634	23.442	ng	99
12) Acrolein	5.72	56	283193	24.969	ng	100
13) Acetone	5.86	58	1743978	120.152	ng	99
14) Trichlorofluoromethane	6.01	101	727539	21.338	ng	100
15) 2-Propanol (Isopropanol)	6.17	45	2644871	48.774	ng	99
16) Acrylonitrile	6.36	53	632861	26.644	ng	100
17) 1,1-Dichloroethene	6.67	96	420266	24.387	ng	98
18) 2-Methyl-2-Propanol (t...	6.76	59	2610376	48.415	ng	100
19) Methylene Chloride	6.81	84	432325	24.424	ng	99
20) 3-Chloro-1-propene (Al...	6.91	41	814615	25.557	ng	100
21) Trichlorotrifluoroethane	7.07	151	362607	22.917	ng	99
22) Carbon Disulfide	7.05	76	1555417	24.533	ng	100
23) trans-1,2-Dichloroethene	7.70	61	660084	24.113	ng	99
24) 1,1-Dichloroethane	7.90	63	767203	22.560	ng	100
25) Methyl tert-Butyl Ether	7.94	73	1417936	22.997	ng	100
26) Vinyl Acetate	8.04	86	605589	125.404	ng	99
27) 2-Butanone (MEK)	8.25	72	306715	25.002	ng	99
28) cis-1,2-Dichloroethene	8.66	61	626966	23.584	ng	100
29) Diisopropyl Ether	8.85	87	372877	23.066	ng	# 95
30) Ethyl Acetate	8.85	61	315928	54.015	ng	100
31) n-Hexane	8.86	57	667430	21.056	ng	100
32) Chloroform	8.93	83	751120	22.381	ng	100
34) Tetrahydrofuran (THF)	9.26	72	300504	24.524	ng	99
35) Ethyl tert-Butyl Ether	9.33	87	581049	23.224	ng	99
36) 1,2-Dichloroethane	9.59	62	635744	22.004	ng	100
38) 1,1,1-Trichloroethane	9.82	97	703602	23.058	ng	100
39) Isopropyl Acetate	10.12	61	549889	49.532	ng	95
40) 1-Butanol	10.14	56	1119464	51.960	ng	97
41) Benzene	10.23	78	1601610	21.943	ng	100
42) Carbon Tetrachloride	10.37	117	613465	24.494	ng	100
43) Cyclohexane	10.48	84	1401895	44.358	ng	100
44) tert-Amyl Methyl Ether	10.75	73	1342184	23.784	ng	100
45) 1,2-Dichloropropane	10.96	63	412073	22.984	ng	100
46) Bromodichloromethane	11.12	83	609400	25.208	ng	100
47) Trichloroethene	11.17	130	439574	23.076	ng	100
48) 1,4-Dioxane	11.14	88	373797	25.354	ng	100
49) 2,2,4-Trimethylpentane...	11.22	57	1988291	23.273	ng	99

Data File: I:\MS08\Data\2017 03\07\03071712.D

Acq On : 7 Mar 2017 5:53

Operator: WA

Sample : 25ng TO-15 ICV Std

Misc : S29-01231701/S29-02201703 (3/21)

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 07:56:41 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.32	100	362546	51.863	ng	100
51) n-Heptane	11.45	71	411067	22.063	ng	100
52) cis-1,3-Dichloropropene	11.94	75	707421	26.306	ng	100
53) 4-Methyl-2-pentanone	11.96	58	442391	28.017	ng	100
54) trans-1,3-Dichloropropene	12.41	75	681782	26.337	ng	100
55) 1,1,2-Trichloroethane	12.58	97	413018	24.197	ng	100
58) Toluene	12.86	91	1668159	22.245	ng	100
59) 2-Hexanone	13.07	43	1126969	28.905	ng	100
60) Dibromochloromethane	13.24	129	497988	27.533	ng	100
61) 1,2-Dibromoethane	13.49	107	465771	26.377	ng	100
62) n-Butyl Acetate	13.66	43	1283980	27.213	ng	100
63) n-Octane	13.79	57	385851	23.245	ng	100
64) Tetrachloroethene	13.94	166	464644	23.355	ng	100
65) Chlorobenzene	14.61	112	1128053	23.007	ng	100
66) Ethylbenzene	14.99	91	2013979	23.979	ng	100
67) m- & p-Xylenes	15.16	91	3142110	46.956	ng	100
68) Bromoform	15.23	173	406662	27.699	ng	100
69) Styrene	15.52	104	1242894	26.603	ng	100
70) o-Xylene	15.63	91	1635795	23.749	ng	100
71) n-Nonane	15.84	43	997425	24.017	ng	100
72) 1,1,2,2-Tetrachloroethane	15.61	83	738888	24.865	ng	100
74) Cumene	16.20	105	2044640	23.404	ng	99
75) alpha-Pinene	16.59	93	1112357	24.674	ng	100
76) n-Propylbenzene	16.69	91	2480087	24.180	ng	100
77) 3-Ethyltoluene	16.79	105	1962311	23.353	ng	96
78) 4-Ethyltoluene	16.83	105	2012753	24.867	ng	96
79) 1,3,5-Trimethylbenzene	16.91	105	1703313	23.046	ng	100
80) alpha-Methylstyrene	17.05	118	926645	27.231	ng	99
81) 2-Ethyltoluene	17.09	105	1999475	23.533	ng	100
82) 1,2,4-Trimethylbenzene	17.30	105	1730727	24.466	ng	100
83) n-Decane	17.40	57	995412	24.682	ng	100
84) Benzyl Chloride	17.42	91	1613322	28.395	ng	100
85) 1,3-Dichlorobenzene	17.45	146	934212	23.994	ng	100
86) 1,4-Dichlorobenzene	17.51	146	951889	23.597	ng	100
87) sec-Butylbenzene	17.56	105	2264275	23.763	ng	100
88) 4-Isopropyltoluene (p-...	17.71	119	2127569	24.062	ng	100
89) 1,2,3-Trimethylbenzene	17.71	105	1781911	24.705	ng	100
90) 1,2-Dichlorobenzene	17.84	146	901852	24.152	ng	100
91) d-Limonene	17.85	68	729693	26.579	ng	100
92) 1,2-Dibromo-3-Chloropr...	18.25	157	356780	27.456	ng	100
93) n-Undecane	18.60	57	1060849	26.557	ng	100
94) 1,2,4-Trichlorobenzene	19.46	180	691058	26.693	ng	99
95) Naphthalene	19.56	128	2141167	26.290	ng	100
96) n-Dodecane	19.58	57	1063601	29.063	ng	100
97) Hexachlorobutadiene	19.90	225	432515	24.255	ng	100
98) Cyclohexanone	15.31	55	714661	26.850	ng	100
99) tert-Butylbenzene	17.30	119	1678050	23.450	ng	100
100) n-Butylbenzene	18.11	91	1888674	25.318	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 03\07\03071712.D

Acq On : 7 Mar 2017 5:53

Operator: WA

Sample : 25ng TO-15 ICV Std

Misc : S29-01231701/S29-02201703 (3/21)

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 07:56:41 2017

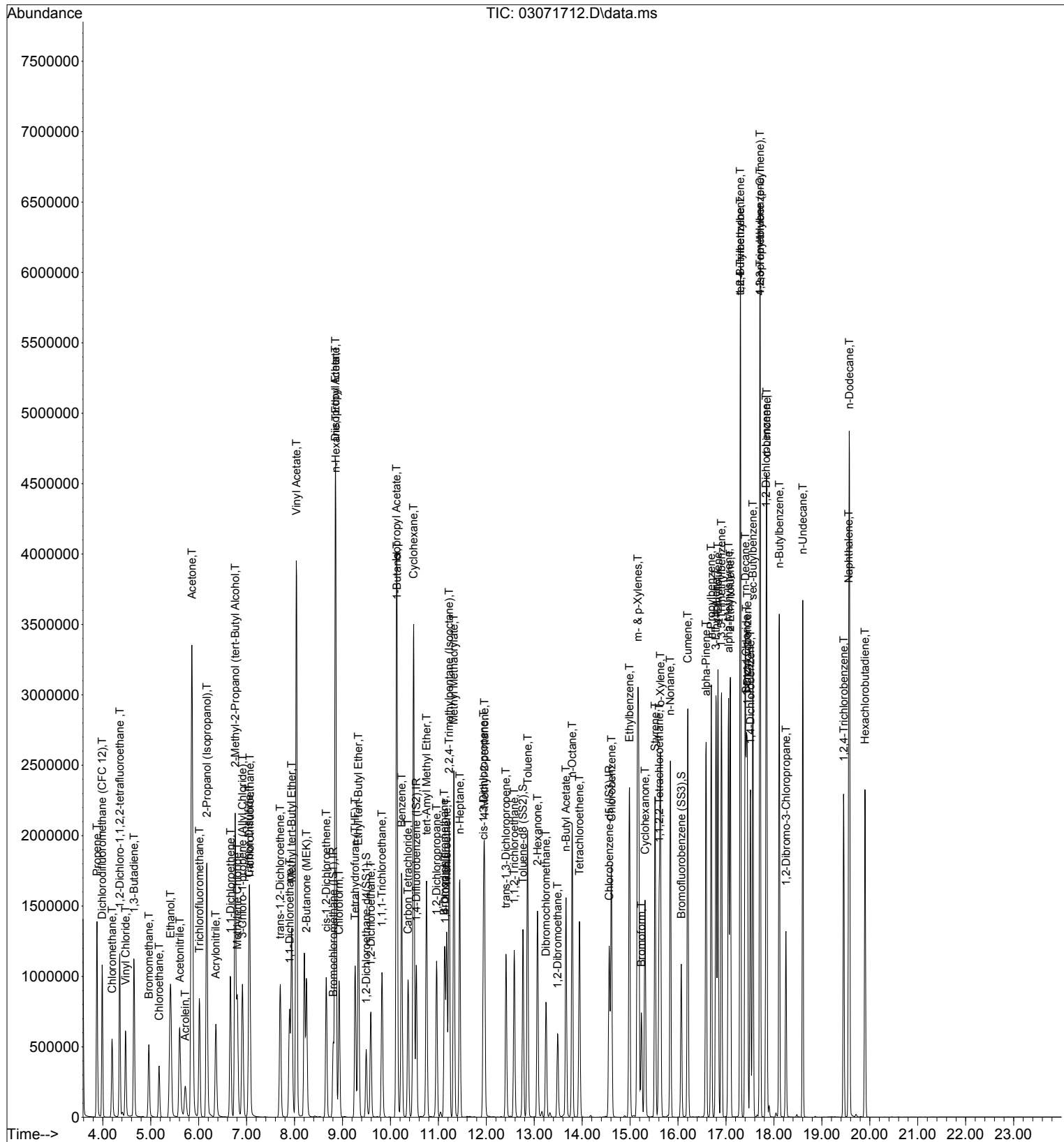
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEETData File Name: **03071712.D**Acq. Method File: **TO15.M****DA** 3/7/17Data File Path: **I:\MS08\Data\2017_03\07**Sample Name: **25ng TO-15 ICV Std**Operator: **WA**Misc Info: **S29-01231701/S29-02201703 (**Date Acquired: **3/7/2017****5:53**Instrument Name: **MS08**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt. (ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	3.88	23.687	26.275	90	52	127	*	*
3)	Dichlorodifluoromethane (CFC 12)	3.99	21.637	26.250	82	68	109	*	*
4)	Chloromethane	4.20	23.343	26.225	89	51	130	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroethane	4.35	20.316	26.375	77	66	114	*	*
6)	Vinyl Chloride	4.47	22.479	26.250	86	61	125	*	*
7)	1,3-Butadiene	4.65	22.704	26.250	86	62	144	*	*
8)	Bromomethane	4.96	24.159	26.250	92	73	123	*	*
9)	Chloroethane	5.18	24.251	26.225	92	69	122	*	*
10)	Ethanol	5.41	109.991	132.650	83	62	124	*	*
11)	Acetonitrile	5.61	23.442	26.650	88	57	114	*	*
12)	Acrolein	5.72	24.969	26.525	94	62	116	*	*
13)	Acetone	5.86	120.152	133.050	90	57	117	*	*
14)	Trichlorofluoromethane	6.01	21.338	26.275	81	63	98	*	*
15)	2-Propanol (Isopropanol)	6.17	48.774	53.025	92	66	121	*	*
16)	Acrylonitrile	6.36	26.644	26.575	100	68	123	*	*
17)	1,1-Dichloroethene	6.67	24.387	26.575	92	76	118	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alcohol)	6.76	48.415	53.275	91	74	126	*	*
19)	Methylene Chloride	6.81	24.424	26.550	92	60	118	*	*
20)	3-Chloro-1-propene (Allyl Chloride)	6.91	25.557	26.500	96	65	126	*	*
21)	Trichlorotrifluoroethane	7.07	22.917	26.450	87	73	114	*	*
22)	Carbon Disulfide	7.05	24.533	26.675	92	57	102	*	*
23)	trans-1,2-Dichloroethene	7.70	24.113	26.675	90	74	123	*	*
24)	1,1-Dichloroethane	7.90	22.560	26.550	85	69	111	*	*
25)	Methyl tert-Butyl Ether	7.94	22.997	26.600	86	69	113	*	*
26)	Vinyl Acetate	8.04	125.404	132.550	95	76	128	*	*
27)	2-Butanone (MEK)	8.25	25.002	26.550	94	63	127	*	*
28)	cis-1,2-Dichloroethene	8.66	23.584	26.475	89	72	117	*	*
29)	Diisopropyl Ether	8.85	23.066	26.575	87	64	118	*	*
30)	Ethyl Acetate	8.85	54.015	53.275	101	68	127	*	*
31)	n-Hexane	8.86	21.056	26.600	79	55	116	*	*
32)	Chloroform	8.93	22.381	26.475	85	70	109	*	*
34)	Tetrahydrofuran (THF)	9.26	24.524	26.575	92	72	113	*	*
35)	Ethyl tert-Butyl Ether	9.33	23.224	26.525	88	73	117	*	*
36)	1,2-Dichloroethane	9.59	22.004	26.500	83	69	113	*	*
38)	1,1,1-Trichloroethane	9.82	23.058	26.475	87	72	115	*	*
39)	Isopropyl Acetate	10.12	49.532	53.050	93	68	122	*	*
40)	1-Butanol	10.14	51.960	53.075	98	75	141	*	*
41)	Benzene	10.23	21.943	26.525	83	65	107	*	*
42)	Carbon Tetrachloride	10.37	24.494	26.600	92	71	113	*	*
43)	Cyclohexane	10.48	44.358	53.125	83	71	115	*	*
44)	tert-Amyl Methyl Ether	10.75	23.784	26.525	90	73	115	*	*
45)	1,2-Dichloropropane	10.96	22.984	26.525	87	71	115	*	*
46)	Bromodichloromethane	11.12	25.208	26.700	94	75	118	*	*
47)	Trichloroethene	11.17	23.076	26.550	87	68	114	*	*
48)	1,4-Dioxane	11.14	25.354	26.600	95	81	131	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	11.22	23.273	26.525	88	68	112	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 03071712.D

TO15.M

Data File Path: I:\MS08\Data\2017_03\07\

Sample Name: 25ng TO-15 ICV Std

Operator: WA

Misc Info: S29-01231701/S29-02201703 (

Date Acquired: 3/7/2017

5:53

Instrument Name: MS08

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	Methyl Methacrylate	11.32	51.863	53.000	98	72	130	*	*
51)	n-Heptane	11.45	22.063	26.600	83	68	116	*	*
52)	cis-1,3-Dichloropropene	11.94	26.306	26.275	100	77	126	*	*
53)	4-Methyl-2-pentanone	11.96	28.017	26.575	105	69	126	*	*
54)	trans-1,3-Dichloropropene	12.41	26.337	26.675	99	79	125	*	*
55)	1,1,2-Trichloroethane	12.58	24.197	26.525	91	75	119	*	*
58)	Toluene	12.86	22.245	26.450	84	59	118	*	*
59)	2-Hexanone	13.07	28.905	26.575	109	69	129	*	*
60)	Dibromochloromethane	13.24	27.533	26.600	104	74	136	*	*
61)	1,2-Dibromoethane	13.49	26.377	26.450	100	73	131	*	*
62)	n-Butyl Acetate	13.66	27.213	26.950	101	69	130	*	*
63)	n-Octane	13.79	23.245	26.500	88	66	120	*	*
64)	Tetrachloroethene	13.94	23.355	26.575	88	65	130	*	*
65)	Chlorobenzene	14.61	23.007	26.500	87	68	120	*	*
66)	Ethylbenzene	14.99	23.979	26.450	91	68	122	*	*
67)	m- & p-Xylenes	15.16	46.956	53.025	89	68	123	*	*
68)	Bromoform	15.23	27.699	26.550	104	69	130	*	*
69)	Styrene	15.52	26.603	26.475	100	71	133	*	*
70)	o-Xylene	15.63	23.749	26.450	90	68	122	*	*
71)	n-Nonane	15.84	24.017	26.475	91	65	120	*	*
72)	1,1,2,2-Tetrachloroethane	15.61	24.865	26.500	94	69	130	*	*
74)	Cumene	16.20	23.404	26.525	88	70	123	*	*
75)	alpha-Pinene	16.59	24.674	26.575	93	70	128	*	*
76)	n-Propylbenzene	16.69	24.180	26.725	90	69	125	*	*
77)	3-Ethyltoluene	16.79	23.353	26.550	88	67	128	*	*
78)	4-Ethyltoluene	16.83	24.867	26.525	94	67	130	*	*
79)	1,3,5-Trimethylbenzene	16.91	23.046	26.525	87	67	124	*	*
80)	alpha-Methylstyrene	17.05	27.231	26.550	103	67	141	*	*
81)	2-Ethyltoluene	17.09	23.533	26.550	89	67	124	*	*
82)	1,2,4-Trimethylbenzene	17.30	24.466	26.525	92	67	129	*	*
83)	n-Decane	17.40	24.682	26.525	93	66	124	*	*
84)	Benzyl Chloride	17.42	28.395	26.550	107	79	138	*	*
85)	1,3-Dichlorobenzene	17.45	23.994	26.475	91	65	136	*	*
86)	1,4-Dichlorobenzene	17.51	23.597	26.650	89	66	141	*	*
87)	sec-Butylbenzene	17.56	23.763	26.550	90	68	125	*	*
88)	4-Isopropyltoluene (p-Cymene)	17.71	24.062	26.550	91	68	131	*	*
89)	1,2,3-Trimethylbenzene	17.71	24.705	26.500	93	68	132	*	*
90)	1,2-Dichlorobenzene	17.84	24.152	26.550	91	67	136	*	*
91)	d-Limonene	17.85	26.579	26.550	100	71	134	*	*
92)	1,2-Dibromo-3-Chloropropane	18.25	27.456	26.475	104	73	136	*	*
93)	n-Undecane	18.60	26.557	26.600	100	68	132	*	*
94)	1,2,4-Trichlorobenzene	19.46	26.693	26.500	101	64	134	*	*
95)	Naphthalene	19.56	26.290	26.700	98	62	136	*	*
96)	n-Dodecane	19.58	29.063	26.550	109	61	137	*	*
97)	Hexachlorobutadiene	19.90	24.255	26.575	91	60	133	*	*
98)	Cyclohexanone	15.31	26.850	26.575	101	64	131	*	*
99)	tert-Butylbenzene	17.30	23.450	26.500	88	67	128	*	*
100)	n-Butylbenzene	18.11	25.318	26.500	96	68	128	*	*

Bold = 75 Compound List
*** = Pass**

Data File: I:\MS08\Data\2017 04\17\04171703.D

Acq On : 17 Apr 2017 8:05

Operator: WA

Sample : CCV R8041717 5ng

Misc : S31-04031701/S29-03271704 (4/25)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Apr 17 08:31:46 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

~~4/17/17~~ 4/17/17

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	72	-0.03
2 T	Propene	1.302	1.448	-11.2	92	0.00
3 T	Dichlorodifluoromethane (CF	2.404	2.313	3.8	78	0.00
4 T	Chloromethane	1.680	1.620	3.6	80	0.00
5 T	1,2-Dichloro-1,1,2,2-tetra	1.215	1.066	12.3	71	0.00
6 T	Vinyl Chloride	1.857	1.795	3.3	72	-0.01
7 T	1,3-Butadiene	1.465	1.521	-3.8	82	-0.01
8 T	Bromomethane	0.975	1.002	-2.8	74	-0.01
9 T	Chloroethane	0.866	0.917	-5.9	79	-0.01
10 T	Ethanol	0.925	0.936	-1.2	86	-0.09
11 T	Acetonitrile	2.455	2.470	-0.6	82	-0.06
12 T	Acrolein	0.708	0.754	-6.5	85	-0.04
13 T	Acetone	0.906	0.934	-3.1	77	-0.05
14 T	Trichlorofluoromethane	2.129	2.007	5.7	77	0.00
15 T	2-Propanol (Isopropanol)	3.386	3.481	-2.8	80	-0.08
16 T	Acrylonitrile	1.483	1.631	-10.0	82	-0.05
17 T	1,1-Dichloroethene	1.076	1.065	1.0	78	-0.01
18 T	2-Methyl-2-Propanol (tert-B	3.367	3.302	1.9	77	-0.08
19 T	Methylene Chloride	1.105	1.087	1.6	76	-0.04
20 T	3-Chloro-1-propene (Allyl C	1.990	2.013	-1.2	79	-0.02
21 T	Trichlorotrifluoroethane	0.988	0.951	3.7	77	-0.01
22 T	Carbon Disulfide	3.959	3.997	-1.0	79	-0.01
23 T	trans-1,2-Dichloroethene	1.709	1.729	-1.2	79	-0.03
24 T	1,1-Dichloroethane	2.123	2.109	0.7	81	-0.03
25 T	Methyl tert-Butyl Ether	3.850	3.638	5.5	77	-0.02
26 T	Vinyl Acetate	0.302	0.286	5.3	67	-0.04
27 T	2-Butanone (MEK)	0.766	0.808	-5.5	76	-0.03
28 T	cis-1,2-Dichloroethene	1.660	1.659	0.1	79	-0.02
29 T	Diisopropyl Ether	1.009	0.998	1.1	77	-0.02
30 T	Ethyl Acetate	0.365	0.429	-17.5	80	-0.03
31 T	n-Hexane	1.979	2.043	-3.2	82	-0.01
32 T	Chloroform	2.096	2.004	4.4	77	-0.04
33 S	1,2-Dichloroethane-d4 (SS1)	1.801	1.874	-4.1	74	-0.03
34 T	Tetrahydrofuran (THF)	0.765	0.782	-2.2	77	-0.02
35 T	Ethyl tert-Butyl Ether	1.562	1.455	6.9	74	-0.01
36 T	1,2-Dichloroethane	1.804	1.778	1.4	79	-0.02
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	73	-0.02
38 T	1,1,1-Trichloroethane	0.413	0.389	5.8	77	-0.02
39 T	Isopropyl Acetate	0.150	0.155	-3.3	80	-0.02
40 T	1-Butanol	0.291	0.287	1.4	78	-0.04
41 T	Benzene	0.987	0.903	8.5	78	-0.02
42 T	Carbon Tetrachloride	0.339	0.337	0.6	79	-0.02
43 T	Cyclohexane	0.427	0.386	9.6	77	-0.02
44 T	tert-Amyl Methyl Ether	0.763	0.706	7.5	75	-0.01
45 T	1,2-Dichloropropane	0.242	0.235	2.9	80	-0.02
46 T	Bromodichloromethane	0.327	0.322	1.5	77	-0.01
47 T	Trichloroethene	0.258	0.247	4.3	78	-0.01
48 T	1,4-Dioxane	0.199	0.183	8.0	70	-0.02
49 T	2,2,4-Trimethylpentane (Iso	1.155	1.109	4.0	81	-0.01
50 T	Methyl Methacrylate	0.095	0.098	-3.2	77	-0.02
51 T	n-Heptane	0.252	0.250	0.8	81	0.00
52 T	cis-1,3-Dichloropropene	0.364	0.387	-6.3	78	0.00
53 T	4-Methyl-2-pentanone	0.214	0.238	-11.2	79	-0.01
54 T	trans-1,3-Dichloropropene	0.350	0.360	-2.9	78	0.00

Data File: I:\MS08\Data\2017 04\17\04171703.D

Acq On : 17 Apr 2017 8:05

Operator: WA

Sample : CCV R8041717 5ng

Misc : S31-04031701/S29-03271704 (4/25)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Apr 17 08:31:46 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55 T	1,1,2-Trichloroethane	0.231	0.222	3.9	78	-0.01
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	70	0.00
57 S	Toluene-d8 (SS2)	2.349	2.378	-1.2	71	0.00
58 T	Toluene	2.185	2.085	4.6	76	0.00
59 T	2-Hexanone	1.136	1.380	-21.5	79	0.00
60 T	Dibromochloromethane	0.527	0.575	-9.1	76	-0.01
61 T	1,2-Dibromoethane	0.515	0.552	-7.2	76	0.00
62 T	n-Butyl Acetate	1.375	1.532	-11.4	79	0.00
63 T	n-Octane	0.484	0.494	-2.1	80	0.00
64 T	Tetrachloroethene	0.580	0.568	2.1	76	0.00
65 T	Chlorobenzene	1.429	1.358	5.0	75	0.00
66 T	Ethylbenzene	2.448	2.445	0.1	76	0.00
67 T	m- & p-Xylenes	1.950	1.894	2.9	75	-0.02
68 T	Bromoform	0.428	0.442	-3.3	74	-0.01
69 T	Styrene	1.362	1.425	-4.6	71	0.00
70 T	o-Xylene	2.007	1.964	2.1	73	0.00
71 T	n-Nonane	1.210	1.259	-4.0	78	0.00
72 T	1,1,2,2-Tetrachloroethane	0.866	0.852	1.6	70	0.00
73 S	Bromofluorobenzene (SS3)	0.770	0.723	6.1	65	0.00
74 T	Cumene	2.546	2.438	4.2	72	0.00
75 T	alpha-Pinene	1.314	1.316	-0.2	74	0.00
76 T	n-Propylbenzene	2.989	2.971	0.6	73	0.00
77 T	3-Ethyltoluene	2.449	2.380	2.8	70	0.00
78 T	4-Ethyltoluene	2.359	2.320	1.7	71	0.00
79 T	1,3,5-Trimethylbenzene	2.154	2.037	5.4	70	0.00
80 T	alpha-Methylstyrene	0.992	1.062	-7.1	69	0.00
81 T	2-Ethyltoluene	2.476	2.326	6.1	69	0.00
82 T	1,2,4-Trimethylbenzene	2.061	2.061	0.0	70	-0.01
83 T	n-Decane	1.175	1.204	-2.5	74	0.00
84 T	Benzyl Chloride	1.656	1.634	1.3	68	-0.01
85 T	1,3-Dichlorobenzene	1.135	1.088	4.1	68	-0.01
86 T	1,4-Dichlorobenzene	1.176	1.109	5.7	68	0.00
87 T	sec-Butylbenzene	2.777	2.678	3.6	69	0.00
88 T	4-Isopropyltoluene (p-Cymen	2.577	2.571	0.2	69	-0.01
89 T	1,2,3-Trimethylbenzene	2.102	2.057	2.1	69	0.00
90 T	1,2-Dichlorobenzene	1.088	1.062	2.4	68	0.00
91 T	d-Limonene	0.800	0.875	-9.4	72	0.00
92 T	1,2-Dibromo-3-Chloropropane	0.379	0.377	0.5	68	0.00
93 T	n-Undecane	1.164	1.287	-10.6	78	0.00
94 T	1,2,4-Trichlorobenzene	0.754	0.776	-2.9	71	0.00
95 T	Naphthalene	2.373	2.421	-2.0	70	0.00
96 T	n-Dodecane	1.066	1.313	-23.2	88	0.00
97 T	Hexachlorobutadiene	0.520	0.512	1.5	73	0.00
98 T	Cyclohexanone	0.776	0.738	4.9	67	-0.01
99 T	tert-Butylbenzene	2.085	2.007	3.7	69	0.00
100 T	n-Butylbenzene	2.174	2.247	-3.4	71	0.00

(#)= Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS08\Data\2017 04\17\04171703.D

Acq On : 17 Apr 2017 8:05

Operator: WA

Sample : CCV R8041717 5ng

Misc : S31-04031701/S29-03271704 (4/25)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Apr 17 08:31:46 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

4/17/17

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	8.80	130	117590	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.54	114	565104	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.56	82	253333	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	9.48	65	220408	13.011	ng	-0.03
Spiked Amount	12.500	Range	70 - 130	Recovery	=	104.08%
57) Toluene-d8 (SS2)	12.77	98	602423	12.655	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.28%
73) Bromofluorobenzene (SS3)	16.07	174	183260	11.740	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.92%

Target Compounds

						Qvalue
2) Propene	3.89	42	70578	5.764	ng	99
3) Dichlorodifluoromethan...	4.00	85	113895	5.037	ng	99
4) Chloromethane	4.20	50	76589	4.845	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.36	135	50408	4.409	ng	99
6) Vinyl Chloride	4.48	62	86374	4.944	ng	99
7) 1,3-Butadiene	4.65	54	75624	5.487	ng	99
8) Bromomethane	4.96	94	46808	5.102	ng	100
9) Chloroethane	5.17	64	43534	5.347	ng	98
10) Ethanol	5.38	45	229307	26.355	ng	100
11) Acetonitrile	5.59	41	121541	5.263	ng	100
12) Acrolein	5.71	56	36935	5.544	ng	99
13) Acetone	5.84	58	233372	27.372	ng	93
14) Trichlorofluoromethane	6.02	101	99051	4.946	ng	99
15) 2-Propanol (Isopropanol)	6.14	45	344666	10.820	ng	99
16) Acrylonitrile	6.34	53	80921	5.800	ng	99
17) 1,1-Dichloroethene	6.66	96	53047	5.240	ng	94
18) 2-Methyl-2-Propanol (t...	6.73	59	328372	10.368	ng	98
19) Methylene Chloride	6.79	84	54052	5.199	ng	94
20) 3-Chloro-1-propene (Al...	6.91	41	99595	5.319	ng	97
21) Trichlorotrifluoroethane	7.07	151	46945	5.051	ng	100
22) Carbon Disulfide	7.05	76	199459	5.356	ng	99
23) trans-1,2-Dichloroethene	7.69	61	86767	5.396	ng	97
24) 1,1-Dichloroethane	7.89	63	101160	5.064	ng	99
25) Methyl tert-Butyl Ether	7.94	73	182430	5.037	ng	99
26) Vinyl Acetate	8.03	86	70787	24.955	ng	# 85
27) 2-Butanone (MEK)	8.25	72	39861	5.532	ng	# 91
28) cis-1,2-Dichloroethene	8.66	61	83034	5.317	ng	97
29) Diisopropyl Ether	8.85	87	49853	5.250	ng	# 91
30) Ethyl Acetate	8.85	61	42950	12.501	ng	99
31) n-Hexane	8.86	57	102166	5.487	ng	100
32) Chloroform	8.92	83	99708	5.058	ng	99
34) Tetrahydrofuran (THF)	9.26	72	39039	5.424	ng	# 89
35) Ethyl tert-Butyl Ether	9.33	87	72353	4.923	ng	97
36) 1,2-Dichloroethane	9.59	62	88000	5.185	ng	100
38) 1,1,1-Trichloroethane	9.82	97	94518	5.066	ng	99
39) Isopropyl Acetate	10.12	61	73567	10.839	ng	97
40) 1-Butanol	10.13	56	136534	10.365	ng	89
41) Benzene	10.23	78	214725	4.812	ng	100
42) Carbon Tetrachloride	10.37	117	80330	5.246	ng	100
43) Cyclohexane	10.48	84	185658	9.609	ng	98
44) tert-Amyl Methyl Ether	10.75	73	168220	4.876	ng	99
45) 1,2-Dichloropropane	10.96	63	56330	5.139	ng	99
46) Bromodichloromethane	11.12	83	77671	5.255	ng	99
47) Trichloroethene	11.17	130	59157	5.080	ng	99
48) 1,4-Dioxane	11.14	88	44021	4.884	ng	100
49) 2,2,4-Trimethylpentane...	11.22	57	265578	5.085	ng	99

Data File: I:\MS08\Data\2017 04\17\04171703.D

Acq On : 17 Apr 2017 8:05

Operator: WA

Sample : CCV R8041717 5ng

Misc : S31-04031701/S29-03271704 (4/25)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Apr 17 08:31:46 2017

Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.32	100	46843	10.961	ng	96
51) n-Heptane	11.45	71	59972	5.265	ng	99
52) cis-1,3-Dichloropropene	11.94	75	97544	5.933	ng	100
53) 4-Methyl-2-pentanone	11.96	58	56898	5.894	ng	96
54) trans-1,3-Dichloropropene	12.42	75	86562	5.469	ng	99
55) 1,1,2-Trichloroethane	12.58	97	53165	5.094	ng	100
58) Toluene	12.86	91	222477	5.023	ng	99
59) 2-Hexanone	13.07	43	148358	6.443	ng	97
60) Dibromochloromethane	13.24	129	61892	5.794	ng	100
61) 1,2-Dibromoethane	13.49	107	59107	5.667	ng	99
62) n-Butyl Acetate	13.66	43	165142	5.926	ng	99
63) n-Octane	13.79	57	52905	5.396	ng	99
64) Tetrachloroethene	13.94	166	61111	5.201	ng	99
65) Chlorobenzene	14.61	112	146038	5.043	ng	100
66) Ethylbenzene	14.99	91	261339	5.268	ng	99
67) m- & p-Xylenes	15.16	91	407562	10.312	ng	100
68) Bromoform	15.23	173	47567	5.486	ng	100
69) Styrene	15.52	104	153251	5.554	ng	99
70) o-Xylene	15.63	91	209728	5.156	ng	99
71) n-Nonane	15.84	43	134489	5.483	ng	97
72) 1,1,2,2-Tetrachloroethane	15.61	83	91194	5.196	ng	99
74) Cumene	16.20	105	259357	5.027	ng	99
75) alpha-Pinene	16.58	93	139272	5.231	ng	100
76) n-Propylbenzene	16.69	91	319993	5.282	ng	100
77) 3-Ethyltoluene	16.79	105	253209	5.102	ng	96
78) 4-Ethyltoluene	16.83	105	246592	5.158	ng	96
79) 1,3,5-Trimethylbenzene	16.91	105	216514	4.960	ng	100
80) alpha-Methylstyrene	17.05	118	113026	5.624	ng	98
81) 2-Ethyltoluene	17.09	105	250277	4.987	ng	100
82) 1,2,4-Trimethylbenzene	17.30	105	219703	5.259	ng	100
83) n-Decane	17.40	57	128437	5.392	ng	98
84) Benzyl Chloride	17.42	91	175654	5.235	ng	99
85) 1,3-Dichlorobenzene	17.45	146	116688	5.074	ng	100
86) 1,4-Dichlorobenzene	17.51	146	118890	4.990	ng	99
87) sec-Butylbenzene	17.56	105	286058	5.083	ng	100
88) 4-Isopropyltoluene (p-...	17.71	119	267530	5.123	ng	100
89) 1,2,3-Trimethylbenzene	17.71	105	214066	5.025	ng	100
90) 1,2-Dichlorobenzene	17.84	146	113806	5.160	ng	100
91) d-Limonene	17.85	68	89071	5.493	ng	99
92) 1,2-Dibromo-3-Chloropr...	18.25	157	40248	5.244	ng	93
93) n-Undecane	18.60	57	137405	5.824	ng	99
94) 1,2,4-Trichlorobenzene	19.46	180	82043	5.366	ng	99
95) Naphthalene	19.57	128	265650	5.523	ng	99
96) n-Dodecane	19.58	57	138994	6.431	ng	98
97) Hexachlorobutadiene	19.90	225	54987	5.221	ng	100
98) Cyclohexanone	15.31	55	78965	5.023	ng	97
99) tert-Butylbenzene	17.30	119	213792	5.059	ng	100
100) n-Butylbenzene	18.11	91	240484	5.458	ng	99

(#)= qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2017 04\17\04171703.D

Acq On : 17 Apr 2017 8:05

Operator: WA

Sample : CCV R8041717 5ng

Misc : S31-04031701/S29-03271704 (4/25)

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Apr 17 08:31:46 2017

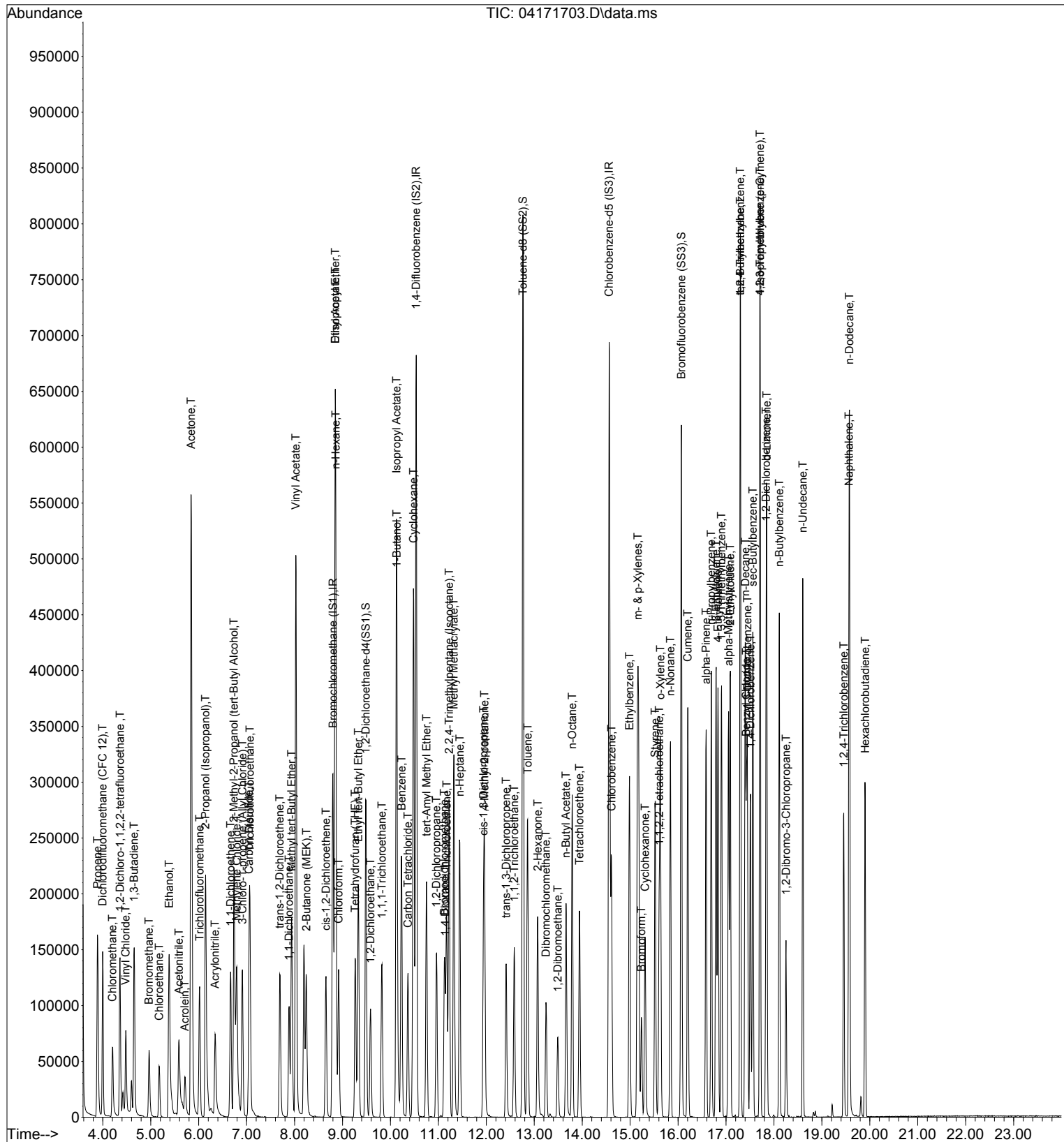
Quant Method : I:\MS08\Methods\R8030717.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Mar 07 07:25:36 2017

Response via : Initial Calibration

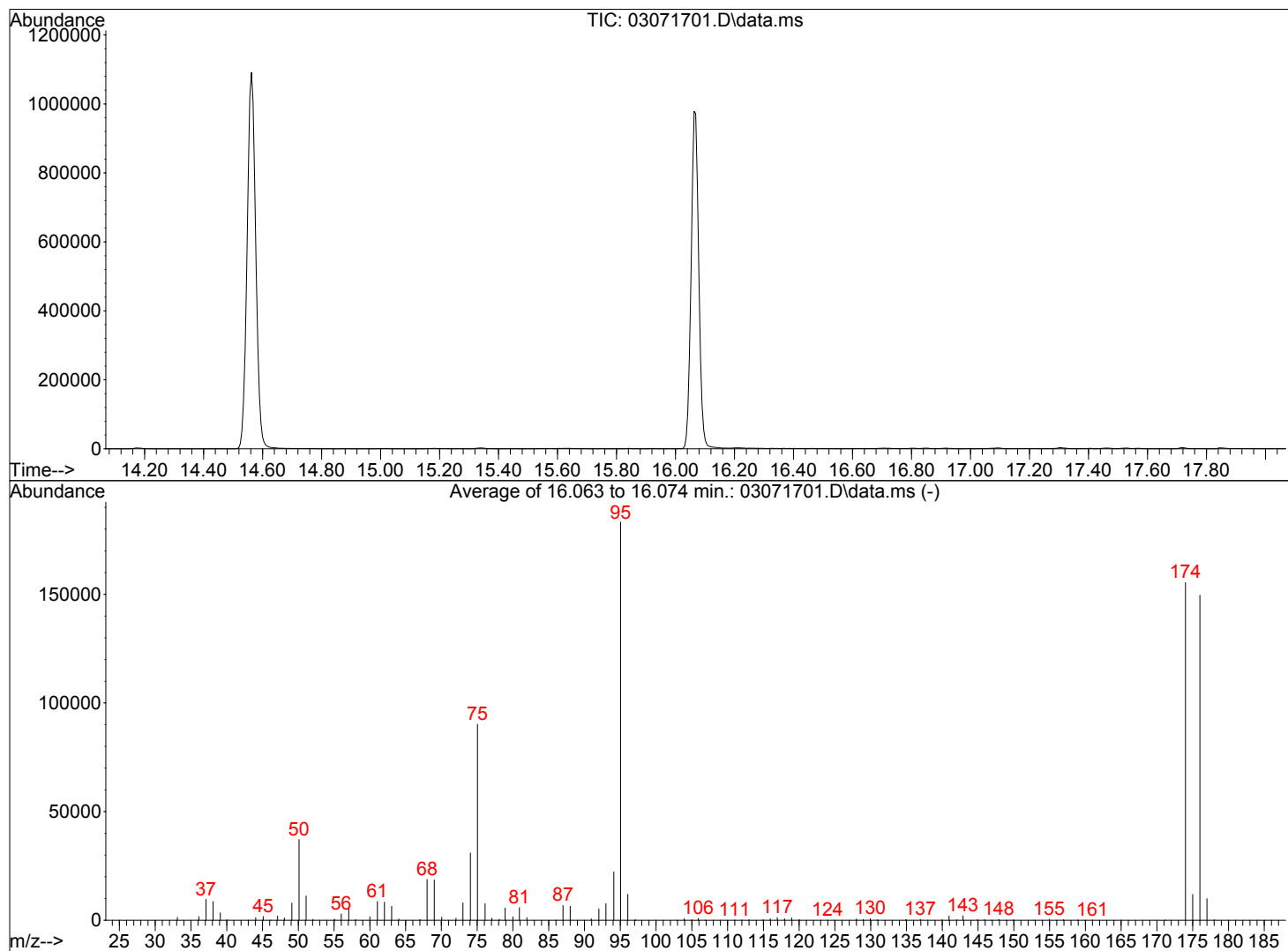
DataAcq Meth:TO15.M



Data Path : I:\MS08\Data\2017 03\07\
 Data File : 03071701.D
 Acq On : 7 Mar 2017 00:02
 Operator : WA
 Sample : BFB Std
 Misc : S29-01231701
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8030717.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Mar 07 07:07:50 2017



AutoFind: Scans 2316, 2317, 2318; Background Corrected with Scan 2307

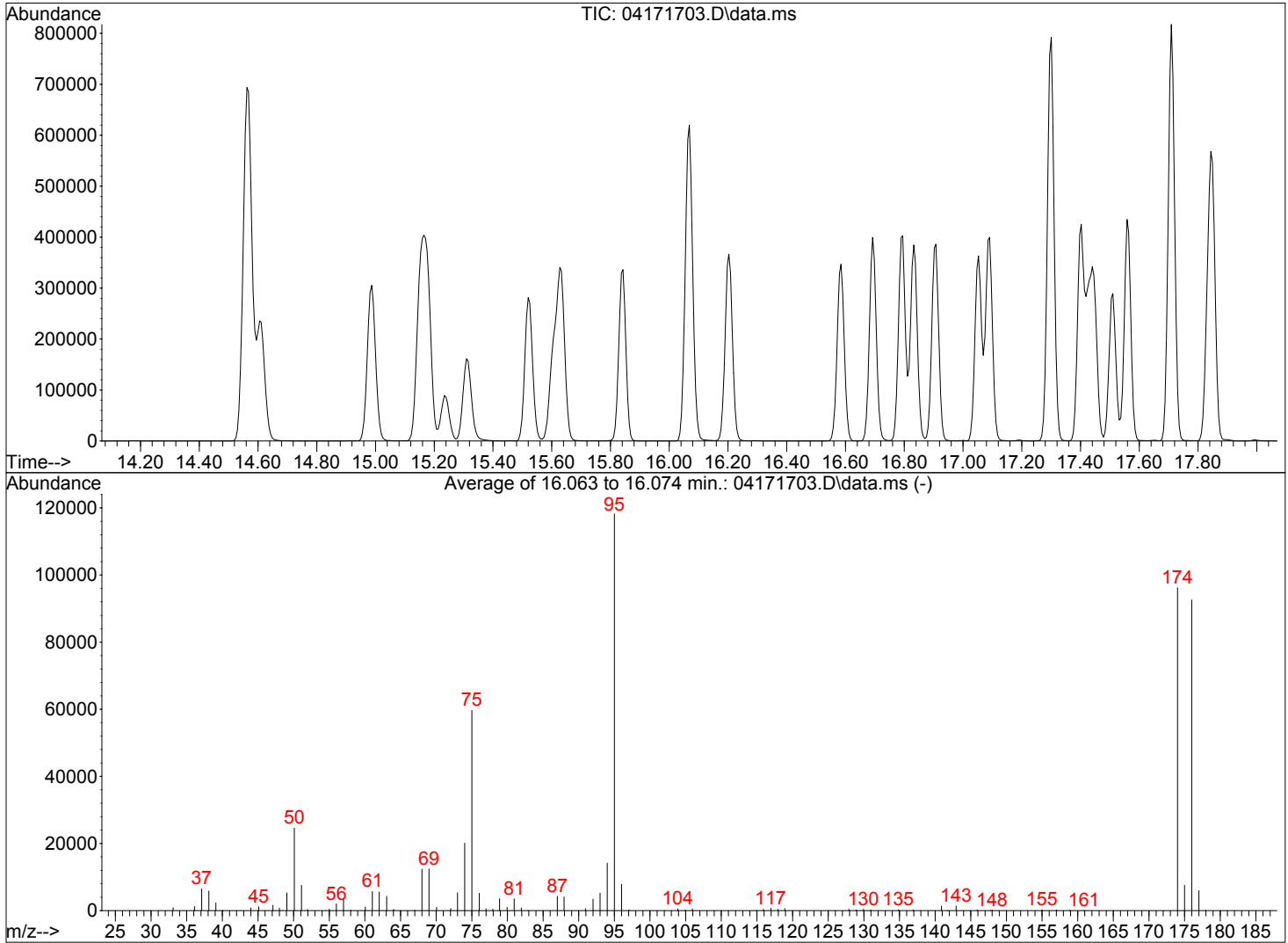
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.3	37133	PASS
75	95	30	66	49.2	90197	PASS
95	95	100	100	100.0	183232	PASS
96	95	5	9	6.5	11970	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	84.8	155456	PASS
175	174	4	9	7.7	11926	PASS
176	174	93	101	96.2	149589	PASS
177	176	5	9	6.6	9934	PASS

WA 3/7/17

Data Path : I:\MS08\Data\2017 04\17\
 Data File : 04171703.D
 Acq On : 17 Apr 2017 8:05
 Operator : WA
 Sample : CCV R8041717 5ng
 Misc : S31-04031701/S29-03271704 (4/25)
 ALS Vial : 16 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8030717.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Mar 07 07:25:36 2017



AutoFind: Scans 2316, 2317, 2318; Background Corrected with Scan 2308

~~DA~~ 4/17/17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.8	24576	PASS
75	95	30	66	50.5	59675	PASS
95	95	100	100	100.0	118197	PASS
96	95	5	9	6.6	7846	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	81.4	96187	PASS
175	174	4	9	7.9	7558	PASS
176	174	93	101	96.2	92571	PASS
177	176	5	9	6.4	5950	PASS

Directory: I:\MS08\Data\2017_04\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	4/17/17 7:01	04171701.D	System	S31-04031701/S29-03281705 (4/26)	WA	15	
2	4/17/17 7:33	04171702.D	CCV C8041717_25ng	S31-04031701/S29-03311702 (4/29)	WA	1	Pass
3	4/17/17 8:05	04171703.D	CCV R8041717_5ng	S31-04031701/S29-03271704 (4/25)	WA	16	Pass
4	4/17/17 8:37	04171704.D	MB R8041717_1000mL	S31-04031701_AS00703	WA	1	Pass
5	4/17/17 9:09	04171705.D	LCS R8041717_25ng	S31-04031701/S29-03271707 (4/25)	WA	1	Pass
6	4/17/17 10:14	04171706.D	P1701702-001 (1000mL)	S31-04031701	WA	2	
7	4/17/17 10:46	04171707.D	P1701702-002 (1000mL)	S31-04031701	WA	3	
8	4/17/17 11:18	04171708.D	P1701702-003 (1000mL)	S31-04031701	WA	8	
9	4/17/17 11:51	04171709.D	P1701702-004 (1000mL)	S31-04031701	WA	6	
10	4/17/17 12:23	04171710.D	P1701702-005 (1000mL)	S31-04031701	WA	7	
11	4/17/17 12:55	04171711.D	P1701702-005dup (1000mL)	S31-04031701	WA	7	Pass - batch dup
12	4/17/17 13:28	04171712.D	P1701702-004dil (100mL)	S31-04031701	WA	6	
13	4/17/17 14:00	04171713.D	P1701702-005dil (100mL)	S31-04031701	WA	7	
14	4/17/17 15:18	04171714.D	P1701582-001 (1000mL)	S31-04031701	WA	9	saturated
15	4/17/17 15:50	04171715.D	Blank	S31-04031701	WA	9	
16	4/17/17 16:22	04171716.D	Screen1582-001 (6.0mL)	S31-04031701	WA	4	screen
17	4/17/17 16:55	04171717.D	P1701582-002 (5.0mL)	S31-04031701	WA	4	
18	4/17/17 17:27	04171718.D	P1701582-001 (5.0mL)	S31-04031701	WA	4	
19	4/17/17 17:59	04171719.D	P1701582-003 (1000mL)	S31-04031701	WA	11	
20	4/17/17 18:31	04171720.D	P1701582-004 (1000mL)	S31-04031701	WA	12	
21	4/17/17 19:04	04171721.D	Blank	S31-04031701	WA	9	
22	4/17/17 19:36	04171722.D	P1701739-001 (400mL)	S31-04031701	WA	2	
23	4/17/17 20:09	04171723.D	P1701739-002 (400mL)	S31-04031701	WA	3	
24	4/17/17 20:41	04171724.D	P1701739-003 (400mL)	S31-04031701	WA	5	
25	4/17/17 21:14	04171725.D	P1701658-001 (1000mL)	S31-04031701	WA	6	
26	4/17/17 21:46	04171726.D	P1701658-002 (1000mL)	S31-04031701	WA	7	
27	4/17/17 22:19	04171727.D	P1701658-003 (1000mL)	S31-04031701	WA	8	
28	4/17/17 22:51	04171728.D	P1701658-004 (1000mL)	S31-04031701	WA	13	
29	4/17/17 23:24	04171729.D	Blank	S31-04031701	WA	9	
30	4/17/17 23:56	04171730.D	LCSD R8041717_25ng	S31-04031701/S29-03271707 (4/25)	WA	1	Pass- not used
	LCS: 2-hexanone out high; CS2 above current, w/in 130%						
							WA 4/18/17