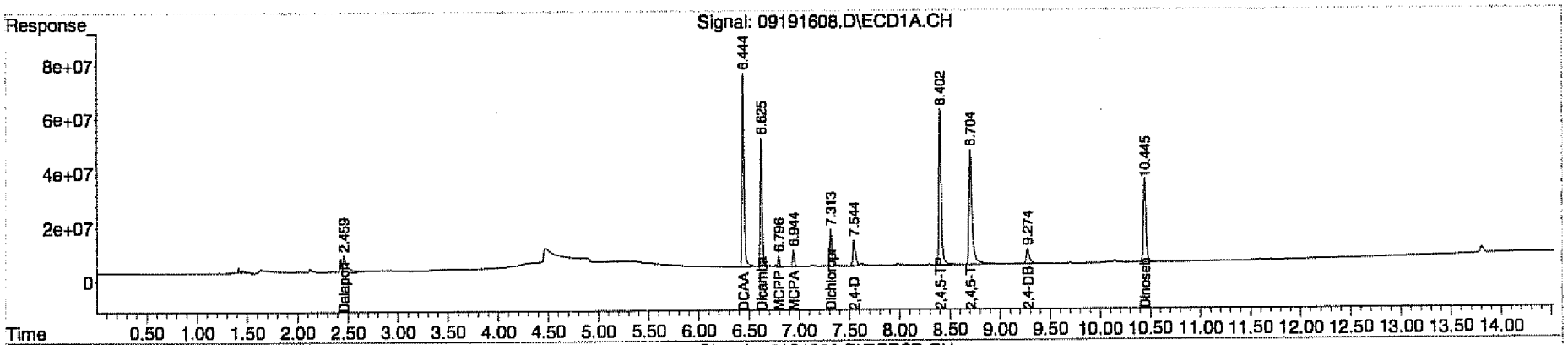
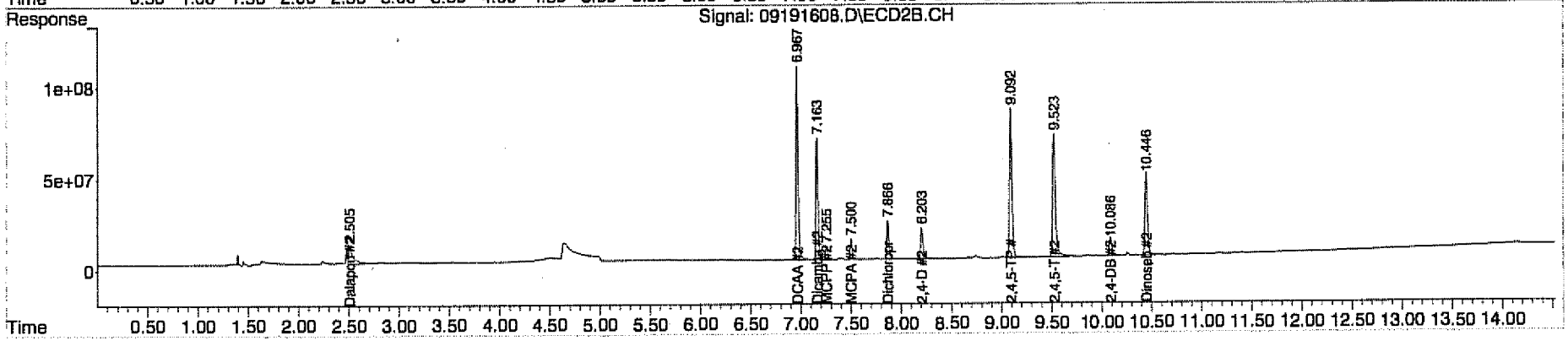
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191608.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 17:22
Operator : klm
Sample : 0.1 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 94 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:10:05 2016
Quant Method : C:\msdchem\1\methods\HR083116.M
Quant Title : Herbicides by 8151A
QLast Update : Fri Sep 02 08:57:53 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191609.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 17:41
Operator : klm
Sample : 0.25 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 95 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:16:47 2016
Quant Method : C:\msdchem\1\methods\HR083116.M
Quant Title : Herbicides by 8151A
QLast Update : Fri Sep 02 08:57:53 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
	System Monitoring Compounds						
1) S	DCAA	6.444	6.967	2254.7E6	3375.6E6	0.608m	0.778m#
	Spiked Amount 0.500			Recovery	=	121.60%	155.60%
	Target Compounds						
2) T	Dalapon	2.458	2.505	362.8E6	614.7E6	0.135m	0.180m#
3) T	Dicamba	6.624	7.164	1429.2E6	2122.7E6	0.113m	0.154m#
4) T	MCPP	6.798	7.256	126.8E6	238.6E6	11.884m	15.221m#
5) T	MCPA	6.944	7.502	204.8E6	359.0E6	12.052m	14.907m
6) T	Dichloroprop	7.311	7.866	447.5E6	696.7E6	0.121m	0.157m#
7) T	2,4-D	7.542	8.203	406.5E6	655.9E6	0.118m	0.157m#
8) T	2,4,5-TP	8.400	9.091	2245.7E6	3070.9E6	0.115m	0.150 #
9) T	2,4,5-T	8.698	9.520	2122.0E6	2962.6E6	0.115m	0.157 #
.0) T	2,4-DB	9.269	10.082	306.2E6	507.2E6	0.119m	0.150m#
.1) T	Dinoseb	10.443	10.445	1338.4E6	1898.5E6	0.118m	0.148m#
.2)	Picloram	0.000	0.000	0	0	N.D. d	N.D. d

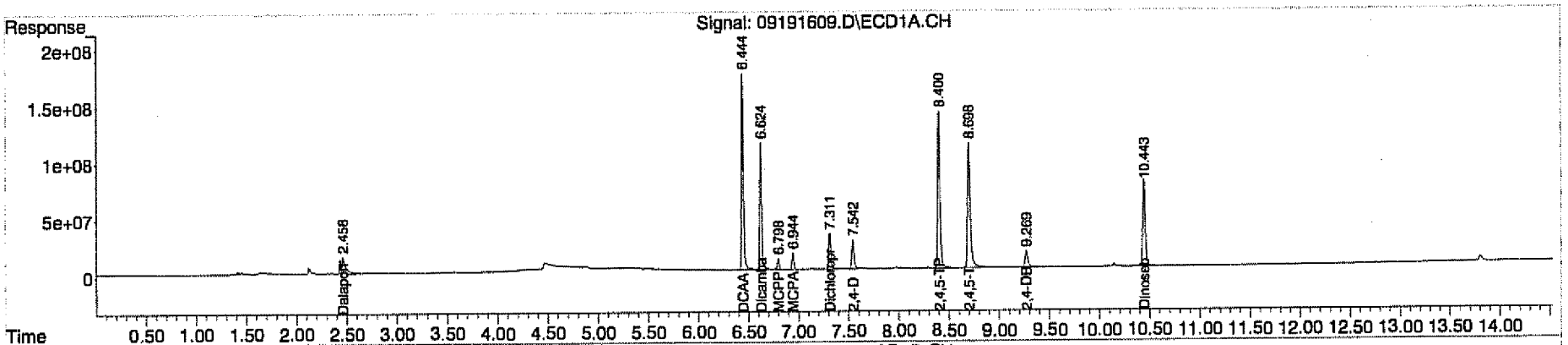
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

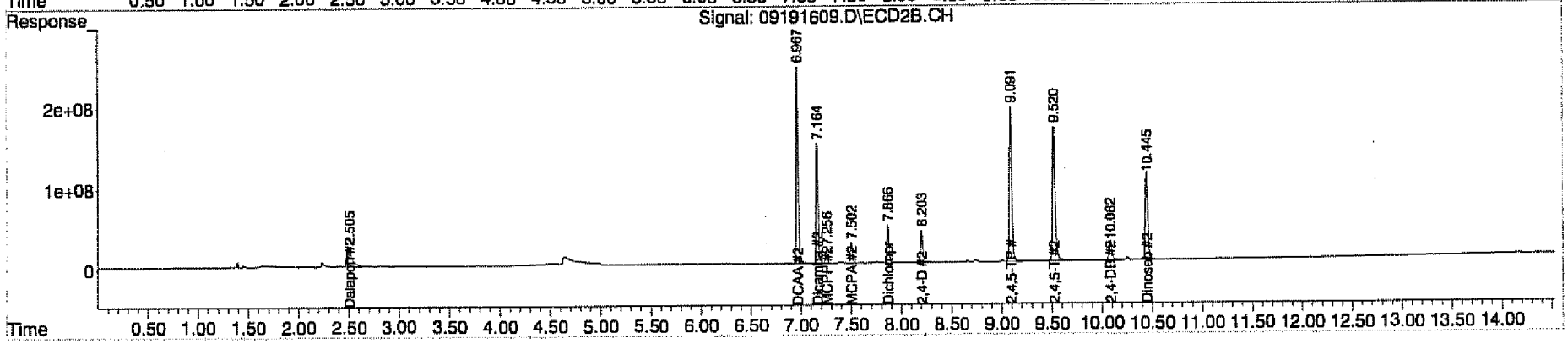
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191609.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 17:41
Operator : klm
Sample : 0.25 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 95 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:16:47 2016
Quant Method : C:\msdchem\1\methods\HR083116.M
Quant Title : Herbicides by 8151A
QLast Update : Fri Sep 02 08:57:53 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191610.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:00
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 96 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:22:05 2016
Quant Method : C:\msdchem\1\methods\HR083116.M
Quant Title : Herbicides by 8151A
QLast Update : Fri Sep 02 08:57:53 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
System Monitoring Compounds								
1)	S	DCAA	6.443	6.967	4482.9E6	6296.6E6	1.220m	1.471m
Spiked Amount		0.500			Recovery	=	244.00%	294.20%
Target Compounds								
2)	T	Dalapon	2.462	2.508	741.8E6	1108.2E6	0.287	0.338m
3)	T	Dicamba	6.625	7.164	2767.5E6	3858.1E6	0.221m	0.293m#
4)	T	MCPP	6.800	7.258	236.9E6	434.9E6	22.024m	28.479m#
5)	T	MCPA	6.946	7.505	387.2E6	646.8E6	22.595m	27.920m
6)	T	Dichloroprop	7.312	7.867	817.0E6	1248.5E6	0.232m	0.300m#
7)	T	2,4-D	7.540	8.201	761.7E6	1183.6E6	0.228m	0.298m#
8)	T	2,4,5-TP	8.399	9.091	4291.5E6	5727.9E6	0.222m	0.292m#
9)	T	2,4,5-T	8.694	9.518	4068.9E6	5580.9E6	0.220m	0.296m#
.0)	T	2,4-DB	9.263	10.079	573.0E6	919.3E6	0.223m	0.283m#
.1)	T	Dinoseb	10.442	10.444	2554.4E6	3600.8E6	0.223m	0.289m#
.2)		Picloram	0.000	12.754	0	2800138	N.D.	0.004 #

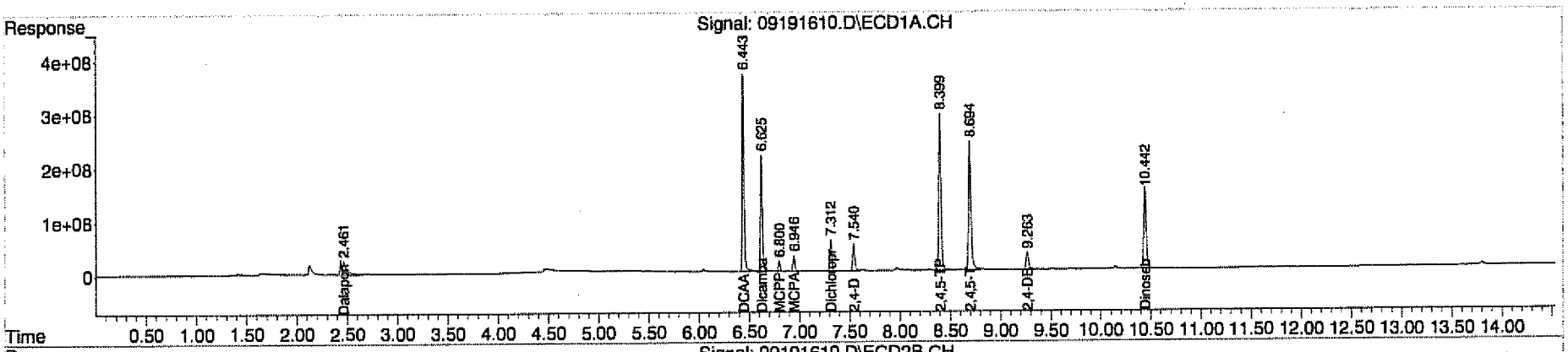
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

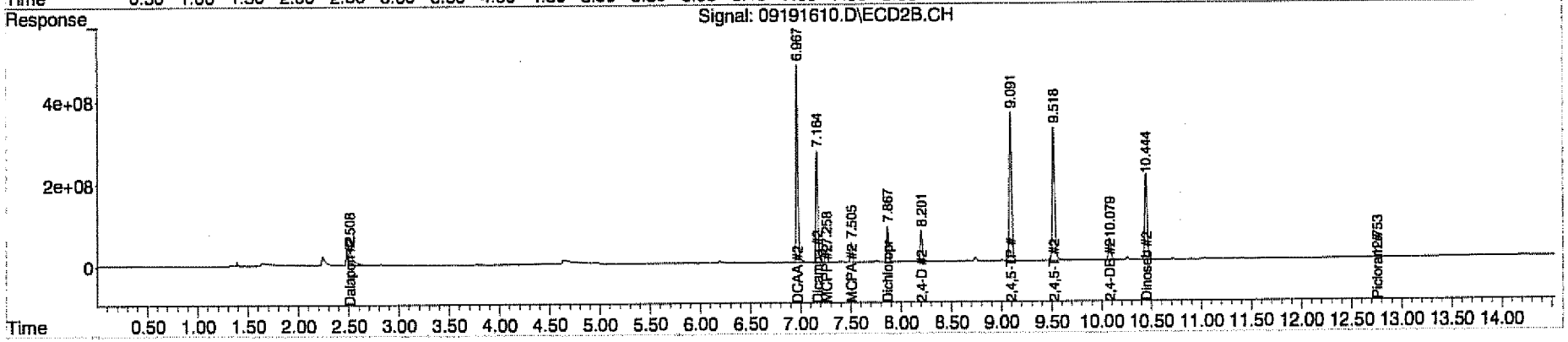
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191610.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:00
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 96 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:22:05 2016
Quant Method : C:\msdchem\1\methods\HR083116.M
Quant Title : Herbicides by 8151A
QLast Update : Fri Sep 02 08:57:53 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191611.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:19
Operator : klm
Sample : 1.0 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 97 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:25:39 2016
Quant Method : C:\msdchem\1\methods\HR083116.M
Quant Title : Herbicides by 8151A
QLast Update : Fri Sep 02 08:57:53 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
		System Monitoring Compounds						
1)	S	DCAA	6.444	6.968	9544.9E6	12679.1E6	2.609m	2.985m
Spiked Amount		0.500			Recovery	=	521.80%	597.00%
		Target Compounds						
2)	T	Dalapon	2.461	2.507	1610.5E6	2212.1E6	0.636	0.693m
3)	T	Dicamba	6.625	7.165	5532.6E6	7261.8E6	0.443m	0.565m#
4)	T	MCPP	6.803	7.262	470.2E6	814.3E6	43.514m	54.095m
5)	T	MCPA	6.951	7.509	772.1E6	1261.5E6	44.837m	55.713m
6)	T	Dichloroprop	7.311	7.867	1566.3E6	2291.9E6	0.458m	0.571m
7)	T	2,4-D	7.539	8.201	1467.4E6	2184.5E6	0.447m	0.567m#
8)	T	2,4,5-TP	8.398	9.090	8556.7E6	10729.8E6	0.445m	0.560m#
9)	T	2,4,5-T	8.692	9.517	8231.1E6	10662.3E6	0.444m	0.565m#
10)	T	2,4-DB	9.260	10.078	1160.5E6	1775.2E6	0.454m	0.561m
11)	T	Dinoseb	10.442	10.444	5195.1E6	6983.5E6	0.453m	0.568m#
12)		Picloram	0.000	12.706	0	408597	N.D.	0.003 #

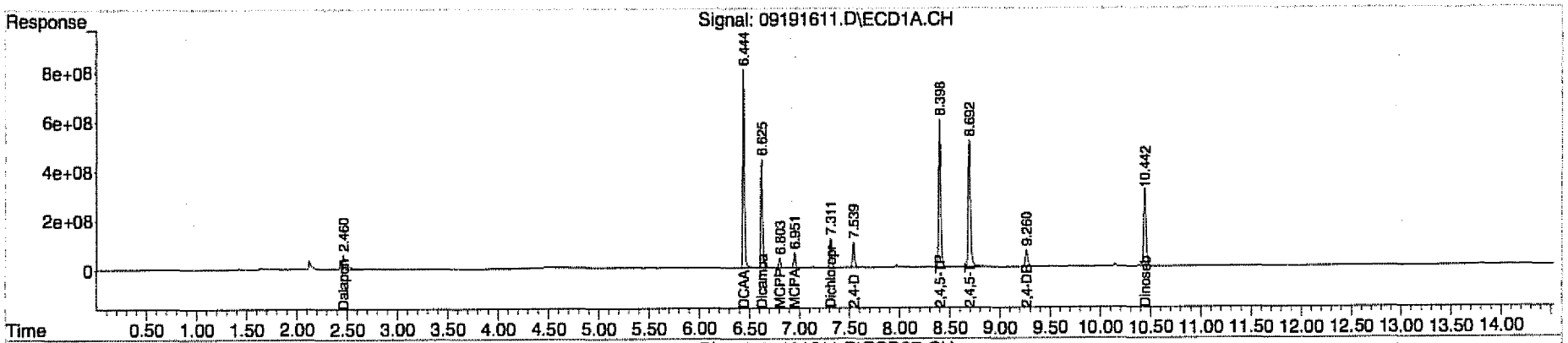
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

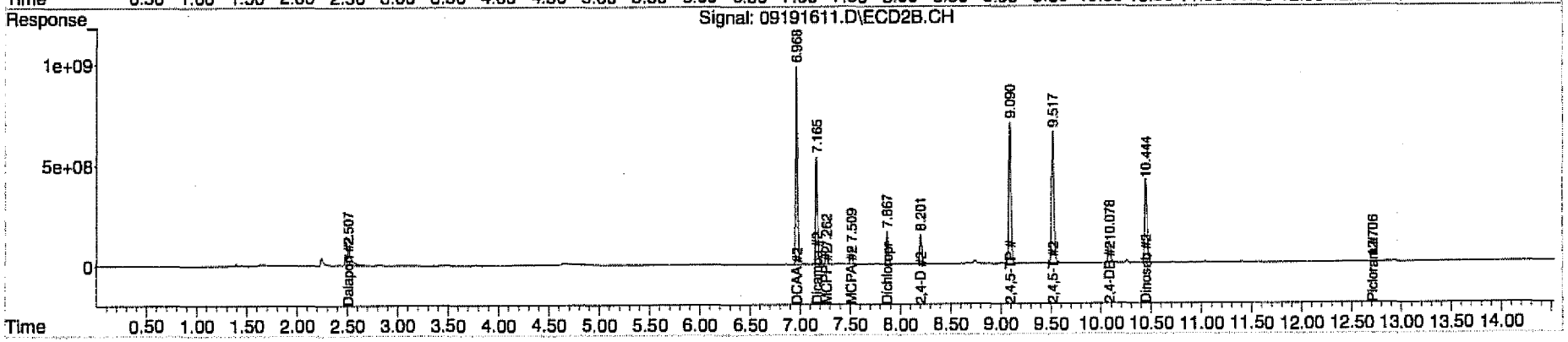
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191611.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:19
Operator : klm
Sample : 1.0 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 97 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:25:39 2016
Quant Method : C:\msdchem\1\methods\HR083116.M
Quant Title : Herbicides by 8151A
QLast Update : Fri Sep 02 08:57:53 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





epatemp
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191612.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb ICV
Misc : 100-8302
ALS Vial : 98 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:40:24 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
System Monitoring Compounds								
1)	S	DCAA	6.444	6.967	4577.8E6	6316.7E6	0.457	0.463
Spiked Amount		0.500			Recovery	=	91.40%	92.60%
Target Compounds								
2)	T	Dalapon	2.462	2.508	821.3E6	1132.4E6	0.474	0.458m
3)	T	Dicamba	6.624	7.164	2874.1E6	3854.0E6	0.487	0.484
4)	T	MCPP	6.799	7.258	245.0E6	415.6E6	48.619	46.436
5)	T	MCPA	6.946	7.504	397.2E6	656.7E6	47.971	47.650
6)	T	Dichloroprop	7.311	7.866	805.9E6	1225.2E6	0.472m	0.482m
7)	T	2,4-D	7.540	8.201	763.3E6	1191.5E6	0.477m	0.493m
8)	T	2,4,5-TP	8.399	9.090	4341.5E6	5640.0E6	0.475	0.481
9)	T	2,4,5-T	8.694	9.518	4142.1E6	5628.1E6	0.475	0.488
10)	T	2,4-DB	9.264	10.079	595.1E6	926.7E6	0.483m	0.483
11)	T	Dinoseb	10.442	10.445	2640.8E6	3600.2E6	0.479	0.478
12)		Picloram	0.000	0.000	0	0	N.D. d	N.D. d

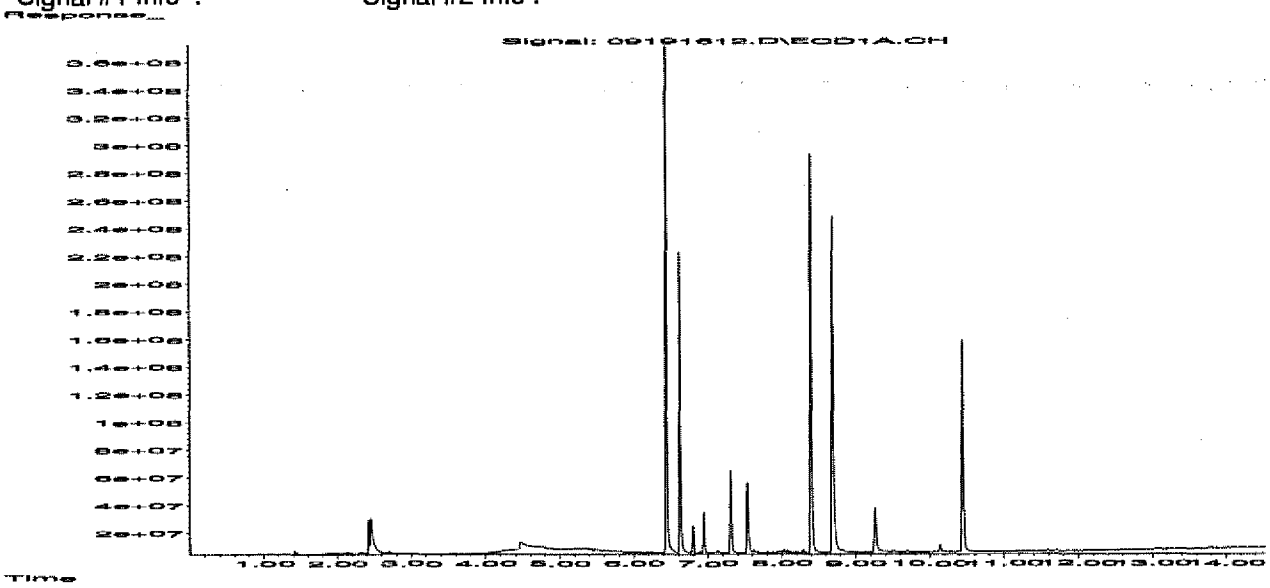
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

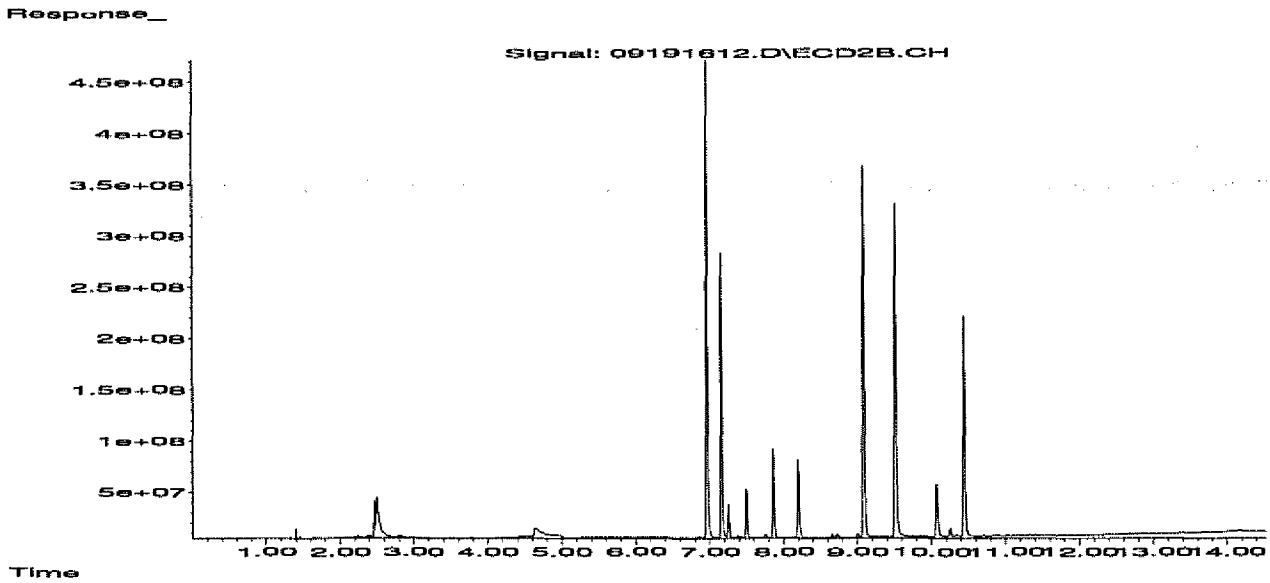
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191612.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb ICV
Misc : 100-8302
ALS Vial : 98 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:40:24 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191612.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 98 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:40:24 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	S	DCAA	0.470	0.457	2.8	102	0.00
2	T	Dalapon	0.456	0.474	-3.9	111	0.00
3	T	Dicamba	0.472	0.487	-3.2	104	0.00
4	T	MCPP	46.950	48.619	-3.6	103	0.00
5	T	MCPA	46.900	47.971	-2.3	103	0.00
6	T	Dichloroprop	0.472	0.472	0.0	99	0.00
7	T	2,4-D	0.470	0.477	-1.5	100	-0.01
8	T	2,4,5-TP	0.472	0.475	-0.6	101	0.00
9	T	2,4,5-T	0.474	0.475	-0.2	102	-0.02
10	T	2,4-DB	0.473	0.483	-2.1	104	-0.02
11	T	Dinoseb	0.472	0.479	-1.5	103	0.00

Signal #2

1	S	DCAA	0.470	0.463	1.5	100	0.00
2	T	Dalapon	0.456	0.458	-0.4	102	0.00
3	T	Dicamba	0.472	0.484	-2.5	100	0.00
4	T	MCPP	46.950	46.436	1.1	96	0.00
5	T	MCPA	46.900	47.650	-1.6	102	0.00
6	T	Dichloroprop	0.472	0.482	-2.1	98	0.00
7	T	2,4-D	0.470	0.493	-4.9	101	0.00
8	T	2,4,5-TP	0.472	0.481	-1.9	98	0.00
9	T	2,4,5-T	0.474	0.488	-3.0	101	0.00
10	T	2,4-DB	0.473	0.483	-2.1	101	-0.01
11	T	Dinoseb	0.472	0.478	-1.3	100	0.00

Evaluate Continuing Calibration Report - Not Founds

12	Picloram	0.475	0.006	98.7#	0	-10.72#

Signal #2

12	Picloram	0.475	0.019	96.0#	0	-12.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\091916hr\
Data File : 09191612.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 98 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 20 10:40:24 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	S	DCAA	10.971	9.740 E9	11.2	102	0.00
2	T	Dalapon	1.785	1.803 E9	-1.0	111	0.00
3	T	Dicamba	6.659	6.083 E9	8.6	104	0.00
4	T	MCPP	4.495	5.218 E6	-16.1	103	0.00
5	T	MCPA	7.826	8.469 E6	-8.2	103	0.00
6	T	Dichloroprop	2.103	1.707 E9	18.8	99	0.00
7	T	2,4-D	1.895	1.624 E9	14.3	100	-0.01
8	T	2,4,5-TP	10.348	9.188 E9	11.2	101	0.00
9	T	2,4,5-T	9.663	8.739 E9	9.6	102	-0.02
10	T	2,4-DB	1.326	1.257 E9	5.2	104	-0.02
11	T	Dinoseb	6.424	5.589 E9	13.0	103	0.00
Signal #2							
1	S	DCAA	16.922	13.440 E9	20.6	100	0.00
2	T	Dalapon	3.255	2.486 E9	23.6	102	0.00
3	T	Dicamba	10.490	8.157 E9	22.2	100	0.00
4	T	MCPP	9.464	8.852 E6	6.5	96	0.00
5	T	MCPA	16.938	14.003 E6	17.3	102	0.00
6	T	Dichloroprop	3.403	2.596 E9	23.7	98	0.00
7	T	2,4-D	2.979	2.535 E9	14.9	101	0.00
8	T	2,4,5-TP	13.931	11.937 E9	14.3	98	0.00
9	T	2,4,5-T	13.583	11.874 E9	12.6	101	0.00
10	T	2,4-DB	2.284	1.957 E9	14.3	101	-0.01
11	T	Dinoseb	8.575	7.619 E9	11.1	100	0.00

Evaluate Continuing Calibration Report - Not Founds

12		Picloram	11.870	0.000 E9	100.0#	0#	-10.72#
Signal #2							
12		Picloram	10.370	0.000 E9	100.0#	0#	-12.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Sequence Name: C:\msdchem\1\sequence\091916HR.S
Comment: HERBICIDES
Operator: klm
Data Path: C:\MSDCHEM\1\DATA\091916HR\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	1	09191601	HRB5	RINSE
2)	Sample	1	09191602	HRB5	RINSE
3)	Sample	91	09191603	HRB5	0.01 ug/ml Herb CCV
4)	Sample	91	09191604	HRB5	0.01 ug/ml Herb CCV
5)	Sample	92	09191605	HRB5	0.025 ug/ml Herb CCV
6)	Sample	93	09191606	HRB5	0.05 ug/ml Herb CCV
7)	Sample	92	09191607	HRB5	0.025 ug/ml Herb CCV
8)	Sample	94	09191608	HRB5	0.1 ug/ml Herb CCV
9)	Sample	95	09191609	HRB5	0.25 ug/ml Herb CCV
10)	Sample	96	09191610	HRB5	0.5 ug/ml Herb CCV
11)	Sample	97	09191611	HRB5	1.0 ug/ml Herb CCV
12)	Sample	98	09191612	HRB5	0.5 ug/ml Herb ICV
13)	Sample	3	09191613	HRB5	HBLKS1-91453
14)	Sample	4	09191614	HRB5	HLCSS1-91453
15)	Sample	5	09191615	HRB5	1609747-01A MS
16)	Sample	6	09191616	HRB5	1609747-01A MSD
17)	Sample	7	09191617	HRB5	1609747-01A
18)	Sample	8	09191618	HRB5	1609747-02A
19)	Sample	9	09191619	HRB5	1609747-03A
20)	Sample	10	09191620	HRB5	1609747-04A
21)	Sample	11	09191621	HRB5	1609747-05A
22)	Sample	12	09191622	HRB5	1609747-06A
23)	Sample	96	09191623	HRB5	0.5 ug/ml Herb CCV
24)	Sample	96	09191624	HRB5	0.5 ug/ml Herb CCV
25)	Sample	13	09191625	HRB5	1609747-07A
26)	Sample	14	09191626	HRB5	1609747-08A
27)	Sample	15	09191627	HRB5	1609747-09A
28)	Sample	16	09191628	HRB5	1609747-10A
29)	Sample	17	09191629	HRB5	1609747-11A
30)	Sample	18	09191630	HRB5	1609747-12A
31)	Sample	19	09191631	HRB5	1609747-13A
32)	Sample	20	09191632	HRB5	1609747-14A
33)	Sample	21	09191633	HRB5	1609747-15A
34)	Sample	22	09191634	HRB5	1609747-16A
35)	Sample	96	09191635	HRB5	0.5 ug/ml Herb CCV
36)	Sample	96	09191636	HRB5	0.5 ug/ml Herb CCV
37)	Sample	23	09191637	HRB5	1609747-17A
38)	Sample	24	09191638	HRB5	1609747-18A
39)	Sample	25	09191639	HRB5	1609747-19A
40)	Sample	26	09191640	HRB5	1609751- 01D
41)	Sample	27	09191641	HRB5	HBLKS1-91525
42)	Sample	28	09191642	HRB5	HLCSS1-91525
43)	Sample	29	09191643	HRB5	1609791-01A MS

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211603.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 11:05:17 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	S	DCAA	0.470	0.412	12.3	92	0.02
7	T	2,4-D	0.470	0.467	0.6	98	0.00
8	T	2,4,5-TP	0.472	0.402	14.8	86	0.02
9	T	2,4,5-T	0.474	0.402	15.2	86	0.00
Signal #2							
1	S	DCAA	0.470	0.437	7.0	95	0.01
7	T	2,4-D	0.470	0.434	7.7	89	0.00
8	T	2,4,5-TP	0.472	0.448	5.1	92	0.01
9	T	2,4,5-T	0.474	0.442	6.8	92	0.00

Evaluate Continuing Calibration Report - Not Founds

2	T	Dalapon	0.456	0.004	99.1#	0	-2.46#
3	T	Dicamba	0.472	-0.008	101.7#	0	-6.63#
4	T	MCPP	46.950	-0.164	100.3#	0	-6.80#
5	T	MCPA	46.900	-0.326	100.7#	0	-6.94#
6	T	Dichloroprop	0.472	-0.020	104.2#	0	-7.31#
10	T	2,4-DB	0.473	-0.006	101.3#	0	-9.28#
11	T	Dinoseb	0.472	-0.008	101.7#	0	-10.45#
12		Picloram	0.475	0.006	98.7#	0	-10.72#
Signal #2							
2	T	Dalapon	0.456	-0.018	103.9#	0	-2.50#
3	T	Dicamba	0.472	-0.025	105.3#	0	-7.16#
4	T	MCPP	46.950	-1.490	103.2#	0	-7.25#
5	T	MCPA	46.900	-1.926	104.1#	0	-7.50#
6	T	Dichloroprop	0.472	-0.031	106.6#	0	-7.87#
10	T	2,4-DB	0.473	-0.017	103.6#	0	-10.09#
11	T	Dinoseb	0.472	-0.012	102.5#	0	-10.45#
12		Picloram	0.475	0.019	96.0#	0	-12.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211603.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 11:05:17 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	S	DCAA	10.971	8.786 E9	19.9	92	0.02
7	T	2,4-D	1.895	1.590 E9	16.1	98	0.00
8	T	2,4,5-TP	10.348	7.804 E9	24.6	86	0.02
9	T	2,4,5-T	9.663	7.410 E9	23.3	86	0.00
Signal #2							
1	S	DCAA	16.922	12.721 E9	24.8	95	0.01
7	T	2,4-D	2.979	2.249 E9	24.5	89	0.00
8	T	2,4,5-TP	13.931	11.162 E9	19.9	92	0.01
9	T	2,4,5-T	13.583	10.783 E9	20.6	92	0.00

Evaluate Continuing Calibration Report - Not Founds

2	T	Dalapon	1.785	0.000 E9	100.0#	0#	-2.46#
3	T	Dicamba	6.659	0.000 E9	100.0#	0#	-6.63#
4	T	MCPP	4.495	0.000 E6	100.0#	0#	-6.80#
5	T	MCPA	7.826	0.000 E6	100.0#	0#	-6.94#
6	T	Dichloroprop	2.103	0.000 E9	100.0#	0#	-7.31#
10	T	2,4-DB	1.326	0.000 E9	100.0#	0#	-9.28#
11	T	Dinoseb	6.424	0.000 E9	100.0#	0#	-10.45#
12		Picloram	11.870	0.000 E9	100.0#	0#	-10.72#
Signal #2							
2	T	Dalapon	3.255	0.000 E9	100.0#	0#	-2.50#
3	T	Dicamba	10.490	0.000 E9	100.0#	0#	-7.16#
4	T	MCPP	9.464	0.000 E6	100.0#	0#	-7.25#
5	T	MCPA	16.938	0.000 E6	100.0#	0#	-7.50#
6	T	Dichloroprop	3.403	0.000 E9	100.0#	0#	-7.87#
10	T	2,4-DB	2.284	0.000 E9	100.0#	0#	-10.09#
11	T	Dinoseb	8.575	0.000 E9	100.0#	0#	-10.45#
12		Picloram	10.370	0.000 E9	100.0#	0#	-12.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211603.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 11:05:17 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
		System Monitoring Compounds						
1)	S	DCAA	6.461	6.980	4129.4E6	5978.8E6	0.412	0.437
Spiked Amount		0.500			Recovery	=	82.40%	87.40%
		Target Compounds						
2)	T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3)	T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4)	T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5)	T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6)	T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7)	T	2,4-D	7.560	8.217	747.2E6	1056.9E6	0.467	0.434
8)	T	2,4,5-TP	8.420	9.108	3687.5E6	5273.9E6	0.402m	0.448
9)	T	2,4,5-T	8.713	9.535	3512.4E6	5110.9E6	0.402m	0.442
10)	T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
11)	T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
12)		Picloram	0.000	0.000	0	0	N.D. d	N.D. d

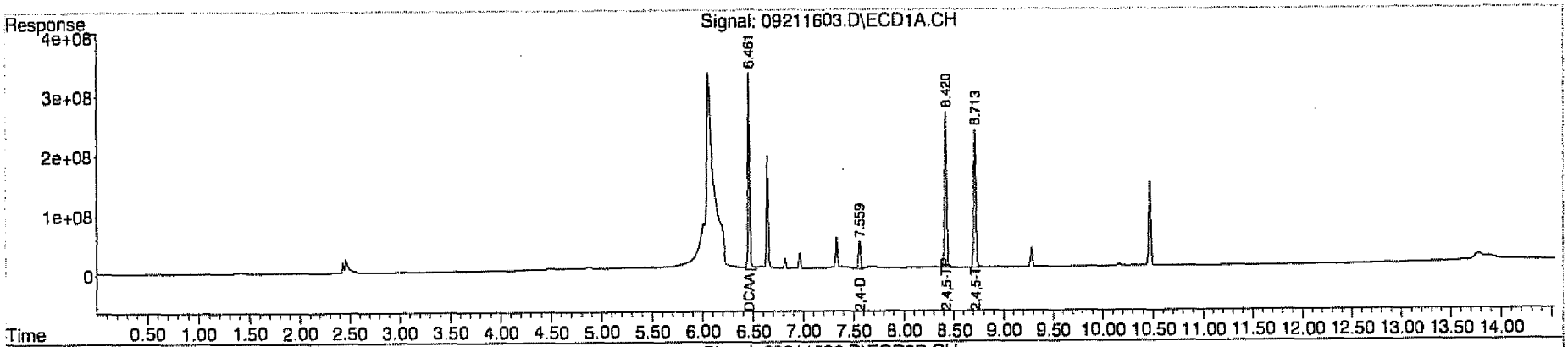
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

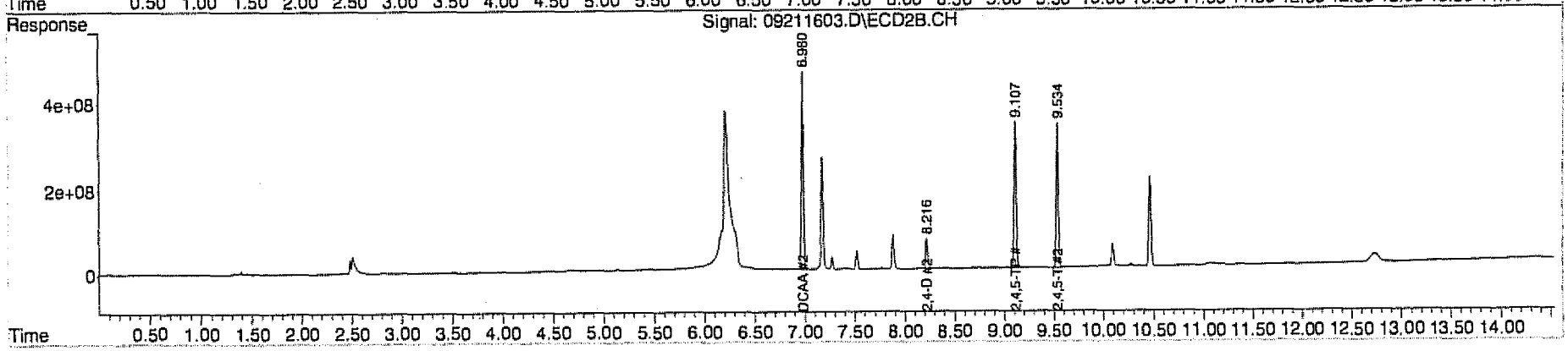
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211603.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 18:39
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 11:05:17 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211614.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 22:10
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:41:36 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

	Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1 S	DCAA	0.470	0.412	12.3	92	0.02
7 T	2,4-D	0.470	0.431	8.3	91	0.00
8 T	2,4,5-TP	0.472	0.415	12.1	89	0.02
9 T	2,4,5-T	0.474	0.416	12.2	89	0.00
Signal #2						
1 S	DCAA	0.470	0.444	5.5	96	0.01
7 T	2,4-D	0.470	0.456	3.0	93	0.00
8 T	2,4,5-TP	0.472	0.454	3.8	93	0.01
9 T	2,4,5-T	0.474	0.451	4.9	93	0.00

Evaluate Continuing Calibration Report - Not Founds

2 T	Dalapon	N/A	0.00	99.2#	0	-9.53#
3 T	Dicamba	N/A	-0.01	101.7#	0	-9.53#
4 T	MCPP	N/A	-0.16	134.6#	0	-9.53#
5 T	MCPA	N/A	-0.33	168.8#	0	-9.53#
6 T	Dichloroprop	N/A	-0.02	104.2#	0	-9.53#
10 T	2,4-DB	N/A	-0.01	101.3#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	101.7#	0	-9.53#
12 T	Picloram	N/A	0.01	98.7#	0	-9.53#
Signal #2						
2 T	Dalapon	N/A	-0.02	103.8#	0	-9.53#
3 T	Dicamba	N/A	-0.03	105.3#	0	-9.53#
4 T	MCPP	N/A	-1.49	414.3#	0	-9.53#
5 T	MCPA	N/A	-1.93	506.3#	0	-9.53#
6 T	Dichloroprop	N/A	-0.03	106.5#	0	-9.53#
10 T	2,4-DB	N/A	-0.02	103.6#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	102.5#	0	-9.53#
12 T	Picloram	N/A	0.02	96.0#	0	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211614.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 22:10
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:41:36 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 S	DCAA	10.971	8.769 E9	20.1	92	0.02
7 T	2,4-D	1.895	1.473 E9	22.3	91	0.00
8 T	2,4,5-TP	10.348	8.046 E9	22.2	89	0.02
9 T	2,4,5-T	9.663	7.666 E9	20.7	89	0.00
Signal #2						
1 S	DCAA	16.922	12.908 E9	23.7	96	0.01
7 T	2,4-D	2.979	2.353 E9	21.0	93	0.00
8 T	2,4,5-TP	13.931	11.301 E9	18.9	93	0.01
9 T	2,4,5-T	13.583	10.995 E9	19.1	93	0.00

Evaluate Continuing Calibration Report - Not Founds

2 T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3 T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4 T	MCPP	N/A	1.00	0.0	0#	-9.53#
5 T	MCPA	N/A	1.00	0.0	0#	-9.53#
6 T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10 T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11 T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12 T	Picloram	N/A	1.00	0.0	0#	-9.53#
Signal #2						
2 T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3 T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4 T	MCPP	N/A	1.00	0.0	0#	-9.53#
5 T	MCPA	N/A	1.00	0.0	0#	-9.53#
6 T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10 T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11 T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12 T	Picloram	N/A	1.00	0.0	0#	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211614.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 22:10
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:41:36 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
		System Monitoring Compounds						
1)	S	DCAA	6.460	6.979	4121.6E6	6066.5E6	0.412	0.444
Spiked Amount		0.500			Recovery	=	82.40%	88.80%
		Target Compounds						
2)	T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3)	T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4)	T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5)	T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6)	T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7)	T	2,4-D	7.559	8.216	692.2E6	1105.8E6	0.431	0.456
8)	T	2,4,5-TP	8.419	9.107	3801.6E6	5339.9E6	0.415m	0.454
9)	T	2,4,5-T	8.713	9.534	3633.6E6	5211.5E6	0.416	0.451
10)	T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
11)	T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
12)		Picloram	0.000	0.000	0	0	N.D. d	N.D. d

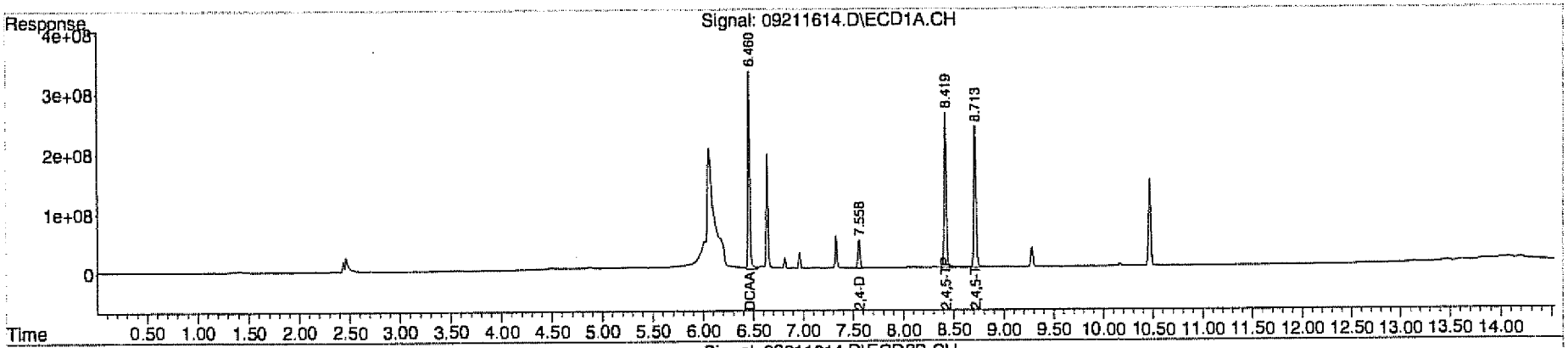
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

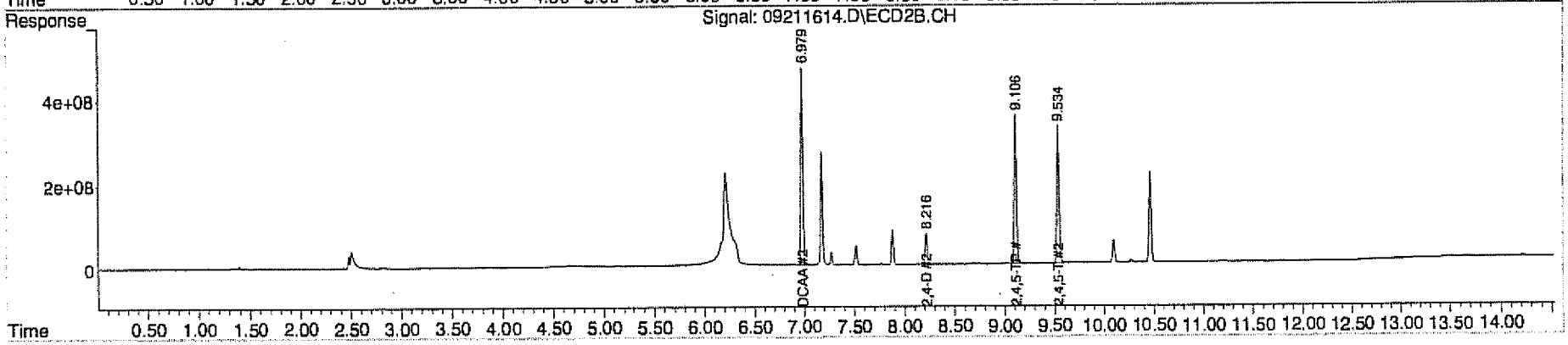
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211614.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 22:10
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:41:36 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Tue Sep 20 10:39:10 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211625.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 1:41
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:11 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

	Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1 S	DCAA	0.470	0.405	13.8	90	0.01
7 T	2,4-D	0.470	0.408	13.2	86	0.00
8 T	2,4,5-TP	0.472	0.413	12.5	87	0.02
9 T	2,4,5-T	0.474	0.417	12.0	89	0.00
Signal #2						
1 S	DCAA	0.470	0.444	5.5	96	0.01
7 T	2,4-D	0.470	0.451	4.0	93	0.00
8 T	2,4,5-TP	0.472	0.451	4.4	93	0.01
9 T	2,4,5-T	0.474	0.451	4.9	93	0.00

Evaluate Continuing Calibration Report - Not Founds

2 T	Dalapon	N/A	0.00	99.2#	0	-9.53#
3 T	Dicamba	N/A	-0.01	101.7#	0	-9.53#
4 T	MCPP	N/A	-0.16	134.6#	0	-9.53#
5 T	MCPA	N/A	-0.33	168.8#	0	-9.53#
6 T	Dichloroprop	N/A	-0.02	104.2#	0	-9.53#
10 T	2,4-DB	N/A	-0.01	101.3#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	101.7#	0	-9.53#
12 T	Picloram	N/A	0.01	98.7#	0	-9.53#
Signal #2						
2 T	Dalapon	N/A	-0.02	103.8#	0	-9.53#
3 T	Dicamba	N/A	-0.03	105.3#	0	-9.53#
4 T	MCPP	N/A	-1.49	414.3#	0	-9.53#
5 T	MCPA	N/A	-1.93	506.3#	0	-9.53#
6 T	Dichloroprop	N/A	-0.03	106.5#	0	-9.53#
10 T	2,4-DB	N/A	-0.02	103.6#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	102.5#	0	-9.53#
12 T	Picloram	N/A	0.02	96.0#	0	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211625.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 1:41
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:11 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 S	DCAA	10.971	8.628 E9	21.4	90	0.01
7 T	2,4-D	1.895	1.396 E9	26.3#	86	0.00
8 T	2,4,5-TP	10.348	7.947 E9	23.2	87	0.02
9 T	2,4,5-T	9.663	7.646 E9	20.9	89	0.00
Signal #2						
1 S	DCAA	16.922	12.920 E9	23.6	96	0.01
7 T	2,4-D	2.979	2.331 E9	21.8	93	0.00
8 T	2,4,5-TP	13.931	11.233 E9	19.4	93	0.01
9 T	2,4,5-T	13.583	10.992 E9	19.1	93	0.00

Evaluate Continuing Calibration Report - Not Founds

2 T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3 T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4 T	MCPP	N/A	1.00	0.0	0#	-9.53#
5 T	MCPA	N/A	1.00	0.0	0#	-9.53#
6 T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10 T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11 T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12 T	Picloram	N/A	1.00	0.0	0#	-9.53#
Signal #2						
2 T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3 T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4 T	MCPP	N/A	1.00	0.0	0#	-9.53#
5 T	MCPA	N/A	1.00	0.0	0#	-9.53#
6 T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10 T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11 T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12 T	Picloram	N/A	1.00	0.0	0#	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211625.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 1:41
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:11 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
	System Monitoring Compounds						
1) S	DCAA	6.460	6.979	4055.3E6	6072.4E6	0.405	0.444
Spiked Amount	0.500			Recovery	=	81.00%	88.80%
	Target Compounds						
2) T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3) T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4) T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5) T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6) T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7) T	2,4-D	7.559	8.216	655.9E6	1095.7E6	0.408	0.451
8) T	2,4,5-TP	8.420	9.107	3754.9E6	5307.7E6	0.413	0.451
9) T	2,4,5-T	8.713	9.534	3624.0E6	5210.2E6	0.417	0.451
0) T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
1) T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
2)	Picloram	0.000	0.000	0	0	N.D. d	N.D. d

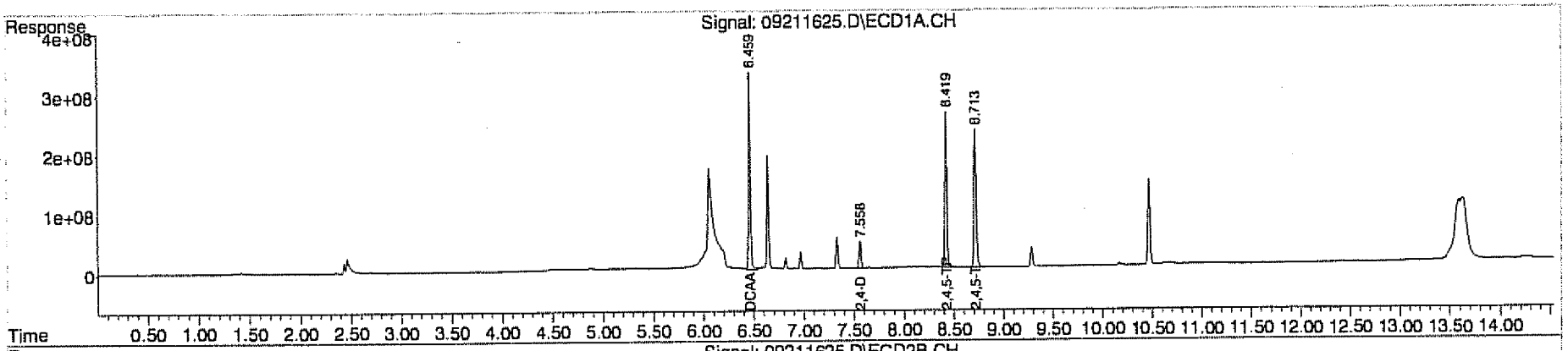
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

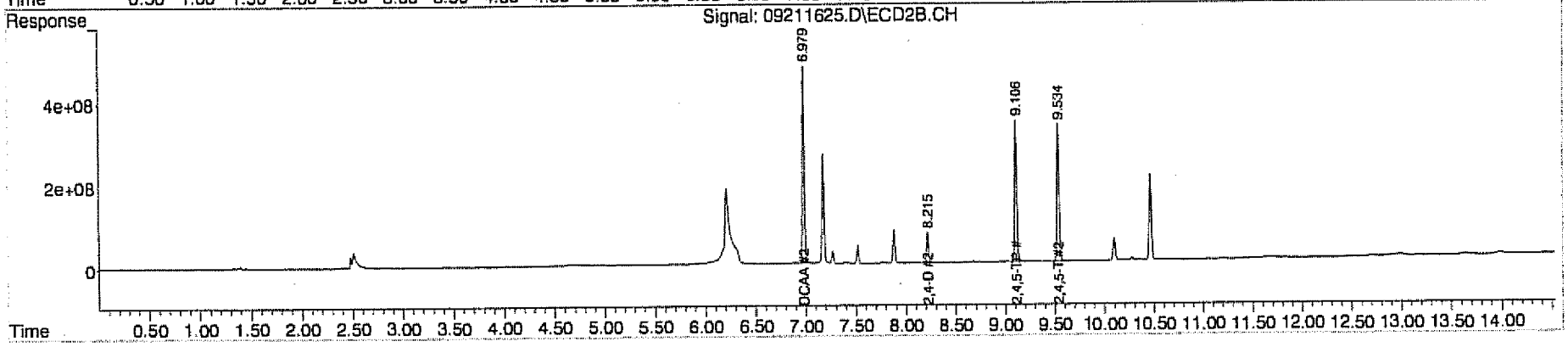
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211625.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 1:41
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:11 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211634.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 4:33
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:52 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

	Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1 S	DCAA	0.470	0.423	10.0	94	0.01
7 T	2,4-D	0.470	0.448	4.7	94	0.00
8 T	2,4,5-TP	0.472	0.428	9.3	91	0.02
9 T	2,4,5-T	0.474	0.430	9.3	92	0.00
Signal #2						
1 S	DCAA	0.470	0.454	3.4	99	0.01
7 T	2,4-D	0.470	0.468	0.4	96	0.00
8 T	2,4,5-TP	0.472	0.461	2.3	95	0.01
9 T	2,4,5-T	0.474	0.466	1.7	96	0.00

Evaluate Continuing Calibration Report - Not Founds

2 T	Dalapon	N/A	0.00	99.2#	0	-9.53#
3 T	Dicamba	N/A	-0.01	101.7#	0	-9.53#
4 T	MCPP	N/A	-0.16	134.6#	0	-9.53#
5 T	MCPA	N/A	-0.33	168.8#	0	-9.53#
6 T	Dichloroprop	N/A	-0.02	104.2#	0	-9.53#
10 T	2,4-DB	N/A	-0.01	101.3#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	101.7#	0	-9.53#
12 T	Picloram	N/A	0.01	98.7#	0	-9.53#
Signal #2						
2 T	Dalapon	N/A	-0.02	103.8#	0	-9.53#
3 T	Dicamba	N/A	-0.03	105.3#	0	-9.53#
4 T	MCPP	N/A	-1.49	414.3#	0	-9.53#
5 T	MCPA	N/A	-1.93	506.3#	0	-9.53#
6 T	Dichloroprop	N/A	-0.03	106.5#	0	-9.53#
10 T	2,4-DB	N/A	-0.02	103.6#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	102.5#	0	-9.53#
12 T	Picloram	N/A	0.02	96.0#	0	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211634.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 4:33
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:52 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	S	DCAA	10.971	9.005 E9	17.9	94	0.01
7	T	2,4-D	1.895	1.526 E9	19.5	94	0.00
8	T	2,4,5-TP	10.348	8.239 E9	20.4	91	0.02
9	T	2,4,5-T	9.663	7.873 E9	18.5	92	0.00
Signal #2							
1	S	DCAA	16.922	13.210 E9	21.9	99	0.01
7	T	2,4-D	2.979	2.412 E9	19.0	96	0.00
8	T	2,4,5-TP	13.931	11.470 E9	17.7	95	0.01
9	T	2,4,5-T	13.583	11.360 E9	16.4	96	0.00

Evaluate Continuing Calibration Report - Not Founds

2	T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3	T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4	T	MCPP	N/A	1.00	0.0	0#	-9.53#
5	T	MCPA	N/A	1.00	0.0	0#	-9.53#
6	T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10	T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11	T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12	T	Picloram	N/A	1.00	0.0	0#	-9.53#
Signal #2							
2	T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3	T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4	T	MCPP	N/A	1.00	0.0	0#	-9.53#
5	T	MCPA	N/A	1.00	0.0	0#	-9.53#
6	T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10	T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11	T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12	T	Picloram	N/A	1.00	0.0	0#	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211634.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 4:33
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:52 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
		System Monitoring Compounds						
1)	S	DCAA	6.460	6.979	4232.5E6	6208.9E6	0.423	0.454
Spiked Amount		0.500			Recovery	=	84.60%	90.80%
		Target Compounds						
2)	T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3)	T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4)	T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5)	T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6)	T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7)	T	2,4-D	7.559	8.215	717.3E6	1133.6E6	0.448	0.468
8)	T	2,4,5-TP	8.420	9.106	3892.8E6	5419.6E6	0.428	0.461
9)	T	2,4,5-T	8.713	9.534	3731.7E6	5384.7E6	0.430	0.466
0)	T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
1)	T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
2)		Picloram	0.000	0.000	0	0	N.D. d	N.D. d

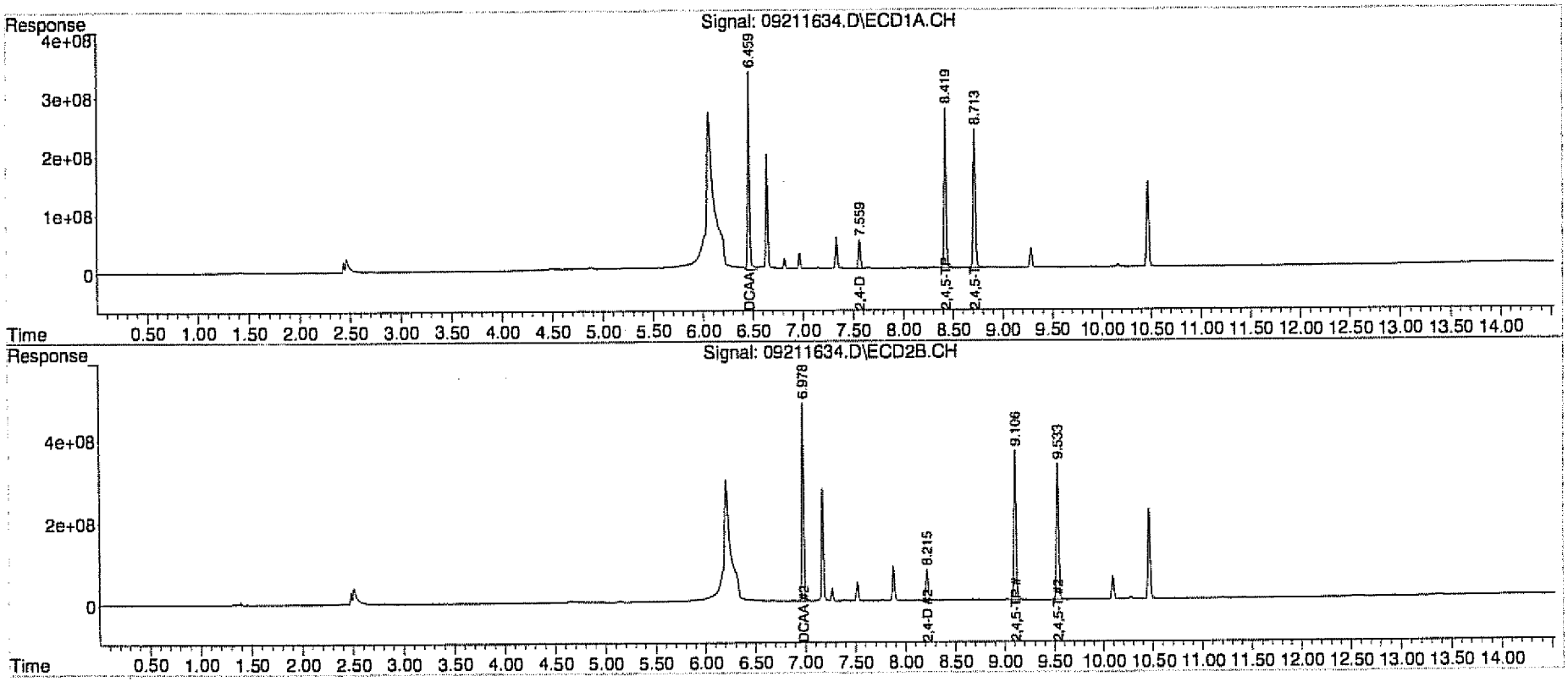
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211634.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 4:33
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:42:52 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211645.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 8:03
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:44:13 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

	Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1 S	DCAA	0.470	0.435	7.4	97	0.02
7 T	2,4-D	0.470	0.405	13.8	86	0.00
8 T	2,4,5-TP	0.472	0.437	7.4	93	0.02
9 T	2,4,5-T	0.474	0.412	13.1	88	0.00
Signal #2						
1 S	DCAA	0.470	0.431	8.3	94	0.02
7 T	2,4-D	0.470	0.414	11.9	85	0.01
8 T	2,4,5-TP	0.472	0.417	11.7	86	0.01
9 T	2,4,5-T	0.474	0.405	14.6	84	0.00

Evaluate Continuing Calibration Report - Not Founds

2 T	Dalapon	N/A	0.00	99.2#	0	-9.53#
3 T	Dicamba	N/A	-0.01	101.7#	0	-9.53#
4 T	MCPP	N/A	-0.16	134.6#	0	-9.53#
5 T	MCPA	N/A	-0.33	168.8#	0	-9.53#
6 T	Dichloroprop	N/A	-0.02	104.2#	0	-9.53#
10 T	2,4-DB	N/A	-0.01	101.3#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	101.7#	0	-9.53#
12 T	Picloram	N/A	0.01	98.7#	0	-9.53#
Signal #2						
2 T	Dalapon	N/A	-0.02	103.8#	0	-9.53#
3 T	Dicamba	N/A	-0.03	105.3#	0	-9.53#
4 T	MCPP	N/A	-1.49	414.3#	0	-9.53#
5 T	MCPA	N/A	-1.93	506.3#	0	-9.53#
6 T	Dichloroprop	N/A	-0.03	106.5#	0	-9.53#
10 T	2,4-DB	N/A	-0.02	103.6#	0	-9.53#
11 T	Dinoseb	N/A	-0.01	102.5#	0	-9.53#
12 T	Picloram	N/A	0.02	96.0#	0	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211645.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 8:03
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:44:13 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 S	DCAA	10.971	9.259 E9	15.6	97	0.02
7 T	2,4-D	1.895	1.387 E9	26.8#	86	0.00
8 T	2,4,5-TP	10.348	8.417 E9	18.7	93	0.02
9 T	2,4,5-T	9.663	7.548 E9	21.9	88	0.00

Signal #2

1 S	DCAA	16.922	12.563 E9	25.8#	94	0.02
7 T	2,4-D	2.979	2.147 E9	27.9#	85	0.01
8 T	2,4,5-TP	13.931	10.414 E9	25.2#	86	0.01
9 T	2,4,5-T	13.583	9.925 E9	26.9#	84#	0.00

Evaluate Continuing Calibration Report - Not Founds

2 T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3 T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4 T	MCPP	N/A	1.00	0.0	0#	-9.53#
5 T	MCPA	N/A	1.00	0.0	0#	-9.53#
6 T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10 T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11 T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12 T	Picloram	N/A	1.00	0.0	0#	-9.53#

Signal #2

2 T	Dalapon	N/A	1.00	0.0	0#	-9.53#
3 T	Dicamba	N/A	1.00	0.0	0#	-9.53#
4 T	MCPP	N/A	1.00	0.0	0#	-9.53#
5 T	MCPA	N/A	1.00	0.0	0#	-9.53#
6 T	Dichloroprop	N/A	1.00	0.0	0#	-9.53#
10 T	2,4-DB	N/A	1.00	0.0	0#	-9.53#
11 T	Dinoseb	N/A	1.00	0.0	0#	-9.53#
12 T	Picloram	N/A	1.00	0.0	0#	-9.53#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211645.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 8:03
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:44:13 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
	System Monitoring Compounds						
1)	S DCAA	6.462	6.981	4351.7E6	5904.4E6	0.435m	0.431
	Spiked Amount 0.500			Recovery	=	87.00%	86.20%
	Target Compounds						
7)	T 2,4-D	7.560	8.217	652.0E6	1009.1E6	0.405m	0.414m
8)	T 2,4,5-TP	8.421	9.109	3976.8E6	4920.7E6	0.437	0.417
9)	T 2,4,5-T	8.713	9.536	3577.6E6	4704.6E6	0.412m	0.405

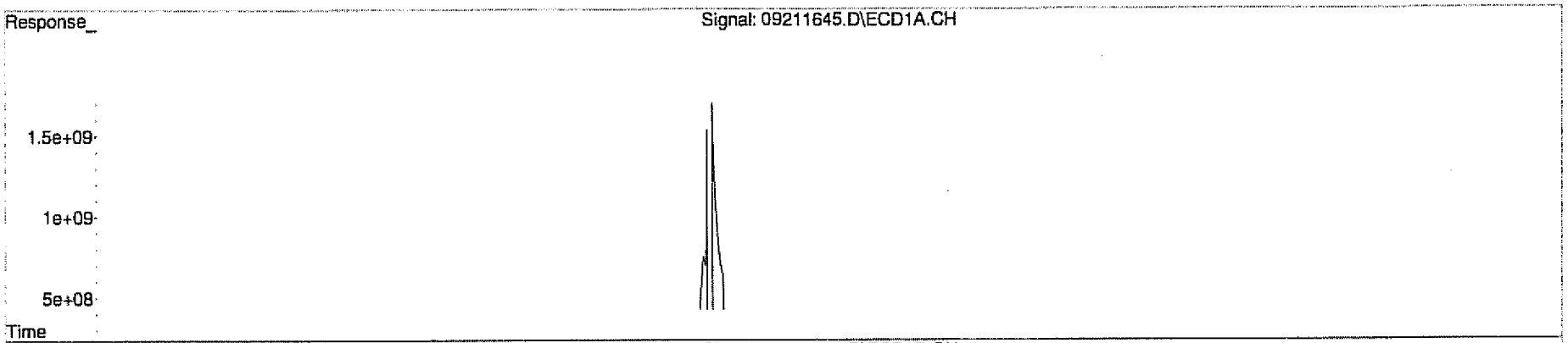
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

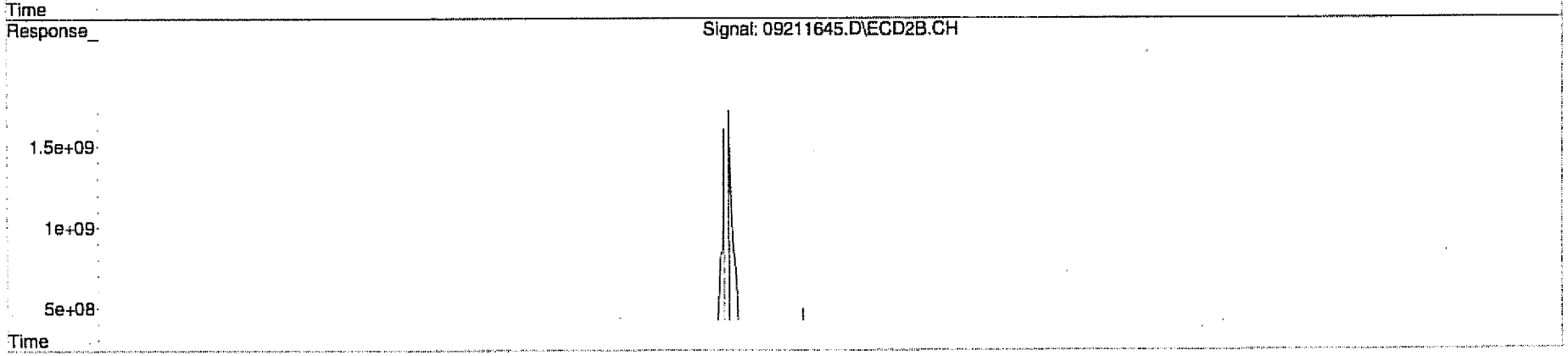
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211645.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 8:03
Operator : klm
Sample : 0.5 ug/ml Herb CCV
Misc : 100-8302
ALS Vial : 2 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:44:13 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:40:06 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211604.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 18:59
Operator : klm
Sample : HBLKW1-91633
Misc : 1X 16HRBW-91633
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:52:35 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
System Monitoring Compounds								
1)	S	DCAA	6.462	6.980	1499.3E6	2152.4E6	0.150	0.149m
Spiked Amount		0.500			Recovery	=	30.00%	29.80%
Target Compounds								
2)	T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3)	T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4)	T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5)	T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6)	T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7)	T	2,4-D	0.000	0.000	0	0	N.D. d	N.D. d
8)	T	2,4,5-TP	0.000	0.000	0	0	N.D. d	N.D. d
9)	T	2,4,5-T	0.000	0.000	0	0	N.D. d	N.D. d
10)	T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
11)	T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
12)		Picloram	0.000	0.000	0	0	N.D. d	N.D. d

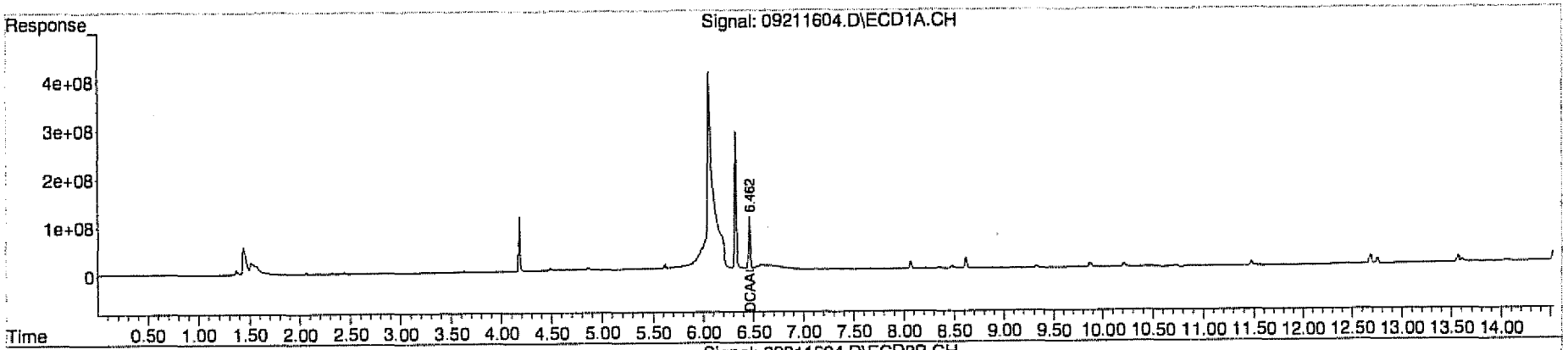
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

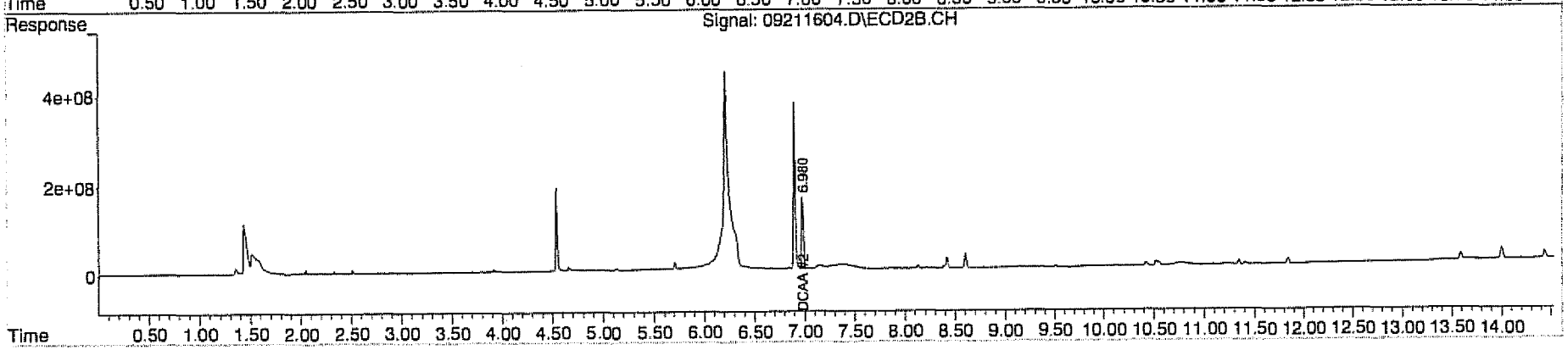
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211604.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 18:59
Operator : klm
Sample : HBLKW1-91633
Misc : 1X 16HRBW-91633
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:52:35 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211605.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 19:18
Operator : klm
Sample : HLCSW1-91633
Misc : 1X 16HRBW-91633
ALS Vial : 4 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:53:02 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
		System Monitoring Compounds						
1)	S	DCAA	6.462	6.981	1616.4E6	2330.4E6	0.162	0.162
Spiked Amount		0.500			Recovery	=	32.40%	32.40%
		Target Compounds						
2)	T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3)	T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4)	T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5)	T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6)	T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7)	T	2,4-D	7.561	8.218	1792.5E6	2751.5E6	0.946	0.924
8)	T	2,4,5-TP	8.420	9.107	817.6E6	1245.6E6	0.090	0.091
9)	T	2,4,5-T	8.712	9.534	855.3E6	1228.5E6	0.098	0.094
10)	T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
11)	T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
12)		Picloram	0.000	0.000	0	0	N.D. d	N.D. d

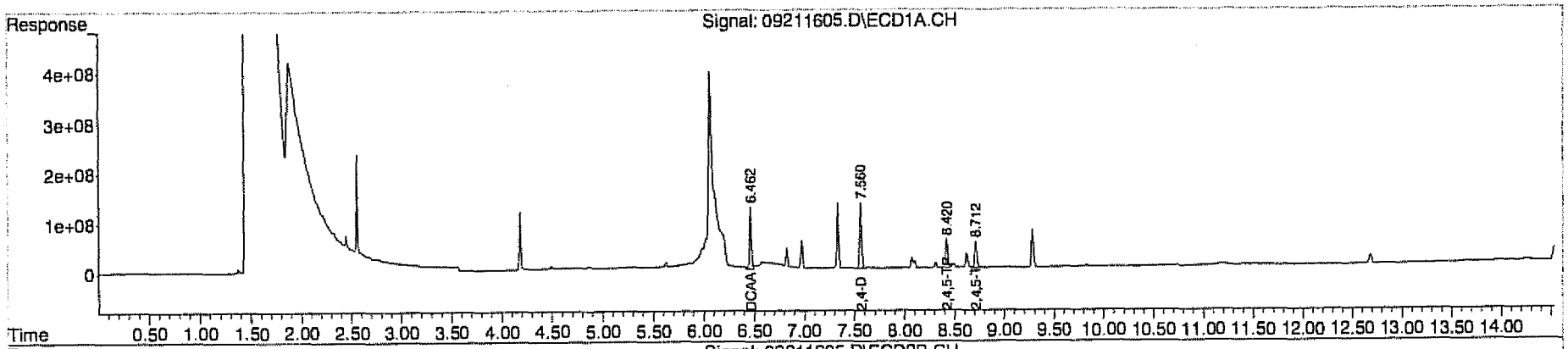
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

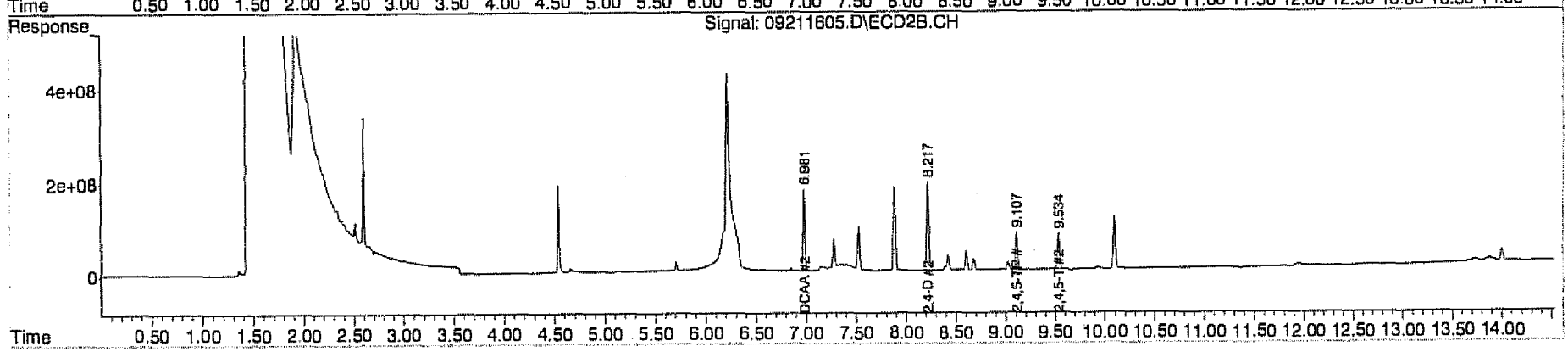
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211605.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 21 Sep 2016 19:18
Operator : klm
Sample : HLCSW1-91633
Misc : 1X 16HRBW-91633
ALS Vial : 4 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:53:02 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211635.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 4:52
Operator : klm
Sample : 16091057-01B MS
Misc : 1X 16HRBS-91633
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:49:55 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
	System Monitoring Compounds						
1) S	DCAA	6.462	6.980	1711.6E6	2454.3E6	0.171	0.171m
Spiked Amount	0.500			Recovery	=	34.20%	34.20%
	Target Compounds						
2) T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3) T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4) T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5) T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6) T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7) T	2,4-D	7.559	8.214	1838.5E6	3849.6E6	0.970	1.292m#
8) T	2,4,5-TP	8.419	9.106	885.2E6	1251.7E6	0.097	0.091
9) T	2,4,5-T	8.711	9.533	848.3E6	1212.8E6	0.098m	0.092
0) T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
1) T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
2)	Picloram	0.000	0.000	0	0	N.D. d	N.D. d

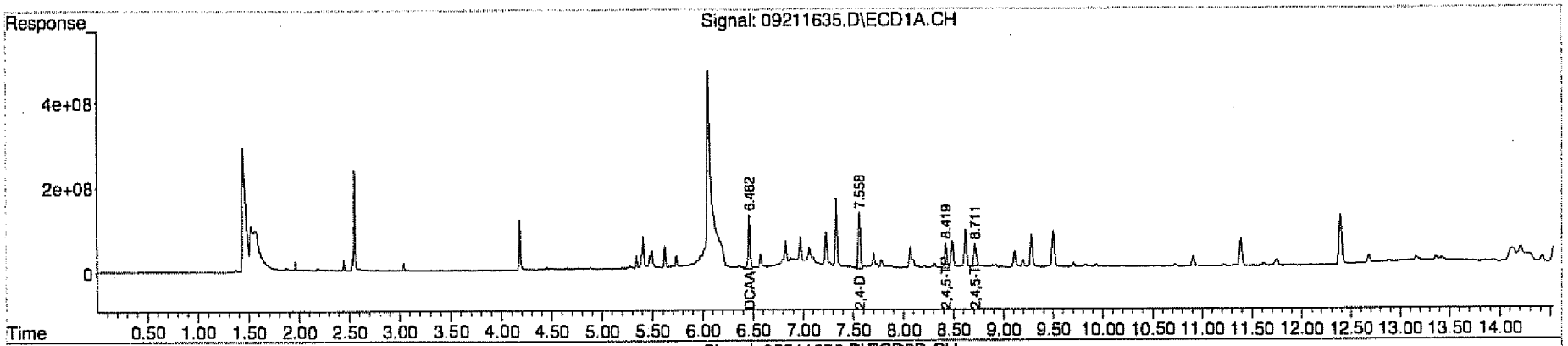
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

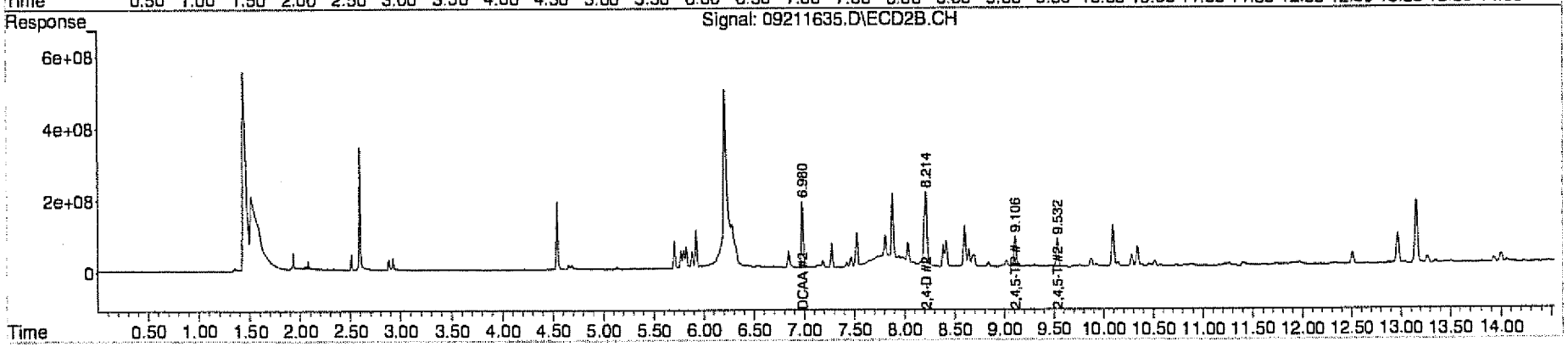
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211635.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 4:52
Operator : klm
Sample : 16091057-01B MS
Misc : 1X 16HRBS-91633
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:49:55 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211636.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 5:11
Operator : klm
Sample : 16091057-01B MSD
Misc : 1X 16HRBS-91633
ALS Vial : 29 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:51:01 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

		Compound	RT#1	RT#2	Resp#1	Resp#2	ug/mL	ug/mL
		System Monitoring Compounds						
1)	S	DCAA	6.462	6.979	1971.4E6	2458.3E6	0.197	0.172m
Spiked Amount		0.500			Recovery	=	39.40%	34.40%
		Target Compounds						
2)	T	Dalapon	0.000	0.000	0	0	N.D. d	N.D. d
3)	T	Dicamba	0.000	0.000	0	0	N.D. d	N.D. d
4)	T	MCPP	0.000	0.000	0	0	N.D. d	N.D. d
5)	T	MCPA	0.000	0.000	0	0	N.D. d	N.D. d
6)	T	Dichloroprop	0.000	0.000	0	0	N.D. d	N.D. d
7)	T	2,4-D	7.559	8.191	1825.8E6	44339.1E6	0.964m	14.884m#
8)	T	2,4,5-TP	8.420	9.105	852.5E6	1252.7E6	0.094	0.092
9)	T	2,4,5-T	8.712	9.532	963.9E6	1050.1E6	0.111m	0.078 #
10)	T	2,4-DB	0.000	0.000	0	0	N.D. d	N.D. d
11)	T	Dinoseb	0.000	0.000	0	0	N.D. d	N.D. d
12)		Picloram	0.000	0.000	0	0	N.D. d	N.D. d

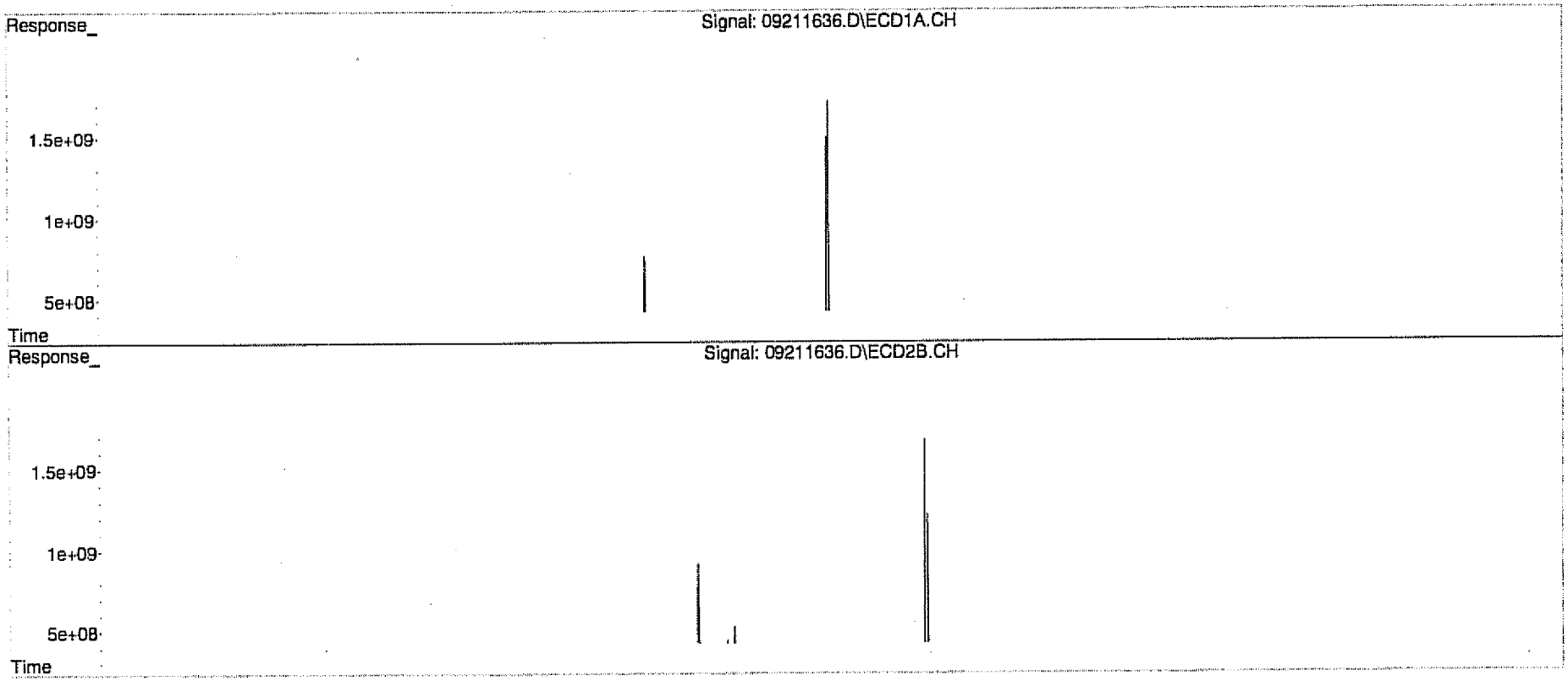
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\092116HR\
Data File : 09211636.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 22 Sep 2016 5:11
Operator : klm
Sample : 16091057-01B MSD
Misc : 1X 16HRBS-91633
ALS Vial : 29 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 22 09:51:01 2016
Quant Method : C:\msdchem\1\methods\HR091916.M
Quant Title : Herbicides by 8151A
QLast Update : Thu Sep 22 09:49:15 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Sequence Name: C:\msdchem\1\sequence\092116HR.S
Comment: HERBICIDES
Operator: klm
Data Path: C:\MSDCHEM\1\DATA\092116HR\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	1	09211601	HRB5	RINSE
2)	Sample	1	09211602	HRB5	RINSE
3)	Sample	2	09211603	HRB5	0.5 ug/ml Herb CCV
4)	Sample	3	09211604	HRB5	HBLKW1-91633
5)	Sample	4	09211605	HRB5	HLCSW1-91633
6)	Sample	5	09211606	HRB5	1609747-12A DF10
7)	Sample	6	09211607	HRB5	1609747-15A DF10
8)	Sample	7	09211608	HRB5	1609791-02A DF10
9)	Sample	8	09211609	HRB5	1609791-05A DF10
10)	Sample	9	09211610	HRB5	1609939-11A
11)	Sample	10	09211611	HRB5	1609939-12A
12)	Sample	11	09211612	HRB5	1609939-13A
13)	Sample	1	09211613	HRB5	RINSE
14)	Sample	2	09211614	HRB5	0.5 ug/ml Herb CCV
15)	Sample	12	09211615	HRB5	1609791-15A
16)	Sample	13	09211616	HRB5	1609939-14A
17)	Sample	14	09211617	HRB5	1609939-15A
18)	Sample	15	09211618	HRB5	1609939-16A
19)	Sample	16	09211619	HRB5	1609939-03A
20)	Sample	17	09211620	HRB5	1609939-04A
21)	Sample	18	09211621	HRB5	1609939-17A
22)	Sample	19	09211622	HRB5	1609985-02A DF10
23)	Sample	20	09211623	HRB5	1609985-04A DF10
24)	Sample	1	09211624	HRB5	RINSE
25)	Sample	2	09211625	HRB5	0.5 ug/ml Herb CCV
26)	Sample	21	09211626	HRB5	1609927-04A DF10
27)	Sample	22	09211627	HRB5	1609927-03A DF10
28)	Sample	23	09211628	HRB5	1609927-02A DF10
29)	Sample	24	09211629	HRB5	1609913-01A DF10
30)	Sample	25	09211630	HRB5	16091057-01B DF10
31)	Sample	26	09211631	HRB5	16091057-01B MS DF10
32)	Sample	27	09211632	HRB5	16091057-01B MSD DF10
33)	Sample	1	09211633	HRB5	RINSE
34)	Sample	2	09211634	HRB5	0.5 ug/ml Herb CCV
35)	Sample	28	09211635	HRB5	16091057-01B MS
36)	Sample	29	09211636	HRB5	16091057-01B MSD
37)	Sample	30	09211637	HRB5	16091057-01B
38)	Sample	31	09211638	HRB5	1609927-04A
39)	Sample	32	09211639	HRB5	1609927-03A
40)	Sample	33	09211640	HRB5	1609927-02A
41)	Sample	34	09211641	HRB5	1609913-01A
42)	Sample	35	09211642	HRB5	1609985-02A
43)	Sample	36	09211643	HRB5	1609985-04A

Sequence Name: C:\msdchem\1\sequence\092116HR.S

	Line Type	Vial	DataFile	Method	Sample Name
44)	Sample	1	09211644	HRB5	RINSE
45)	Sample	2	09211645	HRB5	0.5 ug/ml Herb CCV
46)	Sample	1	09211646	HRB5	RINSE
47)	Sample	1	09211647	HRB5	RINSE
48)	Sample	1	09211648	HRB5	RINSE
49)	Sample	1	09211649	HRB5	RINSE

ALS Group USA, Corp

PREP BATCH REPORT

Batch ID: **91633** Prep Code: **HRPR_8151_W**

Start Date: **9/20/2016 8:22:00 AM** End Date: **9/20/2016 2:58:01 PM**

Technician: **Erin Vegter**

InitSamp Wt/Vol: 20 mL
FinSampVol: 2 mL
OriginalFac: 0.1
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
16091057-01B	Surface Water			20	0	2	0.1
16091057-01B MS	Surface Water			20	0	2	0.1
16091057-01B MS	Surface Water			20	0	2	0.1
1609913-01A	Tclp Extract			20	0	2	0.1
TCLP HoldTime was exceeded							
1609927-02A	Tclp Extract			20	0	2	0.1
1609927-03A	Tclp Extract			20	0	2	0.1
1609927-04A	Tclp Extract			20	0	2	0.1
HBLKW1-91633				20	0	2	0.1
HLCSW1-91633				20	0	2	0.1

Notes: *Added 10 uL Surrogate line #1920-80-2 to all and added 10 uL spike line #1920-10-5 to all QC.*

Metals

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Analytical Run Summary

28-Sep-16

Run ID ICPMS2_160920A

Analyst Royce Hughes

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4036078	Level 1	ICP_200.8_WW	SAMP	003CALB.D#	9/20/2016 08:27	1	R196114		31
4036079	Level 2	ICP_200.8_WW	SAMP	004CALS.D#	9/20/2016 08:33	1	R196114		31
4036080	Level 3	ICP_200.8_WW	SAMP	005CALS.D#	9/20/2016 08:38	1	R196114		31
4036081	Level 4	ICP_200.8_WW	SAMP	006CALS.D#	9/20/2016 08:46	1	R196114		31
4036082	Level 5	ICP_200.8_WW	SAMP	007CALS.D#	9/20/2016 08:51	1	R196114		31
4036083	Level 6	ICP_200.8_WW	SAMP	008CALS.D#	9/20/2016 08:57	1	R196114		31
4036084	Level 7	ICP_200.8_WW	SAMP	009CALS.D#	9/20/2016 09:02	1	R196114		31
4036085	Level 8	ICP_200.8_WW	SAMP	010CALS.D#	9/20/2016 09:07	1	R196114		31
4036086	ICV	ICP_6020_W	ICV	011ICV1.D#	9/20/2016 09:12	1	R196114		22
4036087	LLICV	ICP_6020_W	LLICV	012ICV2.D#	9/20/2016 09:17	1	R196114		32
4036088	ICB	ICP_6020_W	ICB	013_ICB.D#	9/20/2016 09:22	1	R196114		32
4036089	ICSA	ICP_6020_W	ICSA	014ICSA.D#	9/20/2016 09:27	1	R196114		32
4036090	ICSAB	ICP_6020_W	ICSAB	015ICSB.D#	9/20/2016 09:33	1	R196114		32
4036091	CCV	ICP_6020_W	CCV	016SMPL.D#	9/20/2016 09:38	1	R196114		32
4036092	CCB	ICP_6020_W	CCB	017_CCB.D#	9/20/2016 09:43	1	R196114		32
4036093	MBLK-91606	ICP_200.8_WW	MBLK	018SMPL.D#	9/20/2016 09:48	1	91606	9/19/2016	2
4036094	LCS-91606	ICP_200.8_WW	LCS	019SMPL.D#	9/20/2016 09:53	1	91606	9/19/2016	2
4036095	1609916-01A	ICP_200.8_WW	SAMP	020SMPL.D#	9/20/2016 09:58	10	91606	9/19/2016	1
	RL02	*The reporting limit is elevated due to dilution for high concentrations of non-target analytes.*							
4036096	1609916-02A	ICP_200.8_WW	SAMP	021SMPL.D#	9/20/2016 10:04	10	91606	9/19/2016	0
4036097	1609916-03A	ICP_200.8_WW	SAMP	022SMPL.D#	9/20/2016 10:09	10	91606	9/19/2016	2
	RL02	*The reporting limit is elevated due to dilution for high concentrations of non-target analytes.*							
4036098	1609916-04A	ICP_200.8_WW	SAMP	023SMPL.D#	9/20/2016 10:14	10	91606	9/19/2016	1
	RL02	*The reporting limit is elevated due to dilution for high concentrations of non-target analytes.*							
4036099	1609916-05A	ICP_200.8_WW	SAMP	024SMPL.D#	9/20/2016 10:19	1	91606	9/19/2016	2
4036100	1609916-05AMS	ICP_200.8_WW	MS	025SMPL.D#	9/20/2016 10:25	1	91606	9/19/2016	2
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Zn*							
4036101	1609916-05AMSD	ICP_200.8_WW	MSD	026SMPL.D#	9/20/2016 10:30	1	91606	9/19/2016	2
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Zn*							
4036102	1609916-01A	ICP_200.8_WW	SAMP	027SMPL.D#	9/20/2016 10:36	100	91606	9/19/2016	1
4036103	CCV	ICP_6020_W	CCV	028CCV1.D#	9/20/2016 10:41	1	R196114		32
4036104	CCB	ICP_6020_W	CCB	029_CCB.D#	9/20/2016 10:46	1	R196114		32
4036105	LLCCV	ICP_6020_W	LLCCV	030ICV2.D#	9/20/2016 10:51	1	R196114		32
4036106	1609916-02A	ICP_200.8_WW	SAMP	031SMPL.D#	9/20/2016 10:56	1	91606	9/19/2016	2
4036107	1609916-04A	ICP_200.8_WW	SAMP	032SMPL.D#	9/20/2016 11:02	100	91606	9/19/2016	1
4036108	16091020-01A	ICP_200.8_DW	SAMP	033SMPL.D#	9/20/2016 11:08	10	R195989A		1
4036109	16091020-01AMS	ICP_200.8_DW	MS	034SMPL.D#	9/20/2016 11:13	10	R195989A		1
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Cu*							
4036110	16091020-01AMSD	ICP_200.8_DW	MSD	035SMPL.D#	9/20/2016 11:18	10	R195989A		1
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Cu*							
4036111	1609741-15B	ICP_6020_W	SAMP	036SMPL.D#	9/20/2016 11:24	10	91496	9/16/2016	1
	RL04	*The reporting limits are elevated due to internal standard failure in the undiluted run for these analytes:*							
4036112	1609741-17B	ICP_6020_W	SAMP	037SMPL.D#	9/20/2016 11:30	10	91496	9/16/2016	1
	RL04	*The reporting limits are elevated due to internal standard failure in the undiluted run for these analytes:*							
4036113	CCV	ICP_6020_W	CCV	038SMPL.D#	9/20/2016 11:35	1	R196114		32
4036114	CCB	ICP_6020_W	CCB	039_CCB.D#	9/20/2016 11:41	1	R196114		32
4036115	LLCCV	ICP_6020_W	LLCCV	040ICV2.D#	9/20/2016 11:47	1	R196114		32

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4036116	1609738-01D	ICP_200.8_WW	SAMP	041SMPL.D#	9/20/2016 11:52	1	91584	9/19/2016	0
4036117	1609739-01C	ICP_200.8_WW	SAMP	042SMPL.D#	9/20/2016 11:59	1	91584	9/19/2016	2
4036118	1609739-01CMS	ICP_200.8_WW	MS	043SMPL.D#	9/20/2016 12:04	1	91584	9/19/2016	29
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg, Na, Sr*							
4036119	1609739-01CMSD	ICP_200.8_WW	MSD	044SMPL.D#	9/20/2016 12:09	1	91584	9/19/2016	29
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg, Na, Sr*							
4036120	1609739-02C	ICP_200.8_WW	SAMP	045SMPL.D#	9/20/2016 12:15	1	91584	9/19/2016	2
4036121	1609739-03C	ICP_200.8_WW	SAMP	046SMPL.D#	9/20/2016 12:20	1	91584	9/19/2016	3
4036122	1609684-02DSD	ICP_200.8_WW	SD	047SMPL.D#	9/20/2016 12:25	50	91584		1
4036123	1609684-02DPDS	ICP_200.8_WW	PDS	048SMPL.D#	9/20/2016 12:31	10	91584		1
4036124	1609684-03D	ICP_200.8_WW	SAMP	049SMPL.D#	9/20/2016 12:36	10	91584	9/19/2016	22
4036125	1609684-04C	ICP_200.8_WWD	SAMP	050SMPL.D#	9/20/2016 12:41	10	91584	9/19/2016	2
4036126	CCV	ICP_6020_W	CCV	051CCV1.D#	9/20/2016 12:46	1	R196114		32
4036127	CCV	ICP_6020_W	CCV	054CCV1.D#	9/20/2016 13:06	1	R196114		0
4036128	CCB	ICP_6020_W	CCB	055_CCB.D#	9/20/2016 13:11	1	R196114		32
4036129	LLCCV	ICP_6020_W	LLCCV	056ICV2.D#	9/20/2016 13:16	1	R196114		32
4036343	Level 1	ICP_200.8_WW	SAMP	057CALB.D#	9/20/2016 13:25	1	R196114		31
4036344	Level 2	ICP_200.8_WW	SAMP	058CALS.D#	9/20/2016 13:31	1	R196114		31
4036345	Level 3	ICP_200.8_WW	SAMP	059CALS.D#	9/20/2016 13:36	1	R196114		31
4036346	Level 4	ICP_200.8_WW	SAMP	060CALS.D#	9/20/2016 13:41	1	R196114		31
4036347	Level 5	ICP_200.8_WW	SAMP	061CALS.D#	9/20/2016 13:46	1	R196114		31
4036348	Level 6	ICP_200.8_WW	SAMP	062CALS.D#	9/20/2016 13:52	1	R196114		31
4036349	Level 7	ICP_200.8_WW	SAMP	063CALS.D#	9/20/2016 13:57	1	R196114		31
4036350	Level 8	ICP_200.8_WW	SAMP	064CALS.D#	9/20/2016 14:02	1	R196114		31
4036351	CCV	ICP_6020_W	CCV	065CCV1.D#	9/20/2016 14:07	1	R196114		32
4036352	CCB	ICP_6020_W	CCB	066_CCB.D#	9/20/2016 14:12	1	R196114		32
4036353	LLCCV	ICP_6020_W	LLCCV	067ICV2.D#	9/20/2016 14:17	1	R196114		32
4036354	1609684-04D	ICP_200.8_WW	SAMP	068SMPL.D#	9/20/2016 14:23	10	91584	9/19/2016	22
4036355	MBLK-91652	ICP_200.8_WW	MBLK	069SMPL.D#	9/20/2016 14:29	1	91657	9/20/2016	30
4036356	LCS-91652	ICP_200.8_WW	LCS	070SMPL.D#	9/20/2016 14:35	1	91657	9/20/2016	30
4036357	MBLK-91657	ICP_200.8_WW	MBLK	071SMPL.D#	9/20/2016 14:40	1	91657	9/20/2016	30
4036358	LCS-91657	ICP_200.8_WW	LCS	072SMPL.D#	9/20/2016 14:45	1	91657	9/20/2016	30
4036359	16091064-01A	ICP_200.8_WW	SAMP	073SMPL.D#	9/20/2016 14:50	1	91657	9/20/2016	7
4036360	16091064-03B	ICP_200.8_WW	SAMP	074SMPL.D#	9/20/2016 14:56	1	91657	9/20/2016	3
4036361	16091064-05B	ICP_200.8_WW	SAMP	075SMPL.D#	9/20/2016 15:01	1	91657	9/20/2016	1
4036362	16091064-07B	ICP_200.8_WW	SAMP	076SMPL.D#	9/20/2016 15:06	1	91657	9/20/2016	2
4036363	16091064-09B	ICP_200.8_WW	SAMP	077SMPL.D#	9/20/2016 15:11	1	91657	9/20/2016	2
4036364	CCV	ICP_6020_W	CCV	078CCV1.D#	9/20/2016 15:17	1	R196114		32
4036435	CCB	ICP_6020_W	CCB	079_CCB.D#	9/20/2016 15:22	1	R196114		32
4036436	LLCCV	ICP_6020_W	LLCCV	080ICV2.D#	9/20/2016 15:27	1	R196114		32
4036503	16091064-10A	ICP_200.8_WW	SAMP	081SMPL.D#	9/20/2016 15:32	1	91657	9/20/2016	2
4036504	16091064-11B	ICP_200.8_WW	SAMP	082SMPL.D#	9/20/2016 15:38	1	91657	9/20/2016	2
4036505	16091064-12A	ICP_200.8_WW	SAMP	083SMPL.D#	9/20/2016 15:43	1	91657	9/20/2016	1
4037048	1609771-01C	ICP_200.8_WW	SAMP	084SMPL.D#	9/20/2016 15:49	1	91657	9/20/2016	0
4037049	1609771-02C	ICP_200.8_WW	SAMP	085SMPL.D#	9/20/2016 15:54	1	91657	9/20/2016	0
4037050	1609771-01C	ICP_200.8_WW	SAMP	086SMPL.D#	9/20/2016 16:06	10	91657	9/20/2016	22
4037051	1609771-02C	ICP_200.8_WW	SAMP	087SMPL.D#	9/20/2016 16:11	10	91657	9/20/2016	22
4037052	1609771-03C	ICP_200.8_WW	SAMP	088SMPL.D#	9/20/2016 16:17	10	91657	9/20/2016	22
4037053	1609771-03CMS	ICP_200.8_WW	MS	089SMPL.D#	9/20/2016 16:22	10	91657	9/20/2016	30
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Mg, Sr*							
4037054	1609771-03CMSD	ICP_200.8_WW	MSD	090SMPL.D#	9/20/2016 16:27	10	91657	9/20/2016	30
4037055	CCV	ICP_6020_W	CCV	091CCV1.D#	9/20/2016 16:32	1	R196114		32
4037056	CCV	ICP_6020_W	CCV	093CCV1.D#	9/20/2016 16:43	1	R196114		0
4037057	CCB	ICP_6020_W	CCB	094_CCB.D#	9/20/2016 16:48	1	R196114		32
4037058	LLCCV	ICP_6020_W	LLCCV	095ICV2.D#	9/20/2016 16:53	1	R196114		32
4037059	Level 1	ICP_200.8_WW	SAMP	096CALB.D#	9/20/2016 16:59	1	R196114		31

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4037060	Level 2	ICP_200.8_WW	SAMP	097CALS.D#	9/20/2016 17:04	1	R196114		31
4037061	Level 3	ICP_200.8_WW	SAMP	098CALS.D#	9/20/2016 17:09	1	R196114		31
4037062	Level 4	ICP_200.8_WW	SAMP	099CALS.D#	9/20/2016 17:14	1	R196114		31
4037063	Level 5	ICP_200.8_WW	SAMP	100CALS.D#	9/20/2016 17:19	1	R196114		31
4037064	Level 6	ICP_200.8_WW	SAMP	101CALS.D#	9/20/2016 17:25	1	R196114		31
4037065	Level 7	ICP_200.8_WW	SAMP	102CALS.D#	9/20/2016 17:30	1	R196114		31
4037066	Level 8	ICP_200.8_WW	SAMP	103CALS.D#	9/20/2016 17:35	1	R196114		31
4037067	CCV	ICP_6020_W	CCV	104CCV1.D#	9/20/2016 17:40	1	R196114		32
4037068	CCB	ICP_6020_W	CCB	105_CCB.D#	9/20/2016 17:45	1	R196114		32
4037069	LLCCV	ICP_6020_W	LLCCV	106ICV2.D#	9/20/2016 17:50	1	R196114		32
4037070	ICSA	ICP_6020_W	ICSA	107ICSA.D#	9/20/2016 17:56	1	R196114		32
4037071	ICSAB	ICP_6020_W	ICSAB	108ICSB.D#	9/20/2016 18:01	1	R196114		32
4037072	1609840-01A	ICP_200.8_WW	SAMP	109SMPL.D#	9/20/2016 18:06	1	91657	9/20/2016	7
4037073	1609905-01C	ICP_200.8_WW	SAMP	110SMPL.D#	9/20/2016 18:12	1	91657	9/20/2016	2
4037074	1609908-01C	ICP_200.8_WW	SAMP	111SMPL.D#	9/20/2016 18:17	1	91657	9/20/2016	2
4037075	1609919-01A	ICP_200.8_WWD	SAMP	112SMPL.D#	9/20/2016 18:22	1	91657	9/20/2016	1
4037076	1609919-01B	ICP_200.8_WW	SAMP	113SMPL.D#	9/20/2016 18:27	1	91657	9/20/2016	1
4037077	1609962-01A	ICP_200.8_WW	SAMP	114SMPL.D#	9/20/2016 18:33	1	91657	9/20/2016	1
4037078	1609962-01B	ICP_200.8_WWD	SAMP	115SMPL.D#	9/20/2016 18:38	1	91657	9/20/2016	1
4037079	1609962-02A	ICP_200.8_WW	SAMP	116SMPL.D#	9/20/2016 18:43	1	91657	9/20/2016	1
4037080	CCV	ICP_6020_W	CCV	117CCV1.D#	9/20/2016 18:49	1	R196114		32
4037081	CCB	ICP_6020_W	CCB	118_CCB.D#	9/20/2016 18:54	1	R196114		32
4037082	LLCCV	ICP_6020_W	LLCCV	119ICV2.D#	9/20/2016 18:59	1	R196114		32
4037083	1609962-02AMS	ICP_200.8_WW	MS	120SMPL.D#	9/20/2016 19:04	1	91657	9/20/2016	30
4037084	1609962-02AMSD	ICP_200.8_WW	MSD	121SMPL.D#	9/20/2016 19:10	1	91657	9/20/2016	30
4037085	1609962-02B	ICP_200.8_WWD	SAMP	122SMPL.D#	9/20/2016 19:15	1	91657	9/20/2016	1
4037086	1609684-05C	ICP_200.8_WWD	SAMP	123SMPL.D#	9/20/2016 19:20	10	91584	9/19/2016	2
4037087	1609684-05D	ICP_200.8_WW	SAMP	124SMPL.D#	9/20/2016 19:26	10	91584	9/19/2016	22
4037088	1609686-01C	ICP_200.8_WW	SAMP	125SMPL.D#	9/20/2016 19:31	10	91584	9/19/2016	22
4037089	1609686-02B	ICP_200.8_WW	SAMP	126SMPL.D#	9/20/2016 19:37	10	91584	9/19/2016	5
4037090	1609686-03B	ICP_200.8_WW	SAMP	127SMPL.D#	9/20/2016 19:42	10	91584	9/19/2016	5
4037091	1609686-04B	ICP_200.8_WW	SAMP	128SMPL.D#	9/20/2016 19:47	10	91584	9/19/2016	3
4037092	1609686-05B	ICP_200.8_WW	SAMP	129SMPL.D#	9/20/2016 19:53	10	91584	9/19/2016	3
4037093	CCV	ICP_6020_W	CCV	130CCV1.D#	9/20/2016 19:58	1	R196114		0
4037094	CCV	ICP_6020_W	CCV	132CCV1.D#	9/20/2016 20:08	1	R196114		32
4037095	CCB	ICP_6020_W	CCB	133_CCB.D#	9/20/2016 20:14	1	R196114		32
4037096	LLCCV	ICP_6020_W	LLCCV	134ICV2.D#	9/20/2016 20:19	1	R196114		32
4037097	1609686-06B	ICP_200.8_WW	SAMP	135SMPL.D#	9/20/2016 20:24	10	91584	9/19/2016	3
4037098	1609739-01C	ICP_200.8_WW	SAMP	136SMPL.D#	9/20/2016 20:30	10	91584	9/19/2016	1
4037099	1609739-01CMS	ICP_200.8_WW	MS	137SMPL.D#	9/20/2016 20:35	10	91584	9/19/2016	1
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca*							
4037100	1609739-01CMSD	ICP_200.8_WW	MSD	138SMPL.D#	9/20/2016 20:40	10	91584	9/19/2016	1
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca*							
4037101	1609739-02C	ICP_200.8_WW	SAMP	139SMPL.D#	9/20/2016 20:46	10	91584	9/19/2016	1
4037102	1609738-01D	ICP_200.8_WW	SAMP	140SMPL.D#	9/20/2016 20:51	10	91584	9/19/2016	1
4037133	MBLK-91642	ICP_6020_WD	MBLK	141SMPL.D#	9/20/2016 20:56	1	91642	9/20/2016	1
4037134	LCS-91642	ICP_6020_WD	LCS	142SMPL.D#	9/20/2016 21:02	1	91642	9/20/2016	1
4037135	1609884-02B	ICP_6020_WD	SAMP	143SMPL.D#	9/20/2016 21:07	1	91642	9/20/2016	1
4037136	1609884-03B	ICP_6020_WD	SAMP	144SMPL.D#	9/20/2016 21:12	1	91642	9/20/2016	1
4037137	CCV	ICP_6020_W	CCV	145CCV1.D#	9/20/2016 21:18	1	R196114		0
4037138	CCV	ICP_6020_W	CCV	147CCV1.D#	9/20/2016 21:28	1	R196114		32
4037139	CCB	ICP_6020_W	CCB	148_CCB.D#	9/20/2016 21:33	1	R196114		32
4037140	LLCCV	ICP_6020_W	LLCCV	149ICV2.D#	9/20/2016 21:39	1	R196114		32
4037141	1609884-03BMS	ICP_6020_WD	MS	150SMPL.D#	9/20/2016 21:44	1	91642		1
4037142	1609884-03BMSD	ICP_6020_WD	MSD	151SMPL.D#	9/20/2016 21:49	1	91642		1
4037143	1609884-05B	ICP_6020_WD	SAMP	152SMPL.D#	9/20/2016 21:55	1	91642	9/20/2016	1
4037144	1609884-06B	ICP_6020_WD	SAMP	153SMPL.D#	9/20/2016 22:00	1	91642	9/20/2016	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4037145	1609884-07B	ICP_6020_WD	SAMP	154SMPL.D#	9/20/2016 22:05	1	91642	9/20/2016	1
4037146	1609884-09B	ICP_6020_WD	SAMP	155SMPL.D#	9/20/2016 22:11	1	91642	9/20/2016	1
4037147	1609884-11B	ICP_6020_WD	SAMP	156SMPL.D#	9/20/2016 22:16	1	91642	9/20/2016	1
4037148	1609884-13B	ICP_6020_WD	SAMP	157SMPL.D#	9/20/2016 22:22	1	91642	9/20/2016	1
4037149	1609975-02B	ICP_6020_WD	SAMP	158SMPL.D#	9/20/2016 22:27	1	91642	9/20/2016	1
4037150	1609975-04B	ICP_6020_WD	SAMP	159SMPL.D#	9/20/2016 22:32	1	91642	9/20/2016	1
4037151	CCV	ICP_6020_W	CCV	160CCV1.D#	9/20/2016 22:38	1	R196114		32
4037152	CCV	ICP_6020_W	CCV	162CCV1.D#	9/20/2016 22:48	1	R196114		32
4037153	CCB	ICP_6020_W	CCB	163_CCB.D#	9/20/2016 22:53	1	R196114		32
4037154	LLCCV	ICP_6020_W	LLCCV	164ICV2.D#	9/20/2016 22:59	1	R196114		32
4037155	Level 1	ICP_6020_W	SAMP	165CALB.D#	9/20/2016 23:04	1	R196114		32
4037156	Level 2	ICP_6020_W	SAMP	166CALS.D#	9/20/2016 23:09	1	R196114		32
4037157	Level 3	ICP_6020_W	SAMP	167CALS.D#	9/20/2016 23:15	1	R196114		32
4037158	Level 4	ICP_6020_W	SAMP	168CALS.D#	9/20/2016 23:20	1	R196114		32
4037159	Level 5	ICP_6020_W	SAMP	169CALS.D#	9/20/2016 23:25	1	R196114		32
4037160	Level 6	ICP_6020_W	SAMP	170CALS.D#	9/20/2016 23:31	1	R196114		32
4037161	Level 7	ICP_6020_W	SAMP	171CALS.D#	9/20/2016 23:36	1	R196114		32
4037162	Level 8	ICP_6020_W	SAMP	172CALS.D#	9/20/2016 23:41	1	R196114		32
4037163	CCV	ICP_6020_W	CCV	173CCV1.D#	9/20/2016 23:46	1	R196114		32
4037164	CCB	ICP_6020_W	CCB	174_CCB.D#	9/20/2016 23:51	1	R196114		32
4037165	LLCCV	ICP_6020_W	LLCCV	175ICV2.D#	9/20/2016 23:56	1	R196114		32
4037166	1609975-06B	ICP_6020_WD	SAMP	176SMPL.D#	9/21/2016 00:02	1	91642	9/20/2016	1
4037167	1609975-08B	ICP_6020_WD	SAMP	177SMPL.D#	9/21/2016 00:07	1	91642	9/20/2016	1
4037168	1609975-10B	ICP_6020_WD	SAMP	178SMPL.D#	9/21/2016 00:13	1	91642	9/20/2016	1
4037169	MBLK-91654	ICP_6020_W	MBLK	179SMPL.D#	9/21/2016 00:18	1	91654	9/20/2016	32
4037170	LCS-91654	ICP_6020_W	LCS	180SMPL.D#	9/21/2016 00:24	1	91654	9/20/2016	32
4037171	16091006-01C	ICP_6020_W	SAMP	181SMPL.D#	9/21/2016 00:29	1	91654	9/20/2016	1
4037172	16091006-02C	ICP_6020_W	SAMP	182SMPL.D#	9/21/2016 00:34	1	91654	9/20/2016	1
4037173	16091008-01C	ICP_6020_W	SAMP	183SMPL.D#	9/21/2016 00:39	1	91654	9/20/2016	12
4037174	16091008-02C	ICP_6020_W	SAMP	184SMPL.D#	9/21/2016 00:45	1	91654	9/20/2016	13
4037175	16091008-03C	ICP_6020_W	SAMP	185SMPL.D#	9/21/2016 00:50	1	91654	9/20/2016	13
4037176	CCV	ICP_6020_W	CCV	186CCV1.D#	9/21/2016 00:55	1	R196114		32
4037177	CCV	ICP_6020_W	CCV	188CCV1.D#	9/21/2016 01:06	1	R196114		0
4037178	CCB	ICP_6020_W	CCB	189_CCB.D#	9/21/2016 01:11	1	R196114		32
4037179	LLCCV	ICP_6020_W	LLCCV	190ICV2.D#	9/21/2016 01:16	1	R196114		32
4037180	16091011-01C	ICP_6020_W	SAMP	191SMPL.D#	9/21/2016 01:22	1	91654	9/20/2016	0
4037181	16091011-02C	ICP_6020_W	SAMP	192SMPL.D#	9/21/2016 01:27	1	91654	9/20/2016	0
4037182	16091034-01A	TCICP_6020_S	SAMP	193SMPL.D#	9/21/2016 01:32	1	91654	9/20/2016	0
4037183	16091049-01A	TCICP_6020_S	SAMP	194SMPL.D#	9/21/2016 01:38	1	91654	9/20/2016	0
4037184	16091049-02A	TCICP_6020_S	SAMP	195SMPL.D#	9/21/2016 01:43	1	91654	9/20/2016	0
4037185	16091057-01C	ICP_6020_W	SAMP	196SMPL.D#	9/21/2016 01:48	1	91654	9/20/2016	0
4037186	1609875-01B	ICP_6020_W	SAMP	197SMPL.D#	9/21/2016 01:54	1	91654	9/20/2016	0
4037187	1609881-18C	ICP_6020_W	SAMP	198SMPL.D#	9/21/2016 01:59	1	91654	9/20/2016	0
4037188	1609937-01A	ICP_6020_W	SAMP	199SMPL.D#	9/21/2016 02:04	1	91654	9/20/2016	0
4037189	ICSA	ICP_6020_W	ICSA	200ICSA.D#	9/21/2016 02:10	1	R196114		32
4037190	ICSAB	ICP_6020_W	ICSAB	201ICSB.D#	9/21/2016 02:15	1	R196114		32
4037191	CCV	ICP_6020_W	CCV	202CCV1.D#	9/21/2016 02:20	1	R196114		32
4037192	CCV	ICP_6020_W	CCV	205CCV1.D#	9/21/2016 02:36	1	R196114		32
4037193	CCB	ICP_6020_W	CCB	206_CCB.D#	9/21/2016 02:42	1	R196114		32
4037194	LLCCV	ICP_6020_W	LLCCV	207ICV2.D#	9/21/2016 02:47	1	R196114		32
4037195	Level 1	ICP_6020_W	SAMP	208CALB.D#	9/21/2016 02:53	1	R196114		32
4037196	Level 2	ICP_6020_W	SAMP	209CALS.D#	9/21/2016 02:58	1	R196114		32
4037197	Level 3	ICP_6020_W	SAMP	210CALS.D#	9/21/2016 03:03	1	R196114		32
4037198	Level 4	ICP_6020_W	SAMP	211CALS.D#	9/21/2016 03:09	1	R196114		32
4037199	Level 5	ICP_6020_W	SAMP	212CALS.D#	9/21/2016 03:14	1	R196114		32
4037200	Level 6	ICP_6020_W	SAMP	213CALS.D#	9/21/2016 03:19	1	R196114		32
4037201	Level 7	ICP_6020_W	SAMP	214CALS.D#	9/21/2016 03:25	1	R196114		32
4037202	Level 8	ICP_6020_W	SAMP	215CALS.D#	9/21/2016 03:30	1	R196114		32
4037203	CCV	ICP_6020_W	CCV	216CCV1.D#	9/21/2016 03:35	1	R196114		32

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4037204	CCB	ICP_6020_W	CCB	217_CCB.D#	9/21/2016 03:41	1	R196114		32
4037205	LLCCV	ICP_6020_W	LLCCV	218ICV2.D#	9/21/2016 03:46	1	R196114		32
4037206	1609967-01B	ICP_6020_W	SAMP	219SMPL.D#	9/21/2016 03:51	1	91654	9/20/2016	3
4037207	1609970-01A	ICP_6020_WD	SAMP	220SMPL.D#	9/21/2016 03:57	1	91654	9/20/2016	6
4037208	1609970-02A	ICP_6020_WD	SAMP	221SMPL.D#	9/21/2016 04:02	1	91654	9/20/2016	6
4037209	1609970-02AMS	ICP_6020_W	MS	222SMPL.D#	9/21/2016 04:08	1	91654	9/20/2016	30

MS01 *The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Na*

MS05 *The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca*

4037210	1609970-02AMSD	ICP_6020_W	MSD	223SMPL.D#	9/21/2016 04:13	1	91654	9/20/2016	30

MSD01 *The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Na*

MSD05 *The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca*

MSD07 *The MSD recovery was outside of the control limit. However, the MS recovery and the RPD between the MS and MSD was in control. No qualification is required for this analyte: Mg*

4037211	1609970-03A	ICP_6020_WD	SAMP	224SMPL.D#	9/21/2016 04:18	1	91654	9/20/2016	6
4037212	1609970-04A	ICP_6020_WD	SAMP	225SMPL.D#	9/21/2016 04:24	1	91654	9/20/2016	6
4037213	MBLK-91655	ICP_6020_W	MBLK	226SMPL.D#	9/21/2016 04:29	1	91655	9/20/2016	1
4037214	LCS-91655	ICP_6020_W	LCS	227SMPL.D#	9/21/2016 04:34	1	91655	9/20/2016	1
4037215	1609868-01B	ICP_6020_WD	SAMP	228SMPL.D#	9/21/2016 04:40	1	91655	9/20/2016	1
4037216	CCV	ICP_6020_W	CCV	229CCV1.D#	9/21/2016 04:45	1	R196114		32
4037217	CCB	ICP_6020_W	CCB	230_CCB.D#	9/21/2016 04:51	1	R196114		32
4037218	LLCCV	ICP_6020_W	LLCCV	231ICV2.D#	9/21/2016 04:56	1	R196114		32
4037219	1609868-02B	ICP_6020_WD	SAMP	232SMPL.D#	9/21/2016 05:01	1	91655	9/20/2016	1
4037220	1609868-03B	ICP_6020_WD	SAMP	233SMPL.D#	9/21/2016 05:07	1	91655	9/20/2016	1
4037221	1609868-04B	ICP_6020_WD	SAMP	234SMPL.D#	9/21/2016 05:12	1	91655	9/20/2016	1
4037222	1609868-05B	ICP_6020_WD	SAMP	235SMPL.D#	9/21/2016 05:18	1	91655	9/20/2016	1
4037223	1609868-06B	ICP_6020_WD	SAMP	236SMPL.D#	9/21/2016 05:23	1	91655	9/20/2016	1
4037224	1609868-07B	ICP_6020_WD	SAMP	237SMPL.D#	9/21/2016 05:29	1	91655	9/20/2016	1
4037225	1609868-08B	ICP_6020_WD	SAMP	238SMPL.D#	9/21/2016 05:34	1	91655	9/20/2016	1
4037226	1609868-09B	ICP_6020_WD	SAMP	239SMPL.D#	9/21/2016 05:39	1	91655	9/20/2016	1
4037227	1609868-10B	ICP_6020_WD	SAMP	240SMPL.D#	9/21/2016 05:45	1	91655	9/20/2016	1
4037228	1609868-01C	ICP_6020_W	SAMP	241SMPL.D#	9/21/2016 05:50	1	91655	9/20/2016	1
4037229	CCV	ICP_6020_W	CCV	242CCV1.D#	9/21/2016 05:56	1	R196114		0
4037230	CCV	ICP_6020_W	CCV	243CCV1.D#	9/21/2016 06:01	1	R196114		32
4037231	CCB	ICP_6020_W	CCB	244_CCB.D#	9/21/2016 06:07	1	R196114		32
4037232	LLCCV	ICP_6020_W	LLCCV	245ICV2.D#	9/21/2016 06:12	1	R196114		32
4037233	1609868-02C	ICP_6020_W	SAMP	246SMPL.D#	9/21/2016 06:17	1	91655	9/20/2016	1
4037234	1609868-03C	ICP_6020_W	SAMP	247SMPL.D#	9/21/2016 06:23	1	91655	9/20/2016	1
4037235	1609868-03CMS	ICP_6020_W	MS	248SMPL.D#	9/21/2016 06:28	1	91655	9/20/2016	1
4037236	1609868-03CMSD	ICP_6020_W	MSD	249SMPL.D#	9/21/2016 06:34	1	91655	9/20/2016	1
4037237	1609868-04C	ICP_6020_W	SAMP	250SMPL.D#	9/21/2016 06:39	1	91655	9/20/2016	1
4037238	1609868-05C	ICP_6020_W	SAMP	251SMPL.D#	9/21/2016 06:44	1	91655	9/20/2016	1
4037239	1609868-06C	ICP_6020_W	SAMP	252SMPL.D#	9/21/2016 06:50	1	91655	9/20/2016	1
4037240	1609868-07C	ICP_6020_W	SAMP	253SMPL.D#	9/21/2016 06:55	1	91655	9/20/2016	1
4037241	1609868-08C	ICP_6020_W	SAMP	254SMPL.D#	9/21/2016 07:00	1	91655	9/20/2016	1
4037242	1609868-09C	ICP_6020_W	SAMP	255SMPL.D#	9/21/2016 07:06	1	91655	9/20/2016	1
4037243	CCV	ICP_6020_W	CCV	256CCV1.D#	9/21/2016 07:11	1	R196114		32
4037244	CCV	ICP_6020_W	CCV	257CCV1.D#	9/21/2016 07:17	1	R196114		0
4037245	CCB	ICP_6020_W	CCB	258_CCB.D#	9/21/2016 07:22	1	R196114		32
4037246	LLCCV	ICP_6020_W	LLCCV	259ICV2.D#	9/21/2016 07:28	1	R196114		32

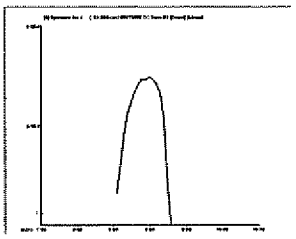
CLP Tune Sample

Data File: 001TUNE.D
Date Acquired: Sep 20 2016 08:17 am
Operator: rhughes, ICPMS2
Sample Name: 100ppb Be,Mg,Co,In,Pb
Misc Info: EPA 200.8 TUNE
Vial Number: 1306
Current Method: TN200_8.M

QC Tune Summary:
Pass

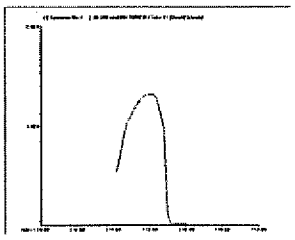
RSD%

Element	Actual	Required	Flag
9	1.12	5.00	
24	2.68	5.00	
59	0.49	5.00	
115	0.88	5.00	
208	0.37	5.00	



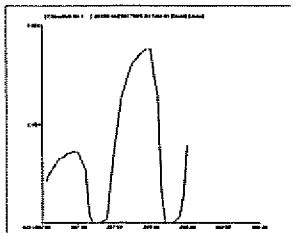
9 Be

Mass Calib.		**Peak Width**	
Actual:	9.00	Actual:	0.70
Required:	8.90 - 9.10	Required:	0.90
Flag:		Flag:	



115 In

Mass Calib.		**Peak Width**	
Actual:	115.00	Actual:	0.65
Required:	114.90 - 115.10	Required:	0.90
Flag:		Flag:	



208 Pb

Mass Calib.		**Peak Width**	
Actual:	207.90	Actual:	0.55
Required:	207.90 - 0.00	Required:	0.90
Flag:	208.10	Flag:	

Last Calib: Sep 28, 2016 11:34 am
Calibration Type: External Calibration Method
Calibration Title: ICPMS2 160920A ICAL
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Multi Tune: #2 nogas.u
#3 he.u

=== Standard Files ===
<Data Correction>
Bkg File: —
Rejected Masses: —
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\icpchem\1\data\16i20i00.b\003calb.d\003calb.d#	Level 1	Sep 20 2016 08:27 am
2	c:\icpchem\1\data\16i20i00.b\004cals.d\004cals.d#	Level 2	Sep 20 2016 08:33 am
3	c:\icpchem\1\data\16i20i00.b\005cals.d\005cals.d#	Level 3	Sep 20 2016 08:38 am
4	c:\icpchem\1\data\16i20i00.b\006cals.d\006cals.d#	Level 4	Sep 20 2016 08:46 am
5	c:\icpchem\1\data\16i20i00.b\007cals.d\007cals.d#	Level 5	Sep 20 2016 08:51 am
6	c:\icpchem\1\data\16i20i00.b\008cals.d\008cals.d#	Level 6	Sep 20 2016 08:57 am
7	c:\icpchem\1\data\16i20i00.b\009cals.d\009cals.d#	Level 7	Sep 20 2016 09:02 am
8	c:\icpchem\1\data\16i20i00.b\010cals.d\010cals.d#	Level 8	Sep 20 2016 09:07 am
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

=== Analyte Table ===

	Step	Mass	Element	Curve Fit	ISTD	Weight	Min Conc	Units	003calb.d# Level 1	004cals.d# Level 2	005cals.d# Level 3	006cals.d# Level 4	007cals.d# Level 5	008cals.d# Level 6	009cals.d# Level 7	010cals.d# Level 8	— Level 9	— Level 10
1	2	7	Li	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
2	2	9	Be	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
3	2	10	B	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	5.000E-01	5.000	12.50	25.00	125.0	225.0	500.0	---	---
4	2	11	B	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	5.000E-01	5.000	12.50	25.00	125.0	225.0	500.0	---	---
5	2	23	Na	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
6	2	24	Mg	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
7	2	25	Mg	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
8	2	27	Al	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
9	2	28	Si	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
10	2	29	Si	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
11	2	39	K	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
12	3	39	K	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
13	2	44	Ca	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
14	3	44	Ca	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
15	2	47	Ti	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
16	2	51	V	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
17	3	51	V	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
18	2	52	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
19	3	52	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
20	2	53	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
21	3	53	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
22	2	55	Mn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
23	3	55	Mn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
24	2	56	Fe	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
25	3	56	Fe	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
26	2	57	Fe	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
27	2	59	Co	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
28	3	59	Co	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
29	2	60	Ni	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
30	3	60	Ni	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
31	2	62	Ni	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
32	2	63	Cu	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
33	3	63	Cu	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
34	2	65	Cu	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
35	2	66	Zn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
36	3	66	Zn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
37	2	68	Zn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
38	2	75	As	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
39	3	75	As	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
40	2	76	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
41	2	77	(As)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
42	3	77	(As)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
43	2	78	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
44	3	78	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
45	2	82	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
46	3	82	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
47	2	83	(As)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
48	3	83	(Se)	Y=aX+[blank]	89	OFF	0.000		0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
49	2	88	Sr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
50	2	95	Mo	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
51	2	97	Mo	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
52	2	98	Mo	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
53	2	99	(Mo)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---

	Step	Mass	Element	Curve Fit	ISTD	Weight	Min Conc	Units	003calb.d# Level 1	004cals.d# Level 2	005cals.d# Level 3	006cals.d# Level 4	007cals.d# Level 5	008cals.d# Level 6	009cals.d# Level 7	010cals.d# Level 8	--- Level 9	--- Level 10
54	3	99	(Mo)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
55	2	106	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
56	3	106	Cd	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
57	2	107	Ag	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
58	3	107	Ag	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
59	2	108	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
60	3	108	(Cd)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
61	2	109	Ag	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
62	2	111	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
63	3	111	Cd	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
64	2	114	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
65	2	118	Sn	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
66	2	119	Sn	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
67	2	120	Sn	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
68	2	121	Sb	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
69	3	121	Sb	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
70	2	123	Sb	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
71	2	135	Ba	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
72	2	137	Ba	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
73	2	197	Au	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
74	2	203	Tl	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
75	2	205	Tl	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
76	2	206	Pb	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
77	2	207	Pb	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
78	2	208	Pb	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
79	2	238	U	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---

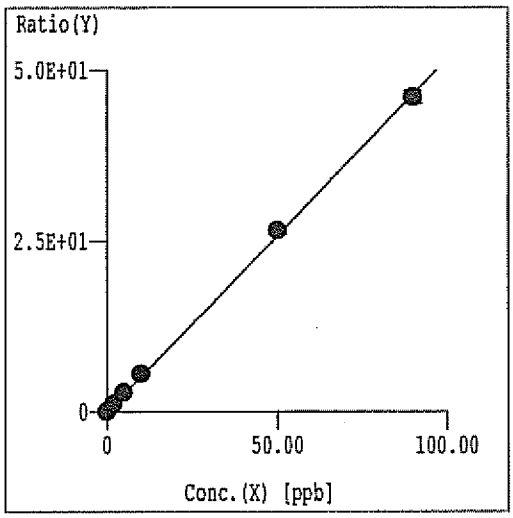
=== ISTD Table ===

Fix ISTD Conc: ON

	Step	Mass	Element	VIS	Units	All Levels
1	2	6	Li		ppb	100.0
2	2	45	Sc		ppb	100.0
3	2	72	Ge		ppb	1.010E+04
4	3	72	Ge		ppb	1.010E+04
5	2	89	Y		ppb	100.0
6	3	89	Y		ppb	100.0
7	2	115	In		ppb	100.0
8	2	209	Bi		ppb	100.0

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	9 Be	45	ppb

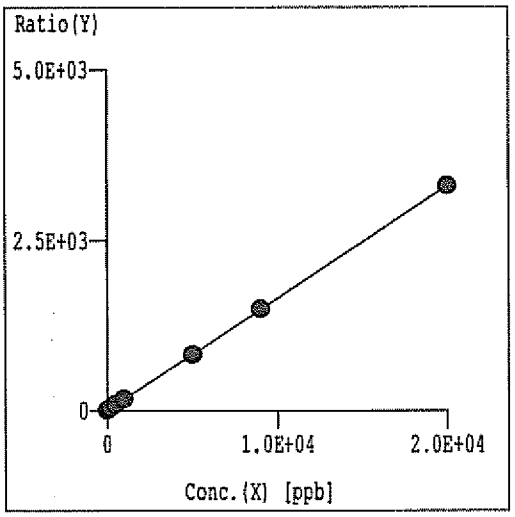


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	73.70	1.267E-02	P	56.76
2		2.000E-01	2.126E-01	711.5	1.224E-01	P	3.063
3		2.000	2.231	6586	1.165E+00	P	3.032
4		5.000	5.510	1.661E+04	2.858E+00	P	4.483E-01
5		10.00	10.76	3.260E+04	5.572E+00	P	3.106
6		50.00	51.43	1.602E+05	2.658E+01	P	2.121
7		90.00	89.08	2.919E+05	4.602E+01	P	1.976
8	ON	200.0	---	6.386E+05	9.171E+01	P	3.648E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9998
Y = 5.164E-001*X +1.267E-002
X = 1.936E+000*Y -2.453E-002
DL = 4.176E-02 ppb
BEC = 2.453E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	23 Na	89	ppb



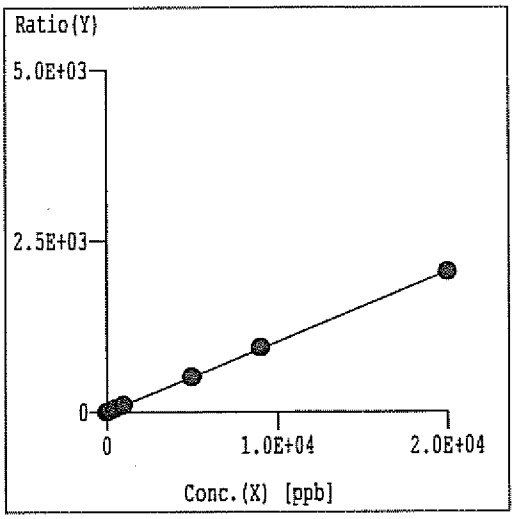
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	4.537E+05	7.466E+00	A	43.96
2		20.00	20.68	6.555E+05	1.088E+01	A	25.61
3		200.0	210.7	2.468E+06	4.222E+01	A	9.340
4		500.0	504.0	5.425E+06	9.059E+01	A	3.319
5		1000	1009	1.042E+07	1.739E+02	A	2.573
6		5000	4959	4.887E+07	8.255E+02	A	2.775
7		9000	9036	8.884E+07	1.498E+03	A	1.531
8		2.000E+04	1.999E+04	1.944E+08	3.305E+03	A	4.803E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.649E-001*X +7.466E+000
X = 6.062E+000*Y -4.526E+001
DL = 59.69 ppb
BEC = 45.26 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element ISTD Unit
(2) 24 Mg 89 ppb

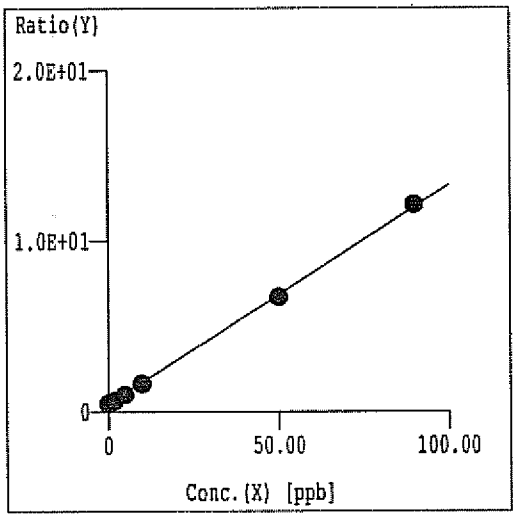


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	5.444E+04	9.015E-01	P	73.62
2		20.00	20.49	1.809E+05	3.002E+00	P	17.65
3		200.0	216.0	1.349E+06	2.304E+01	A	5.226
4		500.0	521.0	3.253E+06	5.431E+01	A	6.554E-01
5		1000	1019	6.310E+06	1.053E+02	A	3.553
6		5000	5007	3.044E+07	5.142E+02	A	2.602
7		9000	9157	5.572E+07	9.395E+02	A	1.562
8		2.000E+04	1.993E+04	1.202E+08	2.043E+03	A	2.115E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.025E-001*X +9.015E-001
X = 9.756E+000*Y -8.794E+000
DL = 19.42 ppb
BEC = 8.794 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element ISTD Unit
(2) 27 Al 89 ppb



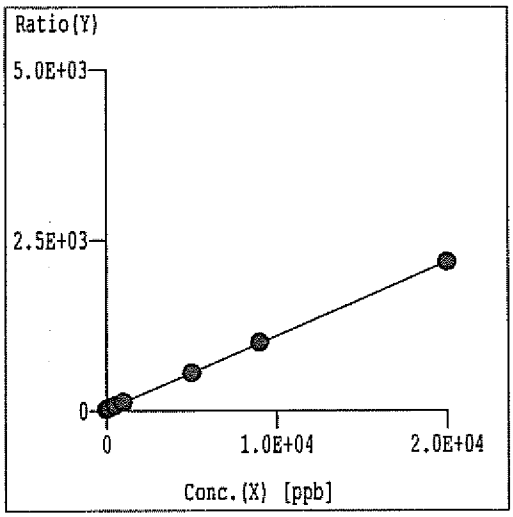
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2.828E+04	4.644E-01	P	29.17
2	ON	2.000E-01	---	2.416E+04	4.010E-01	P	26.14
3		2.000	1.281	3.663E+04	6.286E-01	P	20.71
4		5.000	4.013	5.858E+04	9.789E-01	P	8.566
5		10.00	9.055	9.743E+04	1.625E+00	P	2.666
6		50.00	48.73	3.974E+05	6.713E+00	P	1.071
7		90.00	90.88	7.187E+05	1.212E+01	M	1.860
8	ON	200.0	---	1.567E+06	2.665E+01	A	9.125E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9998
Y = 1.282E-001*X +4.644E-001
X = 7.799E+000*Y -3.621E+000
DL = 3.169 ppb
BEC = 3.621 ppb

Weight: OFF
Min Conc: 0.000

===Graph Detail ===

Step Mass Element (2) 39 K — ISTD 89 — Unit ppb

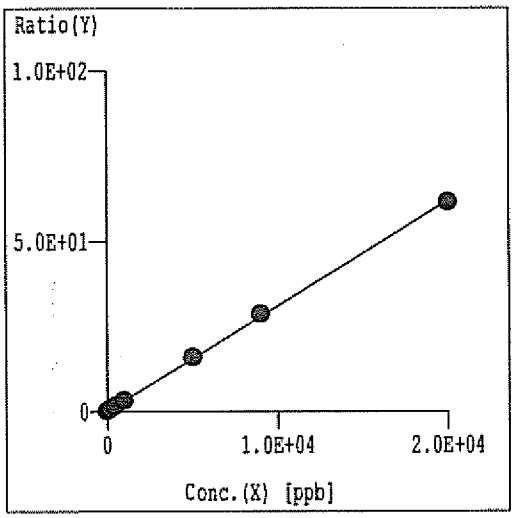


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1.129E+06	1.845E+01	A	5.377
2		20.00	22.96	1.262E+06	2.093E+01	A	1.853
3		200.0	213.4	2.431E+06	4.152E+01	A	4.376
4		500.0	508.6	4.399E+06	7.344E+01	A	1.035
5		1000	1002	7.595E+06	1.268E+02	A	3.580
6		5000	4954	3.280E+07	5.541E+02	A	2.559
7		9000	9088	5.938E+07	1.001E+03	A	1.916
8		2.000E+04	1.997E+04	1.281E+08	2.178E+03	A	6.700E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.081E-001*X +1.845E+001
X = 9.248E+000*Y -1.706E+002
DL = 27.52 ppb
BEC = 170.6 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element (2) 44 Ca — ISTD 89 — Unit ppb



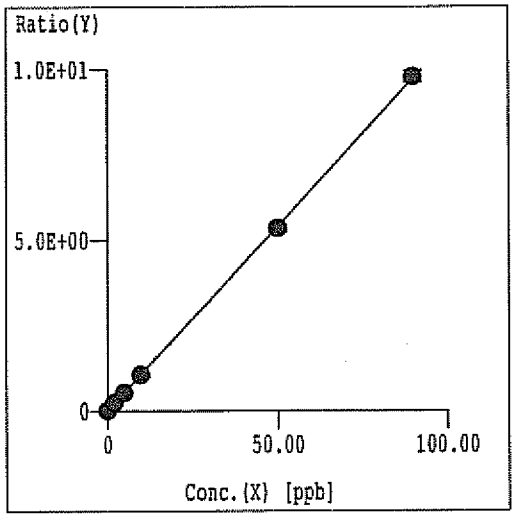
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1.072E+04	1.757E-01	P	23.86
2		20.00	23.91	1.504E+04	2.496E-01	P	15.07
3		200.0	211.2	4.844E+04	8.281E-01	P	7.486
4		500.0	510.7	1.050E+05	1.753E+00	P	1.312
5		1000	1010	1.975E+05	3.297E+00	P	3.110
6		5000	5131	9.484E+05	1.602E+01	A	2.351
7		9000	9232	1.701E+06	2.869E+01	A	1.176
8		2.000E+04	1.986E+04	3.618E+06	6.152E+01	A	2.833E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 3.089E-003*X +1.757E-001
X = 3.238E+002*Y -5.690E+001
DL = 40.72 ppb
BEC = 56.90 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	51 V	89	ppb

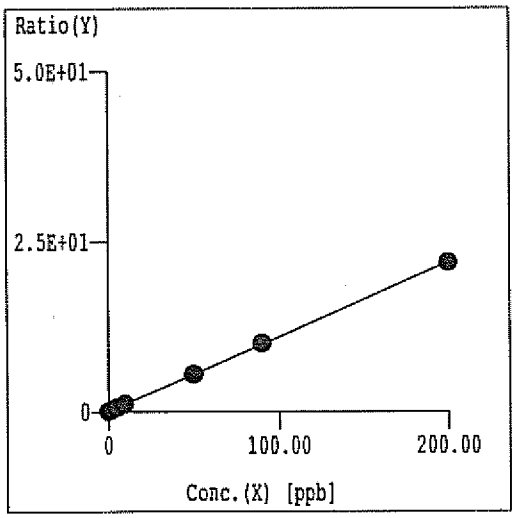


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	196.5	3.076E-03	P	515.6
2		2.000E-01	2.284E-01	1680	2.777E-02	P	76.42
3		2.000	2.141	1.373E+04	2.347E-01	P	10.33
4		5.000	4.851	3.161E+04	5.277E-01	P	2.862
5		10.00	9.740	6.327E+04	1.056E+00	P	5.473
6		50.00	49.40	3.164E+05	5.346E+00	P	1.820
7		90.00	90.37	5.798E+05	9.777E+00	P	1.721
8	ON	200.0	---	1.308E+06	2.223E+01	A	1.489
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.082E-001*X +3.076E-003
X = 9.246E+000*Y -2.844E-002
DL = 4.399E-01 ppb
BEC = 2.844E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(3)	52 Cr	89	ppb



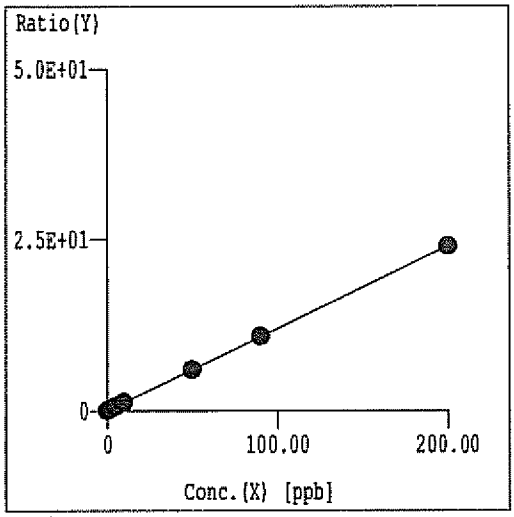
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	391.1	3.073E-02	P	10.01
2		2.000E-01	1.885E-01	652.3	5.139E-02	P	7.996
3		2.000	1.985	3139	2.482E-01	P	2.246
4		5.000	5.218	7582	6.024E-01	P	2.799
5		10.00	10.13	1.451E+04	1.140E+00	P	1.545
6		50.00	49.85	6.974E+04	5.492E+00	P	1.025
7		90.00	91.34	1.270E+05	1.004E+01	P	3.361E-01
8		200.0	199.4	2.743E+05	2.188E+01	P	6.166E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.096E-001*X +3.073E-002
X = 9.128E+000*Y -2.805E-001
DL = 8.425E-02 ppb
BEC = 2.805E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	55	Mn	89	ppb

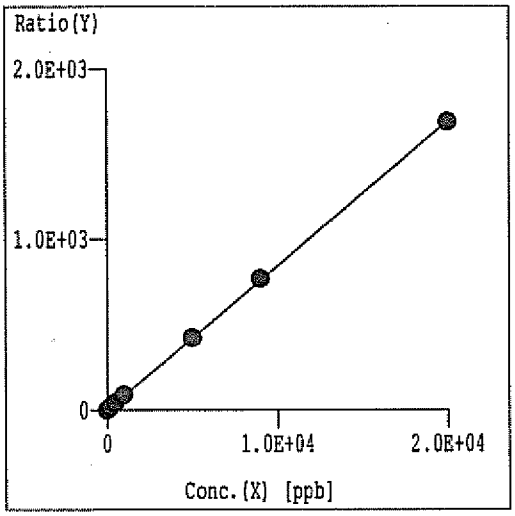


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2423	3.968E-02	P	21.35
2		2.000E-01	2.081E-01	3897	6.466E-02	P	15.36
3		2.000	2.082	1.695E+04	2.897E-01	P	5.648
4		5.000	5.139	3.933E+04	6.567E-01	P	1.820
5		10.00	10.10	7.502E+04	1.252E+00	P	3.034
6		50.00	49.65	3.552E+05	6.000E+00	P	2.852
7		90.00	90.55	6.472E+05	1.091E+01	P	2.079
8		200.0	199.8	1.413E+06	2.403E+01	A	3.317E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.201E-001*X +3.968E-002
X = 8.329E+000*Y -3.305E-001
DL = 2.117E-01 ppb
BEC = 3.305E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(3)	56	Fe	89	ppb



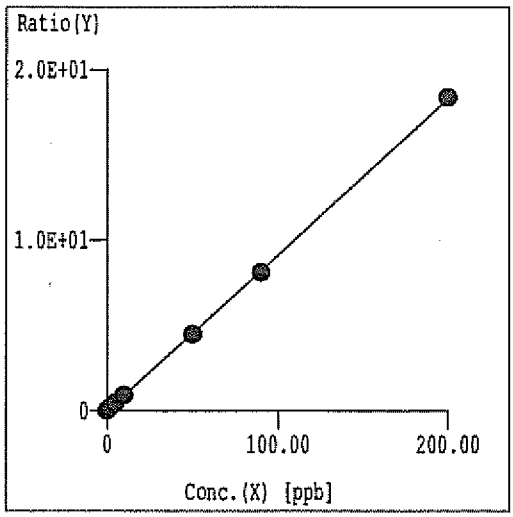
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2799	2.200E-01	P	5.600
2		20.00	21.35	2.570E+04	2.024E+00	P	7.463E-01
3		200.0	210.7	2.280E+05	1.802E+01	P	2.229E-01
4		500.0	535.6	5.724E+05	4.547E+01	P	1.148
5		1000	1057	1.139E+06	8.953E+01	A	3.860E-01
6		5000	4998	5.365E+06	4.225E+02	A	1.143
7		9000	9093	9.721E+06	7.685E+02	A	3.142E-01
8		2.000E+04	1.995E+04	2.114E+07	1.686E+03	A	6.642E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 8.449E-002*X +2.200E-001
X = 1.184E+001*Y -2.604E+000
DL = 4.374E-01 ppb
BEC = 2.604 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element ISTD Unit
(2) 59 Co 89 ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	290.0	4.755E-03	P	35.41
2		2.000E-01	1.990E-01	1383	2.294E-02	P	2.370
3		2.000	2.033	1.116E+04	1.906E-01	P	2.440
4		5.000	5.017	2.775E+04	4.632E-01	P	1.019
5		10.00	9.940	5.470E+04	9.132E-01	P	4.552
6		50.00	48.98	2.653E+05	4.481E+00	P	2.942
7		90.00	88.73	4.812E+05	8.114E+00	P	1.507
8		200.0	200.8	1.080E+06	1.836E+01	A	3.554E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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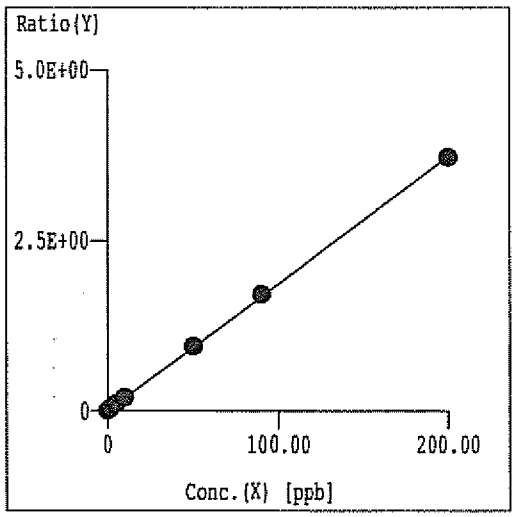
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.139E-002*X +4.755E-003
X = 1.094E+001*Y -5.202E-002
DL = 5.526E-02 ppb
BEC = 5.202E-02 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element ISTD Unit
(2) 60 Ni 89 ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	215.2	3.523E-03	P	13.68
2		2.000E-01	1.232E-01	351.1	5.822E-03	P	3.879
3		2.000	2.019	2412	4.121E-02	P	4.288
4		5.000	5.227	6054	1.011E-01	P	1.088
5		10.00	10.28	1.170E+04	1.954E-01	P	2.692
6		50.00	50.67	5.619E+04	9.492E-01	P	3.386
7		90.00	91.58	1.016E+05	1.713E+00	P	1.905
8		200.0	199.1	2.187E+05	3.719E+00	P	1.550E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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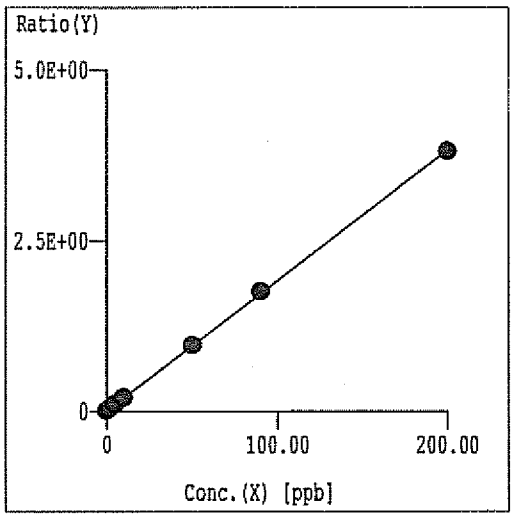
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.866E-002*X +3.523E-003
X = 5.358E+001*Y -1.888E-001
DL = 7.747E-02 ppb
BEC = 1.888E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	65	Cu	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	654.1	1.079E-02	P	53.09
2	ON	2.000E-01	---	860.0	1.428E-02	P	35.66
3		2.000	2.089	2962	5.067E-02	P	10.03
4		5.000	5.134	6517	1.088E-01	P	3.252
5		10.00	10.18	1.229E+04	2.052E-01	P	1.542
6		50.00	50.29	5.749E+04	9.712E-01	P	2.413
7		90.00	91.74	1.045E+05	1.763E+00	P	1.461
8		200.0	199.1	2.243E+05	3.813E+00	P	1.387E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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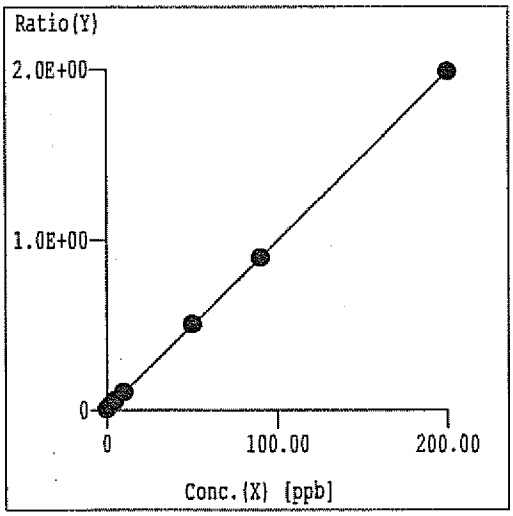
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.910E-002*X +1.079E-002
X = 5.237E+001*Y -5.649E-001
DL = 8.997E-01 ppb
BEC = 5.649E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	66	Zn	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	334.5	5.472E-03	P	18.17
2	ON	2.000E-01	---	454.5	7.542E-03	P	23.27
3		2.000	2.242	1623	2.771E-02	P	2.984
4		5.000	5.174	3402	5.679E-02	P	3.135
5		10.00	10.06	6306	1.053E-01	P	4.857
6		50.00	50.40	2.991E+04	5.053E-01	P	2.304
7		90.00	89.83	5.316E+04	8.964E-01	P	1.435
8		200.0	200.0	1.170E+05	1.989E+00	P	3.366E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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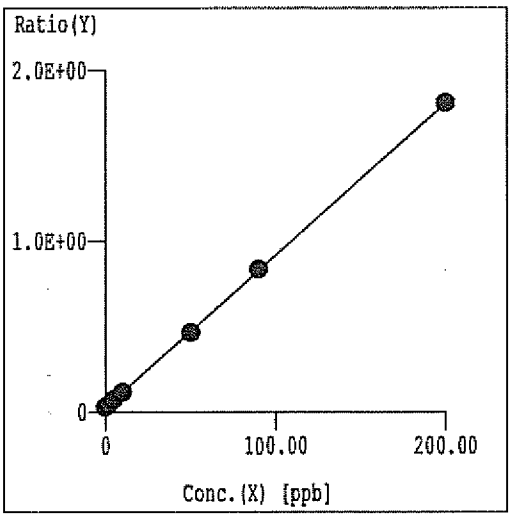
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.918E-003*X +5.472E-003
X = 1.008E+002*Y -5.518E-001
DL = 3.008E-01 ppb
BEC = 5.518E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(3)	75	As	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	376.3	2.957E-02	P	3.739
2	ON	2.000E-01	---	368.5	2.903E-02	P	7.179
3		2.000	1.794	576.1	4.553E-02	P	8.473
4		5.000	4.998	931.9	7.404E-02	P	8.891
5		10.00	9.686	1473	1.157E-01	P	2.582
6		50.00	48.90	5900	4.646E-01	P	6.235E-01
7		90.00	90.58	1.057E+04	8.354E-01	P	1.333
8		200.0	200.0	2.268E+04	1.809E+00	P	1.157
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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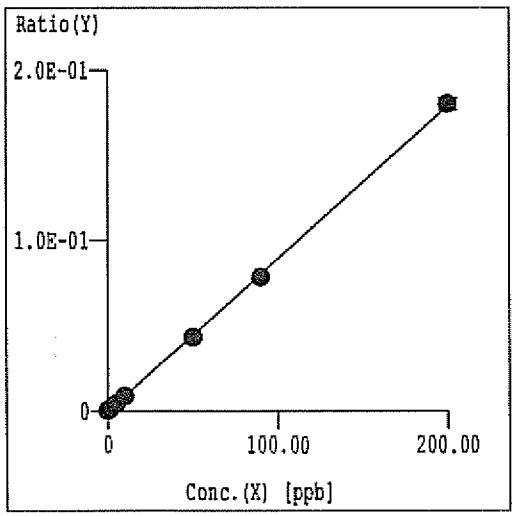
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 8.897E-003*X +2.957E-002
X = 1.124E+002*Y -3.324E+000
DL = 3.728E-01 ppb
BEC = 3.324 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(3)	78	Se	89	ppb



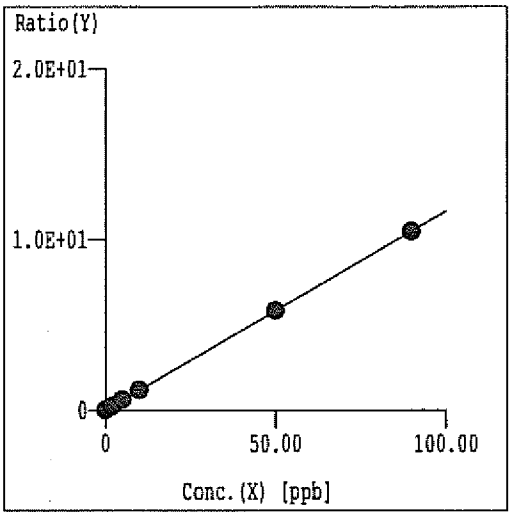
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2.593	2.038E-04	P	49.52
2		2.000E-01	4.915E-01	8.148	6.419E-04	P	8.575
3		2.000	1.610	20.74	1.639E-03	P	12.87
4		5.000	4.557	53.70	4.266E-03	P	17.51
5		10.00	9.570	111.1	8.734E-03	P	5.955
6		50.00	48.27	548.9	4.323E-02	P	3.001
7		90.00	87.58	990.0	7.827E-02	P	1.334
8		200.0	201.6	2255	1.799E-01	P	1.946
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 8.914E-004*X +2.038E-004
X = 1.122E+003*Y -2.286E-001
DL = 3.396E-01 ppb
BEC = 2.286E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(3)	107	Ag	89	ppb

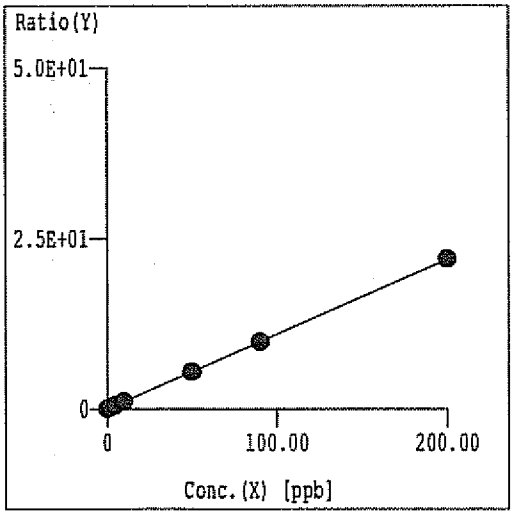


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	69.26	5.442E-03	P	14.41
2		2.000E-01	1.956E-01	358.5	2.824E-02	P	8.013
3		2.000	2.080	3136	2.479E-01	P	1.728
4		5.000	5.304	7852	6.238E-01	P	1.897
5		10.00	10.09	1.504E+04	1.182E+00	P	3.782E-01
6		50.00	50.01	7.410E+04	5.836E+00	P	9.894E-01
7		90.00	89.97	1.327E+05	1.049E+01	P	8.028E-01
8	ON	200.0	---	2.830E+05	2.257E+01	P	9.010E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.166E-001*X +5.442E-003
X = 8.578E+000*Y -4.668E-002
DL = 2.018E-02 ppb
BEC = 4.668E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	111	Cd	115	ppb



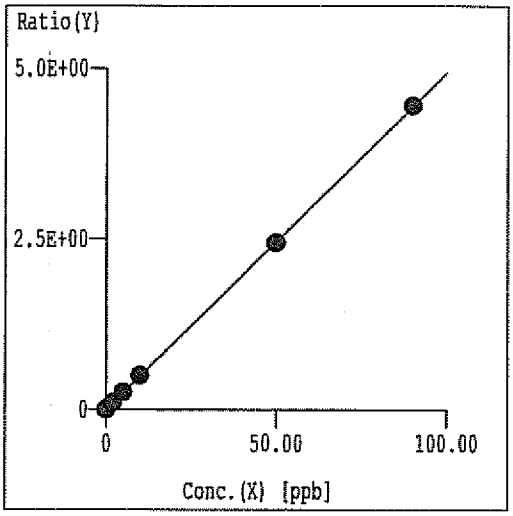
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	-7.873E+00	-1.567E-03	P	-1.821E+02
2		2.000E-01	2.198E-01	110.1	2.262E-02	P	30.89
3		2.000	2.034	1061	2.223E-01	P	2.888
4		5.000	4.980	2662	5.466E-01	P	1.017
5		10.00	9.858	5247	1.083E+00	P	2.745
6		50.00	49.51	2.596E+04	5.447E+00	P	2.975
7		90.00	89.54	4.691E+04	9.853E+00	P	2.875
8		200.0	200.3	1.025E+05	2.205E+01	P	1.131E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.101E-001*X -1.567E-003
X = 9.086E+000*Y +1.424E-002
DL = 7.781E-02 ppb
BEC = -1.424E-02 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 121 Sb	89	ppb

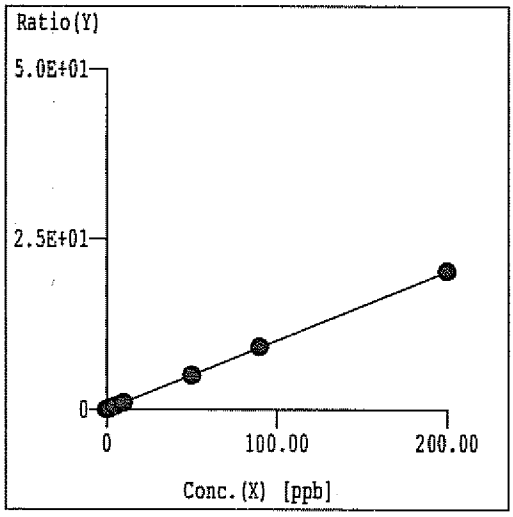


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	9.259	7.275E-04	P	27.59
2		2.000E-01	2.180E-01	145.9	1.149E-02	P	8.575
3		2.000	2.071	1302	1.030E-01	P	1.893
4		5.000	5.146	3206	2.547E-01	P	6.304E-01
5		10.00	10.12	6363	5.001E-01	P	3.592E-01
6		50.00	49.59	3.109E+04	2.448E+00	P	6.407E-01
7		90.00	90.21	5.633E+04	4.453E+00	P	1.013
8	ON	200.0	---	1.233E+05	9.831E+00	P	6.590E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 4.936E-002*X +7.275E-004
X = 2.026E+001*Y -1.474E-002
DL = 1.220E-02 ppb
BEC = 1.474E-02 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 135 Ba	115	ppb



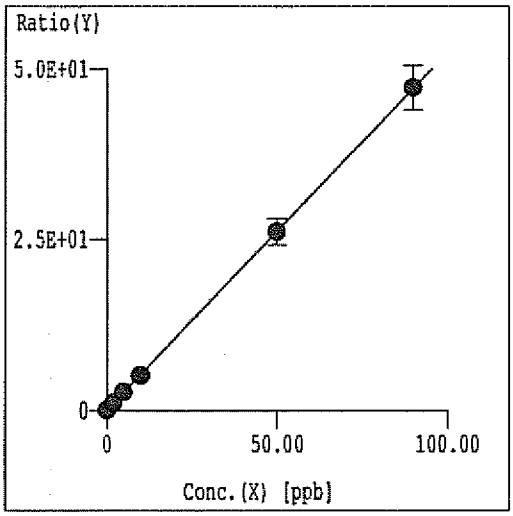
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	72.23	1.471E-02	P	59.87
2		2.000E-01	1.549E-01	147.8	3.035E-02	P	36.08
3		2.000	1.920	993.4	2.087E-01	P	13.53
4		5.000	4.827	2447	5.024E-01	P	6.697
5		10.00	9.793	4864	1.004E+00	P	2.614
6		50.00	49.44	2.387E+04	5.010E+00	P	2.395
7		90.00	90.56	4.363E+04	9.164E+00	P	1.852
8		200.0	199.9	9.395E+04	2.021E+01	P	1.034
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.010E-001*X +1.471E-002
X = 9.898E+000*Y -1.456E-001
DL = 2.615E-01 ppb
BEC = 1.456E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	203 Tl	209	ppb

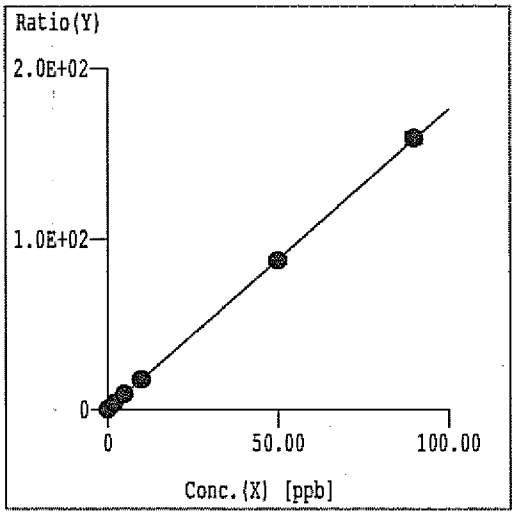


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	247.8	6.155E-02	P	30.13
2		2.000E-01	1.770E-01	613.4	1.542E-01	P	13.89
3		2.000	2.006	4334	1.111E+00	P	2.294
4		5.000	5.013	1.062E+04	2.685E+00	P	5.934
5		10.00	9.680	2.038E+04	5.127E+00	P	5.964
6		50.00	49.79	1.013E+05	2.612E+01	P	7.347
7		90.00	90.15	1.816E+05	4.724E+01	P	6.860
8	ON	200.0	---	4.102E+05	1.103E+02	P	2.114
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 5.233E-001*X +6.155E-002
X = 1.911E+000*Y -1.176E-001
DL = 1.063E-01 ppb
BEC = 1.176E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	208 Pb	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	342.2	8.545E-02	P	50.52
2		2.000E-01	1.921E-01	1687	4.237E-01	P	5.127
3		2.000	2.020	1.420E+04	3.641E+00	P	3.178
4		5.000	5.068	3.560E+04	9.009E+00	P	5.530E-01
5		10.00	9.896	6.961E+04	1.751E+01	P	4.335
6		50.00	49.57	3.387E+05	8.736E+01	P	2.549
7		90.00	90.25	6.112E+05	1.590E+02	P	2.228
8	ON	200.0	---	1.316E+06	3.539E+02	P	5.754E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.761E+000*X +8.545E-002
X = 5.680E-001*Y -4.853E-002
DL = 7.355E-02 ppb
BEC = 4.853E-02 ppb

Weight: OFF
Min Conc: 0.000

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#
Date Acquired: Sep 20 2016 08:27 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 1
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 02:09 am
Sample Type: CalBlk

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1,111,293.00	2.93
7	Li	45	2	11.44	2.42
9	Be	45	2	0.01	56.75
11	B	45	2	0.76	12.04
23	Na	89	2	7.47	43.96
24	Mg	89	2	0.90	73.62
27	Al	89	2	0.46	29.16
28	Si	89	2	2.68	6.52
29	Si	89	2	3.01	2.52
39	K	89	2	18.45	5.38
44	Ca	89	2	0.18	23.86
45	Sc	---	2	588,490.38	3.88
45	Sc	---	3	38,595.72	0.42
47	Ti	89	2	0.00	6.50
51	V	89	2	0.00	515.61
51	V	89	3	-0.01	58.81
52	Cr	89	2	0.11	2.55
52	Cr	89	3	0.03	10.01
55	Mn	89	2	0.04	21.35
55	Mn	89	3	0.00	21.78
56	Fe	89	2	3.98	7.89
56	Fe	89	3	0.22	5.60
59	Co	89	2	0.00	35.42
59	Co	89	3	0.00	3.31
60	Ni	89	2	0.00	13.68
62	Ni	89	2	0.01	4.49
63	Cu	89	2	0.02	47.19
63	Cu	89	3	0.03	14.01
65	Cu	89	2	0.01	53.09
66	Zn	89	2	0.01	18.17
66	Zn	89	3	0.01	25.51
68	Zn	89	2	0.00	17.69
72	Ge	---	2	647.06	3.19
72	Ge	---	3	19.63	31.18
75	As	89	2	0.01	32.70
75	As	89	3	0.03	3.74
78	Se	89	2	0.01	6.45
78	Se	89	3	0.00	49.52
82	Se	89	2	0.00	10.07
82	Se	89	3	0.01	3.62
88	Sr	89	2	0.02	75.16
89	Y	---	2	6,130,896.00	4.14
89	Y	---	3	1,272,537.60	0.17
95	Mo	89	2	0.00	22.51
97	Mo	89	2	0.00	9.88
98	Mo	89	2	0.00	11.89
106	Cd	115	2	1.91	3.34
107	Ag	115	2	0.04	24.09
107	Ag	89	3	0.01	14.41
108	(Cd)	115	2	0.01	10.56
109	Ag	115	2	0.02	32.74
111	Cd	115	2	0.00	182.09
111	Cd	89	3	0.00	101.33
113	In	---	2	21,739.23	3.12
114	Cd	115	2	0.01	47.47
115	In	---	2	493,197.47	2.06
115	In	---	3	128,201.95	0.67
118	Sn	115	2	0.07	10.87
118	Sn	---	3	104.45	11.21
119	Sn	115	2	0.03	41.72
121	Sb	115	2	0.01	35.14
121	Sb	89	3	0.00	27.59
123	Sb	115	2	0.02	37.59
135	Ba	115	2	0.01	59.88
137	Ba	115	2	0.03	48.06
159	Tb	---	2	675,838.63	3.22
203	Tl	209	2	0.06	30.12
205	Tl	209	2	0.16	44.27
206	Pb	209	2	0.02	58.66
207	Pb	209	2	0.02	49.53
208	Pb	209	2	0.09	50.52
209	Bi	---	2	404,494.94	3.68
238	U	209	2	0.04	44.97

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\004CALS.D\004CALS.D#
Date Acquired: Sep 20 2016 08:33 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 2
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 08:31 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1100022.30	1.00
7	Li	45	2	11.91	0.20
9	Be	45	2	0.12	3.06
11	B	45	2	0.97	4.35
23	Na	89	2	10.88	25.61
24	Mg	89	2	3.00	17.64
27	Al	89	2	0.40	26.14
28	Si	89	2	4.07	1.47
29	Si	89	2	3.13	1.05
39	K	89	2	20.93	1.85
44	Ca	89	2	0.25	15.07
45	Sc	---	2	581097.56	0.24
45	Sc	---	3	38342.43	0.82
47	Ti	89	2	0.00	14.93
51	V	89	2	0.03	76.40
51	V	89	3	0.00	168.97
52	Cr	89	2	0.13	2.61
52	Cr	89	3	0.05	8.00
55	Mn	89	2	0.06	15.36
55	Mn	89	3	0.02	7.47
56	Fe	89	2	6.03	2.37
56	Fe	89	3	2.02	0.75
59	Co	89	2	0.02	2.37
59	Co	89	3	0.03	13.85
60	Ni	89	2	0.01	3.88
62	Ni	89	2	0.01	7.54
63	Cu	89	2	0.03	30.19
63	Cu	89	3	0.04	6.10
65	Cu	89	2	0.01	35.66
66	Zn	89	2	0.01	23.27
66	Zn	89	3	0.01	11.53
68	Zn	89	2	0.01	16.95
72	Ge	---	2	712.25	8.51
72	Ge	---	3	29.26	38.04
75	As	89	2	0.01	61.88
75	As	89	3	0.03	7.18
78	Se	89	3	0.00	8.58
82	Se	89	2	0.00	7.69
82	Se	89	3	0.01	8.29
88	Sr	89	2	0.04	23.17
89	Y	---	2	6031451.50	0.74
89	Y	---	3	1269832.30	0.75
95	Mo	89	2	0.01	3.23
97	Mo	89	2	0.01	18.12
98	Mo	89	2	0.01	6.63
106	Cd	115	2	1.90	0.97
107	Ag	115	2	0.15	9.79
107	Ag	89	3	0.03	8.01
108	(Cd)	115	2	0.00	56.77
109	Ag	115	2	0.13	1.34
111	Cd	115	2	0.02	30.89
111	Cd	89	3	0.00	34.51
113	In	---	2	21316.32	0.53
114	Cd	115	2	0.07	2.30
115	In	---	2	487783.06	0.82
115	In	---	3	128018.18	0.56
118	Sn	115	2	0.12	5.89
118	Sn	---	3	203.34	9.32
119	Sn	115	2	0.05	6.80
121	Sb	115	2	0.10	2.13
121	Sb	89	3	0.01	8.58
123	Sb	115	2	0.08	6.14
135	Ba	115	2	0.03	36.07
137	Ba	115	2	0.06	39.39
159	Tb	---	2	664237.56	0.09
203	Tl	209	2	0.15	13.89
205	Tl	209	2	0.41	7.73
206	Pb	209	2	0.11	10.83
207	Pb	209	2	0.09	14.31
208	Pb	209	2	0.42	5.13
209	Bi	---	2	398181.34	0.86
238	U	209	2	0.43	4.31

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	581098	0.24	588490	98.7	83 - 117	
89	Y	2	6031452	0.74	6130896	98.4	83 - 117	
89	Y	3	1269832	0.75	1272538	99.8	83 - 117	
115	In	2	487783	0.82	493197	98.9	83 - 117	
209	Bi	2	398181	0.86	404495	98.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\005CALS.D\005CALS.D#
Date Acquired: Sep 20 2016 08:38 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 3
Misc Info:
Vial Number: 1103
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 08:36 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1085411.00	2.45
7	Li	45	2	16.63	2.17
9	Be	45	2	1.16	3.03
11	B	45	2	2.82	4.38
23	Na	89	2	42.22	9.34
24	Mg	89	2	23.04	5.23
27	Al	89	2	0.63	20.71
28	Si	89	2	17.34	3.17
29	Si	89	2	3.86	3.59
39	K	89	2	41.52	4.38
44	Ca	89	2	0.83	7.49
45	Sc	---	2	565796.69	4.27
45	Sc	---	3	38161.19	0.62
47	Ti	89	2	0.02	9.99
51	V	89	2	0.23	10.32
51	V	89	3	0.18	4.35
52	Cr	89	2	0.31	4.22
52	Cr	89	3	0.25	2.25
55	Mn	89	2	0.29	5.65
55	Mn	89	3	0.13	1.15
56	Fe	89	2	24.78	3.50
56	Fe	89	3	18.02	0.22
59	Co	89	2	0.19	2.44
59	Co	89	3	0.30	3.50
60	Ni	89	2	0.04	4.29
62	Ni	89	2	0.01	9.23
63	Cu	89	2	0.11	14.82
63	Cu	89	3	0.21	4.54
65	Cu	89	2	0.05	10.03
66	Zn	89	2	0.03	2.98
66	Zn	89	3	0.04	10.91
68	Zn	89	2	0.02	6.20
72	Ge	---	2	894.50	5.14
72	Ge	---	3	44.82	8.71
75	As	89	2	0.03	4.34
75	As	89	3	0.05	8.47
78	Se	89	3	0.00	12.87
82	Se	89	2	0.00	7.16
82	Se	89	3	0.01	16.19
88	Sr	89	2	0.24	8.14
89	Y	---	2	5861566.50	4.27
89	Y	---	3	1264933.40	0.67
95	Mo	89	2	0.04	4.86
97	Mo	89	2	0.03	6.04
98	Mo	89	2	0.06	3.94
106	Cd	115	2	1.91	2.30
107	Ag	115	2	1.18	4.59
107	Ag	89	3	0.25	1.73
108	(Cd)	115	2	0.02	13.87
109	Ag	115	2	1.10	5.96
111	Cd	115	2	0.22	2.89
111	Cd	89	3	0.03	13.45
113	In	---	2	21851.50	2.89
114	Cd	115	2	0.59	5.00
115	In	---	2	477167.09	3.96
115	In	---	3	127683.15	0.25
118	Sn	115	2	0.79	3.56
118	Sn	---	3	1183.03	3.02
119	Sn	115	2	0.32	3.89
121	Sb	115	2	0.90	1.98
121	Sb	89	3	0.10	1.89
123	Sb	115	2	0.68	2.13
135	Ba	115	2	0.21	13.54
137	Ba	115	2	0.39	6.35
159	Tb	---	2	649943.38	4.07
203	Tl	209	2	1.11	2.29
205	Tl	209	2	2.68	1.54
206	Pb	209	2	0.95	4.56
207	Pb	209	2	0.78	6.16
208	Pb	209	2	3.64	3.18
209	Bi	---	2	390275.41	3.75
238	U	209	2	4.08	0.35

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	565797	4.27	588490	96.1	83 - 117	
89	Y	2	5861567	4.27	6130896	95.6	83 - 117	
89	Y	3	1264933	0.67	1272538	99.4	83 - 117	
115	In	2	477167	3.96	493197	96.7	83 - 117	
209	Bi	2	390275	3.75	404495	96.5	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\006CALS.D\006CALS.D#
Date Acquired: Sep 20 2016 08:46 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 4
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 08:45 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1111224.90	0.47
7	Li	45	2	24.38	0.92
9	Be	45	2	2.86	0.45
11	B	45	2	5.81	0.53
23	Na	89	2	90.59	3.32
24	Mg	89	2	54.31	0.66
27	Al	89	2	0.98	8.57
28	Si	89	2	37.21	0.87
29	Si	89	2	4.88	0.81
39	K	89	2	73.44	1.03
44	Ca	89	2	1.75	1.31
45	Sc	---	2	581339.38	1.82
45	Sc	---	3	38315.32	0.53
47	Ti	89	2	0.05	2.29
51	V	89	2	0.53	2.86
51	V	89	3	0.44	4.72
52	Cr	89	2	0.59	1.72
52	Cr	89	3	0.60	2.80
55	Mn	89	2	0.66	1.82
55	Mn	89	3	0.34	1.97
56	Fe	89	2	53.30	0.36
56	Fe	89	3	45.47	1.15
59	Co	89	2	0.46	1.02
59	Co	89	3	0.77	1.34
60	Ni	89	2	0.10	1.09
62	Ni	89	2	0.02	1.36
63	Cu	89	2	0.24	3.64
63	Cu	89	3	0.50	0.20
65	Cu	89	2	0.11	3.25
66	Zn	89	2	0.06	3.13
66	Zn	89	3	0.07	6.69
68	Zn	89	2	0.04	5.42
72	Ge	---	2	1052.27	1.98
72	Ge	---	3	68.89	7.03
75	As	89	2	0.05	3.33
75	As	89	3	0.07	8.89
78	Se	89	3	0.00	17.51
82	Se	89	2	0.01	7.97
82	Se	89	3	0.01	15.03
88	Sr	89	2	0.55	2.65
89	Y	---	2	5990445.00	1.92
89	Y	---	3	1258848.90	1.37
95	Mo	89	2	0.09	1.32
97	Mo	89	2	0.06	1.30
98	Mo	89	2	0.15	0.44
106	Cd	115	2	1.93	1.28
107	Ag	115	2	2.84	2.32
107	Ag	89	3	0.62	1.90
108	(Cd)	115	2	0.05	9.06
109	Ag	115	2	2.72	2.76
111	Cd	115	2	0.55	1.02
111	Cd	89	3	0.08	10.73
113	In	---	2	24062.81	1.82
114	Cd	115	2	1.45	2.19
115	In	---	2	487123.34	1.45
115	In	---	3	127515.44	0.51
118	Sn	115	2	1.85	0.78
118	Sn	---	3	2845.53	2.94
119	Sn	115	2	0.71	1.75
121	Sb	115	2	2.14	0.27
121	Sb	89	3	0.25	0.63
123	Sb	115	2	1.63	1.37
135	Ba	115	2	0.50	6.70
137	Ba	115	2	0.88	2.93
159	Tb	---	2	663623.75	1.32
203	Tl	209	2	2.68	5.93
205	Tl	209	2	6.45	2.97
206	Pb	209	2	2.34	1.99
207	Pb	209	2	1.91	2.75
208	Pb	209	2	9.01	0.55
209	Bi	---	2	395173.03	2.06
238	U	209	2	9.99	0.32

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	581339	1.82	588490	98.8	83 - 117	
89	Y	2	5990445	1.92	6130896	97.7	83 - 117	
89	Y	3	1258849	1.37	1272538	98.9	83 - 117	
115	In	2	487123	1.45	493197	98.8	83 - 117	
209	Bi	2	395173	2.06	404495	97.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\007CALS.D\007CALS.D#
Date Acquired: Sep 20 2016 08:51 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 5
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 08:50 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1101345.50	0.84
7	Li	45	2	36.48	3.05
9	Be	45	2	5.57	3.11
11	B	45	2	10.72	3.44
23	Na	89	2	173.89	2.57
24	Mg	89	2	105.33	3.55
27	Al	89	2	1.63	2.67
28	Si	89	2	69.13	3.47
29	Si	89	2	6.61	3.75
39	K	89	2	126.78	3.58
44	Ca	89	2	3.30	3.11
45	Sc	---	2	585384.31	1.98
45	Sc	---	3	38276.34	0.62
47	Ti	89	2	0.09	2.02
51	V	89	2	1.06	5.47
51	V	89	3	0.89	0.87
52	Cr	89	2	1.05	3.79
52	Cr	89	3	1.14	1.54
55	Mn	89	2	1.25	3.03
55	Mn	89	3	0.64	3.06
56	Fe	89	2	100.08	3.54
56	Fe	89	3	89.53	0.39
59	Co	89	2	0.91	4.55
59	Co	89	3	1.47	2.07
60	Ni	89	2	0.20	2.69
62	Ni	89	2	0.03	6.36
63	Cu	89	2	0.44	2.58
63	Cu	89	3	0.95	1.45
65	Cu	89	2	0.21	1.54
66	Zn	89	2	0.11	4.86
66	Zn	89	3	0.13	6.49
68	Zn	89	2	0.08	4.30
72	Ge	---	2	1188.96	4.00
72	Ge	---	3	118.52	11.46
75	As	89	2	0.10	4.91
75	As	89	3	0.12	2.58
78	Se	89	3	0.01	5.95
82	Se	89	2	0.01	3.35
82	Se	89	3	0.01	7.57
88	Sr	89	2	1.07	3.63
89	Y	---	2	5993137.50	1.90
89	Y	---	3	1272412.90	0.71
95	Mo	89	2	0.18	4.68
97	Mo	89	2	0.11	5.99
98	Mo	89	2	0.29	5.00
106	Cd	115	2	2.02	2.52
107	Ag	115	2	5.56	2.10
107	Ag	89	3	1.18	0.38
108	(Cd)	115	2	0.08	2.88
109	Ag	115	2	5.35	3.25
111	Cd	115	2	1.08	2.75
111	Cd	89	3	0.17	5.71
113	In	---	2	26939.83	0.73
114	Cd	115	2	2.87	2.84
115	In	---	2	484359.84	0.91
115	In	---	3	127659.91	0.78
118	Sn	115	2	3.61	2.16
118	Sn	---	3	5517.51	1.28
119	Sn	115	2	1.38	2.16
121	Sb	115	2	4.23	2.15
121	Sb	89	3	0.50	0.36
123	Sb	115	2	3.23	3.01
135	Ba	115	2	1.00	2.61
137	Ba	115	2	1.76	3.24
159	Tb	---	2	664743.25	0.95
203	Tl	209	2	5.13	5.96
205	Tl	209	2	12.58	7.03
206	Pb	209	2	4.50	3.64
207	Pb	209	2	3.66	5.59
208	Pb	209	2	17.51	4.33
209	Bi	---	2	397732.88	1.63
238	U	209	2	19.85	5.36

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	585384	1.98	588490	99.5	83 - 117	
89	Y	2	5993138	1.90	6130896	97.8	83 - 117	
89	Y	3	1272413	0.71	1272538	100.0	83 - 117	
115	In	2	484360	0.91	493197	98.2	83 - 117	
209	Bi	2	397733	1.63	404495	98.3	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\008CALS.D\008CALS.D#
Date Acquired: Sep 20 2016 08:57 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 6
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 08:55 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1124481.30	1.53
7	Li	45	2	137.13	2.61
9	Be	45	2	26.58	2.12
11	B	45	2	48.53	3.45
23	Na	89	2	825.53	2.78
24	Mg	89	2	514.16	2.60
27	Al	89	2	6.71	1.87
28	Si	89	2	325.84	2.40
29	Si	89	2	20.88	3.00
39	K	89	2	554.11	2.56
44	Ca	89	2	16.02	2.35
45	Sc	---	2	602613.25	0.97
45	Sc	---	3	38187.19	0.46
47	Ti	89	2	0.44	2.12
51	V	89	2	5.35	1.82
51	V	89	3	4.38	0.27
52	Cr	89	2	4.69	3.26
52	Cr	89	3	5.49	1.03
55	Mn	89	2	6.00	2.85
55	Mn	89	3	3.14	1.28
56	Fe	89	2	477.03	2.97
56	Fe	89	3	422.50	1.14
59	Co	89	2	4.48	2.94
59	Co	89	3	7.34	0.84
60	Ni	89	2	0.95	3.39
62	Ni	89	2	0.14	2.63
63	Cu	89	2	2.10	2.04
63	Cu	89	3	4.57	1.25
65	Cu	89	2	0.97	2.41
66	Zn	89	2	0.51	2.30
66	Zn	89	3	0.67	0.91
68	Zn	89	2	0.36	3.30
72	Ge	---	2	2221.69	5.85
72	Ge	---	3	384.45	4.17
75	As	89	2	0.45	2.52
75	As	89	3	0.46	0.62
78	Se	89	3	0.04	3.00
82	Se	89	2	0.04	0.85
82	Se	89	3	0.03	4.14
88	Sr	89	2	5.23	2.84
89	Y	---	2	5919404.00	0.36
89	Y	---	3	1269838.10	0.58
95	Mo	89	2	0.89	2.72
97	Mo	89	2	0.56	2.39
98	Mo	89	2	1.43	2.90
106	Cd	115	2	2.46	3.97
107	Ag	115	2	27.16	2.07
107	Ag	89	3	5.84	0.99
108	(Cd)	115	2	0.41	6.79
109	Ag	115	2	26.07	2.78
111	Cd	115	2	5.45	2.97
111	Cd	89	3	0.85	2.40
113	In	---	2	48061.90	1.70
114	Cd	115	2	14.21	1.89
115	In	---	2	476458.28	0.45
115	In	---	3	126300.80	0.56
118	Sn	115	2	17.68	2.15
118	Sn	---	3	27238.51	0.37
119	Sn	115	2	6.83	2.55
121	Sb	115	2	21.16	2.57
121	Sb	89	3	2.45	0.64
123	Sb	115	2	16.18	2.96
135	Ba	115	2	5.01	2.40
137	Ba	115	2	8.71	2.01
159	Tb	---	2	657746.81	0.69
203	Tl	209	2	26.12	7.35
205	Tl	209	2	62.89	5.70
206	Pb	209	2	22.61	2.30
207	Pb	209	2	18.58	2.17
208	Pb	209	2	87.36	2.55
209	Bi	---	2	387705.56	0.42
238	U	209	2	100.43	2.70

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	602613	0.97	588490	102.4	83 - 117	
89	Y	2	5919404	0.36	6130896	96.6	83 - 117	
89	Y	3	1269838	0.58	1272538	99.8	83 - 117	
115	In	2	476458	0.45	493197	96.6	83 - 117	
209	Bi	2	387706	0.42	404495	95.8	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\009CALS.D\009CALS.D#
Date Acquired: Sep 20 2016 09:02 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 7
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 09:00 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1170667.90	1.32
7	Li	45	2	226.21	2.69
9	Be	45	2	46.02	1.98
11	B	45	2	83.76	2.24
23	Na	89	2	1497.92	1.53
24	Mg	89	2	939.54	1.56
27	Al	89	2	12.12	1.86
28	Si	89	2	591.97	1.58
29	Si	89	2	34.71	1.49
39	K	89	2	1001.11	1.92
44	Ca	89	2	28.69	1.18
45	Sc	---	2	634217.38	1.07
45	Sc	---	3	38579.41	0.79
47	Ti	89	2	0.81	2.58
51	V	89	2	9.78	1.72
51	V	89	3	8.00	0.83
52	Cr	89	2	8.49	1.65
52	Cr	89	3	10.04	0.34
55	Mn	89	2	10.91	2.08
55	Mn	89	3	5.73	0.41
56	Fe	89	2	864.82	2.17
56	Fe	89	3	768.51	0.31
59	Co	89	2	8.11	1.51
59	Co	89	3	13.42	0.96
60	Ni	89	2	1.71	1.91
62	Ni	89	2	0.26	2.24
63	Cu	89	2	3.79	1.71
63	Cu	89	3	8.21	0.99
65	Cu	89	2	1.76	1.46
66	Zn	89	2	0.90	1.43
66	Zn	89	3	1.18	1.42
68	Zn	89	2	0.64	1.43
72	Ge	---	2	3114.10	1.46
72	Ge	---	3	638.17	2.79
75	As	89	2	0.81	2.28
75	As	89	3	0.84	1.33
78	Se	89	3	0.08	1.33
82	Se	89	2	0.07	2.27
82	Se	89	3	0.05	6.39
88	Sr	89	2	9.47	1.78
89	Y	---	2	5929932.50	1.29
89	Y	---	3	1264944.40	0.56
95	Mo	89	2	1.64	1.74
97	Mo	89	2	1.02	3.18
98	Mo	89	2	2.62	3.01
106	Cd	115	2	2.92	0.96
107	Ag	115	2	49.15	1.76
107	Ag	89	3	10.49	0.80
108	(Cd)	115	2	0.76	1.63
109	Ag	115	2	47.26	2.38
111	Cd	115	2	9.85	2.87
111	Cd	89	3	1.54	1.25
113	In	---	2	70842.73	2.66
114	Cd	115	2	25.72	2.12
115	In	---	2	476019.81	1.05
115	In	---	3	125362.08	0.27
118	Sn	115	2	32.29	1.94
118	Sn	---	3	49082.27	0.33
119	Sn	115	2	12.53	2.75
121	Sb	115	2	38.55	2.15
121	Sb	89	3	4.45	1.01
123	Sb	115	2	29.47	1.98
135	Ba	115	2	9.16	1.85
137	Ba	115	2	15.82	2.88
159	Tb	---	2	661645.06	0.74
203	Tl	209	2	47.24	6.86
205	Tl	209	2	113.33	7.06
206	Pb	209	2	41.28	2.66
207	Pb	209	2	33.82	1.94
208	Pb	209	2	158.98	2.23
209	Bi	---	2	384435.84	0.49
238	U	209	2	184.74	2.77

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	634217	1.07	588490	107.8	83 - 117	
89	Y	2	5929933	1.29	6130896	96.7	83 - 117	
89	Y	3	1264944	0.56	1272538	99.4	83 - 117	
115	In	2	476020	1.05	493197	96.5	83 - 117	
209	Bi	2	384436	0.49	404495	95.0	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\010CALS.D\010CALS.D#
Date Acquired: Sep 20 2016 09:07 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 8
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 09:05 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1246981.40	0.59
7	Li	45	2	426.65	1.04
9	Be	45	2	91.71	0.36
11	B	45	2	166.65	0.91
23	Na	89	2	3305.35	0.48
24	Mg	89	2	2043.44	0.21
27	Al	89	2	26.65	0.91
28	Si	89	2	1286.80	0.24
29	Si	89	2	69.74	0.04
39	K	89	2	2178.05	0.67
44	Ca	89	2	61.52	0.28
45	Sc	---	2	696344.13	2.21
45	Sc	---	3	38778.50	0.62
47	Ti	89	2	1.78	0.30
51	V	89	2	22.23	1.49
51	V	89	3	17.69	1.12
52	Cr	89	2	18.78	0.88
52	Cr	89	3	21.88	0.62
55	Mn	89	2	24.03	0.33
55	Mn	89	3	12.59	0.99
56	Fe	89	2	1893.76	0.29
56	Fe	89	3	1686.31	0.66
59	Co	89	2	18.36	0.36
59	Co	89	3	29.14	0.90
60	Ni	89	2	3.72	0.16
62	Ni	89	2	0.54	1.28
63	Cu	89	2	8.22	0.13
63	Cu	89	3	17.75	0.71
65	Cu	89	2	3.81	0.14
66	Zn	89	2	1.99	0.34
66	Zn	89	3	2.62	1.03
68	Zn	89	2	1.41	0.69
72	Ge	---	2	5096.57	3.58
72	Ge	---	3	1337.86	5.63
75	As	89	2	1.82	0.24
75	As	89	3	1.81	1.16
78	Se	89	3	0.18	1.95
82	Se	89	2	0.15	0.88
82	Se	89	3	0.09	4.86
88	Sr	89	2	21.17	0.43
89	Y	---	2	5881173.50	2.36
89	Y	---	3	1253774.30	0.90
95	Mo	89	2	3.64	0.51
97	Mo	89	2	2.26	0.85
98	Mo	89	2	5.84	0.53
106	Cd	115	2	4.12	1.09
107	Ag	115	2	108.49	0.34
107	Ag	89	3	22.57	0.90
108	(Cd)	115	2	1.67	2.38
109	Ag	115	2	103.67	0.81
111	Cd	115	2	22.05	0.11
111	Cd	89	3	3.35	0.91
113	In	---	2	128884.39	2.32
114	Cd	115	2	57.44	0.56
115	In	---	2	464850.03	2.03
115	In	---	3	123121.32	0.31
118	Sn	115	2	72.04	0.15
118	Sn	---	3	106389.79	0.32
119	Sn	115	2	27.80	0.28
121	Sb	115	2	87.46	0.16
121	Sb	89	3	9.83	0.66
123	Sb	115	2	66.58	0.44
135	Ba	115	2	20.21	1.03
137	Ba	115	2	35.31	0.70
159	Tb	---	2	653129.63	2.29
203	Tl	209	2	110.33	2.11
205	Tl	209	2	267.66	1.25
206	Pb	209	2	91.34	0.05
207	Pb	209	2	75.23	0.95
208	Pb	209	2	353.88	0.58
209	Bi	---	2	371729.22	1.69
238	U	209	2	422.65	0.88

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	696344	2.21	588490	118.3	83 - 117	ISFail
89	Y	2	5881174	2.36	6130896	95.9	83 - 117	
89	Y	3	1253774	0.90	1272538	98.5	83 - 117	
115	In	2	464850	2.03	493197	94.3	83 - 117	
209	Bi	2	371729	1.69	404495	91.9	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

--- :Element Failures ---
1 :ISTD Failures 0

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\011ICV1.D\011ICV1.D#
Date Acquired: Sep 20 2016 09:12 am
Operator: rhughes, ICPMS2
Sample Name: ICV
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 09:10 am
Sample Type: ICV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	80.06	2.13	80	100.1	90 - 110	
9 Be	45	2	80.17	2.12	80	100.2	90 - 110	
11 B	45	2	208.00	1.05	200	104.0	90 - 110	
23 Na	89	2	8177.00	0.72	8000	102.2	90 - 110	
24 Mg	89	2	8268.00	1.09	8000	103.4	90 - 110	
27 Al	89	2	77.53	0.55	80	96.9	90 - 110	
28 Si	89	2	7849.00	1.59	8000	98.1	90 - 110	
29 Si	89	2	8055.00	1.67	8000	100.7	90 - 110	
39 K	89	2	8132.00	1.18	8000	101.7	90 - 110	
44 Ca	89	2	8295.00	1.35	8000	103.7	90 - 110	
47 Ti	89	2	79.86	0.70	80	99.8	90 - 110	
51 V	89	2	79.67	1.70	80	99.6	90 - 110	
51 V	89	3	79.92	0.59	80	99.9	90 - 110	
52 Cr	89	2	78.70	1.80	80	98.4	90 - 110	
52 Cr	89	3	80.24	1.10	80	100.3	90 - 110	
55 Mn	89	2	79.47	1.40	80	99.3	90 - 110	
55 Mn	89	3	80.25	1.57	80	100.3	90 - 110	
56 Fe	89	2	8155.00	1.63	8000	101.9	90 - 110	
56 Fe	89	3	8245.00	1.20	8000	103.1	90 - 110	
59 Co	89	2	78.50	1.52	80	98.1	90 - 110	
59 Co	89	3	81.06	0.89	80	101.3	90 - 110	
60 Ni	89	2	81.90	1.71	80	102.4	90 - 110	
62 Ni	89	2	82.13	1.41	80	102.7	90 - 110	
63 Cu	89	2	81.10	1.44	80	101.4	90 - 110	
63 Cu	89	3	79.27	0.56	80	99.1	90 - 110	
65 Cu	89	2	81.05	1.28	80	101.3	90 - 110	
66 Zn	89	2	80.62	1.11	80	100.8	90 - 110	
66 Zn	89	3	81.04	0.26	80	101.3	90 - 110	
68 Zn	89	2	80.59	0.72	80	100.7	90 - 110	
75 As	89	2	80.20	1.82	80	100.3	90 - 110	
75 As	89	3	80.45	2.20	80	100.6	90 - 110	
78 Se	89	2	79.54	1.69	80	99.4	90 - 110	
78 Se	89	3	80.41	0.56	80	100.5	90 - 110	
82 Se	89	2	80.78	1.95	80	101.0	90 - 110	
82 Se	89	3	76.47	5.89	80	95.6	90 - 110	
88 Sr	89	2	80.86	1.69	80	101.1	90 - 110	
95 Mo	89	2	80.20	1.76	80	100.3	90 - 110	
97 Mo	89	2	80.10	2.68	80	100.1	90 - 110	
98 Mo	89	2	80.02	2.16	80	100.0	90 - 110	
106 Cd	115	2	77.46	5.52	80	96.8	90 - 110	
106 Cd	89	3	80.28	1.07	80	100.4	90 - 110	
107 Ag	115	2	80.41	1.81	80	100.5	90 - 110	
107 Ag	89	3	79.53	0.43	80	99.4	90 - 110	
109 Ag	115	2	80.44	1.62	80	100.6	90 - 110	
111 Cd	115	2	79.10	1.03	80	98.9	90 - 110	
114 Cd	115	2	79.85	1.78	80	99.8	90 - 110	
118 Sn	115	2	80.68	1.24	80	100.9	90 - 110	
119 Sn	115	2	74.78	2.21	80	93.5	90 - 110	
121 Sb	115	2	79.25	1.69	80	99.1	90 - 110	
121 Sb	89	3	80.41	0.35	80	100.5	90 - 110	
123 Sb	115	2	80.34	1.65	80	100.4	90 - 110	
135 Ba	115	2	79.50	1.91	80	99.4	90 - 110	
137 Ba	115	2	80.43	2.42	80	100.5	90 - 110	
203 Tl	209	2	82.60	5.14	80	103.3	90 - 110	
205 Tl	209	2	78.13	4.65	80	97.7	90 - 110	
206 Pb	209	2	77.57	1.23	80	97.0	90 - 110	
207 Pb	209	2	82.15	2.72	80	102.7	90 - 110	
208 Pb	209	2	79.77	1.77	80	99.7	90 - 110	
238 U	209	2	0.11	24.38	80	0.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	624360	0.57	588490	106.1	83 - 117	
89 Y	2	5965175	1.01	6130896	97.3	83 - 117	
89 Y	3	1269210	0.85	1272538	99.7	83 - 117	
115 In	2	476862	0.87	493197	96.7	83 - 117	
209 Bi	2	383101	0.75	404495	94.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\0121CV2.D\0121CV2.D#
Date Acquired: Sep 20 2016 09:17 am
Operator: rhughes, ICPMS2
Sample Name: LLICV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 20 2016 09:10 am
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.10	2.10	10	101.0	70 - 130	
9 Be	45	2	2.16	2.41	2	107.8	70 - 130	
11 B	45	2	23.64	1.13	20	118.2	70 - 130	
23 Na	89	2	207.70	6.85	200	103.9	70 - 130	
24 Mg	89	2	213.50	1.94	200	106.8	70 - 130	
27 Al	89	2	10.37	6.00	10	103.7	70 - 130	
28 Si	89	2	1042.00	1.76	200	521.0	70 - 130	
29 Si	89	2	1083.00	1.94	200	541.5	70 - 130	
39 K	89	2	211.00	1.01	200	105.5	70 - 130	
44 Ca	89	2	530.20	1.57	500	106.0	70 - 130	
47 Ti	89	2	5.67	0.95	5	113.3	70 - 130	
51 V	89	2	4.88	4.41	5	97.5	70 - 130	
51 V	89	3	5.15	5.66	5	102.9	70 - 130	
52 Cr	89	2	4.82	2.01	5	96.4	70 - 130	
52 Cr	89	3	4.88	1.04	5	97.6	70 - 130	
53 Cr	89	2	6.86	15.62	5	137.2	70 - 130	
53 Cr	89	3	4.45	6.70	5	88.9	70 - 130	
55 Mn	89	2	4.89	0.90	5	97.7	70 - 130	
55 Mn	89	3	5.06	5.49	5	101.3	70 - 130	
56 Fe	89	2	85.62	1.52	80	107.0	70 - 130	
56 Fe	89	3	88.53	1.06	80	110.7	70 - 130	
59 Co	89	2	4.92	2.69	5	98.4	70 - 130	
59 Co	89	3	5.16	1.98	5	103.2	70 - 130	
60 Ni	89	2	5.15	2.04	5	103.1	70 - 130	
62 Ni	89	2	5.51	6.45	5	110.1	70 - 130	
63 Cu	89	2	5.13	4.03	5	102.7	70 - 130	
63 Cu	89	3	5.20	0.69	5	104.0	70 - 130	
65 Cu	89	2	5.14	5.04	5	102.9	70 - 130	
66 Zn	89	2	10.05	2.12	10	100.5	70 - 130	
66 Zn	89	3	10.39	2.65	10	103.9	70 - 130	
68 Zn	89	2	10.02	0.83	10	100.2	70 - 130	
75 As	89	2	4.24	15.28	5	84.8	70 - 130	
75 As	89	3	4.81	13.16	5	96.3	70 - 130	
77 (As)	89	2	6.43	32.36	0	#DIV/0!	##### - #####	
77 (As)	89	3	5.68	22.41	0	#DIV/0!	##### - #####	
78 Se	89	2	5.21	13.58	5	104.3	70 - 130	
78 Se	89	3	5.29	15.21	5	105.9	70 - 130	
82 Se	89	2	4.28	10.74	5	85.5	70 - 130	
82 Se	89	3	3.80	119.34	5	76.0	70 - 130	
83 (Se)	89	2	338.40	84.52	0	#DIV/0!	##### - #####	
83 (Se)	89	3	96.28	116.02	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.05	1.43	5	101.0	70 - 130	
95 Mo	89	2	4.95	1.92	5	98.9	70 - 130	
97 Mo	89	2	4.91	3.30	5	98.1	70 - 130	
98 Mo	89	2	4.95	2.98	5	99.1	70 - 130	
99 (Mo)	89	2	14.20	######	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	4.33	63.49	2	216.5	70 - 130	
106 Cd	89	3	-0.82	236.33	2	-40.8	70 - 130	
107 Ag	115	2	4.99	0.93	5	99.7	70 - 130	
107 Ag	89	3	5.05	0.80	5	100.9	70 - 130	
108 (Cd)	115	2	2.05	17.87	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	2.28	42.96	0	#DIV/0!	##### - #####	
109 Ag	115	2	4.96	2.21	5	99.3	70 - 130	
111 Cd	115	2	1.95	3.39	2	97.3	70 - 130	
111 Cd	89	3	2.18	1.50	2	108.8	70 - 130	
114 Cd	115	2	1.99	1.71	2	99.3	70 - 130	
118 Sn	115	2	2.01	1.17	2	100.4	70 - 130	
119 Sn	115	2	2.19	6.08	2	109.7	70 - 130	
121 Sb	115	2	4.08	4.21	5	81.6	70 - 130	
121 Sb	89	3	4.43	1.26	5	88.6	70 - 130	
123 Sb	115	2	4.10	3.95	5	82.0	70 - 130	
135 Ba	115	2	4.83	3.73	5	96.6	70 - 130	
137 Ba	115	2	4.76	3.53	5	95.3	70 - 130	
203 Tl	209	2	5.21	1.64	5	104.2	70 - 130	
205 Tl	209	2	4.89	1.38	5	97.9	70 - 130	
206 Pb	209	2	4.72	1.43	5	94.4	70 - 130	
207 Pb	209	2	4.99	1.48	5	99.8	70 - 130	
208 Pb	209	2	4.86	0.79	5	97.2	70 - 130	
238 U	209	2	4.62	1.95	5	92.4	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	586277	0.25	588490	99.6	83 - 117	
89 Y	2	6026286	0.61	6130896	98.3	83 - 117	
89 Y	3	1272579	1.23	1272538	100.0	83 - 117	
115 In	2	491138	0.46	493197	99.6	83 - 117	
209 Bi	2	402001	0.82	404495	99.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\013 ICB.D\013 ICB.D#
Date Acquired: Sep 20 2016 09:22 am
Operator: rhughes, ICPMS2
Sample Name: ICB
Misc Info:
Vial Number: 1207
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 09:10 am
Sample Type: ICB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	-0.08 ppb	122.53	#######	
9 Be	45	2	0.01 ppb	112.77	#######	
11 B	45	2	1.34 ppb	24.32	#######	
23 Na	89	2	-3.74 ppb	515.25	#######	
24 Mg	89	2	-1.08 ppb	548.24	#######	
27 Al	89	2	2.86 ppb	30.20	#######	
28 Si	89	2	5.54 ppb	62.51	#######	
29 Si	89	2	45.73 ppb	101.38	#######	
39 K	89	2	5.51 ppb	159.22	#######	
44 Ca	89	2	10.69 ppb	134.80	#######	
47 Ti	89	2	-0.02 ppb	149.77	#######	
51 V	89	2	-0.05 ppb	176.36	#######	
51 V	89	3	-0.03 ppb	271.44	#######	
52 Cr	89	2	-0.03 ppb	135.02	#######	
52 Cr	89	3	-0.03 ppb	86.28	#######	
53 Cr	89	2	0.88 ppb	229.98	#######	
53 Cr	89	3	0.00 ppb	13197.00	#######	
55 Mn	89	2	0.01 ppb	671.07	#######	
55 Mn	89	3	0.00 ppb	3668.20	#######	
56 Fe	89	2	-0.33 ppb	817.72	#######	
56 Fe	89	3	0.32 ppb	102.48	#######	
59 Co	89	2	0.02 ppb	48.25	#######	
59 Co	89	3	0.02 ppb	122.50	#######	
60 Ni	89	2	-0.02 ppb	142.86	#######	
62 Ni	89	2	0.31 ppb	58.51	#######	
63 Cu	89	2	-0.16 ppb	159.24	#######	
63 Cu	89	3	-0.10 ppb	30.55	#######	
65 Cu	89	2	-0.15 ppb	166.12	#######	
66 Zn	89	2	0.02 ppb	363.44	#######	
66 Zn	89	3	0.12 ppb	50.00	#######	
68 Zn	89	2	0.02 ppb	611.14	#######	
75 As	89	2	-0.61 ppb	65.13	#######	
75 As	89	3	-0.11 ppb	242.57	#######	
77 (As)	89	2	1.00 ppb	185.43	#######	
77 (As)	89	3	0.77 ppb	87.13	#######	
78 Se	89	2	0.45 ppb	48.99	#######	
78 Se	89	3	0.32 ppb	114.89	#######	
82 Se	89	2	-0.08 ppb	495.42	#######	
82 Se	89	3	-0.02 ppb	7626.70	#######	
83 (Se)	89	2	271.60 ppb	230.15	#######	
83 (Se)	89	3	74.07	56.84	#######	
88 Sr	89	2	0.09 ppb	121.09	#######	
95 Mo	89	2	-0.02 ppb	142.97	#######	
97 Mo	89	2	0.00 ppb	3870.90	#######	
98 Mo	89	2	-0.01 ppb	338.08	#######	
99 (Mo)	89	2	102.40 ppb	356.35	#######	
99 (Mo)	89	3	0.00 ppb	0.00	#######	
106 Cd	115	2	8.98 ppb	14.86	#######	
106 Cd	89	3	-3.50 ppb	102.26	#######	
107 Ag	115	2	0.01 ppb	162.25	#######	
107 Ag	89	3	0.00 ppb	168.24	#######	
108 (Cd)	115	2	-0.13 ppb	153.23	#######	
108 (Cd)	89	3	0.00 ppb	8292.50	#######	
109 Ag	115	2	0.01 ppb	257.74	#######	
111 Cd	115	2	0.01 ppb	385.12	#######	
111 Cd	89	3	0.00 ppb	10199.00	#######	
114 Cd	115	2	0.01 ppb	315.50	#######	
118 Sn	115	2	-0.02 ppb	31.40	#######	
119 Sn	115	2	-0.02 ppb	374.96	#######	
121 Sb	115	2	0.12 ppb	7.09	#######	
121 Sb	89	3	0.11 ppb	14.57	#######	
123 Sb	115	2	0.11 ppb	17.71	#######	
135 Ba	115	2	-0.04 ppb	241.55	#######	
137 Ba	115	2	-0.04 ppb	208.92	#######	
203 Tl	209	2	0.04 ppb	178.35	#######	
205 Tl	209	2	0.04 ppb	122.76	#######	
206 Pb	209	2	-0.01 ppb	134.85	#######	
207 Pb	209	2	-0.01 ppb	441.25	#######	
208 Pb	209	2	-0.01 ppb	204.94	#######	
235 U	209	2	0.00 ppb	1882.30	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	587471	3.81	588490	99.8	83 - 117	
89 Y	2	6123449	4.45	6130896	99.9	83 - 117	
89 Y	3	1284208	0.49	1272538	100.9	83 - 117	
115 In	2	490878	2.12	493197	99.5	83 - 117	
209 Bi	2	405894	2.81	404495	100.3	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

ICS-A QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\014ICSA.D\014ICSA.D#
Date Acquired: Sep 20 2016 09:27 am
Acq. Method: ICP_6020.M
Operator: rhughes, ICPMS2
Sample Name: ICSA
Misc Info:
Vial Number: 1303
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 20 2016 09:10 am
Sample Type: ICS-A
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
7 Li	45	2	-0.23 ppb	34.01		
9 Be	45	2	0.01 ppb	154.55		
11 B	45	2	1.83 ppb	9.52		
23 Na	89	2	48240.00 ppb	0.54		
24 Mg	89	2	48040.00 ppb	0.64		
27 Al	89	2	45980.00 ppb	0.91		
28 Si	89	2	24.45 ppb	0.51		
29 Si	89	2	138.60 ppb	2.78		
39 K	89	2	48400.00 ppb	1.07		
44 Ca	89	2	47490.00 ppb	1.43		
47 Ti	89	2	1070.00 ppb	0.98		
51 V	89	2	0.23 ppb	17.70		
51 V	89	3	0.09 ppb	148.53		
52 Cr	89	2	0.43 ppb	4.54		
52 Cr	89	3	0.27 ppb	17.44		
53 Cr	89	2	4.17 ppb	1.86		
53 Cr	89	3	0.30 ppb	73.43		
55 Mn	89	2	2.37 ppb	3.01		
55 Mn	89	3	2.29 ppb	3.93		
56 Fe	89	2	48510.00 ppb	1.43		
56 Fe	89	3	48360.00 ppb	0.29		
59 Co	89	2	0.48 ppb	4.90		
59 Co	89	3	0.19 ppb	14.64		
60 Ni	89	2	1.91 ppb	5.54		
62 Ni	89	2	8.50 ppb	1.45		
63 Cu	89	2	1.00 ppb	19.05		
63 Cu	89	3	0.42 ppb	13.68		
65 Cu	89	2	3.71 ppb	5.21		
66 Zn	89	2	2.96 ppb	4.62		
66 Zn	89	3	0.41 ppb	48.60		
68 Zn	89	2	0.34 ppb	8.39		
75 As	89	2	-0.67 ppb	45.31		
75 As	89	3	-0.06 ppb	62.85		
77 (As)	89	2	43.76 ppb	3.79		
77 (As)	89	3	1.36 ppb	56.29		
78 Se	89	2	0.91 ppb	22.31		
78 Se	89	3	0.28 ppb	107.86		
82 Se	89	2	-1.06 ppb	65.75		
82 Se	89	3	-3.94 ppb	75.39		
83 (Se)	89	2	1351.00 ppb	75.94		
83 (Se)	89	3	-183.60	105.23		
88 Sr	89	2	0.76 ppb	8.57		
95 Mo	89	2	1009.00 ppb	1.48		
97 Mo	89	2	990.80 ppb	1.68		
98 Mo	89	2	990.60 ppb	1.63		
99 (Mo)	89	2	82.90 ppb	310.01		
99 (Mo)	89	3	276.40 ppb	44.47		
106 Cd	115	2	6.77 ppb	56.39		
106 Cd	89	3	-0.30 ppb	1177.30		
107 Ag	115	2	0.05 ppb	38.90		
107 Ag	89	3	0.03 ppb	4.47		
108 (Cd)	115	2	33.17 ppb	1.91		
108 (Cd)	89	3	22.87 ppb	19.75		
109 Ag	115	2	0.04 ppb	28.16		
111 Cd	115	2	-0.27 ppb	13.51		
111 Cd	89	3	-0.28 ppb	132.36		
114 Cd	115	2	1.54 ppb	3.82		
118 Sn	115	2	0.01 ppb	159.20		
119 Sn	115	2	-0.03 ppb	14.98		
121 Sb	115	2	0.15 ppb	5.82		
121 Sb	89	3	0.15 ppb	16.18		
123 Sb	115	2	0.15 ppb	8.75		
135 Ba	115	2	0.23 ppb	25.02		
137 Ba	115	2	0.22 ppb	29.30		
203 Tl	209	2	0.04 ppb	155.24		
205 Tl	209	2	0.02 ppb	390.34		
206 Pb	209	2	0.05 ppb	57.60		
207 Pb	209	2	0.06 ppb	60.23		
208 Pb	209	2	0.06 ppb	38.56		
238 U	209	2	0.00 ppb	928.69		

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	551573	1.69	588490	93.7	70 - 125	
89 Y	2	5730106	1.09	6130896	93.5	70 - 125	
89 Y	3	1226477	1.17	1272538	96.4	70 - 125	
115 In	2	442560	1.01	493197	89.7	70 - 125	
209 Bi	2	349930	0.91	404495	86.5	70 - 125	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Hnumber of ISTD Failures Allowed

ICS-AB QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\015ICSB.D\015ICSB.D#
Date Acquired: Sep 20 2016 09:33 am
Acq. Method: ICP_6020.M
Operator: rhughes, ICPMS2
Sample Name: ICSAB
Misc Info:
Vial Number: 1304
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 20 2016 09:10 am
Sample Type: ICS-AB
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS	Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
7 Li	45		2	93.39	1.75	---		-	
9 Be	45		2	89.85	2.11	---		-	
11 B	45		2	229.70	2.59	---		-	
23 Na	89		2	57280.00	1.81	---		-	
24 Mg	89		2	56920.00	2.15	---		-	
27 Al	89		2	45880.00	1.89	---		-	
28 Si	89		2	9886.00	1.82	---		-	
29 Si	89		2	10260.00	1.62	---		-	
39 K	89		2	57670.00	1.22	---		-	
44 Ca	89		2	56960.00	1.69	---		-	
47 Ti	89		2	1167.80	1.78	---		-	
51 V	89		2	98.39	1.31	---		-	
51 V	89		3	97.83	0.73	---		-	
52 Cr	89		2	95.73	2.11	---		-	
52 Cr	89		3	95.87	0.67	---		-	
53 Cr	89		2	108.00	3.12	---		-	
53 Cr	89		3	96.09	1.67	---		-	
55 Mn	89		2	97.91	1.61	---		-	
55 Mn	89		3	99.52	0.56	---		-	
56 Fe	89		2	57830.00	1.78	---		-	
56 Fe	89		3	57880.00	0.65	---		-	
59 Co	89		2	93.32	1.73	---		-	
59 Co	89		3	94.13	0.61	---		-	
60 Ni	89		2	95.56	1.79	---		-	
62 Ni	89		2	102.50	1.71	---		-	
63 Cu	89		2	93.06	1.31	---		-	
63 Cu	89		3	89.53	0.90	---		-	
65 Cu	89		2	95.96	1.21	---		-	
66 Zn	89		2	96.25	1.02	---		-	
66 Zn	89		3	92.96	1.14	---		-	
68 Zn	89		2	93.83	1.03	---		-	
75 As	89		2	99.37	1.93	---		-	
75 As	89		3	97.83	0.42	---		-	
77 (As)	89		2	150.90	5.60	---		-	
77 (As)	89		3	105.30	1.70	---		-	
78 Se	89		2	99.61	1.65	---		-	
78 Se	89		3	98.52	3.38	---		-	
82 Se	89		2	99.60	4.62	---		-	
82 Se	89		3	103.00	5.74	---		-	
83 (Se)	89		2	1380.00	45.74	---		-	
83 (Se)	89		3	136.20	64.69	---		-	
88 Sr	89		2	98.94	1.87	---		-	
95 Mo	89		2	1119.00	2.80	---		-	
97 Mo	89		2	1093.00	2.15	---		-	
98 Mo	89		2	1087.00	2.60	---		-	
99 (Mo)	89		2	110.50	226.88	---		-	
99 (Mo)	89		3	286.00	44.02	---		-	
106 Cd	115		2	105.10	1.54	---		-	
106 Cd	89		3	101.30	12.24	---		-	
107 Ag	115		2	96.19	1.91	---		-	
107 Ag	89		3	90.30	0.47	---		-	
108 (Cd)	115		2	127.90	5.72	---		-	
108 (Cd)	89		3	116.90	4.87	---		-	
109 Ag	115		2	96.62	1.90	---		-	
111 Cd	115		2	97.52	1.70	---		-	
111 Cd	89		3	94.23	2.43	---		-	
114 Cd	115		2	99.58	2.14	---		-	
118 Sn	115		2	99.73	2.26	---		-	
119 Sn	115		2	100.20	3.25	---		-	
121 Sb	115		2	99.86	2.25	---		-	
121 Sb	89		3	97.00	0.81	---		-	
123 Sb	115		2	101.50	2.12	---		-	
135 Ba	115		2	102.40	2.75	---		-	
137 Ba	115		2	101.40	2.14	---		-	
203 Tl	209		2	95.51	12.79	---		-	
205 Tl	209		2	90.95	12.10	---		-	
206 Pb	209		2	101.20	2.84	---		-	
207 Pb	209		2	102.10	2.21	---		-	
208 Pb	209		2	101.30	2.91	---		-	
238 U	209		2	101.90	3.12	---		-	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	585918	0.44	588490	99.6	70 - 125	
89 Y	2	5542133	0.18	6130896	90.4	70 - 125	
89 Y	3	1184202	0.90	1272538	93.1	70 - 125	
115 In	2	426852	0.45	493197	86.5	70 - 125	
209 Bi	2	336170	0.82	404495	83.1	70 - 125	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\016SMPL.D\016SMPL.D#
Date Acquired: Sep 20 2016 09:38 am
Operator: rhughes, ICPMS2 .
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 09:10 am
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	95.38 ppb	95.38	2.13	#######	
9 Be	96.06 ppb	96.06	2.19	#######	
11 B	240.50 ppb	240.50	2.99	#######	
23 Na	9590.00 ppb	9590.00	2.84	#######	
24 Mg	9630.00 ppb	9630.00	2.35	#######	
27 Al	111.70 ppb	111.70	2.87	#######	
28 Si	9725.00 ppb	9725.00	2.41	#######	
29 Si	9916.00 ppb	9916.00	2.92	#######	
39 K	9661.00 ppb	9661.00	2.33	#######	
44 Ca	9852.00 ppb	9852.00	2.23	#######	
47 Ti	96.92 ppb	96.92	2.49	#######	
51 V	96.72 ppb	96.72	2.40	#######	
51 V	96.26 ppb	96.26	1.33	#######	
52 Cr	96.19 ppb	96.19	2.23	#######	
52 Cr	97.35 ppb	97.35	0.61	#######	
53 Cr	106.80 ppb	106.80	2.84	#######	
53 Cr	98.04 ppb	98.04	2.14	#######	
55 Mn	96.90 ppb	96.90	2.62	#######	
55 Mn	98.13 ppb	98.13	0.75	#######	
56 Fe	9753.00 ppb	9753.00	2.56	#######	
56 Fe	9829.00 ppb	9829.00	0.44	#######	
59 Co	96.25 ppb	96.25	2.43	#######	
59 Co	96.98 ppb	96.98	0.95	#######	
60 Ni	98.32 ppb	98.32	2.42	#######	
62 Ni	98.88 ppb	98.88	1.19	#######	
63 Cu	99.08 ppb	99.08	2.45	#######	
63 Cu	95.47 ppb	95.47	1.05	#######	
65 Cu	99.06 ppb	99.06	2.50	#######	
66 Zn	96.72 ppb	96.72	2.16	#######	
66 Zn	99.03 ppb	99.03	1.12	#######	
68 Zn	98.29 ppb	98.29	1.85	#######	
75 As	96.74 ppb	96.74	2.37	#######	
75 As	96.25 ppb	96.25	0.45	#######	
77 (As)	105.80 ppb	105.80	8.83	#######	
77 (As)	100.80 ppb	100.80	1.60	#######	
78 Se	97.56 ppb	97.56	2.44	#######	
78 Se	96.43 ppb	96.43	3.34	#######	
82 Se	97.90 ppb	97.90	3.71	#######	
82 Se	90.19 ppb	90.19	7.03	#######	
83 (Se)	-57.49 ppb	-57.49	1285.30	#######	
83 (Se)	-130.10	-130.10	129.82	#######	
88 Sr	98.27 ppb	98.27	2.29	#######	
95 Mo	100.20 ppb	100.20	3.03	#######	
97 Mo	99.47 ppb	99.47	3.24	#######	
98 Mo	100.40 ppb	100.40	2.61	#######	
99 (Mo)	-3.23 ppb	-3.23	10146.00	#######	
99 (Mo)	273.50 ppb	273.50	173.20	#######	
106 Cd	96.36 ppb	96.36	2.25	#######	
106 Cd	99.09 ppb	99.09	8.08	#######	
107 Ag	98.95 ppb	98.95	2.32	#######	
107 Ag	95.98 ppb	95.98	1.30	#######	
108 (Cd)	93.98 ppb	93.98	2.86	#######	
108 (Cd)	95.34 ppb	95.34	2.59	#######	
109 Ag	98.94 ppb	98.94	2.26	#######	
111 Cd	97.85 ppb	97.85	2.34	#######	
111 Cd	98.77 ppb	98.77	1.18	#######	
114 Cd	97.92 ppb	97.92	2.41	#######	
118 Sn	98.70 ppb	98.70	2.37	#######	
119 Sn	98.52 ppb	98.52	2.77	#######	
121 Sb	96.70 ppb	96.70	2.25	#######	
121 Sb	97.68 ppb	97.68	0.25	#######	
123 Sb	98.21 ppb	98.21	2.53	#######	
135 Ba	98.73 ppb	98.73	1.66	#######	
137 Ba	98.74 ppb	98.74	2.99	#######	
203 Tl	101.60 ppb	101.60	4.86	#######	
205 Tl	96.61 ppb	96.61	4.69	#######	
206 Pb	98.58 ppb	98.58	2.04	#######	
207 Pb	98.49 ppb	98.49	2.37	#######	
208 Pb	98.60 ppb	98.60	2.13	#######	
238 U	95.98 ppb	95.98	2.43	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	587973	0.77	588490	99.9	70 - 125	
89 Y	5586916	0.40	6130896	91.1	70 - 125	
89 Y	1238797	0.53	1272538	97.3	70 - 125	
115 In	446611	0.42	493197	90.6	70 - 125	
209 Bi	361103	0.55	404495	89.3	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\017 CCB.D\017 CCB.D#
Date Acquired: Sep 20 2016 09:43 am
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 09:10 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	-0.06 ppb	79.78	#######	
9 Be	45	2	0.07 ppb	30.18	#######	
11 B	45	2	2.26 ppb	20.55	#######	
23 Na	89	2	11.14 ppb	151.08	#######	
24 Mg	89	2	8.86 ppb	63.43	#######	
27 Al	89	2	7.27 ppb	9.24	#######	
28 Si	89	2	13.80 ppb	27.91	#######	
29 Si	89	2	48.06 ppb	18.67	#######	
39 K	89	2	12.65 ppb	25.98	#######	
44 Ca	89	2	25.34 ppb	37.29	#######	
47 Ti	89	2	0.13 ppb	14.75	#######	
51 V	89	2	0.20 ppb	179.30	#######	
51 V	89	3	0.01 ppb	918.60	#######	
52 Cr	89	2	0.02 ppb	244.77	#######	
52 Cr	89	3	0.02 ppb	219.19	#######	
55 Mn	89	2	0.05 ppb	137.83	#######	
55 Mn	89	3	0.09 ppb	22.33	#######	
56 Fe	89	2	7.52 ppb	27.00	#######	
56 Fe	89	3	8.64 ppb	0.88	#######	
59 Co	89	2	0.06 ppb	33.52	#######	
59 Co	89	3	0.05 ppb	16.83	#######	
60 Ni	89	2	-0.05 ppb	55.54	#######	
62 Ni	89	2	0.09 ppb	142.30	#######	
63 Cu	89	2	0.03 ppb	859.39	#######	
63 Cu	89	3	0.10 ppb	40.84	#######	
65 Cu	89	2	0.06 ppb	487.22	#######	
66 Zn	89	2	0.11 ppb	52.46	#######	
66 Zn	89	3	0.15 ppb	47.14	#######	
68 Zn	89	2	0.20 ppb	43.33	#######	
75 As	89	2	-0.64 ppb	88.39	#######	
75 As	89	3	-0.34 ppb	65.22	#######	
77 (As)	89	2	1.42 ppb	120.82	#######	
78 Se	89	2	1.08 ppb	27.00	#######	
78 Se	89	3	0.33 ppb	75.61	#######	
82 Se	89	2	-0.54 ppb	31.61	#######	
82 Se	89	3	-3.48 ppb	145.66	#######	
83 (Se)	89	2	639.20 ppb	73.61	#######	
83 (Se)	89	3	44.43	722.48	#######	
88 Sr	89	2	0.21 ppb	41.24	#######	
95 Mo	89	2	0.37 ppb	3.90	#######	
97 Mo	89	2	0.47 ppb	21.93	#######	
98 Mo	89	2	0.42 ppb	9.40	#######	
99 (Mo)	89	2	-103.80 ppb	56.96	#######	
106 Cd	115	2	1.09 ppb	260.59	#######	
107 Ag	115	2	0.05 ppb	43.22	#######	
107 Ag	89	3	0.04 ppb	29.28	#######	
108 (Cd)	115	2	-0.14 ppb	219.40	#######	
108 (Cd)	89	3	0.29 ppb	73.90	#######	
109 Ag	115	2	0.04 ppb	24.63	#######	
113 Cd	115	2	0.06 ppb	15.72	#######	
111 Cd	89	3	0.07 ppb	37.29	#######	
114 Cd	115	2	0.05 ppb	32.63	#######	
118 Sn	115	2	0.04 ppb	27.88	#######	
119 Sn	115	2	0.03 ppb	77.85	#######	
121 Sb	115	2	0.05 ppb	9.33	#######	
121 Sb	89	3	0.06 ppb	17.33	#######	
123 Sb	115	2	0.05 ppb	36.57	#######	
135 Ba	115	2	0.02 ppb	295.94	#######	
137 Ba	115	2	0.03 ppb	222.78	#######	
203 Tl	209	2	0.39 ppb	33.99	#######	
205 Tl	209	2	0.37 ppb	26.42	#######	
206 Pb	209	2	0.04 ppb	39.96	#######	
207 Pb	209	2	0.04 ppb	40.83	#######	
208 Pb	209	2	0.04 ppb	45.60	#######	
238 U	209	2	0.05 ppb	5.77	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	556127	0.88	588490	94.5	83 - 117	
89 Y	2	5871241	0.74	6130896	95.8	83 - 117	
89 Y	3	1256842	0.63	1272538	98.8	83 - 117	
115 In	2	473679	0.50	493197	96.0	83 - 117	
209 Bi	2	390183	1.10	404495	96.5	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Last Calib: Sep 28, 2016 11:34 am
Calibration Type: External Calibration Method
Calibration Title: ICPMS2 160920A ICAL
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Multi Tune: #2 nogas.u
#3 he.u

=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\icpchem\1\data\16i20i00.b\096calb.d\096calb.d#	Level 1	Sep 20 2016 04:59 pm
2	c:\icpchem\1\data\16i20i00.b\097cals.d\097cals.d#	Level 2	Sep 20 2016 05:04 pm
3	c:\icpchem\1\data\16i20i00.b\098cals.d\098cals.d#	Level 3	Sep 20 2016 05:09 pm
4	c:\icpchem\1\data\16i20i00.b\099cals.d\099cals.d#	Level 4	Sep 20 2016 05:14 pm
5	c:\icpchem\1\data\16i20i00.b\100cals.d\100cals.d#	Level 5	Sep 20 2016 05:19 pm
6	c:\icpchem\1\data\16i20i00.b\101cals.d\101cals.d#	Level 6	Sep 20 2016 05:25 pm
7	c:\icpchem\1\data\16i20i00.b\102cals.d\102cals.d#	Level 7	Sep 20 2016 05:30 pm
8	c:\icpchem\1\data\16i20i00.b\103cals.d\103cals.d#	Level 8	Sep 20 2016 05:35 pm
9	---		
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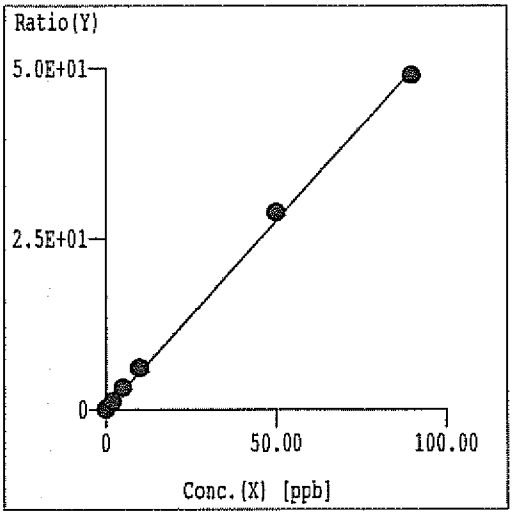
20	---		

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	9 Be	45	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	48.52	1.381E-02	P	65.88
2		2.000E-01	2.192E-01	491.1	1.348E-01	P	7.826
3		2.000	2.127	4423	1.188E+00	P	1.248
4		5.000	5.742	1.118E+04	3.184E+00	P	7.233
5		10.00	11.01	2.166E+04	6.095E+00	P	9.778
6		50.00	52.17	1.115E+05	2.882E+01	P	1.638
7		90.00	88.64	1.993E+05	4.896E+01	P	9.250E-02
8	ON	200.0	---	4.348E+05	9.648E+01	P	2.229
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
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14		---	---	---	---		---
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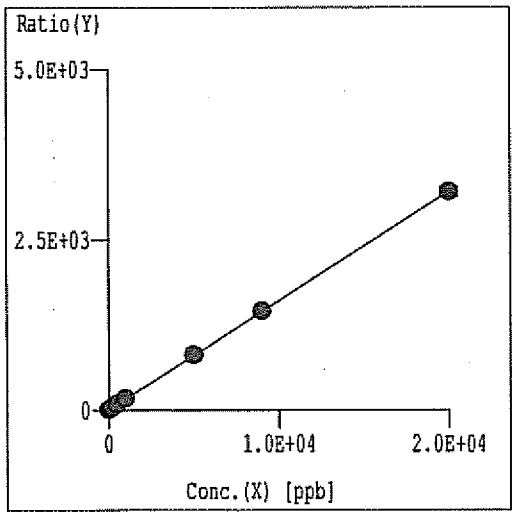
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9995
Y = 5.522E-001*X +1.381E-002
X = 1.811E+000*Y -2.501E-002
DL = 4.942E-02 ppb
BEC = 2.501E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	23 Na	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	3.411E+05	8.497E+00	M	40.98
2		20.00	15.19	4.467E+05	1.093E+01	P	21.88
3		200.0	198.9	1.683E+06	4.037E+01	A	3.180
4		500.0	525.5	3.622E+06	9.270E+01	A	7.279
5		1000	1034	6.841E+06	1.741E+02	A	9.019
6		5000	5037	3.326E+07	8.156E+02	A	2.219
7		9000	9057	5.972E+07	1.460E+03	A	4.600E-01
8		2.000E+04	1.996E+04	1.294E+08	3.207E+03	A	2.101
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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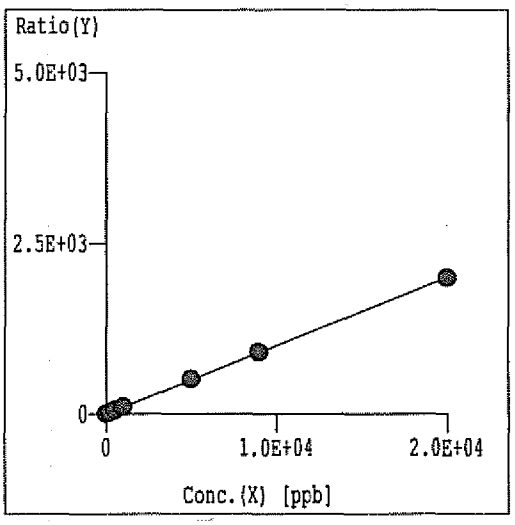
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.602E-001*X +8.497E+000
X = 6.241E+000*Y -5.304E+001
DL = 65.20 ppb
BEC = 53.04 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	24	Mg	89	ppb

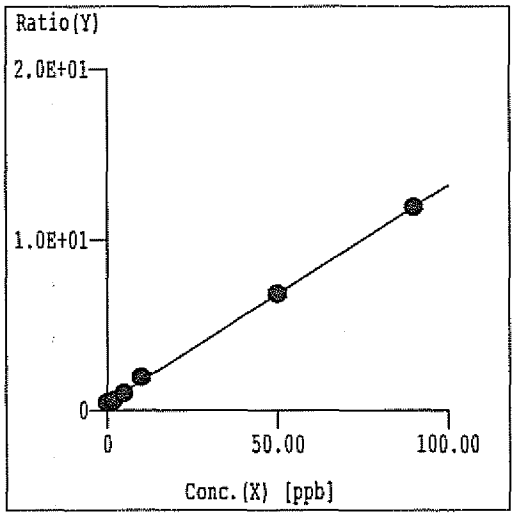


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	4.087E+04	1.025E+00	P	76.22
2		20.00	19.11	1.203E+05	2.942E+00	P	17.01
3		200.0	206.1	9.047E+05	2.170E+01	A	6.108E-01
4		500.0	538.6	2.152E+06	5.505E+01	A	6.564
5		1000	1041	4.145E+06	1.055E+02	A	9.195
6		5000	5097	2.089E+07	5.123E+02	A	2.211
7		9000	9034	3.712E+07	9.072E+02	A	2.293E-01
8		2.000E+04	1.996E+04	8.081E+07	2.003E+03	A	1.793
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.003E-001*X +1.025E+000
X = 9.969E+000*Y -1.022E+001
DL = 23.36 ppb
BEC = 10.22 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	27	Al	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1.784E+04	4.438E-01	P	32.90
2	ON	2.000E-01	---	1.522E+04	3.727E-01	P	25.13
3		2.000	1.058	2.412E+04	5.790E-01	P	13.74
4		5.000	4.364	3.901E+04	1.002E+00	P	14.13
5		10.00	11.73	7.621E+04	1.944E+00	P	12.57
6		50.00	50.02	2.787E+05	6.838E+00	P	3.427
7		90.00	89.85	4.880E+05	1.193E+01	P	1.128
8	ON	200.0	---	1.065E+06	2.640E+01	A	1.765
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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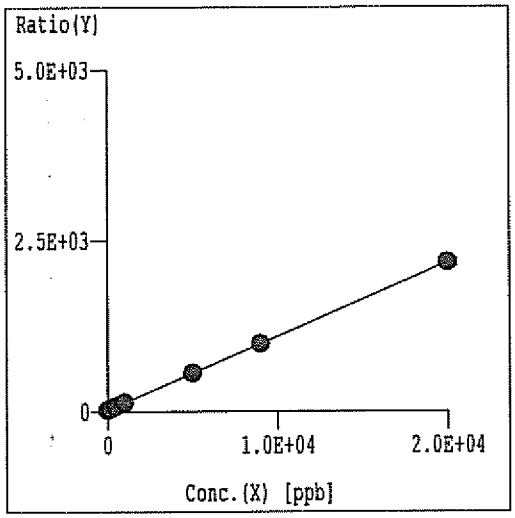
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9997
Y = 1.278E-001*X +4.438E-001
X = 7.823E+000*Y -3.472E+000
DL = 3.426 ppb
BEC = 3.472 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(2) 39 K	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	8.203E+05	2.030E+01	A	5.290
2		20.00	19.00	9.159E+05	2.234E+01	A	3.759
3		200.0	193.5	1.716E+06	4.115E+01	A	7.090E-01
4		500.0	522.7	2.996E+06	7.662E+01	A	5.752
5		1000	1024	5.133E+06	1.306E+02	A	8.777
6		5000	5013	2.286E+07	5.605E+02	A	2.316
7		9000	8994	4.049E+07	9.895E+02	A	3.427E-01
8		2.000E+04	2.000E+04	8.775E+07	2.175E+03	A	2.568
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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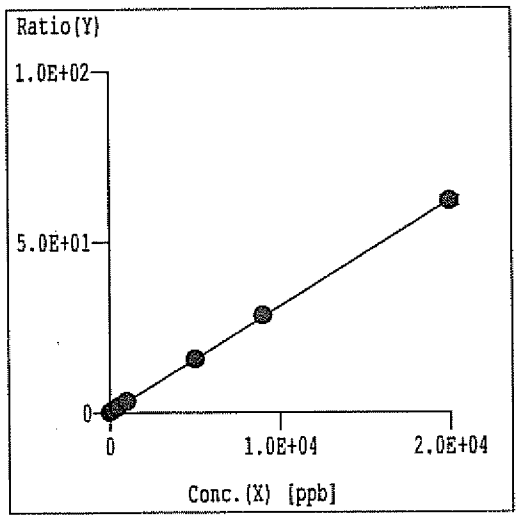
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.078E-001*X +2.030E+001
X = 9.279E+000*Y -1.883E+002
DL = 29.89 ppb
BEC = 188.3 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 44 Ca	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	6496	1.614E-01	P	26.17
2		20.00	25.18	9801	2.395E-01	P	13.32
3		200.0	198.3	3.236E+04	7.765E-01	P	2.773
4		500.0	519.5	6.923E+04	1.773E+00	P	8.324
5		1000	1019	1.306E+05	3.323E+00	P	8.962
6		5000	5006	6.397E+05	1.569E+01	P	2.323
7		9000	9122	1.164E+06	2.846E+01	A	4.155E-01
8		2.000E+04	1.994E+04	2.502E+06	6.201E+01	A	2.259
9		---	---	---	---		---
10		---	---	---	---		---
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17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

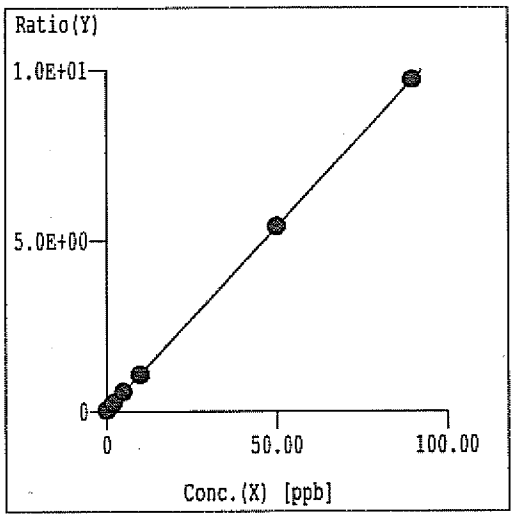
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 3.102E-003*X +1.614E-001
X = 3.224E+002*Y -5.203E+001
DL = 40.85 ppb
BEC = 52.03 ppb

Weight: OFF
Min Conc: 0.000

Calibration - C:\ICPCHEM\1\CALIB\ICP_6020.c

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(2) 51 V	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1130	2.806E-02	P	23.98
2		2.000E-01	1.271E-01	1707	4.173E-02	P	45.99
3		2.000	1.977	1.004E+04	2.408E-01	P	11.68
4		5.000	5.111	2.262E+04	5.779E-01	P	3.823
5		10.00	9.768	4.240E+04	1.079E+00	P	9.065
6		50.00	50.07	2.209E+05	5.415E+00	P	1.564
7		90.00	89.98	3.973E+05	9.708E+00	P	7.991E-01
8	ON	200.0	---	8.832E+05	2.189E+01	A	1.464
9		---	---	---	---		---
10		---	---	---	---		---
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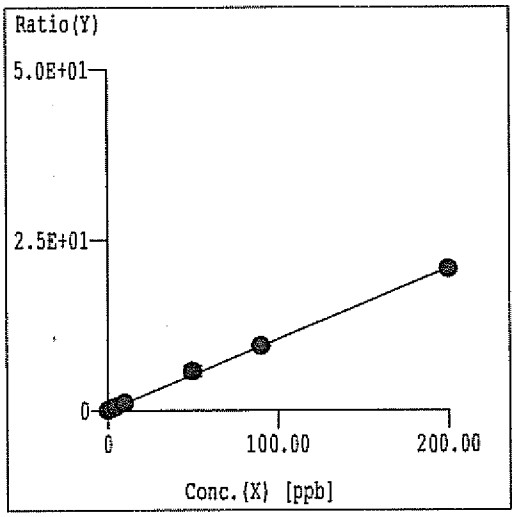
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.076E-001*X +2.806E-002
X = 9.295E+000*Y -2.608E-001
DL = 1.876E-01 ppb
BEC = 2.608E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(3) 52 Cr	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	266.7	2.944E-02	P	2.094
2		2.000E-01	1.844E-01	450.0	4.867E-02	P	2.575
3		2.000	1.994	2211	2.374E-01	P	2.764
4		5.000	5.189	5262	5.706E-01	P	2.061
5		10.00	10.19	9926	1.092E+00	P	1.645
6		50.00	54.91	4.982E+04	5.756E+00	P	12.73
7		90.00	90.30	8.802E+04	9.446E+00	P	1.305
8		200.0	198.6	1.885E+05	2.074E+01	P	3.264E-01
9		---	---	---	---		---
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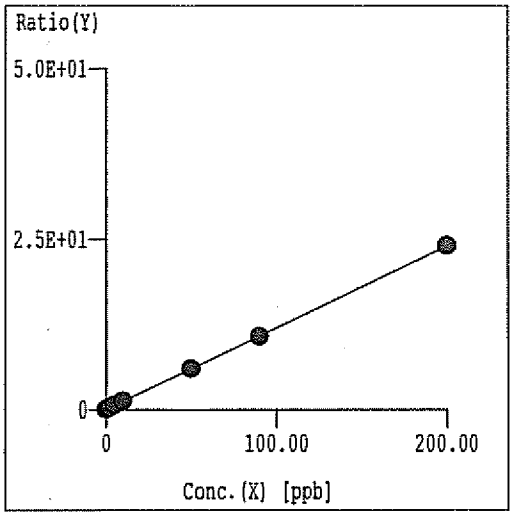
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9997
Y = 1.043E-001*X +2.944E-002
X = 9.589E+000*Y -2.823E-001
DL = 1.774E-02 ppb
BEC = 2.823E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	55	Mn	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2115	5.248E-02	P	21.48
2		2.000E-01	1.422E-01	2845	6.952E-02	P	13.77
3		2.000	1.933	1.184E+04	2.841E-01	P	2.881
4		5.000	5.130	2.608E+04	6.673E-01	P	7.080
5		10.00	10.23	5.027E+04	1.278E+00	P	8.138
6		50.00	49.96	2.463E+05	6.039E+00	P	1.711
7		90.00	89.20	4.395E+05	1.074E+01	P	4.881E-01
8		200.0	200.4	9.708E+05	2.406E+01	A	2.096
9		---	---	---	---		---
10		---	---	---	---		---
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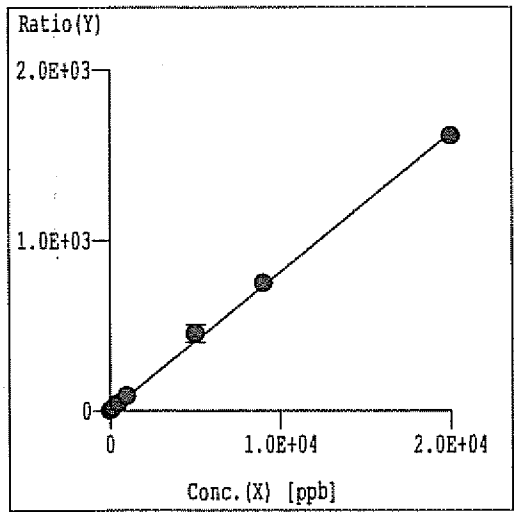
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.198E-001*X +5.248E-002
X = 8.345E+000*Y -4.380E-001
DL = 2.823E-01 ppb
BEC = 4.380E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(3)	56	Fe	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1931	2.133E-01	P	4.839
2		20.00	22.39	1.888E+04	2.042E+00	P	7.580E-01
3		200.0	211.5	1.630E+05	1.749E+01	P	9.796E-01
4		500.0	528.9	4.004E+05	4.342E+01	P	7.313E-01
5		1000	1068	7.949E+05	8.744E+01	A	3.779E-01
6		5000	5534	3.918E+06	4.524E+02	A	11.57
7		9000	9167	6.981E+06	7.492E+02	A	5.051E-01
8		2.000E+04	1.979E+04	1.469E+07	1.617E+03	A	2.368E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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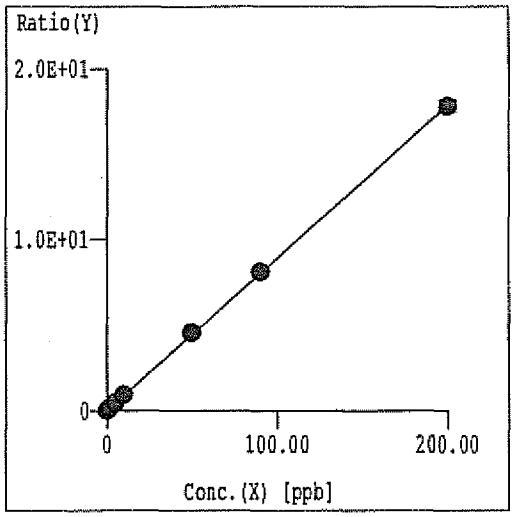
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9996
Y = 8.170E-002*X +2.133E-001
X = 1.224E+001*Y -2.610E+000
DL = 3.789E-01 ppb
BEC = 2.610 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	59 Co	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	133.3	3.328E-03	P	50.93
2		2.000E-01	2.266E-01	965.6	2.355E-02	P	3.137
3		2.000	1.991	7547	1.810E-01	P	8.285E-02
4		5.000	5.308	1.866E+04	4.772E-01	P	5.648
5		10.00	10.52	3.708E+04	9.428E-01	P	7.837
6		50.00	51.05	1.860E+05	4.561E+00	P	1.764
7		90.00	90.89	3.321E+05	8.117E+00	P	4.668E-01
8		200.0	199.3	7.180E+05	1.780E+01	P	1.939
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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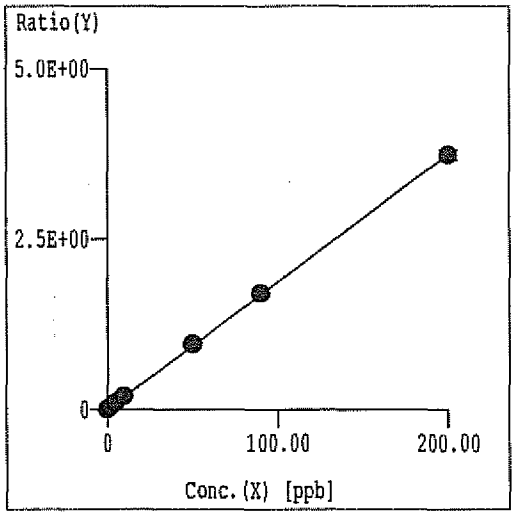
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 8.928E-002*X +3.328E-003
X = 1.120E+001*Y -3.728E-002
DL = 5.695E-02 ppb
BEC = 3.728E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	60 Ni	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	165.6	4.093E-03	P	2.588
2		2.000E-01	1.116E-01	253.3	6.179E-03	P	2.593
3		2.000	1.891	1645	3.945E-02	P	8.885E-01
4		5.000	5.280	4020	1.028E-01	P	6.097
5		10.00	10.49	7875	2.002E-01	P	7.803
6		50.00	51.22	3.923E+04	9.618E-01	P	1.782
7		90.00	90.78	6.962E+04	1.701E+00	P	3.989E-02
8		200.0	199.3	1.505E+05	3.731E+00	P	2.121
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

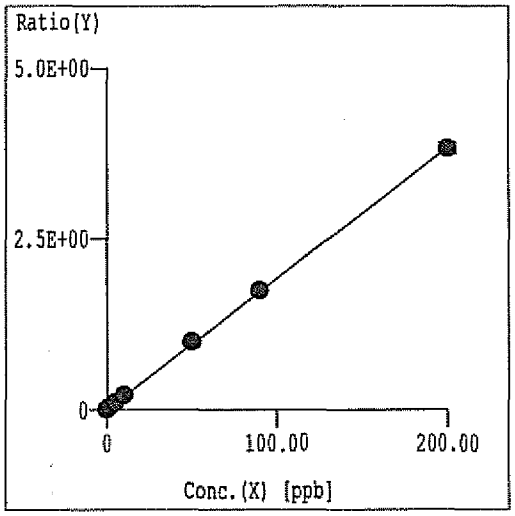
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.870E-002*X +4.093E-003
X = 5.348E+001*Y -2.189E-001
DL = 1.700E-02 ppb
BEC = 2.189E-01 ppb

Weight: OFF
Min Conc: 0.000

Calibration - C:\ICPCHEM\1\CALIB\ICP_6020.c

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	65	Cu	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	363.7	9.095E-03	P	60.00
2	ON	2.000E-01	---	521.9	1.278E-02	P	27.42
3		2.000	2.025	1995	4.787E-02	P	6.427
4		5.000	5.263	4288	1.099E-01	P	9.994
5		10.00	10.90	8550	2.178E-01	P	10.22
6		50.00	51.64	4.070E+04	9.981E-01	P	2.028
7		90.00	90.89	7.160E+04	1.750E+00	P	1.426E-01
8		200.0	199.1	1.542E+05	3.823E+00	P	2.080
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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18		---	---	---	---		---
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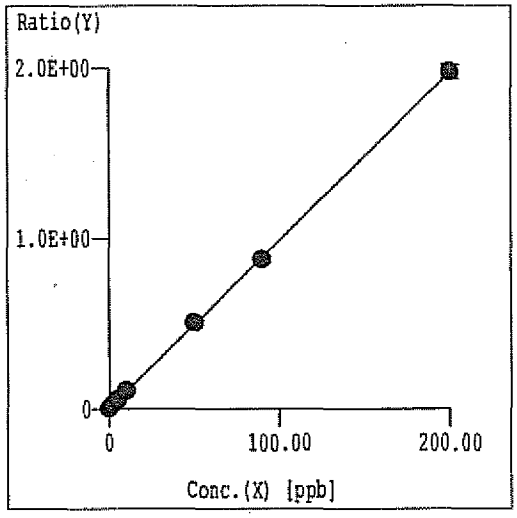
Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.915E-002*X +9.095E-003
X = 5.221E+001*Y -4.749E-001
DL = 8.548E-01 ppb
BEC = 4.749E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	66	Zn	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	218.9	5.426E-03	P	15.62
2	ON	2.000E-01	---	304.5	7.431E-03	P	15.10
3		2.000	2.220	1137	2.728E-02	P	6.265
4		5.000	5.236	2228	5.697E-02	P	5.769
5		10.00	10.45	4256	1.083E-01	P	9.046
6		50.00	50.90	2.066E+04	5.065E-01	P	2.868
7		90.00	88.57	3.589E+04	8.773E-01	P	1.534
8		200.0	200.4	7.980E+04	1.978E+00	P	2.181
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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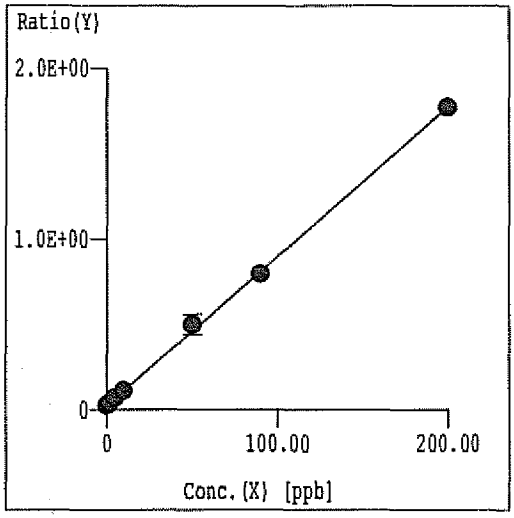
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.844E-003*X +5.426E-003
X = 1.016E+002*Y -5.512E-001
DL = 2.582E-01 ppb
BEC = 5.512E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 75 As	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	220.4	2.432E-02	P	9.321
2	ON	2.000E-01	---	231.3	2.502E-02	P	14.36
3		2.000	1.923	383.3	4.114E-02	P	8.108
4		5.000	5.361	656.5	7.121E-02	P	7.500
5		10.00	10.05	1020	1.122E-01	P	1.709
6		50.00	54.30	4323	4.993E-01	P	12.11
7		90.00	88.33	7426	7.969E-01	P	1.735E-01
8		200.0	199.7	1.609E+04	1.771E+00	P	6.669E-01
9		---	---	---	---		---
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11		---	---	---	---		---
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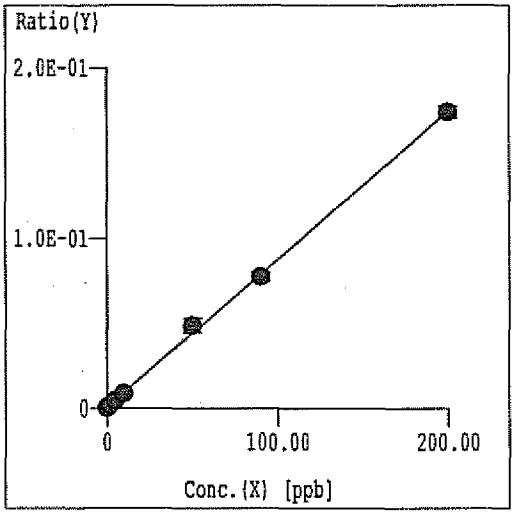
Curve Fit: Y=aX+[blank]
r = 0.9997
Y = 8.747E-003*X +2.432E-002
X = 1.143E+002*Y -2.780E+000
DL = 7.774E-01 ppb
BEC = 2.780 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(3) 78 Se	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	6.296	6.954E-04	P	27.08
2		2.000E-01	-3.844E-01	3.333	3.613E-04	P	58.32
3		2.000	1.578	19.26	2.067E-03	P	3.036
4		5.000	4.697	44.07	4.779E-03	P	13.73
5		10.00	9.323	80.00	8.600E-03	P	6.138
6		50.00	55.15	422.2	4.864E-02	P	8.538
7		90.00	88.22	721.1	7.739E-02	P	3.361
8		200.0	199.6	1583	1.742E-01	P	1.958
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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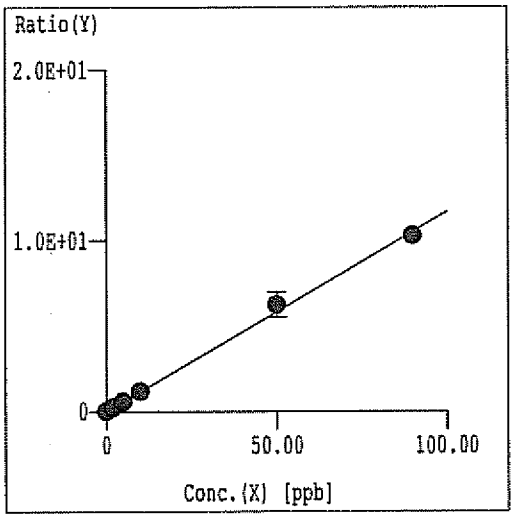
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9996
Y = 8.693E-004*X +6.954E-004
X = 1.150E+003*Y -8.000E-001
DL = 6.498E-01 ppb
BEC = 8.000E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 107 Ag	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	41.11	4.542E-03	P	17.01
2		2.000E-01	2.034E-01	261.5	2.829E-02	P	8.687
3		2.000	2.031	2251	2.416E-01	P	1.501
4		5.000	5.012	5437	5.897E-01	P	1.879
5		10.00	10.05	1.070E+04	1.177E+00	P	1.575
6		50.00	53.45	5.408E+04	6.245E+00	P	11.82
7		90.00	88.08	9.586E+04	1.029E+01	P	8.544E-01
8	ON	200.0	---	2.007E+05	2.209E+01	P	4.755E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
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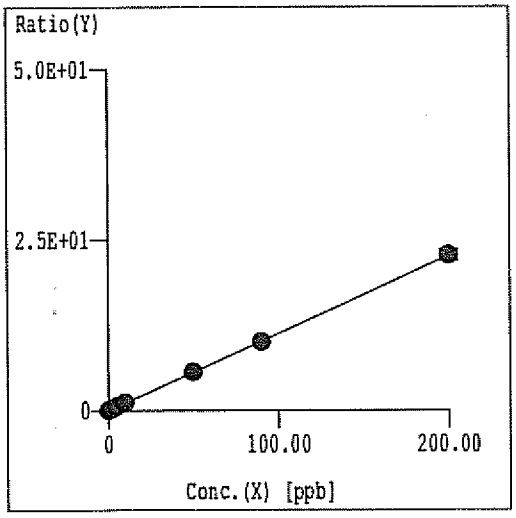
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9989
Y = 1.167E-001*X +4.542E-003
X = 8.565E+000*Y -3.890E-002
DL = 1.985E-02 ppb
BEC = 3.890E-02 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 111 Cd	115	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	-4.921E+00	-1.540E-03	P	-2.108E+02
2		2.000E-01	2.116E-01	74.39	2.243E-02	P	9.564
3		2.000	1.997	758.7	2.247E-01	P	1.969
4		5.000	5.307	1910	5.997E-01	P	3.682
5		10.00	10.14	3660	1.147E+00	P	8.682
6		50.00	49.84	1.841E+04	5.645E+00	P	2.577
7		90.00	88.82	3.297E+04	1.006E+01	P	6.822E-01
8		200.0	200.6	7.208E+04	2.272E+01	P	3.563
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
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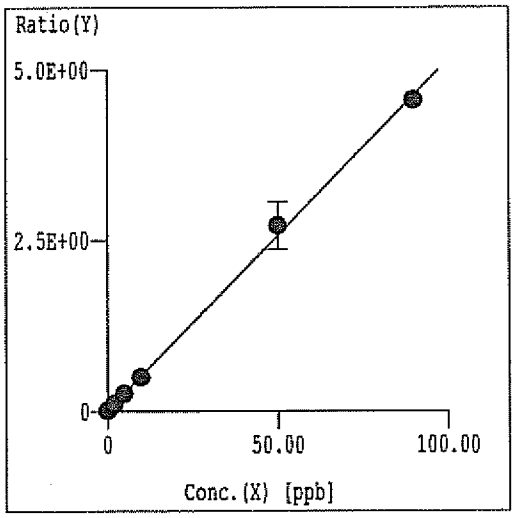
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.133E-001*X -1.540E-003
X = 8.828E+000*Y +1.359E-002
DL = 8.596E-02 ppb
BEC = -1.359E-02 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 121 Sb	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	52.22	5.766E-03	P	10.70
2		2.000E-01	1.546E-01	126.7	1.371E-02	P	10.43
3		2.000	1.936	980.4	1.052E-01	P	1.356
4		5.000	4.860	2356	2.555E-01	P	2.799
5		10.00	9.578	4526	4.979E-01	P	1.687
6		50.00	52.73	2.350E+04	2.715E+00	P	12.82
7		90.00	88.54	4.244E+04	4.555E+00	P	3.347E-01
8	ON	200.0	---	9.120E+04	1.004E+01	P	3.157E-01
9		---	---	---	---		---
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11		---	---	---	---		---
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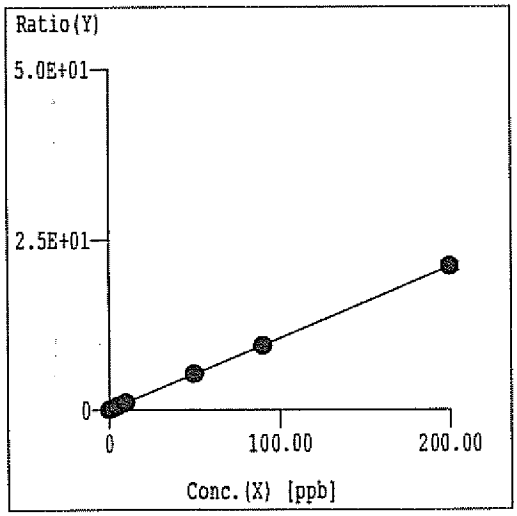
Curve Fit: Y=aX+[blank]
r = 0.9993
Y = 5.138E-002*X +5.766E-003
X = 1.946E+001*Y -1.122E-001
DL = 3.603E-02 ppb
BEC = 1.122E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 135 Ba	115	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	55.56	1.733E-02	P	74.66
2		2.000E-01	1.479E-01	108.9	3.289E-02	P	17.19
3		2.000	1.898	732.3	2.170E-01	P	4.876
4		5.000	5.148	1779	5.591E-01	P	7.661
5		10.00	10.09	3451	1.079E+00	P	5.861
6		50.00	50.11	1.726E+04	5.291E+00	P	2.684
7		90.00	89.62	3.096E+04	9.449E+00	P	3.690E-01
8		200.0	200.1	6.689E+04	2.108E+01	P	3.045
9		---	---	---	---		---
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19		---	---	---	---		---
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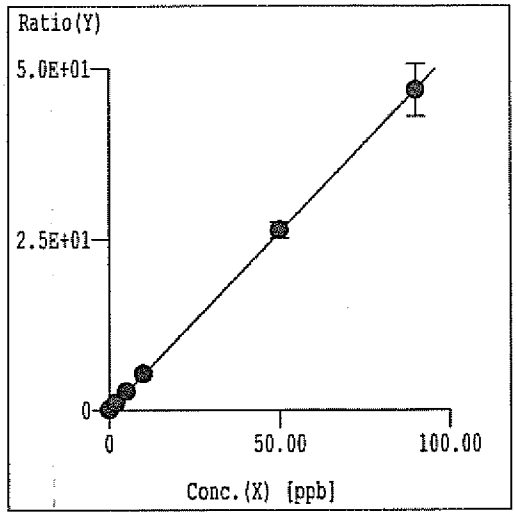
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.052E-001*X +1.733E-002
X = 9.503E+000*Y -1.646E-001
DL = 3.688E-01 ppb
BEC = 1.646E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(2) 203 Tl	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	110.0	4.090E-02	P	49.26
2		2.000E-01	2.162E-01	420.0	1.537E-01	P	22.83
3		2.000	2.035	3079	1.103E+00	P	8.362
4		5.000	5.137	7233	2.721E+00	P	3.877
5		10.00	10.16	1.424E+04	5.339E+00	P	6.634
6		50.00	50.47	7.043E+04	2.637E+01	P	4.448
7		90.00	89.71	1.252E+05	4.685E+01	P	8.176
8	ON	200.0	---	2.865E+05	1.114E+02	P	2.057
9		---	---	---	---		---
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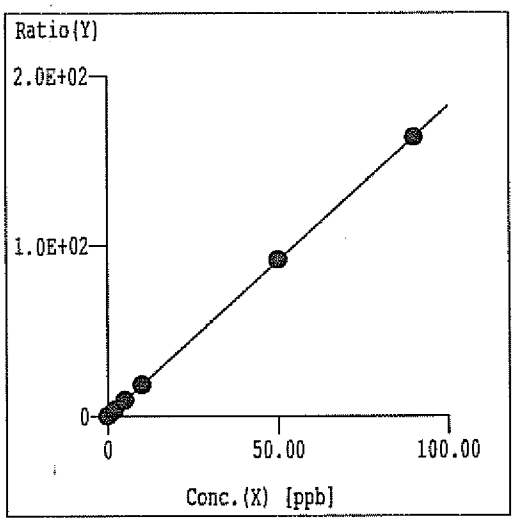
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 5.218E-001*X +4.090E-002
X = 1.917E+000*Y -7.839E-002
DL = 1.158E-01 ppb
BEC = 7.839E-02 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 208 Pb	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	276.7	1.029E-01	P	46.40
2		2.000E-01	1.762E-01	1162	4.239E-01	P	4.507
3		2.000	1.901	9951	3.566E+00	P	7.395E-01
4		5.000	5.073	2.482E+04	9.347E+00	P	3.966
5		10.00	10.01	4.885E+04	1.834E+01	P	6.654
6		50.00	50.26	2.444E+05	9.167E+01	P	1.512
7		90.00	89.85	4.371E+05	1.638E+02	P	2.146E-01
8	ON	200.0	---	9.432E+05	3.670E+02	P	2.681
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.822E+000*X +1.029E-001
X = 5.489E-001*Y -5.650E-002
DL = 7.865E-02 ppb
BEC = 5.650E-02 ppb

Weight: OFF
Min Conc: 0.000

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#
Date Acquired: Sep 20 2016 04:59 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 1
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 05:02 pm
Sample Type: CalBlk

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	678,917.19	2.29
7	Li	45	2	42,014.58	0.84
9	Be	45	2	48.52	62.19
11	B	45	2	7,173.17	5.32
23	Na	89	2	341,082.00	37.74
24	Mg	89	2	40,865.45	73.18
27	Al	89	2	17,840.74	29.71
28	Si	89	2	130,401.86	5.40
29	Si	89	2	133,839.53	0.67
39	K	89	2	820,267.38	2.43
44	Ca	89	2	6,496.43	23.04
45	Sc	---	2	356,603.97	3.35
45	Sc	---	3	25,435.35	0.50
47	Ti	89	2	62.22	24.74
51	V	89	2	1,130.08	20.89
51	V	89	3	-104.10	75.18
52	Cr	89	2	4,959.97	3.36
52	Cr	89	3	266.68	1.25
55	Mn	89	2	2,114.69	18.41
55	Mn	89	3	64.45	7.90
56	Fe	89	2	185,176.77	4.56
56	Fe	89	3	1,931.31	3.88
59	Co	89	2	133.34	47.70
59	Co	89	3	21.11	9.12
60	Ni	89	2	165.56	3.55
62	Ni	89	2	240.01	10.02
63	Cu	89	2	602.26	63.70
63	Cu	89	3	153.34	18.57
65	Cu	89	2	363.71	56.80
66	Zn	89	2	218.90	12.95
66	Zn	89	3	53.34	22.54
68	Zn	89	2	217.79	10.42
72	Ge	---	2	928.56	7.66
72	Ge	---	3	30.37	18.05
75	As	89	2	187.28	71.97
75	As	89	3	220.41	10.16
78	Se	89	2	636.32	5.13
78	Se	89	3	6.30	26.96
82	Se	89	2	67.21	27.59
82	Se	89	3	78.09	8.36
88	Sr	89	2	705.61	63.20
89	Y	---	2	4,045,488.00	2.86
89	Y	---	3	905,842.75	0.93
95	Mo	89	2	80.00	22.05
97	Mo	89	2	87.78	34.04
98	Mo	89	2	129.82	41.70
106	Cd	115	2	6,202.78	2.49
107	Ag	115	2	132.23	7.28
107	Ag	89	3	41.11	16.44
108	(Cd)	115	2	16.67	52.92
109	Ag	115	2	68.89	14.78
111	Cd	115	2	-4.92	215.10
111	Cd	89	3	-0.16	3645.60
113	In	---	2	14,185.86	3.76
114	Cd	115	2	33.33	54.87
115	In	---	2	325,369.19	3.06
115	In	---	3	91,386.95	0.41
118	Sn	115	2	240.01	11.90
118	Sn	---	3	64.82	10.33
119	Sn	115	2	87.78	12.21
121	Sb	115	2	244.45	14.32
121	Sb	89	3	52.22	10.64
123	Sb	115	2	268.90	8.04
135	Ba	115	2	55.56	71.58
137	Ba	115	2	93.34	53.93
159	Tb	---	2	447,068.78	3.60
203	Tl	209	2	110.01	47.04
205	Tl	209	2	340.02	52.04
206	Pb	209	2	66.67	27.84
207	Pb	209	2	56.67	77.15
208	Pb	209	2	276.68	43.49
209	Bi	---	2	270,957.53	2.63
238	U	209	2	138.90	53.52

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\097CALS.D\097CALS.D#
Date Acquired: Sep 20 2016 05:04 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 2
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 05:02 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	698791.31	2.62
7	Li	45	2	44593.10	1.20
9	Be	45	2	491.13	5.09
11	B	45	2	7528.94	5.21
23	Na	89	2	446691.25	19.05
24	Mg	89	2	120315.09	14.23
27	Al	89	2	15220.23	22.29
28	Si	89	2	180512.50	0.97
29	Si	89	2	137333.73	0.96
39	K	89	2	915080.38	1.24
44	Ca	89	2	9800.67	10.60
45	Sc	---	2	364805.03	2.83
45	Sc	---	3	26073.97	0.94
47	Ti	89	2	138.89	13.65
51	V	89	2	1706.79	45.86
51	V	89	3	55.65	98.43
52	Cr	89	2	5631.38	0.98
52	Cr	89	3	450.02	3.23
55	Mn	89	2	2844.84	11.17
55	Mn	89	3	166.67	15.10
56	Fe	89	2	264919.56	1.30
56	Fe	89	3	18880.24	0.57
59	Co	89	2	965.63	0.80
59	Co	89	3	282.24	7.59
60	Ni	89	2	253.34	1.58
62	Ni	89	2	264.46	13.48
63	Cu	89	2	990.08	24.53
63	Cu	89	3	382.24	10.40
65	Cu	89	2	521.87	24.59
66	Zn	89	2	304.46	14.46
66	Zn	89	3	88.89	24.40
68	Zn	89	2	284.46	19.62
72	Ge	---	2	1065.61	1.43
72	Ge	---	3	55.93	6.07
75	As	89	2	322.39	25.58
75	As	89	3	231.26	14.13
78	Se	89	3	3.33	57.74
82	Se	89	2	114.72	21.54
82	Se	89	3	76.62	18.56
88	Sr	89	2	1567.93	17.13
89	Y	---	2	4101630.80	2.58
89	Y	---	3	924488.94	0.67
95	Mo	89	2	185.56	5.77
97	Mo	89	2	158.90	27.94
98	Mo	89	2	349.48	4.37
106	Cd	115	2	6238.35	3.12
107	Ag	115	2	490.03	7.07
107	Ag	89	3	261.49	8.29
108	(Cd)	115	2	21.11	9.12
109	Ag	115	2	412.25	4.94
111	Cd	115	2	74.39	8.15
111	Cd	89	3	38.65	43.67
113	In	---	2	14595.93	3.66
114	Cd	115	2	212.23	13.36
115	In	---	2	332060.56	2.60
115	In	---	3	93325.97	0.50
118	Sn	115	2	471.87	7.91
118	Sn	---	3	147.78	13.56
119	Sn	115	2	178.90	12.68
121	Sb	115	2	387.79	1.99
121	Sb	89	3	126.67	9.89
123	Sb	115	2	350.38	7.23
135	Ba	115	2	108.89	14.47
137	Ba	115	2	173.34	13.46
159	Tb	---	2	454232.69	2.67
203	Tl	209	2	420.02	20.25
205	Tl	209	2	958.96	9.24
206	Pb	209	2	313.35	3.19
207	Pb	209	2	243.35	10.87
208	Pb	209	2	1162.29	3.30
209	Bi	---	2	274319.81	2.62
238	U	209	2	1155.66	5.08

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	364805	2.83	356604	102.3	83 - 117	
89	Y	2	4101631	2.58	4045480	101.4	83 - 117	
89	Y	3	924489	0.67	905843	102.1	83 - 117	
115	In	2	332061	2.60	325369	102.1	83 - 117	
209	Bi	2	274320	2.62	270958	101.2	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.8\096CALB.D\096CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\098CALS.D\098CALS.D#
Date Acquired:	Sep 20 2016 05:09 pm
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 3
Misc Info:	
Vial Number:	1103
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 20 2016 05:07 pm
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	709570.69	0.96
7	Li	45	2	16.91	0.10
9	Be	45	2	1.19	1.25
11	B	45	2	13741.52	1.70
23	Na	89	2	40.37	3.18
24	Mg	89	2	21.70	0.61
27	Al	89	2	24120.60	12.90
28	Si	89	2	16.31	2.10
29	Si	89	2	3.88	0.38
39	K	89	2	41.15	0.71
44	Ca	89	2	0.78	2.77
45	Sc	---	2	372180.75	1.13
45	Sc	---	3	26222.73	0.45
47	Ti	89	2	0.02	5.50
51	V	89	2	0.24	11.68
51	V	89	3	0.15	8.55
52	Cr	89	2	0.29	1.93
52	Cr	89	3	0.24	2.76
55	Mn	89	2	0.28	2.88
55	Mn	89	3	0.14	8.03
56	Fe	89	2	24.40	0.14
56	Fe	89	3	17.49	0.98
59	Co	89	2	0.18	0.08
59	Co	89	3	0.30	3.31
60	Ni	89	2	0.04	0.89
62	Ni	89	2	0.01	6.70
63	Cu	89	2	4150.79	5.30
63	Cu	89	3	0.20	2.98
65	Cu	89	2	1994.99	5.72
66	Zn	89	2	1136.76	5.49
66	Zn	89	3	291.13	1.75
68	Zn	89	2	851.17	2.01
72	Ge	---	2	1100.06	2.41
72	Ge	---	3	65.56	17.70
75	As	89	2	1307.68	13.84
75	As	89	3	383.30	8.47
78	Se	89	3	0.00	3.04
82	Se	89	2	0.00	14.82
82	Se	89	3	0.01	0.92
88	Sr	89	2	0.23	1.71
89	Y	---	2	4168621.50	0.81
89	Y	---	3	931509.63	0.45
95	Mo	89	2	0.04	5.28
97	Mo	89	2	0.02	2.97
98	Mo	89	2	0.06	1.10
106	Cd	115	2	6524.07	4.63
107	Ag	115	2	1.15	3.36
107	Ag	89	3	0.24	1.50
108	(Cd)	115	2	0.02	2.99
109	Ag	115	2	1.10	0.91
111	Cd	115	2	0.22	1.97
111	Cd	89	3	0.04	5.89
113	In	---	2	15492.10	0.60
114	Cd	115	2	0.59	0.88
115	In	---	2	337542.31	1.14
115	In	---	3	93273.13	0.41
118	Sn	115	2	0.78	2.00
118	Sn	---	3	881.89	9.18
119	Sn	115	2	0.31	2.96
121	Sb	115	2	0.89	1.80
121	Sb	89	3	0.11	1.36
123	Sb	115	2	0.70	2.75
135	Ba	115	2	0.22	4.88
137	Ba	115	2	0.38	3.13
159	Tb	---	2	459636.19	1.18
203	Tl	209	2	1.10	8.36
205	Tl	209	2	2.56	5.17
206	Pb	209	2	0.91	6.29
207	Pb	209	2	0.79	2.31
208	Pb	209	2	3.57	0.74
209	Bi	---	2	279073.03	1.15
238	U	209	2	4.09	2.35

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	372181	1.13	356604	104.4	83 - 117	
89	Y	2	4168622	0.81	4045488	103.0	83 - 117	
89	Y	3	931590	0.45	905843	102.8	83 - 117	
115	In	2	337542	1.14	325369	103.7	83 - 117	
209	Bi	2	279073	1.15	270958	103.0	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\099CALS.D\099CALS.D#
Date Acquired:	Sep 20 2016 05:14 pm
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 4
Misc Info:	
Vial Number:	1104
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 20 2016 05:12 pm
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	679585.56	5.66
7	Li	45	2	25.68	4.65
9	Be	45	2	3.18	7.23
11	B	45	2	6.98	5.41
23	Na	89	2	92.70	7.28
24	Mg	89	2	55.05	6.56
27	Al	89	2	1.00	14.13
28	Si	89	2	38.77	6.12
29	Si	89	2	5.13	6.36
39	K	89	2	76.62	5.75
44	Ca	89	2	1.77	8.33
45	Sc	---	2	352425.63	7.53
45	Sc	---	3	25695.50	0.75
47	Ti	89	2	0.05	6.02
51	V	89	2	0.58	3.82
51	V	89	3	0.42	5.53
52	Cr	89	2	0.61	6.74
52	Cr	89	3	0.57	2.06
55	Mn	89	2	0.67	7.08
55	Mn	89	3	0.33	5.13
56	Fe	89	2	55.85	6.12
56	Fe	89	3	43.42	0.73
59	Co	89	2	0.48	5.65
59	Co	89	3	0.73	3.02
60	Ni	89	2	0.10	6.10
62	Ni	89	2	0.02	9.24
63	Cu	89	2	0.24	11.12
63	Cu	89	3	0.46	3.87
65	Cu	89	2	0.11	9.99
66	Zn	89	2	0.06	5.77
66	Zn	89	3	0.07	5.53
68	Zn	89	2	0.04	3.14
72	Ge	---	2	789.66	3.54
72	Ge	---	3	55.56	4.00
75	As	89	2	0.05	3.74
75	As	89	3	0.07	7.50
78	Se	89	3	0.00	13.73
82	Se	89	2	0.01	6.20
82	Se	89	3	0.01	9.98
88	Sr	89	2	0.58	6.34
89	Y	---	2	3920880.80	7.10
89	Y	---	3	922128.06	0.77
95	Mo	89	2	0.10	5.18
97	Mo	89	2	0.06	12.40
98	Mo	89	2	0.16	5.66
106	Cd	115	2	1.93	0.97
107	Ag	115	2	2.99	6.28
107	Ag	89	3	0.59	1.88
108	(Cd)	115	2	0.04	24.41
109	Ag	115	2	2.87	5.71
111	Cd	115	2	0.60	3.68
111	Cd	89	3	0.09	10.78
113	In	---	2	15661.46	5.98
114	Cd	115	2	1.55	4.96
115	In	---	2	319036.16	7.00
115	In	---	3	92134.67	0.10
118	Sn	115	2	1.97	7.13
118	Sn	---	3	2117.60	0.72
119	Sn	115	2	0.73	3.27
121	Sb	115	2	2.27	4.64
121	Sb	89	3	0.26	2.80
123	Sb	115	2	1.76	6.07
135	Ba	115	2	0.56	7.66
137	Ba	115	2	0.95	7.04
159	Tb	---	2	437610.66	6.92
203	Tl	209	2	2.72	3.88
205	Tl	209	2	6.41	1.36
206	Pb	209	2	2.42	6.39
207	Pb	209	2	2.02	4.16
208	Pb	209	2	9.35	3.97
209	Bi	---	2	266028.63	7.18
238	U	209	2	10.49	4.73

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	352426	7.53	356604	98.8	83 - 117	
89	Y	2	3920881	7.10	4045488	96.9	83 - 117	
89	Y	3	922128	0.77	905843	101.8	83 - 117	
115	In	2	319036	7.00	325369	98.1	83 - 117	
209	Bi	2	266029	7.18	270958	98.2	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALS.D\096CALS.D#

--- :Element Failures	---
0 :ISTD Failures	0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\100CALS.D\100CALS.D#
Date Acquired:	Sep 20 2016 05:19 pm
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 5
Misc Info:	
Vial Number:	1105
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 20 2016 05:18 pm
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	693406.88	6.97
7	Li	45	2	38.87	7.44
9	Be	45	2	6.09	9.78
11	B	45	2	12.23	7.58
23	Na	89	2	174.10	9.02
24	Mg	89	2	105.48	9.19
27	Al	89	2	1.94	12.57
28	Si	89	2	70.95	8.30
29	Si	89	2	6.85	8.72
39	K	89	2	130.60	8.78
44	Ca	89	2	3.32	8.96
45	Sc	---	2	357769.63	10.25
45	Sc	---	3	25550.40	0.51
47	Ti	89	2	0.09	9.33
51	V	89	2	1.08	9.07
51	V	89	3	0.86	2.42
52	Cr	89	2	1.08	7.69
52	Cr	89	3	1.09	1.65
55	Mn	89	2	1.28	8.13
55	Mn	89	3	0.64	2.13
56	Fe	89	2	103.35	8.98
56	Fe	89	3	87.44	0.38
59	Co	89	2	0.94	7.84
59	Co	89	3	1.43	1.90
60	Ni	89	2	0.20	7.80
62	Ni	89	2	0.03	7.48
63	Cu	89	2	0.46	8.76
63	Cu	89	3	0.88	0.66
65	Cu	89	2	0.22	10.22
66	Zn	89	2	0.11	9.05
66	Zn	89	3	0.13	2.91
68	Zn	89	2	0.08	9.97
72	Ge	---	2	966.71	3.59
72	Ge	---	3	95.56	7.07
75	As	89	2	0.09	9.45
75	As	89	3	0.11	1.71
78	Se	89	3	0.01	6.14
82	Se	89	2	0.01	5.90
82	Se	89	3	0.01	4.62
88	Sr	89	2	1.12	9.04
89	Y	---	2	3951845.50	9.55
89	Y	---	3	909115.06	0.32
95	Mo	89	2	0.19	9.15
97	Mo	89	2	0.12	10.13
98	Mo	89	2	0.31	8.70
106	Cd	115	2	2.01	1.93
107	Ag	115	2	5.85	7.43
107	Ag	89	3	1.18	1.57
108	(Cd)	115	2	0.10	20.70
109	Ag	115	2	5.59	8.67
111	Cd	115	2	1.15	8.68
111	Cd	89	3	0.17	5.11
113	In	---	2	17951.51	7.37
114	Cd	115	2	3.00	9.86
115	In	---	2	320996.06	10.04
115	In	---	3	91120.72	0.16
118	Sn	115	2	3.81	8.80
118	Sn	---	3	4039.92	1.00
119	Sn	115	2	1.45	6.27
121	Sb	115	2	4.48	8.63
121	Sb	89	3	0.50	1.69
123	Sb	115	2	3.41	9.17
135	Ba	115	2	1.08	5.86
137	Ba	115	2	1.85	8.62
159	Tb	---	2	439280.47	9.17
203	Tl	209	2	5.34	6.63
205	Tl	209	2	12.68	8.93
206	Pb	209	2	4.70	6.58
207	Pb	209	2	3.84	7.07
208	Pb	209	2	18.34	6.65
209	Bi	---	2	267401.00	9.06
238	U	209	2	20.55	8.42

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	357770	10.25	356604	100.3	83 - 117	
89	Y	2	3951846	9.55	4045488	97.7	83 - 117	
89	Y	3	909115	0.32	905843	100.4	83 - 117	
115	In	2	320996	10.04	325369	98.7	83 - 117	
209	Bi	2	267401	9.07	270958	98.7	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

--- :Element Failures	---
0 :ISTD Failures	0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\101CALS.D\101CALS.D#
Date Acquired:	Sep 20 2016 05:25 pm
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 6
Misc Info:	
Vial Number:	1106
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 20 2016 05:23 pm
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	736878.81	3.85
7	Li	45	2	138.53	1.77
9	Be	45	2	28.82	1.64
11	B	45	2	51.47	1.46
23	Na	89	2	815.58	2.22
24	Mg	89	2	512.27	2.21
27	Al	89	2	6.84	3.43
28	Si	89	2	331.97	1.97
29	Si	89	2	21.09	2.70
39	K	89	2	560.54	2.32
44	Ca	89	2	15.69	2.32
45	Sc	---	2	387212.09	4.37
45	Sc	---	3	24719.12	9.47
47	Ti	89	2	0.45	1.16
51	V	89	2	5.41	1.56
51	V	89	3	4.63	12.25
52	Cr	89	2	4.74	2.08
52	Cr	89	3	5.76	12.73
55	Mn	89	2	6.04	1.71
55	Mn	89	3	3.43	12.22
56	Fe	89	2	483.34	1.87
56	Fe	89	3	452.39	11.57
59	Co	89	2	4.56	1.76
59	Co	89	3	7.72	12.70
60	Ni	89	2	0.96	1.70
62	Ni	89	2	0.15	1.51
63	Cu	89	2	2.13	2.15
63	Cu	89	3	4.80	10.80
65	Cu	89	2	1.00	2.03
66	Zn	89	2	0.51	2.87
66	Zn	89	3	0.71	12.78
68	Zn	89	2	0.36	2.52
72	Ge	---	2	2233.18	11.55
72	Ge	---	3	358.53	0.78
75	As	89	2	0.46	1.52
75	As	89	3	0.50	12.11
78	Se	89	3	0.05	0.54
82	Se	89	2	0.04	4.42
82	Se	89	3	0.03	13.07
88	Sr	89	2	5.41	2.17
89	Y	---	2	4080649.80	4.75
89	Y	---	3	873290.88	10.59
95	Mo	89	2	0.95	2.24
97	Mo	89	2	0.58	1.72
98	Mo	89	2	1.51	1.83
106	Cd	115	2	2.46	1.75
107	Ag	115	2	20.85	2.12
107	Ag	89	3	6.24	11.82
108	(Cd)	115	2	0.43	1.72
109	Ag	115	2	27.50	1.13
111	Cd	115	2	5.64	2.58
111	Cd	89	3	0.93	13.48
113	In	---	2	33812.03	4.17
114	Cd	115	2	14.84	2.39
115	In	---	2	326500.94	4.85
115	In	---	3	87073.93	10.75
118	Sn	115	2	18.56	1.69
118	Sn	---	3	20573.50	0.61
119	Sn	115	2	7.29	1.30
121	Sb	115	2	22.18	2.61
121	Sb	89	3	2.72	12.82
123	Sb	115	2	16.82	2.42
135	Ba	115	2	5.29	2.68
137	Ba	115	2	9.16	1.15
159	Tb	---	2	449044.16	4.31
203	Tl	209	2	26.37	4.45
205	Tl	209	2	63.46	4.12
206	Pb	209	2	23.59	1.17
207	Pb	209	2	19.43	2.01
208	Pb	209	2	91.67	1.51
209	Bi	---	2	266694.38	4.63
238	U	209	2	104.35	1.24

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	387212	4.37	356604	100.6	83 - 117	
89	Y	2	4080650	4.75	4045408	100.9	83 - 117	
89	Y	3	873291	10.59	905843	96.4	83 - 117	
115	In	2	326501	4.85	325369	100.3	83 - 117	
209	Bi	2	266694	4.63	270958	98.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\102CALS.D\102CALS.D#
Date Acquired: Sep 20 2016 05:30 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 7
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 05:28 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	766264.13	3.15
7	Li	45	2	239.89	1.60
9	Be	45	2	48.96	0.09
11	B	45	2	86.98	0.47
23	Na	89	2	1459.65	0.46
24	Mg	89	2	907.22	0.23
27	Al	89	2	11.93	1.13
28	Si	89	2	586.65	0.50
29	Si	89	2	34.65	0.35
39	K	89	2	989.49	0.34
44	Ca	89	2	28.46	0.42
45	Sc	---	2	407040.47	3.39
45	Sc	---	3	26407.18	0.58
47	Ti	89	2	0.80	0.80
51	V	89	2	9.71	0.80
51	V	89	3	7.72	0.85
52	Cr	89	2	8.39	0.61
52	Cr	89	3	9.45	1.30
55	Mn	89	2	10.74	0.49
55	Mn	89	3	5.62	1.39
56	Fe	89	2	853.26	0.41
56	Fe	89	3	749.17	0.51
59	Co	89	2	8.12	0.47
59	Co	89	3	12.71	0.86
60	Ni	89	2	1.70	0.04
62	Ni	89	2	0.26	1.90
63	Cu	89	2	3.76	0.79
63	Cu	89	3	7.84	0.93
65	Cu	89	2	1.75	0.14
66	Zn	89	2	0.88	1.53
66	Zn	89	3	1.17	0.13
68	Zn	89	2	0.63	0.23
72	Ge	---	2	2500.64	3.41
72	Ge	---	3	505.57	3.91
75	As	89	2	0.82	1.77
75	As	89	3	0.80	0.17
78	Se	89	3	0.08	3.36
82	Se	89	2	0.07	3.15
82	Se	89	3	0.04	6.99
88	Sr	89	2	9.75	0.22
89	Y	---	2	4091719.80	3.19
89	Y	---	3	931811.75	0.29
95	Mo	89	2	1.69	0.44
97	Mo	89	2	1.05	1.25
98	Mo	89	2	2.71	0.65
106	Cd	115	2	2.86	3.88
107	Ag	115	2	50.78	0.29
107	Ag	89	3	10.29	0.85
108	(Cd)	115	2	0.79	4.55
109	Ag	115	2	48.52	0.53
111	Cd	115	2	10.06	0.68
111	Cd	89	3	1.53	0.86
113	In	---	2	49514.41	2.97
114	Cd	115	2	26.32	0.57
115	In	---	2	327731.38	3.37
115	In	---	3	92455.19	0.54
118	Sn	115	2	33.18	0.67
118	Sn	---	3	36947.11	0.48
119	Sn	115	2	12.80	1.35
121	Sb	115	2	39.57	0.63
121	Sb	89	3	4.55	0.33
123	Sb	115	2	30.15	0.57
135	Ba	115	2	9.45	0.37
137	Ba	115	2	16.32	0.32
159	Tb	---	2	454736.72	3.29
203	Tl	209	2	46.85	8.18
205	Tl	209	2	112.50	7.55
206	Pb	209	2	42.04	0.55
207	Pb	209	2	35.07	0.12
208	Pb	209	2	163.82	0.21
209	Bi	---	2	266786.56	2.86
238	U	209	2	189.44	0.59

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	407040	3.39	356604	114.1	83 - 117	
89	Y	2	4091720	3.19	4045488	101.1	83 - 117	
89	Y	3	931812	0.29	905843	102.9	83 - 117	
115	In	2	327731	3.37	325369	100.7	83 - 117	
209	Bi	2	266787	2.86	270958	98.5	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\103CALS.D\103CALS.D#
Date Acquired: Sep 20 2016 05:35 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 8
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 05:33 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	824311.94	3.29
7	Li	45	2	447.40	2.48
9	Be	45	2	96.48	2.23
11	B	45	2	171.29	0.82
23	Na	89	2	3206.95	2.10
24	Mg	89	2	2002.89	1.79
27	Al	89	2	26.40	1.77
28	Si	89	2	1282.82	1.92
29	Si	89	2	69.71	2.31
39	K	89	2	2175.38	2.57
44	Ca	89	2	62.01	2.26
45	Sc	---	2	450891.72	3.93
45	Sc	---	3	25729.22	0.49
47	Ti	89	2	1.78	1.68
51	V	89	2	21.89	1.46
51	V	89	3	17.09	0.88
52	Cr	89	2	18.44	2.95
52	Cr	89	3	20.74	0.33
55	Mn	89	2	24.06	2.10
55	Mn	89	3	12.26	0.32
56	Fe	89	2	1881.62	2.15
56	Fe	89	3	1616.92	0.24
59	Co	89	2	17.80	1.94
59	Co	89	3	27.58	0.27
60	Ni	89	2	3.73	2.12
62	Ni	89	2	0.55	3.18
63	Cu	89	2	8.22	2.09
63	Cu	89	3	16.82	0.91
65	Cu	89	2	3.82	2.08
66	Zn	89	2	1.98	2.18
66	Zn	89	3	2.56	1.18
68	Zn	89	2	1.40	1.36
72	Ge	---	2	4366.31	2.97
72	Ge	---	3	992.64	1.57
75	As	89	2	1.84	0.77
75	As	89	3	1.77	0.67
78	Se	89	3	0.17	1.96
82	Se	89	2	0.15	0.73
82	Se	89	3	0.09	3.71
88	Sr	89	2	21.97	2.54
89	Y	---	2	4036562.00	4.03
89	Y	---	3	908652.31	0.89
95	Mo	89	2	3.77	2.08
97	Mo	89	2	2.33	1.51
98	Mo	89	2	6.01	2.32
106	Cd	115	2	4.10	3.94
107	Ag	115	2	111.97	2.87
107	Ag	89	3	22.09	0.48
108	(Cd)	115	2	1.69	0.71
109	Ag	115	2	106.93	2.33
111	Cd	115	2	22.72	3.56
111	Cd	89	3	3.36	1.19
113	In	---	2	90046.23	2.48
114	Cd	115	2	59.12	2.59
115	In	---	2	317639.31	4.60
115	In	---	3	89085.04	0.11
118	Sn	115	2	74.37	2.86
118	Sn	---	3	78578.25	0.81
119	Sn	115	2	28.90	2.64
121	Sb	115	2	89.91	3.06
121	Sb	89	3	10.04	0.32
123	Sb	115	2	68.59	2.67
135	Ba	115	2	21.08	3.04
137	Ba	115	2	36.92	2.39
159	Tb	---	2	447639.84	4.97
203	Tl	209	2	111.40	2.06
205	Tl	209	2	267.57	2.22
206	Pb	209	2	94.38	2.34
207	Pb	209	2	78.43	3.35
208	Pb	209	2	367.05	2.68
209	Bi	---	2	257178.00	4.74
238	U	209	2	441.71	2.55

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	450892	3.93	356604	126.4	83 - 117	ISFail
89	Y	2	4036562	4.03	4045488	99.8	83 - 117	
89	Y	3	908652	0.89	905843	100.3	83 - 117	
115	In	2	317639	4.60	325369	97.6	83 - 117	
209	Bi	2	257178	4.74	270958	94.9	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

--- :Element Failures ---
1 :ISTD Failures 0

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\104CCV1.D\104CCV1.D#
Date Acquired: Sep 20 2016 05:40 pm
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 05:38 pm
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	93.33	7.20	100	93.3	90 - 110	
9 Be	45	2	92.51	7.22	100	92.5	90 - 110	
11 B	45	2	234.90	7.20	250	94.0	90 - 110	
23 Na	89	2	9618.00	6.38	10000	96.2	90 - 110	
24 Mg	89	2	9557.00	6.90	10000	95.6	90 - 110	
27 Al	89	2	96.14	6.72	100	96.1	90 - 110	
28 Si	89	2	9575.00	7.59	10000	95.8	90 - 110	
29 Si	89	2	9866.00	8.69	10000	98.7	90 - 110	
39 K	89	2	9544.00	7.40	10000	95.4	90 - 110	
44 Ca	89	2	9698.00	7.70	10000	97.0	90 - 110	
47 Ti	89	2	94.28	7.75	100	94.3	90 - 110	
51 V	89	2	95.27	8.28	100	95.3	90 - 110	
51 V	89	3	96.96	1.71	100	97.0	90 - 110	
52 Cr	89	2	94.89	7.74	100	94.9	90 - 110	
52 Cr	89	3	99.22	1.34	100	99.2	90 - 110	
55 Mn	89	2	94.33	7.70	100	94.3	90 - 110	
55 Mn	89	3	95.86	0.78	100	95.9	90 - 110	
56 Fe	89	2	9550.00	7.90	10000	95.5	90 - 110	
56 Fe	89	3	9925.00	0.53	10000	99.3	90 - 110	
59 Co	89	2	96.13	7.09	100	96.1	90 - 110	
59 Co	89	3	99.45	0.27	100	99.5	90 - 110	
60 Ni	89	2	95.80	7.23	100	95.8	90 - 110	
62 Ni	89	2	97.08	7.94	100	97.1	90 - 110	
63 Cu	89	2	95.89	7.09	100	95.9	90 - 110	
63 Cu	89	3	95.13	0.58	100	95.1	90 - 110	
65 Cu	89	2	96.07	7.05	100	96.1	90 - 110	
66 Zn	89	2	95.11	7.78	100	95.1	90 - 110	
66 Zn	89	3	97.79	1.43	100	97.8	90 - 110	
68 Zn	89	2	96.60	7.37	100	96.6	90 - 110	
75 As	89	2	93.77	8.17	100	93.8	90 - 110	
75 As	89	3	96.15	0.29	100	96.2	90 - 110	
78 Se	89	2	93.86	9.16	100	93.9	90 - 110	
78 Se	89	3	95.73	2.97	100	95.7	90 - 110	
82 Se	89	2	95.97	8.20	100	96.0	90 - 110	
82 Se	89	3	95.23	2.21	100	95.2	90 - 110	
88 Sr	89	2	95.22	7.29	100	95.2	90 - 110	
95 Mo	89	2	95.68	7.69	100	95.9	90 - 110	
97 Mo	89	2	95.36	7.68	100	95.4	90 - 110	
98 Mo	89	2	95.41	7.17	100	95.4	90 - 110	
106 Cd	115	2	102.80	13.60	100	102.8	90 - 110	
107 Ag	115	2	95.51	7.43	100	95.5	90 - 110	
107 Ag	89	3	96.41	0.40	100	96.4	90 - 110	
109 Ag	115	2	95.91	7.17	100	95.9	90 - 110	
111 Cd	115	2	94.37	8.02	100	94.4	90 - 110	
111 Cd	89	3	98.58	1.94	100	98.6	90 - 110	
114 Cd	115	2	94.91	7.44	100	94.9	90 - 110	
118 Sn	115	2	95.58	7.23	100	95.6	90 - 110	
119 Sn	115	2	94.56	6.96	100	94.6	90 - 110	
121 Sb	115	2	93.88	7.53	100	93.9	90 - 110	
121 Sb	89	3	96.40	0.57	100	96.4	90 - 110	
123 Sb	115	2	95.62	7.71	100	95.6	90 - 110	
135 Ba	115	2	94.82	7.37	100	94.8	90 - 110	
137 Ba	115	2	95.47	7.14	100	95.5	90 - 110	
203 Tl	209	2	101.10	9.83	100	101.1	90 - 110	
205 Tl	209	2	95.44	9.80	100	95.4	90 - 110	
206 Pb	209	2	95.57	7.49	100	95.6	90 - 110	
207 Pb	209	2	93.94	7.15	100	93.9	90 - 110	
208 Pb	209	2	94.75	7.37	100	94.8	90 - 110	
238 U	209	2	91.67	7.83	100	91.7	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	410633	3.96	356604	115.2	83 - 117	
89 Y	2	4091434	4.41	4045488	101.1	83 - 117	
89 Y	3	894749	0.51	905843	98.8	83 - 117	
115 In	2	326883	4.42	325369	100.5	83 - 117	
209 Bi	2	268187	4.20	270958	99.0	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\105 CCB.D\105 CCB.D#
Date Acquired: Sep 20 2016 05:45 pm
Operator: zhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 05:38 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.02 ppb	299.91	#######	
9 Be	45	2	0.11 ppb	43.24	#######	
11 B	45	2	0.37 ppb	156.65	#######	
23 Na	89	2	1.91 ppb	973.31	#######	
24 Mg	89	2	5.30 ppb	149.42	#######	
27 Al	89	2	1.95 ppb	42.99	#######	
28 Si	89	2	11.06 ppb	50.06	#######	
29 Si	89	2	-39.11 ppb	6.85	#######	
39 K	89	2	-2.49 ppb	205.18	#######	
44 Ca	89	2	12.81 ppb	98.28	#######	
47 Ti	89	2	0.10 ppb	91.29	#######	
51 V	89	2	-0.22 ppb	31.34	#######	
51 V	89	3	0.11 ppb	93.82	#######	
52 Cr	89	2	-0.21 ppb	23.25	#######	
52 Cr	89	3	0.04 ppb	232.71	#######	
55 Mn	89	2	-0.02 ppb	543.08	#######	
55 Mn	89	3	0.07 ppb	50.15	#######	
56 Fe	89	2	3.04 ppb	147.81	#######	
56 Fe	89	3	7.59 ppb	25.09	#######	
59 Co	89	2	0.10 ppb	44.67	#######	
59 Co	89	3	0.07 ppb	17.38	#######	
60 Ni	89	2	-0.04 ppb	91.59	#######	
62 Ni	89	2	-0.11 ppb	207.67	#######	
63 Cu	89	2	0.19 ppb	146.99	#######	
63 Cu	89	3	0.18 ppb	42.67	#######	
65 Cu	89	2	0.10 ppb	267.74	#######	
66 Zn	89	2	-0.04 ppb	48.98	#######	
66 Zn	89	3	-0.04 ppb	418.40	#######	
68 Zn	89	2	0.01 ppb	1701.30	#######	
75 As	89	2	0.08 ppb	41.31	#######	
75 As	89	3	0.52 ppb	171.18	#######	
77 (As)	89	2	-10.36 ppb	19.90	#######	
78 Se	89	2	0.22 ppb	100.73	#######	
78 Se	89	3	-0.31 ppb	41.52	#######	
82 Se	89	2	0.24 ppb	359.93	#######	
82 Se	89	3	1.46 ppb	415.57	#######	
83 (Se)	89	2	118.80 ppb	335.69	#######	
83 (Se)	89	3	-1235.00	97.33	#######	
88 Sr	89	2	0.09 ppb	101.60	#######	
95 Mo	89	2	0.16 ppb	20.78	#######	
97 Mo	89	2	0.23 ppb	31.02	#######	
98 Mo	89	2	0.22 ppb	9.32	#######	
99 (Mo)	89	2	164.00 ppb	111.16	#######	
106 Cd	115	2	4.73 ppb	56.21	#######	
107 Ag	115	2	0.06 ppb	19.09	#######	
107 Ag	89	3	0.04 ppb	42.67	#######	
108 (Cd)	115	2	-0.11 ppb	124.14	#######	
108 (Cd)	89	3	0.09 ppb	542.62	#######	
109 Ag	115	2	0.07 ppb	52.90	#######	
111 Cd	115	2	0.07 ppb	65.20	#######	
111 Cd	89	3	0.04 ppb	144.23	#######	
114 Cd	115	2	0.06 ppb	49.86	#######	
118 Sn	115	2	0.05 ppb	38.10	#######	
119 Sn	115	2	0.05 ppb	162.81	#######	
121 Sb	115	2	-0.07 ppb	32.99	#######	
121 Sb	89	3	-0.03 ppb	86.77	#######	
123 Sb	115	2	-0.12 ppb	15.97	#######	
135 Ba	115	2	0.01 ppb	1180.40	#######	
137 Ba	115	2	0.01 ppb	1223.70	#######	
203 Tl	209	2	0.39 ppb	18.31	#######	
205 Tl	209	2	0.36 ppb	28.37	#######	
206 Pb	209	2	0.04 ppb	91.13	#######	
207 Pb	209	2	0.05 ppb	70.71	#######	
208 Pb	209	2	0.04 ppb	89.02	#######	
238 U	209	2	0.07 ppb	43.97	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	374030	0.71	356604	104.9	83 - 117	
89 Y	2	4207880	0.56	4045480	104.0	83 - 117	
89 Y	3	920641	19.64	905843	101.6	83 - 117	
115 In	2	340623	0.83	325369	104.7	83 - 117	
209 Bi	2	283723	0.68	270958	104.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\096CALB.D\096CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\106ICV2.D\106ICV2.D#
Date Acquired: Sep 20 2016 05:50 pm
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 20 2016 05:38 pm
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.22	2.50	10	102.2	70 - 130	
9 Be	45	2	2.17	2.11	2	108.3	70 - 130	
11 B	45	2	20.54	4.41	20	102.7	70 - 130	
23 Na	89	2	205.30	5.41	200	102.7	70 - 130	
24 Mg	89	2	213.00	0.31	200	106.5	70 - 130	
27 Al	89	2	11.00	2.80	10	110.0	70 - 130	
28 Si	89	2	1034.00	2.43	200	517.0	70 - 130	
29 Si	89	2	992.90	3.67	200	496.5	70 - 130	
39 K	89	2	197.50	0.64	200	98.8	70 - 130	
44 Ca	89	2	523.50	1.35	500	104.7	70 - 130	
47 Ti	89	2	5.51	3.08	5	110.1	70 - 130	
51 V	89	2	4.69	4.55	5	93.8	70 - 130	
51 V	89	3	5.01	5.03	5	100.2	70 - 130	
52 Cr	89	2	4.80	3.79	5	96.0	70 - 130	
52 Cr	89	3	5.05	2.55	5	101.0	70 - 130	
53 Cr	89	2	2.19	11.84	5	43.8	70 - 130	
53 Cr	89	3	4.82	8.85	5	96.5	70 - 130	
55 Mn	89	2	4.88	1.76	5	97.6	70 - 130	
55 Mn	89	3	5.10	2.17	5	102.0	70 - 130	
56 Fe	89	2	81.32	0.26	80	101.7	70 - 130	
56 Fe	89	3	89.14	0.79	80	111.4	70 - 130	
59 Co	89	2	5.10	2.16	5	102.0	70 - 130	
59 Co	89	3	5.37	1.27	5	107.5	70 - 130	
60 Ni	89	2	5.02	1.95	5	100.5	70 - 130	
62 Ni	89	2	5.15	2.56	5	103.0	70 - 130	
63 Cu	89	2	5.20	0.95	5	104.0	70 - 130	
63 Cu	89	3	5.28	1.85	5	105.5	70 - 130	
65 Cu	89	2	5.34	4.09	5	106.7	70 - 130	
66 Zn	89	2	10.31	5.35	10	103.1	70 - 130	
66 Zn	89	3	10.23	2.94	10	102.3	70 - 130	
68 Zn	89	2	9.96	3.21	10	99.6	70 - 130	
75 As	89	2	4.85	24.87	5	97.1	70 - 130	
75 As	89	3	5.09	12.05	5	101.8	70 - 130	
77 (As)	89	2	2.32	216.53	0	#DIV/0!	##### - #####	
77 (As)	89	3	5.69	32.30	0	#DIV/0!	##### - #####	
78 Se	89	2	4.45	7.51	5	89.1	70 - 130	
78 Se	89	3	4.63	6.77	5	92.5	70 - 130	
82 Se	89	2	4.91	12.95	5	98.1	70 - 130	
82 Se	89	3	4.70	25.31	5	93.9	70 - 130	
83 (Se)	89	2	177.60	147.64	0	#DIV/0!	##### - #####	
83 (Se)	89	3	-126.40	550.94	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.11	1.88	5	102.2	70 - 130	
95 Mo	89	2	4.98	3.24	5	99.5	70 - 130	
97 Mo	89	2	4.94	3.63	5	98.7	70 - 130	
98 Mo	89	2	5.05	3.35	5	101.0	70 - 130	
99 (Mo)	89	2	45.28	219.92	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	1.50	21.77	2	75.1	70 - 130	
106 Cd	89	3	2.98	68.88	2	148.8	70 - 130	
107 Ag	115	2	5.03	2.03	5	100.5	70 - 130	
107 Ag	89	3	5.13	0.39	5	102.7	70 - 130	
108 (Cd)	115	2	1.40	10.06	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	2.94	21.73	0	#DIV/0!	##### - #####	
109 Ag	115	2	5.09	1.43	5	101.8	70 - 130	
111 Cd	115	2	2.12	3.84	2	105.9	70 - 130	
111 Cd	89	3	2.04	3.31	2	102.2	70 - 130	
114 Cd	115	2	2.00	1.62	2	99.8	70 - 130	
118 Sn	115	2	1.96	1.12	2	97.9	70 - 130	
119 Sn	115	2	2.25	6.54	2	112.3	70 - 130	
121 Sb	115	2	4.01	2.47	5	80.2	70 - 130	
121 Sb	89	3	4.38	0.56	5	87.5	70 - 130	
123 Sb	115	2	4.04	4.00	5	80.8	70 - 130	
135 Ba	115	2	4.84	2.62	5	96.8	70 - 130	
137 Ba	115	2	4.82	7.53	5	96.4	70 - 130	
203 Tl	209	2	5.15	6.73	5	102.9	70 - 130	
205 Tl	209	2	4.87	4.22	5	97.4	70 - 130	
206 Pb	209	2	4.76	2.47	5	95.2	70 - 130	
207 Pb	209	2	4.95	5.64	5	99.0	70 - 130	
208 Pb	209	2	4.85	3.54	5	96.9	70 - 130	
238 U	209	2	4.61	2.52	5	92.2	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	384401	0.30	356604	107.8	83 - 117	
89 Y	2	4247437	0.18	4045488	105.0	83 - 117	
89 Y	3	934358	0.96	905843	103.1	83 - 117	
115 In	2	346494	0.49	325369	106.5	83 - 117	
209 Bi	2	287038	0.46	270958	105.9	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

ICS-A QC Report

Data File: C:\ICPCHEM\1\DATA\16120100.B\107ICSA.D\107ICSA.D#
Date Acquired: Sep 20 2016 05:56 pm
Acq. Method: ICP_6020.M
Operator: zhughes, ICPMS2
Sample Name: ICSA
Misc Info:
Vial Number: 1303
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 20 2016 05:38 pm
Sample Type: ICS-A
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
7 Li	45	2	-0.07 ppb	164.08		
9 Be	45	2	0.01 ppb	122.09		
11 B	45	2	-0.18 ppb	253.06		
23 Na	89	2	49650.00 ppb	1.59		
24 Mg	89	2	48680.00 ppb	1.45		
27 Al	89	2	46070.00 ppb	1.24		
28 Si	89	2	25.61 ppb	14.98		
29 Si	89	2	75.23 ppb	49.87		
39 K	89	2	49150.00 ppb	1.26		
44 Ca	89	2	47650.00 ppb	1.46		
47 Ti	89	2	1069.00 ppb	1.33		
51 V	89	2	-0.03 ppb	137.29		
51 V	89	3	0.02 ppb	199.70		
52 Cr	89	2	0.29 ppb	24.36		
52 Cr	89	3	0.27 ppb	20.48		
53 Cr	89	2	-1.16 ppb	118.78		
53 Cr	89	3	0.19 ppb	81.64		
55 Mn	89	2	2.30 ppb	5.95		
55 Mn	89	3	2.37 ppb	8.74		
56 Fe	89	2	49230.00 ppb	1.66		
56 Fe	89	3	48660.00 ppb	0.42		
59 Co	89	2	0.54 ppb	3.57		
59 Co	89	3	0.22 ppb	14.41		
60 Ni	89	2	1.96 ppb	1.84		
62 Ni	89	2	7.86 ppb	7.49		
63 Cu	89	2	1.19 ppb	15.08		
63 Cu	89	3	0.54 ppb	10.37		
65 Cu	89	2	3.50 ppb	6.46		
66 Zn	89	2	2.76 ppb	7.25		
66 Zn	89	3	0.28 ppb	76.66		
68 Zn	89	2	0.25 ppb	92.29		
75 As	89	2	0.89 ppb	56.52		
75 As	89	3	0.25 ppb	124.38		
77 (As)	89	2	34.86 ppb	7.35		
77 (As)	89	3	1.69 ppb	28.49		
78 Se	89	2	0.12 ppb	217.13		
78 Se	89	3	-0.14 ppb	113.91		
82 Se	89	2	-0.60 ppb	127.65		
82 Se	89	3	0.19 ppb	1327.90		
83 (Se)	89	2	408.10 ppb	89.56		
83 (Se)	89	3	-803.20	152.27		
88 Sr	89	2	0.74 ppb	9.65		
95 Mo	89	2	1000.00 ppb	1.37		
97 Mo	89	2	998.20 ppb	0.80		
98 Mo	89	2	990.70 ppb	0.24		
99 (Mo)	89	2	350.00 ppb	9.81		
99 (Mo)	89	3	10140.00 ppb	43.65		
106 Cd	115	2	0.92 ppb	290.47		
106 Cd	89	3	0.35 ppb	335.50		
107 Ag	115	2	0.04 ppb	26.86		
107 Ag	89	3	0.04 ppb	8.46		
108 (Cd)	115	2	31.94 ppb	5.05		
108 (Cd)	89	3	21.55 ppb	14.88		
109 Ag	115	2	0.05 ppb	35.43		
111 Cd	115	2	-0.24 ppb	42.71		
111 Cd	89	3	-0.16 ppb	162.38		
114 Cd	115	2	1.45 ppb	2.96		
118 Sn	115	2	0.00 ppb	11644.00		
119 Sn	115	2	0.00 ppb	899.66		
121 Sb	115	2	0.13 ppb	1.50		
121 Sb	89	3	0.13 ppb	24.14		
123 Sb	115	2	0.07 ppb	14.10		
135 Ba	115	2	0.29 ppb	35.07		
137 Ba	115	2	0.20 ppb	46.76		
203 Tl	209	2	0.04 ppb	108.90		
205 Tl	209	2	0.03 ppb	151.72		
206 Pb	209	2	0.07 ppb	36.57		
207 Pb	209	2	0.05 ppb	31.39		
208 Pb	209	2	0.05 ppb	28.67		
238 U	209	2	0.00 ppb	293.96		

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	365780	2.92	356604	102.6	70 - 125	
89 Y	2	4110468	2.97	4045488	101.6	70 - 125	
89 Y	3	910627	0.96	905843	100.5	70 - 125	
115 In	2	316337	2.75	325369	97.2	70 - 125	
209 Bi	2	251313	2.83	270958	92.8	70 - 125	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16120100.B\096CALB.D\096CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Nnumber of ISTD Failures Allowed

ICS-AB QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\108ICSB.D\108ICSB.D#
Date Acquired: Sep 20 2016 06:01 pm
Acq. Method: ICP_6020.M
Operator: rhughes, ICPMS2
Sample Name: ICSAB
Misc Info:
Vial Number: 1304
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 20 2016 05:38 pm
Sample Type: ICS-AB
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS	Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
7 Li	45		2	95.44	3.51	---		-	
9 Be	45		2	89.23	3.54	---		-	
11 B	45		2	229.10	3.47	---		-	
23 Na	89		2	57900.00	3.00	---		-	
24 Mg	89		2	56800.00	3.07	---		-	
27 Al	89		2	44930.00	3.00	---		-	
28 Si	89		2	9815.00	3.15	---		-	
29 Si	89		2	10270.00	2.20	---		-	
39 K	89		2	57560.00	2.62	---		-	
44 Ca	89		2	55950.00	2.92	---		-	
47 Ti	89		2	1141.00	2.82	---		-	
51 V	89		2	97.07	1.89	---		-	
51 V	89		3	101.20	19.89	---		-	
52 Cr	89		2	94.66	2.54	---		-	
52 Cr	89		3	102.30	20.85	---		-	
53 Cr	89		2	103.40	4.17	---		-	
53 Cr	89		3	104.00	17.70	---		-	
55 Mn	89		2	96.24	2.96	---		-	
55 Mn	89		3	101.90	18.77	---		-	
56 Fe	89		2	57340.00	2.99	---		-	
56 Fe	89		3	61250.00	19.46	---		-	
59 Co	89		2	94.30	2.86	---		-	
59 Co	89		3	100.20	19.06	---		-	
60 Ni	89		2	94.21	3.52	---		-	
62 Ni	89		2	98.62	4.63	---		-	
63 Cu	89		2	91.47	2.13	---		-	
63 Cu	89		3	93.61	19.81	---		-	
65 Cu	89		2	94.80	2.70	---		-	
66 Zn	89		2	94.38	2.49	---		-	
66 Zn	89		3	97.13	19.29	---		-	
68 Zn	89		2	92.59	3.67	---		-	
75 As	89		2	96.83	4.37	---		-	
75 As	89		3	103.20	16.59	---		-	
77 (As)	89		2	150.90	5.00	---		-	
77 (As)	89		3	110.40	21.22	---		-	
78 Se	89		2	98.84	5.73	---		-	
78 Se	89		3	102.30	13.72	---		-	
82 Se	89		2	98.04	2.47	---		-	
82 Se	89		3	102.80	15.73	---		-	
83 (Se)	89		2	478.20	85.28	---		-	
83 (Se)	89		3	-390.70	288.97	---		-	
88 Sr	89		2	97.72	2.93	---		-	
95 Mo	89		2	1099.00	5.46	---		-	
97 Mo	89		2	1078.00	3.17	---		-	
98 Mo	89		2	1085.00	3.67	---		-	
99 (Mo)	89		2	161.70	87.32	---		-	
99 (Mo)	89		3	17130.00	18.89	---		-	
106 Cd	115		2	92.23	6.32	---		-	
106 Cd	89		3	100.40	19.28	---		-	
107 Ag	115		2	96.01	3.80	---		-	
107 Ag	89		3	94.56	18.69	---		-	
108 (Cd)	115		2	128.10	4.83	---		-	
108 (Cd)	89		3	120.40	17.33	---		-	
109 Ag	115		2	95.59	2.91	---		-	
111 Cd	115		2	96.85	3.16	---		-	
111 Cd	89		3	99.75	19.77	---		-	
114 Cd	115		2	98.54	3.03	---		-	
118 Sn	115		2	98.98	3.31	---		-	
119 Sn	115		2	97.94	2.02	---		-	
121 Sb	115		2	99.18	3.69	---		-	
121 Sb	89		3	100.70	19.88	---		-	
123 Sb	115		2	101.00	3.54	---		-	
135 Ba	115		2	101.40	2.90	---		-	
137 Ba	115		2	100.70	2.69	---		-	
203 Tl	209		2	96.29	13.58	---		-	
205 Tl	209		2	91.57	13.44	---		-	
206 Pb	209		2	100.70	3.51	---		-	
207 Pb	209		2	99.97	4.00	---		-	
208 Pb	209		2	100.30	3.62	---		-	
238 U	209		2	99.67	3.74	---		-	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	385243	1.33	356604	108.0	70 - 125	
89 Y	2	3923426	0.73	4045488	97.0	70 - 125	
89 Y	3	825808	17.58	905843	91.2	70 - 125	
115 In	2	299341	1.09	325369	92.0	70 - 125	
209 Bi	2	237514	1.39	270958	87.7	70 - 125	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\117CCV1.D\117CCV1.D#
Date Acquired: Sep 20 2016 06:49 pm
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 05:38 pm
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	93.99	1.52	100	94.0	90 - 110	
9 Be	45	2	94.18	1.44	100	94.2	90 - 110	
11 B	45	2	237.50	2.01	250	95.0	90 - 110	
23 Na	89	2	9556.00	1.21	10000	95.6	90 - 110	
24 Mg	89	2	9504.00	1.25	10000	95.0	90 - 110	
27 Al	89	2	96.20	0.60	100	96.2	90 - 110	
28 Si	89	2	9575.00	1.28	10000	95.8	90 - 110	
29 Si	89	2	9867.00	1.30	10000	98.7	90 - 110	
39 K	89	2	9546.00	1.33	10000	95.5	90 - 110	
44 Ca	89	2	9631.00	1.17	10000	96.3	90 - 110	
47 Ti	89	2	94.16	1.72	100	94.2	90 - 110	
51 V	89	2	94.24	1.80	100	94.2	90 - 110	
51 V	89	3	96.91	0.39	100	96.9	90 - 110	
52 Cr	89	2	94.17	1.52	100	94.2	90 - 110	
52 Cr	89	3	98.85	1.13	100	98.9	90 - 110	
55 Mn	89	2	93.91	1.85	100	93.9	90 - 110	
55 Mn	89	3	96.56	0.49	100	96.6	90 - 110	
56 Fe	89	2	9531.00	1.32	10000	95.3	90 - 110	
56 Fe	89	3	9965.00	0.74	10000	99.7	90 - 110	
59 Co	89	2	95.12	1.35	100	95.1	90 - 110	
59 Co	89	3	99.43	0.36	100	99.4	90 - 110	
60 Ni	89	2	95.91	1.66	100	95.9	90 - 110	
62 Ni	89	2	93.99	3.74	100	94.0	90 - 110	
63 Cu	89	2	95.72	2.00	100	95.7	90 - 110	
63 Cu	89	3	94.57	1.10	100	94.6	90 - 110	
65 Cu	89	2	95.60	1.04	100	95.6	90 - 110	
66 Zn	89	2	95.00	1.77	100	95.0	90 - 110	
66 Zn	89	3	98.51	0.93	100	98.5	90 - 110	
68 Zn	89	2	95.10	1.05	100	95.1	90 - 110	
75 As	89	2	93.12	1.95	100	93.1	90 - 110	
75 As	89	3	97.26	1.66	100	97.3	90 - 110	
78 Se	89	2	93.47	1.84	100	93.5	90 - 110	
78 Se	89	3	97.70	2.36	100	97.7	90 - 110	
82 Se	89	2	93.55	0.64	100	93.6	90 - 110	
82 Se	89	3	94.07	0.76	100	94.1	90 - 110	
88 Sr	89	2	95.76	1.65	100	95.8	90 - 110	
95 Mo	89	2	96.30	2.73	100	96.3	90 - 110	
97 Mo	89	2	96.27	1.87	100	96.3	90 - 110	
98 Mo	89	2	95.85	2.81	100	95.9	90 - 110	
106 Cd	115	2	101.90	4.55	100	101.9	90 - 110	
107 Ag	115	2	96.60	1.25	100	96.6	90 - 110	
107 Ag	89	3	96.80	0.34	100	96.8	90 - 110	
109 Ag	115	2	96.29	1.71	100	96.3	90 - 110	
111 Cd	115	2	95.73	2.12	100	95.7	90 - 110	
111 Cd	89	3	100.70	1.27	100	100.7	90 - 110	
114 Cd	115	2	95.50	1.62	100	95.5	90 - 110	
118 Sn	115	2	95.88	1.56	100	95.9	90 - 110	
119 Sn	115	2	96.90	2.02	100	96.9	90 - 110	
121 Sb	115	2	94.38	1.68	100	94.4	90 - 110	
121 Sb	89	3	97.23	0.81	100	97.2	90 - 110	
123 Sb	115	2	96.19	1.53	100	96.2	90 - 110	
135 Ba	115	2	96.46	1.13	100	96.5	90 - 110	
137 Ba	115	2	96.63	2.30	100	96.6	90 - 110	
203 Tl	209	2	101.50	4.91	100	101.5	90 - 110	
205 Tl	209	2	96.29	5.55	100	96.3	90 - 110	
206 Pb	209	2	96.93	1.87	100	96.9	90 - 110	
207 Pb	209	2	95.10	1.32	100	95.1	90 - 110	
208 Pb	209	2	96.17	1.88	100	96.2	90 - 110	
238 U	209	2	92.95	2.45	100	93.0	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	346275	2.29	356604	97.1	83 - 117	
89 Y	2	3509306	2.30	4045488	86.7	83 - 117	
89 Y	3	785993	0.24	905843	86.8	83 - 117	
115 In	2	280208	2.20	325369	86.1	83 - 117	
209 Bi	2	229759	1.74	270958	84.8	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16120100.B\118 CCB.D\118 CCB.D#
Date Acquired: Sep 20 2016 06:54 pm
Operator: rhughes, ICPMSZ
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 05:38 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	-0.10 ppb	103.19	#######	
9 Be	45	2	0.08 ppb	38.15	#######	
11 B	45	2	-0.55 ppb	85.47	#######	
23 Na	89	2	14.12 ppb	87.89	#######	
24 Mg	89	2	6.00 ppb	95.26	#######	
27 Al	89	2	2.08 ppb	17.74	#######	
28 Si	89	2	7.06 ppb	54.89	#######	
29 Si	89	2	-14.60 ppb	561.99	#######	
39 K	89	2	3.77 ppb	351.13	#######	
44 Ca	89	2	11.43 ppb	69.57	#######	
47 Ti	89	2	0.11 ppb	60.33	#######	
51 V	89	2	0.12 ppb	114.60	#######	
51 V	89	3	-0.01 ppb	1761.40	#######	
52 Cr	89	2	-0.17 ppb	70.25	#######	
52 Cr	89	3	-0.01 ppb	158.52	#######	
55 Mn	89	2	-0.03 ppb	133.44	#######	
55 Mn	89	3	0.06 ppb	24.41	#######	
56 Fe	89	2	5.02 ppb	61.60	#######	
56 Fe	89	3	7.12 ppb	4.49	#######	
59 Co	89	2	0.08 ppb	36.72	#######	
59 Co	89	3	0.08 ppb	19.22	#######	
60 Ni	89	2	-0.07 ppb	24.02	#######	
62 Ni	89	2	-0.10 ppb	424.02	#######	
63 Cu	89	2	0.11 ppb	174.80	#######	
63 Cu	89	3	0.09 ppb	19.82	#######	
65 Cu	89	2	0.06 ppb	315.92	#######	
66 Zn	89	2	-0.04 ppb	173.35	#######	
66 Zn	89	3	-0.03 ppb	204.50	#######	
68 Zn	89	2	0.01 ppb	517.16	#######	
75 As	89	2	0.29 ppb	364.42	#######	
75 As	89	3	-0.30 ppb	123.86	#######	
77 (As)	89	2	-5.81 ppb	80.66	#######	
78 Se	89	2	0.12 ppb	652.50	#######	
78 Se	89	3	-0.38 ppb	46.32	#######	
82 Se	89	2	-0.02 ppb	1846.50	#######	
82 Se	89	3	-1.49 ppb	242.60	#######	
83 (Se)	89	2	-8.03 ppb	3901.10	#######	
83 (Se)	89	3	432.30	123.71	#######	
88 Sr	89	2	0.12 ppb	59.55	#######	
95 Mo	89	2	0.21 ppb	13.00	#######	
97 Mo	89	2	0.12 ppb	13.17	#######	
98 Mo	89	2	0.18 ppb	10.07	#######	
99 (Mo)	89	2	154.70 ppb	180.61	#######	
106 Cd	115	2	-0.19 ppb	3919.20	#######	
107 Ag	115	2	0.05 ppb	33.98	#######	
107 Ag	89	3	0.04 ppb	31.41	#######	
108 (Cd)	115	2	-0.33 ppb	79.65	#######	
108 (Cd)	89	3	0.02 ppb	806.77	#######	
109 Ag	115	2	0.06 ppb	48.84	#######	
111 Cd	115	2	0.07 ppb	46.34	#######	
111 Cd	89	3	0.06 ppb	113.21	#######	
114 Cd	115	2	0.05 ppb	62.07	#######	
118 Sn	115	2	0.03 ppb	67.90	#######	
119 Sn	115	2	0.01 ppb	420.06	#######	
121 Sb	115	2	-0.07 ppb	21.97	#######	
121 Sb	89	3	-0.02 ppb	146.53	#######	
123 Sb	115	2	-0.11 ppb	15.32	#######	
135 Ba	115	2	0.03 ppb	341.84	#######	
137 Ba	115	2	0.01 ppb	637.05	#######	
203 Tl	209	2	0.30 ppb	26.20	#######	
205 Tl	209	2	0.29 ppb	30.30	#######	
206 Pb	209	2	0.04 ppb	61.75	#######	
207 Pb	209	2	0.02 ppb	99.91	#######	
208 Pb	209	2	0.04 ppb	55.70	#######	
238 U	209	2	0.06 ppb	34.13	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	320561	7.54	356604	89.9	83 - 117	
89 Y	2	3658401	8.05	4045488	90.4	83 - 117	
89 Y	3	814975	1.18	905843	90.0	83 - 117	
115 In	2	296400	8.24	325369	91.1	83 - 117	
209 Bi	2	247777	7.53	270958	91.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16120100.B\096CALB.D\096CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\119ICV2.D\119ICV2.D#
Date Acquired: Sep 20 2016 06:59 pm
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 20 2016 05:38 pm
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.21	0.68	10	102.1	70 - 130	
9 Be	45	2	2.18	0.23	2	108.9	70 - 130	
11 B	45	2	20.07	1.72	20	100.4	70 - 130	
23 Na	89	2	215.40	5.20	200	107.7	70 - 130	
24 Mg	89	2	213.70	1.38	200	106.9	70 - 130	
27 Al	89	2	11.53	11.21	10	115.3	70 - 130	
28 Si	89	2	1025.00	1.05	200	512.5	70 - 130	
29 Si	89	2	983.50	2.38	200	491.8	70 - 130	
39 K	89	2	200.90	4.47	200	100.5	70 - 130	
44 Ca	89	2	521.20	1.27	500	104.2	70 - 130	
47 Ti	89	2	5.65	0.90	5	113.0	70 - 130	
51 V	89	2	4.94	8.11	5	98.8	70 - 130	
51 V	89	3	5.01	3.10	5	100.3	70 - 130	
52 Cr	89	2	4.80	1.18	5	95.9	70 - 130	
52 Cr	89	3	4.92	6.71	5	98.3	70 - 130	
53 Cr	89	2	2.17	29.20	5	43.5	70 - 130	
53 Cr	89	3	4.30	15.18	5	86.0	70 - 130	
55 Mn	89	2	4.87	1.82	5	97.4	70 - 130	
55 Mn	89	3	4.77	8.41	5	95.3	70 - 130	
56 Fe	89	2	81.40	2.51	80	101.8	70 - 130	
56 Fe	89	3	86.52	1.22	80	108.2	70 - 130	
59 Co	89	2	5.08	1.26	5	101.6	70 - 130	
59 Co	89	3	5.09	2.10	5	101.7	70 - 130	
60 Ni	89	2	5.04	1.24	5	100.8	70 - 130	
62 Ni	89	2	4.63	14.58	5	92.5	70 - 130	
63 Cu	89	2	5.18	2.85	5	103.7	70 - 130	
63 Cu	89	3	5.04	2.98	5	100.8	70 - 130	
65 Cu	89	2	5.17	5.83	5	103.5	70 - 130	
66 Zn	89	2	10.34	4.38	10	103.4	70 - 130	
66 Zn	89	3	10.65	6.25	10	106.5	70 - 130	
68 Zn	89	2	9.77	2.50	10	97.7	70 - 130	
75 As	89	2	4.57	5.84	5	91.5	70 - 130	
75 As	89	3	4.53	8.23	5	90.5	70 - 130	
77 (As)	89	2	6.73	26.92	0	#DIV/0!	##### - #####	
77 (As)	89	3	6.54	13.88	0	#DIV/0!	##### - #####	
78 Se	89	2	4.66	4.17	5	93.2	70 - 130	
78 Se	89	3	4.63	12.59	5	92.6	70 - 130	
82 Se	89	2	6.09	15.47	5	121.9	70 - 130	
82 Se	89	3	1.87	176.18	5	37.4	70 - 130	
83 (Se)	89	2	-164.20	142.14	0	#DIV/0!	##### - #####	
83 (Se)	89	3	-102.40	526.27	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.07	0.17	5	101.3	70 - 130	
95 Mo	89	2	4.82	2.22	5	96.4	70 - 130	
97 Mo	89	2	5.01	3.92	5	100.1	70 - 130	
98 Mo	89	2	4.91	2.63	5	98.2	70 - 130	
99 (Mo)	89	2	-43.65	223.33	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	0.68	295.46	2	34.2	70 - 130	
106 Cd	89	3	2.97	207.86	2	148.3	70 - 130	
107 Ag	115	2	4.99	5.90	5	99.9	70 - 130	
107 Ag	89	3	5.11	2.64	5	102.1	70 - 130	
108 (Cd)	115	2	1.96	45.38	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	2.14	41.19	0	#DIV/0!	##### - #####	
109 Ag	115	2	5.04	1.20	5	100.8	70 - 130	
111 Cd	115	2	2.00	3.38	2	100.0	70 - 130	
111 Cd	89	3	2.19	10.81	2	109.6	70 - 130	
114 Cd	115	2	1.99	2.88	2	99.4	70 - 130	
118 Sn	115	2	1.97	1.76	2	98.5	70 - 130	
119 Sn	115	2	2.20	3.41	2	110.0	70 - 130	
121 Sb	115	2	4.07	1.78	5	81.5	70 - 130	
121 Sb	89	3	4.40	2.04	5	88.0	70 - 130	
123 Sb	115	2	4.12	3.27	5	82.4	70 - 130	
135 Ba	115	2	4.93	9.06	5	98.8	70 - 130	
137 Ba	115	2	4.97	1.74	5	99.3	70 - 130	
203 Tl	209	2	5.03	1.54	5	100.6	70 - 130	
205 Tl	209	2	4.83	1.34	5	96.5	70 - 130	
206 Pb	209	2	4.84	0.67	5	96.9	70 - 130	
207 Pb	209	2	5.09	0.86	5	101.7	70 - 130	
208 Pb	209	2	4.96	1.81	5	99.2	70 - 130	
238 U	209	2	4.63	1.99	5	92.5	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	329821	1.94	356604	92.5	83 - 117	
89 Y	2	3679397	1.86	4045488	91.0	83 - 117	
89 Y	3	823239	0.74	905843	90.9	83 - 117	
115 In	2	300452	1.90	325369	92.3	83 - 117	
209 Bi	2	251283	1.84	270958	92.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\096CALB.D\096CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

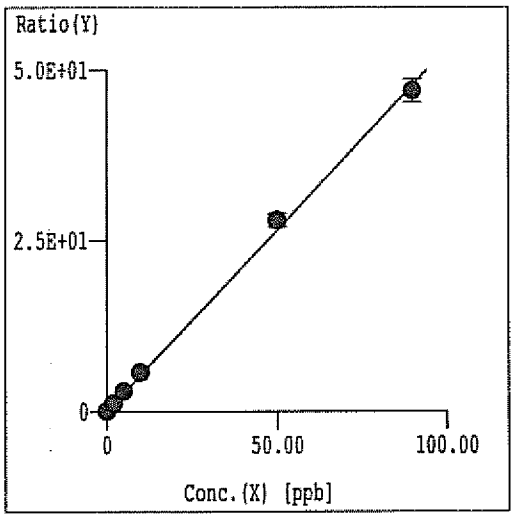
Last Calib: Sep 28, 2016 11:34 am
Calibration Type: External Calibration Method
Calibration Title: ICPMS2 160920A ICAL
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Multi Tune: #2 nogas.u
#3 he.u

=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\icpchem\1\data\16i20i00.b\165calb.d\165calb.d#	Level 1	Sep 20 2016 11:04 pm
2	c:\icpchem\1\data\16i20i00.b\166cals.d\166cals.d#	Level 2	Sep 20 2016 11:09 pm
3	c:\icpchem\1\data\16i20i00.b\167cals.d\167cals.d#	Level 3	Sep 20 2016 11:15 pm
4	c:\icpchem\1\data\16i20i00.b\168cals.d\168cals.d#	Level 4	Sep 20 2016 11:20 pm
5	c:\icpchem\1\data\16i20i00.b\169cals.d\169cals.d#	Level 5	Sep 20 2016 11:25 pm
6	c:\icpchem\1\data\16i20i00.b\170cals.d\170cals.d#	Level 6	Sep 20 2016 11:31 pm
7	c:\icpchem\1\data\16i20i00.b\171cals.d\171cals.d#	Level 7	Sep 20 2016 11:36 pm
8	c:\icpchem\1\data\16i20i00.b\172cals.d\172cals.d#	Level 8	Sep 20 2016 11:41 pm
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	9	Be	45	ppb

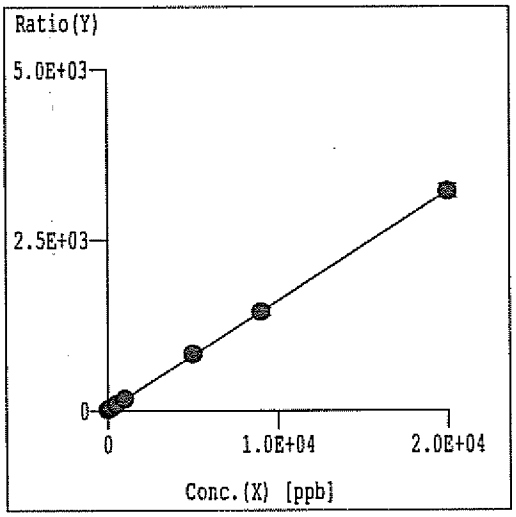


	Rct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	53.33	1.597E-02	P	57.28
2		2.000E-01	2.070E-01	423.3	1.258E-01	P	9.548
3		2.000	2.150	3899	1.157E+00	P	2.023
4		5.000	5.531	1.001E+04	2.951E+00	P	1.707
5		10.00	10.70	1.939E+04	5.693E+00	P	2.640
6		50.00	52.65	9.646E+04	2.796E+01	P	3.522
7		90.00	88.42	1.748E+05	4.694E+01	P	3.622
8	ON	200.0	---	3.784E+05	9.538E+01	P	1.819
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9994
Y = 5.307E-001*X +1.597E-002
X = 1.884E+000*Y -3.010E-002
DL = 5.172E-02 ppb
BEC = 3.010E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	23	Na	89	ppb



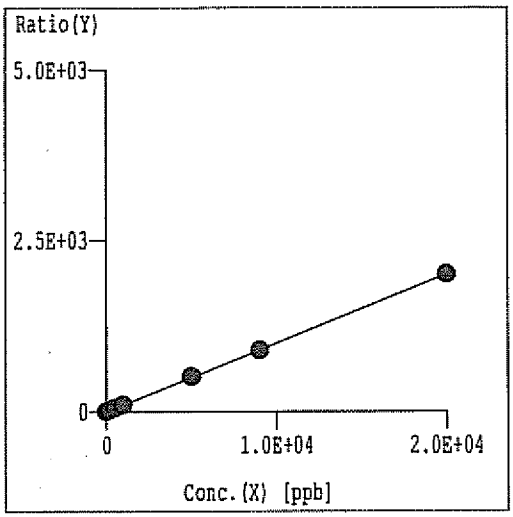
	Rct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	4.643E+05	1.237E+01	M	30.76
2		20.00	16.75	5.723E+05	1.505E+01	M	11.45
3		200.0	204.1	1.696E+06	4.503E+01	A	6.687
4		500.0	506.7	3.524E+06	9.345E+01	A	2.558
5		1000	997.4	6.498E+06	1.720E+02	A	3.403E-01
6		5000	5108	3.023E+07	8.296E+02	A	3.796
7		9000	8962	5.437E+07	1.446E+03	A	3.465
8		2.000E+04	1.999E+04	1.159E+08	3.211E+03	A	3.061
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.600E-001*X +1.237E+001
X = 6.250E+000*Y -7.734E+001
DL = 71.36 ppb
BEC = 77.34 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	24	Mg	89	ppb

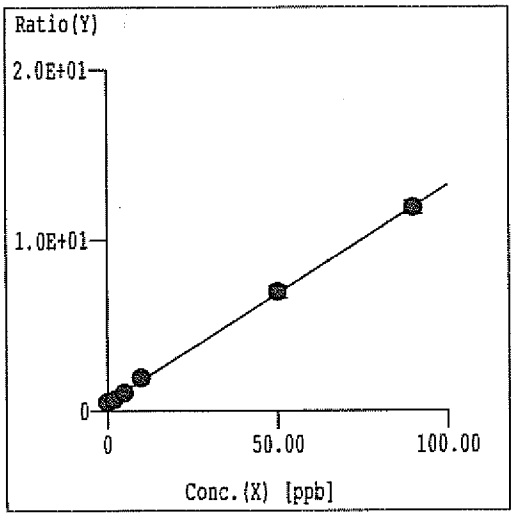


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	3.823E+04	1.010E+00	P	79.90
2		20.00	19.42	1.122E+05	2.957E+00	P	11.08
3		200.0	211.3	8.369E+05	2.220E+01	A	2.507
4		500.0	519.4	2.004E+06	5.312E+01	A	1.009
5		1000	1004	3.845E+06	1.018E+02	A	8.928E-01
6		5000	5124	1.876E+07	5.150E+02	A	4.232
7		9000	8926	3.370E+07	8.964E+02	A	3.768
8		2.000E+04	2.000E+04	7.252E+07	2.007E+03	A	1.826
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.003E-001*X +1.010E+000
X = 9.969E+000*Y -1.006E+001
DL = 24.12 ppb
BEC = 10.06 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	27	Al	89	ppb



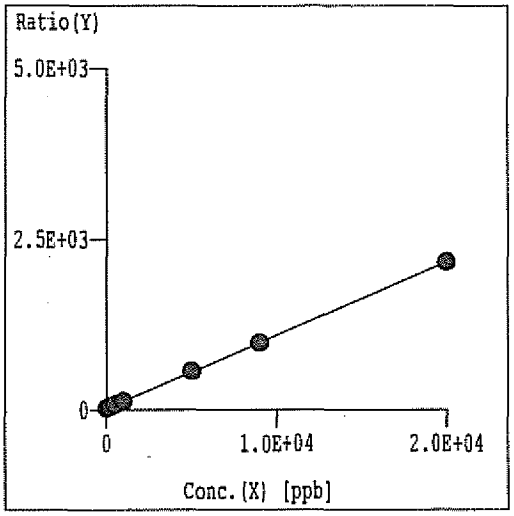
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1.882E+04	5.021E-01	P	23.61
2	ON	2.000E-01	---	1.637E+04	4.302E-01	P	19.81
3		2.000	1.092	2.412E+04	6.412E-01	P	16.16
4		5.000	4.224	3.919E+04	1.040E+00	P	9.098
5		10.00	11.20	7.289E+04	1.929E+00	P	3.640
6		50.00	50.70	2.535E+05	6.961E+00	P	5.164
7		90.00	89.54	4.477E+05	1.191E+01	P	3.131
8	ON	200.0	---	9.685E+05	2.681E+01	A	2.212
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9997
Y = 1.274E-001*X +5.021E-001
X = 7.850E+000*Y -3.942E+000
DL = 2.792 ppb
BEC = 3.942 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(2) 39 K	89	ppb

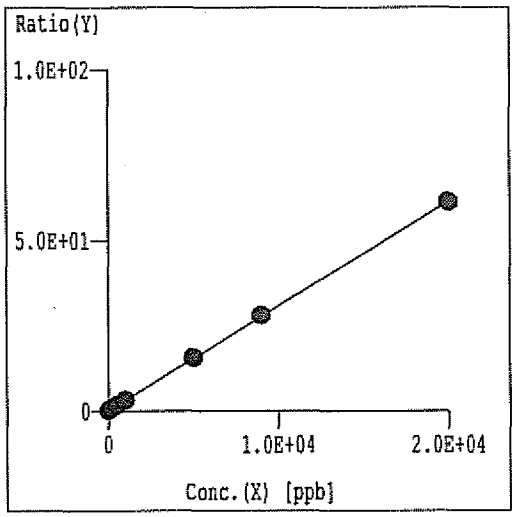


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	7.551E+05	2.023E+01	A	3.009
2		20.00	18.41	8.366E+05	2.221E+01	A	8.132
3		200.0	204.9	1.594E+06	4.228E+01	A	6.293E-01
4		500.0	504.7	2.811E+06	7.452E+01	A	9.832E-01
5		1000	988.3	4.782E+06	1.265E+02	A	1.873
6		5000	5096	2.071E+07	5.684E+02	A	3.402
7		9000	8947	3.694E+07	9.826E+02	A	4.233
8		2.000E+04	2.000E+04	7.843E+07	2.171E+03	A	2.197
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.076E-001*X +2.023E+001
X = 9.297E+000*Y -1.881E+002
DL = 16.98 ppb
BEC = 188.1 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 44 Ca	89	ppb



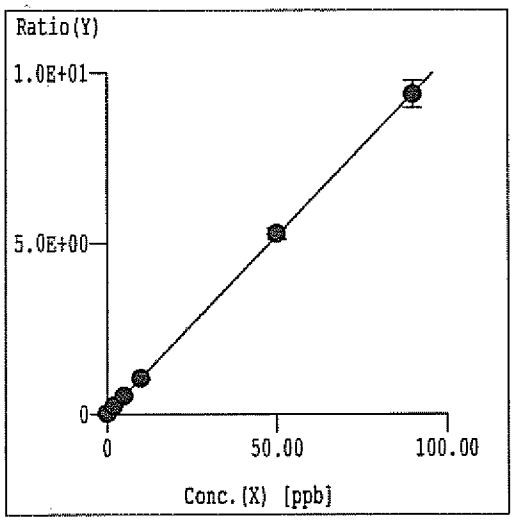
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	5884	1.567E-01	P	32.08
2		20.00	20.96	8390	2.211E-01	P	11.11
3		200.0	202.1	2.929E+04	7.773E-01	P	5.444
4		500.0	498.8	6.368E+04	1.688E+00	P	1.875
5		1000	988.3	1.206E+05	3.191E+00	P	4.578E-01
6		5000	5055	5.713E+05	1.568E+01	P	4.060
7		9000	9083	1.055E+06	2.805E+01	A	4.035
8		2.000E+04	1.995E+04	2.218E+06	6.141E+01	A	2.062
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 3.071E-003*X +1.567E-001
X = 3.257E+002*Y -5.103E+001
DL = 49.11 ppb
BEC = 51.03 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element (2) 51 V — ISTD 89 — Unit ppb

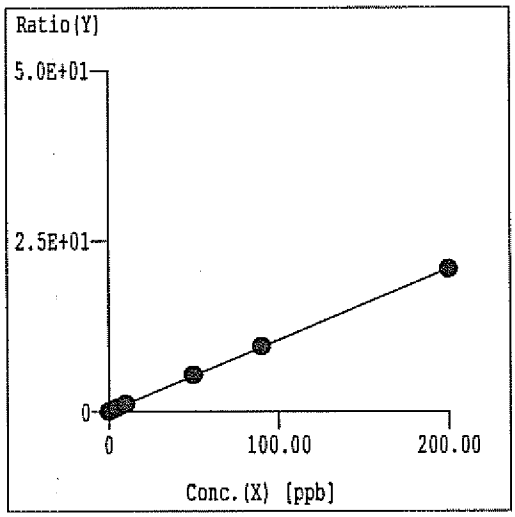


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	959.3	2.579E-02	P	22.11
2		2.000E-01	1.178E-01	1406	3.806E-02	P	55.59
3		2.000	2.027	8925	2.369E-01	P	9.781
4		5.000	4.917	2.027E+04	5.377E-01	P	6.020
5		10.00	9.867	3.980E+04	1.053E+00	P	3.281
6		50.00	50.52	1.927E+05	5.286E+00	P	3.014
7		90.00	89.73	3.522E+05	9.369E+00	P	4.237
8	ON	200.0	---	7.863E+05	2.176E+01	A	1.147
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.041E-001*X +2.579E-002
X = 9.604E+000*Y -2.476E-001
DL = 1.643E-01 ppb
BEC = 2.476E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element (3) 52 Cr — ISTD 89 — Unit ppb



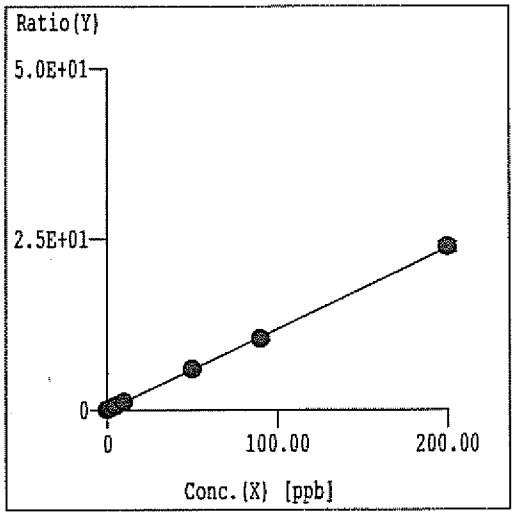
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	215.6	2.791E-02	P	3.336
2		2.000E-01	2.093E-01	386.7	4.977E-02	P	8.786
3		2.000	2.132	1937	2.506E-01	P	5.730E-01
4		5.000	5.161	4366	5.669E-01	P	2.037
5		10.00	10.39	8474	1.113E+00	P	1.936
6		50.00	51.18	4.145E+04	5.372E+00	P	4.886E-01
7		90.00	91.08	7.389E+04	9.539E+00	P	2.497
8		200.0	199.2	1.570E+05	2.083E+01	P	2.058E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.044E-001*X +2.791E-002
X = 9.576E+000*Y -2.673E-001
DL = 2.675E-02 ppb
BEC = 2.673E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element ISTD Unit
(2) 55 Mn 89 ppb

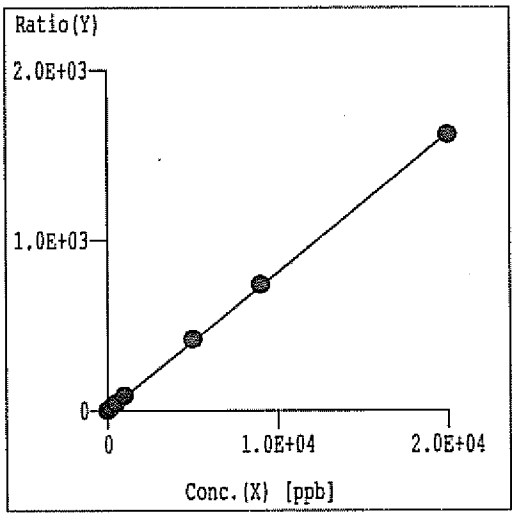


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1916	5.120E-02	P	16.29
2		2.000E-01	1.676E-01	2679	7.103E-02	P	5.847
3		2.000	1.970	1.071E+04	2.843E-01	P	3.548
4		5.000	4.917	2.388E+04	6.330E-01	P	8.231E-01
5		10.00	9.719	4.540E+04	1.201E+00	P	1.345
6		50.00	50.07	2.178E+05	5.975E+00	P	3.584
7		90.00	87.51	3.912E+05	1.041E+01	P	3.378
8		200.0	201.1	8.611E+05	2.385E+01	A	3.375
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.183E-001*X +5.120E-002
X = 8.451E+000*Y -4.327E-001
DL = 2.114E-01 ppb
BEC = 4.327E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element ISTD Unit
(3) 56 Fe 89 ppb



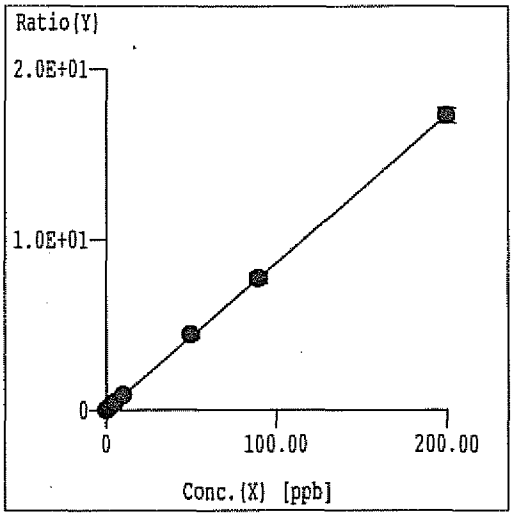
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1934	2.503E-01	P	7.714
2		20.00	21.85	1.574E+04	2.026E+00	P	1.145
3		200.0	212.1	1.352E+05	1.750E+01	P	3.590E-01
4		500.0	534.1	3.364E+05	4.367E+01	P	4.194E-01
5		1000	1065	6.616E+05	8.685E+01	P	5.037E-01
6		5000	5144	3.228E+06	4.184E+02	A	9.521E-01
7		9000	9099	5.733E+06	7.400E+02	A	1.609
8		2.000E+04	1.992E+04	1.221E+07	1.619E+03	A	3.253E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 8.130E-002*X +2.503E-001
X = 1.230E+001*Y -3.079E+000
DL = 7.126E-01 ppb
BEC = 3.079 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	59 Co	89	ppb

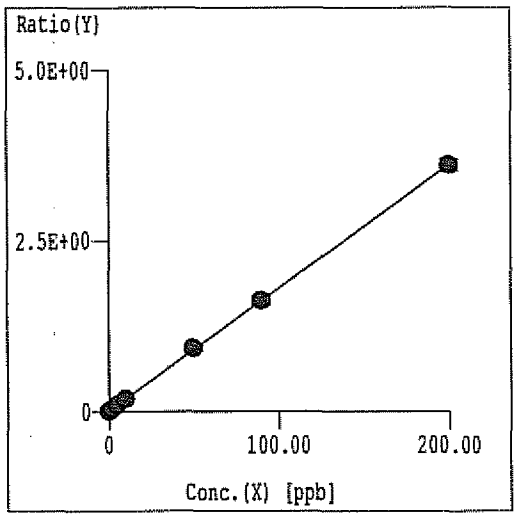


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	131.1	3.498E-03	P	27.60
2		2.000E-01	1.995E-01	778.9	2.074E-02	P	12.79
3		2.000	2.040	6780	1.798E-01	P	2.045
4		5.000	5.166	1.697E+04	4.501E-01	P	3.684
5		10.00	10.14	3.325E+04	8.799E-01	P	1.223
6		50.00	51.25	1.616E+05	4.434E+00	P	3.760
7		90.00	89.59	2.913E+05	7.749E+00	P	3.950
8		200.0	199.9	6.241E+05	1.728E+01	P	2.543
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 8.644E-002*X +3.498E-003
X = 1.157E+001*Y -4.047E-002
DL = 3.350E-02 ppb
BEC = 4.047E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	60 Ni	89	ppb



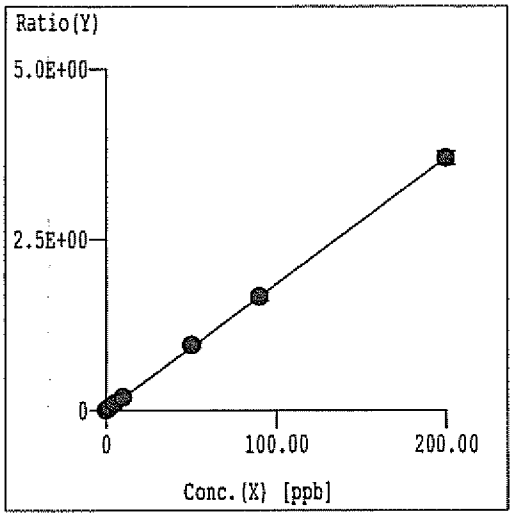
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	147.8	3.957E-03	P	11.98
2		2.000E-01	9.058E-02	210.7	5.595E-03	P	7.620
3		2.000	1.949	1478	3.919E-02	P	2.155
4		5.000	5.194	3692	9.784E-02	P	1.683
5		10.00	10.13	7073	1.871E-01	P	2.042
6		50.00	51.26	3.390E+04	9.305E-01	P	3.986
7		90.00	89.88	6.123E+04	1.629E+00	P	4.054
8		200.0	199.7	1.305E+05	3.614E+00	P	2.377
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.808E-002*X +3.957E-003
X = 5.532E+001*Y -2.189E-001
DL = 7.867E-02 ppb
BEC = 2.189E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element ISTD Unit
(2) 65 Cu 89 ppb

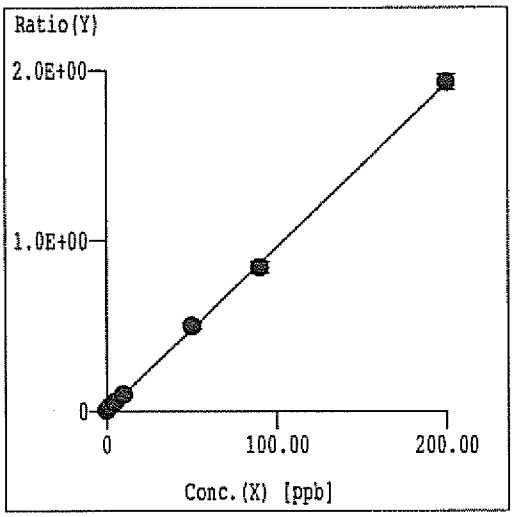


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	291.5	7.715E-03	P	73.31
2	ON	2.000E-01	---	429.6	1.118E-02	P	32.97
3		2.000	1.990	1673	4.441E-02	P	8.035
4		5.000	5.174	3887	1.031E-01	P	4.738
5		10.00	10.12	7339	1.942E-01	P	7.497E-01
6		50.00	51.43	3.484E+04	9.560E-01	P	3.621
7		90.00	89.77	6.251E+04	1.663E+00	P	3.705
8		200.0	199.7	1.333E+05	3.690E+00	P	2.676
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.844E-002*X +7.715E-003
X = 5.424E+001*Y -4.185E-001
DL = 9.204E-01 ppb
BEC = 4.185E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element ISTD Unit
(2) 66 Zn 89 ppb



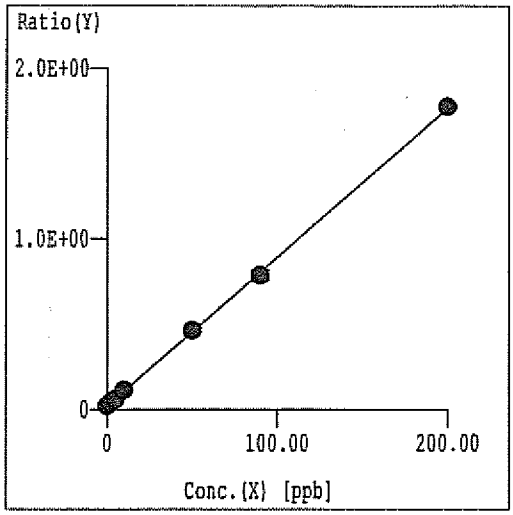
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	194.5	5.189E-03	P	15.60
2	ON	2.000E-01	---	242.2	6.401E-03	P	3.834
3		2.000	2.342	1042	2.764E-02	P	10.79
4		5.000	5.014	2009	5.324E-02	P	2.787
5		10.00	9.618	3680	9.735E-02	P	2.380
6		50.00	51.64	1.823E+04	5.000E-01	P	3.619
7		90.00	87.41	3.169E+04	8.428E-01	P	3.928
8		200.0	200.8	6.968E+04	1.929E+00	P	2.363
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9998
Y = 9.583E-003*X +5.189E-003
X = 1.044E+002*Y -5.415E-001
DL = 2.535E-01 ppb
BEC = 5.415E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(3)	75	As	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	154.8	2.005E-02	P	15.09
2	ON	2.000E-01	---	181.3	2.333E-02	P	13.66
3		2.000	2.066	294.4	3.808E-02	P	2.643
4		5.000	4.596	463.4	6.016E-02	P	2.357
5		10.00	10.69	863.6	1.134E-01	P	8.447E-01
6		50.00	50.74	3571	4.629E-01	P	2.880
7		90.00	87.72	6085	7.857E-01	P	3.862
8		200.0	200.8	1.336E+04	1.773E+00	P	5.603E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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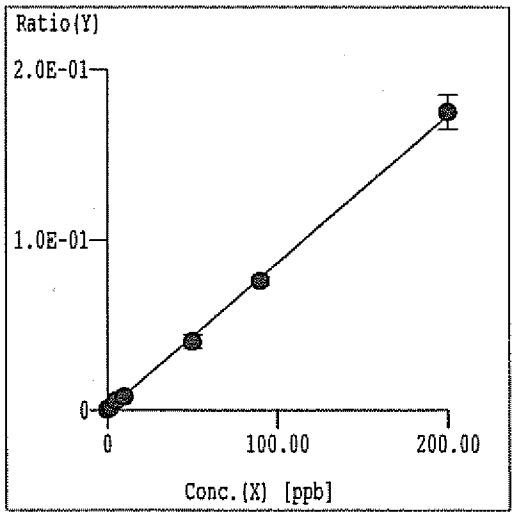
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 8.728E-003*X +2.005E-002
X = 1.146E+002*Y -2.297E+000
DL = 1.039 ppb
BEC = 2.297 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(3)	78	Se	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2.593	3.353E-04	P	65.15
2		2.000E-01	4.396E-01	5.556	7.148E-04	P	19.59
3		2.000	1.665	13.70	1.773E-03	P	23.28
4		5.000	6.021	42.59	5.532E-03	P	17.19
5		10.00	8.851	60.74	7.976E-03	P	5.262
6		50.00	46.39	311.5	4.038E-02	P	9.978
7		90.00	87.34	586.7	7.573E-02	P	3.042
8		200.0	202.1	1318	1.748E-01	P	5.766
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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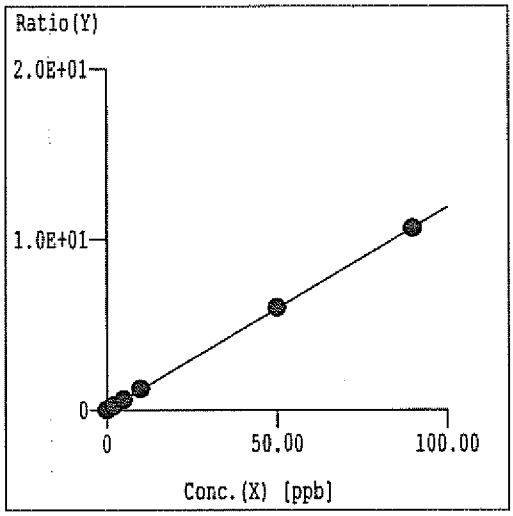
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9997
Y = 8.632E-004*X +3.353E-004
X = 1.158E+003*Y -3.885E-001
DL = 7.593E-01 ppb
BEC = 3.885E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 107 Ag	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	41.85	5.419E-03	P	11.08
2		2.000E-01	2.067E-01	233.0	2.999E-02	P	6.256
3		2.000	2.080	1953	2.526E-01	P	2.809
4		5.000	5.139	4746	6.162E-01	P	7.280E-01
5		10.00	10.45	9503	1.248E+00	P	1.603
6		50.00	50.49	4.633E+04	6.005E+00	P	6.960E-01
7		90.00	89.67	8.260E+04	1.066E+01	P	1.502
8	ON	200.0	---	1.733E+05	2.299E+01	P	5.404E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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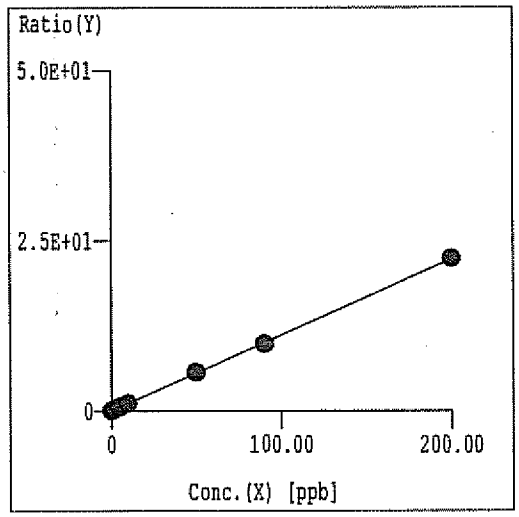
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.188E-001*X +5.419E-003
X = 8.414E+000*Y -4.560E-002
DL = 1.516E-02 ppb
BEC = 4.560E-02 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 111 Cd	115	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	-6.935E+00	-2.355E-03	P	-1.151E+02
2		2.000E-01	2.185E-01	67.75	2.206E-02	P	30.70
3		2.000	1.909	642.8	2.110E-01	P	4.713
4		5.000	5.058	1712	5.628E-01	P	5.571
5		10.00	9.970	3383	1.112E+00	P	2.135
6		50.00	50.63	1.647E+04	5.655E+00	P	3.218
7		90.00	88.01	2.945E+04	9.832E+00	P	4.649
8		200.0	200.7	6.352E+04	2.243E+01	P	1.102
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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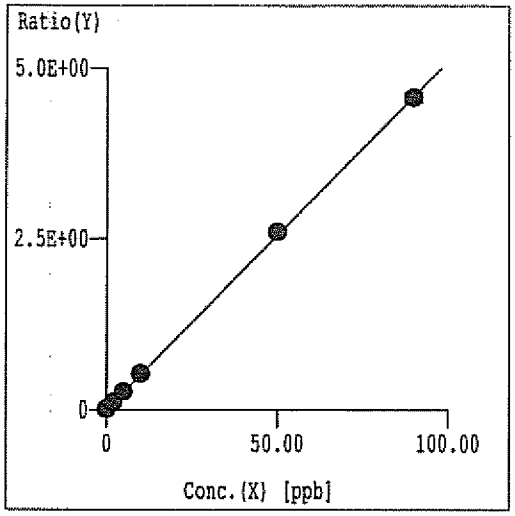
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.117E-001*X -2.355E-003
X = 8.949E+000*Y +2.107E-002
DL = 7.276E-02 ppb
BEC = -2.107E-02 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 121 Sb	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	76.67	9.926E-03	P	9.825
2		2.000E-01	1.505E-01	136.7	1.759E-02	P	10.50
3		2.000	1.970	851.5	1.102E-01	P	3.969
4		5.000	4.980	2029	2.634E-01	P	4.228
5		10.00	10.14	4007	5.261E-01	P	2.813
6		50.00	50.82	2.003E+04	2.596E+00	P	1.342
7		90.00	89.53	3.538E+04	4.567E+00	P	1.600
8	ON	200.0	---	7.734E+04	1.026E+01	P	4.518E-02
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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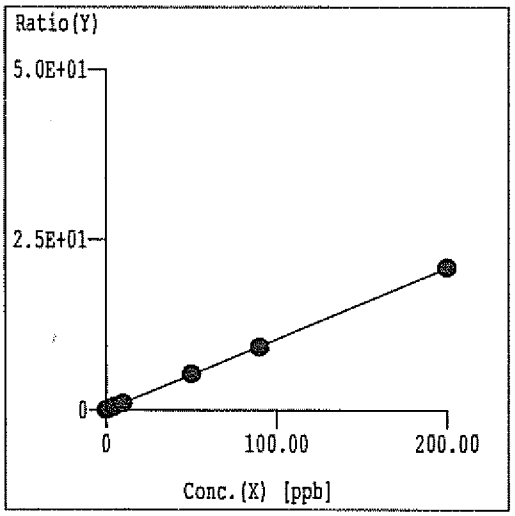
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 5.090E-002*X +9.926E-003
X = 1.965E+001*Y -1.950E-001
DL = 5.748E-02 ppb
BEC = 1.950E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 135 Ba	115	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	48.89	1.629E-02	P	41.11
2		2.000E-01	1.709E-01	103.3	3.406E-02	P	20.56
3		2.000	2.081	708.9	2.327E-01	P	8.414
4		5.000	4.958	1618	5.320E-01	P	5.722
5		10.00	9.594	3085	1.014E+00	P	5.084
6		50.00	50.99	1.552E+04	5.320E+00	P	3.045E-01
7		90.00	88.59	2.765E+04	9.230E+00	P	5.201
8		200.0	200.4	5.907E+04	2.086E+01	P	2.198
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
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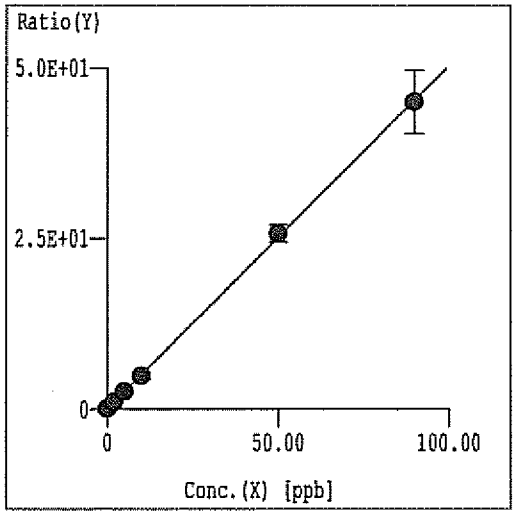
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.040E-001*X +1.629E-002
X = 9.614E+000*Y -1.566E-001
DL = 1.932E-01 ppb
BEC = 1.566E-01 ppb

Weight: OFF
Min Conc: 0.000

===Graph Detail ===

Step Mass Element	ISTD	Unit
(2) 203 Tl	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	151.1	6.072E-02	P	34.30
2		2.000E-01	1.787E-01	380.0	1.505E-01	P	16.96
3		2.000	1.978	2658	1.055E+00	P	5.893
4		5.000	4.987	6459	2.567E+00	P	9.018
5		10.00	9.611	1.226E+04	4.890E+00	P	8.944
6		50.00	51.03	6.140E+04	2.571E+01	P	4.891
7		90.00	89.47	1.086E+05	4.502E+01	P	10.34
8	ON	200.0	---	2.462E+05	1.082E+02	P	2.178
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
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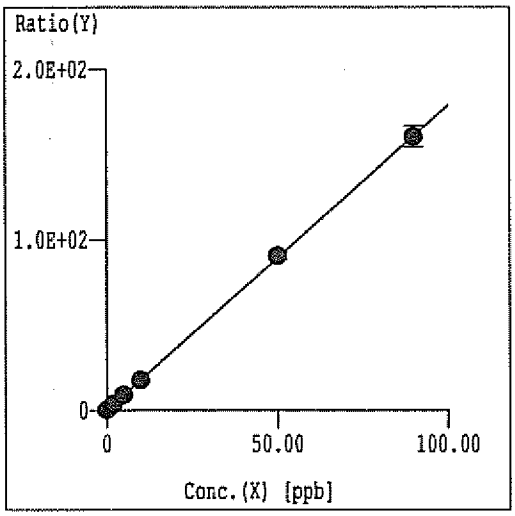
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 5.025E-001*X +6.072E-002
X = 1.990E+000*Y -1.208E-001
DL = 1.243E-01 ppb
BEC = 1.208E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 208 Pb	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	226.9	9.167E-02	P	69.78
2		2.000E-01	1.854E-01	1062	4.234E-01	P	11.32
3		2.000	2.002	9252	3.673E+00	P	1.968
4		5.000	5.000	2.271E+04	9.035E+00	P	1.338
5		10.00	9.834	4.433E+04	1.768E+01	P	2.098
6		50.00	50.60	2.160E+05	9.060E+01	P	2.238
7		90.00	89.69	3.871E+05	1.605E+02	P	3.842
8	ON	200.0	---	8.279E+05	3.641E+02	P	1.298
9		---	---	---	---		---
10		---	---	---	---		---
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18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.789E+000*X +9.167E-002
X = 5.590E-001*Y -5.124E-002
DL = 1.073E-01 ppb
BEC = 5.124E-02 ppb

Weight: OFF
Min Conc: 0.000

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\165CALB.D\165CALB.D#
Date Acquired: Sep 20 2016 11:04 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 1
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 11:07 pm
Sample Type: CalBlk

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	633,528.08	2.53
7	Li	45	2	38,414.21	1.77
9	Be	45	2	53.33	59.77
11	B	45	2	3,433.07	6.07
23	Na	89	2	464,252.50	33.46
24	Mg	89	2	38,231.45	82.24
27	Al	89	2	18,821.72	26.33
28	Si	89	2	131,599.67	4.69
29	Si	89	2	119,485.62	1.37
39	K	89	2	755,106.00	1.50
44	Ca	89	2	5,883.92	34.90
45	Sc	---	2	331,433.88	3.26
45	Sc	---	3	21,161.89	0.26
47	Ti	89	2	70.00	8.25
51	V	89	2	959.30	19.57
51	V	89	3	-27.71	216.14
52	Cr	89	2	3,707.30	0.86
52	Cr	89	3	215.57	3.57
55	Mn	89	2	1,915.77	18.61
55	Mn	89	3	80.00	15.02
56	Fe	89	2	166,444.38	5.47
56	Fe	89	3	1,933.54	7.94
59	Co	89	2	131.12	30.12
59	Co	89	3	23.33	42.86
60	Ni	89	2	147.78	12.85
62	Ni	89	2	188.90	32.07
63	Cu	89	2	607.82	71.23
63	Cu	89	3	165.56	23.60
65	Cu	89	2	291.49	75.85
66	Zn	89	2	194.45	18.81
66	Zn	89	3	44.45	34.64
68	Zn	89	2	184.45	15.37
72	Ge	---	2	783.74	5.12
72	Ge	---	3	43.70	10.28
75	As	89	2	322.25	43.65
75	As	89	3	154.79	14.90
78	Se	89	2	589.65	0.39
78	Se	89	3	2.59	65.47
82	Se	89	2	54.68	36.16
82	Se	89	3	56.27	11.40
88	Sr	89	2	678.94	76.39
89	Y	---	2	3,734,089.80	3.52
89	Y	---	3	772,280.00	0.34
95	Mo	89	2	68.89	7.39
97	Mo	89	2	76.67	7.53
98	Mo	89	2	109.03	34.31
106	Cd	115	2	5,273.43	3.38
107	Ag	115	2	113.34	22.97
107	Ag	89	3	41.85	11.05
108	(Cd)	115	2	18.89	56.73
109	Ag	115	2	73.34	36.08
111	Cd	115	2	-6.94	113.12
111	Cd	89	3	3.33	100.00
113	In	---	2	13,250.83	1.94
114	Cd	115	2	36.67	47.63
115	In	---	2	300,258.63	3.16
115	In	---	3	79,123.56	0.20
118	Sn	115	2	214.82	9.87
118	Sn	---	3	61.11	7.93
119	Sn	115	2	88.89	21.32
121	Sb	115	2	305.93	6.50
121	Sb	89	3	76.67	10.15
123	Sb	115	2	258.52	9.99
135	Ba	115	2	48.89	41.66
137	Ba	115	2	103.34	59.74
159	Tb	---	2	412,156.63	3.44
203	Tl	209	2	151.12	35.93
205	Tl	209	2	307.79	45.60
206	Pb	209	2	51.11	83.09
207	Pb	209	2	50.00	70.24
208	Pb	209	2	228.90	71.23
209	Bi	---	2	248,088.31	2.47
238	U	209	2	121.12	68.33

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\166CALS.D\166CALS.D#
Date Acquired: Sep 20 2016 11:09 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 2
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 11:08 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	652029.13	7.89
7	Li	45	2	40840.74	6.26
9	Be	45	2	423.35	6.70
11	B	45	2	3685.05	7.02
23	Na	89	2	572345.38	19.34
24	Mg	89	2	112218.76	17.52
27	Al	89	2	16374.45	26.35
28	Si	89	2	179150.98	1.72
29	Si	89	2	123345.43	0.86
39	K	89	2	836566.94	1.51
44	Ca	89	2	8389.67	17.68
45	Sc	---	2	338065.50	10.01
45	Sc	---	3	21480.88	0.36
47	Ti	89	2	156.68	7.67
51	V	89	2	1406.40	54.02
51	V	89	3	-10.00	798.22
52	Cr	89	2	4506.46	2.71
52	Cr	89	3	386.69	9.00
55	Mn	89	2	2679.25	4.35
55	Mn	89	3	192.23	10.16
56	Fe	89	2	238674.78	1.27
56	Fe	89	3	15741.73	1.11
59	Co	89	2	778.94	3.56
59	Co	89	3	251.12	11.90
60	Ni	89	2	210.74	2.13
62	Ni	89	2	168.90	17.80
63	Cu	89	2	863.39	23.52
63	Cu	89	3	270.01	10.69
65	Cu	89	2	429.64	41.51
66	Zn	89	2	242.23	10.14
66	Zn	89	3	77.78	32.17
68	Zn	89	2	204.45	10.48
72	Ge	---	2	747.44	2.92
72	Ge	---	3	32.22	26.03
75	As	89	2	298.84	23.74
75	As	89	3	181.32	14.13
78	Se	89	3	5.56	20.00
82	Se	89	2	58.30	15.22
82	Se	89	3	58.45	10.47
88	Sr	89	2	1413.47	24.03
89	Y	---	2	3785110.30	9.45
89	Y	---	3	776848.19	0.44
95	Mo	89	2	192.23	23.42
97	Mo	89	2	141.12	9.55
98	Mo	89	2	332.68	0.82
106	Cd	115	2	5426.89	9.39
107	Ag	115	2	478.92	5.63
107	Ag	89	3	232.97	6.35
108	(Cd)	115	2	15.56	44.61
109	Ag	115	2	433.36	2.77
111	Cd	115	2	67.75	33.00
111	Cd	89	3	31.98	51.42
113	In	---	2	13458.75	9.66
114	Cd	115	2	208.15	15.89
115	In	---	2	307024.47	9.71
115	In	---	3	80061.73	0.15
118	Sn	115	2	423.35	7.48
118	Sn	---	3	122.97	15.79
119	Sn	115	2	162.23	16.61
121	Sb	115	2	430.01	5.47
121	Sb	89	3	136.67	10.94
123	Sb	115	2	368.90	1.83
135	Ba	115	2	103.34	11.63
137	Ba	115	2	190.01	32.87
159	Tb	---	2	418918.78	9.36
203	Tl	209	2	380.02	19.30
205	Tl	209	2	913.40	9.68
206	Pb	209	2	258.90	5.36
207	Pb	209	2	195.56	12.33
208	Pb	209	2	1062.28	2.74
209	Bi	---	2	252544.97	8.64
238	U	209	2	1086.76	8.47

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	338066	10.01	331434	102.0	83 - 117	
89	Y	2	3785110	9.45	3734090	101.4	83 - 117	
89	Y	3	776848	0.44	772280	100.6	83 - 117	
115	In	2	307024	9.71	300251	102.3	83 - 117	
209	Bi	2	252545	8.64	248008	101.8	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\167CALS.D\167CALS.D#
Date Acquired: Sep 20 2016 11:15 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 3
Misc Info:
Vial Number: 1103
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 11:13 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	647090.31	0.66
7	Li	45	2	16.77	0.68
9	Be	45	2	1.16	2.02
11	B	45	2	9889.32	2.28
23	Na	89	2	45.03	6.69
24	Mg	89	2	22.20	2.51
27	Al	89	2	24124.12	14.01
28	Si	89	2	16.73	0.62
29	Si	89	2	3.85	1.05
39	K	89	2	42.28	0.63
44	Ca	89	2	0.78	5.44
45	Sc	---	2	336948.88	1.46
45	Sc	---	3	21139.27	0.55
47	Ti	89	2	0.02	9.19
51	V	89	2	0.24	9.78
51	V	89	3	0.17	5.03
52	Cr	89	2	0.28	2.08
52	Cr	89	3	0.25	0.57
55	Mn	89	2	0.28	3.55
55	Mn	89	3	0.13	8.78
56	Fe	89	2	24.44	0.28
56	Fe	89	3	17.50	0.36
59	Co	89	2	0.18	2.05
59	Co	89	3	0.29	1.25
60	Ni	89	2	0.04	2.16
62	Ni	89	2	0.01	5.69
63	Cu	89	2	3659.52	5.95
63	Cu	89	3	0.21	4.32
65	Cu	89	2	1672.71	5.95
66	Zn	89	2	1042.30	11.49
66	Zn	89	3	250.01	14.85
68	Zn	89	2	748.94	10.43
72	Ge	---	2	833.74	2.08
72	Ge	---	3	41.11	8.11
75	As	89	2	1056.37	47.00
75	As	89	3	294.38	3.49
78	Se	89	3	0.00	23.28
82	Se	89	2	0.00	28.79
82	Se	89	3	0.01	11.90
88	Sr	89	2	0.22	4.00
89	Y	---	2	3770420.80	2.02
89	Y	---	3	772931.44	0.90
95	Mo	89	2	0.04	1.54
97	Mo	89	2	0.02	4.23
98	Mo	89	2	0.06	1.36
106	Cd	115	2	5255.69	5.96
107	Ag	115	2	1.16	3.30
107	Ag	89	3	0.25	2.81
108	(Cd)	115	2	0.02	10.74
109	Ag	115	2	1.11	3.58
111	Cd	115	2	0.21	4.71
111	Cd	89	3	0.04	12.97
113	In	---	2	13919.28	2.13
114	Cd	115	2	0.59	0.81
115	In	---	2	304726.84	1.98
115	In	---	3	79325.34	0.12
118	Sn	115	2	0.78	1.52
118	Sn	---	3	760.03	3.21
119	Sn	115	2	0.31	14.72
121	Sb	115	2	0.93	2.78
121	Sb	89	3	0.11	3.97
123	Sb	115	2	0.71	1.60
135	Ba	115	2	0.23	8.41
137	Ba	115	2	0.37	5.68
159	Tb	---	2	418455.50	1.67
203	Tl	209	2	1.85	5.89
205	Tl	209	2	2.52	4.21
206	Pb	209	2	0.95	3.19
207	Pb	209	2	0.79	1.25
208	Pb	209	2	3.67	1.97
209	Bi	---	2	251840.55	1.54
238	U	209	2	3.96	0.52

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	336949	1.46	331434	101.7	83 - 117	
89	Y	2	3770421	2.02	3734090	101.0	83 - 117	
89	Y	3	772931	0.90	772280	100.1	83 - 117	
115	In	2	304727	1.98	300251	101.5	83 - 117	
209	Bi	2	251841	1.54	248008	101.5	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\168CALS.D\168CALS.D#
Date Acquired: Sep 20 2016 11:20 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 4
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 11:18 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	647106.44	0.54
7	Li	45	2	24.72	0.63
9	Be	45	2	2.95	1.71
11	B	45	2	5.91	2.02
23	Na	89	2	93.45	2.56
24	Mg	89	2	53.12	1.01
27	Al	89	2	1.04	9.10
28	Si	89	2	37.42	0.41
29	Si	89	2	4.87	0.83
39	K	89	2	74.52	0.98
44	Ca	89	2	1.69	1.87
45	Sc	---	2	338997.22	1.83
45	Sc	---	3	21323.21	0.08
47	Ti	89	2	0.05	6.22
51	V	89	2	0.54	6.02
51	V	89	3	0.41	1.98
52	Cr	89	2	0.56	0.77
52	Cr	89	3	0.57	2.04
55	Mn	89	2	0.63	0.82
55	Mn	89	3	0.33	1.29
56	Fe	89	2	53.12	0.20
56	Fe	89	3	43.67	0.42
59	Co	89	2	0.45	3.68
59	Co	89	3	0.76	2.76
60	Ni	89	2	0.10	1.68
62	Ni	89	2	0.02	7.68
63	Cu	89	2	0.22	3.60
63	Cu	89	3	0.49	1.72
65	Cu	89	2	0.10	4.74
66	Zn	89	2	0.05	2.79
66	Zn	89	3	0.07	2.44
68	Zn	89	2	0.04	4.88
72	Ge	---	2	820.41	3.87
72	Ge	---	3	41.85	18.65
75	As	89	2	0.05	5.63
75	As	89	3	0.06	2.36
78	Se	89	3	0.01	17.19
82	Se	89	2	0.01	4.79
82	Se	89	3	0.01	15.14
88	Sr	89	2	0.55	0.79
89	Y	---	2	3772351.30	2.12
89	Y	---	3	770309.63	0.48
95	Mo	89	2	0.09	5.37
97	Mo	89	2	0.06	0.34
98	Mo	89	2	0.15	1.98
106	Cd	115	2	1.79	3.02
107	Ag	115	2	2.86	2.23
107	Ag	89	3	0.62	0.73
108	(Cd)	115	2	0.04	14.66
109	Ag	115	2	2.74	1.50
111	Cd	115	2	0.56	5.57
111	Cd	89	3	0.09	9.33
113	In	---	2	15039.38	1.05
114	Cd	115	2	1.46	1.01
115	In	---	2	304111.94	1.59
115	In	---	3	79562.35	0.56
118	Sn	115	2	1.91	0.90
118	Sn	---	3	1030.15	4.03
119	Sn	115	2	0.74	2.02
121	Sb	115	2	2.21	1.74
121	Sb	89	3	0.26	4.23
123	Sb	115	2	1.68	0.22
135	Ba	115	2	0.53	5.72
137	Ba	115	2	0.94	4.31
159	Tb	---	2	416168.63	1.82
203	Tl	209	2	2.57	9.02
205	Tl	209	2	6.16	5.83
206	Pb	209	2	2.26	1.81
207	Pb	209	2	1.96	0.38
208	Pb	209	2	9.04	1.34
209	Bi	---	2	251337.84	1.77
238	U	209	2	10.37	1.76

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	338997	1.83	331434	102.3	83 - 117	
89	Y	2	3772351	2.12	3734090	101.0	83 - 117	
89	Y	3	770310	0.48	772280	99.7	83 - 117	
115	In	2	304112	1.59	300251	101.3	83 - 117	
209	Bi	2	251338	1.77	248008	101.3	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\169CALS.D\169CALS.D#
Date Acquired: Sep 20 2016 11:25 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 5
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 11:23 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	657160.94	1.12
7	Li	45	2	37.42	0.89
9	Be	45	2	5.69	2.64
11	B	45	2	10.82	1.43
23	Na	89	2	171.96	0.34
24	Mg	89	2	101.76	0.89
27	Al	89	2	1.93	3.64
28	Si	89	2	68.76	1.46
29	Si	89	2	6.53	0.57
39	K	89	2	126.53	1.87
44	Ca	89	2	3.19	0.46
45	Sc	---	2	340501.19	1.26
45	Sc	---	3	20881.10	1.81
47	Ti	89	2	0.09	2.70
51	V	89	2	1.05	3.28
51	V	89	3	0.86	6.53
52	Cr	89	2	1.00	1.82
52	Cr	89	3	1.11	1.94
55	Mn	89	2	1.20	1.34
55	Mn	89	3	0.62	7.04
56	Fe	89	2	97.22	1.45
56	Fe	89	3	86.85	0.50
59	Co	89	2	0.88	1.22
59	Co	89	3	1.48	3.68
60	Ni	89	2	0.19	2.04
62	Ni	89	2	0.03	5.53
63	Cu	89	2	0.42	2.19
63	Cu	89	3	0.93	1.42
65	Cu	89	2	0.19	0.75
66	Zn	89	2	0.10	2.38
66	Zn	89	3	0.14	5.06
68	Zn	89	2	0.07	5.49
72	Ge	---	2	900.78	4.44
72	Ge	---	3	78.89	7.32
75	As	89	2	0.09	7.30
75	As	89	3	0.11	0.84
78	Se	89	3	0.01	5.26
82	Se	89	2	0.01	7.82
82	Se	89	3	0.01	13.10
88	Sr	89	2	1.06	0.98
89	Y	---	2	3778839.50	1.12
89	Y	---	3	761765.81	0.74
95	Mo	89	2	0.18	4.41
97	Mo	89	2	0.11	2.29
98	Mo	89	2	0.29	3.20
106	Cd	115	2	1.85	2.69
107	Ag	115	2	5.66	3.79
107	Ag	89	3	1.25	1.60
108	(Cd)	115	2	0.08	25.62
109	Ag	115	2	5.40	3.77
111	Cd	115	2	1.11	2.14
111	Cd	89	3	0.18	1.33
113	In	---	2	16697.69	1.83
114	Cd	115	2	2.85	2.17
115	In	---	2	304246.31	1.21
115	In	---	3	78730.30	1.13
118	Sn	115	2	3.58	0.69
118	Sn	---	3	3512.73	2.75
119	Sn	115	2	1.43	2.48
121	Sb	115	2	4.28	1.74
121	Sb	89	3	0.53	2.81
123	Sb	115	2	3.26	2.10
135	Ba	115	2	1.01	5.08
137	Ba	115	2	1.79	2.31
159	Tb	---	2	417191.13	1.03
203	Tl	209	2	4.89	8.94
205	Tl	209	2	12.07	7.53
206	Pb	209	2	4.53	1.50
207	Pb	209	2	3.78	2.44
208	Pb	209	2	17.68	2.10
209	Bi	---	2	250637.30	1.04
238	U	209	2	20.20	2.01

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	340501	1.26	331434	102.7	83 - 117	
89	Y	2	3778840	1.12	3734090	101.2	83 - 117	
89	Y	3	761766	0.74	772280	98.6	83 - 117	
115	In	2	304246	1.21	300251	101.3	83 - 117	
209	Bi	2	250637	1.04	248008	101.1	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20i00.B\170CALS.D\170CALS.D#
Date Acquired:	Sep 20 2016 11:31 pm
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 6
Misc Info:	
Vial Number:	1106
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 20 2016 11:29 pm
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	658558.06	4.13
7	Li	45	2	138.27	2.90
9	Be	45	2	27.96	3.52
11	B	45	2	49.74	2.68
23	Na	89	2	829.62	3.80
24	Mg	89	2	514.97	4.23
27	Al	89	2	6.96	5.16
28	Si	89	2	331.79	3.43
29	Si	89	2	21.08	2.29
39	K	89	2	568.38	3.40
44	Ca	89	2	15.68	4.06
45	Sc	---	2	345497.72	5.96
45	Sc	---	3	21557.30	0.49
47	Ti	89	2	0.44	5.00
51	V	89	2	5.29	3.01
51	V	89	3	4.22	0.32
52	Cr	89	2	4.64	3.92
52	Cr	89	3	5.37	0.49
55	Mn	89	2	5.98	3.58
55	Mn	89	3	3.10	0.42
56	Fe	89	2	474.88	3.35
56	Fe	89	3	418.45	0.95
59	Co	89	2	4.43	3.76
59	Co	89	3	7.19	1.11
60	Ni	89	2	0.93	3.99
62	Ni	89	2	0.14	7.00
63	Cu	89	2	2.06	4.58
63	Cu	89	3	4.47	1.04
65	Cu	89	2	0.96	3.62
66	Zn	89	2	0.50	3.62
66	Zn	89	3	0.67	3.42
68	Zn	89	2	0.35	4.04
72	Ge	---	2	1844.96	6.27
72	Ge	---	3	253.34	1.52
75	As	89	2	0.45	3.31
75	As	89	3	0.46	2.88
78	Se	89	3	0.04	9.98
82	Se	89	2	0.04	4.39
82	Se	89	3	0.03	9.67
88	Sr	89	2	5.39	3.27
89	Y	---	2	3649852.30	6.46
89	Y	---	3	771531.06	0.39
95	Mo	89	2	0.93	3.75
97	Mo	89	2	0.58	3.40
98	Mo	89	2	1.48	3.84
106	Cd	115	2	2.30	1.47
107	Ag	115	2	28.20	1.86
107	Ag	89	3	6.01	0.70
108	(Cd)	115	2	0.42	9.52
109	Ag	115	2	26.86	2.24
111	Cd	115	2	5.66	3.22
111	Cd	89	3	0.88	1.46
113	In	---	2	30240.28	4.65
114	Cd	115	2	14.69	2.56
115	In	---	2	291673.63	5.74
115	In	---	3	78983.89	0.56
118	Sn	115	2	18.43	2.84
118	Sn	---	3	17331.09	1.45
119	Sn	115	2	7.19	4.42
121	Sb	115	2	22.04	3.24
121	Sb	89	3	2.60	1.34
123	Sb	115	2	16.76	2.76
135	Ba	115	2	5.32	0.30
137	Ba	115	2	9.19	5.90
159	Tb	---	2	402935.50	5.70
203	Tl	209	2	25.71	4.89
205	Tl	209	2	61.37	4.64
206	Pb	209	2	23.08	1.97
207	Pb	209	2	19.22	1.93
208	Pb	209	2	90.60	2.24
209	Bi	---	2	238553.58	5.40
238	U	209	2	106.05	2.52

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	345498	5.96	331434	104.2	83 - 117	
89	Y	2	3649852	6.46	3734090	97.7	83 - 117	
89	Y	3	771531	0.39	772280	99.9	83 - 117	
115	In	2	291674	5.74	300251	97.1	83 - 117	
209	Bi	2	238554	5.40	248008	96.2	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\165CALB.D\165CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\171CALS.D\171CALS.D#
Date Acquired: Sep 20 2016 11:36 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 7
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 11:34 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	698660.13	0.64
7	Li	45	2	235.26	3.83
9	Be	45	2	46.94	3.62
11	B	45	2	82.87	5.11
23	Na	89	2	1446.22	3.47
24	Mg	89	2	896.37	3.77
27	Al	89	2	11.91	3.13
28	Si	89	2	575.39	3.66
29	Si	89	2	34.04	3.75
39	K	89	2	982.60	4.23
44	Ca	89	2	28.05	4.04
45	Sc	---	2	372503.69	0.46
45	Sc	---	3	21461.26	1.21
47	Ti	89	2	0.78	4.33
51	V	89	2	9.37	4.24
51	V	89	3	7.58	2.11
52	Cr	89	2	8.02	3.63
52	Cr	89	3	9.54	2.50
55	Mn	89	2	10.41	3.38
55	Mn	89	3	5.51	2.23
56	Fe	89	2	829.10	3.66
56	Fe	89	3	740.03	1.61
59	Co	89	2	7.75	3.95
59	Co	89	3	12.74	1.08
60	Ni	89	2	1.63	4.05
62	Ni	89	2	0.24	4.58
63	Cu	89	2	3.58	3.23
63	Cu	89	3	7.91	1.08
65	Cu	89	2	1.66	3.70
66	Zn	89	2	0.84	3.93
66	Zn	89	3	1.13	0.52
68	Zn	89	2	0.61	4.50
72	Ge	---	2	2428.76	1.45
72	Ge	---	3	393.71	3.75
75	As	89	2	0.79	3.64
75	As	89	3	0.79	3.86
78	Se	89	3	0.08	3.04
82	Se	89	2	0.06	4.95
82	Se	89	3	0.04	0.89
88	Sr	89	2	9.46	3.91
89	Y	---	2	3759898.80	0.36
89	Y	---	3	774802.25	1.74
95	Mo	89	2	1.62	4.39
97	Mo	89	2	1.01	5.18
98	Mo	89	2	2.61	4.48
106	Cd	115	2	2.74	1.67
107	Ag	115	2	49.23	4.47
107	Ag	89	3	10.66	1.50
108	(Cd)	115	2	0.73	1.59
109	Ag	115	2	47.08	4.99
111	Cd	115	2	9.83	4.65
111	Cd	89	3	1.56	2.08
113	In	---	2	43922.12	2.71
114	Cd	115	2	25.54	4.25
115	In	---	2	299621.44	0.59
115	In	---	3	78406.88	1.89
118	Sn	115	2	32.33	3.91
118	Sn	---	3	31081.80	1.03
119	Sn	115	2	12.54	4.58
121	Sb	115	2	38.60	4.00
121	Sb	89	3	4.57	1.60
123	Sb	115	2	29.38	4.51
135	Ba	115	2	9.23	5.20
137	Ba	115	2	15.85	3.99
159	Tb	---	2	414922.66	0.39
203	Tl	209	2	45.02	10.34
205	Tl	209	2	108.00	10.52
206	Pb	209	2	41.14	3.97
207	Pb	209	2	34.06	3.16
208	Pb	209	2	160.53	3.84
209	Bi	---	2	241148.41	0.10
238	U	209	2	187.72	3.79

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	372504	0.46	331434	112.4	83 - 117	
89	Y	2	3759899	0.36	3734090	100.7	83 - 117	
89	Y	3	774802	1.74	772280	100.3	83 - 117	
115	In	2	299621	0.59	300251	99.8	83 - 117	
209	Bi	2	241148	0.10	248008	97.2	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\172CALS.D\172CALS.D#
Date Acquired: Sep 20 2016 11:41 pm
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 8
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 20 2016 11:39 pm
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	732968.38	2.67
7	Li	45	2	450.59	2.10
9	Be	45	2	95.38	1.82
11	B	45	2	170.48	0.82
23	Na	89	2	3210.73	3.06
24	Mg	89	2	2007.48	1.83
27	Al	89	2	26.81	2.21
28	Si	89	2	1271.80	1.53
29	Si	89	2	69.55	2.15
39	K	89	2	2171.41	2.20
44	Ca	89	2	61.41	2.06
45	Sc	---	2	396908.41	4.43
45	Sc	---	3	20953.04	1.22
47	Ti	89	2	1.74	1.80
51	V	89	2	21.76	1.15
51	V	89	3	16.87	0.63
52	Cr	89	2	17.86	2.10
52	Cr	89	3	20.83	0.21
55	Mn	89	2	23.85	3.37
55	Mn	89	3	12.11	0.64
56	Fe	89	2	1847.05	2.52
56	Fe	89	3	1619.37	0.33
59	Co	89	2	17.28	2.54
59	Co	89	3	27.96	0.46
60	Ni	89	2	3.61	2.38
62	Ni	89	2	0.53	2.49
63	Cu	89	2	7.94	2.68
63	Cu	89	3	17.19	0.74
65	Cu	89	2	3.69	2.68
66	Zn	89	2	1.93	2.36
66	Zn	89	3	2.56	0.58
68	Zn	89	2	1.38	2.46
72	Ge	---	2	3564.22	2.09
72	Ge	---	3	791.14	3.18
75	As	89	2	1.79	1.93
75	As	89	3	1.77	0.56
78	Se	89	3	0.17	5.77
82	Se	89	2	0.15	2.22
82	Se	89	3	0.09	4.03
88	Sr	89	2	21.51	2.01
89	Y	---	2	3614693.50	4.85
89	Y	---	3	753768.31	0.69
95	Mo	89	2	3.69	2.44
97	Mo	89	2	2.29	1.57
98	Mo	89	2	5.93	1.87
106	Cd	115	2	4.04	1.43
107	Ag	115	2	110.54	1.27
107	Ag	89	3	22.99	0.54
108	(Cd)	115	2	1.71	9.07
109	Ag	115	2	105.26	1.48
111	Cd	115	2	22.43	1.10
111	Cd	89	3	3.44	1.03
113	In	---	2	79672.59	2.67
114	Cd	115	2	58.35	2.24
115	In	---	2	283302.81	4.33
115	In	---	3	75861.54	0.23
118	Sn	115	2	73.84	2.01
118	Sn	---	3	66527.04	1.23
119	Sn	115	2	28.53	1.63
121	Sb	115	2	89.30	1.86
121	Sb	89	3	10.26	0.05
123	Sb	115	2	67.98	1.85
135	Ba	115	2	20.86	2.20
137	Ba	115	2	36.29	1.39
159	Tb	---	2	395642.03	4.59
203	Tl	209	2	108.20	2.18
205	Tl	209	2	259.37	2.04
206	Pb	209	2	93.13	1.43
207	Pb	209	2	77.63	1.47
208	Pb	209	2	364.12	1.30
209	Bi	---	2	227441.44	4.08
238	U	209	2	450.09	1.68

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	396908	4.43	331434	119.8	83 - 117	ISFail
89	Y	2	3614694	4.85	3734090	96.8	83 - 117	
89	Y	3	753768	0.69	772280	97.6	83 - 117	
115	In	2	283303	4.33	300251	94.4	83 - 117	
209	Bi	2	227441	4.08	248008	91.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

--- :Element Failures ---
1 :ISTD Failures 0

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\173CCV1.D\173CCV1.D#
Date Acquired: Sep 20 2016 11:46 pm
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	96.37	2.02	100	96.4	90 - 110	
9 Be	45	2	95.52	1.30	100	95.5	90 - 110	
11 B	45	2	240.90	2.57	250	96.4	90 - 110	
23 Na	89	2	9691.00	1.56	10000	96.9	90 - 110	
24 Mg	89	2	9717.00	1.32	10000	97.2	90 - 110	
27 Al	89	2	98.56	0.99	100	98.6	90 - 110	
28 Si	89	2	9770.00	1.40	10000	97.7	90 - 110	
29 Si	89	2	9936.00	0.37	10000	99.4	90 - 110	
39 K	89	2	9729.00	1.68	10000	97.3	90 - 110	
44 Ca	89	2	9911.00	1.72	10000	99.1	90 - 110	
47 Ti	89	2	95.96	1.14	100	96.0	90 - 110	
51 V	89	2	96.98	1.30	100	97.0	90 - 110	
51 V	89	3	98.57	0.44	100	98.6	90 - 110	
52 Cr	89	2	97.11	1.21	100	97.1	90 - 110	
52 Cr	89	3	98.30	0.41	100	98.3	90 - 110	
55 Mn	89	2	95.16	1.27	100	95.2	90 - 110	
55 Mn	89	3	98.30	0.94	100	98.3	90 - 110	
56 Fe	89	2	9740.00	1.42	10000	97.4	90 - 110	
56 Fe	89	3	9904.00	0.08	10000	99.0	90 - 110	
59 Co	89	2	97.35	1.63	100	97.4	90 - 110	
59 Co	89	3	99.80	0.31	100	99.8	90 - 110	
60 Ni	89	2	97.07	1.43	100	97.1	90 - 110	
62 Ni	89	2	98.13	3.44	100	98.1	90 - 110	
63 Cu	89	2	98.02	1.82	100	98.0	90 - 110	
63 Cu	89	3	98.11	0.79	100	98.1	90 - 110	
65 Cu	89	2	98.04	1.43	100	98.0	90 - 110	
66 Zn	89	2	97.32	0.53	100	97.3	90 - 110	
66 Zn	89	3	100.60	1.22	100	100.6	90 - 110	
68 Zn	89	2	95.85	1.29	100	95.9	90 - 110	
75 As	89	2	95.68	0.74	100	95.7	90 - 110	
75 As	89	3	98.51	1.29	100	98.5	90 - 110	
78 Se	89	2	95.89	3.21	100	95.9	90 - 110	
78 Se	89	3	95.12	3.70	100	95.1	90 - 110	
82 Se	89	2	95.28	1.28	100	95.3	90 - 110	
82 Se	89	3	97.26	8.53	100	97.3	90 - 110	
88 Sr	89	2	98.09	1.34	100	98.1	90 - 110	
95 Mo	89	2	99.06	2.00	100	99.1	90 - 110	
97 Mo	89	2	97.44	2.25	100	97.4	90 - 110	
98 Mo	89	2	98.93	1.57	100	98.9	90 - 110	
106 Cd	115	2	99.41	3.26	100	99.4	90 - 110	
107 Ag	115	2	97.11	1.85	100	97.1	90 - 110	
107 Ag	89	3	97.73	0.32	100	97.7	90 - 110	
109 Ag	115	2	97.41	1.97	100	97.4	90 - 110	
111 Cd	115	2	95.41	2.64	100	95.4	90 - 110	
111 Cd	89	3	100.50	0.71	100	100.5	90 - 110	
114 Cd	115	2	97.58	1.44	100	97.6	90 - 110	
118 Sn	115	2	98.13	1.56	100	98.1	90 - 110	
119 Sn	115	2	96.55	1.04	100	96.6	90 - 110	
121 Sb	115	2	95.26	1.62	100	95.3	90 - 110	
121 Sb	89	3	98.67	0.42	100	98.7	90 - 110	
123 Sb	115	2	97.85	1.78	100	97.9	90 - 110	
135 Ba	115	2	94.95	3.43	100	95.0	90 - 110	
137 Ba	115	2	98.04	3.13	100	98.0	90 - 110	
203 Tl	209	2	103.20	5.49	100	103.2	90 - 110	
205 Tl	209	2	97.15	5.28	100	97.2	90 - 110	
206 Pb	209	2	97.08	1.62	100	97.1	90 - 110	
207 Pb	209	2	97.98	1.99	100	98.0	90 - 110	
208 Pb	209	2	97.20	1.80	100	97.2	90 - 110	
238 U	209	2	92.54	1.78	100	92.5	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	364887	1.31	331434	110.1	83 - 117	
89 Y	2	3669326	1.47	3734090	98.3	83 - 117	
89 Y	3	755207	0.14	772280	97.8	83 - 117	
115 In	2	291919	1.34	300251	97.2	83 - 117	
209 Bi	2	236134	1.10	248008	95.2	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\174 CCB.D\174 CCB.D#
Date Acquired: Sep 20 2016 11:51 pm
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.14 ppb	70.88	#######	
9 Be	45	2	0.11 ppb	43.40	#######	
11 B	45	2	1.83 ppb	26.79	#######	
23 Na	89	2	-1.75 ppb	1332.80	#######	
24 Mg	89	2	9.06 ppb	93.96	#######	
27 Al	89	2	2.06 ppb	34.13	#######	
28 Si	89	2	14.72 ppb	36.21	#######	
29 Si	89	2	34.24 ppb	50.09	#######	
39 K	89	2	7.39 ppb	97.24	#######	
44 Ca	89	2	18.55 ppb	80.00	#######	
47 Ti	89	2	0.10 ppb	66.17	#######	
51 V	89	2	0.07 ppb	418.08	#######	
51 V	89	3	-0.05 ppb	135.64	#######	
52 Cr	89	2	0.03 ppb	268.59	#######	
52 Cr	89	3	0.04 ppb	228.22	#######	
55 Mn	89	2	0.00 ppb	40799.00	#######	
55 Mn	89	3	0.01 ppb	759.59	#######	
56 Fe	89	2	9.77 ppb	49.25	#######	
56 Fe	89	3	7.83 ppb	32.41	#######	
59 Co	89	2	0.12 ppb	29.52	#######	
59 Co	89	3	0.07 ppb	79.68	#######	
60 Ni	89	2	0.00 ppb	2155.80	#######	
62 Ni	89	2	-0.04 ppb	131.31	#######	
63 Cu	89	2	0.14 ppb	201.62	#######	
63 Cu	89	3	0.10 ppb	120.80	#######	
65 Cu	89	2	0.16 ppb	156.36	#######	
66 Zn	89	2	0.04 ppb	296.27	#######	
66 Zn	89	3	0.15 ppb	159.56	#######	
68 Zn	89	2	0.08 ppb	127.75	#######	
75 As	89	2	0.14 ppb	384.56	#######	
75 As	89	3	0.62 ppb	54.62	#######	
77 (As)	89	2	-3.24 ppb	70.18	#######	
78 Se	89	2	0.72 ppb	25.07	#######	
78 Se	89	3	-0.14 ppb	84.72	#######	
82 Se	89	2	0.00 ppb	42892.00	#######	
82 Se	89	3	4.49 ppb	89.59	#######	
83 (Se)	89	2	134.30 ppb	380.49	#######	
83 (Se)	89	3	40.77	297.77	#######	
88 Sr	89	2	0.14 ppb	72.76	#######	
95 Mo	89	2	0.25 ppb	4.91	#######	
97 Mo	89	2	0.26 ppb	30.96	#######	
98 Mo	89	2	0.22 ppb	21.91	#######	
99 (Mo)	89	2	101.40 ppb	100.39	#######	
106 Cd	115	2	0.86 ppb	485.14	#######	
107 Ag	115	2	0.07 ppb	81.66	#######	
107 Ag	89	3	0.05 ppb	22.28	#######	
108 (Cd)	115	2	-0.13 ppb	217.31	#######	
108 (Cd)	89	3	0.09 ppb	173.17	#######	
109 Ag	115	2	0.08 ppb	42.79	#######	
111 Cd	115	2	0.10 ppb	14.52	#######	
111 Cd	89	3	0.05 ppb	93.32	#######	
114 Cd	115	2	0.07 ppb	54.13	#######	
118 Sn	115	2	0.10 ppb	37.40	#######	
119 Sn	115	2	0.04 ppb	79.44	#######	
121 Sb	115	2	-0.10 ppb	37.68	#######	
121 Sb	89	3	-0.08 ppb	21.79	#######	
123 Sb	115	2	-0.11 ppb	14.29	#######	
135 Ba	115	2	0.06 ppb	239.42	#######	
137 Ba	115	2	0.08 ppb	87.95	#######	
203 Tl	209	2	0.51 ppb	29.30	#######	
205 Tl	209	2	0.44 ppb	28.74	#######	
206 Pb	209	2	0.10 ppb	66.35	#######	
207 Pb	209	2	0.06 ppb	82.76	#######	
208 Pb	209	2	0.07 ppb	60.33	#######	
238 U	209	2	0.10 ppb	37.14	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	330165	1.85	331434	99.6	83 - 117	
89 Y	2	3730361	0.89	3734090	99.9	83 - 117	
89 Y	3	803019	25.13	772280	104.0	83 - 117	
115 In	2	299553	1.18	300251	99.8	83 - 117	
209 Bi	2	246344	1.03	248000	99.3	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CAL8.D\165CAL8.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\175ICV2.D\175ICV2.D#
Date Acquired: Sep 20 2016 11:56 pm
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.50	7.21	10	105.0	70 - 130	
9 Be	45	2	2.26	5.77	2	112.3	70 - 130	
11 B	45	2	22.70	6.28	20	113.5	70 - 130	
23 Na	89	2	204.60	6.67	200	102.3	70 - 130	
24 Mg	89	2	220.30	3.73	200	110.2	70 - 130	
27 Al	89	2	11.94	5.24	10	119.4	70 - 130	
28 Si	89	2	1063.00	5.42	200	531.5	70 - 130	
29 Si	89	2	1034.00	9.08	200	517.0	70 - 130	
39 K	89	2	208.90	6.41	200	104.5	70 - 130	
44 Ca	89	2	535.60	3.41	500	107.1	70 - 130	
47 Ti	89	2	5.73	4.77	5	114.5	70 - 130	
51 V	89	2	5.13	4.02	5	102.7	70 - 130	
51 V	89	3	5.18	10.34	5	103.6	70 - 130	
52 Cr	89	2	5.12	7.28	5	102.5	70 - 130	
52 Cr	89	3	5.15	5.04	5	102.9	70 - 130	
53 Cr	89	2	4.80	46.29	5	96.0	70 - 130	
53 Cr	89	3	5.17	16.51	5	103.3	70 - 130	
55 Mn	89	2	5.01	3.91	5	100.2	70 - 130	
55 Mn	89	3	5.11	5.98	5	102.1	70 - 130	
56 Fe	89	2	88.00	5.49	80	110.0	70 - 130	
56 Fe	89	3	88.21	0.66	80	110.3	70 - 130	
59 Co	89	2	5.15	3.42	5	103.0	70 - 130	
59 Co	89	3	5.15	3.33	5	102.9	70 - 130	
60 Ni	89	2	5.35	3.70	5	106.9	70 - 130	
62 Ni	89	2	5.63	5.11	5	112.6	70 - 130	
63 Cu	89	2	5.40	3.84	5	108.1	70 - 130	
63 Cu	89	3	5.42	6.11	5	108.4	70 - 130	
65 Cu	89	2	5.35	3.04	5	107.0	70 - 130	
66 Zn	89	2	10.68	4.58	10	103.8	70 - 130	
66 Zn	89	3	10.64	2.86	10	106.4	70 - 130	
68 Zn	89	2	10.60	8.85	10	108.0	70 - 130	
75 As	89	2	5.07	8.76	5	101.4	70 - 130	
75 As	89	3	5.72	3.31	5	114.4	70 - 130	
77 (As)	89	2	5.63	68.99	0	#DIV/0!	##### - #####	
77 (As)	89	3	4.31	66.14	0	#DIV/0!	##### - #####	
78 Se	89	2	5.60	16.27	5	112.0	70 - 130	
78 Se	89	3	5.20	11.68	5	104.1	70 - 130	
82 Se	89	2	5.56	13.93	5	111.2	70 - 130	
82 Se	89	3	9.38	31.33	5	187.5	70 - 130	
83 (Se)	89	2	177.90	274.87	0	#DIV/0!	##### - #####	
83 (Se)	89	3	-33.67	165.73	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.28	4.45	5	105.5	70 - 130	
95 Mo	89	2	5.13	7.97	5	102.6	70 - 130	
97 Mo	89	2	4.84	1.41	5	96.8	70 - 130	
98 Mo	89	2	5.05	7.21	5	101.0	70 - 130	
99 (Mo)	89	2	95.44	267.71	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	6.31	33.85	2	315.5	70 - 130	
106 Cd	89	3	1.56	192.17	2	78.0	70 - 130	
107 Ag	115	2	5.15	8.36	5	103.0	70 - 130	
107 Ag	89	3	5.19	2.00	5	103.7	70 - 130	
108 (Cd)	115	2	2.00	18.61	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	1.91	59.89	0	#DIV/0!	##### - #####	
109 Ag	115	2	5.18	5.09	5	103.5	70 - 130	
111 Cd	115	2	2.10	9.80	2	105.2	70 - 130	
111 Cd	89	3	1.84	13.61	2	92.1	70 - 130	
114 Cd	115	2	2.07	5.68	2	103.3	70 - 130	
118 Sn	115	2	2.01	4.10	2	100.6	70 - 130	
119 Sn	115	2	2.29	4.33	2	114.4	70 - 130	
121 Sb	115	2	4.07	6.31	5	81.4	70 - 130	
121 Sb	89	3	4.57	3.02	5	91.4	70 - 130	
123 Sb	115	2	4.18	5.03	5	83.5	70 - 130	
135 Ba	115	2	5.27	7.67	5	105.5	70 - 130	
137 Ba	115	2	5.04	7.11	5	100.7	70 - 130	
203 Tl	209	2	5.24	7.47	5	104.8	70 - 130	
205 Tl	209	2	5.02	7.28	5	100.4	70 - 130	
206 Pb	209	2	4.87	3.39	5	97.5	70 - 130	
207 Pb	209	2	5.24	5.19	5	104.7	70 - 130	
208 Pb	209	2	5.04	4.17	5	100.8	70 - 130	
238 U	209	2	4.67	7.31	5	93.3	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	342312	4.19	331434	103.3	83 - 117	
89 Y	2	3781334	3.45	3734090	101.3	83 - 117	
89 Y	3	782739	0.44	772280	101.4	83 - 117	
115 In	2	307071	3.76	300251	102.3	83 - 117	
209 Bi	2	253178	3.62	248008	102.1	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\179SMPL.D\179SMPL.D#
Date Acquired: Sep 21 2016 12:18 am
Operator: rhughes, ICPMS2
Sample Name: MBLK-91654
Misc Info: 6020W B91654
Vial Number: 3101
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	-0.04 ppb	-0.04	206.74	#######	
9 Be	-0.01 ppb	-0.01	203.38	#######	
11 B	-0.18 ppb	-0.18	124.79	#######	
23 Na	9.12 ppb	9.12	288.13	#######	
24 Mg	0.61 ppb	0.61	1231.50	#######	
27 Al	0.41 ppb	0.41	333.33	#######	
28 Si	3.04 ppb	3.04	109.02	#######	
29 Si	10.64 ppb	10.64	187.69	#######	
39 K	-1.42 ppb	-1.42	461.18	#######	
44 Ca	11.04 ppb	11.04	158.61	#######	
47 Ti	0.11 ppb	0.11	83.29	#######	
51 V	-0.04 ppb	-0.04	540.20	#######	
51 V	-0.03 ppb	-0.03	394.68	#######	
52 Cr	0.16 ppb	0.16	32.18	#######	
52 Cr	-0.03 ppb	-0.03	123.29	#######	
53 Cr	4.59 ppb	4.59	28.34	#######	
53 Cr	0.20 ppb	0.20	132.21	#######	
55 Mn	0.08 ppb	0.08	116.32	#######	
55 Mn	0.04 ppb	0.04	75.36	#######	
56 Fe	2.52 ppb	2.52	127.01	#######	
56 Fe	0.62 ppb	0.62	49.17	#######	
59 Co	0.01 ppb	0.01	78.97	#######	
59 Co	0.00 ppb	0.00	337.42	#######	
60 Ni	-0.11 ppb	-0.11	18.41	#######	
62 Ni	0.25 ppb	0.25	101.66	#######	
63 Cu	-0.11 ppb	-0.11	184.32	#######	
63 Cu	-0.10 ppb	-0.10	28.90	#######	
65 Cu	-0.11 ppb	-0.11	176.17	#######	
66 Zn	0.49 ppb	0.49	20.52	#######	
66 Zn	0.55 ppb	0.55	7.73	#######	
68 Zn	0.47 ppb	0.47	33.79	#######	
75 As	-0.22 ppb	-0.22	195.91	#######	
75 As	0.01 ppb	0.01	1727.20	#######	
77 (As)	0.02 ppb	0.02	26.27	#######	
77 (As)	0.20 ppb	0.20	435.28	#######	
78 Se	0.39 ppb	0.39	147.19	#######	
78 Se	0.06 ppb	0.06	150.66	#######	
82 Se	0.45 ppb	0.45	269.10	#######	
82 Se	-1.71 ppb	-1.71	58.58	#######	
83 (Se)	-214.30 ppb	-214.30	161.18	#######	
83 (Se)	169.60	169.60	90.86	#######	
88 Sr	-0.03 ppb	-0.03	348.22	#######	
95 Mo	-0.03 ppb	-0.03	48.62	#######	
97 Mo	-0.03 ppb	-0.03	65.13	#######	
98 Mo	-0.01 ppb	-0.01	193.82	#######	
99 (Mo)	38.19 ppb	38.19	394.34	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	-1.36 ppb	-1.36	216.49	#######	
106 Cd	-0.56 ppb	-0.56	698.96	#######	
107 Ag	0.00 ppb	0.00	811.00	#######	
107 Ag	-0.01 ppb	-0.01	133.16	#######	
108 (Cd)	-0.47 ppb	-0.47	50.07	#######	
108 (Cd)	0.37 ppb	0.37	99.62	#######	
109 Ag	0.00 ppb	0.00	539.17	#######	
111 Cd	0.03 ppb	0.03	93.03	#######	
111 Cd	-0.04 ppb	-0.04	156.57	#######	
114 Cd	-0.02 ppb	-0.02	75.56	#######	
118 Sn	-0.04 ppb	-0.04	62.18	#######	
119 Sn	-0.05 ppb	-0.05	14.34	#######	
121 Sb	-0.16 ppb	-0.16	4.25	#######	
121 Sb	-0.12 ppb	-0.12	0.48	#######	
123 Sb	-0.15 ppb	-0.15	11.66	#######	
135 Ba	-0.02 ppb	-0.02	295.22	#######	
137 Ba	-0.07 ppb	-0.07	127.22	#######	
203 Tl	-0.02 ppb	-0.02	155.72	#######	
205 Tl	0.00 ppb	0.00	921.95	#######	
206 Pb	0.02 ppb	0.02	63.26	#######	
207 Pb	0.00 ppb	0.00	445.58	#######	
208 Pb	0.01 ppb	0.01	132.21	#######	
238 U	-0.01 ppb	-0.01	107.62	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	322602	2.61	331434	97.3	70 - 125	
89 Y	3626771	2.50	3734090	97.1	70 - 125	
89 Y	757373	0.82	772280	98.1	70 - 125	
115 In	292907	2.83	300251	97.6	70 - 125	
209 Bi	242181	2.40	248008	97.7	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\180SMPL.D\180SMPL.D#
Date Acquired: Sep 21 2016 12:24 am
Operator: rhughes, ICPMS2
Sample Name: LCS-91654
Misc Info: 6020W B91654
Vial Number: 3102
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	87.53 ppb	87.53	1.20	#######	
9 Be	88.80 ppb	88.80	1.24	#######	
11 B	450.10 ppb	450.10	3.17	#######	
23 Na	8982.00 ppb	8982.00	0.54	#######	
24 Mg	8988.00 ppb	8988.00	0.65	#######	
27 Al	90.35 ppb	90.35	0.75	#######	
28 Si	9398.00 ppb	9398.00	1.32	#######	
29 Si	9523.00 ppb	9523.00	0.61	#######	
39 K	8850.00 ppb	8850.00	1.35	#######	
44 Ca	9136.00 ppb	9136.00	0.45	#######	
47 Ti	90.90 ppb	90.90	2.38	#######	
51 V	88.98 ppb	88.98	1.45	#######	
51 V	89.92 ppb	89.92	1.14	#######	
52 Cr	88.12 ppb	88.12	1.10	#######	
52 Cr	89.27 ppb	89.27	0.19	#######	
53 Cr	88.02 ppb	88.02	0.87	#######	
53 Cr	88.90 ppb	88.90	2.99	#######	
55 Mn	86.35 ppb	86.35	1.07	#######	
55 Mn	88.53 ppb	88.53	0.61	#######	
56 Fe	8948.00 ppb	8948.00	1.41	#######	
56 Fe	9131.00 ppb	9131.00	0.16	#######	
59 Co	88.30 ppb	88.30	1.20	#######	
59 Co	90.34 ppb	90.34	0.70	#######	
60 Ni	89.90 ppb	88.90	1.48	#######	
62 Ni	88.18 ppb	88.18	2.67	#######	
63 Cu	89.70 ppb	89.70	1.11	#######	
63 Cu	90.95 ppb	90.95	1.27	#######	
65 Cu	91.04 ppb	91.04	1.51	#######	
66 Zn	93.00 ppb	93.00	1.39	#######	
66 Zn	94.65 ppb	94.65	0.82	#######	
68 Zn	91.83 ppb	91.83	0.65	#######	
75 As	91.75 ppb	91.75	0.47	#######	
75 As	94.47 ppb	94.47	1.26	#######	
77 (As)	89.88 ppb	89.88	1.57	#######	
77 (As)	94.88 ppb	94.88	9.02	#######	
78 Se	87.74 ppb	87.74	4.97	#######	
78 Se	86.11 ppb	86.11	2.47	#######	
82 Se	85.40 ppb	85.40	1.06	#######	
82 Se	86.23 ppb	86.23	4.18	#######	
83 (Se)	367.10 ppb	367.10	103.32	#######	
83 (Se)	271.80	271.80	21.17	#######	
88 Sr	90.18 ppb	90.18	0.85	#######	
95 Mo	88.82 ppb	88.82	1.46	#######	
97 Mo	87.45 ppb	87.45	2.43	#######	
98 Mo	88.69 ppb	88.69	1.81	#######	
99 (Mo)	518.30 ppb	518.30	36.04	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	85.81 ppb	85.81	2.91	#######	
106 Cd	83.57 ppb	83.57	3.89	#######	
107 Ag	87.17 ppb	87.17	1.96	#######	
107 Ag	87.22 ppb	87.22	0.34	#######	
108 (Cd)	86.37 ppb	86.37	6.21	#######	
108 (Cd)	97.98 ppb	97.98	6.70	#######	
109 Ag	87.12 ppb	87.12	1.39	#######	
111 Cd	88.80 ppb	88.80	2.54	#######	
111 Cd	91.46 ppb	91.46	1.39	#######	
114 Cd	90.13 ppb	90.13	1.10	#######	
118 Sn	91.55 ppb	91.55	1.44	#######	
119 Sn	82.99 ppb	82.99	2.19	#######	
121 Sb	88.69 ppb	88.69	1.76	#######	
121 Sb	91.15 ppb	91.15	0.40	#######	
123 Sb	91.68 ppb	91.68	1.42	#######	
135 Ba	89.44 ppb	89.44	1.27	#######	
137 Ba	89.61 ppb	89.61	2.62	#######	
203 Tl	86.83 ppb	86.83	7.97	#######	
205 Tl	81.00 ppb	81.00	8.61	#######	
206 Pb	86.84 ppb	86.84	1.28	#######	
207 Pb	91.61 ppb	91.61	0.92	#######	
208 Pb	88.96 ppb	88.96	1.26	#######	
238 U	0.00 ppb	0.00	404.84	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	359243	2.90	331434	108.4	70 - 125	
89 Y	3630944	3.06	3734090	97.2	70 - 125	
89 Y	751445	0.32	772280	97.3	70 - 125	
115 In	287062	2.59	300251	95.6	70 - 125	
209 Bi	233442	2.34	248008	94.1	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\186CCV1.D\186CCV1.D#
Date Acquired: Sep 21 2016 12:55 am
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	95.58	12.04	100	95.6	90 - 110	
9 Be	45	2	96.13	12.42	100	96.1	90 - 110	
11 B	45	2	247.50	12.59	250	99.0	90 - 110	
23 Na	89	2	9572.00	13.25	10000	95.7	90 - 110	
24 Mg	89	2	9426.00	13.73	10000	94.3	90 - 110	
27 Al	89	2	99.08	12.81	100	99.1	90 - 110	
28 Si	89	2	9608.00	14.45	10000	96.1	90 - 110	
29 Si	89	2	9868.00	14.88	10000	98.7	90 - 110	
39 K	89	2	9579.00	14.81	10000	95.8	90 - 110	
44 Ca	89	2	9732.00	14.26	10000	97.3	90 - 110	
47 Ti	89	2	94.27	13.83	100	94.3	90 - 110	
51 V	89	2	95.18	13.69	100	95.2	90 - 110	
51 V	89	3	96.87	0.65	100	96.9	90 - 110	
52 Cr	89	2	95.58	13.69	100	95.6	90 - 110	
52 Cr	89	3	96.89	0.49	100	96.9	90 - 110	
55 Mn	89	2	93.50	13.49	100	93.5	90 - 110	
55 Mn	89	3	97.08	0.42	100	97.1	90 - 110	
56 Fe	89	2	9544.00	14.02	10000	95.4	90 - 110	
56 Fe	89	3	9805.00	0.33	10000	98.1	90 - 110	
59 Co	89	2	96.24	13.59	100	96.2	90 - 110	
59 Co	89	3	97.19	0.81	100	97.2	90 - 110	
60 Ni	89	2	96.24	13.91	100	96.2	90 - 110	
62 Ni	89	2	95.59	11.47	100	95.6	90 - 110	
63 Cu	89	2	96.78	13.01	100	96.8	90 - 110	
63 Cu	89	3	95.56	0.75	100	95.6	90 - 110	
65 Cu	89	2	96.64	13.77	100	96.6	90 - 110	
66 Zn	89	2	96.59	13.21	100	96.6	90 - 110	
66 Zn	89	3	98.69	1.72	100	98.7	90 - 110	
68 Zn	89	2	94.61	13.92	100	94.6	90 - 110	
75 As	89	2	95.49	12.99	100	95.5	90 - 110	
75 As	89	3	96.70	0.87	100	96.7	90 - 110	
78 Se	89	2	95.72	14.57	100	95.7	90 - 110	
78 Se	89	3	95.86	1.32	100	95.9	90 - 110	
82 Se	89	2	91.53	12.54	100	91.5	90 - 110	
82 Se	89	3	103.50	2.53	100	103.5	90 - 110	
88 Sr	89	2	97.88	12.98	100	97.9	90 - 110	
95 Mo	89	2	98.69	13.35	100	98.7	90 - 110	
97 Mo	89	2	96.78	13.57	100	96.8	90 - 110	
98 Mo	89	2	97.42	13.93	100	97.4	90 - 110	
106 Cd	115	2	102.50	16.11	100	102.5	90 - 110	
107 Ag	115	2	96.79	13.77	100	96.8	90 - 110	
107 Ag	89	3	96.64	0.14	100	96.6	90 - 110	
109 Ag	115	2	97.64	13.40	100	97.6	90 - 110	
111 Cd	115	2	96.14	13.48	100	96.1	90 - 110	
111 Cd	89	3	100.50	3.04	100	100.5	90 - 110	
114 Cd	115	2	97.24	13.74	100	97.2	90 - 110	
118 Sn	115	2	97.75	13.63	100	97.8	90 - 110	
119 Sn	115	2	96.65	13.09	100	96.7	90 - 110	
121 Sb	115	2	94.80	13.42	100	94.8	90 - 110	
121 Sb	89	3	99.06	0.28	100	99.1	90 - 110	
123 Sb	115	2	97.85	13.58	100	97.9	90 - 110	
135 Ba	115	2	96.40	12.27	100	96.4	90 - 110	
137 Ba	115	2	97.99	13.65	100	98.0	90 - 110	
203 Tl	209	2	103.50	15.59	100	103.5	90 - 110	
205 Tl	209	2	96.66	15.30	100	96.7	90 - 110	
206 Pb	209	2	96.95	12.54	100	97.0	90 - 110	
207 Pb	209	2	98.39	12.86	100	98.4	90 - 110	
208 Pb	209	2	97.71	12.84	100	97.7	90 - 110	
238 U	209	2	92.07	13.01	100	92.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	307196	8.11	331434	92.7	83 - 117	
89 Y	2	3148850	9.57	3734090	84.3	83 - 117	
89 Y	3	661146	0.42	772280	85.6	83 - 117	
115 In	2	250016	9.59	300251	83.3	83 - 117	
209 Bi	2	200940	9.13	248008	81.0	83 - 117	ISFail

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\165CALB.D\165CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
1 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\188CCV1.D\188CCV1.D#
Date Acquired: Sep 21 2016 01:06 am
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	96.98	0.93	100	97.0	90 - 110	
9 Be	45	2	96.00	0.76	100	96.0	90 - 110	
11 B	45	2	241.70	1.87	250	96.7	90 - 110	
23 Na	89	2	9521.00	1.12	10000	95.2	90 - 110	
24 Mg	89	2	9447.00	1.38	10000	94.5	90 - 110	
27 Al	89	2	97.87	0.37	100	97.9	90 - 110	
28 Si	89	2	9555.00	2.06	10000	95.6	90 - 110	
29 Si	89	2	9734.00	1.52	10000	97.3	90 - 110	
39 K	89	2	9540.00	2.15	10000	95.4	90 - 110	
44 Ca	89	2	9659.00	1.77	10000	96.6	90 - 110	
47 Ti	89	2	94.59	1.97	100	94.6	90 - 110	
51 V	89	2	95.28	1.32	100	95.3	90 - 110	
51 V	89	3	97.31	0.86	100	97.3	90 - 110	
52 Cr	89	2	95.26	1.48	100	95.3	90 - 110	
52 Cr	89	3	97.58	0.76	100	97.6	90 - 110	
55 Mn	89	2	93.66	1.31	100	93.7	90 - 110	
55 Mn	89	3	97.16	0.25	100	97.2	90 - 110	
56 Fe	89	2	9523.00	1.49	10000	95.2	90 - 110	
56 Fe	89	3	9808.00	0.62	10000	98.1	90 - 110	
59 Co	89	2	95.40	1.50	100	95.4	90 - 110	
59 Co	89	3	97.71	0.66	100	97.7	90 - 110	
60 Ni	89	2	95.27	1.42	100	95.3	90 - 110	
62 Ni	89	2	95.46	0.70	100	95.5	90 - 110	
63 Cu	89	2	96.08	0.98	100	96.1	90 - 110	
63 Cu	89	3	96.25	0.54	100	96.3	90 - 110	
65 Cu	89	2	96.42	1.12	100	96.4	90 - 110	
66 Zn	89	2	95.50	1.74	100	95.5	90 - 110	
66 Zn	89	3	98.44	3.25	100	98.4	90 - 110	
68 Zn	89	2	95.17	1.71	100	95.2	90 - 110	
75 As	89	2	95.53	2.51	100	95.5	90 - 110	
75 As	89	3	96.64	1.44	100	96.6	90 - 110	
78 Se	89	2	96.14	3.46	100	96.1	90 - 110	
78 Se	89	3	93.37	4.99	100	93.4	90 - 110	
82 Se	89	2	93.94	3.32	100	93.9	90 - 110	
82 Se	89	3	95.64	11.06	100	95.6	90 - 110	
88 Sr	89	2	96.99	1.57	100	97.0	90 - 110	
95 Mo	89	2	97.27	2.56	100	97.3	90 - 110	
97 Mo	89	2	95.65	2.92	100	95.7	90 - 110	
98 Mo	89	2	96.83	2.43	100	96.8	90 - 110	
106 Cd	115	2	100.60	5.18	100	100.6	90 - 110	
107 Ag	115	2	96.56	1.94	100	96.6	90 - 110	
107 Ag	89	3	97.47	0.36	100	97.5	90 - 110	
109 Ag	115	2	97.61	1.85	100	97.6	90 - 110	
111 Cd	115	2	96.22	1.35	100	96.2	90 - 110	
111 Cd	89	3	99.60	0.34	100	99.6	90 - 110	
114 Cd	115	2	97.68	0.85	100	97.7	90 - 110	
118 Sn	115	2	97.91	1.13	100	97.9	90 - 110	
119 Sn	115	2	95.74	0.82	100	95.7	90 - 110	
121 Sb	115	2	95.12	1.18	100	95.1	90 - 110	
121 Sb	89	3	98.84	0.81	100	98.8	90 - 110	
123 Sb	115	2	97.79	1.45	100	97.8	90 - 110	
135 Ba	115	2	94.38	0.71	100	94.4	90 - 110	
137 Ba	115	2	97.48	1.17	100	97.5	90 - 110	
203 Tl	209	2	103.50	5.12	100	103.5	90 - 110	
205 Tl	209	2	96.70	6.09	100	96.7	90 - 110	
206 Pb	209	2	97.27	1.57	100	97.3	90 - 110	
207 Pb	209	2	98.07	2.47	100	98.1	90 - 110	
208 Pb	209	2	97.63	1.76	100	97.6	90 - 110	
238 U	209	2	92.48	1.93	100	92.5	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	316762	2.59	331434	95.6	83 - 117	
89 Y	2	3254877	2.18	3734090	87.2	83 - 117	
89 Y	3	669901	0.44	772280	86.7	83 - 117	
115 In	2	256965	2.13	300251	85.6	83 - 117	
209 Bi	2	207232	1.60	248008	83.6	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\189 CCB.D\189 CCB.D#
Date Acquired: Sep 21 2016 01:11 am
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 13:44 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.03 ppb	297.43	#######	
9 Be	45	2	0.09 ppb	41.54	#######	
11 B	45	2	4.14 ppb	16.14	#######	
23 Na	89	2	8.33 ppb	268.25	#######	
24 Mg	89	2	8.25 ppb	93.59	#######	
27 Al	89	2	2.34 ppb	37.09	#######	
28 Si	89	2	9.73 ppb	52.27	#######	
29 Si	89	2	-30.73 ppb	27.95	#######	
39 K	89	2	-2.88 ppb	266.85	#######	
44 Ca	89	2	16.69 ppb	69.44	#######	
47 Ti	89	2	0.11 ppb	81.78	#######	
51 V	89	2	0.28 ppb	50.11	#######	
51 V	89	3	-0.07 ppb	181.29	#######	
52 Cr	89	2	-0.06 ppb	69.31	#######	
52 Cr	89	3	0.05 ppb	89.60	#######	
55 Mn	89	2	0.10 ppb	85.32	#######	
55 Mn	89	3	0.14 ppb	60.62	#######	
56 Fe	89	2	7.40 ppb	49.32	#######	
56 Fe	89	3	7.60 ppb	2.04	#######	
59 Co	89	2	0.09 ppb	22.80	#######	
59 Co	89	3	0.06 ppb	22.35	#######	
60 Ni	89	2	-0.05 ppb	97.05	#######	
62 Ni	89	2	0.19 ppb	53.61	#######	
63 Cu	89	2	0.07 ppb	270.65	#######	
63 Cu	89	3	0.08 ppb	120.26	#######	
65 Cu	89	2	0.11 ppb	194.95	#######	
66 Zn	89	2	0.13 ppb	79.52	#######	
66 Zn	89	3	-0.08 ppb	102.19	#######	
68 Zn	89	2	0.16 ppb	10.35	#######	
75 As	89	2	-0.45 ppb	71.51	#######	
75 As	89	3	-0.06 ppb	1021.40	#######	
77 (As)	89	2	-0.43 ppb	390.92	#######	
78 Se	89	2	0.62 ppb	30.52	#######	
78 Se	89	3	0.24 ppb	119.97	#######	
82 Se	89	2	0.04 ppb	3517.50	#######	
82 Se	89	3	-0.45 ppb	1046.70	#######	
83 (Se)	89	2	371.00 ppb	204.56	#######	
83 (Se)	89	3	12.25	6.87	#######	
88 Sr	89	2	0.21 ppb	70.51	#######	
95 Mo	89	2	0.20 ppb	22.50	#######	
97 Mo	89	2	0.11 ppb	58.73	#######	
98 Mo	89	2	0.16 ppb	1.33	#######	
99 (Mo)	89	2	-14.77 ppb	1147.60	#######	
106 Cd	115	2	-0.08 ppb	2349.90	#######	
107 Ag	115	2	0.07 ppb	30.79	#######	
107 Ag	89	3	0.04 ppb	29.26	#######	
108 (Cd)	115	2	-0.16 ppb	89.05	#######	
108 (Cd)	89	3	0.27 ppb	86.59	#######	
109 Ag	115	2	0.07 ppb	37.08	#######	
111 Cd	115	2	0.07 ppb	38.12	#######	
111 Cd	89	3	0.01 ppb	142.26	#######	
114 Cd	115	2	0.05 ppb	69.66	#######	
118 Sn	115	2	0.05 ppb	55.26	#######	
119 Sn	115	2	0.03 ppb	32.45	#######	
121 Sb	115	2	-0.11 ppb	26.87	#######	
121 Sb	89	3	-0.11 ppb	6.31	#######	
123 Sb	115	2	-0.07 ppb	59.95	#######	
135 Ba	115	2	0.05 ppb	136.55	#######	
137 Ba	115	2	0.04 ppb	207.93	#######	
203 Tl	209	2	0.35 ppb	34.89	#######	
205 Tl	209	2	0.36 ppb	23.19	#######	
206 Pb	209	2	0.06 ppb	30.06	#######	
207 Pb	209	2	0.04 ppb	81.44	#######	
208 Pb	209	2	0.05 ppb	60.25	#######	
238 U	209	2	0.07 ppb	40.87	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	293901	0.79	331434	88.7	83 - 117	
89 Y	2	3372507	0.86	3734090	90.3	83 - 117	
89 Y	3	687032	0.76	772280	89.0	83 - 117	
115 In	2	270034	0.46	300251	89.9	83 - 117	
209 Bi	2	222390	0.48	248008	89.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\190ICV2.D\190ICV2.D#
Date Acquired: Sep 21 2016 01:16 am
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.46	1.32	10	104.6	70 - 130	
9 Be	45	2	2.16	0.44	2	108.1	70 - 130	
11 B	45	2	24.84	2.57	20	124.2	70 - 130	
23 Na	89	2	212.00	8.78	200	106.0	70 - 130	
24 Mg	89	2	214.60	2.06	200	107.3	70 - 130	
27 Al	89	2	12.61	5.44	10	126.1	70 - 130	
28 Si	89	2	1042.00	1.50	200	521.0	70 - 130	
29 Si	89	2	989.40	0.73	200	494.7	70 - 130	
39 K	89	2	202.00	2.36	200	101.0	70 - 130	
44 Ca	89	2	524.80	2.19	500	105.0	70 - 130	
47 Ti	89	2	5.61	7.32	5	112.2	70 - 130	
51 V	89	2	4.98	6.47	5	99.6	70 - 130	
51 V	89	3	4.89	4.75	5	97.8	70 - 130	
52 Cr	89	2	4.91	1.84	5	98.1	70 - 130	
52 Cr	89	3	5.01	0.73	5	100.3	70 - 130	
53 Cr	89	2	2.79	30.94	5	55.9	70 - 130	
53 Cr	89	3	5.37	8.26	5	107.5	70 - 130	
55 Mn	89	2	5.00	1.74	5	100.1	70 - 130	
55 Mn	89	3	5.18	2.82	5	103.7	70 - 130	
56 Fe	89	2	85.30	2.32	80	106.6	70 - 130	
56 Fe	89	3	89.44	1.07	80	111.8	70 - 130	
59 Co	89	2	5.09	0.83	5	101.7	70 - 130	
59 Co	89	3	5.15	1.14	5	103.0	70 - 130	
60 Ni	89	2	5.13	0.01	5	102.6	70 - 130	
62 Ni	89	2	5.01	8.67	5	100.3	70 - 130	
63 Cu	89	2	5.31	6.08	5	106.2	70 - 130	
63 Cu	89	3	5.10	2.68	5	101.9	70 - 130	
65 Cu	89	2	5.36	2.04	5	107.2	70 - 130	
66 Zn	89	2	10.24	2.85	10	102.4	70 - 130	
66 Zn	89	3	10.32	3.48	10	103.2	70 - 130	
68 Zn	89	2	9.98	2.36	10	99.8	70 - 130	
75 As	89	2	4.61	16.45	5	92.3	70 - 130	
75 As	89	3	4.98	17.68	5	99.6	70 - 130	
77 (As)	89	2	5.58	60.79	0	#DIV/0!	##### - #####	
77 (As)	89	3	6.51	52.47	0	#DIV/0!	##### - #####	
78 Se	89	2	5.69	12.65	5	113.7	70 - 130	
78 Se	89	3	5.00	11.60	5	100.0	70 - 130	
82 Se	89	2	4.56	8.67	5	91.1	70 - 130	
82 Se	89	3	1.60	205.05	5	32.1	70 - 130	
83 (Se)	89	2	39.10	######	0	#DIV/0!	##### - #####	
83 (Se)	89	3	160.30	105.68	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.16	0.73	5	103.2	70 - 130	
95 Mo	89	2	5.09	4.03	5	101.8	70 - 130	
97 Mo	89	2	4.88	2.64	5	97.6	70 - 130	
98 Mo	89	2	4.97	4.63	5	99.4	70 - 130	
99 (Mo)	89	2	62.99	101.38	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	-1.33	61.96	2	-66.7	70 - 130	
106 Cd	89	3	2.74	74.85	2	137.0	70 - 130	
107 Ag	115	2	5.03	1.31	5	100.6	70 - 130	
107 Ag	89	3	5.17	3.44	5	103.4	70 - 130	
108 (Cd)	115	2	1.60	9.64	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	1.64	65.89	0	#DIV/0!	##### - #####	
109 Ag	115	2	5.11	1.15	5	102.3	70 - 130	
111 Cd	115	2	1.94	1.29	2	97.2	70 - 130	
111 Cd	89	3	1.96	5.78	2	98.1	70 - 130	
114 Cd	115	2	1.98	1.51	2	99.2	70 - 130	
118 Sn	115	2	2.08	3.02	2	104.0	70 - 130	
119 Sn	115	2	2.12	7.58	2	105.8	70 - 130	
121 Sb	115	2	3.98	0.99	5	79.5	70 - 130	
121 Sb	89	3	4.49	5.58	5	89.9	70 - 130	
123 Sb	115	2	4.12	3.04	5	82.4	70 - 130	
135 Ba	115	2	5.09	9.53	5	101.8	70 - 130	
137 Ba	115	2	4.96	0.34	5	99.2	70 - 130	
203 Tl	209	2	5.17	2.72	5	103.5	70 - 130	
205 Tl	209	2	4.96	2.77	5	99.2	70 - 130	
206 Pb	209	2	4.91	4.70	5	98.3	70 - 130	
207 Pb	209	2	5.13	1.19	5	102.7	70 - 130	
208 Pb	209	2	4.97	1.53	5	99.5	70 - 130	
238 U	209	2	4.57	0.29	5	91.5	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	295433	1.37	331434	89.1	83 - 117	
89 Y	2	3318023	2.12	3734090	88.9	83 - 117	
89 Y	3	684635	0.27	772280	88.7	83 - 117	
115 In	2	269299	1.78	300251	89.7	83 - 117	
209 Bi	2	221762	2.09	248008	89.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\196SMPL.D\I96SMPL.D#
Date Acquired:	Sep 21 2016 01:48 am
Operator:	rhughes, ICPMS2
Sample Name:	16091057-01C
Misc Info:	6020W B91654
Vial Number:	3201
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update:	Sep 20 2016 11:44 pm
Sample Type:	Sample
Prep Dil Factor:	1.00
Total Dil Factor:	1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	34.92 ppb	34.92	0.80	#######	
9 Be	0.11 ppb	0.11	8.73	#######	
11 B	3252.00 ppb	3252.00	0.80	#######	
23 Na	35340.00 ppb	35340.00	0.50	#######	
24 Mg	19270.00 ppb	19270.00	1.18	#######	
27 Al	2039.00 ppb	2039.00	1.12	#######	
28 Si	25550.00 ppb	25550.00	1.69	#######	
29 Si	25390.00 ppb	25390.00	0.99	#######	
39 K	27930.00 ppb	27930.00	1.44	#######	
44 Ca	221300.00 ppb	221300.00	1.31	#######	
47 Ti	77.54 ppb	77.54	0.74	#######	
51 V	12.68 ppb	12.68	2.88	#######	
51 V	12.52 ppb	12.52	1.57	#######	
52 Cr	15.84 ppb	15.84	1.85	#######	
52 Cr	15.53 ppb	15.53	1.37	#######	
53 Cr	11.34 ppb	11.34	12.27	#######	
53 Cr	15.35 ppb	15.35	5.35	#######	
55 Mn	504.90 ppb	504.90	0.56	#######	
55 Mn	513.60 ppb	513.60	0.29	#######	
56 Fe	10380.00 ppb	10380.00	1.03	#######	
56 Fe	10420.00 ppb	10420.00	0.11	#######	
59 Co	6.10 ppb	6.10	1.07	#######	
59 Co	4.60 ppb	4.60	3.92	#######	
60 Ni	19.14 ppb	19.14	1.21	#######	
62 Ni	13.32 ppb	13.32	2.22	#######	
63 Cu	126.00 ppb	126.00	6.31	#######	
63 Cu	114.80 ppb	114.80	1.02	#######	
65 Cu	134.50 ppb	134.50	5.84	#######	
66 Zn	1174.00 ppb	1174.00	1.11	#######	
66 Zn	1175.00 ppb	1175.00	0.59	#######	
68 Zn	1138.00 ppb	1138.00	0.54	#######	
75 As	12.35 ppb	12.35	7.67	#######	
75 As	10.73 ppb	10.73	2.62	#######	
77 (As)	110.90 ppb	110.90	3.52	#######	
77 (As)	7.74 ppb	7.74	52.35	#######	
78 Se	1.85 ppb	1.85	34.42	#######	
78 Se	0.32 ppb	0.32	75.09	#######	
82 Se	0.41 ppb	0.41	330.49	#######	
82 Se	2.19 ppb	2.19	97.90	#######	
83 (Se)	904.30 ppb	904.30	83.16	#######	
83 (Se)	86.73	86.73	245.59	#######	
88 Sr	1053.00 ppb	1053.00	0.29	#######	
95 Mo	12.07 ppb	12.07	2.29	#######	
97 Mo	12.18 ppb	12.18	5.65	#######	
98 Mo	12.19 ppb	12.19	2.22	#######	
99 (Mo)	323.10 ppb	323.10	170.32	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	11.78 ppb	11.78	20.18	#######	
106 Cd	8.07 ppb	8.07	28.77	#######	
107 Ag	4.20 ppb	4.20	1.36	#######	
107 Ag	4.08 ppb	4.08	0.49	#######	
108 (Cd)	11.91 ppb	11.91	4.14	#######	
108 (Cd)	13.32 ppb	13.32	29.85	#######	
109 Ag	4.31 ppb	4.31	2.39	#######	
111 Cd	10.92 ppb	10.92	1.73	#######	
111 Cd	11.15 ppb	11.15	4.77	#######	
114 Cd	11.30 ppb	11.30	1.35	#######	
118 Sn	16.27 ppb	16.27	1.49	#######	
119 Sn	14.58 ppb	14.58	1.51	#######	
121 Sb	26.54 ppb	26.54	1.16	#######	
121 Sb	27.69 ppb	27.69	0.95	#######	
123 Sb	27.45 ppb	27.45	0.92	#######	
135 Ba	320.20 ppb	320.20	1.29	#######	
137 Ba	323.30 ppb	323.30	1.36	#######	
203 Tl	0.03 ppb	0.03	267.45	#######	
205 Tl	0.02 ppb	0.02	220.63	#######	
206 Pb	90.96 ppb	90.96	1.22	#######	
207 Pb	91.34 ppb	91.34	1.47	#######	
208 Pb	90.82 ppb	90.82	1.09	#######	
238 U	0.46 ppb	0.46	1.02	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	298934	2.56	331434	90.2	70 - 125	
89 Y	2663726	2.18	3734090	71.3	70 - 125	
89 Y	547019	1.22	772280	70.8	70 - 125	
115 In	207147	1.85	300251	69.0	70 - 125	ISFail
209 Bi	162565	1.52	248008	65.5	70 - 125	ISFail

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
2 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Fail

ICS-A QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\200ICSA.D\200ICSA.D#
Date Acquired: Sep 21 2016 02:10 am
Acq. Method: ICP_6020.M
Operator: thughes, ICPMS2
Sample Name: ICSA
Misc Info:
Vial Number: 1303
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 20 2016 11:44 pm
Sample Type: ICS-A
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
7 Li	45	2	-0.16 ppb	59.20		
9 Be	45	2	-0.01 ppb	133.09		
11 B	45	2	6.87 ppb	9.62		
23 Na	89	2	44760.00 ppb	0.92		
24 Mg	89	2	43510.00 ppb	0.30		
27 Al	89	2	41870.00 ppb	1.14		
28 Si	89	2	25.27 ppb	9.45		
29 Si	89	2	73.87 ppb	33.53		
39 K	89	2	45420.00 ppb	0.88		
44 Ca	89	2	44490.00 ppb	0.89		
47 Ti	89	2	988.80 ppb	0.46		
51 V	89	2	-0.08 ppb	367.61		
51 V	89	3	-0.15 ppb	154.29		
52 Cr	89	2	0.48 ppb	22.67		
52 Cr	89	3	0.21 ppb	31.15		
53 Cr	89	2	2.78 ppb	80.74		
53 Cr	89	3	0.60 ppb	69.79		
55 Mn	89	2	2.12 ppb	5.77		
55 Mn	89	3	2.45 ppb	4.94		
56 Fe	89	2	45550.00 ppb	0.38		
56 Fe	89	3	46330.00 ppb	0.58		
59 Co	89	2	0.46 ppb	4.24		
59 Co	89	3	0.17 ppb	30.87		
60 Ni	89	2	1.98 ppb	4.54		
62 Ni	89	2	7.41 ppb	14.05		
63 Cu	89	2	1.41 ppb	24.25		
63 Cu	89	3	0.59 ppb	12.63		
65 Cu	89	2	4.07 ppb	10.56		
66 Zn	89	2	3.00 ppb	12.29		
66 Zn	89	3	0.67 ppb	38.27		
68 Zn	89	2	0.49 ppb	36.41		
75 As	89	2	-0.02 ppb	2333.30		
75 As	89	3	0.02 ppb	1383.80		
77 (As)	89	2	32.91 ppb	4.50		
77 (As)	89	3	2.22 ppb	43.06		
78 Se	89	2	0.90 ppb	75.40		
78 Se	89	3	-0.12 ppb	226.63		
82 Se	89	2	0.75 ppb	132.86		
82 Se	89	3	-3.50 ppb	121.01		
83 (Se)	89	2	264.50 ppb	164.42		
83 (Se)	89	3	222.00	1.70		
88 Sr	89	2	0.89 ppb	18.44		
95 Mo	89	2	989.60 ppb	0.46		
97 Mo	89	2	975.40 ppb	0.43		
98 Mo	89	2	986.70 ppb	0.40		
99 (Mo)	89	2	181.80 ppb	205.72		
99 (Mo)	89	3	1193.00 ppb	86.59		
106 Cd	115	2	-2.84 ppb	170.40		
106 Cd	89	3	4.32 ppb	114.22		
107 Ag	115	2	0.05 ppb	30.68		
107 Ag	89	3	0.03 ppb	10.15		
108 (Cd)	115	2	30.91 ppb	9.24		
108 (Cd)	89	3	24.06 ppb	10.25		
109 Ag	115	2	0.04 ppb	49.90		
111 Cd	115	2	-0.13 ppb	142.23		
111 Cd	89	3	-0.30 ppb	48.61		
114 Cd	115	2	1.56 ppb	10.65		
118 Sn	115	2	-0.01 ppb	89.26		
119 Sn	115	2	-0.06 ppb	50.14		
121 Sb	115	2	-0.07 ppb	14.49		
121 Sb	89	3	-0.03 ppb	153.90		
123 Sb	115	2	-0.04 ppb	68.82		
135 Ba	115	2	0.23 ppb	27.09		
137 Ba	115	2	0.27 ppb	32.10		
203 Tl	209	2	0.92 ppb	38.99		
205 Tl	209	2	0.81 ppb	27.45		
206 Pb	209	2	0.10 ppb	67.68		
207 Pb	209	2	0.12 ppb	59.42		
208 Pb	209	2	0.13 ppb	55.69		
238 U	209	2	0.00 ppb	781.00		

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	186282	1.75	331434	56.2	70 - 125	ISFail
89 Y	2	2270224	2.35	3734090	60.8	70 - 125	ISFail
89 Y	3	473796	1.18	772280	61.4	70 - 125	ISFail
115 In	2	171242	1.89	300251	57.0	70 - 125	ISFail
209 Bi	2	135894	1.99	248008	54.8	70 - 125	ISFail

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
5 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

ICS-AB QC Report

Date File: C:\ICPCHEM\1\DATA\16I20100.B\201ICSB.D\201ICSB.D#
Date Acquired: Sep 21 2016 02:15 am
Acq. Method: ICP_6020.M
Operator: rhughes, ICPM52
Sample Name: ICSAB
Misc Info:
Vial Number: 1304
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 20 2016 11:44 pm
Sample Type: ICS-AB
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Fail

QC Elements

Element	IS Ref	Tube	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
7 Li	45	2	87.76	1.86	---		-	
9 Be	45	2	91.38	1.72	---		-	
11 B	45	2	230.10	2.79	---		-	
23 Na	89	2	52460.00	2.78	---		-	
24 Mg	89	2	51670.00	2.17	---		-	
27 Al	89	2	41360.00	2.12	---		-	
28 Si	89	2	9147.00	1.36	---		-	
29 Si	89	2	9455.00	3.39	---		-	
39 K	89	2	53250.00	2.05	---		-	
44 Ca	89	2	52050.00	1.97	---		-	
47 Ti	89	2	1071.00	1.52	---		-	
51 V	89	2	91.62	1.64	---		-	
51 V	89	3	94.86	1.41	---		-	
52 Cr	89	2	90.32	2.04	---		-	
52 Cr	89	3	90.54	0.57	---		-	
53 Cr	89	2	98.86	2.77	---		-	
53 Cr	89	3	88.09	2.80	---		-	
55 Mn	89	2	89.47	1.30	---		-	
55 Mn	89	3	95.47	0.97	---		-	
56 Fe	89	2	53760.00	1.64	---		-	
56 Fe	89	3	55460.00	0.11	---		-	
59 Co	89	2	89.11	1.79	---		-	
59 Co	89	3	88.85	0.50	---		-	
60 Ni	89	2	89.29	1.80	---		-	
62 Ni	89	2	94.14	3.43	---		-	
63 Cu	89	2	87.90	1.93	---		-	
63 Cu	89	3	84.07	1.76	---		-	
65 Cu	89	2	90.79	1.85	---		-	
66 Zn	89	2	89.29	1.99	---		-	
66 Zn	89	3	91.75	2.43	---		-	
68 Zn	89	2	88.18	2.94	---		-	
75 As	89	2	93.79	3.54	---		-	
75 As	89	3	98.51	2.25	---		-	
77 (As)	89	2	133.70	4.13	---		-	
77 (As)	89	3	104.90	13.76	---		-	
78 Se	89	2	97.13	3.57	---		-	
78 Se	89	3	97.58	5.31	---		-	
82 Se	89	2	92.79	5.61	---		-	
82 Se	89	3	100.50	4.47	---		-	
83 (Se)	89	2	772.80	58.50	---		-	
83 (Se)	89	3	130.50	200.84	---		-	
88 Sr	89	2	97.45	1.79	---		-	
95 Mo	89	2	1083.00	2.45	---		-	
97 Mo	89	2	1064.00	2.30	---		-	
98 Mo	89	2	1078.00	2.42	---		-	
99 (Mo)	89	2	264.80	166.13	---		-	
99 (Mo)	89	3	0.00	0.00	---		-	
106 Cd	115	2	95.69	7.90	---		-	
106 Cd	89	3	102.30	7.86	---		-	
107 Ag	115	2	95.16	1.19	---		-	
107 Ag	89	3	98.01	0.86	---		-	
108 (Cd)	115	2	123.60	4.74	---		-	
108 (Cd)	89	3	125.90	2.91	---		-	
109 Ag	115	2	95.79	1.79	---		-	
111 Cd	115	2	95.60	1.94	---		-	
111 Cd	89	3	92.59	1.95	---		-	
114 Cd	115	2	99.11	2.40	---		-	
118 Sn	115	2	100.30	2.03	---		-	
119 Sn	115	2	99.21	2.27	---		-	
121 Sb	115	2	97.94	1.79	---		-	
121 Sb	89	3	101.50	0.49	---		-	
123 Sb	115	2	101.30	2.76	---		-	
135 Ba	115	2	101.10	2.45	---		-	
137 Ba	115	2	104.40	2.19	---		-	
203 Tl	209	2	96.71	13.67	---		-	
205 Tl	209	2	90.40	13.26	---		-	
206 Pb	209	2	99.38	2.50	---		-	
207 Pb	209	2	101.50	3.63	---		-	
208 Pb	209	2	100.70	2.78	---		-	
238 U	209	2	97.70	3.07	---		-	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	194951	0.49	331434	58.8	70 - 125	ISFail
89 Y	2	2147512	0.39	3734090	57.5	70 - 125	ISFail
89 Y	3	445125	1.05	772280	57.6	70 - 125	ISFail
115 In	2	161640	0.36	300251	53.8	70 - 125	ISFail
209 Bi	2	128860	0.33	248008	52.0	70 - 125	ISFail

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
5 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\202CCV1.D\202CCV1.D#
Date Acquired: Sep 21 2016 02:20 am
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	87.05	2.05	100	87.1	90 - 110	
9 Be	45	2	95.54	1.72	100	95.5	90 - 110	
11 B	45	2	233.80	2.17	250	93.5	90 - 110	
23 Na	89	2	8668.00	1.70	10000	86.7	90 - 110	Fail
24 Mg	89	2	8614.00	1.99	10000	86.1	90 - 110	
27 Al	89	2	102.60	9.48	100	102.6	90 - 110	
28 Si	89	2	8901.00	1.55	10000	89.0	90 - 110	
29 Si	89	2	8961.00	1.69	10000	89.6	90 - 110	
39 K	89	2	8905.00	2.57	10000	89.1	90 - 110	
44 Ca	89	2	8884.00	1.56	10000	88.8	90 - 110	
47 Ti	89	2	88.54	2.22	100	88.5	90 - 110	
51 V	89	2	90.24	2.10	100	90.2	90 - 110	
51 V	89	3	91.57	1.68	100	91.6	90 - 110	
52 Cr	89	2	89.93	1.54	100	89.9	90 - 110	
52 Cr	89	3	90.84	0.82	100	90.8	90 - 110	
55 Mn	89	2	88.53	1.84	100	88.5	90 - 110	Fail
55 Mn	89	3	92.89	0.60	100	92.9	90 - 110	
56 Fe	89	2	9103.00	1.34	10000	91.0	90 - 110	
56 Fe	89	3	9364.00	0.52	10000	93.6	90 - 110	
59 Co	89	2	91.26	1.87	100	91.3	90 - 110	
59 Co	89	3	91.87	0.37	100	91.9	90 - 110	
60 Ni	89	2	92.15	1.75	100	92.2	90 - 110	
62 Ni	89	2	90.73	6.35	100	90.7	90 - 110	
63 Cu	89	2	92.63	0.47	100	92.6	90 - 110	
63 Cu	89	3	89.62	1.40	100	89.6	90 - 110	
65 Cu	89	2	93.09	0.95	100	93.1	90 - 110	
66 Zn	89	2	90.19	2.58	100	90.2	90 - 110	
66 Zn	89	3	92.50	6.25	100	92.5	90 - 110	
68 Zn	89	2	89.91	2.01	100	89.9	90 - 110	
75 As	89	2	93.52	2.28	100	93.5	90 - 110	
75 As	89	3	91.46	3.17	100	91.5	90 - 110	
78 Se	89	2	94.69	4.43	100	94.7	90 - 110	
78 Se	89	3	92.76	3.81	100	92.8	90 - 110	
82 Se	89	2	93.52	4.19	100	93.5	90 - 110	
82 Se	89	3	89.32	4.89	100	89.3	90 - 110	
88 Sr	89	2	95.87	1.60	100	95.9	90 - 110	
95 Mo	89	2	98.86	2.93	100	98.9	90 - 110	
97 Mo	89	2	97.05	0.98	100	97.1	90 - 110	
98 Mo	89	2	98.62	2.44	100	98.6	90 - 110	
106 Cd	115	2	91.20	3.68	100	91.2	90 - 110	
107 Ag	115	2	96.86	2.08	100	96.9	90 - 110	
107 Ag	89	3	95.24	0.46	100	95.2	90 - 110	
109 Ag	115	2	98.04	2.67	100	98.0	90 - 110	
111 Cd	115	2	95.73	1.93	100	95.7	90 - 110	
111 Cd	89	3	100.30	2.34	100	100.3	90 - 110	
114 Cd	115	2	97.14	2.10	100	97.1	90 - 110	
118 Sn	115	2	97.76	1.57	100	97.8	90 - 110	
119 Sn	115	2	96.40	1.92	100	96.4	90 - 110	
121 Sb	115	2	94.86	1.92	100	94.9	90 - 110	
121 Sb	89	3	101.50	0.34	100	101.5	90 - 110	
123 Sb	115	2	97.67	2.08	100	97.7	90 - 110	
135 Ba	115	2	98.75	3.27	100	98.8	90 - 110	
137 Ba	115	2	98.34	2.04	100	98.3	90 - 110	
203 Tl	209	2	104.40	6.25	100	104.4	90 - 110	
205 Tl	209	2	97.13	5.14	100	97.1	90 - 110	
206 Pb	209	2	96.97	2.69	100	97.0	90 - 110	
207 Pb	209	2	97.55	0.63	100	97.6	90 - 110	
208 Pb	209	2	97.32	2.01	100	97.3	90 - 110	
238 U	209	2	92.04	2.19	100	92.0	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	193244	1.53	331434	58.3	83 - 117	ISFail
89 Y	2	2114805	1.45	3734090	56.6	83 - 117	ISFail
89 Y	3	454117	0.49	772280	58.8	83 - 117	ISFail
115 In	2	166611	1.18	300251	55.5	83 - 117	ISFail
209 Bi	2	136693	1.15	248008	55.1	83 - 117	ISFail

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\165CALB.D\165CALB.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
5 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\205CCV1.D\205CCV1.D#
Date Acquired: Sep 21 2016 02:36 am
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Fail
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	88.08	0.91	100	88.1	90 - 110	
9 Be	45	2	95.54	1.11	100	95.5	90 - 110	
11 B	45	2	231.90	1.19	250	92.8	90 - 110	
23 Na	89	2	8787.00	0.64	10000	87.9	90 - 110	Fail
24 Mg	89	2	8757.00	0.71	10000	87.6	90 - 110	
27 Al	89	2	90.69	0.27	100	90.7	90 - 110	
28 Si	89	2	9030.00	1.74	10000	90.3	90 - 110	
29 Si	89	2	9122.00	3.40	10000	91.2	90 - 110	
39 K	89	2	9055.00	2.02	10000	90.6	90 - 110	
44 Ca	89	2	8979.00	1.25	10000	89.8	90 - 110	
47 Ti	89	2	89.45	2.00	100	89.5	90 - 110	
51 V	89	2	90.48	0.90	100	90.5	90 - 110	
51 V	89	3	93.78	2.28	100	93.8	90 - 110	
52 Cr	89	2	91.07	1.22	100	91.1	90 - 110	
52 Cr	89	3	90.81	0.50	100	90.8	90 - 110	
55 Mn	89	2	89.40	1.19	100	89.4	90 - 110	Fail
55 Mn	89	3	92.77	1.82	100	92.8	90 - 110	
56 Fe	89	2	9144.00	0.88	10000	91.4	90 - 110	
56 Fe	89	3	9298.00	0.71	10000	93.0	90 - 110	
59 Co	89	2	92.01	1.00	100	92.0	90 - 110	
59 Co	89	3	92.07	1.26	100	92.1	90 - 110	
60 Ni	89	2	92.27	0.92	100	92.3	90 - 110	
62 Ni	89	2	89.05	0.97	100	89.1	90 - 110	
63 Cu	89	2	94.53	0.75	100	94.5	90 - 110	
63 Cu	89	3	90.49	0.92	100	90.5	90 - 110	
65 Cu	89	2	94.24	1.10	100	94.2	90 - 110	
66 Zn	89	2	91.63	0.23	100	91.6	90 - 110	
66 Zn	89	3	92.26	2.75	100	92.3	90 - 110	
68 Zn	89	2	92.52	2.45	100	92.5	90 - 110	
75 As	89	2	91.48	1.40	100	91.5	90 - 110	
75 As	89	3	94.03	1.75	100	94.0	90 - 110	
78 Se	89	2	92.33	1.49	100	92.3	90 - 110	
78 Se	89	3	90.91	3.92	100	90.9	90 - 110	
82 Se	89	2	94.17	2.27	100	94.2	90 - 110	
82 Se	89	3	97.45	0.98	100	97.5	90 - 110	
88 Sr	89	2	96.99	1.18	100	97.0	90 - 110	
95 Mo	89	2	97.26	2.06	100	97.3	90 - 110	
97 Mo	89	2	96.24	2.33	100	96.2	90 - 110	
98 Mo	89	2	97.71	1.95	100	97.7	90 - 110	
106 Cd	115	2	93.42	3.11	100	93.4	90 - 110	
107 Ag	115	2	97.67	0.42	100	97.7	90 - 110	
107 Ag	89	3	94.72	0.44	100	94.7	90 - 110	
109 Ag	115	2	97.61	0.31	100	97.6	90 - 110	
111 Cd	115	2	95.91	1.23	100	95.9	90 - 110	
111 Cd	89	3	98.32	2.46	100	98.3	90 - 110	
114 Cd	115	2	97.76	0.59	100	97.8	90 - 110	
118 Sn	115	2	98.20	0.89	100	98.2	90 - 110	
119 Sn	115	2	97.30	1.09	100	97.3	90 - 110	
121 Sb	115	2	95.23	0.85	100	95.2	90 - 110	
121 Sb	89	3	100.50	1.25	100	100.5	90 - 110	
123 Sb	115	2	98.39	0.75	100	98.4	90 - 110	
135 Ba	115	2	97.07	1.92	100	97.1	90 - 110	
137 Ba	115	2	99.78	0.70	100	99.8	90 - 110	
203 Tl	209	2	103.80	4.39	100	103.8	90 - 110	
205 Tl	209	2	96.94	4.94	100	96.9	90 - 110	
206 Pb	209	2	96.90	0.99	100	96.9	90 - 110	
207 Pb	209	2	97.45	1.58	100	97.5	90 - 110	
208 Pb	209	2	97.42	0.96	100	97.4	90 - 110	
238 U	209	2	92.24	0.81	100	92.2	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	203941	2.99	331434	61.5	83 - 117	ISFail
89 Y	2	2206939	2.38	3734090	59.1	83 - 117	ISFail
89 Y	3	477993	0.58	772280	61.9	83 - 117	ISFail
115 In	2	174348	2.99	300251	58.1	83 - 117	ISFail
209 Bi	2	143052	2.57	248008	57.7	83 - 117	ISFail

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\165CALB.D\165CALB.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
5 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\206 CCB.D\206 CCB.D#
Date Acquired: Sep 21 2016 02:42 am
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	-0.05 ppb	141.24	#######	
9 Be	45	2	0.08 ppb	17.16	#######	
11 B	45	2	3.08 ppb	23.34	#######	
23 Na	89	2	33.96 ppb	58.19	#######	
24 Mg	89	2	8.25 ppb	93.58	#######	
27 Al	89	2	1.84 ppb	46.16	#######	
28 Si	89	2	10.25 ppb	36.64	#######	
29 Si	89	2	-61.67 ppb	6.89	#######	
39 K	89	2	-9.11 ppb	67.52	#######	
44 Ca	89	2	14.58 ppb	98.29	#######	
47 Ti	89	2	0.09 ppb	106.08	#######	
51 V	89	2	0.10 ppb	177.63	#######	
51 V	89	3	0.04 ppb	281.96	#######	
52 Cr	89	2	-0.11 ppb	73.64	#######	
52 Cr	89	3	0.06 ppb	116.21	#######	
55 Mn	89	2	-0.05 ppb	146.32	#######	
55 Mn	89	3	-0.03 ppb	51.64	#######	
56 Fe	89	2	8.20 ppb	45.64	#######	
56 Fe	89	3	7.59 ppb	3.60	#######	
59 Co	89	2	0.07 ppb	59.08	#######	
59 Co	89	3	0.08 ppb	44.14	#######	
60 Ni	89	2	-0.04 ppb	31.54	#######	
62 Ni	89	2	-0.04 ppb	835.90	#######	
63 Cu	89	2	0.33 ppb	80.86	#######	
63 Cu	89	3	0.33 ppb	11.28	#######	
65 Cu	89	2	0.35 ppb	81.20	#######	
66 Zn	89	2	-0.02 ppb	318.54	#######	
66 Zn	89	3	0.15 ppb	41.96	#######	
68 Zn	89	2	0.19 ppb	36.41	#######	
75 As	89	2	0.11 ppb	656.06	#######	
75 As	89	3	-0.37 ppb	91.47	#######	
77 (As)	89	2	-5.51 ppb	42.48	#######	
78 Se	89	2	1.16 ppb	65.55	#######	
78 Se	89	3	0.58 ppb	54.13	#######	
82 Se	89	2	-0.10 ppb	300.19	#######	
82 Se	89	3	-4.73 ppb	45.61	#######	
83 (Se)	89	2	-22.34 ppb	423.77	#######	
83 (Se)	89	3	160.20	56.45	#######	
88 Sr	89	2	0.20 ppb	59.46	#######	
95 Mo	89	2	0.23 ppb	22.04	#######	
97 Mo	89	2	0.16 ppb	30.05	#######	
98 Mo	89	2	0.24 ppb	14.53	#######	
99 (Mo)	89	2	229.70 ppb	41.45	#######	
106 Cd	115	2	-4.31 ppb	141.75	#######	
107 Ag	115	2	0.06 ppb	37.64	#######	
107 Ag	89	3	0.05 ppb	20.62	#######	
108 (Cd)	115	2	-0.18 ppb	180.93	#######	
108 (Cd)	89	3	0.19 ppb	173.19	#######	
109 Ag	115	2	0.06 ppb	36.30	#######	
111 Cd	115	2	0.07 ppb	36.50	#######	
111 Cd	89	3	0.04 ppb	235.52	#######	
114 Cd	115	2	0.05 ppb	46.17	#######	
118 Sn	115	2	0.04 ppb	61.00	#######	
119 Sn	115	2	0.04 ppb	131.85	#######	
121 Sb	115	2	-0.13 ppb	16.85	#######	
121 Sb	89	3	-8.11 ppb	32.94	#######	
123 Sb	115	2	-0.05 ppb	54.15	#######	
135 Ba	115	2	0.09 ppb	40.55	#######	
137 Ba	115	2	-0.02 ppb	594.19	#######	
203 Tl	209	2	0.35 ppb	37.39	#######	
205 Tl	209	2	0.35 ppb	38.41	#######	
206 Pb	209	2	0.06 ppb	50.27	#######	
207 Pb	209	2	0.06 ppb	91.04	#######	
208 Pb	209	2	0.07 ppb	52.86	#######	
238 U	209	2	0.08 ppb	16.96	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	191641	1.09	331434	57.8	83 - 117	ISFail
89 Y	2	2325204	0.80	3734090	62.3	83 - 117	ISFail
89 Y	3	489751	0.78	772280	63.4	83 - 117	ISFail
115 In	2	185436	1.10	300251	61.8	83 - 117	ISFail
209 Bi	2	154271	0.94	248008	62.2	83 - 117	ISFail

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
5 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\207ICV2.D\207ICV2.D#
Date Acquired: Sep 21 2016 02:47 am
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 20 2016 11:44 pm
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Fail

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.14	2.87	10	101.4	70 - 130	
9 Be	45	2	2.27	3.86	2	113.7	70 - 130	
11 B	45	2	23.93	2.99	20	119.7	70 - 130	
23 Na	89	2	228.80	10.84	200	114.4	70 - 130	
24 Mg	89	2	196.00	5.52	200	98.0	70 - 130	
27 Al	89	2	11.21	9.24	10	112.1	70 - 130	
28 Si	89	2	1008.00	1.66	200	504.0	70 - 130	
29 Si	89	2	918.90	4.96	200	459.5	70 - 130	
39 K	89	2	193.70	7.65	200	96.9	70 - 130	
44 Ca	89	2	505.90	5.42	500	101.2	70 - 130	
47 Ti	89	2	5.99	5.89	5	119.8	70 - 130	
51 V	89	2	4.79	2.26	5	95.8	70 - 130	
51 V	89	3	4.81	4.57	5	96.2	70 - 130	
52 Cr	89	2	4.72	5.56	5	94.5	70 - 130	
52 Cr	89	3	4.75	3.91	5	94.9	70 - 130	
53 Cr	89	2	3.61	49.85	5	72.2	70 - 130	
53 Cr	89	3	4.60	14.54	5	91.9	70 - 130	
55 Mn	89	2	4.73	4.94	5	94.6	70 - 130	
55 Mn	89	3	4.80	8.10	5	96.1	70 - 130	
56 Fe	89	2	84.18	7.31	80	105.2	70 - 130	
56 Fe	89	3	84.28	1.96	80	105.4	70 - 130	
59 Co	89	2	4.94	1.53	5	98.8	70 - 130	
59 Co	89	3	4.76	2.03	5	95.2	70 - 130	
60 Ni	89	2	4.92	2.48	5	98.4	70 - 130	
62 Ni	89	2	5.66	9.53	5	113.2	70 - 130	
63 Cu	89	2	5.44	3.73	5	108.7	70 - 130	
63 Cu	89	3	5.04	4.21	5	100.8	70 - 130	
65 Cu	89	2	5.51	8.84	5	110.2	70 - 130	
66 Zn	89	2	10.31	3.42	10	103.1	70 - 130	
66 Zn	89	3	11.01	10.80	10	110.1	70 - 130	
68 Zn	89	2	9.65	4.25	10	96.5	70 - 130	
75 As	89	2	4.76	7.59	5	95.1	70 - 130	
75 As	89	3	4.53	4.86	5	90.7	70 - 130	
77 (As)	89	2	4.02	20.79	0	#DIV/0!	##### - #####	
77 (As)	89	3	6.24	16.02	0	#DIV/0!	##### - #####	
78 Se	89	2	5.83	16.59	5	116.5	70 - 130	
78 Se	89	3	4.98	35.29	5	99.6	70 - 130	
82 Se	89	2	4.84	12.03	5	96.8	70 - 130	
82 Se	89	3	2.47	3.48	5	49.4	70 - 130	
83 (Se)	89	2	-271.70	196.69	0	#DIV/0!	##### - #####	
83 (Se)	89	3	54.70	278.79	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.32	3.99	5	106.5	70 - 130	
95 Mo	89	2	5.01	3.41	5	100.1	70 - 130	
97 Mo	89	2	4.81	6.88	5	96.1	70 - 130	
98 Mo	89	2	5.04	4.43	5	100.9	70 - 130	
99 (Mo)	89	2	80.04	326.96	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	-4.68	54.85	2	-233.9	70 - 130	
106 Cd	89	3	6.73	98.84	2	336.5	70 - 130	
107 Ag	115	2	5.14	3.61	5	102.7	70 - 130	
107 Ag	89	3	5.09	0.59	5	101.8	70 - 130	
108 (Cd)	115	2	1.69	18.96	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	2.27	50.16	0	#DIV/0!	##### - #####	
109 Ag	115	2	5.34	5.14	5	106.8	70 - 130	
111 Cd	115	2	1.98	8.14	2	99.0	70 - 130	
111 Cd	89	3	1.94	9.89	2	97.1	70 - 130	
114 Cd	115	2	2.12	1.95	2	105.8	70 - 130	
118 Sn	115	2	2.03	4.85	2	101.7	70 - 130	
119 Sn	115	2	2.15	12.42	2	107.6	70 - 130	
121 Sb	115	2	4.05	3.46	5	80.9	70 - 130	
121 Sb	89	3	4.59	3.87	5	91.9	70 - 130	
123 Sb	115	2	4.31	5.03	5	86.1	70 - 130	
135 Ba	115	2	5.06	10.40	5	101.1	70 - 130	
137 Ba	115	2	4.82	3.97	5	96.3	70 - 130	
203 Tl	209	2	5.45	2.59	5	109.1	70 - 130	
205 Tl	209	2	4.93	1.74	5	98.6	70 - 130	
206 Pb	209	2	5.02	3.52	5	100.4	70 - 130	
207 Pb	209	2	5.23	2.54	5	104.7	70 - 130	
208 Pb	209	2	5.12	0.55	5	102.3	70 - 130	
238 U	209	2	4.60	1.45	5	92.0	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	190651	4.53	331434	57.5	83 - 117	ISFail
89 Y	2	2281552	4.37	3734090	61.1	83 - 117	ISFail
89 Y	3	495113	0.36	772280	64.1	83 - 117	ISFail
115 In	2	184308	4.90	300251	61.4	83 - 117	ISFail
209 Bi	2	153683	4.14	248008	62.0	83 - 117	ISFail

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\165CALB.D\165CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
5 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Last Calib: Sep 28, 2016 11:34 am
Calibration Type: External Calibration Method
Calibration Title: ICPMS2 160920A ICAL
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Multi Tune: #2 nogas.u
#3 he.u

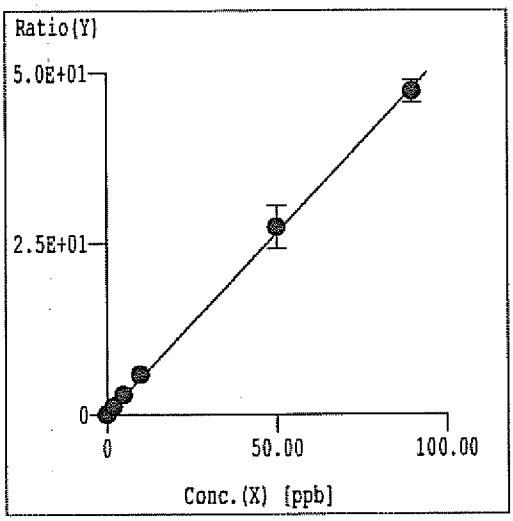
=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\icpchem\1\data\16i20i00.b\208calb.d\208calb.d#	Level 1	Sep 21 2016 02:53 am
2	c:\icpchem\1\data\16i20i00.b\209cals.d\209cals.d#	Level 2	Sep 21 2016 02:58 am
3	c:\icpchem\1\data\16i20i00.b\210cals.d\210cals.d#	Level 3	Sep 21 2016 03:03 am
4	c:\icpchem\1\data\16i20i00.b\211cals.d\211cals.d#	Level 4	Sep 21 2016 03:09 am
5	c:\icpchem\1\data\16i20i00.b\212cals.d\212cals.d#	Level 5	Sep 21 2016 03:14 am
6	c:\icpchem\1\data\16i20i00.b\213cals.d\213cals.d#	Level 6	Sep 21 2016 03:19 am
7	c:\icpchem\1\data\16i20i00.b\214cals.d\214cals.d#	Level 7	Sep 21 2016 03:25 am
8	c:\icpchem\1\data\16i20i00.b\215cals.d\215cals.d#	Level 8	Sep 21 2016 03:30 am
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

Calibration - C:\ICPCHEM\1\CALIB\ICP_6020.c

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	9	Be	45	ppb

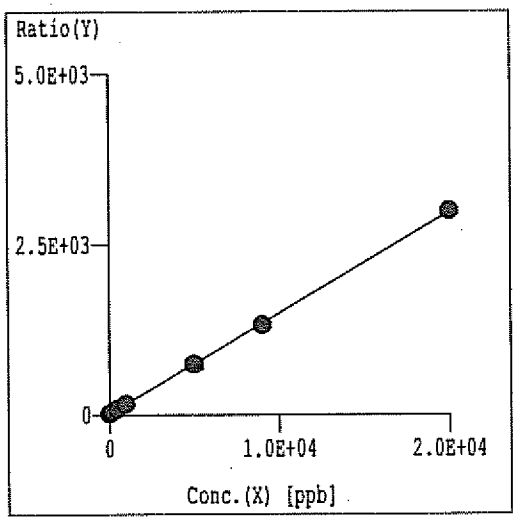


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	29.63	1.514E-02	P	35.42
2		2.000E-01	2.257E-01	263.0	1.349E-01	P	7.253
3		2.000	2.197	2332	1.181E+00	P	8.764E-01
4		5.000	5.453	5803	2.910E+00	P	2.566
5		10.00	11.00	1.173E+04	5.851E+00	P	2.151
6		50.00	51.58	5.817E+04	2.739E+01	P	11.67
7		90.00	88.98	1.069E+05	4.724E+01	P	3.411
8	ON	200.0	---	2.322E+05	9.622E+01	P	1.348
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9997
Y = 5.308E-001*X +1.514E-002
X = 1.884E+000*Y -2.852E-002
DL = 3.031E-02 ppb
BEC = 2.852E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	23	Na	89	ppb



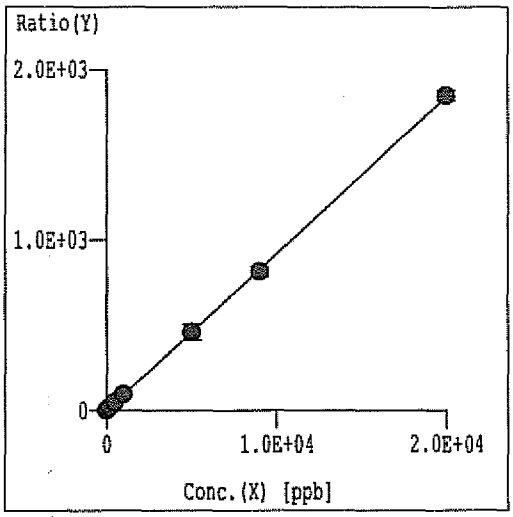
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	3.900E+05	1.637E+01	P	19.95
2		20.00	18.98	4.522E+05	1.917E+01	P	17.95
3		200.0	204.0	1.105E+06	4.652E+01	A	6.465
4		500.0	502.4	2.159E+06	9.061E+01	A	2.592
5		1000	987.7	3.869E+06	1.623E+02	A	1.928
6		5000	4930	1.784E+07	7.449E+02	A	9.647
7		9000	8821	3.226E+07	1.320E+03	A	2.695
8		2.000E+04	2.010E+04	6.996E+07	2.986E+03	A	1.444
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.478E-001*X +1.637E+001
X = 6.767E+000*Y -1.108E+002
DL = 66.29 ppb
BEC = 110.8 ppb

Weight: OFF
Min Conc: 0.000

===Graph Detail===

Step	Mass	Element	ISTD	Unit
(2)	24	Mg	89	ppb

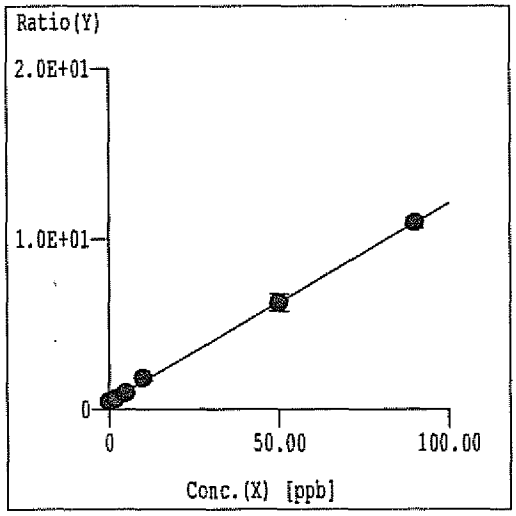


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2.418E+04	1.020E+00	P	60.88
2		20.00	20.36	6.815E+04	2.892E+00	P	22.79
3		200.0	203.4	4.683E+05	1.971E+01	P	3.354
4		500.0	521.7	1.167E+06	4.896E+01	A	9.120E-01
5		1000	1025	2.270E+06	9.522E+01	A	9.836E-01
6		5000	4986	1.099E+07	4.593E+02	A	10.36
7		9000	8854	1.991E+07	8.147E+02	A	3.536
8		2.000E+04	2.007E+04	4.323E+07	1.845E+03	A	1.632
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.190E-002*X +1.020E+000
X = 1.088E+001*Y -1.110E+001
DL = 20.27 ppb
BEC = 11.10 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	27	Al	89	ppb



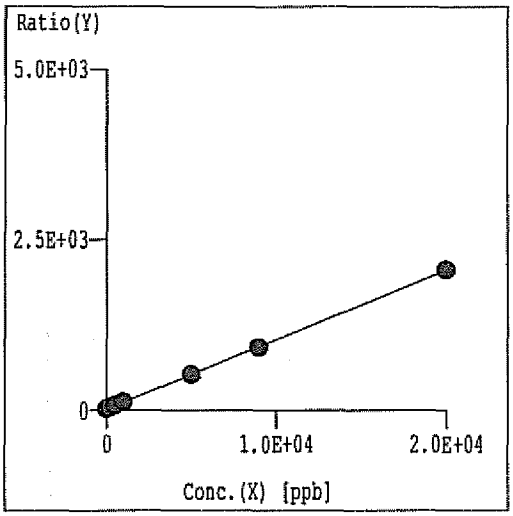
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1.090E+04	4.579E-01	P	25.27
2	ON	2.000E-01	---	9611	4.082E-01	P	28.65
3		2.000	1.383	1.467E+04	6.191E-01	P	18.68
4		5.000	4.405	2.314E+04	9.718E-01	P	10.08
5		10.00	11.84	4.380E+04	1.840E+00	P	9.541
6		50.00	49.71	1.499E+05	6.258E+00	P	8.226
7		90.00	90.00	2.678E+05	1.096E+01	P	2.673
8	ON	200.0	---	5.600E+05	2.391E+01	P	1.586
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9997
Y = 1.167E-001*X +4.579E-001
X = 8.572E+000*Y -3.925E+000
DL = 2.975 ppb
BEC = 3.925 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	39	K	89	ppb

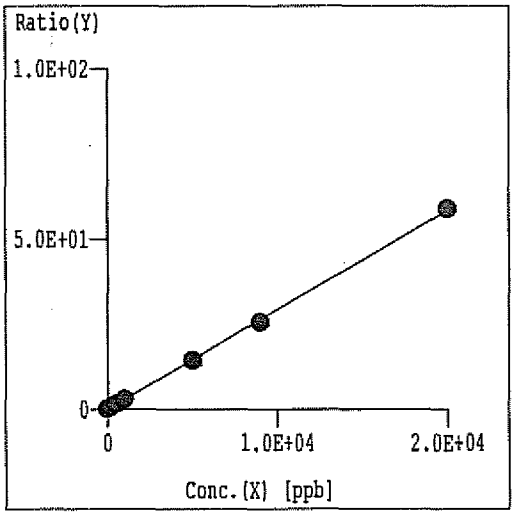


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	4.490E+05	1.880E+01	P	4.448
2		20.00	25.12	5.050E+05	2.136E+01	P	3.992
3		200.0	208.6	9.510E+05	4.002E+01	A	2.584
4		500.0	512.4	1.690E+06	7.093E+01	A	4.372E-01
5		1000	1004	2.884E+06	1.210E+02	A	1.364
6		5000	4961	1.253E+07	5.235E+02	A	9.992
7		9000	8869	2.251E+07	9.210E+02	A	3.869
8		2.000E+04	2.007E+04	4.827E+07	2.060E+03	A	2.060
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.017E-001*X +1.880E+001
X = 9.830E+000*Y -1.849E+002
DL = 24.67 ppb
BEC = 184.9 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	44	Ca	89	ppb



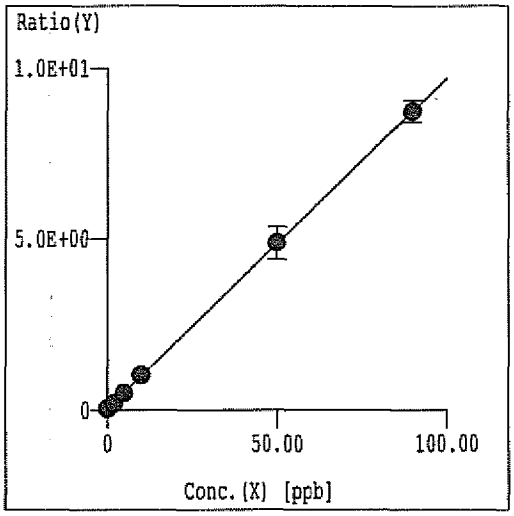
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	3730	1.566E-01	P	24.75
2		20.00	24.29	5361	2.274E-01	P	20.25
3		200.0	195.4	1.724E+04	7.261E-01	P	6.436
4		500.0	490.4	3.779E+04	1.586E+00	P	4.792E-01
5		1000	974.0	7.140E+04	2.995E+00	P	1.668
6		5000	4879	3.442E+05	1.437E+01	P	9.917
7		9000	8701	6.235E+05	2.551E+01	P	3.918
8		2.000E+04	2.017E+04	1.381E+06	5.893E+01	A	1.365
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9998
Y = 2.914E-003*X +1.566E-001
X = 3.432E+002*Y -5.374E+001
DL = 39.90 ppb
BEC = 53.74 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	51	V	89	ppb

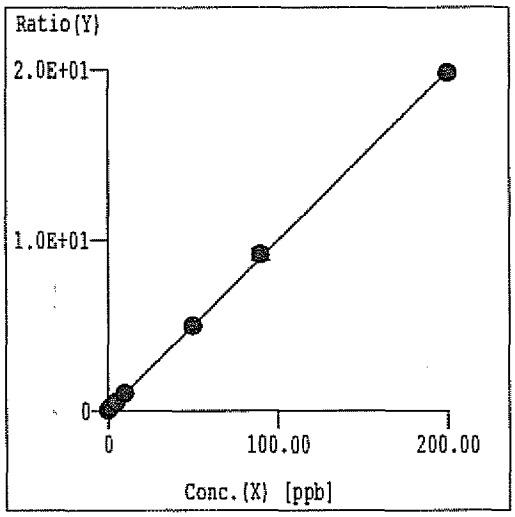


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	751.2	3.134E-02	P	37.76
2		2.000E-01	1.269E-01	1047	4.362E-02	P	86.07
3		2.000	1.673	4600	1.932E-01	P	7.870
4		5.000	4.762	1.173E+04	4.923E-01	P	2.487
5		10.00	10.20	2.431E+04	1.019E+00	P	3.473
6		50.00	50.14	1.170E+05	4.885E+00	P	9.664
7		90.00	89.92	2.135E+05	8.736E+00	P	3.688
8	ON	200.0	---	4.703E+05	2.008E+01	P	1.505
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.680E-002*X +3.134E-002
X = 1.033E+001*Y -3.238E-001
DL = 3.668E-01 ppb
BEC = 3.238E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(3)	52	Cr	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	133.3	2.664E-02	P	20.70
2		2.000E-01	1.756E-01	221.1	4.408E-02	P	11.13
3		2.000	2.112	1185	2.365E-01	P	4.503
4		5.000	4.933	2594	5.167E-01	P	3.548
5		10.00	10.08	5168	1.028E+00	P	2.964
6		50.00	49.88	2.536E+04	4.983E+00	P	1.393
7		90.00	92.00	4.583E+04	9.167E+00	P	3.748
8		200.0	199.1	1.001E+05	1.981E+01	P	5.614E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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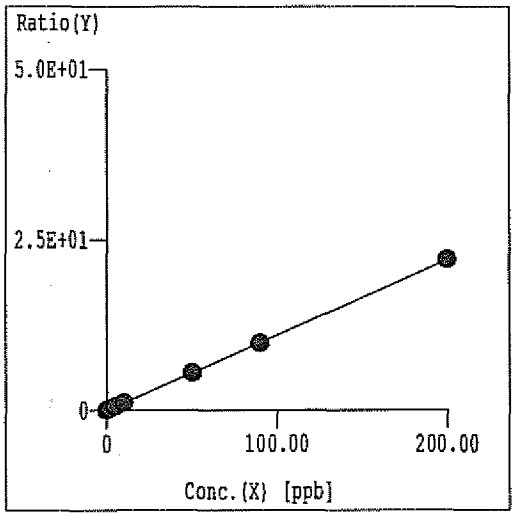
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 9.935E-002*X +2.664E-002
X = 1.007E+001*Y -2.681E-001
DL = 1.665E-01 ppb
BEC = 2.681E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	55	Mn	89	ppb

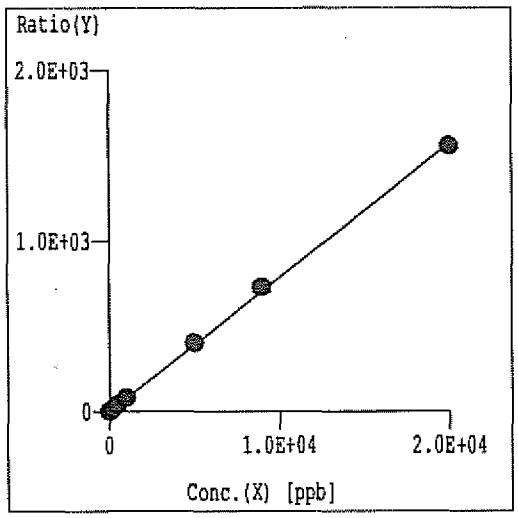


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	997.8	4.187E-02	P	18.36
2		2.000E-01	1.825E-01	1463	6.196E-02	P	9.432
3		2.000	1.978	6170	2.597E-01	P	4.294
4		5.000	5.090	1.435E+04	6.022E-01	P	2.068
5		10.00	10.09	2.747E+04	1.152E+00	P	1.900
6		50.00	49.60	1.318E+05	5.502E+00	P	9.338
7		90.00	89.06	2.407E+05	9.847E+00	P	3.324
8		200.0	200.5	5.182E+05	2.212E+01	P	1.179
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.101E-001*X +4.187E-002
X = 9.083E+000*Y -3.803E-001
DL = 2.095E-01 ppb
BEC = 3.803E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(3)	56	Fe	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1260	2.519E-01	P	2.231
2		20.00	20.50	9333	1.860E+00	P	1.024
3		200.0	206.4	8.237E+04	1.645E+01	P	4.266E-01
4		500.0	521.3	2.066E+05	4.116E+01	P	2.690E-01
5		1000	1034	4.089E+05	8.136E+01	P	7.012E-01
6		5000	5134	2.052E+06	4.031E+02	A	5.565E-01
7		9000	9300	3.649E+06	7.299E+02	A	3.691
8		2.000E+04	1.983E+04	7.864E+06	1.556E+03	A	8.996E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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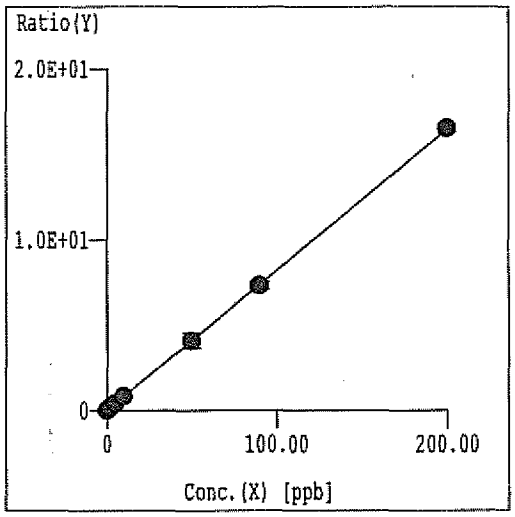
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9998
Y = 7.846E-002*X +2.519E-001
X = 1.274E+001*Y -3.211E+000
DL = 2.149E-01 ppb
BEC = 3.211 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	59	Co	89	ppb

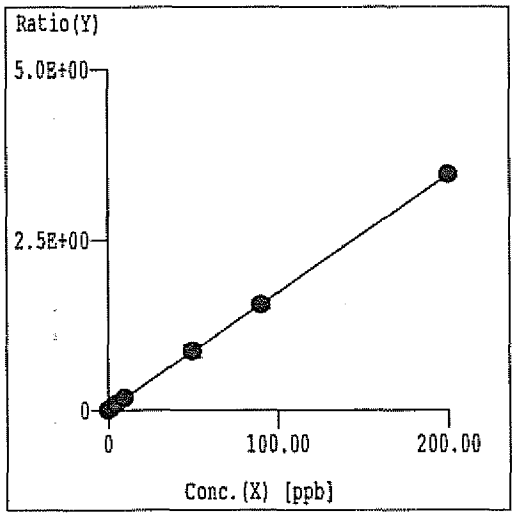


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	102.2	4.295E-03	P	29.28
2		2.000E-01	2.053E-01	501.1	2.122E-02	P	14.37
3		2.000	2.049	4120	1.733E-01	P	1.357
4		5.000	5.023	9974	4.184E-01	P	4.234
5		10.00	10.04	1.984E+04	8.322E-01	P	2.421
6		50.00	49.51	9.781E+04	4.086E+00	P	10.76
7		90.00	89.04	1.795E+05	7.346E+00	P	2.955
8		200.0	200.6	3.875E+05	1.654E+01	P	1.419
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 8.245E-002*X +4.295E-003
X = 1.213E+001*Y -5.209E-002
DL = 4.575E-02 ppb
BEC = 5.209E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	60	Ni	89	ppb



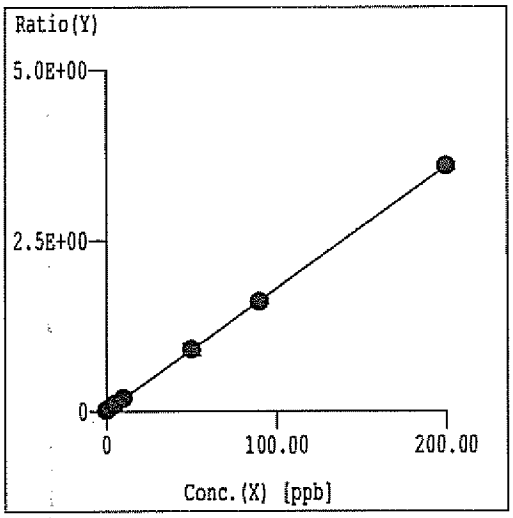
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	82.59	3.454E-03	P	6.906
2		2.000E-01	1.297E-01	134.4	5.697E-03	P	15.27
3		2.000	1.944	880.4	3.707E-02	P	5.804
4		5.000	5.099	2184	9.164E-02	P	3.120
5		10.00	10.33	4344	1.822E-01	P	5.720E-01
6		50.00	50.11	2.083E+04	8.702E-01	P	10.38
7		90.00	89.61	3.796E+04	1.553E+00	P	4.159
8		200.0	200.1	8.117E+04	3.465E+00	P	1.286
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.729E-002*X +3.454E-003
X = 5.782E+001*Y -1.997E-001
DL = 4.138E-02 ppb
BEC = 1.997E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	65	Cu	89	ppb

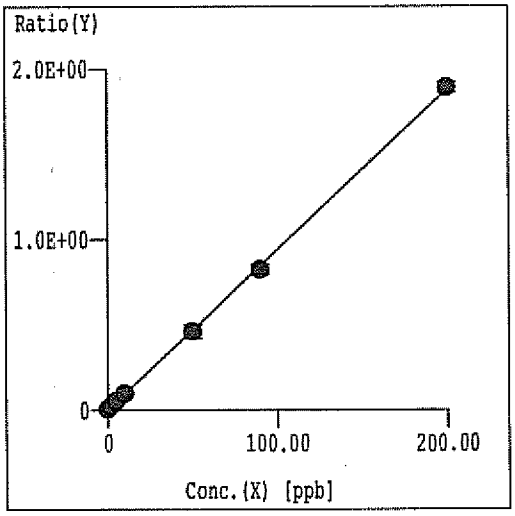


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	311.5	1.309E-02	P	33.00
2	ON	2.000E-01	---	392.2	1.668E-02	P	34.85
3		2.000	2.030	1171	4.935E-02	P	11.52
4		5.000	5.123	2492	1.046E-01	P	2.989
5		10.00	10.15	4633	1.944E-01	P	3.273
6		50.00	50.21	2.179E+04	9.100E-01	P	9.822
7		90.00	89.21	3.927E+04	1.607E+00	P	2.486
8		200.0	200.3	8.413E+04	3.591E+00	P	1.483
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.786E-002*X +1.309E-002
X = 5.598E+001*Y -7.330E-001
DL = 7.257E-01 ppb
BEC = 7.330E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	66	Zn	89	ppb



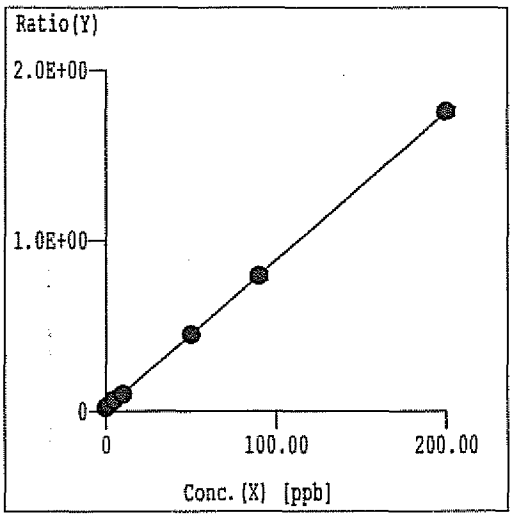
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	123.3	5.173E-03	P	14.52
2	ON	2.000E-01	---	157.8	6.680E-03	P	16.48
3		2.000	1.976	562.3	2.366E-02	P	3.988
4		5.000	5.179	1278	5.363E-02	P	6.949
5		10.00	9.835	2319	9.719E-02	P	6.351
6		50.00	48.83	1.107E+04	4.621E-01	P	8.760
7		90.00	87.55	2.015E+04	8.244E-01	P	3.682
8		200.0	201.4	4.427E+04	1.890E+00	P	1.626
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 9.357E-003*X +5.173E-003
X = 1.069E+002*Y -5.528E-001
DL = 2.408E-01 ppb
BEC = 5.528E-01 ppb

Weight: OFF
Min Conc: 0.000

===Graph Detail ===

Step	Mass	Element	ISTD	Unit
(3)	75	As	89	ppb

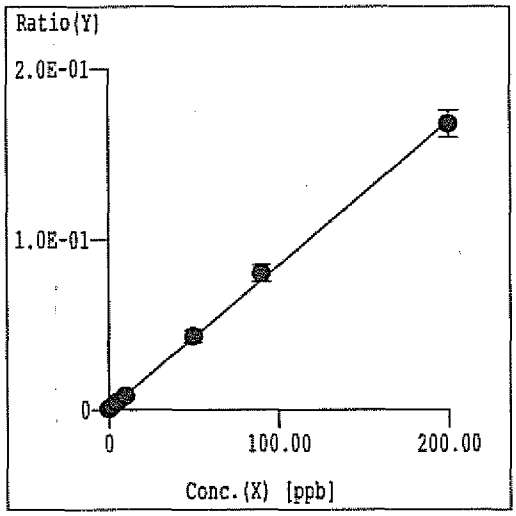


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	96.09	1.921E-02	P	3.421
2	ON	2.000E-01	---	114.5	2.281E-02	P	2.334
3		2.000	2.109	187.7	3.749E-02	P	7.964
4		5.000	5.395	331.0	6.595E-02	P	9.607
5		10.00	9.060	491.0	9.770E-02	P	6.447
6		50.00	49.58	2284	4.487E-01	P	1.421
7		90.00	89.30	3964	7.928E-01	P	3.033
8		200.0	200.5	8873	1.756E+00	P	1.480
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 8.663E-003*X +1.921E-002
X = 1.154E+002*Y -2.218E+000
DL = 2.276E-01 ppb
BEC = 2.218 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(3)	78	Se	89	ppb



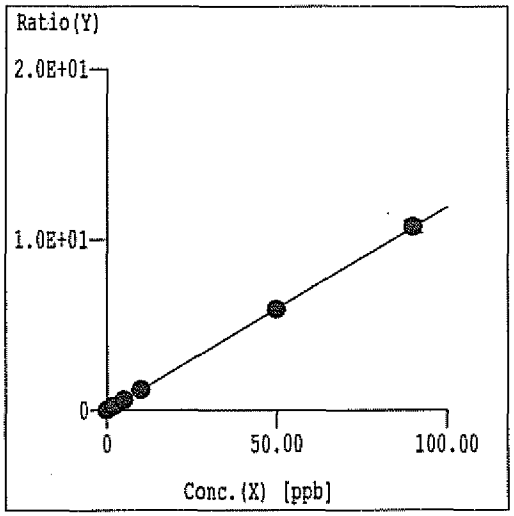
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2.593	5.194E-04	P	65.73
2		2.000E-01	-8.821E-02	2.222	4.448E-04	P	100.1
3		2.000	1.751	10.00	2.000E-03	P	51.15
4		5.000	4.794	22.96	4.573E-03	P	34.30
5		10.00	9.233	41.85	8.325E-03	P	7.807
6		50.00	50.60	220.4	4.330E-02	P	8.224
7		90.00	94.42	401.9	8.034E-02	P	5.974
8		200.0	197.9	848.2	1.678E-01	P	4.722
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9996
Y = 8.455E-004*X +5.194E-004
X = 1.183E+003*Y -6.143E-001
DL = 1.211 ppb
BEC = 6.143E-01 ppb

Weight: OFF
Min Conc: 0.000

===Graph Detail ===

Step	Mass Element	ISTD	Unit
(3)	107 Ag	89	ppb

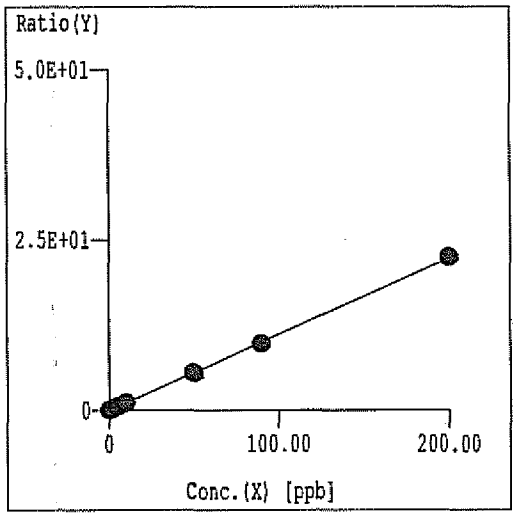


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	30.00	6.001E-03	P	22.86
2		2.000E-01	1.993E-01	149.3	2.974E-02	P	9.676
3		2.000	2.074	1267	2.530E-01	P	7.159
4		5.000	5.053	3052	6.079E-01	P	1.211
5		10.00	10.06	6052	1.204E+00	P	1.417
6		50.00	49.57	3.009E+04	5.911E+00	P	3.901E-01
7		90.00	90.23	5.376E+04	1.075E+01	P	3.403
8	ON	200.0	---	1.148E+05	2.271E+01	P	4.084E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.191E-001*X +6.001E-003
X = 8.395E+000*Y -5.038E-002
DL = 3.456E-02 ppb
BEC = 5.038E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	111 Cd	115	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	-2.871E+00	-1.498E-03	P	-1.327E+02
2		2.000E-01	2.332E-01	45.86	2.446E-02	P	22.01
3		2.000	1.975	417.0	2.183E-01	P	1.898
4		5.000	5.074	1075	5.633E-01	P	4.730
5		10.00	10.01	2120	1.112E+00	P	4.005
6		50.00	49.19	1.044E+04	5.473E+00	P	11.80
7		90.00	87.36	1.879E+04	9.722E+00	P	3.997
8		200.0	201.4	4.091E+04	2.241E+01	P	1.462
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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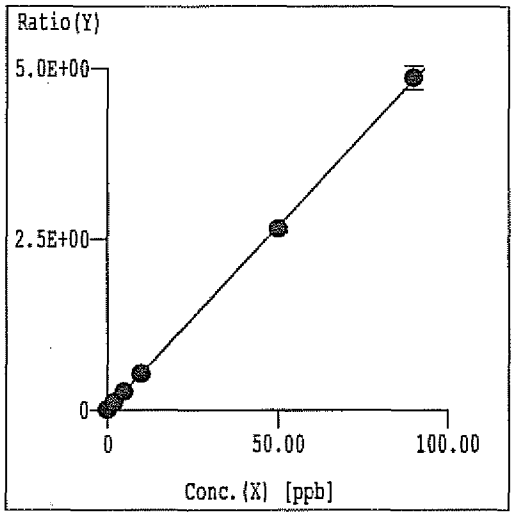
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.113E-001*X -1.498E-003
X = 8.985E+000*Y +1.346E-002
DL = 5.359E-02 ppb
BEC = -1.346E-02 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(3)	121	Sb	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	42.59	8.518E-03	P	19.99
2		2.000E-01	9.169E-02	67.41	1.344E-02	P	10.73
3		2.000	1.927	560.8	1.120E-01	P	4.819
4		5.000	4.876	1357	2.703E-01	P	1.618
5		10.00	9.746	2672	5.317E-01	P	1.302
6		50.00	49.21	1.349E+04	2.650E+00	P	1.600
7		90.00	90.47	2.432E+04	4.865E+00	P	3.724
8	ON	200.0	---	5.350E+04	1.059E+01	P	5.224E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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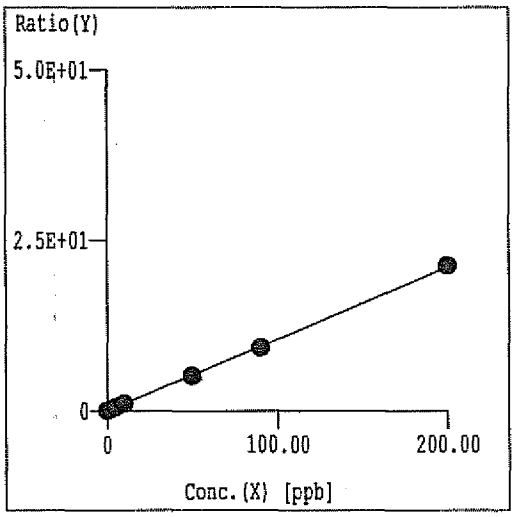
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 5.368E-002*X +8.518E-003
X = 1.863E+001*Y -1.587E-001
DL = 9.517E-02 ppb
BEC = 1.587E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	135	Ba	115	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	47.78	2.519E-02	P	53.34
2		2.000E-01	5.944E-02	58.89	3.146E-02	P	26.43
3		2.000	1.812	413.4	2.164E-01	P	4.684
4		5.000	4.695	994.5	5.208E-01	P	6.007
5		10.00	9.749	2007	1.054E+00	P	5.024
6		50.00	48.53	9826	5.147E+00	P	11.47
7		90.00	87.92	1.799E+04	9.305E+00	P	2.199
8		200.0	201.3	3.884E+04	2.127E+01	P	1.475
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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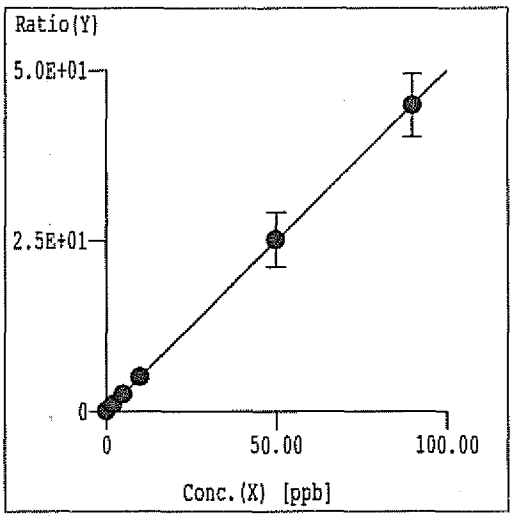
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.055E-001*X +2.519E-002
X = 9.475E+000*Y -2.386E-001
DL = 3.819E-01 ppb
BEC = 2.386E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	203	Tl	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	93.34	5.933E-02	P	36.13
2		2.000E-01	2.285E-01	268.9	1.732E-01	P	32.42
3		2.000	1.975	1655	1.044E+00	P	3.280
4		5.000	4.939	4013	2.521E+00	P	10.31
5		10.00	10.03	7996	5.057E+00	P	8.355
6		50.00	50.34	3.953E+04	2.515E+01	P	15.96
7		90.00	89.81	7.043E+04	4.482E+01	P	10.37
8	ON	200.0	---	1.625E+05	1.103E+02	P	2.646
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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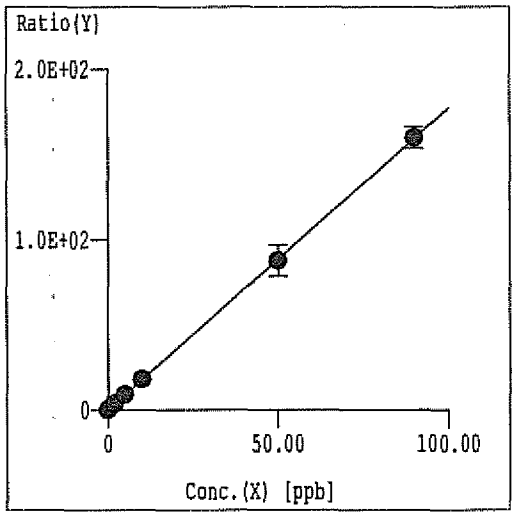
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 4.984E-001*X +5.933E-002
X = 2.006E+000*Y -1.190E-001
DL = 1.290E-01 ppb
BEC = 1.190E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	208	Pb	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	156.7	9.953E-02	P	28.07
2		2.000E-01	1.960E-01	696.7	4.466E-01	P	13.38
3		2.000	2.036	5874	3.706E+00	P	2.765
4		5.000	5.018	1.429E+04	8.985E+00	P	1.285
5		10.00	10.12	2.847E+04	1.802E+01	P	2.126
6		50.00	49.56	1.384E+05	8.788E+01	P	10.46
7		90.00	90.23	2.512E+05	1.599E+02	P	3.869
8	ON	200.0	---	5.410E+05	3.674E+02	P	1.476
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.771E+000*X +9.953E-002
X = 5.647E-001*Y -5.620E-002
DL = 4.733E-02 ppb
BEC = 5.620E-02 ppb

Weight: OFF
Min Conc: 0.000

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#
Date Acquired: Sep 21 2016 02:53 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 1
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 02:56 am
Sample Type: CalBlk

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	352,180.00	0.82
7	Li	45	2	22,313.54	0.59
9	Be	45	2	29.63	33.61
11	B	45	2	3,222.71	5.46
23	Na	89	2	390,048.50	17.74
24	Mg	89	2	24,177.50	58.65
27	Al	89	2	10,902.76	23.08
28	Si	89	2	89,056.43	3.62
29	Si	89	2	71,782.23	0.15
39	K	89	2	449,007.75	2.36
44	Ca	89	2	3,729.57	22.55
45	Sc	---	2	196,504.89	1.62
45	Sc	---	3	12,993.64	0.96
47	Ti	89	2	36.67	36.36
51	V	89	2	751.23	39.25
51	V	89	3	-53.37	97.44
52	Cr	89	2	2,160.25	4.02
52	Cr	89	3	133.34	21.36
55	Mn	89	2	997.85	16.17
55	Mn	89	3	27.78	36.66
56	Fe	89	2	107,510.77	3.87
56	Fe	89	3	1,260.10	2.26
59	Co	89	2	102.23	27.15
59	Co	89	3	18.89	20.38
60	Ni	89	2	82.59	8.75
62	Ni	89	2	114.45	4.45
63	Cu	89	2	643.37	39.17
63	Cu	89	3	192.23	11.80
65	Cu	89	2	311.49	30.78
66	Zn	89	2	123.34	12.39
66	Zn	89	3	15.56	65.47
68	Zn	89	2	127.78	14.83
72	Ge	---	2	490.39	1.72
72	Ge	---	3	28.89	21.41
75	As	89	2	232.28	118.56
75	As	89	3	96.09	3.19
78	Se	89	2	388.53	8.70
78	Se	89	3	2.59	65.47
82	Se	89	2	28.90	75.48
82	Se	89	3	34.41	8.61
88	Sr	89	2	517.81	45.67
89	Y	---	2	2,389,216.30	2.06
89	Y	---	3	500,165.47	0.67
95	Mo	89	2	64.45	20.90
97	Mo	89	2	50.00	29.06
98	Mo	89	2	95.07	35.10
106	Cd	115	2	3,229.40	2.70
107	Ag	115	2	70.00	28.97
107	Ag	89	3	30.00	22.53
108	(Cd)	115	2	8.89	43.30
109	Ag	115	2	67.78	45.43
111	Cd	115	2	-2.87	132.64
111	Cd	89	3	0.95	195.83
113	In	---	2	8,354.94	1.61
114	Cd	115	2	18.89	10.19
115	In	---	2	190,360.83	1.09
115	In	---	3	52,521.09	1.05
118	Sn	115	2	129.26	18.94
118	Sn	---	3	41.85	7.66
119	Sn	115	2	46.67	12.37
121	Sb	115	2	137.78	16.90
121	Sb	89	3	42.59	19.75
123	Sb	115	2	178.89	7.63
135	Ba	115	2	47.78	52.37
137	Ba	115	2	52.22	32.13
159	Tb	---	2	260,946.84	1.36
203	Tl	209	2	93.34	35.17
205	Tl	209	2	244.46	35.57
206	Pb	209	2	35.56	14.32
207	Pb	209	2	35.56	28.64
208	Pb	209	2	156.67	27.16
209	Bi	---	2	157,656.28	0.89
238	U	209	2	73.34	66.96

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\209CALS.D\209CALS.D#
Date Acquired: Sep 21 2016 02:58 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 2
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 02:56 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	350782.56	2.65
7	Li	45	2	23199.80	1.88
9	Be	45	2	262.97	3.79
11	B	45	2	3519.45	2.81
23	Na	89	2	452237.19	15.23
24	Mg	89	2	68152.88	20.09
27	Al	89	2	9610.53	25.88
28	Si	89	2	117465.95	0.73
29	Si	89	2	75307.74	0.71
39	K	89	2	504988.13	1.40
44	Ca	89	2	5361.30	17.52
45	Sc	---	2	195218.06	3.42
45	Sc	---	3	12930.60	1.91
47	Ti	89	2	82.23	34.48
51	V	89	2	1046.82	86.60
51	V	89	3	58.77	40.77
52	Cr	89	2	2600.34	1.73
52	Cr	89	3	221.12	10.70
55	Mn	89	2	1463.47	6.79
55	Mn	89	3	90.00	13.35
56	Fe	89	2	152326.66	2.60
56	Fe	89	3	9333.50	0.38
59	Co	89	2	501.14	12.49
59	Co	89	3	140.01	11.91
60	Ni	89	2	134.45	12.83
62	Ni	89	2	115.56	19.21
63	Cu	89	2	853.39	20.49
63	Cu	89	3	302.24	15.69
65	Cu	89	2	392.23	32.02
66	Zn	89	2	157.79	15.28
66	Zn	89	3	44.45	30.31
68	Zn	89	2	157.78	7.42
72	Ge	---	2	545.58	0.73
72	Ge	---	3	23.33	24.74
75	As	89	2	36.01	205.77
75	As	89	3	114.48	2.41
78	Se	89	3	2.22	100.00
82	Se	89	2	31.55	67.42
82	Se	89	3	36.26	12.89
88	Sr	89	2	998.96	25.35
89	Y	---	2	2365760.30	2.55
89	Y	---	3	501804.47	0.70
95	Mo	89	2	136.67	12.67
97	Mo	89	2	87.78	20.92
98	Mo	89	2	211.26	13.31
106	Cd	115	2	3277.22	7.27
107	Ag	115	2	291.13	3.68
107	Ag	89	3	149.26	10.00
108	(Cd)	115	2	11.11	45.83
109	Ag	115	2	257.79	14.19
111	Cd	115	2	45.86	19.68
111	Cd	89	3	14.12	59.22
113	In	---	2	8256.44	3.05
114	Cd	115	2	117.04	10.06
115	In	---	2	188226.69	3.69
115	In	---	3	52798.70	0.32
118	Sn	115	2	249.64	6.61
118	Sn	---	3	74.82	17.34
119	Sn	115	2	101.12	5.04
121	Sb	115	2	243.71	1.32
121	Sb	89	3	67.41	10.07
123	Sb	115	2	247.78	13.81
135	Ba	115	2	58.89	23.57
137	Ba	115	2	133.35	35.45
159	Tb	---	2	256822.19	3.03
203	Tl	209	2	268.90	28.44
205	Tl	209	2	615.59	16.38
206	Pb	209	2	182.23	3.81
207	Pb	209	2	156.67	22.52
208	Pb	209	2	696.70	9.68
209	Bi	---	2	156471.80	3.56
238	U	209	2	692.27	10.30

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	195218	3.42	196505	99.3	83 - 117	
89	Y	2	2365760	2.55	2389216	99.0	83 - 117	
89	Y	3	501804	0.70	500165	100.3	83 - 117	
115	In	2	188227	3.69	190361	98.9	83 - 117	
209	Bi	2	156472	3.56	157656	99.2	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\hogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\210CALS.D\210CALS.D#
Date Acquired: Sep 21 2016 03:03 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 3
Misc Info:
Vial Number: 1103
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 03:01 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	354920.56	1.05
7	Li	45	2	16.47	0.31
9	Be	45	2	1.18	0.88
11	B	45	2	6710.71	4.26
23	Na	89	2	46.52	6.46
24	Mg	89	2	19.71	3.35
27	Al	89	2	14673.06	16.06
28	Si	89	2	15.82	0.37
29	Si	89	2	3.65	2.00
39	K	89	2	40.02	2.58
44	Ca	89	2	0.73	6.44
45	Sc	---	2	197440.41	2.00
45	Sc	---	3	13016.83	0.93
47	Ti	89	2	0.02	9.34
51	V	89	2	0.19	7.87
51	V	89	3	0.16	4.32
52	Cr	89	2	0.26	1.93
52	Cr	89	3	0.24	4.50
55	Mn	89	2	0.26	4.29
55	Mn	89	3	0.12	6.43
56	Fe	89	2	22.50	0.87
56	Fe	89	3	16.45	0.43
59	Co	89	2	0.17	1.36
59	Co	89	3	0.28	4.01
60	Ni	89	2	0.04	5.80
62	Ni	89	2	0.01	3.94
63	Cu	89	2	2471.42	9.61
63	Cu	89	3	0.20	3.85
65	Cu	89	2	1171.17	9.37
66	Zn	89	2	562.25	2.40
66	Zn	89	3	172.23	12.44
68	Zn	89	2	460.91	13.46
72	Ge	---	2	557.43	4.55
72	Ge	---	3	27.41	19.16
75	As	89	2	611.45	6.46
75	As	89	3	187.68	7.57
78	Se	89	3	0.00	51.16
82	Se	89	2	0.00	16.15
82	Se	89	3	0.01	13.69
88	Sr	89	2	0.23	5.73
89	Y	---	2	2377216.80	2.48
89	Y	---	3	500755.72	0.60
95	Mo	89	2	0.04	2.77
97	Mo	89	2	0.02	5.30
98	Mo	89	2	0.06	7.01
106	Cd	115	2	3170.50	3.58
107	Ag	115	2	1.22	8.01
107	Ag	89	3	0.25	7.16
108	(Cd)	115	2	0.02	24.29
109	Ag	115	2	1.09	6.09
111	Cd	115	2	0.22	1.90
111	Cd	89	3	0.04	20.98
113	In	---	2	8793.74	2.28
114	Cd	115	2	0.50	4.56
115	In	---	2	191032.20	1.77
115	In	---	3	52666.46	0.81
118	Sn	115	2	0.76	2.84
118	Sn	---	3	500.16	4.19
119	Sn	115	2	0.29	4.20
121	Sb	115	2	0.89	2.99
121	Sb	89	3	0.11	4.82
123	Sb	115	2	0.70	1.74
135	Ba	115	2	0.22	4.69
137	Ba	115	2	0.39	5.20
159	Tb	---	2	260923.61	2.59
203	Tl	209	2	1.04	3.28
205	Tl	209	2	2.55	8.86
206	Pb	209	2	0.98	2.58
207	Pb	209	2	0.81	4.96
208	Pb	209	2	3.71	2.77
209	Bi	---	2	158478.22	1.78
238	U	209	2	4.06	4.66

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	197440	2.00	196505	100.5	83 - 117	
89	Y	2	2377217	2.48	2389216	99.5	83 - 117	
89	Y	3	500756	0.60	500165	100.1	83 - 117	
115	In	2	191032	1.77	190361	100.4	83 - 117	
209	Bi	2	158478	1.78	157656	100.5	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\211CALS.D\211CALS.D#
Date Acquired:	Sep 21 2016 03:09 am
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 4
Misc Info:	
Vial Number:	1104
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 21 2016 03:07 am
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	355254.00	0.95
7	Li	45	2	23.98	1.24
9	Be	45	2	2.91	2.57
11	B	45	2	6.26	2.79
23	Na	89	2	90.61	2.59
24	Mg	89	2	48.96	0.91
27	Al	89	2	0.97	10.09
28	Si	89	2	35.36	2.52
29	Si	89	2	4.58	0.50
39	K	89	2	70.93	0.44
44	Ca	89	2	1.59	0.48
45	Sc	---	2	199402.88	1.19
45	Sc	---	3	13053.30	0.48
47	Ti	89	2	0.04	1.43
51	V	89	2	0.49	2.49
51	V	89	3	0.40	1.23
52	Cr	89	2	0.52	0.43
52	Cr	89	3	0.52	3.55
55	Mn	89	2	0.60	2.07
55	Mn	89	3	0.32	4.11
56	Fe	89	2	50.95	1.80
56	Fe	89	3	41.16	0.27
59	Co	89	2	0.42	4.23
59	Co	89	3	0.69	3.08
60	Ni	89	2	0.09	3.12
62	Ni	89	2	0.02	9.68
63	Cu	89	2	0.22	2.44
63	Cu	89	3	0.45	4.38
65	Cu	89	2	0.10	2.99
66	Zn	89	2	0.05	6.95
66	Zn	89	3	0.07	14.73
68	Zn	89	2	0.04	2.69
72	Ge	---	2	564.83	3.33
72	Ge	---	3	31.85	16.49
75	As	89	2	0.05	13.73
75	As	89	3	0.07	9.61
78	Se	89	3	0.00	34.29
82	Se	89	2	0.01	11.33
82	Se	89	3	0.01	6.23
88	Sr	89	2	0.54	2.76
89	Y	---	2	2382909.00	1.13
89	Y	---	3	502005.78	0.56
95	Mo	89	2	0.10	5.70
97	Mo	89	2	0.06	4.28
98	Mo	89	2	0.15	1.66
106	Cd	115	2	1.70	2.42
107	Ag	115	2	2.85	1.27
107	Ag	89	3	0.61	1.21
108	(Cd)	115	2	0.04	5.65
109	Ag	115	2	2.73	3.87
111	Cd	115	2	0.56	4.73
111	Cd	89	3	0.09	9.12
113	In	---	2	9454.19	1.07
114	Cd	115	2	1.47	2.28
115	In	---	2	190872.45	1.34
115	In	---	3	52724.53	0.68
118	Sn	115	2	1.89	3.52
118	Sn	---	3	1201.92	4.35
119	Sn	115	2	0.73	5.12
121	Sb	115	2	2.20	1.82
121	Sb	89	3	0.27	1.62
123	Sb	115	2	1.69	1.62
135	Ba	115	2	0.52	6.01
137	Ba	115	2	0.91	1.24
159	Tb	---	2	262859.44	1.87
203	Tl	209	2	2.52	10.31
205	Tl	209	2	6.14	6.18
206	Pb	209	2	2.32	0.37
207	Pb	209	2	1.92	1.51
208	Pb	209	2	8.99	1.28
209	Bi	---	2	159037.05	1.66
238	U	209	2	10.27	2.64

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	199403	1.19	196505	101.5	83 - 117	
89	Y	2	2382909	1.13	2389216	99.7	83 - 117	
89	Y	3	502006	0.56	500165	100.4	83 - 117	
115	In	2	190872	1.34	190361	100.3	83 - 117	
209	Bi	2	159037	1.66	157656	100.9	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

--- :Element Failures	---
0 :ISTD Failures	0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\212CALS.D\212CALS.D#
Date Acquired:	Sep 21 2016 03:14 am
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 5
Misc Info:	
Vial Number:	1105
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 21 2016 03:12 am
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	360127.19	1.40
7	Li	45	2	36.54	1.06
9	Be	45	2	5.85	2.15
11	B	45	2	11.19	1.48
23	Na	89	2	162.32	1.93
24	Mg	89	2	95.22	0.98
27	Al	89	2	1.84	9.54
28	Si	89	2	65.78	0.81
29	Si	89	2	6.18	1.50
39	K	89	2	120.96	1.36
44	Ca	89	2	3.00	1.67
45	Sc	---	2	200378.56	3.00
45	Sc	---	3	13042.93	2.24
47	Ti	89	2	0.08	4.41
51	V	89	2	1.02	3.47
51	V	89	3	0.79	6.09
52	Cr	89	2	0.96	2.10
52	Cr	89	3	1.03	2.96
55	Mn	89	2	1.15	1.90
55	Mn	89	3	0.60	6.56
56	Fe	89	2	94.76	1.06
56	Fe	89	3	81.36	0.70
59	Co	89	2	0.83	2.42
59	Co	89	3	1.36	2.53
60	Ni	89	2	0.18	0.57
62	Ni	89	2	0.03	6.02
63	Cu	89	2	0.41	0.26
63	Cu	89	3	0.88	2.43
65	Cu	89	2	0.19	3.27
66	Zn	89	2	0.10	6.35
66	Zn	89	3	0.13	6.35
68	Zn	89	2	0.07	2.74
72	Ge	---	2	694.10	2.69
72	Ge	---	3	52.96	11.93
75	As	89	2	0.09	8.77
75	As	89	3	0.10	6.45
78	Se	89	3	0.01	7.81
82	Se	89	2	0.01	4.73
82	Se	89	3	0.01	20.63
88	Sr	89	2	1.06	2.58
89	Y	---	2	2384323.50	2.43
89	Y	---	3	502528.50	0.76
95	Mo	89	2	0.18	4.34
97	Mo	89	2	0.11	3.13
98	Mo	89	2	0.29	1.16
106	Cd	115	2	1.78	7.13
107	Ag	115	2	5.54	1.14
107	Ag	89	3	1.20	1.42
108	(Cd)	115	2	0.09	9.62
109	Ag	115	2	5.43	2.43
111	Cd	115	2	1.11	4.00
111	Cd	89	3	0.19	6.55
113	In	---	2	10512.78	2.59
114	Cd	115	2	2.85	0.55
115	In	---	2	190442.77	2.69
115	In	---	3	53074.67	0.70
118	Sn	115	2	3.65	0.61
118	Sn	---	3	2350.98	3.88
119	Sn	115	2	1.39	3.50
121	Sb	115	2	4.33	2.41
121	Sb	89	3	0.53	1.30
123	Sb	115	2	3.32	3.63
135	Ba	115	2	1.05	5.02
137	Ba	115	2	1.81	0.47
159	Tb	---	2	261494.42	2.72
203	Tl	209	2	5.06	8.36
205	Tl	209	2	11.85	8.40
206	Pb	209	2	4.53	0.02
207	Pb	209	2	3.85	1.67
208	Pb	209	2	18.02	2.13
209	Bi	---	2	158017.08	2.20
238	U	209	2	20.36	1.45

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	200379	3.00	196505	102.0	83 - 117	
89	Y	2	2384324	2.43	2389216	99.8	83 - 117	
89	Y	3	502529	0.76	500165	100.5	83 - 117	
115	In	2	190443	2.69	190361	100.0	83 - 117	
209	Bi	2	158017	2.20	157656	100.2	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

--- :Element Failures	---
0 :ISTD Failures	0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\213CALS.D\213CALS.D#
Date Acquired:	Sep 21 2016 03:19 am
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 6
Misc Info:	
Vial Number:	1106
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 21 2016 03:17 am
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	384243.97	8.24
7	Li	45	2	131.11	10.44
9	Be	45	2	27.39	11.67
11	B	45	2	47.01	12.11
23	Na	89	2	744.93	9.65
24	Mg	89	2	459.27	10.36
27	Al	89	2	6.26	8.23
28	Si	89	2	302.39	10.09
29	Si	89	2	18.81	9.85
39	K	89	2	523.48	9.99
44	Ca	89	2	14.37	9.91
45	Sc	---	2	213649.98	7.88
45	Sc	---	3	13335.05	0.96
47	Ti	89	2	0.41	10.04
51	V	89	2	4.89	9.66
51	V	89	3	4.01	3.47
52	Cr	89	2	4.28	9.48
52	Cr	89	3	4.98	1.39
55	Mn	89	2	5.50	9.34
55	Mn	89	3	2.96	1.24
56	Fe	89	2	442.14	10.65
56	Fe	89	3	403.10	0.56
59	Co	89	2	4.09	10.76
59	Co	89	3	6.64	1.38
60	Ni	89	2	0.87	10.38
62	Ni	89	2	0.13	8.55
63	Cu	89	2	1.95	9.65
63	Cu	89	3	4.22	0.77
65	Cu	89	2	0.91	9.82
66	Zn	89	2	0.46	8.76
66	Zn	89	3	0.63	3.57
68	Zn	89	2	0.33	10.80
72	Ge	---	2	1248.96	5.80
72	Ge	---	3	172.97	2.90
75	As	89	2	0.43	11.61
75	As	89	3	0.45	1.42
78	Se	89	3	0.04	8.22
82	Se	89	2	0.04	9.62
82	Se	89	3	0.03	2.02
88	Sr	89	2	5.26	10.55
89	Y	---	2	2405048.30	6.92
89	Y	---	3	509012.03	0.26
95	Mo	89	2	0.91	11.59
97	Mo	89	2	0.56	12.30
98	Mo	89	2	1.43	10.67
106	Cd	115	2	2.29	1.31
107	Ag	115	2	27.24	11.96
107	Ag	89	3	5.91	0.39
108	(Cd)	115	2	0.39	6.77
109	Ag	115	2	26.17	10.76
111	Cd	115	2	5.47	11.80
111	Cd	89	3	0.86	2.67
113	In	---	2	19372.17	1.93
114	Cd	115	2	14.31	11.17
115	In	---	2	191985.13	7.96
115	In	---	3	53155.43	0.90
118	Sn	115	2	17.96	10.68
118	Sn	---	3	11663.76	0.86
119	Sn	115	2	6.95	10.92
121	Sb	115	2	21.51	11.33
121	Sb	89	3	2.65	1.60
123	Sb	115	2	16.39	10.91
135	Ba	115	2	5.15	11.47
137	Ba	115	2	8.99	12.91
159	Tb	---	2	264936.69	7.95
203	Tl	209	2	25.15	15.96
205	Tl	209	2	59.62	15.30
206	Pb	209	2	22.49	11.02
207	Pb	209	2	18.79	10.75
208	Pb	209	2	87.88	10.46
209	Bi	---	2	158275.80	7.43
238	U	209	2	102.36	11.02

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	213649	7.88	186505	108.7	83 - 117	
89	Y	2	2405048	6.91	2389216	100.7	83 - 117	
89	Y	3	509012	0.26	500165	101.8	83 - 117	
115	In	2	191985	7.96	190361	100.9	83 - 117	
209	Bi	2	158276	7.42	157656	100.4	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\214CALS.D\214CALS.D#
Date Acquired:	Sep 21 2016 03:25 am
Acq. Method:	ICP 6020.M
Operator:	rhughes, ICPMS2
Sample Name:	Level 7
Misc Info:	
Vial Number:	1107
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update:	Sep 21 2016 03:23 am
Sample Type:	CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	398302.50	1.23
7	Li	45	2	218.23	3.12
9	Be	45	2	47.24	3.41
11	B	45	2	80.54	3.79
23	Na	89	2	1319.84	2.70
24	Mg	89	2	814.75	3.54
27	Al	89	2	10.96	2.67
28	Si	89	2	533.85	3.97
29	Si	89	2	31.67	3.71
39	K	89	2	920.98	3.87
44	Ca	89	2	25.51	3.92
45	Sc	---	2	226222.78	0.87
45	Sc	---	3	13071.86	3.36
47	Ti	89	2	0.72	3.50
51	V	89	2	8.74	3.69
51	V	89	3	7.35	2.01
52	Cr	89	2	7.51	3.00
52	Cr	89	3	9.17	3.75
55	Mn	89	2	9.85	3.32
55	Mn	89	3	5.38	3.66
56	Fe	89	2	785.52	3.48
56	Fe	89	3	729.95	3.69
59	Co	89	2	7.35	2.95
59	Co	89	3	12.39	4.04
60	Ni	89	2	1.55	4.16
62	Ni	89	2	0.23	2.90
63	Cu	89	2	3.44	3.53
63	Cu	89	3	7.71	2.54
65	Cu	89	2	1.61	2.49
66	Zn	89	2	0.82	3.68
66	Zn	89	3	1.14	4.26
68	Zn	89	2	0.59	2.79
72	Ge	---	2	1557.52	1.40
72	Ge	---	3	267.78	3.80
75	As	89	2	0.78	3.63
75	As	89	3	0.79	3.03
78	Se	89	3	0.08	5.97
82	Se	89	2	0.06	3.43
82	Se	89	3	0.04	9.01
88	Sr	89	2	9.36	3.18
89	Y	---	2	2443817.50	1.05
89	Y	---	3	500239.03	2.69
95	Mo	89	2	1.61	3.55
97	Mo	89	2	0.99	4.68
98	Mo	89	2	2.62	3.65
106	Cd	115	2	2.64	1.89
107	Ag	115	2	48.85	3.05
107	Ag	89	3	10.75	3.40
108	(Cd)	115	2	0.72	3.66
109	Ag	115	2	46.71	3.50
111	Cd	115	2	9.72	4.00
111	Cd	89	3	1.59	1.07
113	In	---	2	28519.70	2.52
114	Cd	115	2	25.44	3.34
115	In	---	2	193320.53	0.36
115	In	---	3	51784.68	2.94
118	Sn	115	2	32.22	3.81
118	Sn	---	3	21211.55	0.41
119	Sn	115	2	12.48	4.24
121	Sb	115	2	38.77	3.76
121	Sb	89	3	4.87	3.72
123	Sb	115	2	29.54	3.23
135	Ba	115	2	9.30	2.20
137	Ba	115	2	16.00	3.03
159	Tb	---	2	267507.56	0.99
203	Tl	209	2	44.82	10.38
205	Tl	209	2	107.51	11.12
206	Pb	209	2	40.59	3.82
207	Pb	209	2	34.24	3.23
208	Pb	209	2	159.89	3.87
209	Bi	---	2	157150.73	0.99
238	U	209	2	186.49	4.79

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	226223	0.87	196505	115.1	83 - 117	
89	Y	2	2443818	1.05	2389216	102.3	83 - 117	
89	Y	3	500239	2.69	500165	100.0	83 - 117	
115	In	2	193321	0.36	190361	101.6	83 - 117	
209	Bi	2	157151	0.99	157656	99.7	83 - 117	

Tune File#	1	C:\ICPCHEM\1\7500\
Tune File#	2	c:\icpchem\1\7500\nogas.u
Tune File#	3	c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\215CALS.D\215CALS.D#
Date Acquired: Sep 21 2016 03:30 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 0
Misc Info:
Vial Number: 12D1
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 03:28 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	415758.97	2.84
7	Li	45	2	452.97	1.12
9	Be	45	2	96.22	1.35
11	B	45	2	162.06	2.11
23	Na	89	2	2986.22	1.44
24	Mg	89	2	1845.30	1.63
27	Al	89	2	23.91	1.59
28	Si	89	2	1195.14	1.59
29	Si	89	2	66.17	1.17
39	K	89	2	2060.27	2.06
44	Ca	89	2	58.93	1.36
45	Sc	---	2	241309.31	3.21
45	Sc	---	3	13392.14	1.49
47	Ti	89	2	1.64	2.24
51	V	89	2	20.08	1.50
51	V	89	3	16.11	1.98
52	Cr	89	2	17.05	1.77
52	Cr	89	3	19.81	0.56
55	Mn	89	2	22.12	1.18
55	Mn	89	3	11.60	1.52
56	Fe	89	2	1767.66	1.89
56	Fe	89	3	1556.11	0.90
59	Co	89	2	16.54	1.42
59	Co	89	3	26.42	0.72
60	Ni	89	2	3.46	1.29
62	Ni	89	2	0.50	1.63
63	Cu	89	2	7.70	0.95
63	Cu	89	3	16.39	1.26
65	Cu	89	2	3.59	1.48
66	Zn	89	2	1.89	1.63
66	Zn	89	3	2.49	1.08
68	Zn	89	2	1.33	1.26
72	Ge	---	2	2378.01	2.38
72	Ge	---	3	534.83	11.10
75	As	89	2	1.76	0.50
75	As	89	3	1.76	1.48
78	Se	89	3	0.17	4.72
82	Se	89	2	0.15	2.71
82	Se	89	3	0.09	6.07
88	Sr	89	2	21.20	1.53
89	Y	---	2	2343138.38	3.31
89	Y	---	3	505373.00	0.35
95	Mo	89	2	3.66	0.56
97	Mo	89	2	2.27	0.02
98	Mo	89	2	5.89	1.87
106	Cd	115	2	4.00	0.08
107	Ag	115	2	110.03	0.91
107	Ag	89	3	22.71	0.41
108	(Cd)	115	2	1.65	0.79
109	Ag	115	2	105.83	1.52
111	Cd	115	2	22.41	1.46
111	Cd	89	3	3.48	1.54
113	In	---	2	51668.78	2.30
114	Cd	115	2	58.67	1.44
115	In	---	2	182551.59	2.92
115	In	---	3	51921.59	0.83
118	Sn	115	2	74.28	1.29
118	Sn	---	3	45392.09	0.31
119	Sn	115	2	28.62	0.92
121	Sb	115	2	89.90	1.16
121	Sb	89	3	10.59	0.52
123	Sb	115	2	68.54	1.24
135	Ba	115	2	21.27	1.47
137	Ba	115	2	36.85	0.99
159	Tb	---	2	256956.11	2.79
203	Tl	209	2	110.26	2.65
205	Tl	209	2	261.35	2.89
206	Pb	209	2	93.69	2.14
207	Pb	209	2	78.59	1.28
208	Pb	209	2	367.41	1.48
209	Bi	---	2	147272.81	3.07
238	U	209	2	434.66	0.68

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	241309	3.21	196505	122.8	83 - 117	ISFail
89	Y	2	2343138	3.31	2389216	98.1	83 - 117	
89	Y	3	505373	0.35	500165	101.0	83 - 117	
115	In	2	182552	2.92	190361	95.9	83 - 117	
209	Bi	2	147273	3.07	157656	93.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

--- :Element Failures ---
1 :ISTD Failures 0

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\216CCV1.D\216CCV1.D#
Date Acquired: Sep 21 2016 03:35 am
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	96.33	1.17	100	96.3	90 - 110	
9 Be	45	2	96.79	1.03	100	96.8	90 - 110	
11 B	45	2	243.60	2.51	250	97.4	90 - 110	
23 Na	89	2	9598.00	1.46	10000	96.0	90 - 110	
24 Mg	89	2	9692.00	1.02	10000	96.9	90 - 110	
27 Al	89	2	99.63	0.26	100	99.6	90 - 110	
28 Si	89	2	9742.00	1.24	10000	97.4	90 - 110	
29 Si	89	2	9876.00	0.13	10000	98.8	90 - 110	
39 K	89	2	9627.00	1.00	10000	96.3	90 - 110	
44 Ca	89	2	9510.00	0.84	10000	95.1	90 - 110	
47 Ti	89	2	96.81	1.48	100	96.8	90 - 110	
51 V	89	2	98.79	1.50	100	98.8	90 - 110	
51 V	89	3	98.10	1.36	100	98.1	90 - 110	
52 Cr	89	2	96.62	0.52	100	96.6	90 - 110	
52 Cr	89	3	97.23	1.19	100	97.2	90 - 110	
55 Mn	89	2	96.57	0.86	100	96.6	90 - 110	
55 Mn	89	3	95.16	1.36	100	95.2	90 - 110	
56 Fe	89	2	9636.00	1.10	10000	96.4	90 - 110	
56 Fe	89	3	9735.00	0.62	10000	97.4	90 - 110	
59 Co	89	2	96.65	1.11	100	96.7	90 - 110	
59 Co	89	3	98.47	0.65	100	98.5	90 - 110	
60 Ni	89	2	96.96	0.46	100	97.0	90 - 110	
62 Ni	89	2	94.25	2.27	100	94.3	90 - 110	
63 Cu	89	2	97.59	0.49	100	97.6	90 - 110	
63 Cu	89	3	96.49	1.21	100	96.5	90 - 110	
65 Cu	89	2	97.55	0.36	100	97.6	90 - 110	
66 Zn	89	2	95.45	1.32	100	95.5	90 - 110	
66 Zn	89	3	97.00	1.26	100	97.0	90 - 110	
68 Zn	89	2	96.07	1.34	100	96.1	90 - 110	
75 As	89	2	93.91	0.49	100	93.9	90 - 110	
75 As	89	3	97.58	2.30	100	97.6	90 - 110	
78 Se	89	2	98.57	0.12	100	98.6	90 - 110	
78 Se	89	3	97.04	6.36	100	97.0	90 - 110	
82 Se	89	2	95.20	1.61	100	95.2	90 - 110	
82 Se	89	3	94.03	11.83	100	94.0	90 - 110	
88 Sr	89	2	97.46	1.10	100	97.5	90 - 110	
95 Mo	89	2	98.16	1.33	100	98.2	90 - 110	
97 Mo	89	2	96.78	1.72	100	96.8	90 - 110	
98 Mo	89	2	97.81	1.09	100	97.8	90 - 110	
106 Cd	115	2	91.80	2.77	100	91.8	90 - 110	
107 Ag	115	2	98.33	1.13	100	98.3	90 - 110	
107 Ag	89	3	95.43	0.48	100	95.4	90 - 110	
109 Ag	115	2	97.18	1.41	100	97.2	90 - 110	
111 Cd	115	2	96.70	2.49	100	96.7	90 - 110	
111 Cd	89	3	96.61	1.04	100	96.6	90 - 110	
114 Cd	115	2	98.11	1.51	100	98.1	90 - 110	
118 Sn	115	2	98.66	0.86	100	98.7	90 - 110	
119 Sn	115	2	96.77	3.69	100	96.8	90 - 110	
121 Sb	115	2	94.96	0.77	100	95.0	90 - 110	
121 Sb	89	3	95.56	0.46	100	95.6	90 - 110	
123 Sb	115	2	98.55	1.25	100	98.6	90 - 110	
135 Ba	115	2	97.06	2.15	100	97.1	90 - 110	
137 Ba	115	2	98.19	1.06	100	98.2	90 - 110	
203 Tl	209	2	104.20	4.16	100	104.2	90 - 110	
205 Tl	209	2	96.38	3.98	100	96.4	90 - 110	
206 Pb	209	2	98.94	1.16	100	98.9	90 - 110	
207 Pb	209	2	98.45	0.81	100	98.5	90 - 110	
208 Pb	209	2	98.38	1.09	100	98.4	90 - 110	
238 U	209	2	95.01	1.12	100	95.0	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	222956	2.04	196505	113.5	83 - 117	
89 Y	2	2399139	2.08	2389216	100.4	83 - 117	
89 Y	3	503775	0.32	500165	100.7	83 - 117	
115 In	2	188480	1.92	190361	99.0	83 - 117	
209 Bi	2	153310	2.09	157656	97.2	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\217 CCB.D\217 CCB.D#
Date Acquired: Sep 21 2016 03:41 am
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.17 ppb	94.59	#######	
9 Be	45	2	0.14 ppb	42.52	#######	
11 B	45	2	1.22 ppb	63.76	#######	
23 Na	89	2	-4.08 ppb	732.53	#######	
24 Mg	89	2	9.26 ppb	108.20	#######	
27 Al	89	2	2.41 ppb	53.18	#######	
28 Si	89	2	14.86 ppb	67.02	#######	
29 Si	89	2	35.93 ppb	158.06	#######	
39 K	89	2	11.71 ppb	149.96	#######	
44 Ca	89	2	18.27 ppb	128.95	#######	
47 Ti	89	2	0.12 ppb	129.50	#######	
51 V	89	2	0.08 ppb	620.53	#######	
51 V	89	3	0.19 ppb	59.47	#######	
52 Cr	89	2	0.01 ppb	763.72	#######	
52 Cr	89	3	0.06 ppb	32.48	#######	
55 Mn	89	2	0.09 ppb	129.70	#######	
55 Mn	89	3	0.09 ppb	44.40	#######	
56 Fe	89	2	10.00 ppb	73.16	#######	
56 Fe	89	3	7.82 ppb	5.38	#######	
59 Co	89	2	0.09 ppb	55.52	#######	
59 Co	89	3	0.07 ppb	9.66	#######	
60 Ni	89	2	0.00 ppb	4392.50	#######	
62 Ni	89	2	0.05 ppb	1021.90	#######	
63 Cu	89	2	0.25 ppb	171.32	#######	
63 Cu	89	3	0.08 ppb	33.36	#######	
65 Cu	89	2	0.18 ppb	242.50	#######	
66 Zn	89	2	0.05 ppb	252.62	#######	
66 Zn	89	3	0.26 ppb	33.86	#######	
68 Zn	89	2	0.08 ppb	309.57	#######	
75 As	89	2	-0.08 ppb	596.10	#######	
75 As	89	3	0.41 ppb	71.36	#######	
77 (As)	89	2	-1.34 ppb	176.66	#######	
78 Se	89	2	1.40 ppb	57.76	#######	
78 Se	89	3	0.22 ppb	64.17	#######	
82 Se	89	2	0.70 ppb	73.55	#######	
82 Se	89	3	1.20 ppb	516.40	#######	
83 (Se)	89	2	-887.30 ppb	65.83	#######	
83 (Se)	89	3	-7533.00	129.66	#######	
88 Sr	89	2	0.15 ppb	79.38	#######	
95 Mo	89	2	0.21 ppb	23.15	#######	
97 Mo	89	2	0.16 ppb	29.19	#######	
98 Mo	89	2	0.24 ppb	35.19	#######	
99 (Mo)	89	2	150.00 ppb	90.20	#######	
106 Cd	115	2	-0.75 ppb	328.55	#######	
107 Ag	115	2	0.07 ppb	72.88	#######	
107 Ag	89	3	0.04 ppb	12.97	#######	
108 (Cd)	115	2	0.08 ppb	781.46	#######	
108 (Cd)	89	3	-0.37 ppb	0.00	#######	
109 Ag	115	2	0.05 ppb	102.32	#######	
111 Cd	115	2	0.09 ppb	54.21	#######	
111 Cd	89	3	0.06 ppb	155.58	#######	
114 Cd	115	2	0.08 ppb	56.74	#######	
118 Sn	115	2	0.10 ppb	74.58	#######	
119 Sn	115	2	0.06 ppb	33.06	#######	
121 Sb	115	2	-0.05 ppb	58.16	#######	
121 Sb	89	3	-0.06 ppb	16.53	#######	
123 Sb	115	2	-0.11 ppb	41.46	#######	
135 Ba	115	2	-0.01 ppb	1359.50	#######	
137 Ba	115	2	0.07 ppb	130.30	#######	
203 Tl	209	2	0.52 ppb	37.55	#######	
205 Tl	209	2	0.42 ppb	42.22	#######	
206 Pb	209	2	0.07 ppb	54.00	#######	
207 Pb	209	2	0.07 ppb	48.63	#######	
208 Pb	209	2	0.07 ppb	46.12	#######	
238 U	209	2	0.08 ppb	34.04	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	203784	6.37	196505	103.7	83 - 117	
89 Y	2	2452916	5.99	2389216	102.7	83 - 117	
89 Y	3	525404	0.53	500165	105.0	83 - 117	
115 In	2	195066	6.11	190361	102.5	83 - 117	
209 Bi	2	161893	5.95	157656	102.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\218ICV2.D\218ICV2.D#
Date Acquired: Sep 21 2016 03:46 am
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.96	1.63	10	109.6	70 - 130	
9 Be	45	2	2.29	3.35	2	114.5	70 - 130	
11 B	45	2	22.00	2.72	20	110.0	70 - 130	
23 Na	89	2	200.50	10.60	200	100.3	70 - 130	
24 Mg	89	2	213.00	2.75	200	106.5	70 - 130	
27 Al	89	2	12.09	6.72	10	120.9	70 - 130	
28 Si	89	2	1060.00	0.92	200	530.0	70 - 130	
29 Si	89	2	1012.00	0.37	200	506.0	70 - 130	
39 K	89	2	215.60	1.90	200	107.8	70 - 130	
44 Ca	89	2	529.40	3.27	500	105.9	70 - 130	
47 Ti	89	2	5.69	7.36	5	113.9	70 - 130	
51 V	89	2	4.77	5.22	5	95.4	70 - 130	
51 V	89	3	4.86	12.53	5	97.2	70 - 130	
52 Cr	89	2	4.99	2.46	5	99.8	70 - 130	
52 Cr	89	3	5.14	2.29	5	102.7	70 - 130	
53 Cr	89	2	8.51	3.67	5	170.2	70 - 130	
53 Cr	89	3	5.05	13.63	5	101.0	70 - 130	
55 Mn	89	2	5.07	1.94	5	101.4	70 - 130	
55 Mn	89	3	4.97	6.50	5	99.4	70 - 130	
56 Fe	89	2	86.04	3.64	80	107.6	70 - 130	
56 Fe	89	3	88.21	1.96	80	110.3	70 - 130	
59 Co	89	2	5.19	1.11	5	103.8	70 - 130	
59 Co	89	3	5.27	3.01	5	105.5	70 - 130	
60 Ni	89	2	5.20	3.11	5	104.0	70 - 130	
62 Ni	89	2	4.64	15.95	5	92.8	70 - 130	
63 Cu	89	2	5.24	6.98	5	104.9	70 - 130	
63 Cu	89	3	5.12	0.76	5	102.3	70 - 130	
65 Cu	89	2	5.12	7.14	5	102.5	70 - 130	
66 Zn	89	2	10.14	3.14	10	101.4	70 - 130	
66 Zn	89	3	11.72	6.77	10	117.2	70 - 130	
68 Zn	89	2	10.22	2.94	10	102.2	70 - 130	
75 As	89	2	3.85	17.13	5	77.0	70 - 130	
75 As	89	3	4.99	11.53	5	99.8	70 - 130	
77 (As)	89	2	10.72	16.61	0	#DIV/0!	##### - #####	
77 (As)	89	3	7.54	53.46	0	#DIV/0!	##### - #####	
78 Se	89	2	4.59	20.66	5	91.8	70 - 130	
78 Se	89	3	5.55	11.43	5	110.9	70 - 130	
82 Se	89	2	4.79	1.30	5	95.8	70 - 130	
82 Se	89	3	6.22	68.77	5	124.5	70 - 130	
83 (Se)	89	2	172.80	######	0	#DIV/0!	##### - #####	
83 (Se)	89	3	1789.00	301.51	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.19	2.54	5	103.8	70 - 130	
95 Mo	89	2	5.09	1.69	5	101.9	70 - 130	
97 Mo	89	2	4.84	2.34	5	96.9	70 - 130	
98 Mo	89	2	5.09	0.78	5	101.9	70 - 130	
99 (Mo)	89	2	151.00	75.83	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	245.50	173.20	0	#DIV/0!	##### - #####	
106 Cd	115	2	0.15	######	2	7.6	70 - 130	
106 Cd	89	3	0.61	#54.41	2	30.5	70 - 130	
107 Ag	115	2	5.07	2.48	5	101.4	70 - 130	
107 Ag	89	3	5.07	0.95	5	101.4	70 - 130	
108 (Cd)	115	2	2.26	10.35	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	1.61	70.89	0	#DIV/0!	##### - #####	
109 Ag	115	2	4.96	3.37	5	99.2	70 - 130	
111 Cd	115	2	1.97	1.17	2	98.3	70 - 130	
111 Cd	89	3	2.25	17.54	2	112.3	70 - 130	
114 Cd	115	2	2.06	2.60	2	103.0	70 - 130	
118 Sn	115	2	2.08	1.71	2	104.0	70 - 130	
119 Sn	115	2	2.39	6.61	2	119.3	70 - 130	
121 Sb	115	2	4.05	4.33	5	81.0	70 - 130	
121 Sb	89	3	4.42	2.29	5	88.4	70 - 130	
123 Sb	115	2	4.12	1.78	5	82.5	70 - 130	
135 Ba	115	2	4.74	1.42	5	94.7	70 - 130	
137 Ba	115	2	4.93	1.26	5	98.5	70 - 130	
203 Tl	209	2	5.14	5.18	5	102.8	70 - 130	
205 Tl	209	2	4.80	2.15	5	96.1	70 - 130	
206 Pb	209	2	4.87	2.89	5	97.5	70 - 130	
207 Pb	209	2	5.05	5.68	5	101.0	70 - 130	
208 Pb	209	2	4.96	2.03	5	99.2	70 - 130	
238 U	209	2	4.69	3.47	5	93.7	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	212278	1.09	196505	108.0	83 - 117	
89 Y	2	2509501	2.31	2389216	105.0	83 - 117	
89 Y	3	519430	0.80	500165	103.9	83 - 117	
115 In	2	201870	1.20	190361	106.1	83 - 117	
209 Bi	2	167842	1.31	157656	106.5	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\221SMPL.D\221SMPL.D#
Date Acquired: Sep 21 2016 04:02 am
Operator: rhughes, ICPMS2
Sample Name: 1609970-02A
Misc Info: 6020W B91654
Vial Number: 3208
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	0.35 ppb	0.35	52.06	#######	
9 Be	0.01 ppb	0.01	272.79	#######	
11 B	246.60 ppb	246.60	0.97	#######	
23 Na	31360.00 ppb	31360.00	0.35	#######	
24 Mg	21810.00 ppb	21810.00	0.55	#######	
27 Al	1.40 ppb	1.40	78.44	#######	
28 Si	5323.00 ppb	5323.00	0.68	#######	
29 Si	5330.00 ppb	5330.00	0.79	#######	
39 K	9684.00 ppb	9684.00	0.39	#######	
44 Ca	85110.00 ppb	85110.00	0.47	#######	
47 Ti	2.31 ppb	2.31	8.31	#######	
51 V	0.29 ppb	0.29	45.83	#######	
51 V	0.28 ppb	0.28	73.68	#######	
52 Cr	0.37 ppb	0.37	15.72	#######	
52 Cr	0.07 ppb	0.07	58.76	#######	
53 Cr	7.62 ppb	7.62	21.50	#######	
53 Cr	0.17 ppb	0.17	379.80	#######	
55 Mn	124.60 ppb	124.60	0.38	#######	
55 Mn	122.50 ppb	122.50	1.31	#######	
56 Fe	24.56 ppb	24.56	13.84	#######	
56 Fe	4.18 ppb	4.18	5.10	#######	
59 Co	1.26 ppb	1.26	4.51	#######	
59 Co	0.70 ppb	0.70	2.71	#######	
60 Ni	4.08 ppb	4.08	1.30	#######	
62 Ni	1.20 ppb	1.20	22.07	#######	
63 Cu	1.97 ppb	1.97	15.34	#######	
63 Cu	1.93 ppb	1.93	9.05	#######	
65 Cu	3.91 ppb	3.91	7.58	#######	
66 Zn	2.14 ppb	2.14	6.28	#######	
66 Zn	1.84 ppb	1.84	8.62	#######	
68 Zn	2.11 ppb	2.11	12.81	#######	
75 As	0.55 ppb	0.55	93.76	#######	
75 As	0.99 ppb	0.99	60.56	#######	
77 (As)	66.24 ppb	66.24	2.65	#######	
77 (As)	4.30 ppb	4.30	102.39	#######	
78 Se	5.74 ppb	5.74	7.81	#######	
78 Se	3.58 ppb	3.58	48.35	#######	
82 Se	6.17 ppb	6.17	5.73	#######	
82 Se	5.37 ppb	5.37	46.06	#######	
83 (Se)	-283.90 ppb	-283.90	180.10	#######	
83 (Se)	3259.00	3259.00	87.39	#######	
88 Sr	173.70 ppb	173.70	0.07	#######	
95 Mo	13.44 ppb	13.44	1.74	#######	
97 Mo	13.58 ppb	13.58	2.90	#######	
98 Mo	13.41 ppb	13.41	1.30	#######	
99 (Mo)	231.80 ppb	231.80	63.07	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	0.71 ppb	0.71	684.14	#######	
106 Cd	4.34 ppb	4.34	70.22	#######	
107 Ag	-0.02 ppb	-0.02	106.18	#######	
107 Ag	-0.02 ppb	-0.02	56.02	#######	
108 (Cd)	0.47 ppb	0.47	107.08	#######	
108 (Cd)	0.01 ppb	0.01	7936.30	#######	
109 Ag	-0.03 ppb	-0.03	73.14	#######	
111 Cd	0.03 ppb	0.03	89.27	#######	
111 Cd	0.00 ppb	0.00	27969.00	#######	
114 Cd	0.07 ppb	0.07	17.22	#######	
118 Sn	1.02 ppb	1.02	4.44	#######	
119 Sn	1.05 ppb	1.05	5.55	#######	
121 Sb	1.04 ppb	1.04	3.35	#######	
121 Sb	1.01 ppb	1.01	3.84	#######	
123 Sb	1.01 ppb	1.01	4.41	#######	
135 Ba	22.69 ppb	22.69	5.33	#######	
137 Ba	24.29 ppb	24.29	2.41	#######	
203 Tl	0.05 ppb	0.05	53.66	#######	
205 Tl	0.04 ppb	0.04	113.81	#######	
206 Pb	0.05 ppb	0.05	77.34	#######	
207 Pb	0.02 ppb	0.02	289.97	#######	
208 Pb	0.03 ppb	0.03	114.04	#######	
238 U	2.01 ppb	2.01	3.19	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	210557	3.21	196505	107.2	70 - 125	
89 Y	2340188	2.48	2389216	97.9	70 - 125	
89 Y	491249	0.77	500165	98.2	70 - 125	
115 In	185047	3.13	190361	97.2	70 - 125	
209 Bi	147996	2.27	157656	93.9	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\16I20100.B\222SMPL.D\222SMPL.D#
Date Acquired:	Sep 21 2016 04:08 am
Operator:	rhughes, ICPMS2
Sample Name:	1609970-02AMS
Misc Info:	6020W B91654
Vial Number:	3209
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update:	Sep 21 2016 03:33 am
Sample Type:	Sample
Prep Dil Factor:	1.00
Total Dil Factor:	1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	85.84 ppb	85.84	1.58	#######	
9 Be	86.51 ppb	86.51	1.10	#######	
11 B	649.30 ppb	649.30	2.26	#######	
23 Na	38630.00 ppb	38630.00	1.90	#######	
24 Mg	29580.00 ppb	29580.00	2.55	#######	
27 Al	93.49 ppb	93.49	0.71	#######	
28 Si	14370.00 ppb	14370.00	2.76	#######	
29 Si	14610.00 ppb	14610.00	1.78	#######	
39 K	18240.00 ppb	18240.00	2.53	#######	
44 Ca	89110.00 ppb	89110.00	2.85	#######	
47 Ti	99.41 ppb	99.41	1.80	#######	
51 V	95.07 ppb	95.07	1.96	#######	
51 V	94.25 ppb	94.25	1.28	#######	
52 Cr	90.84 ppb	90.84	1.91	#######	
52 Cr	92.31 ppb	92.31	0.69	#######	
53 Cr	96.01 ppb	96.01	2.09	#######	
53 Cr	91.12 ppb	91.12	1.17	#######	
55 Mn	207.60 ppb	207.60	1.66	#######	
55 Mn	207.00 ppb	207.00	0.69	#######	
56 Fe	9116.00 ppb	9116.00	2.00	#######	
56 Fe	9325.00 ppb	9325.00	0.31	#######	
59 Co	90.84 ppb	90.84	2.27	#######	
59 Co	92.10 ppb	92.10	1.03	#######	
60 Ni	92.67 ppb	92.67	1.26	#######	
62 Ni	89.98 ppb	89.98	0.91	#######	
63 Cu	91.01 ppb	91.01	1.78	#######	
63 Cu	89.26 ppb	89.26	1.34	#######	
65 Cu	92.70 ppb	92.70	1.89	#######	
66 Zn	91.97 ppb	91.97	1.64	#######	
66 Zn	93.11 ppb	93.11	2.73	#######	
68 Zn	92.09 ppb	92.09	1.16	#######	
75 As	97.65 ppb	97.65	3.05	#######	
75 As	98.62 ppb	98.62	2.99	#######	
77 (As)	148.60 ppb	148.60	0.92	#######	
77 (As)	85.47 ppb	85.47	5.89	#######	
78 Se	97.24 ppb	97.24	3.03	#######	
78 Se	99.39 ppb	99.39	7.10	#######	
82 Se	95.64 ppb	95.64	4.94	#######	
82 Se	95.35 ppb	95.35	15.13	#######	
83 (Se)	143.50 ppb	143.50	709.41	#######	
83 (Se)	-175.80	-175.80	5004.60	#######	
88 Sr	257.90 ppb	257.90	2.08	#######	
95 Mo	107.00 ppb	107.00	3.37	#######	
97 Mo	104.60 ppb	104.60	1.96	#######	
98 Mo	105.80 ppb	105.80	2.47	#######	
99 (Mo)	102.40 ppb	102.40	2.87	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	94.41 ppb	94.41	10.98	#######	
106 Cd	90.85 ppb	90.85	3.30	#######	
107 Ag	89.55 ppb	89.55	1.93	#######	
107 Ag	85.47 ppb	85.47	0.64	#######	
108 (Cd)	95.59 ppb	95.59	7.55	#######	
108 (Cd)	88.43 ppb	88.43	5.10	#######	
109 Ag	88.61 ppb	88.61	2.22	#######	
111 Cd	90.87 ppb	90.87	2.94	#######	
111 Cd	92.27 ppb	92.27	0.32	#######	
114 Cd	93.51 ppb	93.51	1.72	#######	
118 Sn	97.45 ppb	97.45	1.38	#######	
119 Sn	88.32 ppb	88.32	1.41	#######	
121 Sb	94.48 ppb	94.48	1.56	#######	
121 Sb	93.16 ppb	93.16	0.38	#######	
123 Sb	97.65 ppb	97.65	1.43	#######	
135 Ba	114.50 ppb	114.50	1.86	#######	
137 Ba	117.70 ppb	117.70	2.81	#######	
203 Tl	93.37 ppb	93.37	7.97	#######	
205 Tl	87.55 ppb	87.55	7.95	#######	
206 Pb	92.46 ppb	92.46	2.09	#######	
207 Pb	96.02 ppb	96.02	2.29	#######	
208 Pb	94.16 ppb	94.16	2.18	#######	
238 U	1.95 ppb	1.95	1.93	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	229403	1.97	196505	116.7	70 - 125	
89 Y	2321505	1.45	2389216	97.2	70 - 125	
89 Y	481098	0.51	500165	96.2	70 - 125	
115 In	179441	1.69	190361	94.3	70 - 125	
209 Bi	144009	1.21	157656	91.3	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\223SMPL.D\223SMPL.D#
Date Acquired: Sep 21 2016 04:13 am
Operator: rhughes, ICPMS2
Sample Name: 1609970-02AMSD
Misc Info: 6020W B91654
Vial Number: 3210
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	87.37 ppb	87.37	1.66	#######	
9 Be	88.08 ppb	88.08	1.41	#######	
11 B	650.60 ppb	650.60	2.40	#######	
23 Na	37580.00 ppb	37580.00	1.61	#######	
24 Mg	28850.00 ppb	28850.00	1.03	#######	
27 Al	93.12 ppb	93.12	0.83	#######	
28 Si	14150.00 ppb	14150.00	1.33	#######	
29 Si	14310.00 ppb	14310.00	1.47	#######	
39 K	17920.00 ppb	17920.00	1.47	#######	
44 Ca	86440.00 ppb	86440.00	1.21	#######	
47 Ti	97.46 ppb	97.46	0.93	#######	
51 V	95.91 ppb	95.91	2.35	#######	
51 V	94.17 ppb	94.17	1.50	#######	
52 Cr	91.40 ppb	91.40	1.71	#######	
52 Cr	91.90 ppb	91.90	0.66	#######	
53 Cr	93.67 ppb	93.67	0.97	#######	
53 Cr	92.09 ppb	92.09	4.12	#######	
55 Mn	203.60 ppb	203.60	0.97	#######	
55 Mn	202.80 ppb	202.80	0.52	#######	
56 Fe	9163.00 ppb	9163.00	1.19	#######	
56 Fe	9357.00 ppb	9357.00	0.73	#######	
59 Co	91.68 ppb	91.68	1.49	#######	
59 Co	92.13 ppb	92.13	0.99	#######	
60 Ni	93.59 ppb	93.59	0.51	#######	
62 Ni	90.99 ppb	90.99	4.70	#######	
63 Cu	91.93 ppb	91.93	1.30	#######	
63 Cu	89.94 ppb	89.94	1.08	#######	
65 Cu	93.89 ppb	93.89	0.55	#######	
66 Zn	92.84 ppb	92.84	0.86	#######	
66 Zn	91.80 ppb	91.80	1.85	#######	
68 Zn	92.18 ppb	92.18	0.88	#######	
75 As	96.05 ppb	96.05	1.20	#######	
75 As	97.89 ppb	97.89	1.03	#######	
77 (As)	151.70 ppb	151.70	3.88	#######	
77 (As)	96.95 ppb	96.95	14.09	#######	
78 Se	99.08 ppb	99.08	2.19	#######	
78 Se	97.09 ppb	97.09	2.16	#######	
82 Se	97.37 ppb	97.37	1.51	#######	
82 Se	96.25 ppb	96.25	5.35	#######	
83 (Se)	300.50 ppb	300.50	524.13	#######	
83 (Se)	-239.20	-239.20	2153.80	#######	
88 Sr	252.50 ppb	252.50	1.08	#######	
95 Mo	106.60 ppb	106.60	0.64	#######	
97 Mo	105.60 ppb	105.60	2.67	#######	
98 Mo	106.10 ppb	106.10	2.18	#######	
99 (Mo)	71.69 ppb	71.69	219.84	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	93.40 ppb	93.40	7.50	#######	
106 Cd	94.95 ppb	94.95	3.57	#######	
107 Ag	89.36 ppb	89.36	3.07	#######	
107 Ag	86.12 ppb	86.12	0.31	#######	
108 (Cd)	95.11 ppb	95.11	6.32	#######	
108 (Cd)	92.97 ppb	92.97	12.84	#######	
109 Ag	89.57 ppb	89.57	2.70	#######	
111 Cd	92.08 ppb	92.08	1.14	#######	
111 Cd	94.45 ppb	94.45	2.79	#######	
114 Cd	94.13 ppb	94.13	2.36	#######	
118 Sn	98.04 ppb	98.04	2.20	#######	
119 Sn	88.76 ppb	88.76	3.28	#######	
121 Sb	94.45 ppb	94.45	2.55	#######	
121 Sb	93.80 ppb	93.80	1.67	#######	
123 Sb	97.83 ppb	97.83	2.08	#######	
135 Ba	114.50 ppb	114.50	2.40	#######	
137 Ba	117.50 ppb	117.50	2.93	#######	
203 Tl	94.83 ppb	94.83	10.49	#######	
205 Tl	87.39 ppb	87.39	6.37	#######	
206 Pb	93.39 ppb	93.39	2.56	#######	
207 Pb	97.10 ppb	97.10	2.94	#######	
208 Pb	95.04 ppb	95.04	2.58	#######	
238 U	1.86 ppb	1.86	3.16	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	225128	1.37	196505	114.6	70 - 125	
89 Y	2307038	2.05	2389216	96.6	70 - 125	
89 Y	477940	0.09	500165	95.6	70 - 125	
115 In	178304	0.64	190361	93.7	70 - 125	
209 Bi	142456	0.33	157656	90.4	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\229CCV1.D\229CCV1.D#
Date Acquired: Sep 21 2016 04:45 am
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	95.40	9.38	100	95.4	90 - 110	
9 Be	45	2	94.50	9.25	100	94.5	90 - 110	
11 B	45	2	242.30	8.86	250	96.9	90 - 110	
23 Na	89	2	9557.00	10.35	10000	95.6	90 - 110	
24 Mg	89	2	9607.00	9.25	10000	96.1	90 - 110	
27 Al	89	2	99.14	9.49	100	99.1	90 - 110	
28 Si	89	2	9638.00	8.91	10000	96.4	90 - 110	
29 Si	89	2	9817.00	11.09	10000	98.2	90 - 110	
39 K	89	2	9519.00	9.93	10000	95.2	90 - 110	
44 Ca	89	2	9442.00	9.70	10000	94.4	90 - 110	
47 Ti	89	2	95.08	9.80	100	95.1	90 - 110	
51 V	89	2	96.74	10.03	100	96.7	90 - 110	
51 V	89	3	97.68	1.97	100	97.7	90 - 110	
52 Cr	89	2	94.65	9.77	100	94.7	90 - 110	
52 Cr	89	3	97.34	0.93	100	97.3	90 - 110	
55 Mn	89	2	94.77	9.95	100	94.8	90 - 110	
55 Mn	89	3	95.94	1.68	100	95.9	90 - 110	
56 Fe	89	2	9516.00	9.79	10000	95.2	90 - 110	
56 Fe	89	3	9817.00	0.49	10000	98.2	90 - 110	
59 Co	89	2	95.53	10.16	100	95.5	90 - 110	
59 Co	89	3	98.95	1.22	100	99.0	90 - 110	
60 Ni	89	2	95.40	10.40	100	95.4	90 - 110	
62 Ni	89	2	99.24	12.45	100	99.2	90 - 110	
63 Cu	89	2	94.82	9.91	100	94.8	90 - 110	
63 Cu	89	3	95.00	0.67	100	95.0	90 - 110	
65 Cu	89	2	95.05	10.41	100	95.1	90 - 110	
66 Zn	89	2	92.83	9.70	100	92.8	90 - 110	
66 Zn	89	3	96.19	2.27	100	96.2	90 - 110	
68 Zn	89	2	96.19	11.12	100	96.2	90 - 110	
75 As	89	2	92.05	10.82	100	92.1	90 - 110	
75 As	89	3	95.02	0.39	100	95.0	90 - 110	
78 Se	89	2	93.04	11.39	100	93.0	90 - 110	
78 Se	89	3	91.39	9.56	100	91.4	90 - 110	
82 Se	89	2	91.78	13.11	100	91.8	90 - 110	
82 Se	89	3	94.72	2.60	100	94.7	90 - 110	
88 Sr	89	2	96.25	9.94	100	96.3	90 - 110	
95 Mo	89	2	95.39	10.04	100	95.4	90 - 110	
97 Mo	89	2	95.36	11.24	100	95.4	90 - 110	
98 Mo	89	2	96.20	10.83	100	96.2	90 - 110	
106 Cd	115	2	95.47	13.27	100	95.5	90 - 110	
107 Ag	115	2	96.24	8.97	100	96.2	90 - 110	
107 Ag	89	3	95.19	0.44	100	95.2	90 - 110	
109 Ag	115	2	95.36	9.46	100	95.4	90 - 110	
111 Cd	115	2	94.17	9.67	100	94.2	90 - 110	
111 Cd	89	3	98.87	1.51	100	98.9	90 - 110	
114 Cd	115	2	96.67	10.08	100	96.7	90 - 110	
118 Sn	115	2	97.19	9.56	100	97.2	90 - 110	
119 Sn	115	2	95.20	10.06	100	95.2	90 - 110	
121 Sb	115	2	93.34	9.64	100	93.3	90 - 110	
121 Sb	89	3	95.98	0.64	100	96.0	90 - 110	
123 Sb	115	2	96.90	9.67	100	96.9	90 - 110	
135 Ba	115	2	94.46	9.92	100	94.5	90 - 110	
137 Ba	115	2	97.57	8.86	100	97.6	90 - 110	
203 Tl	209	2	101.30	11.20	100	101.3	90 - 110	
205 Tl	209	2	94.42	10.43	100	94.4	90 - 110	
206 Pb	209	2	97.12	8.00	100	97.1	90 - 110	
207 Pb	209	2	96.86	9.41	100	96.9	90 - 110	
208 Pb	209	2	97.14	9.50	100	97.1	90 - 110	
238 U	209	2	93.95	9.84	100	94.0	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	213364	6.67	196505	108.6	83 - 117	
89 Y	2	2282621	7.42	2389216	95.5	83 - 117	
89 Y	3	471917	0.31	500165	94.4	83 - 117	
115 In	2	179299	7.29	190361	94.2	83 - 117	
209 Bi	2	147741	6.99	157656	93.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\208CALB.D\208CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20i00.B\230 CCB.D\230 CCB.D#
Date Acquired: Sep 21 2016 04:51 am
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.07 ppb	293.15	#######	
9 Be	45	2	0.11 ppb	41.87	#######	
11 B	45	2	1.22 ppb	82.50	#######	
23 Na	89	2	-17.17 ppb	172.22	#######	
24 Mg	89	2	8.80 ppb	114.52	#######	
27 Al	89	2	2.32 ppb	58.44	#######	
28 Si	89	2	9.85 ppb	80.31	#######	
29 Si	89	2	28.42 ppb	246.83	#######	
39 K	89	2	8.60 ppb	208.75	#######	
44 Ca	89	2	18.99 ppb	100.90	#######	
47 Ti	89	2	0.10 ppb	142.30	#######	
51 V	89	2	-0.04 ppb	1329.70	#######	
51 V	89	3	0.02 ppb	458.13	#######	
52 Cr	89	2	0.03 ppb	263.22	#######	
52 Cr	89	3	0.00 ppb	9921.50	#######	
55 Mn	89	2	0.10 ppb	96.60	#######	
55 Mn	89	3	0.13 ppb	76.49	#######	
56 Fe	89	2	8.49 ppb	76.42	#######	
56 Fe	89	3	7.56 ppb	3.93	#######	
59 Co	89	2	0.07 ppb	40.68	#######	
59 Co	89	3	0.08 ppb	19.66	#######	
60 Ni	89	2	-0.01 ppb	893.04	#######	
62 Ni	89	2	0.07 ppb	392.35	#######	
63 Cu	89	2	0.34 ppb	154.93	#######	
63 Cu	89	3	0.09 ppb	79.20	#######	
65 Cu	89	2	0.30 ppb	128.60	#######	
66 Zn	89	2	0.00 ppb	4769.10	#######	
66 Zn	89	3	0.27 ppb	79.74	#######	
68 Zn	89	2	0.12 ppb	157.39	#######	
75 As	89	2	-0.20 ppb	149.51	#######	
75 As	89	3	-0.13 ppb	90.50	#######	
77 (As)	89	2	0.99 ppb	285.69	#######	
78 Se	89	2	0.73 ppb	153.50	#######	
78 Se	89	3	0.38 ppb	40.58	#######	
82 Se	89	2	-0.21 ppb	108.72	#######	
82 Se	89	3	-2.05 ppb	83.13	#######	
83 (Se)	89	2	919.90 ppb	25.30	#######	
83 (Se)	89	3	-1819.00	162.40	#######	
88 Sr	89	2	0.15 ppb	98.71	#######	
95 Mo	89	2	0.13 ppb	63.87	#######	
97 Mo	89	2	0.22 ppb	36.82	#######	
98 Mo	89	2	0.16 ppb	55.47	#######	
99 (Mo)	89	2	39.85 ppb	173.40	#######	
106 Cd	115	2	2.64 ppb	181.02	#######	
107 Ag	115	2	0.07 ppb	69.95	#######	
107 Ag	89	3	0.05 ppb	20.70	#######	
108 (Cd)	115	2	0.17 ppb	270.99	#######	
108 (Cd)	89	3	-0.37 ppb	0.00	#######	
109 Ag	115	2	0.04 ppb	62.51	#######	
111 Cd	115	2	0.07 ppb	37.79	#######	
111 Cd	89	3	0.05 ppb	110.12	#######	
114 Cd	115	2	0.07 ppb	39.52	#######	
118 Sn	115	2	0.08 ppb	45.09	#######	
119 Sn	115	2	0.14 ppb	34.31	#######	
121 Sb	115	2	-0.06 ppb	73.66	#######	
121 Sb	89	3	-0.07 ppb	39.33	#######	
123 Sb	115	2	-0.12 ppb	26.29	#######	
135 Ba	115	2	-0.06 ppb	97.91	#######	
137 Ba	115	2	0.05 ppb	165.13	#######	
203 Tl	209	2	0.41 ppb	41.10	#######	
205 Tl	209	2	0.33 ppb	47.44	#######	
206 Pb	209	2	0.08 ppb	62.38	#######	
207 Pb	209	2	0.05 ppb	51.61	#######	
208 Pb	209	2	0.06 ppb	45.80	#######	
238 U	209	2	0.08 ppb	26.34	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	191467	7.79	196505	97.4	83 - 117	
89 Y	2	2290521	6.99	2389216	95.9	83 - 117	
89 Y	3	485439	0.92	500165	97.1	83 - 117	
115 In	2	183366	7.26	190361	96.3	83 - 117	
209 Bi	2	153280	6.37	157656	97.2	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20i00.B\208CALB.D\208CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I20100.B\231ICV2.D\231ICV2.D#
Date Acquired: Sep 21 2016 04:56 am
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 21 2016 03:33 am
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	11.05	1.35	10	110.5	70 - 130	
9 Be	45	2	2.25	1.24	2	112.7	70 - 130	
11 B	45	2	22.41	1.88	20	112.1	70 - 130	
23 Na	89	2	190.20	11.61	200	95.1	70 - 130	
24 Mg	89	2	213.00	3.55	200	106.5	70 - 130	
27 Al	89	2	11.85	6.21	10	118.5	70 - 130	
28 Si	89	2	1060.00	1.03	200	530.0	70 - 130	
29 Si	89	2	1024.00	1.39	200	512.0	70 - 130	
39 K	89	2	218.20	3.62	200	109.1	70 - 130	
44 Ca	89	2	529.60	2.48	500	105.9	70 - 130	
47 Ti	89	2	6.09	2.30	5	121.8	70 - 130	
51 V	89	2	4.65	8.82	5	93.1	70 - 130	
51 V	89	3	5.17	2.21	5	103.4	70 - 130	
52 Cr	89	2	5.03	1.73	5	100.5	70 - 130	
52 Cr	89	3	5.08	5.49	5	101.6	70 - 130	
53 Cr	89	2	7.16	21.76	5	143.1	70 - 130	
53 Cr	89	3	5.15	20.50	5	103.0	70 - 130	
55 Mn	89	2	5.05	2.21	5	101.1	70 - 130	
55 Mn	89	3	5.15	3.93	5	103.0	70 - 130	
56 Fe	89	2	84.95	3.95	80	106.2	70 - 130	
56 Fe	89	3	88.36	1.27	80	110.5	70 - 130	
59 Co	89	2	5.18	0.77	5	103.7	70 - 130	
59 Co	89	3	5.21	0.65	5	104.1	70 - 130	
60 Ni	89	2	5.26	2.01	5	105.2	70 - 130	
62 Ni	89	2	5.40	13.96	5	107.9	70 - 130	
63 Cu	89	2	5.30	2.94	5	107.7	70 - 130	
63 Cu	89	3	5.15	3.78	5	102.9	70 - 130	
65 Cu	89	2	5.28	5.66	5	105.6	70 - 130	
66 Zn	89	2	9.87	2.39	10	98.7	70 - 130	
66 Zn	89	3	10.27	7.68	10	102.7	70 - 130	
68 Zn	89	2	10.60	5.17	10	106.0	70 - 130	
75 As	89	2	4.41	15.25	5	88.2	70 - 130	
75 As	89	3	5.28	4.72	5	105.5	70 - 130	
77 (As)	89	2	10.29	26.43	0	#DIV/0!	##### - #####	
77 (As)	89	3	3.52	62.62	0	#DIV/0!	##### - #####	
78 Se	89	2	5.73	4.90	5	114.5	70 - 130	
78 Se	89	3	4.17	3.32	5	83.4	70 - 130	
82 Se	89	2	5.64	14.78	5	112.9	70 - 130	
82 Se	89	3	5.66	94.66	5	113.2	70 - 130	
83 (Se)	89	2	-389.70	403.13	0	#DIV/0!	##### - #####	
83 (Se)	89	3	-114.00	######	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.24	2.85	5	104.8	70 - 130	
95 Mo	89	2	5.21	2.05	5	104.1	70 - 130	
97 Mo	89	2	4.90	3.85	5	97.9	70 - 130	
98 Mo	89	2	4.85	2.59	5	97.1	70 - 130	
99 (Mo)	89	2	137.10	40.37	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	-1.00	322.08	2	-49.8	70 - 130	
106 Cd	89	3	5.56	67.20	2	277.9	70 - 130	
107 Ag	115	2	5.26	1.72	5	105.1	70 - 130	
107 Ag	89	3	5.12	3.83	5	102.5	70 - 130	
108 (Cd)	115	2	1.88	92.99	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	1.56	43.52	0	#DIV/0!	##### - #####	
109 Ag	115	2	5.10	2.23	5	102.0	70 - 130	
111 Cd	115	2	2.11	6.05	2	105.6	70 - 130	
111 Cd	89	3	1.98	17.15	2	98.8	70 - 130	
114 Cd	115	2	2.08	5.00	2	104.1	70 - 130	
118 Sn	115	2	2.08	2.36	2	104.2	70 - 130	
119 Sn	115	2	2.04	3.59	2	102.2	70 - 130	
121 Sb	115	2	4.21	3.05	5	84.2	70 - 130	
121 Sb	89	3	4.35	2.02	5	86.9	70 - 130	
123 Sb	115	2	4.16	2.97	5	83.2	70 - 130	
135 Ba	115	2	4.94	3.31	5	98.8	70 - 130	
137 Ba	115	2	5.06	3.60	5	101.3	70 - 130	
203 Tl	209	2	5.23	3.70	5	104.5	70 - 130	
205 Tl	209	2	4.92	1.05	5	98.4	70 - 130	
206 Pb	209	2	5.13	0.61	5	102.7	70 - 130	
207 Pb	209	2	5.11	0.53	5	102.2	70 - 130	
208 Pb	209	2	5.07	0.68	5	101.3	70 - 130	
238 U	209	2	4.79	1.23	5	95.8	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	193560	3.06	196505	98.5	83 - 117	
89 Y	2	2305049	2.75	2389216	96.5	83 - 117	
89 Y	3	485028	0.66	500165	97.0	83 - 117	
115 In	2	184524	3.08	190361	96.9	83 - 117	
209 Bi	2	154375	2.96	157656	97.9	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I20100.B\208CALB.D\208CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

ALS Group USA, Corp

Analytical Run Summary

Run ID ICPMS2_160921A

28-Sep-16

Analyst Royce Hughes

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4038620	Level 1	ICP_6020_W	SAMP	003CALB.D#	9/21/2016 10:17	1	R196213		32
4038621	Level 2	ICP_6020_W	SAMP	004CALS.D#	9/21/2016 10:23	1	R196213		32
4038622	Level 3	ICP_6020_W	SAMP	005CALS.D#	9/21/2016 10:28	1	R196213		32
4038623	Level 4	ICP_6020_W	SAMP	006CALS.D#	9/21/2016 10:35	1	R196213		32
4038624	Level 5	ICP_6020_W	SAMP	007CALS.D#	9/21/2016 10:40	1	R196213		32
4038625	Level 6	ICP_6020_W	SAMP	008CALS.D#	9/21/2016 10:47	1	R196213		32
4038626	Level 7	ICP_6020_W	SAMP	009CALS.D#	9/21/2016 10:52	1	R196213		32
4038627	Level 8	ICP_6020_W	SAMP	010CALS.D#	9/21/2016 10:57	1	R196213		32
4038628	ICV	ICP_6020_W	ICV	011ICV1.D#	9/21/2016 11:01	1	R196213		22
4038629	LLICV	ICP_6020_W	LLICV	012ICV2.D#	9/21/2016 11:07	1	R196213		32
4038630	ICB	ICP_6020_W	ICB	013_ICB.D#	9/21/2016 11:12	1	R196213		32
4038631	ICSA	ICP_6020_W	ICSA	014ICSA.D#	9/21/2016 11:17	1	R196213		32
4038632	ICSAB	ICP_6020_W	ICSAB	015ICSB.D#	9/21/2016 11:22	1	R196213		32
4038633	CCV	ICP_6020_W	CCV	016SMPL.D#	9/21/2016 11:27	1	R196213		32
4038634	CCB	ICP_6020_W	CCB	017_CCB.D#	9/21/2016 11:32	1	R196213		32
4038635	CCV	ICP_6020_W	CCV	018SMPL.D#	9/21/2016 11:38	1	R196213		32
4038636	CCB	ICP_6020_W	CCB	019_CCB.D#	9/21/2016 11:43	1	R196213		32
4038637	16091057-01C	ICP_6020_W	SAMP	020SMPL.D#	9/21/2016 11:48	10	91654	9/20/2016	1
4038638	16091057-01C	ICP_6020_W	SAMP	021SMPL.D#	9/21/2016 11:54	1	91654	9/20/2016	21
4038639	1609970-02ASD	ICP_6020_W	SD	022SMPL.D#	9/21/2016 11:59	5	91654		22
4038640	1609970-02APDS	ICP_6020_W	PDS	023SMPL.D#	9/21/2016 12:04	1	91654		2
4038641	16091034-01A	TCICP_6020_S	SAMP	024SMPL.D#	9/21/2016 12:09	1	91654	9/20/2016	7
4038642	16091049-01A	TCICP_6020_S	SAMP	025SMPL.D#	9/21/2016 12:14	1	91654	9/20/2016	7
4038643	16091049-02A	TCICP_6020_S	SAMP	026SMPL.D#	9/21/2016 12:22	1	91654	9/20/2016	7
4038676	MBLK-91658	ICP_200.8_USS	MBLK	027SMPL.D#	9/21/2016 12:27	1	91658	9/20/2016	0
4038677	LCS-91658	ICP_200.8_USS	LCS	028SMPL.D#	9/21/2016 12:35	1	91658	9/20/2016	26
4038678	MBLK-91658	ICP_200.8_USS	MBLK	029SMPL.D#	9/21/2016 12:42	1	91658	9/20/2016	27
4038679	CCV	ICP_6020_W	CCV	030CCV1.D#	9/21/2016 12:47	1	R196213		32
4038680	CCB	ICP_6020_W	CCB	031_CCB.D#	9/21/2016 12:52	1	R196213		32
4038681	LLCCV	ICP_6020_W	LLCCV	032ICV2.D#	9/21/2016 12:57	1	R196213		32
4038682	16091075-02E	ICP_200.8_USS	SAMP	033SMPL.D#	9/21/2016 13:02	1	91658	9/20/2016	2
4038683	16091075-06B	ICP_200.8_USS	SAMP	034SMPL.D#	9/21/2016 13:07	1	91658	9/20/2016	2
4038684	16091075-10B	ICP_200.8_USS	SAMP	035SMPL.D#	9/21/2016 13:13	1	91658	9/20/2016	2
4038692	16091075-23A	ICP_200.8_USS	SAMP	036SMPL.D#	9/21/2016 13:18	1	91658	9/20/2016	2
4038693	16091075-24A	ICP_200.8_USS	SAMP	037SMPL.D#	9/21/2016 13:23	1	91658	9/20/2016	2
4038694	16091075-25A	ICP_200.8_USS	SAMP	038SMPL.D#	9/21/2016 13:32	1	91658	9/20/2016	2
4038695	16091075-26A	ICP_200.8_USS	SAMP	039SMPL.D#	9/21/2016 13:37	1	91658	9/20/2016	2
4038696	16091075-27A	ICP_200.8_USS	SAMP	040SMPL.D#	9/21/2016 13:42	1	91658	9/20/2016	2
4038697	16091075-30E	ICP_200.8_USS	SAMP	041SMPL.D#	9/21/2016 13:48	1	91658	9/20/2016	1
4038698	16091075-30E MS	ICP_200.8_USS	MS	042SMPL.D#	9/21/2016 13:53	1	91658	9/20/2016	26
4038699	CCV	ICP_6020_W	CCV	043CCV1.D#	9/21/2016 13:58	1	R196213		32
4038807	CCB	ICP_6020_W	CCB	044_CCB.D#	9/21/2016 14:03	1	R196213		32
4038808	LLCCV	ICP_6020_W	LLCCV	045ICV2.D#	9/21/2016 14:08	1	R196213		32
4039590	16091075-30E MSD	ICP_200.8_USS	MSD	046SMPL.D#	9/21/2016 14:13	1	91658	9/20/2016	4
4039591	16091075-34G	ICP_200.8_USS	SAMP	047SMPL.D#	9/21/2016 14:19	1	91658	9/20/2016	1
4039592	16091080-04B	ICP_200.8_USS	SAMP	048SMPL.D#	9/21/2016 14:24	1	91658	9/20/2016	2
4039593	16091080-08B	ICP_200.8_USS	SAMP	049SMPL.D#	9/21/2016 14:29	5	91658	9/20/2016	2
4039594	16091023-05B	ICP_200.8_USS	SAMP	050SMPL.D#	9/21/2016 14:35	1	91658	9/20/2016	2
4039595	16091023-05B MS	ICP_200.8_USS	MS	051SMPL.D#	9/21/2016 14:40	1	91658	9/20/2016	4
4039596	16091023-05B MSD	ICP_200.8_USS	MSD	052SMPL.D#	9/21/2016 14:45	1	91658	9/20/2016	4
4039597	16091023-10B	ICP_200.8_USS	SAMP	053SMPL.D#	9/21/2016 14:50	5	91658	9/20/2016	2
4039598	16091098-01A	ICP_200.8_DW	SAMP	054SMPL.D#	9/21/2016 14:56	1	R196213A		2
4039599	16091098-01AMS	ICP_200.8_DW	MS	055SMPL.D#	9/21/2016 15:01	1	R196213A		2

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4039600	CCV	ICP_6020_W	CCV	056CCV1.D#	9/21/2016 15:06	1	R196213		32
4040835	LCS-R196213A	ICP_200.8_DW	LCS	056CCV1.D#	9/21/2016 15:06	1	R196213A		2
4039601	CCB	ICP_6020_W	CCB	057_CCB.D#	9/21/2016 15:11	1	R196213		32
4040836	MBLK-R196213A	ICP_200.8_DW	MBLK	057_CCB.D#	9/21/2016 15:11	1	R196213A		2
4039602	LLCCV	ICP_6020_W	LLCCV	058ICV2.D#	9/21/2016 15:16	1	R196213		32
4039603	16091098-01AMSD	ICP_200.8_DW	MSD	059SMPL.D#	9/21/2016 15:21	1	R196213A		2
4039604	MBLK-91718	ICP_200.8_WW	MBLK	060SMPL.D#	9/21/2016 15:27	1	91718	9/21/2016	9
4039605	LCS-91718	ICP_200.8_WW	LCS	061SMPL.D#	9/21/2016 15:32	1	91718	9/21/2016	9
4039606	16091066-01B	ICP_200.8_WW	SAMP	062SMPL.D#	9/21/2016 15:37	10	91718	9/21/2016	1
4039607	16091066-03B	ICP_200.8_WW	SAMP	063SMPL.D#	9/21/2016 15:42	1	91718	9/21/2016	1
4039608	16091066-03BMS	ICP_200.8_WW	MS	064SMPL.D#	9/21/2016 15:48	1	91718	9/21/2016	9
4039609	16091066-03BMSD	ICP_200.8_WW	MSD	065SMPL.D#	9/21/2016 15:53	1	91718	9/21/2016	9
4039610	1609959-06C	ICP_200.8_WW	SAMP	066SMPL.D#	9/21/2016 15:58	1	91718	9/21/2016	7
4039611	1609959-07C	ICP_200.8_WW	SAMP	067SMPL.D#	9/21/2016 16:03	1	91718	9/21/2016	7
4039612	1609959-07CMS	ICP_200.8_WW	MS	068SMPL.D#	9/21/2016 16:08	1	91718	9/21/2016	9
4039613	CCV	ICP_6020_W	CCV	069CCV1.D#	9/21/2016 16:14	1	R196213		32
4039614	CCB	ICP_6020_W	CCB	070_CCB.D#	9/21/2016 16:19	1	R196213		32
4039615	LLCCV	ICP_6020_W	LLCCV	071ICV2.D#	9/21/2016 16:24	1	R196213		32
4039616	1609959-07CMSD	ICP_200.8_WW	MSD	072SMPL.D#	9/21/2016 16:29	1	91718	9/21/2016	9
4039617	1609959-08C	ICP_200.8_WW	SAMP	073SMPL.D#	9/21/2016 16:34	1	91718	9/21/2016	7
4039618	1609959-11A	ICP_200.8_WW	SAMP	074SMPL.D#	9/21/2016 16:40	1	91718	9/21/2016	5
4039619	1609959-12A	ICP_200.8_WW	SAMP	075SMPL.D#	9/21/2016 16:45	1	91718	9/21/2016	5
4039620	1609959-13A	ICP_200.8_WW	SAMP	076SMPL.D#	9/21/2016 16:50	1	91718	9/21/2016	7
4039621	1609959-15A	ICP_200.8_WW	SAMP	077SMPL.D#	9/21/2016 16:55	1	91718	9/21/2016	7
4039622	1609959-16A	ICP_200.8_WW	SAMP	078SMPL.D#	9/21/2016 17:00	1	91718	9/21/2016	7
4039623	1609959-17A	ICP_200.8_WW	SAMP	079SMPL.D#	9/21/2016 17:05	1	91718	9/21/2016	7
4039624	1609959-18A	ICP_200.8_WW	SAMP	080SMPL.D#	9/21/2016 17:11	1	91718	9/21/2016	7
4039625	1609959-19A	ICP_200.8_WW	SAMP	081SMPL.D#	9/21/2016 17:16	1	91718	9/21/2016	7
4039626	CCV	ICP_6020_W	CCV	082CCV1.D#	9/21/2016 17:21	1	R196213		0
4039627	CCV	ICP_6020_W	CCV	084CCV1.D#	9/21/2016 17:32	1	R196213		32
4039628	CCB	ICP_6020_W	CCB	085_CCB.D#	9/21/2016 17:37	1	R196213		32
4039629	LLCCV	ICP_6020_W	LLCCV	086ICV2.D#	9/21/2016 17:42	1	R196213		32
4039630	1609959-20A	ICP_200.8_WW	SAMP	087SMPL.D#	9/21/2016 17:47	1	91718	9/21/2016	7
4039631	1609959-21A	ICP_200.8_WW	SAMP	088SMPL.D#	9/21/2016 17:52	1	91718	9/21/2016	7
4039632	1609959-22A	ICP_200.8_WW	SAMP	089SMPL.D#	9/21/2016 17:58	1	91718	9/21/2016	7
4039633	1609959-23A	ICP_200.8_WW	SAMP	090SMPL.D#	9/21/2016 18:03	1	91718	9/21/2016	7
4039634	1609959-24A	ICP_200.8_WW	SAMP	091SMPL.D#	9/21/2016 18:08	1	91718	9/21/2016	7
4039635	1609959-25A	ICP_200.8_WW	SAMP	092SMPL.D#	9/21/2016 18:14	1	91718	9/21/2016	7
4039636	1609959-26A	ICP_200.8_WW	SAMP	093SMPL.D#	9/21/2016 18:19	1	91718	9/21/2016	5
4039637	MBLK-91717	ICP_200.8_WW	MBLK	094SMPL.D#	9/21/2016 18:24	1	91719	9/21/2016	22
4039638	LCS-91717	ICP_200.8_WW	LCS	095SMPL.D#	9/21/2016 18:30	1	91719	9/21/2016	21
4039639	MBLK-91719	ICP_200.8_WW	MBLK	096SMPL.D#	9/21/2016 18:35	1	91719	9/21/2016	22
4039640	CCV	ICP_6020_W	CCV	097CCV1.D#	9/21/2016 18:40	1	R196213		32
4039641	CCV	ICP_6020_W	CCV	099CCV1.D#	9/21/2016 18:51	1	R196213		0
4039642	CCB	ICP_6020_W	CCB	100_CCB.D#	9/21/2016 18:56	1	R196213		32
4039643	LLCCV	ICP_6020_W	LLCCV	101ICV2.D#	9/21/2016 19:01	1	R196213		32
4039644	Level 1	ICP_200.8_WW	SAMP	102CALB.D#	9/21/2016 19:06	1	R196213		31
4039645	Level 2	ICP_200.8_WW	SAMP	103CALS.D#	9/21/2016 19:12	1	R196213		31
4039646	Level 3	ICP_200.8_WW	SAMP	104CALS.D#	9/21/2016 19:17	1	R196213		31
4039647	Level 4	ICP_200.8_WW	SAMP	105CALS.D#	9/21/2016 19:22	1	R196213		31
4039648	Level 5	ICP_200.8_WW	SAMP	106CALS.D#	9/21/2016 19:27	1	R196213		31
4039649	Level 6	ICP_200.8_WW	SAMP	107CALS.D#	9/21/2016 19:32	1	R196213		31
4039650	Level 7	ICP_200.8_WW	SAMP	108CALS.D#	9/21/2016 19:38	1	R196213		31
4039651	Level 8	ICP_200.8_WW	SAMP	109CALS.D#	9/21/2016 19:43	1	R196213		31
4039652	CCV	ICP_6020_W	CCV	110CCV1.D#	9/21/2016 19:48	1	R196213		32
4039653	CCB	ICP_6020_W	CCB	111_CCB.D#	9/21/2016 19:53	1	R196213		32
4039654	LLCCV	ICP_6020_W	LLCCV	112ICV2.D#	9/21/2016 19:58	1	R196213		32
4039655	ICSA	ICP_6020_W	ICSA	113ICSA.D#	9/21/2016 20:03	1	R196213		32
4039656	ICSAB	ICP_6020_W	ICSAB	114ICSB.D#	9/21/2016 20:09	1	R196213		32

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4039657	LCS-91719	ICP_200.8_WW	LCS	115SMPL.D#	9/21/2016 20:14	1	91719	9/21/2016	23
4039658	16091042-03A	ICP_200.8_WW	SAMP	116SMPL.D#	9/21/2016 20:19	1	91719	9/21/2016	5
4039659	16091042-04A	ICP_200.8_WW	SAMP	117SMPL.D#	9/21/2016 20:24	1	91719	9/21/2016	5
4039660	16091042-05A	ICP_200.8_WW	SAMP	118SMPL.D#	9/21/2016 20:30	1	91719	9/21/2016	7
4039661	1609889-01B	ICP_200.8_WW	SAMP	119SMPL.D#	9/21/2016 20:35	10	91719	9/21/2016	3
4039662	1609889-02B	ICP_200.8_WW	SAMP	120SMPL.D#	9/21/2016 20:40	10	91719	9/21/2016	3
4039663	1609889-03C	ICP_200.8_WW	SAMP	121SMPL.D#	9/21/2016 20:46	10	91719	9/21/2016	22
4039664	1609889-04C	ICP_200.8_WW	SAMP	122SMPL.D#	9/21/2016 20:51	10	91719	9/21/2016	22
4039665	CCV	ICP_6020_W	CCV	123CCV1.D#	9/21/2016 20:56	1	R196213		32
4039666	CCB	ICP_6020_W	CCB	124_CCB.D#	9/21/2016 21:02	1	R196213		32
4039667	LLCCV	ICP_6020_W	LLCCV	125ICV2.D#	9/21/2016 21:07	1	R196213		32
4039668	1609889-05C	ICP_200.8_WW	SAMP	126SMPL.D#	9/21/2016 21:12	10	91719	9/21/2016	22
4039669	1609889-06C	ICP_200.8_WW	SAMP	127SMPL.D#	9/21/2016 21:18	10	91719	9/21/2016	21
4039670	1609918-01A	ICP_200.8_WW	SAMP	128SMPL.D#	9/21/2016 21:23	1	91719	9/21/2016	1
4039671	1609932-02A	ICP_200.8_WW	SAMP	129SMPL.D#	9/21/2016 21:28	1	91719	9/21/2016	1
4039672	1609932-02AMS	ICP_200.8_WW	MS	130SMPL.D#	9/21/2016 21:34	1	91719	9/21/2016	23
	MS02	*The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
4039673	1609932-02AMSD	ICP_200.8_WW	MSD	131SMPL.D#	9/21/2016 21:39	1	91719	9/21/2016	23
	MSD02	*The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
4039674	1609932-04A	ICP_200.8_WW	SAMP	132SMPL.D#	9/21/2016 21:44	1	91719	9/21/2016	1
4039675	1609943-01D	ICP_200.8_WW	SAMP	133SMPL.D#	9/21/2016 21:49	1	91719	9/21/2016	11
4039676	1609946-01A	ICP_200.8_WW	SAMP	134SMPL.D#	9/21/2016 21:55	1	91719	9/21/2016	1
4039677	1609969-01C	ICP_200.8_WW	SAMP	135SMPL.D#	9/21/2016 22:00	1	91719	9/21/2016	7
4039678	CCV	ICP_6020_W	CCV	136CCV1.D#	9/21/2016 22:05	1	R196213		32
4039679	CCB	ICP_6020_W	CCB	137_CCB.D#	9/21/2016 22:11	1	R196213		32
4039680	LLCCV	ICP_6020_W	LLCCV	138ICV2.D#	9/21/2016 22:16	1	R196213		32
4039681	1609982-01A	ICP_200.8_WWD	SAMP	139SMPL.D#	9/21/2016 22:21	1	91719	9/21/2016	1
4039682	1609982-01C	ICP_200.8_WW	SAMP	140SMPL.D#	9/21/2016 22:27	1	91719	9/21/2016	2
4039683	1609982-01CMS	ICP_200.8_WW	MS	141SMPL.D#	9/21/2016 22:32	1	91719	9/21/2016	23
	MS01	*The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: B*							
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, K, Sr*							
4039684	1609982-01CMSD	ICP_200.8_WW	MSD	142SMPL.D#	9/21/2016 22:37	1	91719	9/21/2016	23
	MSD01	*The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: B*							
4039685	1609996-01B	ICP_200.8_WW	SAMP	143SMPL.D#	9/21/2016 22:43	1	91719	9/21/2016	7
4039686	1609997-02A	ICP_200.8_WW	SAMP	144SMPL.D#	9/21/2016 22:48	1	91719	9/21/2016	10
4039687	1609998-01A	ICP_200.8_WW	SAMP	145SMPL.D#	9/21/2016 22:53	1	91719	9/21/2016	10
4039688	1609875-01B	ICP_6020_W	SAMP	146SMPL.D#	9/21/2016 22:58	1	91654	9/20/2016	5
4039689	1609881-18C	ICP_6020_W	SAMP	147SMPL.D#	9/21/2016 23:04	1	91654	9/20/2016	11
4039690	1609937-01A	ICP_6020_W	SAMP	148SMPL.D#	9/21/2016 23:09	1	91654	9/20/2016	2
4039691	CCV	ICP_6020_W	CCV	149CCV1.D#	9/21/2016 23:14	1	R196213		32
4039692	CCV	ICP_6020_W	CCV	151CCV1.D#	9/21/2016 23:25	1	R196213		32
4039693	CCB	ICP_6020_W	CCB	152_CCB.D#	9/21/2016 23:30	1	R196213		32
4039694	LLCCV	ICP_6020_W	LLCCV	153ICV2.D#	9/21/2016 23:35	1	R196213		32
4039695	Level 1	ICP_6020_W	SAMP	154CALB.D#	9/21/2016 23:40	1	R196213		32
4039696	Level 2	ICP_6020_W	SAMP	155CALS.D#	9/21/2016 23:46	1	R196213		32
4039697	Level 3	ICP_6020_W	SAMP	156CALS.D#	9/21/2016 23:51	1	R196213		32
4039698	Level 4	ICP_6020_W	SAMP	157CALS.D#	9/21/2016 23:56	1	R196213		32
4039699	Level 5	ICP_6020_W	SAMP	158CALS.D#	9/22/2016 00:01	1	R196213		32
4039700	Level 6	ICP_6020_W	SAMP	159CALS.D#	9/22/2016 00:07	1	R196213		32
4039701	Level 7	ICP_6020_W	SAMP	160CALS.D#	9/22/2016 00:12	1	R196213		32
4039702	Level 8	ICP_6020_W	SAMP	161CALS.D#	9/22/2016 00:17	1	R196213		32
4039703	CCV	ICP_6020_W	CCV	162CCV1.D#	9/22/2016 00:22	1	R196213		32
4039704	CCB	ICP_6020_W	CCB	163_CCB.D#	9/22/2016 00:28	1	R196213		32
4039705	LLCCV	ICP_6020_W	LLCCV	164ICV2.D#	9/22/2016 00:33	1	R196213		32

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4039706	1609868-10C	ICP_6020_W	SAMP	165SMPL.D#	9/22/2016 00:38	1	91655	9/20/2016	1
4039707	16091011-01C	ICP_6020_W	SAMP	166SMPL.D#	9/22/2016 00:44	10	91654	9/20/2016	13
	RL02	*The reporting limit is elevated due to dilution for high concentrations of non-target analytes.*							
4039708	16091011-02C	ICP_6020_W	SAMP	167SMPL.D#	9/22/2016 00:49	10	91654	9/20/2016	13
	RL02	*The reporting limit is elevated due to dilution for high concentrations of non-target analytes.*							
4039709	MBLK-91721	ICP_6020_W	MBLK	168SMPL.D#	9/22/2016 00:54	1	91721	9/21/2016	7
4039710	LCS-91721	ICP_6020_W	LCS	169SMPL.D#	9/22/2016 01:00	1	91721	9/21/2016	7
4039711	16091050-01C	ICP_6020_WD	SAMP	170SMPL.D#	9/22/2016 01:05	1	91721	9/21/2016	2
4039712	16091050-02C	ICP_6020_WD	SAMP	171SMPL.D#	9/22/2016 01:11	1	91721	9/21/2016	2
4039713	16091050-03C	ICP_6020_WD	SAMP	172SMPL.D#	9/22/2016 01:16	1	91721	9/21/2016	2
4039714	16091050-04C	ICP_6020_WD	SAMP	173SMPL.D#	9/22/2016 01:21	1	91721	9/21/2016	2
4039715	16091050-08C	ICP_6020_WD	SAMP	174SMPL.D#	9/22/2016 01:27	1	91721	9/21/2016	2
4039716	CCV	ICP_6020_W	CCV	175CCV1.D#	9/22/2016 01:32	1	R196213		32
4039717	CCB	ICP_6020_W	CCB	176_CCB.D#	9/22/2016 01:37	1	R196213		32
4039718	LLCCV	ICP_6020_W	LLCCV	177ICV2.D#	9/22/2016 01:43	1	R196213		32
4039719	16091050-09C	ICP_6020_WD	SAMP	178SMPL.D#	9/22/2016 01:48	1	91721	9/21/2016	0
4039720	16091052-01A	ICP_6020_W	SAMP	179SMPL.D#	9/22/2016 01:54	1	91721	9/21/2016	0
4039721	16091052-01B	ICP_6020_WD	SAMP	180SMPL.D#	9/22/2016 01:59	1	91721	9/21/2016	0
4039722	16091052-01BMS	ICP_6020_W	MS	181SMPL.D#	9/22/2016 02:04	1	91721	9/21/2016	0
4039723	16091052-01BMSD	ICP_6020_W	MSD	182SMPL.D#	9/22/2016 02:10	1	91721	9/21/2016	0
4039724	16091052-02A	ICP_6020_W	SAMP	183SMPL.D#	9/22/2016 02:15	1	91721	9/21/2016	0
4039725	16091052-02B	ICP_6020_WD	SAMP	184SMPL.D#	9/22/2016 02:21	1	91721	9/21/2016	0
4039726	16091104-01A	ICP_6020_WD	SAMP	185SMPL.D#	9/22/2016 02:26	1	91721	9/21/2016	0
4039727	16091104-02A	ICP_6020_WD	SAMP	186SMPL.D#	9/22/2016 02:32	1	91721	9/21/2016	0
4039728	16091123-01A	ICP_6020_W	SAMP	187SMPL.D#	9/22/2016 02:37	1	91721	9/21/2016	0
4039729	CCV	ICP_6020_W	CCV	188CCV1.D#	9/22/2016 02:42	1	R196213		32
4039730	CCV	ICP_6020_W	CCV	191CCV1.D#	9/22/2016 02:58	1	R196213		32
4039731	CCB	ICP_6020_W	CCB	192_CCB.D#	9/22/2016 03:03	1	R196213		32
4039732	LLCCV	ICP_6020_W	LLCCV	193ICV2.D#	9/22/2016 03:09	1	R196213		32
4039733	Level 1	ICP_6020_W	SAMP	194CALB.D#	9/22/2016 03:14	1	R196213		32
4039734	Level 2	ICP_6020_W	SAMP	195CALS.D#	9/22/2016 03:19	1	R196213		32
4039735	Level 3	ICP_6020_W	SAMP	196CALS.D#	9/22/2016 03:25	1	R196213		32
4039736	Level 4	ICP_6020_W	SAMP	197CALS.D#	9/22/2016 03:30	1	R196213		32
4039737	Level 5	ICP_6020_W	SAMP	198CALS.D#	9/22/2016 03:35	1	R196213		32
4039738	Level 6	ICP_6020_W	SAMP	199CALS.D#	9/22/2016 03:41	1	R196213		32
4039739	Level 7	ICP_6020_W	SAMP	200CALS.D#	9/22/2016 03:46	1	R196213		32
4039740	Level 8	ICP_6020_W	SAMP	201CALS.D#	9/22/2016 03:51	1	R196213		32
4039741	CCV	ICP_6020_W	CCV	202CCV1.D#	9/22/2016 03:56	1	R196213		32
4039742	CCB	ICP_6020_W	CCB	203_CCB.D#	9/22/2016 04:02	1	R196213		32
4039743	LLCCV	ICP_6020_W	LLCCV	204ICV2.D#	9/22/2016 04:07	1	R196213		32
4039744	16091123-02A	ICP_6020_W	SAMP	205SMPL.D#	9/22/2016 04:12	1	91721	9/21/2016	3
4039745	ICSA	ICP_6020_W	ICSA	206ICSA.D#	9/22/2016 04:18	1	R196213		32
4039746	ICSAB	ICP_6020_W	ICSAB	207ICSB.D#	9/22/2016 04:23	1	R196213		32
4039747	16091123-03A	ICP_6020_W	SAMP	208SMPL.D#	9/22/2016 04:29	1	91721	9/21/2016	3
4039748	16091123-04A	ICP_6020_W	SAMP	209SMPL.D#	9/22/2016 04:34	1	91721	9/21/2016	3
4039749	16091123-05A	ICP_6020_W	SAMP	210SMPL.D#	9/22/2016 04:39	1	91721	9/21/2016	3
4039750	16091123-06A	ICP_6020_W	SAMP	211SMPL.D#	9/22/2016 04:45	1	91721	9/21/2016	3
4039751	16091123-07A	ICP_6020_W	SAMP	212SMPL.D#	9/22/2016 04:50	1	91721	9/21/2016	3
4039752	1609661-01A	ICP_6020_W	SAMP	213SMPL.D#	9/22/2016 04:56	1	91721	9/21/2016	1
4039753	MBLK-91724	ICP_6020_W	MBLK	214SMPL.D#	9/22/2016 05:01	1	91724	9/21/2016	6
4039754	CCV	ICP_6020_W	CCV	215CCV1.D#	9/22/2016 05:07	1	R196213		32
4039755	CCB	ICP_6020_W	CCB	216_CCB.D#	9/22/2016 05:12	1	R196213		32
4039756	LLCCV	ICP_6020_W	LLCCV	217ICV2.D#	9/22/2016 05:17	1	R196213		32
4039757	LCS-91724	ICP_6020_W	LCS	218SMPL.D#	9/22/2016 05:23	1	91724	9/21/2016	6
4039758	16091076-01B	ICP_6020_W	SAMP	219SMPL.D#	9/22/2016 05:28	1	91724	9/21/2016	1
4039759	16091076-02A	ICP_6020_W	SAMP	220SMPL.D#	9/22/2016 05:33	1	91724	9/21/2016	1
4039760	16091076-03A	ICP_6020_W	SAMP	221SMPL.D#	9/22/2016 05:39	1	91724	9/21/2016	1
4039761	1609970-05A	ICP_6020_WD	SAMP	222SMPL.D#	9/22/2016 05:44	1	91724	9/21/2016	6
4039762	1609970-06A	ICP_6020_WD	SAMP	223SMPL.D#	9/22/2016 05:50	1	91724	9/21/2016	6

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4039763	1609970-07A	ICP_6020_WD	SAMP	224SMPL.D#	9/22/2016 05:55	1	91724	9/21/2016	6
4039764	1609970-08A	ICP_6020_WD	SAMP	225SMPL.D#	9/22/2016 06:00	1	91724	9/21/2016	6
4039765	1609970-09A	ICP_6020_WD	SAMP	226SMPL.D#	9/22/2016 06:06	1	91724	9/21/2016	6
4039766	1609970-10A	ICP_6020_WD	SAMP	227SMPL.D#	9/22/2016 06:11	1	91724	9/21/2016	6
4039767	CCV	ICP_6020_W	CCV	228CCV1.D#	9/22/2016 06:16	1	R196213		32
4039768	CCB	ICP_6020_W	CCB	229_CCB.D#	9/22/2016 06:22	1	R196213		32
4039769	LLCCV	ICP_6020_W	LLCCV	230ICV2.D#	9/22/2016 06:27	1	R196213		32
4039770	1609970-11A	ICP_6020_WD	SAMP	231SMPL.D#	9/22/2016 06:33	1	91724	9/21/2016	6
4039771	1609970-12A	ICP_6020_WD	SAMP	232SMPL.D#	9/22/2016 06:38	1	91724	9/21/2016	6
4039772	1609970-13A	ICP_6020_WD	SAMP	233SMPL.D#	9/22/2016 06:43	1	91724	9/21/2016	6
4039773	1609970-14A	ICP_6020_WD	SAMP	234SMPL.D#	9/22/2016 06:49	1	91724	9/21/2016	6
4039774	1609970-15A	ICP_6020_WD	SAMP	235SMPL.D#	9/22/2016 06:54	1	91724	9/21/2016	6
4039775	1609970-16A	ICP_6020_WD	SAMP	236SMPL.D#	9/22/2016 07:00	1	91724	9/21/2016	6
4039776	1609970-17A	ICP_6020_WD	SAMP	237SMPL.D#	9/22/2016 07:05	1	91724	9/21/2016	6
4039777	1609970-17AMS	ICP_6020_W	MS	238SMPL.D#	9/22/2016 07:10	1	91724	9/21/2016	6
4039778	1609970-17AMSD	ICP_6020_W	MSD	239SMPL.D#	9/22/2016 07:16	1	91724	9/21/2016	6
4039779	1609970-18A	ICP_6020_WD	SAMP	240SMPL.D#	9/22/2016 07:21	1	91724	9/21/2016	6
4039780	CCV	ICP_6020_W	CCV	241CCV1.D#	9/22/2016 07:27	1	R196213		32
4039781	CCV	ICP_6020_W	CCV	242CCV1.D#	9/22/2016 07:32	1	R196213		32
4039782	CCB	ICP_6020_W	CCB	243_CCB.D#	9/22/2016 07:37	1	R196213		32
4039783	LLCCV	ICP_6020_W	LLCCV	244ICV2.D#	9/22/2016 07:43	1	R196213		32
4040714	1609970-19A	ICP_6020_WD	SAMP	245SMPL.D#	9/22/2016 07:48	1	91724	9/21/2016	6
4040715	1609970-20A	ICP_6020_WD	SAMP	246SMPL.D#	9/22/2016 07:54	1	91724	9/21/2016	6
4040716	1609970-21A	ICP_6020_WD	SAMP	247SMPL.D#	9/22/2016 07:59	1	91724	9/21/2016	6
4040717	CCV	ICP_6020_W	CCV	248CCV1.D#	9/22/2016 08:05	1	R196213		32
4040718	CCV	ICP_6020_W	CCV	249CCV1.D#	9/22/2016 08:10	1	R196213		32
4040719	CCB	ICP_6020_W	CCB	250_CCB.D#	9/22/2016 08:15	1	R196213		32
4040720	LLCCV	ICP_6020_W	LLCCV	251ICV2.D#	9/22/2016 08:21	1	R196213		32

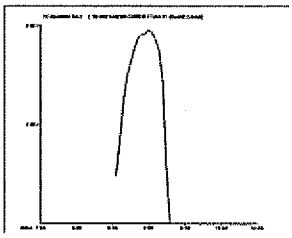
CLP Tune Sample

Data File: 001TUNE.D
Date Acquired: Sep 21 2016 10:07 am
Operator: rhughes, ICPMS2
Sample Name: 100ppb Be,Mg,Co,In,Pb
Misc Info: EPA 200.8 TUNE
Vial Number: 1306
Current Method: TN200_8.M

QC Tune Summary:
Pass

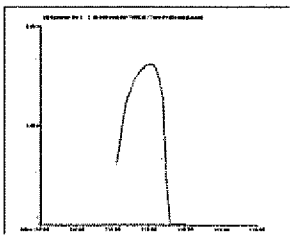
RSD%

Element	Actual	Required	Flag
9	0.30	5.00	
24	1.49	5.00	
59	0.97	5.00	
115	0.88	5.00	
208	0.42	5.00	



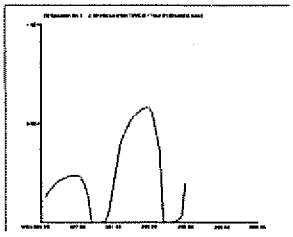
9 Be

Mass Calib.		**Peak Width**	
Actual:	9.00	Actual:	0.70
Required:	8.90 - 9.10	Required:	0.90
Flag:		Flag:	



115 In

Mass Calib.		**Peak Width**	
Actual:	115.00	Actual:	0.70
Required:	114.90 - 115.10	Required:	0.90
Flag:		Flag:	



208 Pb

Mass Calib.		**Peak Width**	
Actual:	207.95	Actual:	0.60
Required:	207.90 - 0.00	Required:	0.90
Flag:	208.10	Flag:	

Last Calib: Sep 28, 2016 11:34 am
Calibration Type: External Calibration Method
Calibration Title: ICPMS2 160921A ICAL
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Multi Tune: #2 nogas.u
#3 he.u

=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\icpchem\1\data\16i21k00.b\003calb.d\003calb.d#	Level 1	Sep 21 2016 10:17 am
2	c:\icpchem\1\data\16i21k00.b\004cals.d\004cals.d#	Level 2	Sep 21 2016 10:23 am
3	c:\icpchem\1\data\16i21k00.b\005cals.d\005cals.d#	Level 3	Sep 21 2016 10:28 am
4	c:\icpchem\1\data\16i21k00.b\006cals.d\006cals.d#	Level 4	Sep 21 2016 10:35 am
5	c:\icpchem\1\data\16i21k00.b\007cals.d\007cals.d#	Level 5	Sep 21 2016 10:40 am
6	c:\icpchem\1\data\16i21k00.b\008cals.d\008cals.d#	Level 6	Sep 21 2016 10:47 am
7	c:\icpchem\1\data\16i21k00.b\009cals.d\009cals.d#	Level 7	Sep 21 2016 10:52 am
8	c:\icpchem\1\data\16i21k00.b\010cals.d\010cals.d#	Level 8	Sep 21 2016 10:57 am
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

=== Analyte Table ===

	Step	Mass	Element	Curve Fit	ISTD	Weight	Min Conc	Units	003calb.d# Level 1	004cals.d# Level 2	005cals.d# Level 3	006cals.d# Level 4	007cals.d# Level 5	008cals.d# Level 6	009cals.d# Level 7	010cals.d# Level 8	— Level 9	— Level 10
1	2	7	Li	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
2	2	9	Be	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
3	2	10	B	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	5.000E-01	5.000	12.50	25.00	125.0	225.0	500.0	---	---
4	2	11	B	Y=aX+[blank]	45	OFF	0.000	ppb	0.000	5.000E-01	5.000	12.50	25.00	125.0	225.0	500.0	---	---
5	2	23	Na	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
6	2	24	Mg	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
7	2	25	Mg	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
8	2	27	Al	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
9	2	28	Si	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
10	2	29	Si	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
11	2	39	K	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
12	3	39	K	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
13	2	44	Ca	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
14	3	44	Ca	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
15	2	47	Ti	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
16	2	51	V	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
17	3	51	V	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
18	2	52	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
19	3	52	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
20	2	53	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
21	3	53	Cr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
22	2	55	Mn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
23	3	55	Mn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
24	2	56	Fe	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
25	3	56	Fe	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
26	2	57	Fe	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	20.00	200.0	500.0	1000	5000	9000	2.000E+04	---	---
27	2	59	Co	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
28	3	59	Co	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
29	2	60	Ni	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
30	3	60	Ni	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
31	2	62	Ni	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
32	2	63	Cu	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
33	3	63	Cu	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
34	2	65	Cu	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
35	2	66	Zn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
36	3	66	Zn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
37	2	68	Zn	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
38	2	75	As	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
39	3	75	As	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
40	2	76	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
41	2	77	(As)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
42	3	77	(As)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
43	2	78	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
44	3	78	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
45	2	82	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
46	3	82	Se	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
47	2	83	(As)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
48	3	83	(Se)	Y=aX+[blank]	89	OFF	0.000		0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
49	2	88	Sr	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
50	2	95	Mo	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
51	2	97	Mo	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
52	2	98	Mo	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
53	2	99	(Mo)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---

	Step	Mass	Element	Curve Fit	ISTD	Weight	Min Conc	Units	003calb.d# Level 1	004cals.d# Level 2	005cals.d# Level 3	006cals.d# Level 4	007cals.d# Level 5	008cals.d# Level 6	009cals.d# Level 7	010cals.d# Level 8	— Level 9	— Level 10
54	3	99	(Mo)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
55	2	106	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
56	3	106	Cd	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
57	2	107	Ag	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
58	3	107	Ag	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
59	2	108	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
60	3	108	(Cd)	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
61	2	109	Ag	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
62	2	111	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
63	3	111	Cd	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
64	2	114	Cd	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
65	2	118	Sn	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
66	2	119	Sn	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
67	2	120	Sn	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
68	2	121	Sb	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
69	3	121	Sb	Y=aX+[blank]	89	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
70	2	123	Sb	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
71	2	135	Ba	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
72	2	137	Ba	Y=aX+[blank]	115	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
73	2	197	Au	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
74	2	203	Tl	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
75	2	205	Tl	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
76	2	206	Pb	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
77	2	207	Pb	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
78	2	208	Pb	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---
79	2	238	U	Y=aX+[blank]	209	OFF	0.000	ppb	0.000	2.000E-01	2.000	5.000	10.00	50.00	90.00	200.0	---	---

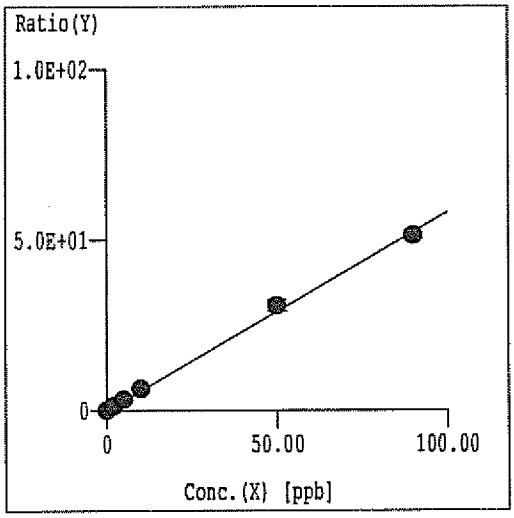
=== ISTD Table ===

Fix ISTD Conc: ON

	Step	Mass	Element	VIS	Units	All Levels
1	2	6	Li		ppb	100.0
2	2	45	Sc		ppb	100.0
3	2	72	Ge		ppb	1.010E+04
4	3	72	Ge		ppb	1.010E+04
5	2	89	Y		ppb	100.0
6	3	89	Y		ppb	100.0
7	2	115	In		ppb	100.0
8	2	209	Bi		ppb	100.0

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	9 Be	45	ppb



	Rct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	88.52	1.244E-02	P	70.71
2		2.000E-01	2.170E-01	980.4	1.387E-01	P	14.35
3		2.000	2.163	9105	1.271E+00	P	7.914E-01
4		5.000	5.505	2.291E+04	3.215E+00	P	2.314
5		10.00	10.91	4.479E+04	6.360E+00	P	7.814E-01
6		50.00	52.92	2.212E+05	3.080E+01	P	5.468
7		90.00	88.25	3.958E+05	5.135E+01	P	1.710
8	ON	200.0	---	8.758E+05	1.062E+02	A	1.757
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
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19		---	---	---	---		---
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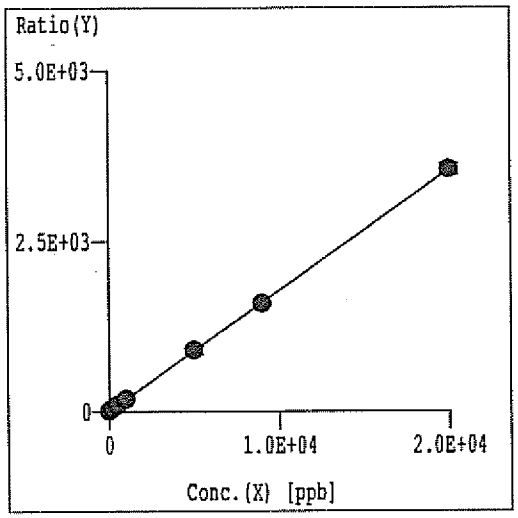
Curve Fit: Y=aX+[blank]
r = 0.9992
Y = 5.817E-001*X +1.244E-002
X = 1.719E+000*Y -2.138E-002
DL = 4.537E-02 ppb
BEC = 2.138E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	23 Na	89	ppb



	Rct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	7.328E+05	9.930E+00	A	44.27
2		20.00	20.65	9.821E+05	1.359E+01	A	36.10
3		200.0	195.2	3.287E+06	4.448E+01	A	6.859
4		500.0	491.0	7.113E+06	9.686E+01	A	1.739
5		1000	996.8	1.342E+07	1.864E+02	A	1.769
6		5000	5024	6.317E+07	8.994E+02	A	7.182
7		9000	8910	1.120E+08	1.587E+03	A	9.819E-01
8		2.000E+04	2.004E+04	2.395E+08	3.557E+03	A	2.373
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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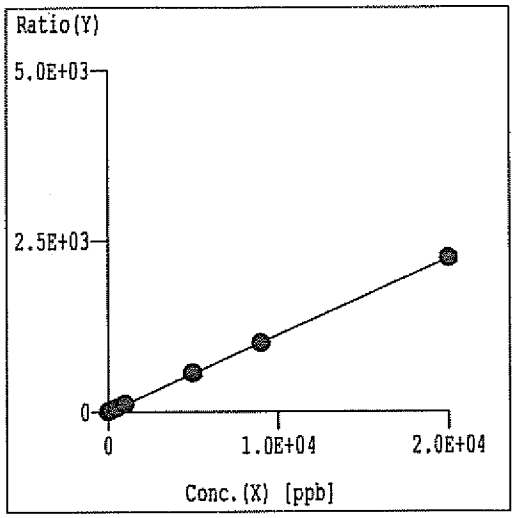
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.770E-001*X +9.930E+000
X = 5.648E+000*Y -5.609E+001
DL = 74.48 ppb
BEC = 56.09 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element (2) 24 Mg | ISTD 89 | Unit ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	8.091E+04	1.111E+00	P	82.98
2		20.00	20.34	2.454E+05	3.389E+00	P	32.97
3		200.0	204.7	1.776E+06	2.404E+01	A	2.645
4		500.0	503.1	4.220E+06	5.746E+01	A	1.399
5		1000	1007	8.196E+06	1.139E+02	A	1.757E-01
6		5000	5040	3.971E+07	5.656E+02	A	8.175
7		9000	8932	7.069E+07	1.002E+03	A	1.495
8		2.000E+04	2.002E+04	1.510E+08	2.243E+03	A	2.974
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
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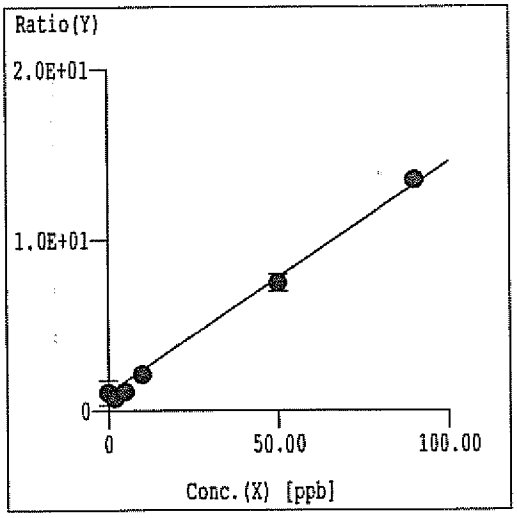
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.120E-001*X +1.111E+000
X = 8.928E+000*Y -9.920E+000
DL = 24.69 ppb
BEC = 9.920 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element (2) 27 Al | ISTD 89 | Unit ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	7.634E+04	1.043E+00	P	69.30
2	ON	2.000E-01	---	4.012E+04	5.601E-01	P	55.02
3		2.000	-2.488E+00	5.214E+04	7.063E-01	P	18.62
4		5.000	4.718E-01	8.129E+04	1.107E+00	P	9.078
5		10.00	7.900	1.520E+05	2.113E+00	P	6.163
6		50.00	47.54	5.254E+05	7.481E+00	P	6.756
7		90.00	91.95	9.526E+05	1.350E+01	A	8.585E-01
8	ON	200.0	---	1.946E+06	2.890E+01	A	2.269
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
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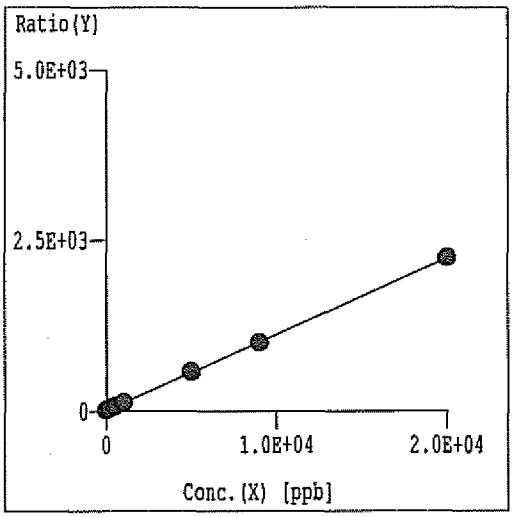
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9987
Y = 1.354E-001*X +1.043E+000
X = 7.384E+000*Y -7.703E+000
DL = 16.01 ppb
BEC = 7.703 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	39	K	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1.446E+06	1.935E+01	A	7.053
2		20.00	21.76	1.594E+06	2.177E+01	A	9.771
3		200.0	193.3	3.020E+06	4.086E+01	A	1.034
4		500.0	489.4	5.420E+06	7.380E+01	A	1.513
5		1000	990.5	9.327E+06	1.295E+02	A	8.232E-01
6		5000	5041	4.075E+07	5.802E+02	A	7.305
7		9000	8894	7.121E+07	1.009E+03	A	1.756
8		2.000E+04	2.004E+04	1.514E+08	2.249E+03	A	1.654
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
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19		---	---	---	---		---
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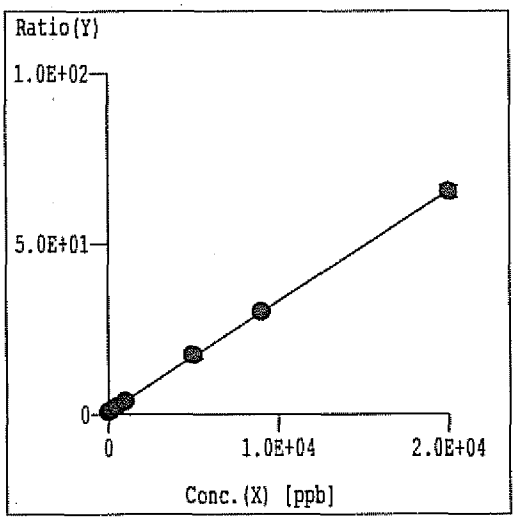
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.113E-001*X +1.935E+001
X = 8.988E+000*Y -1.739E+002
DL = 36.80 ppb
BEC = 173.9 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	44	Ca	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	5.803E+04	7.775E-01	P	11.35
2		20.00	18.59	6.123E+04	8.377E-01	P	13.55
3		200.0	184.1	1.015E+05	1.374E+00	P	3.837
4		500.0	471.7	1.693E+05	2.305E+00	P	5.968E-01
5		1000	973.7	2.829E+05	3.930E+00	P	9.146E-01
6		5000	5158	1.228E+06	1.748E+01	A	7.196
7		9000	9062	2.126E+06	3.012E+01	A	1.936
8		2.000E+04	1.994E+04	4.398E+06	6.533E+01	A	2.804
9		---	---	---	---		---
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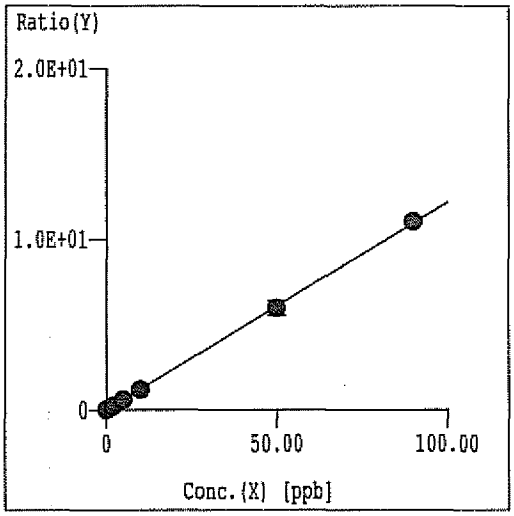
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 3.238E-003*X +7.775E-001
X = 3.088E+002*Y -2.401E+002
DL = 81.73 ppb
BEC = 240.1 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element (2) 51 V — ISTD 89 — Unit ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	1235	1.738E-02	P	151.6
2		2.000E-01	-1.112E-01	316.1	3.848E-03	P	257.6
3		2.000	1.715	1.671E+04	2.261E-01	P	10.99
4		5.000	4.795	4.414E+04	6.009E-01	P	4.333
5		10.00	9.524	8.470E+04	1.176E+00	P	2.650
6		50.00	48.93	4.194E+05	5.971E+00	P	6.951
7		90.00	90.67	7.800E+05	1.105E+01	A	1.178
8	ON	200.0	---	1.651E+06	2.452E+01	A	3.073
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
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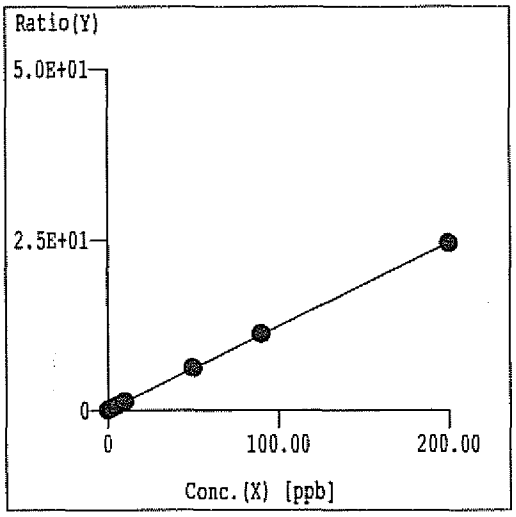
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.217E-001*X +1.738E-002
X = 8.218E+000*Y -1.428E-001
DL = 6.496E-01 ppb
BEC = 1.428E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element (3) 52 Cr — ISTD 89 — Unit ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	563.4	3.604E-02	P	7.357
2		2.000E-01	2.089E-01	982.3	6.172E-02	P	6.051
3		2.000	1.999	4468	2.817E-01	P	2.706
4		5.000	5.090	1.038E+04	6.617E-01	P	3.186
5		10.00	10.18	2.015E+04	1.287E+00	P	8.046E-01
6		50.00	50.58	9.690E+04	6.253E+00	P	5.007E-01
7		90.00	91.18	1.703E+05	1.124E+01	P	4.518E-01
8		200.0	199.3	3.685E+05	2.454E+01	P	5.672E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
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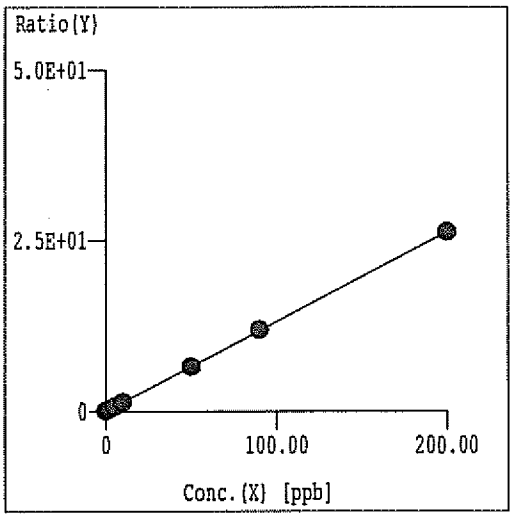
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.229E-001*X +3.604E-002
X = 8.136E+000*Y -2.932E-001
DL = 6.471E-02 ppb
BEC = 2.932E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	55 Mn	89	ppb



	R|ct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	3855	5.188E-02	P	24.37
2		2.000E-01	1.771E-01	5467	7.507E-02	P	21.21
3		2.000	1.965	2.286E+04	3.093E-01	P	2.668
4		5.000	4.894	5.087E+04	6.927E-01	P	1.063
5		10.00	9.796	9.609E+04	1.335E+00	P	7.503E-01
6		50.00	49.50	4.588E+05	6.534E+00	P	7.862
7		90.00	90.69	8.419E+05	1.193E+01	A	1.390
8		200.0	199.8	1.766E+06	2.622E+01	A	1.595
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
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18		---	---	---	---		---
19		---	---	---	---		---
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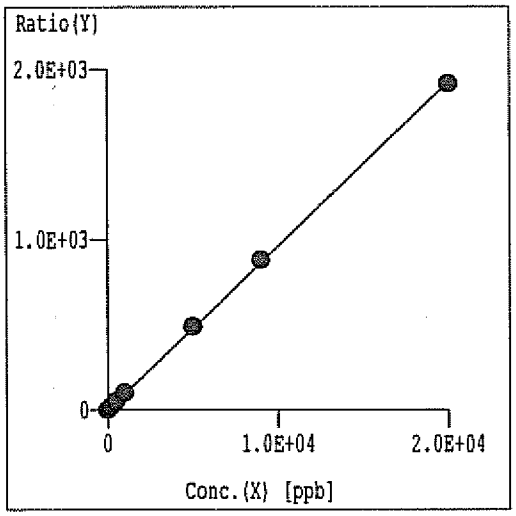
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.310E-001*X +5.188E-002
X = 7.636E+000*Y -3.962E-001
DL = 2.896E-01 ppb
BEC = 3.962E-01 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(3)	56 Fe	89	ppb



	R|ct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	4267	2.733E-01	P	9.769
2		20.00	21.31	3.696E+04	2.322E+00	P	2.299
3		200.0	210.2	3.248E+05	2.048E+01	P	9.006E-01
4		500.0	536.6	8.139E+05	5.185E+01	A	6.040E-01
5		1000	1058	1.597E+06	1.020E+02	A	9.177E-01
6		5000	5093	7.592E+06	4.899E+02	A	6.400E-01
7		9000	9152	1.333E+07	8.800E+02	A	7.290E-01
8		2.000E+04	1.990E+04	2.874E+07	1.914E+03	A	8.182E-01
9		---	---	---	---		---
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11		---	---	---	---		---
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18		---	---	---	---		---
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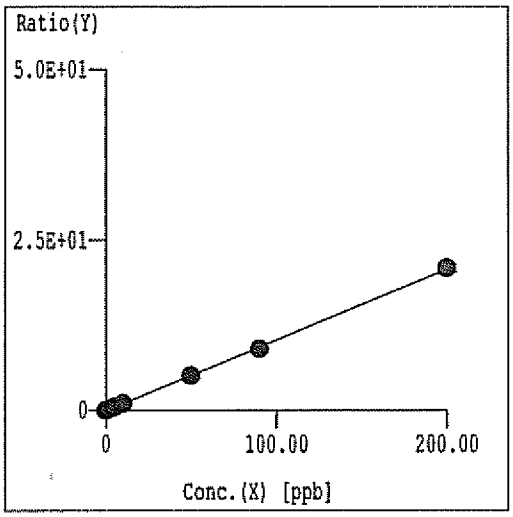
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.613E-002*X +2.733E-001
X = 1.040E+001*Y -2.843E+000
DL = 8.333E-01 ppb
BEC = 2.843 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass Element	ISTD	Unit
(2)	59 Co	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	298.9	4.041E-03	P	38.95
2		2.000E-01	1.911E-01	1740	2.381E-02	P	14.12
3		2.000	1.944	1.517E+04	2.052E-01	P	8.199E-01
4		5.000	4.969	3.804E+04	5.180E-01	P	2.128
5		10.00	9.869	7.379E+04	1.025E+00	P	1.418
6		50.00	49.38	3.589E+05	5.112E+00	P	7.817
7		90.00	87.12	6.363E+05	9.015E+00	P	1.848
8		200.0	201.5	1.403E+06	2.084E+01	A	2.755
9		---	---	---	---		---
10		---	---	---	---		---
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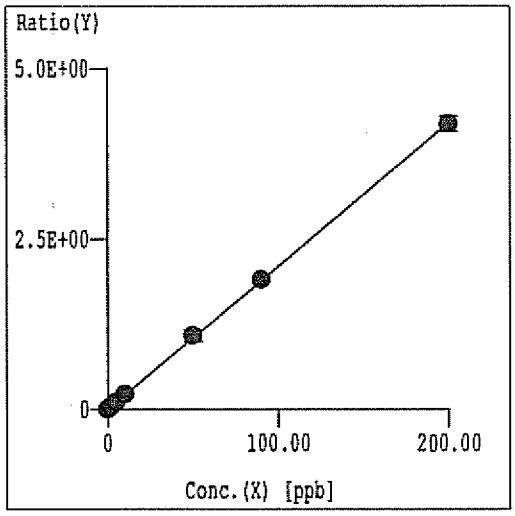
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.034E-001*X +4.041E-003
X = 9.668E+000*Y -3.907E-002
DL = 4.565E-02 ppb
BEC = 3.907E-02 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass Element	ISTD	Unit
(2)	60 Ni	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	331.9	4.454E-03	P	17.75
2		2.000E-01	1.162E-01	503.3	6.894E-03	P	15.80
3		2.000	1.955	3362	4.548E-02	P	1.082
4		5.000	5.087	8168	1.112E-01	P	1.781
5		10.00	10.52	1.622E+04	2.253E-01	P	6.804E-01
6		50.00	51.50	7.621E+04	1.085E+00	P	7.704
7		90.00	90.62	1.345E+05	1.906E+00	P	1.316
8		200.0	199.3	2.819E+05	4.187E+00	P	2.670
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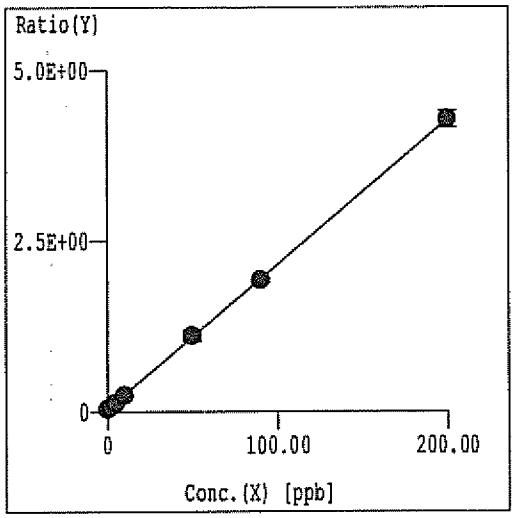
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 2.099E-002*X +4.454E-003
X = 4.765E+001*Y -2.122E-001
DL = 1.130E-01 ppb
BEC = 2.122E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step	Mass	Element	ISTD	Unit
(2)	65	Cu	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	2801	3.773E-02	P	26.87
2	ON	2.000E-01	---	2438	3.359E-02	P	27.48
3		2.000	1.391	4966	6.721E-02	P	6.842
4		5.000	4.262	9407	1.281E-01	P	1.809
5		10.00	9.570	1.732E+04	2.406E-01	P	2.304
6		50.00	50.70	7.814E+04	1.113E+00	P	7.183
7		90.00	89.15	1.361E+05	1.928E+00	P	1.581
8		200.0	200.3	2.884E+05	4.283E+00	P	2.749
9		---	---	---	---		---
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18		---	---	---	---		---
19		---	---	---	---		---
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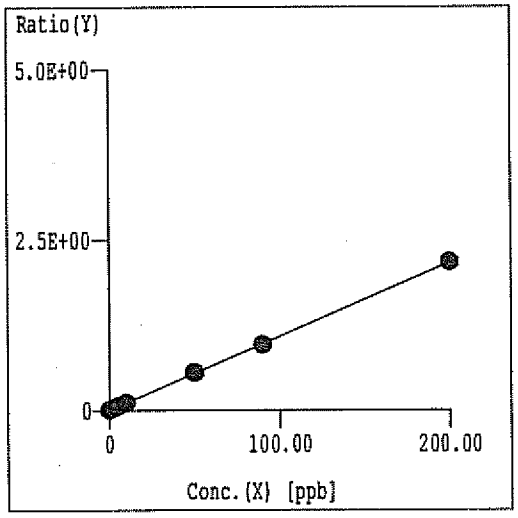
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 2.120E-002*X +3.773E-002
X = 4.717E+001*Y -1.780E+000
DL = 1.435 ppb
BEC = 1.780 ppb

Weight: OFF
Min Conc: 0.000

Step	Mass	Element	ISTD	Unit
(2)	66	Zn	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	443.4	5.956E-03	P	19.56
2	ON	2.000E-01	---	614.5	8.428E-03	P	20.40
3		2.000	2.111	2127	2.878E-02	P	2.527
4		5.000	5.013	4419	6.017E-02	P	1.385
5		10.00	9.800	8059	1.119E-01	P	1.925
6		50.00	50.82	3.900E+04	5.555E-01	P	7.849
7		90.00	88.55	6.800E+04	9.635E-01	P	9.298E-01
8		200.0	200.5	1.463E+05	2.174E+00	P	2.739
9		---	---	---	---		---
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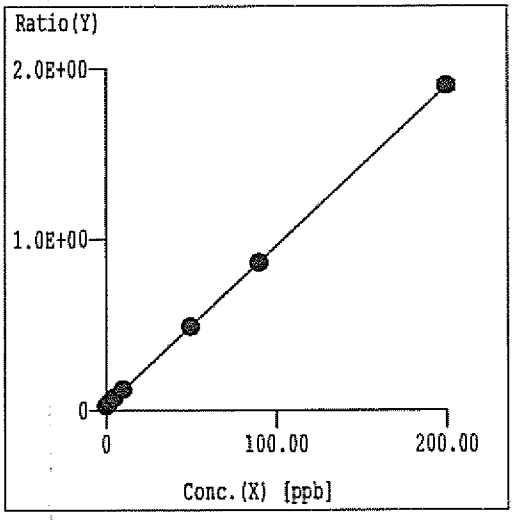
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.081E-002*X +5.956E-003
X = 9.248E+001*Y -5.508E-001
DL = 3.231E-01 ppb
BEC = 5.508E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 75 As	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	398.2	2.541E-02	P	4.760
2	ON	2.000E-01	---	449.7	2.824E-02	P	5.656
3		2.000	2.137	720.1	4.540E-02	P	3.927
4		5.000	5.184	1160	7.391E-02	P	1.018
5		10.00	10.16	1887	1.205E-01	P	2.060
6		50.00	49.70	7600	4.905E-01	P	2.430
7		90.00	89.52	1.307E+04	8.632E-01	P	1.452
8		200.0	200.3	2.853E+04	1.900E+00	P	1.494
9		---	---	---	---		---
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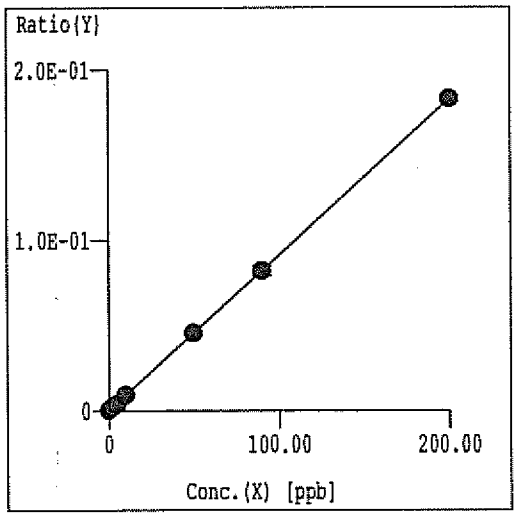
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.358E-003*X +2.541E-002
X = 1.069E+002*Y -2.715E+000
DL = 3.877E-01 ppb
BEC = 2.715 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(3) 78 Se	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	3.704	2.435E-04	P	54.75
2		2.000E-01	3.214E-01	8.519	5.368E-04	P	29.03
3		2.000	1.908	31.48	1.985E-03	P	5.135
4		5.000	4.076	62.22	3.963E-03	P	11.42
5		10.00	9.972	146.3	9.343E-03	P	4.665
6		50.00	49.82	708.2	4.571E-02	P	2.871
7		90.00	89.83	1245	8.222E-02	P	3.442
8		200.0	200.1	2747	1.829E-01	P	1.067
9		---	---	---	---		---
10		---	---	---	---		---
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19		---	---	---	---		---
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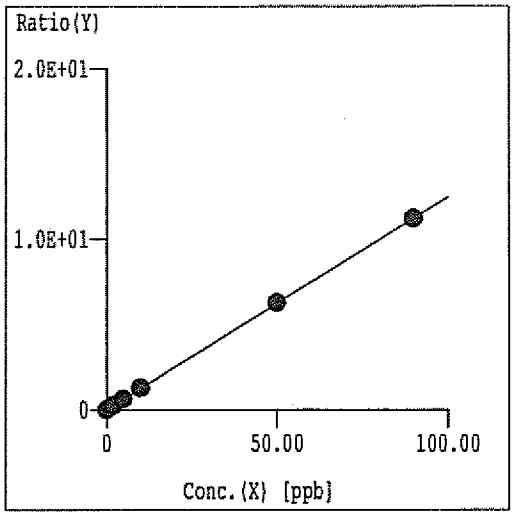
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 9.126E-004*X +2.435E-004
X = 1.096E+003*Y -2.668E-001
DL = 4.383E-01 ppb
BEC = 2.668E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 107 Ag	89	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	121.9	7.833E-03	P	19.47
2		2.000E-01	2.055E-01	532.2	3.344E-02	P	8.217
3		2.000	2.052	4179	2.636E-01	P	2.410
4		5.000	5.147	1.019E+04	6.494E-01	P	1.746
5		10.00	10.24	2.011E+04	1.284E+00	P	6.125E-01
6		50.00	50.19	9.705E+04	6.263E+00	P	5.869E-01
7		90.00	89.86	1.697E+05	1.121E+01	P	5.661E-01
8	ON	200.0	---	3.580E+05	2.384E+01	P	3.652E-01
9		---	---	---	---		---
10		---	---	---	---		---
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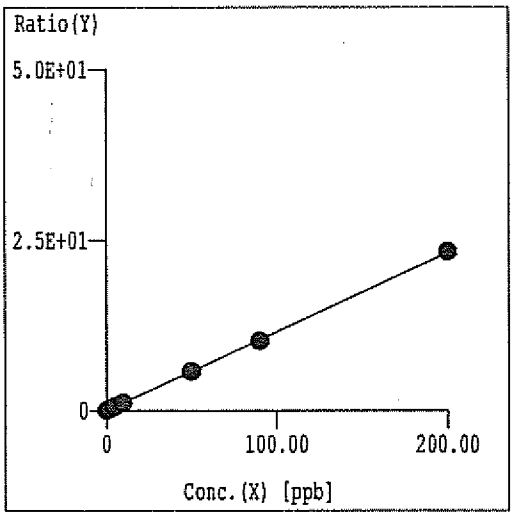
Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.246E-001*X +7.833E-003
X = 8.024E+000*Y -6.285E-002
DL = 3.670E-02 ppb
BEC = 6.285E-02 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 111 Cd	115	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	-7.747E+00	-1.257E-03	P	-3.747E+01
2		2.000E-01	2.118E-01	139.0	2.335E-02	P	14.32
3		2.000	2.017	1397	2.332E-01	P	5.207
4		5.000	4.863	3353	5.638E-01	P	3.306
5		10.00	9.812	6666	1.139E+00	P	8.346E-01
6		50.00	49.56	3.270E+04	5.758E+00	P	6.427
7		90.00	88.08	5.770E+04	1.023E+01	P	2.835
8		200.0	201.0	1.238E+05	2.335E+01	P	1.703
9		---	---	---	---		---
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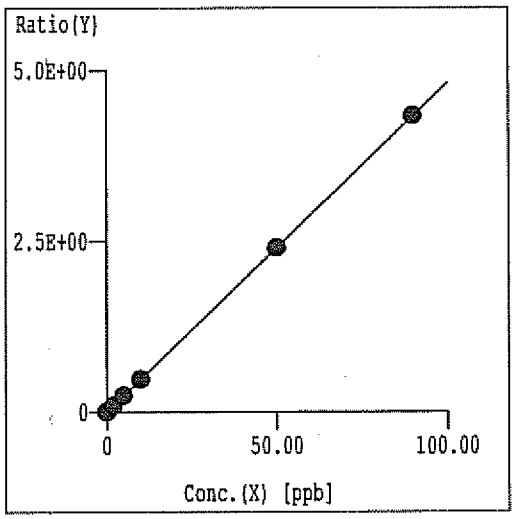
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.162E-001*X -1.257E-003
X = 8.606E+000*Y +1.082E-002
DL = 1.216E-02 ppb
BEC = -1.082E-02 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 121 Sb	89	ppb

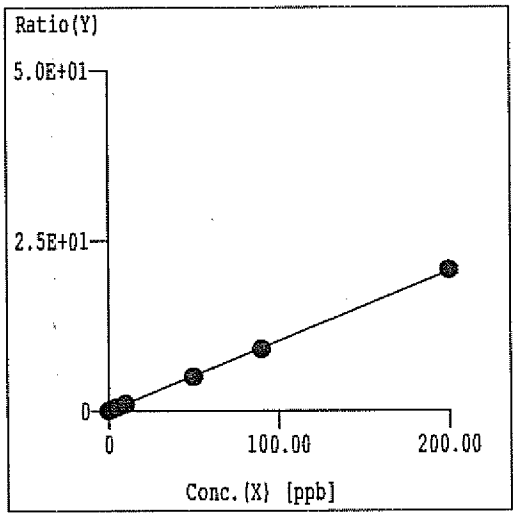


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	18.52	1.199E-03	P	37.06
2		2.000E-01	2.014E-01	173.3	1.090E-02	P	8.976
3		2.000	1.926	1489	9.392E-02	P	1.006
4		5.000	5.028	3818	2.433E-01	P	1.893
5		10.00	9.958	7527	4.807E-01	P	1.956
6		50.00	49.93	3.727E+04	2.405E+00	P	6.794E-01
7		90.00	90.05	6.569E+04	4.337E+00	P	2.964E-01
8	ON	200.0	---	1.448E+05	9.645E+00	P	5.927E-01
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 4.815E-002*X +1.199E-003
X = 2.077E+001*Y -2.489E-002
DL = 2.767E-02 ppb
BEC = 2.489E-02 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 135 Ba	115	ppb



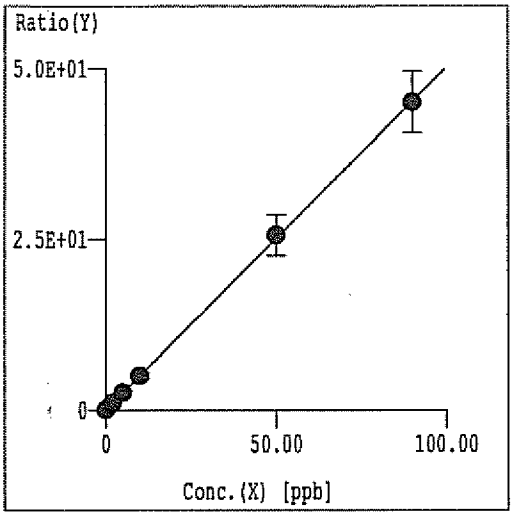
	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	115.6	1.910E-02	P	44.86
2		2.000E-01	1.058E-01	177.8	2.993E-02	P	27.00
3		2.000	1.906	1283	2.142E-01	P	1.836
4		5.000	4.703	2977	5.006E-01	P	6.769E-01
5		10.00	9.569	5846	9.987E-01	P	2.380
6		50.00	48.09	2.809E+04	4.942E+00	P	3.899
7		90.00	87.91	5.085E+04	9.019E+00	P	8.596E-01
8		200.0	201.5	1.094E+05	2.064E+01	P	2.419
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 1.024E-001*X +1.910E-002
X = 9.768E+000*Y -1.866E-001
DL = 2.511E-01 ppb
BEC = 1.866E-01 ppb

Weight: OFF
Min Conc: 0.000

=== Graph Detail ===

Step Mass Element	ISTD	Unit
(2) 203 Tl	209	ppb

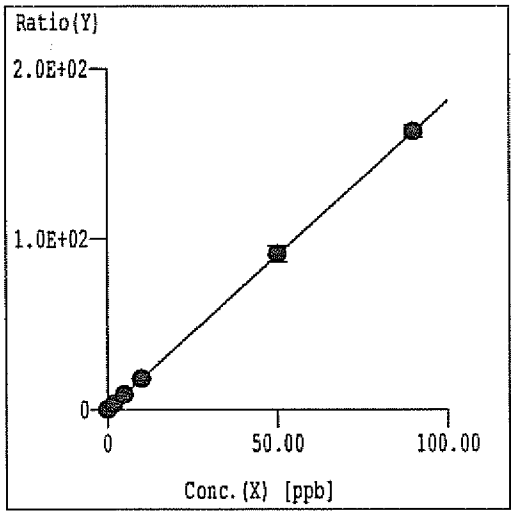


	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	366.7	6.978E-02	P	42.47
2		2.000E-01	1.842E-01	851.2	1.623E-01	P	19.91
3		2.000	2.001	5700	1.076E+00	P	1.888
4		5.000	5.009	1.361E+04	2.587E+00	P	9.453
5		10.00	9.886	2.611E+04	5.039E+00	P	7.592
6		50.00	50.79	1.285E+05	2.560E+01	P	11.67
7		90.00	89.57	2.239E+05	4.509E+01	P	9.941
8	ON	200.0	---	5.059E+05	1.091E+02	P	2.889
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 0.9999
Y = 5.026E-001*X +6.978E-002
X = 1.989E+000*Y -1.388E-001
DL = 1.769E-01 ppb
BEC = 1.388E-01 ppb

Weight: OFF
Min Conc: 0.000

Step Mass Element	ISTD	Unit
(2) 208 Pb	209	ppb



	Rjct	Conc	Calc Conc	CPS/Count	Ratio		RSD [%]
1		0.000	0.000	645.6	1.227E-01	P	38.13
2		2.000E-01	1.824E-01	2382	4.527E-01	P	12.17
3		2.000	1.961	1.945E+04	3.672E+00	P	1.870
4		5.000	4.883	4.713E+04	8.958E+00	P	3.158
5		10.00	9.959	9.396E+04	1.814E+01	P	2.205
6		50.00	50.18	4.564E+05	9.092E+01	P	5.252
7		90.00	89.91	8.083E+05	1.628E+02	P	2.238
8	ON	200.0	---	1.754E+06	3.786E+02	A	1.394
9		---	---	---	---		---
10		---	---	---	---		---
11		---	---	---	---		---
12		---	---	---	---		---
13		---	---	---	---		---
14		---	---	---	---		---
15		---	---	---	---		---
16		---	---	---	---		---
17		---	---	---	---		---
18		---	---	---	---		---
19		---	---	---	---		---
20		---	---	---	---		---

Curve Fit: Y=aX+[blank]
r = 1.0000
Y = 1.809E+000*X +1.227E-001
X = 5.527E-001*Y -6.780E-002
DL = 7.755E-02 ppb
BEC = 6.780E-02 ppb

Weight: OFF
Min Conc: 0.000

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#
Date Acquired: Sep 21 2016 10:17 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 1
Misc Info:
Vial Number: II01
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 03:33 am
Sample Type: CalBlk

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1,439,853.40	1.80
7	Li	45	2	11.49	1.59
9	Be	45	2	0.01	70.71
11	B	45	2	1.10	10.90
23	Na	89	2	9.93	44.27
24	Mg	89	2	1.11	82.98
27	Al	89	2	1.04	69.30
28	Si	89	2	2.24	12.24
29	Si	89	2	3.11	4.10
39	K	89	2	19.35	7.05
44	Ca	89	2	0.78	11.35
45	Sc	---	2	724,790.81	4.05
45	Sc	---	3	48,436.03	9.01
47	Ti	89	2	0.00	22.20
51	V	89	2	0.02	151.63
51	V	89	3	-0.01	112.20
52	Cr	89	2	0.15	4.05
52	Cr	89	3	0.04	7.36
55	Mn	89	2	0.05	24.36
55	Mn	89	3	0.01	25.05
56	Fe	89	2	3.83	10.45
56	Fe	89	3	0.27	9.77
59	Co	89	2	0.00	38.95
59	Co	89	3	0.00	19.21
60	Ni	89	2	0.00	17.75
62	Ni	89	2	0.01	8.04
63	Cu	89	2	0.08	24.16
63	Cu	89	3	0.11	8.34
65	Cu	89	2	0.04	26.88
66	Zn	89	2	0.01	19.56
66	Zn	89	3	0.01	19.93
68	Zn	89	2	0.01	22.80
72	Ge	---	2	642.99	2.60
72	Ge	---	3	8.89	25.00
75	As	89	2	0.00	130.65
75	As	89	3	0.03	4.76
78	Se	89	2	0.01	8.79
78	Se	89	3	0.00	54.74
82	Se	89	2	0.00	35.19
82	Se	89	3	0.01	9.29
88	Sr	89	2	0.02	72.42
89	Y	---	2	7,492,231.00	5.13
89	Y	---	3	1,569,659.80	8.50
95	Mo	89	2	0.00	35.24
97	Mo	89	2	0.00	30.13
98	Mo	89	2	0.00	27.72
106	Cd	115	2	1.91	2.75
107	Ag	115	2	0.05	21.27
107	Ag	89	3	0.01	19.47
108	(Cd)	115	2	0.00	25.41
109	Ag	115	2	0.04	42.27
111	Cd	115	2	0.00	37.47
111	Cd	89	3	0.00	96.21
113	In	---	2	26,481.02	5.44
114	Cd	115	2	0.01	45.92
115	In	---	2	611,544.30	3.60
115	In	---	3	154,766.00	8.91
118	Sn	115	2	0.08	7.92
118	Sn	---	3	137.41	12.69
119	Sn	115	2	0.03	12.64
121	Sb	115	2	0.02	53.94
121	Sb	89	3	0.00	37.05
123	Sb	115	2	0.01	33.78
135	Ba	115	2	0.02	44.86
137	Ba	115	2	0.03	48.86
159	Tb	---	2	892,907.69	4.65
203	Tl	209	2	0.07	42.48
205	Tl	209	2	0.17	44.38
206	Pb	209	2	0.03	48.55
207	Pb	209	2	0.02	37.37
208	Pb	209	2	0.12	38.13
209	Bi	---	2	533,014.88	4.99
238	U	209	2	0.06	65.36

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\004CALS.D\004CALS.D#
Date Acquired: Sep 21 2016 10:23 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 2
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 10:21 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1432782.60	5.23
7	Li	45	2	12.17	3.82
9	Be	45	2	0.14	14.36
11	B	45	2	1.30	13.66
23	Na	89	2	13.59	36.10
24	Mg	89	2	3.39	32.96
27	Al	89	2	0.56	55.02
28	Si	89	2	3.67	10.61
29	Si	89	2	3.21	6.23
39	K	89	2	21.77	9.77
44	Ca	89	2	0.84	13.55
45	Sc	---	2	712035.69	7.65
45	Sc	---	3	49035.81	2.34
47	Ti	89	2	0.00	18.13
51	V	89	2	0.00	257.57
51	V	89	3	0.01	103.10
52	Cr	89	2	0.17	7.15
52	Cr	89	3	0.06	6.05
55	Mn	89	2	0.08	21.21
55	Mn	89	3	0.02	5.45
56	Fe	89	2	6.07	10.33
56	Fe	89	3	2.32	2.30
59	Co	89	2	0.02	14.12
59	Co	89	3	0.04	7.85
60	Ni	89	2	0.01	15.80
62	Ni	89	2	0.01	4.86
63	Cu	89	2	0.07	28.53
63	Cu	89	3	0.10	3.61
65	Cu	89	2	0.03	27.48
66	Zn	89	2	0.01	20.40
66	Zn	89	3	0.01	26.22
68	Zn	89	2	0.01	24.23
72	Ge	---	2	691.51	2.31
72	Ge	---	3	12.96	4.95
75	As	89	2	0.01	86.78
75	As	89	3	0.03	5.66
78	Se	89	3	0.00	29.03
82	Se	89	2	0.00	13.20
82	Se	89	3	0.01	2.76
88	Sr	89	2	0.04	38.35
89	Y	---	2	7357783.00	7.29
89	Y	---	3	1592294.40	1.74
95	Mo	89	2	0.01	20.36
97	Mo	89	2	0.01	8.74
98	Mo	89	2	0.01	22.44
106	Cd	115	2	1.91	1.55
107	Ag	115	2	0.17	6.55
107	Ag	89	3	0.03	8.22
108	(Cd)	115	2	0.00	35.54
109	Ag	115	2	0.14	14.67
111	Cd	115	2	0.02	14.32
111	Cd	89	3	0.00	13.19
113	In	---	2	26108.77	6.87
114	Cd	115	2	0.07	14.10
115	In	---	2	599018.94	7.57
115	In	---	3	156773.30	2.11
118	Sn	115	2	0.13	11.17
118	Sn	---	3	246.67	7.82
119	Sn	115	2	0.06	9.58
121	Sb	115	2	0.11	13.55
121	Sb	89	3	0.01	8.98
123	Sb	115	2	0.08	12.00
135	Ba	115	2	0.03	27.00
137	Ba	115	2	0.06	22.44
159	Tb	---	2	872812.13	8.56
203	Tl	209	2	0.16	19.91
205	Tl	209	2	0.41	17.86
206	Pb	209	2	0.12	20.42
207	Pb	209	2	0.10	8.41
208	Pb	209	2	0.45	12.17
209	Bi	---	2	529392.38	7.39
238	U	209	2	0.49	11.38

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	712036	7.65	724791	98.2	83 - 117	
89	Y	2	7357783	7.29	7492231	98.2	83 - 117	
89	Y	3	1592294	1.74	1569660	101.4	83 - 117	
115	In	2	599019	7.57	611544	98.0	83 - 117	
209	Bi	2	529392	7.39	533015	99.3	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\noqas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\005CALS.D\005CALS.D#
Date Acquired: Sep 21 2016 10:28 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 3
Misc Info:
Vial Number: 1103
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 10:26 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1451041.30	0.39
7	Li	45	2	17.24	0.85
9	Be	45	2	1.27	0.79
11	B	45	2	3.26	1.71
23	Na	89	2	44.48	6.86
24	Mg	89	2	24.08	2.64
27	Al	89	2	0.71	18.62
28	Si	89	2	16.90	0.24
29	Si	89	2	3.79	0.23
39	K	89	2	40.86	1.03
44	Ca	89	2	1.37	3.84
45	Sc	---	2	716402.56	0.88
45	Sc	---	3	49131.25	1.13
47	Ti	89	2	0.02	7.45
51	V	89	2	0.23	10.99
51	V	89	3	0.19	3.31
52	Cr	89	2	0.35	0.70
52	Cr	89	3	0.28	2.71
55	Mn	89	2	0.31	2.67
55	Mn	89	3	0.15	7.18
56	Fe	89	2	25.57	0.32
56	Fe	89	3	20.48	0.90
59	Co	89	2	0.21	0.82
59	Co	89	3	0.34	0.42
60	Ni	89	2	0.05	1.08
62	Ni	89	2	0.01	5.59
63	Cu	89	2	0.14	11.60
63	Cu	89	3	0.28	0.46
65	Cu	89	2	0.07	6.84
66	Zn	89	2	0.03	2.53
66	Zn	89	3	0.04	6.23
68	Zn	89	2	0.02	5.49
72	Ge	---	2	732.99	1.46
72	Ge	---	3	27.98	27.71
75	As	89	2	0.03	11.61
75	As	89	3	0.05	3.93
78	Se	89	3	0.00	5.13
82	Se	89	2	0.00	16.73
82	Se	89	3	0.01	5.64
88	Sr	89	2	0.23	3.40
89	Y	---	2	7391726.00	1.03
89	Y	---	3	1585830.30	0.66
95	Mo	89	2	0.04	3.26
97	Mo	89	2	0.03	1.79
98	Mo	89	2	0.06	0.79
106	Cd	115	2	1.88	1.67
107	Ag	115	2	1.21	1.79
107	Ag	89	3	0.26	2.41
108	(Cd)	115	2	0.02	2.54
109	Ag	115	2	1.18	1.22
111	Cd	115	2	0.23	5.21
111	Cd	89	3	0.04	7.84
113	In	---	2	27616.23	1.49
114	Cd	115	2	0.60	2.37
115	In	---	2	599063.88	0.87
115	In	---	3	156129.86	0.54
118	Sn	115	2	0.78	0.65
118	Sn	---	3	1456.40	3.86
119	Sn	115	2	0.30	1.84
121	Sb	115	2	0.88	1.00
121	Sb	89	3	0.09	1.01
123	Sb	115	2	0.69	3.20
135	Ba	115	2	0.21	1.84
137	Ba	115	2	0.35	5.13
159	Tb	---	2	880258.81	1.57
203	Tl	209	2	1.08	1.89
205	Tl	209	2	2.98	3.26
206	Pb	209	2	0.98	1.35
207	Pb	209	2	0.77	3.13
208	Pb	209	2	3.67	1.87
209	Bi	---	2	529864.88	0.96
238	U	209	2	4.23	0.74

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	716403	0.88	724791	98.8	83 - 117	
89	Y	2	7391726	1.03	7492231	98.7	83 - 117	
89	Y	3	1585830	0.66	1569660	101.0	83 - 117	
115	In	2	599064	0.87	611544	98.0	83 - 117	
209	Bi	2	529865	0.96	533015	99.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\006CALS.D\006CALS.D#
Date Acquired: Sep 21 2016 10:35 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 4
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 10:34 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1449440.30	0.64
7	Li	45	2	25.90	0.64
9	Be	45	2	3.21	2.31
11	B	45	2	6.71	2.37
23	Na	89	2	96.86	1.74
24	Mg	89	2	57.46	1.40
27	Al	89	2	1.11	9.08
28	Si	89	2	37.72	1.12
29	Si	89	2	4.92	0.90
39	K	89	2	73.80	1.51
44	Ca	89	2	2.30	0.60
45	Sc	---	2	712584.75	0.38
45	Sc	---	3	48593.84	1.30
47	Ti	89	2	0.05	5.87
51	V	89	2	0.60	4.33
51	V	89	3	0.48	6.02
52	Cr	89	2	0.66	2.47
52	Cr	89	3	0.66	3.19
55	Mn	89	2	0.69	1.06
55	Mn	89	3	0.37	2.36
56	Fe	89	2	56.53	1.33
56	Fe	89	3	51.85	0.60
59	Co	89	2	0.52	2.13
59	Co	89	3	0.84	0.31
60	Ni	89	2	0.11	1.78
62	Ni	89	2	0.02	4.68
63	Cu	89	2	0.28	1.54
63	Cu	89	3	0.59	0.67
65	Cu	89	2	0.13	1.81
66	Zn	89	2	0.06	1.39
66	Zn	89	3	0.08	4.75
68	Zn	89	2	0.05	3.97
72	Ge	---	2	872.26	2.21
72	Ge	---	3	59.26	17.01
75	As	89	2	0.06	5.78
75	As	89	3	0.07	1.02
78	Se	89	3	0.00	11.42
82	Se	89	2	0.01	7.92
82	Se	89	3	0.01	4.86
88	Sr	89	2	0.55	0.47
89	Y	---	2	7343731.50	0.36
89	Y	---	3	1569528.10	0.89
95	Mo	89	2	0.10	4.57
97	Mo	89	2	0.06	5.60
98	Mo	89	2	0.15	1.12
106	Cd	115	2	1.96	1.72
107	Ag	115	2	2.96	0.98
107	Ag	89	3	0.65	1.75
108	(Cd)	115	2	0.05	23.92
109	Ag	115	2	2.86	3.99
111	Cd	115	2	0.56	3.31
111	Cd	89	3	0.09	9.34
113	In	---	2	29564.55	1.35
114	Cd	115	2	1.50	1.55
115	In	---	2	594677.75	0.72
115	In	---	3	154781.61	0.26
118	Sn	115	2	1.88	2.61
118	Sn	---	3	3502.36	1.74
119	Sn	115	2	0.71	1.85
121	Sb	115	2	2.15	1.25
121	Sb	89	3	0.24	1.89
123	Sb	115	2	1.64	1.40
135	Ba	115	2	0.50	0.68
137	Ba	115	2	0.89	1.04
159	Tb	---	2	869090.38	1.93
203	Tl	209	2	2.59	9.45
205	Tl	209	2	6.15	8.92
206	Pb	209	2	2.26	4.06
207	Pb	209	2	1.93	3.02
208	Pb	209	2	8.96	3.16
209	Bi	---	2	526115.50	0.47
238	U	209	2	10.53	2.09

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	712585	0.38	724791	98.3	83 - 117	
89	Y	2	7343732	0.36	7492231	98.0	83 - 117	
89	Y	3	1569528	0.89	1569660	100.0	83 - 117	
115	In	2	594678	0.72	611544	97.2	83 - 117	
209	Bi	2	526116	0.47	533015	98.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\007CALS.D\007CALS.D#
Data Acquired: Sep 21 2016 10:40 am
Acq. Method: ICP 6020.M
Operator: zhughes, ICPMS2
Sample Name: Level 5
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 10:39 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1432873.10	0.41
7	Li	45	2	40.07	0.25
9	Be	45	2	6.36	0.78
11	B	45	2	12.58	2.55
23	Na	89	2	186.40	1.77
24	Mg	89	2	113.86	0.18
27	Al	89	2	2.11	6.16
28	Si	89	2	72.43	0.64
29	Si	89	2	6.81	0.23
39	K	89	2	129.55	0.82
44	Ca	89	2	3.93	0.91
45	Sc	---	2	704174.81	1.40
45	Sc	---	3	48652.12	0.57
47	Ti	89	2	0.10	1.15
51	V	89	2	1.18	2.65
51	V	89	3	0.95	0.13
52	Cr	89	2	1.18	0.60
52	Cr	89	3	1.29	0.80
55	Mn	89	2	1.33	0.75
55	Mn	89	3	0.70	2.60
56	Fe	89	2	109.30	0.74
56	Fe	89	3	101.96	0.92
59	Co	89	2	1.02	1.42
59	Co	89	3	1.69	0.30
60	Ni	89	2	0.23	0.68
62	Ni	89	2	0.04	2.06
63	Cu	89	2	0.52	2.59
63	Cu	89	3	1.12	1.91
65	Cu	89	2	0.24	2.30
66	Zn	89	2	0.11	1.92
66	Zn	89	3	0.15	2.65
68	Zn	89	2	0.08	1.19
72	Ge	---	2	1129.69	7.22
72	Ge	---	3	104.08	11.76
75	As	89	2	0.10	2.15
75	As	89	3	0.12	2.06
78	Se	89	3	0.01	4.67
82	Se	89	2	0.01	4.94
82	Se	89	3	0.01	5.75
88	Sr	89	2	1.07	0.17
89	Y	---	2	7198896.00	1.86
89	Y	---	3	1565923.40	0.43
95	Mo	89	2	0.19	0.98
97	Mo	89	2	0.12	0.80
98	Mo	89	2	0.31	1.72
106	Cd	115	2	2.00	0.89
107	Ag	115	2	5.91	1.23
107	Ag	89	3	1.28	0.61
108	(Cd)	115	2	0.09	9.07
109	Ag	115	2	5.68	1.40
111	Cd	115	2	1.14	0.83
111	Cd	89	3	0.17	1.44
113	In	---	2	32457.51	0.98
114	Cd	115	2	3.00	2.01
115	In	---	2	585275.06	1.67
115	In	---	3	154387.30	0.42
118	Sn	115	2	3.65	1.09
118	Sn	---	3	6797.01	1.47
119	Sn	115	2	1.46	2.32
121	Sb	115	2	4.29	0.18
121	Sb	89	3	0.48	1.96
123	Sb	115	2	3.27	1.17
135	Ba	115	2	1.00	2.38
137	Ba	115	2	1.76	0.64
159	Tb	---	2	858975.25	1.79
203	Tl	209	2	5.04	7.59
205	Tl	209	2	12.31	8.03
206	Pb	209	2	4.63	2.62
207	Pb	209	2	3.85	2.67
208	Pb	209	2	18.14	2.21
209	Bi	---	2	517834.06	1.12
238	U	209	2	21.17	2.43

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	704175	1.40	724791	97.2	83 - 117	
89	Y	2	7198896	1.86	7492231	96.1	83 - 117	
89	Y	3	1565923	0.43	1569660	99.8	83 - 117	
115	In	2	585275	1.67	611544	95.7	83 - 117	
209	Bi	2	517834	1.12	533015	97.2	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\008CALS.D\008CALS.D#
Date Acquired: Sep 21 2016 10:47 am
Acq. Method: ICP 6020.M
Operator: zhughes, ICPMS2
Sample Name: Level 6
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 10:45 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1455822.60	3.26
7	Li	45	2	154.50	4.84
9	Be	45	2	30.80	5.47
11	B	45	2	56.59	5.09
23	Na	89	2	899.45	7.18
24	Mg	89	2	565.65	8.17
27	Al	89	2	7.48	6.76
28	Si	89	2	352.76	7.92
29	Si	89	2	22.26	7.45
39	K	89	2	580.17	7.30
44	Ca	89	2	17.48	7.20
45	Sc	---	2	719323.94	4.45
45	Sc	---	3	48326.95	0.77
47	Ti	89	2	0.48	7.04
51	V	89	2	5.97	6.95
51	V	89	3	4.80	0.87
52	Cr	89	2	5.31	7.74
52	Cr	89	3	6.25	0.50
55	Mn	89	2	6.53	7.86
55	Mn	89	3	3.50	1.40
56	Fe	89	2	529.74	7.57
56	Fe	89	3	489.89	0.64
59	Co	89	2	5.11	7.82
59	Co	89	3	8.32	0.48
60	Ni	89	2	1.09	7.70
62	Ni	89	2	0.16	5.95
63	Cu	89	2	2.40	8.23
63	Cu	89	3	5.28	1.23
65	Cu	89	2	1.11	7.18
66	Zn	89	2	0.56	7.85
66	Zn	89	3	0.76	2.72
68	Zn	89	2	0.40	7.86
72	Ge	---	2	2376.90	1.38
72	Ge	---	3	475.94	3.30
75	As	89	2	0.49	8.76
75	As	89	3	0.49	2.43
78	Se	89	3	0.05	2.87
82	Se	89	2	0.04	8.15
82	Se	89	3	0.03	4.00
88	Sr	89	2	5.38	8.17
89	Y	---	2	7042608.00	6.24
89	Y	---	3	1549664.30	0.81
95	Mo	89	2	0.96	8.24
97	Mo	89	2	0.60	8.14
98	Mo	89	2	1.53	8.02
106	Cd	115	2	2.49	0.76
107	Ag	115	2	29.05	5.68
107	Ag	89	3	6.26	0.59
108	(Cd)	115	2	0.44	3.66
109	Ag	115	2	27.71	5.46
111	Cd	115	2	5.76	6.43
111	Cd	89	3	0.88	0.57
113	In	---	2	59262.18	2.12
114	Cd	115	2	14.96	5.70
115	In	---	2	568759.19	4.12
115	In	---	3	152074.08	0.57
118	Sn	115	2	18.18	5.83
118	Sn	---	3	32999.71	0.29
119	Sn	115	2	7.11	5.98
121	Sb	115	2	21.72	5.88
121	Sb	89	3	2.41	0.68
123	Sb	115	2	16.57	5.94
135	Ba	115	2	4.94	3.90
137	Ba	115	2	8.70	5.74
159	Tb	---	2	842604.38	6.63
203	Tl	209	2	25.60	11.67
205	Tl	209	2	61.10	11.16
206	Pb	209	2	23.25	5.77
207	Pb	209	2	19.39	5.13
208	Pb	209	2	90.92	5.25
209	Bi	---	2	502552.97	3.97
238	U	209	2	108.06	5.89

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	719324	4.45	724791	99.2	83 - 117	
89	Y	2	7042608	6.24	7492231	94.0	83 - 117	
89	Y	3	1549664	0.81	1569660	98.7	83 - 117	
115	In	2	568759	4.12	611544	93.0	83 - 117	
209	Bi	2	502553	3.97	533015	94.3	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\009CALS.D\009CALS.D#
Date Acquired: Sep 21 2016 10:52 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 7
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 10:50 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1519158.30	0.11
7	Li	45	2	246.55	1.43
9	Be	45	2	51.35	1.71
11	B	45	2	96.65	2.61
23	Na	89	2	1587.34	0.98
24	Mg	89	2	1001.50	1.49
27	Al	89	2	13.50	0.86
28	Si	89	2	618.89	1.53
29	Si	89	2	35.89	1.76
39	K	89	2	1008.85	1.76
44	Ca	89	2	30.12	1.94
45	Sc	---	2	770813.25	1.00
45	Sc	---	3	47477.32	0.83
47	Ti	89	2	0.85	1.44
51	V	89	2	11.05	1.18
51	V	89	3	8.75	0.99
52	Cr	89	2	9.28	1.30
52	Cr	89	3	11.24	0.45
55	Mn	89	2	11.53	1.39
55	Mn	89	3	6.38	0.36
56	Fe	89	2	940.72	2.03
56	Fe	89	3	880.04	0.73
59	Co	89	2	9.02	1.85
59	Co	89	3	14.93	0.48
60	Ni	89	2	1.91	1.32
62	Ni	89	2	0.28	1.00
63	Cu	89	2	4.19	0.64
63	Cu	89	3	9.43	0.34
65	Cu	89	2	1.93	1.58
66	Zn	89	2	0.96	0.93
66	Zn	89	3	1.32	1.18
68	Zn	89	2	0.68	2.12
72	Ge	---	2	3537.91	4.19
72	Ge	---	3	851.89	2.11
75	As	89	2	0.85	2.77
75	As	89	3	0.86	1.45
78	Se	89	3	0.08	3.44
82	Se	89	2	0.07	0.74
82	Se	89	3	0.05	6.25
88	Sr	89	2	9.47	2.31
89	Y	---	2	7057876.00	1.30
89	Y	---	3	1514546.00	0.32
95	Mo	89	2	1.70	2.77
97	Mo	89	2	1.06	2.29
98	Mo	89	2	2.74	2.08
106	Cd	115	2	3.00	1.54
107	Ag	115	2	51.68	1.98
107	Ag	89	3	11.21	0.57
108	(Cd)	115	2	0.77	1.50
109	Ag	115	2	49.27	1.96
111	Cd	115	2	10.23	2.83
111	Cd	89	3	1.60	0.90
113	In	---	2	86016.99	1.01
114	Cd	115	2	26.71	2.14
115	In	---	2	563788.81	0.78
115	In	---	3	147057.97	0.25
118	Sn	115	2	32.68	1.94
118	Sn	---	3	58153.51	0.43
119	Sn	115	2	12.75	2.67
121	Sb	115	2	39.09	1.93
121	Sb	89	3	4.34	0.30
123	Sb	115	2	29.82	2.31
135	Ba	115	2	9.02	0.86
137	Ba	115	2	15.66	2.64
159	Tb	---	2	850626.56	1.41
203	Tl	209	2	45.09	9.94
205	Tl	209	2	109.41	10.16
206	Pb	209	2	41.69	2.22
207	Pb	209	2	34.84	2.47
208	Pb	209	2	162.81	2.24
209	Bi	---	2	496443.00	0.60
238	U	209	2	207.05	3.00

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	770813	1.00	724791	106.3	83 - 117	
89	Y	2	7057876	1.30	7492231	94.2	83 - 117	
89	Y	3	1514546	0.32	1569660	96.5	83 - 117	
115	In	2	563789	0.78	611544	92.2	83 - 117	
209	Bi	2	496443	0.60	533015	93.1	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\010CALS.D\010CALS.D#
Date Acquired: Sep 21 2016 10:57 am
Acq. Method: ICP 6020.M
Operator: rhughes, ICPMS2
Sample Name: Level 8
Misc Info:
Vial Number: 1201
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal. Update: Sep 21 2016 10:55 am
Sample Type: CalStd

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
6	Li	---	2	1581164.40	1.87
7	Li	45	2	473.75	1.97
9	Be	45	2	106.24	1.76
11	B	45	2	188.71	0.80
23	Na	89	2	3557.01	2.37
24	Mg	89	2	2243.49	2.97
27	Al	89	2	28.90	2.27
28	Si	89	2	1364.40	1.89
29	Si	89	2	74.21	2.14
39	K	89	2	2248.75	1.65
44	Ca	89	2	65.33	2.80
45	Sc	---	2	824764.44	4.05
45	Sc	---	3	47160.32	1.06
47	Ti	89	2	1.93	2.13
51	V	89	2	24.52	3.07
51	V	89	3	19.36	0.43
52	Cr	89	2	20.95	2.66
52	Cr	89	3	24.54	0.57
55	Mn	89	2	26.22	1.60
55	Mn	89	3	13.84	1.02
56	Fe	89	2	2082.79	2.08
56	Fe	89	3	1913.70	0.82
59	Co	89	2	20.84	2.76
59	Co	89	3	32.36	0.83
60	Ni	89	2	4.19	2.67
62	Ni	89	2	0.61	2.46
63	Cu	89	2	9.20	2.28
63	Cu	89	3	20.10	0.72
65	Cu	89	2	4.28	2.75
66	Zn	89	2	2.17	2.74
66	Zn	89	3	2.91	0.52
68	Zn	89	2	1.55	2.75
72	Ge	---	2	6228.90	2.18
72	Ge	---	3	1859.41	5.05
75	As	89	2	1.94	1.91
75	As	89	3	1.90	1.49
78	Se	89	3	0.18	1.07
82	Se	89	2	0.16	1.56
82	Se	89	3	0.09	0.56
88	Sr	89	2	21.85	2.31
89	Y	---	2	6737873.50	4.78
89	Y	---	3	1501756.90	0.04
95	Mo	89	2	3.85	1.96
97	Mo	89	2	2.40	2.18
98	Mo	89	2	6.18	2.68
106	Cd	115	2	4.37	2.38
107	Ag	115	2	115.42	2.03
107	Ag	89	3	23.84	0.37
108	(Cd)	115	2	1.73	5.43
109	Ag	115	2	110.63	2.03
111	Cd	115	2	23.35	1.70
111	Cd	89	3	3.45	0.79
113	In	---	2	154722.25	2.93
114	Cd	115	2	60.96	2.21
115	In	---	2	530342.00	4.59
115	In	---	3	143021.34	0.38
118	Sn	115	2	74.08	2.36
118	Sn	---	3	125478.22	0.28
119	Sn	115	2	29.15	2.62
121	Sb	115	2	90.13	1.99
121	Sb	89	3	9.65	0.59
123	Sb	115	2	68.65	2.23
135	Ba	115	2	20.64	2.42
137	Ba	115	2	35.69	1.37
159	Tb	---	2	800036.38	3.79
203	Tl	209	2	109.13	2.89
205	Tl	209	2	274.76	2.97
206	Pb	209	2	94.42	1.66
207	Pb	209	2	79.32	1.53
208	Pb	209	2	378.64	1.39
209	Bi	---	2	463285.19	4.26
238	U	209	2	466.44	1.06

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45	Sc	2	824764	4.05	724791	113.8	83 - 117	
89	Y	2	6737874	4.78	7492231	89.9	83 - 117	
89	Y	3	1501757	0.04	1569660	95.7	83 - 117	
115	In	2	530342	4.59	611544	86.7	83 - 117	
209	Bi	2	463285	4.26	533015	86.9	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

--- :Element Failures ---
0 :ISTD Failures 0

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\011ICV1.D\011ICV1.D#
Date Acquired: Sep 21 2016 11:01 am
Operator: thughes, ICPMS2
Sample Name: ICV
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: ICV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	82.22	4.10	80	102.8	90 - 110	
9 Be	45	2	81.44	4.30	80	101.8	90 - 110	
11 B	45	2	216.70	4.11	200	108.4	90 - 110	
23 Na	89	2	8283.00	3.05	8000	103.5	90 - 110	
24 Mg	89	2	8349.00	3.62	8000	104.4	90 - 110	
27 Al	89	2	80.46	3.38	80	100.6	90 - 110	
28 Si	89	2	7950.00	3.06	8000	99.4	90 - 110	
29 Si	89	2	8181.00	3.57	8000	102.3	90 - 110	
39 K	89	2	8259.00	3.13	8000	103.2	90 - 110	
44 Ca	89	2	8364.00	2.08	8000	104.6	90 - 110	
47 Ti	89	2	79.95	3.11	80	99.9	90 - 110	
51 V	89	2	81.36	2.76	80	101.7	90 - 110	
51 V	89	3	79.75	0.56	80	99.7	90 - 110	
52 Cr	89	2	78.76	3.25	80	98.5	90 - 110	
52 Cr	89	3	80.57	0.52	80	100.7	90 - 110	
55 Mn	89	2	78.85	3.13	80	98.6	90 - 110	
55 Mn	89	3	79.94	0.71	80	99.9	90 - 110	
56 Fe	89	2	8204.00	3.08	8000	102.6	90 - 110	
56 Fe	89	3	8333.00	0.65	8000	104.2	90 - 110	
59 Co	89	2	77.64	2.97	80	97.1	90 - 110	
59 Co	89	3	80.63	0.21	80	100.8	90 - 110	
60 Ni	89	2	81.72	2.92	80	102.2	90 - 110	
62 Ni	89	2	80.66	1.90	80	100.8	90 - 110	
63 Cu	89	2	80.56	3.04	80	100.7	90 - 110	
63 Cu	89	3	79.61	0.18	80	99.5	90 - 110	
65 Cu	89	2	79.95	3.14	80	99.9	90 - 110	
66 Zn	89	2	80.69	4.02	80	100.9	90 - 110	
66 Zn	89	3	79.87	1.81	80	99.8	90 - 110	
68 Zn	89	2	80.46	2.52	80	100.6	90 - 110	
75 As	89	2	80.81	3.03	80	101.0	90 - 110	
75 As	89	3	80.36	1.49	80	100.5	90 - 110	
78 Se	89	2	79.66	3.86	80	99.6	90 - 110	
78 Se	89	3	78.49	5.86	80	98.1	90 - 110	
82 Se	89	2	78.06	3.77	80	97.6	90 - 110	
82 Se	89	3	85.05	4.58	80	106.3	90 - 110	
88 Sr	89	2	81.96	2.96	80	102.5	90 - 110	
95 Mo	89	2	80.33	3.81	80	100.4	90 - 110	
97 Mo	89	2	79.78	3.24	80	99.7	90 - 110	
98 Mo	89	2	80.59	2.90	80	100.7	90 - 110	
106 Cd	115	2	91.61	1.98	80	114.5	90 - 110	
106 Cd	89	3	88.73	5.18	80	110.9	90 - 110	
107 Ag	115	2	80.04	3.56	80	100.1	90 - 110	
107 Ag	89	3	79.02	0.54	80	98.8	90 - 110	
109 Ag	115	2	79.90	2.93	80	99.9	90 - 110	
111 Cd	115	2	78.83	3.49	80	98.5	90 - 110	
114 Cd	115	2	80.53	3.50	80	100.7	90 - 110	
118 Sn	115	2	81.31	4.33	80	101.6	90 - 110	
119 Sn	115	2	73.59	3.76	80	92.0	90 - 110	
121 Sb	115	2	79.01	3.90	80	98.8	90 - 110	
121 Sb	89	3	80.89	0.30	80	101.1	90 - 110	
123 Sb	115	2	81.36	3.58	80	101.7	90 - 110	
135 Ba	115	2	79.15	3.69	80	98.9	90 - 110	
137 Ba	115	2	80.90	3.97	80	101.1	90 - 110	
203 Tl	209	2	83.38	7.44	80	104.2	90 - 110	
205 Tl	209	2	75.51	7.63	80	94.4	90 - 110	
206 Pb	209	2	77.90	3.94	80	97.4	90 - 110	
207 Pb	209	2	81.75	3.81	80	102.2	90 - 110	
208 Pb	209	2	79.82	3.90	80	99.8	90 - 110	
238 U	209	2	0.07	33.67	80	0.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	738019	4.87	724791	101.8	83 - 117	
89 Y	2	6856626	3.72	7492231	91.5	83 - 117	
89 Y	3	1501076	0.56	1569660	95.6	83 - 117	
115 In	2	551437	4.37	611544	90.2	83 - 117	
209 Bi	2	491006	4.16	533015	92.1	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\012ICV2.D\012ICV2.D#
Date Acquired: Sep 21 2016 11:07 am
Operator: rhughes, ICPMS2
Sample Name: LLICV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.88	1.92	10	108.8	70 - 130	
9 Be	45	2	2.22	1.80	2	110.9	70 - 130	
11 B	45	2	24.24	0.51	20	121.2	70 - 130	
23 Na	89	2	206.60	11.20	200	103.3	70 - 130	
24 Mg	89	2	216.00	4.13	200	108.0	70 - 130	
27 Al	89	2	8.47	14.60	10	84.7	70 - 130	
28 Si	89	2	1063.00	0.69	200	531.5	70 - 130	
29 Si	89	2	1120.00	1.40	200	560.0	70 - 130	
39 K	89	2	221.40	5.72	200	110.7	70 - 130	
44 Ca	89	2	459.50	5.70	500	91.9	70 - 130	
47 Ti	89	2	5.64	5.30	5	112.9	70 - 130	
51 V	89	2	4.65	3.49	5	92.9	70 - 130	
51 V	89	3	4.62	0.80	5	92.5	70 - 130	
52 Cr	89	2	5.67	3.49	5	113.5	70 - 130	
52 Cr	89	3	5.12	2.38	5	102.4	70 - 130	
53 Cr	89	2	14.78	3.47	5	295.6	70 - 130	
53 Cr	89	3	5.63	7.38	5	112.6	70 - 130	
55 Mn	89	2	4.85	2.74	5	97.0	70 - 130	
55 Mn	89	3	5.01	0.89	5	100.2	70 - 130	
56 Fe	89	2	85.10	6.37	80	106.4	70 - 130	
56 Fe	89	3	86.94	0.98	80	108.7	70 - 130	
59 Co	89	2	4.84	2.03	5	96.7	70 - 130	
59 Co	89	3	5.06	2.64	5	101.2	70 - 130	
60 Ni	89	2	4.98	1.71	5	99.7	70 - 130	
62 Ni	89	2	5.01	1.47	5	100.1	70 - 130	
63 Cu	89	2	4.06	9.55	5	81.1	70 - 130	
63 Cu	89	3	4.50	2.13	5	90.1	70 - 130	
65 Cu	89	2	4.13	7.24	5	82.5	70 - 130	
66 Zn	89	2	10.41	1.35	10	104.1	70 - 130	
66 Zn	89	3	10.28	4.14	10	102.8	70 - 130	
68 Zn	89	2	10.13	1.59	10	101.3	70 - 130	
75 As	89	2	5.60	13.13	5	111.9	70 - 130	
75 As	89	3	5.61	5.12	5	112.2	70 - 130	
77 (As)	89	2	8.47	23.54	0	#DIV/0!	##### - #####	
77 (As)	89	3	5.18	19.24	0	#DIV/0!	##### - #####	
78 Se	89	2	4.79	0.87	5	95.8	70 - 130	
78 Se	89	3	5.36	11.88	5	107.2	70 - 130	
82 Se	89	2	5.26	1.22	5	105.3	70 - 130	
82 Se	89	3	11.43	15.71	5	228.6	70 - 130	
83 (Se)	89	2	-35.50	421.69	0	#DIV/0!	##### - #####	
83 (Se)	89	3	255.60	25.48	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.12	2.12	5	102.4	70 - 130	
95 Mo	89	2	5.14	0.64	5	102.8	70 - 130	
97 Mo	89	2	5.16	1.59	5	103.2	70 - 130	
98 Mo	89	2	5.09	0.93	5	101.9	70 - 130	
99 (Mo)	89	2	79.46	31.99	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	14.09	30.49	2	704.5	70 - 130	
106 Cd	89	3	5.31	11.50	2	265.3	70 - 130	
107 Ag	115	2	4.83	2.23	5	96.7	70 - 130	
107 Ag	89	3	4.95	1.34	5	99.0	70 - 130	
108 (Cd)	115	2	1.69	21.27	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	2.38	40.06	0	#DIV/0!	##### - #####	
109 Ag	115	2	4.86	1.66	5	97.1	70 - 130	
111 Cd	115	2	1.97	3.33	2	98.7	70 - 130	
111 Cd	89	3	1.99	4.44	2	99.4	70 - 130	
114 Cd	115	2	1.93	1.05	2	96.5	70 - 130	
118 Sn	115	2	2.00	2.57	2	100.1	70 - 130	
119 Sn	115	2	2.15	6.62	2	107.7	70 - 130	
121 Sb	115	2	4.01	0.70	5	80.3	70 - 130	
121 Sb	89	3	4.52	2.61	5	90.3	70 - 130	
123 Sb	115	2	4.17	2.58	5	83.3	70 - 130	
135 Ba	115	2	4.57	3.84	5	91.4	70 - 130	
137 Ba	115	2	4.81	2.78	5	96.2	70 - 130	
203 Tl	209	2	5.69	3.34	5	113.7	70 - 130	
205 Tl	209	2	5.04	1.40	5	100.9	70 - 130	
206 Pb	209	2	4.87	1.78	5	97.5	70 - 130	
207 Pb	209	2	4.93	1.84	5	98.7	70 - 130	
208 Pb	209	2	4.93	0.97	5	98.7	70 - 130	
238 U	209	2	4.46	1.02	5	89.2	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	681351	0.40	724791	94.0	83 - 117	
89 Y	2	6880241	2.36	7492231	91.8	83 - 117	
89 Y	3	1499962	0.78	1569660	95.6	83 - 117	
115 In	2	565809	1.01	611544	92.5	83 - 117	
209 Bi	2	505209	2.30	533015	94.8	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CAL8.D\003CAL8.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\16121k00.B\013 ICB.D\013 ICB.D#
Date Acquired: Sep 21 2016 11:12 am
Operator: rhughes, ICPMS2
Sample Name: ICB
Misc Info:
Vial Number: 1207
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: ICB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.29 ppb	28.08	#######	
9 Be	45	2	0.00 ppb	4463.30	#######	
11 B	45	2	1.38 ppb	26.21	#######	
23 Na	89	2	-10.00 ppb	221.41	#######	
24 Mg	89	2	-2.05 ppb	358.80	#######	
27 Al	89	2	-0.90 ppb	100.30	#######	
28 Si	89	2	1.35 ppb	238.50	#######	
29 Si	89	2	53.41 ppb	1.80	#######	
39 K	89	2	12.54 ppb	51.51	#######	
44 Ca	89	2	-75.15 ppb	23.19	#######	
47 Ti	89	2	-0.02 ppb	38.71	#######	
51 V	89	2	0.16 ppb	57.65	#######	
51 V	89	3	-0.07 ppb	148.90	#######	
52 Cr	89	2	0.64 ppb	10.60	#######	
52 Cr	89	3	0.02 ppb	201.73	#######	
53 Cr	89	2	7.26 ppb	12.49	#######	
53 Cr	89	3	0.26 ppb	69.79	#######	
55 Mn	89	2	-0.08 ppb	93.10	#######	
55 Mn	89	3	-0.02 ppb	59.07	#######	
56 Fe	89	2	-7.35 ppb	33.14	#######	
56 Fe	89	3	-0.27 ppb	10.12	#######	
59 Co	89	2	-0.01 ppb	244.11	#######	
59 Co	89	3	-0.01 ppb	41.63	#######	
60 Ni	89	2	0.00 ppb	59.93	#######	
62 Ni	89	2	0.22 ppb	67.02	#######	
63 Cu	89	2	-1.30 ppb	19.23	#######	
63 Cu	89	3	-0.04 ppb	2.96	#######	
65 Cu	89	2	-1.26 ppb	18.65	#######	
66 Zn	89	2	-0.07 ppb	128.05	#######	
66 Zn	89	3	-0.16 ppb	28.39	#######	
68 Zn	89	2	-0.03 ppb	152.60	#######	
75 As	89	2	0.80 ppb	6.14	#######	
75 As	89	3	0.53 ppb	63.64	#######	
77 (As)	89	2	0.07 ppb	2678.20	#######	
77 (As)	89	3	0.40 ppb	233.76	#######	
78 Se	89	2	-0.25 ppb	88.66	#######	
78 Se	89	3	0.08 ppb	251.22	#######	
82 Se	89	2	0.17 ppb	663.87	#######	
82 Se	89	3	7.13 ppb	12.35	#######	
83 (Se)	89	2	-30.22 ppb	1588.70	#######	
83 (Se)	89	3	300.40	43.58	#######	
88 Sr	89	2	0.07 ppb	135.85	#######	
95 Mo	89	2	0.08 ppb	68.13	#######	
97 Mo	89	2	0.07 ppb	80.86	#######	
98 Mo	89	2	0.05 ppb	36.03	#######	
99 (Mo)	89	2	71.10 ppb	198.31	#######	
99 (Mo)	89	3	0.00 ppb	0.00	#######	
106 Cd	115	2	21.31 ppb	7.87	#######	
106 Cd	89	3	3.05 ppb	148.97	#######	
107 Ag	115	2	-0.02 ppb	48.00	#######	
107 Ag	89	3	-0.02 ppb	35.47	#######	
108 (Cd)	115	2	-0.25 ppb	33.22	#######	
108 (Cd)	89	3	0.12 ppb	174.18	#######	
109 Ag	115	2	-0.01 ppb	126.71	#######	
111 Cd	115	2	0.01 ppb	21.61	#######	
111 Cd	89	3	-0.02 ppb	114.64	#######	
114 Cd	115	2	-0.01 ppb	161.89	#######	
118 Sn	115	2	-0.06 ppb	11.23	#######	
119 Sn	115	2	-0.06 ppb	10.25	#######	
121 Sb	115	2	0.12 ppb	10.15	#######	
121 Sb	89	3	0.11 ppb	3.90	#######	
123 Sb	115	2	0.12 ppb	2.71	#######	
135 Ba	115	2	-0.11 ppb	73.87	#######	
137 Ba	115	2	-0.10 ppb	57.52	#######	
203 Tl	209	2	0.06 ppb	88.57	#######	
205 Tl	209	2	0.05 ppb	92.76	#######	
206 Pb	209	2	-0.03 ppb	77.13	#######	
207 Pb	209	2	-0.02 ppb	122.12	#######	
208 Pb	209	2	-0.03 ppb	77.63	#######	
238 U	209	2	-0.01 ppb	94.48	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	674037	1.21	724791	93.0	83 - 117	
89 Y	2	6946951	1.44	7492231	92.7	83 - 117	
89 Y	3	1519679	0.39	1569660	96.8	83 - 117	
115 In	2	564512	1.23	611544	92.3	83 - 117	
209 Bi	2	509950	0.87	533015	95.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16121k00.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

ICS-A QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\014ICSA.D\014ICSA.D#
Date Acquired: Sep 21 2016 11:17 am
Acq. Method: ICP_6020.M
Operator: thughes, ICPMS2
Sample Name: ICSA
Misc Info:
Vial Number: 1303
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 21 2016 11:00 am
Sample Type: ICS-A
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
7 Li	45	2	0.05 ppb	156.21		
9 Be	45	2	0.00 ppb	429.68		
11 B	45	2	1.94 ppb	11.58		
23 Na	89	2	49340.00 ppb	0.28		
24 Mg	89	2	48670.00 ppb	1.22		
27 Al	89	2	47470.00 ppb	0.75		
28 Si	89	2	19.92 ppb	11.37		
29 Si	89	2	79.69 ppb	29.88		
39 K	89	2	48470.00 ppb	1.49		
44 Ca	89	2	47850.00 ppb	1.34		
47 Ti	89	2	1034.00 ppb	0.50		
51 V	89	2	-0.01 ppb	1494.10		
51 V	89	3	-0.06 ppb	197.38		
52 Cr	89	2	0.31 ppb	52.95		
52 Cr	89	3	0.26 ppb	4.61		
53 Cr	89	2	0.01 ppb	38675.00		
53 Cr	89	3	0.25 ppb	109.46		
55 Mn	89	2	2.32 ppb	3.94		
55 Mn	89	3	2.43 ppb	8.13		
56 Fe	89	2	48260.00 ppb	1.08		
56 Fe	89	3	48210.00 ppb	1.32		
59 Co	89	2	0.43 ppb	2.66		
59 Co	89	3	0.19 ppb	15.18		
60 Ni	89	2	1.45 ppb	3.83		
62 Ni	89	2	6.07 ppb	7.24		
63 Cu	89	2	-0.32 ppb	52.95		
63 Cu	89	3	-0.30 ppb	8.88		
65 Cu	89	2	2.05 ppb	11.68		
66 Zn	89	2	2.48 ppb	8.78		
66 Zn	89	3	0.32 ppb	51.58		
68 Zn	89	2	0.37 ppb	16.25		
75 As	89	2	0.75 ppb	94.59		
75 As	89	3	0.44 ppb	42.82		
77 (As)	89	2	30.96 ppb	13.22		
77 (As)	89	3	1.07 ppb	54.07		
78 Se	89	2	0.18 ppb	132.54		
78 Se	89	3	0.03 ppb	373.82		
82 Se	89	2	-0.72 ppb	50.60		
82 Se	89	3	4.00 ppb	38.38		
83 (Se)	89	2	478.70 ppb	31.65		
83 (Se)	89	3	253.70	44.58		
88 Sr	89	2	0.76 ppb	11.45		
95 Mo	89	2	1018.00 ppb	2.02		
97 Mo	89	2	992.60 ppb	3.16		
98 Mo	89	2	992.90 ppb	2.23		
99 (Mo)	89	2	133.70 ppb	39.81		
99 (Mo)	89	3	976.30 ppb	69.93		
106 Cd	115	2	17.05 ppb	31.89		
106 Cd	89	3	5.83 ppb	65.71		
107 Ag	115	2	0.01 ppb	175.60		
107 Ag	89	3	0.01 ppb	68.21		
108 (Cd)	115	2	29.10 ppb	5.74		
108 (Cd)	89	3	22.67 ppb	6.08		
109 Ag	115	2	0.00 ppb	273.78		
111 Cd	115	2	-0.29 ppb	43.48		
111 Cd	89	3	-0.18 ppb	82.28		
114 Cd	115	2	1.27 ppb	2.54		
118 Sn	115	2	0.00 ppb	728.15		
119 Sn	115	2	0.02 ppb	155.80		
121 Sb	115	2	0.17 ppb	5.93		
121 Sb	89	3	0.14 ppb	1.87		
123 Sb	115	2	0.16 ppb	3.35		
135 Ba	115	2	0.16 ppb	35.37		
137 Ba	115	2	0.22 ppb	27.00		
203 Tl	209	2	0.04 ppb	208.44		
205 Tl	209	2	0.03 ppb	175.41		
206 Pb	209	2	0.05 ppb	47.33		
207 Pb	209	2	0.05 ppb	14.92		
208 Pb	209	2	0.05 ppb	53.34		
238 U	209	2	0.00 ppb	652.98		

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	641936	0.63	724791	88.6	70 - 125	
89 Y	2	6677937	1.43	7492231	89.1	70 - 125	
89 Y	3	1486868	0.96	1569660	94.7	70 - 125	
115 In	2	516814	1.24	611544	84.5	70 - 125	
209 Bi	2	445607	1.43	533015	83.6	70 - 125	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Nnumber of ISTD Failures Allowed

ICS-AB QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\015ICSB.D\015ICSB.D#
Date Acquired: Sep 21 2016 11:22 am
Acq. Method: ICP_6020.M
Operator: rhughes, ICPMS2
Sample Name: ICSAB
Misc Info:
Vial Number: 1304
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal. Update: Sep 21 2016 11:00 am
Sample Type: ICS-AB
Dilution Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
7 Li	45	2	98.12	2.28	---		-	
9 Be	45	2	91.07	2.24	---		-	
11 B	45	2	246.20	2.60	---		-	
23 Na	89	2	59890.00	1.26	---		-	
24 Mg	89	2	58780.00	1.17	---		-	
27 Al	89	2	47770.00	1.61	---		-	
28 Si	89	2	9832.00	1.57	---		-	
29 Si	89	2	10000.00	0.72	---		-	
39 K	89	2	58130.00	1.62	---		-	
44 Ca	89	2	57660.00	1.40	---		-	
47 Ti	89	2	1113.00	2.56	---		-	
51 V	89	2	96.94	2.27	---		-	
51 V	89	3	98.30	0.27	---		-	
52 Cr	89	2	91.33	1.15	---		-	
52 Cr	89	3	96.20	0.53	---		-	
53 Cr	89	2	90.25	0.81	---		-	
53 Cr	89	3	96.62	1.44	---		-	
55 Mn	89	2	99.51	1.75	---		-	
55 Mn	89	3	97.21	0.29	---		-	
56 Fe	89	2	57340.00	1.89	---		-	
56 Fe	89	3	57570.00	0.55	---		-	
59 Co	89	2	88.32	1.24	---		-	
59 Co	89	3	94.66	0.43	---		-	
60 Ni	89	2	89.95	0.95	---		-	
62 Ni	89	2	92.82	1.49	---		-	
63 Cu	89	2	87.91	0.76	---		-	
63 Cu	89	3	88.58	0.72	---		-	
65 Cu	89	2	89.48	1.02	---		-	
66 Zn	89	2	93.19	1.95	---		-	
66 Zn	89	3	91.25	0.40	---		-	
68 Zn	89	2	91.05	0.20	---		-	
75 As	89	2	94.77	1.33	---		-	
75 As	89	3	98.54	1.85	---		-	
77 (As)	89	2	129.80	1.83	---		-	
77 (As)	89	3	99.92	5.05	---		-	
78 Se	89	2	97.17	2.67	---		-	
78 Se	89	3	98.48	2.49	---		-	
82 Se	89	2	94.41	1.21	---		-	
82 Se	89	3	98.26	5.13	---		-	
83 (Se)	89	2	702.60	27.74	---		-	
83 (Se)	89	3	95.45	80.48	---		-	
88 Sr	89	2	99.14	1.45	---		-	
95 Mo	89	2	1116.00	1.94	---		-	
97 Mo	89	2	1091.00	2.08	---		-	
98 Mo	89	2	1070.00	1.88	---		-	
99 (Mo)	89	2	193.50	46.74	---		-	
99 (Mo)	89	3	1196.00	86.37	---		-	
106 Cd	115	2	98.54	3.73	---		-	
106 Cd	89	3	106.40	5.65	---		-	
107 Ag	115	2	93.64	1.09	---		-	
107 Ag	89	3	91.42	0.91	---		-	
108 (Cd)	115	2	122.70	2.83	---		-	
108 (Cd)	89	3	117.30	2.08	---		-	
109 Ag	115	2	93.67	1.21	---		-	
111 Cd	115	2	96.62	1.09	---		-	
111 Cd	89	3	95.26	1.48	---		-	
114 Cd	115	2	98.95	1.40	---		-	
118 Sn	115	2	100.80	1.77	---		-	
119 Sn	115	2	97.65	1.76	---		-	
121 Sb	115	2	99.39	1.99	---		-	
121 Sb	89	3	99.79	0.54	---		-	
123 Sb	115	2	103.20	2.14	---		-	
135 Ba	115	2	98.57	2.66	---		-	
137 Ba	115	2	102.30	1.64	---		-	
203 Tl	209	2	98.46	12.59	---		-	
205 Tl	209	2	89.22	12.85	---		-	
206 Pb	209	2	101.70	1.80	---		-	
207 Pb	209	2	101.70	1.90	---		-	
208 Pb	209	2	101.70	1.95	---		-	
238 U	209	2	104.20	2.38	---		-	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	718162	0.88	724791	99.1	70 - 125	
89 Y	2	6832168	2.07	7492231	91.2	70 - 125	
89 Y	3	1451221	0.79	1569660	92.5	70 - 125	
115 In	2	527992	1.94	611544	86.3	70 - 125	
209 Bi	2	457470	1.81	533015	85.8	70 - 125	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\016SMPL.D\016SMPL.D#
Date Acquired: Sep 21 2016 11:27 am
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	97.19 ppb	97.19	3.69	#######	
9 Be	93.93 ppb	93.93	3.38	#######	
11 B	251.80 ppb	251.80	4.08	#######	
23 Na	10050.00 ppb	10050.00	1.54	#######	
24 Mg	10000.00 ppb	10000.00	1.12	#######	
27 Al	112.10 ppb	112.10	3.84	#######	
28 Si	9676.00 ppb	9676.00	1.35	#######	
29 Si	9619.00 ppb	9619.00	2.28	#######	
39 K	9753.00 ppb	9753.00	1.36	#######	
44 Ca	9716.00 ppb	9716.00	0.85	#######	
47 Ti	94.11 ppb	94.11	2.06	#######	
51 V	94.23 ppb	94.23	1.96	#######	
51 V	100.40 ppb	100.40	21.72	#######	
52 Cr	91.91 ppb	91.91	1.53	#######	
52 Cr	101.30 ppb	101.30	21.89	#######	
53 Cr	88.85 ppb	88.85	1.23	#######	
53 Cr	101.30 ppb	101.30	21.91	#######	
55 Mn	97.89 ppb	97.89	2.21	#######	
55 Mn	98.28 ppb	98.28	21.02	#######	
56 Fe	9621.00 ppb	9621.00	1.10	#######	
56 Fe	10040.00 ppb	10040.00	21.29	#######	
59 Co	89.40 ppb	89.40	1.76	#######	
59 Co	101.40 ppb	101.40	21.27	#######	
60 Ni	92.16 ppb	92.16	2.06	#######	
62 Ni	92.47 ppb	92.47	1.20	#######	
63 Cu	92.05 ppb	92.05	1.44	#######	
63 Cu	97.92 ppb	97.92	21.11	#######	
65 Cu	91.98 ppb	91.98	1.81	#######	
66 Zn	95.63 ppb	95.63	2.11	#######	
66 Zn	100.50 ppb	100.50	20.81	#######	
68 Zn	94.50 ppb	94.50	1.65	#######	
75 As	92.34 ppb	92.34	3.57	#######	
75 As	98.56 ppb	98.56	22.21	#######	
77 (As)	84.71 ppb	84.71	3.25	#######	
77 (As)	94.53 ppb	94.53	12.67	#######	
78 Se	94.24 ppb	94.24	2.94	#######	
78 Se	98.49 ppb	98.49	23.18	#######	
82 Se	94.15 ppb	94.15	2.77	#######	
82 Se	97.25 ppb	97.25	23.08	#######	
83 (Se)	92.75 ppb	92.75	76.15	#######	
83 (Se)	215.10	215.10	28.03	#######	
88 Sr	97.61 ppb	97.61	2.04	#######	
95 Mo	97.67 ppb	97.67	1.65	#######	
97 Mo	96.20 ppb	96.20	1.78	#######	
98 Mo	97.38 ppb	97.38	1.97	#######	
99 (Mo)	309.90 ppb	309.90	22.34	#######	
99 (Mo)	246.70 ppb	246.70	173.17	#######	
106 Cd	88.57 ppb	88.57	5.57	#######	
106 Cd	104.70 ppb	104.70	26.62	#######	
107 Ag	94.70 ppb	94.70	3.45	#######	
107 Ag	100.90 ppb	100.90	20.89	#######	
108 (Cd)	95.18 ppb	95.18	3.36	#######	
108 (Cd)	101.60 ppb	101.60	19.67	#######	
109 Ag	94.91 ppb	94.91	3.41	#######	
111 Cd	95.11 ppb	95.11	3.35	#######	
111 Cd	103.50 ppb	103.50	22.26	#######	
114 Cd	97.49 ppb	97.49	3.06	#######	
118 Sn	98.49 ppb	98.49	3.32	#######	
119 Sn	95.26 ppb	95.26	2.48	#######	
121 Sb	96.18 ppb	96.18	3.02	#######	
121 Sb	104.20 ppb	104.20	20.91	#######	
123 Sb	99.30 ppb	99.30	2.94	#######	
135 Ba	96.05 ppb	96.05	2.97	#######	
137 Ba	97.79 ppb	97.79	3.10	#######	
203 Tl	106.40 ppb	106.40	4.87	#######	
205 Tl	96.37 ppb	96.37	4.90	#######	
206 Pb	97.55 ppb	97.55	3.15	#######	
207 Pb	97.60 ppb	97.60	2.77	#######	
208 Pb	97.89 ppb	97.89	3.09	#######	
238 U	96.77 ppb	96.77	3.26	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	749157	1.94	724791	103.4	70 - 125	
89 Y	6978465	1.49	7492231	93.1	70 - 125	
89 Y	1465070	19.58	1569660	93.3	70 - 125	
115 In	563937	0.39	611544	92.2	70 - 125	
209 Bi	503299	0.39	533015	94.4	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\017 CCB.D\017 CCB.D#
Date Acquired: Sep 21 2016 11:32 am
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.28 ppb	17.03	#######	
9 Be	45	2	0.06 ppb	40.77	#######	
11 B	45	2	2.37 ppb	27.95	#######	
23 Na	89	2	16.32 ppb	149.39	#######	
24 Mg	89	2	9.06 ppb	98.68	#######	
27 Al	89	2	-1.05 ppb	118.80	#######	
28 Si	89	2	7.92 ppb	79.58	#######	
29 Si	89	2	-85.04 ppb	24.60	#######	
39 K	89	2	16.00 ppb	82.69	#######	
44 Ca	89	2	-93.37 ppb	19.29	#######	
47 Ti	89	2	0.15 ppb	38.42	#######	
51 V	89	2	0.01 ppb	428.66	#######	
51 V	89	3	0.04 ppb	202.02	#######	
52 Cr	89	2	0.02 ppb	634.00	#######	
52 Cr	89	3	0.07 ppb	25.15	#######	
55 Mn	89	2	0.16 ppb	48.91	#######	
55 Mn	89	3	0.12 ppb	24.42	#######	
56 Fe	89	2	-0.14 ppb	3192.30	#######	
56 Fe	89	3	7.67 ppb	1.89	#######	
59 Co	89	2	0.04 ppb	57.55	#######	
59 Co	89	3	0.05 ppb	7.32	#######	
60 Ni	89	2	-0.04 ppb	69.10	#######	
62 Ni	89	2	-0.14 ppb	44.73	#######	
63 Cu	89	2	-1.11 ppb	25.21	#######	
63 Cu	89	3	-0.64 ppb	4.94	#######	
65 Cu	89	2	-1.04 ppb	24.25	#######	
66 Zn	89	2	0.06 ppb	129.12	#######	
66 Zn	89	3	-0.01 ppb	1159.50	#######	
68 Zn	89	2	0.10 ppb	142.10	#######	
75 As	89	2	0.58 ppb	42.40	#######	
75 As	89	3	0.07 ppb	687.46	#######	
77 (As)	89	2	-11.16 ppb	21.03	#######	
78 Se	89	2	0.37 ppb	124.50	#######	
78 Se	89	3	0.09 ppb	56.28	#######	
82 Se	89	2	-0.47 ppb	19.99	#######	
82 Se	89	3	2.29 ppb	178.94	#######	
83 (Se)	89	2	339.40 ppb	25.07	#######	
83 (Se)	89	3	231.10	16.34	#######	
88 Sr	89	2	0.11 ppb	92.05	#######	
95 Mo	89	2	0.45 ppb	0.97	#######	
97 Mo	89	2	0.58 ppb	4.79	#######	
98 Mo	89	2	0.45 ppb	8.39	#######	
99 (Mo)	89	2	264.70 ppb	36.03	#######	
106 Cd	115	2	0.93 ppb	400.34	#######	
107 Ag	115	2	0.02 ppb	52.59	#######	
107 Ag	89	3	0.03 ppb	18.43	#######	
108 (Cd)	115	2	0.20 ppb	107.74	#######	
108 (Cd)	89	3	0.06 ppb	289.26	#######	
109 Ag	115	2	0.03 ppb	91.81	#######	
111 Cd	115	2	0.05 ppb	54.55	#######	
111 Cd	89	3	0.04 ppb	40.15	#######	
114 Cd	115	2	0.07 ppb	41.77	#######	
118 Sn	115	2	0.04 ppb	68.61	#######	
119 Sn	115	2	0.03 ppb	110.05	#######	
121 Sb	115	2	0.06 ppb	42.95	#######	
121 Sb	89	3	0.06 ppb	8.52	#######	
123 Sb	115	2	0.07 ppb	33.91	#######	
135 Ba	115	2	0.00 ppb	4060.30	#######	
137 Ba	115	2	0.02 ppb	350.19	#######	
203 Tl	209	2	0.32 ppb	29.04	#######	
205 Tl	209	2	0.30 ppb	30.17	#######	
206 Pb	209	2	0.04 ppb	79.31	#######	
207 Pb	209	2	0.04 ppb	79.30	#######	
208 Pb	209	2	0.04 ppb	87.66	#######	
238 U	209	2	0.06 ppb	24.10	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	680491	2.31	724791	93.9	83 - 117	
89 Y	2	7025269	4.03	7492231	93.8	83 - 117	
89 Y	3	1475600	1.14	1569660	94.0	83 - 117	
115 In	2	572575	4.32	611544	93.6	83 - 117	
209 Bi	2	525369	3.87	533015	98.6	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I23k00.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\018SMPL.D\018SMPL.D#
Date Acquired: Sep 21 2016 11:38 am
Operator: zhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number:: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	95.26 ppb	95.26	10.28	#######	
9 Be	92.62 ppb	92.62	9.55	#######	
11 B	248.10 ppb	248.10	11.26	#######	
23 Na	10200.00 ppb	10200.00	9.88	#######	
24 Mg	10180.00 ppb	10180.00	9.59	#######	
27 Al	104.90 ppb	104.90	9.34	#######	
28 Si	9750.00 ppb	9750.00	9.55	#######	
29 Si	9701.00 ppb	9701.00	9.80	#######	
39 K	9879.00 ppb	9879.00	9.95	#######	
44 Ca	9852.00 ppb	9852.00	9.09	#######	
47 Ti	93.05 ppb	93.05	9.64	#######	
51 V	94.82 ppb	94.82	8.78	#######	
51 V	97.45 ppb	97.45	0.63	#######	
52 Cr	91.84 ppb	91.84	9.45	#######	
52 Cr	98.10 ppb	98.10	0.84	#######	
53 Cr	90.74 ppb	90.74	12.96	#######	
53 Cr	98.39 ppb	98.39	0.20	#######	
55 Mn	98.18 ppb	98.18	9.75	#######	
55 Mn	95.59 ppb	95.59	0.80	#######	
56 Fe	9610.00 ppb	9610.00	10.41	#######	
56 Fe	9810.00 ppb	9810.00	0.48	#######	
59 Co	89.75 ppb	89.75	9.71	#######	
59 Co	99.49 ppb	99.49	0.53	#######	
60 Ni	91.70 ppb	91.70	9.72	#######	
62 Ni	92.21 ppb	92.21	9.50	#######	
63 Cu	91.33 ppb	91.33	9.08	#######	
63 Cu	96.09 ppb	96.09	0.87	#######	
65 Cu	90.89 ppb	90.89	9.49	#######	
66 Zn	95.14 ppb	95.14	9.70	#######	
66 Zn	96.35 ppb	96.35	1.21	#######	
68 Zn	94.21 ppb	94.21	8.65	#######	
75 As	91.73 ppb	91.73	9.08	#######	
75 As	96.72 ppb	96.72	0.94	#######	
77 (As)	88.03 ppb	88.03	15.53	#######	
77 (As)	95.21 ppb	95.21	5.05	#######	
78 Se	92.97 ppb	92.97	9.84	#######	
78 Se	98.05 ppb	98.05	4.60	#######	
82 Se	93.63 ppb	93.63	9.42	#######	
82 Se	97.01 ppb	97.01	5.74	#######	
83 (Se)	139.90 ppb	139.90	135.53	#######	
83 (Se)	-65.32	-65.32	515.31	#######	
88 Sr	97.54 ppb	97.54	9.11	#######	
95 Mo	95.18 ppb	95.18	10.17	#######	
97 Mo	94.38 ppb	94.38	9.92	#######	
98 Mo	95.08 ppb	95.08	10.29	#######	
99 (Mo)	178.10 ppb	178.10	11.29	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	90.14 ppb	90.14	13.52	#######	
106 Cd	106.30 ppb	106.30	3.38	#######	
107 Ag	93.56 ppb	93.56	10.20	#######	
107 Ag	98.92 ppb	98.92	0.58	#######	
108 (Cd)	93.66 ppb	93.66	8.76	#######	
108 (Cd)	98.75 ppb	98.75	3.31	#######	
109 Ag	93.90 ppb	93.90	9.56	#######	
111 Cd	94.71 ppb	94.71	10.54	#######	
111 Cd	100.60 ppb	100.60	1.87	#######	
114 Cd	97.01 ppb	97.01	10.24	#######	
118 Sn	97.12 ppb	97.12	10.41	#######	
119 Sn	94.70 ppb	94.70	10.37	#######	
121 Sb	95.69 ppb	95.69	10.38	#######	
121 Sb	101.60 ppb	101.60	0.73	#######	
123 Sb	98.17 ppb	98.17	10.38	#######	
135 Ba	94.72 ppb	94.72	10.51	#######	
137 Ba	96.98 ppb	96.98	10.02	#######	
203 Tl	104.70 ppb	104.70	11.44	#######	
205 Tl	94.68 ppb	94.68	11.45	#######	
206 Pb	96.63 ppb	96.63	10.30	#######	
207 Pb	96.84 ppb	96.84	10.05	#######	
208 Pb	96.93 ppb	96.93	10.15	#######	
238 U	96.29 ppb	96.29	10.15	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	764573	6.96	724791	105.5	70 - 125	
89 Y	6949127	6.84	7492231	92.8	70 - 125	
89 Y	1433292	0.73	1569660	91.3	70 - 125	
115 In	565151	7.34	611544	92.4	70 - 125	
209 Bi	506193	7.05	533015	95.0	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\019 CCB.D\019 CCB.D#
Date Acquired: Sep 21 2016 11:43 am
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.30 ppb	17.52	#######	
9 Be	45	2	0.07 ppb	13.30	#######	
11 B	45	2	2.22 ppb	31.15	#######	
23 Na	89	2	20.83 ppb	85.89	#######	
24 Mg	89	2	9.64 ppb	67.86	#######	
27 Al	89	2	-1.36 ppb	36.62	#######	
28 Si	89	2	8.09 ppb	41.54	#######	
29 Si	89	2	-82.44 ppb	6.97	#######	
39 K	89	2	11.25 ppb	67.23	#######	
44 Ca	89	2	-91.43 ppb	19.04	#######	
47 Ti	89	2	0.08 ppb	44.93	#######	
51 V	89	2	-0.01 ppb	666.73	#######	
51 V	89	3	-0.05 ppb	135.83	#######	
52 Cr	89	2	0.10 ppb	35.78	#######	
52 Cr	89	3	0.15 ppb	31.92	#######	
55 Mn	89	2	1.02 ppb	12.52	#######	
55 Mn	89	3	1.06 ppb	32.52	#######	
56 Fe	89	2	0.06 ppb	4140.60	#######	
56 Fe	89	3	10.16 ppb	7.98	#######	
59 Co	89	2	0.09 ppb	16.07	#######	
59 Co	89	3	0.11 ppb	17.80	#######	
60 Ni	89	2	0.00 ppb	727.41	#######	
62 Ni	89	2	-0.13 ppb	150.60	#######	
63 Cu	89	2	-1.13 ppb	22.13	#######	
63 Cu	89	3	-0.64 ppb	3.15	#######	
65 Cu	89	2	-1.12 ppb	20.20	#######	
66 Zn	89	2	0.07 ppb	60.98	#######	
66 Zn	89	3	0.09 ppb	187.25	#######	
68 Zn	89	2	0.13 ppb	80.57	#######	
75 As	89	2	0.55 ppb	108.30	#######	
75 As	89	3	0.02 ppb	391.28	#######	
77 (As)	89	2	-7.36 ppb	52.50	#######	
78 Se	89	2	-0.09 ppb	118.22	#######	
78 Se	89	3	0.25 ppb	66.12	#######	
82 Se	89	2	-0.34 ppb	35.50	#######	
82 Se	89	3	1.09 ppb	158.51	#######	
83 (Se)	89	2	103.60 ppb	174.61	#######	
83 (Se)	89	3	167.20	43.51	#######	
88 Sr	89	2	0.13 ppb	70.53	#######	
95 Mo	89	2	0.32 ppb	9.11	#######	
97 Mo	89	2	0.41 ppb	28.23	#######	
98 Mo	89	2	0.31 ppb	14.12	#######	
99 (Mo)	89	2	199.10 ppb	85.18	#######	
106 Cd	115	2	5.23 ppb	52.00	#######	
107 Ag	115	2	0.04 ppb	34.35	#######	
107 Ag	89	3	0.06 ppb	16.20	#######	
108 (Cd)	115	2	-0.14 ppb	160.36	#######	
108 (Cd)	89	3	0.07 ppb	286.48	#######	
109 Ag	115	2	0.04 ppb	68.00	#######	
111 Cd	115	2	0.10 ppb	8.30	#######	
111 Cd	89	3	0.10 ppb	13.57	#######	
114 Cd	115	2	0.06 ppb	39.91	#######	
118 Sn	115	2	0.05 ppb	21.73	#######	
119 Sn	115	2	0.06 ppb	77.78	#######	
121 Sb	115	2	0.09 ppb	21.95	#######	
121 Sb	89	3	0.10 ppb	2.02	#######	
123 Sb	115	2	0.08 ppb	25.73	#######	
135 Ba	115	2	-0.01 ppb	913.05	#######	
137 Ba	115	2	0.02 ppb	341.29	#######	
203 Tl	209	2	0.27 ppb	38.63	#######	
205 Tl	209	2	0.25 ppb	38.55	#######	
206 Pb	209	2	0.05 ppb	59.76	#######	
207 Pb	209	2	0.05 ppb	12.53	#######	
208 Pb	209	2	0.04 ppb	52.54	#######	
238 U	209	2	0.07 ppb	20.58	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	680972	1.83	724791	94.8	83 - 117	
89 Y	2	7035683	1.94	7492231	93.9	83 - 117	
89 Y	3	1478546	0.84	1569660	94.2	83 - 117	
115 In	2	575980	2.48	611544	94.2	83 - 117	
209 Bi	2	524436	2.24	533015	98.4	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\16I21k00.B\020SMPL.D\020SMPL.D#
Date Acquired:	Sep 21 2016 11:48 am
Operator:	rhughes, ICPMS2
Sample Name:	16091057-01C
Misc Info:	6020W B91654
Vial Number:	2106
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update:	Sep 21 2016 11:00 am
Sample Type:	Sample
Prep Dil Factor:	10.00
Total Dil Factor:	10.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	5.20 ppb	51.99	1.34	#######	
9 Be	0.01 ppb	0.12	148.09	#######	
11 B	467.30 ppb	4673.00	2.59	#######	
23 Na	4024.00 ppb	40240.00	2.30	#######	
24 Mg	2247.00 ppb	22470.00	1.11	#######	
27 Al	240.70 ppb	2407.00	1.48	#######	
28 Si	2711.00 ppb	27110.00	1.85	#######	
29 Si	2854.00 ppb	28540.00	2.37	#######	
39 K	2991.00 ppb	29910.00	2.11	#######	
44 Ca	24340.00 ppb	243400.00	1.77	#######	
47 Ti	8.11 ppb	81.14	2.48	#######	
51 V	1.25 ppb	12.49	9.63	#######	
51 V	1.30 ppb	12.97	18.38	#######	
52 Cr	1.30 ppb	13.04	1.48	#######	
52 Cr	1.78 ppb	17.80	1.31	#######	
53 Cr	-8.47 ppb	-84.65	4.58	#######	
53 Cr	1.67 ppb	16.65	25.56	#######	
55 Mn	54.11 ppb	541.10	1.56	#######	
55 Mn	53.70 ppb	537.00	1.17	#######	
56 Fe	1106.00 ppb	11060.00	1.61	#######	
56 Fe	1142.00 ppb	11420.00	1.30	#######	
59 Co	0.57 ppb	5.66	1.04	#######	
59 Co	0.54 ppb	5.38	4.16	#######	
60 Ni	1.64 ppb	16.38	4.17	#######	
62 Ni	1.07 ppb	10.65	20.07	#######	
63 Cu	11.15 ppb	111.50	1.50	#######	
63 Cu	11.88 ppb	118.80	1.53	#######	
65 Cu	11.77 ppb	117.70	1.02	#######	
66 Zn	129.20 ppb	1292.00	2.02	#######	
66 Zn	127.50 ppb	1275.00	0.92	#######	
68 Zn	124.20 ppb	1242.00	1.05	#######	
75 As	1.14 ppb	11.44	4.01	#######	
75 As	1.13 ppb	11.31	36.00	#######	
77 (As)	4.15 ppb	41.45	8.89	#######	
77 (As)	1.56 ppb	15.56	92.22	#######	
78 Se	-0.22 ppb	-2.17	18.02	#######	
78 Se	0.07 ppb	0.65	131.73	#######	
82 Se	0.15 ppb	1.49	654.19	#######	
82 Se	3.45 ppb	34.54	24.28	#######	
83 (Se)	16.24 ppb	162.40	1265.40	#######	
83 (Se)	252.70	2527.00	50.85	#######	
88 Sr	111.40 ppb	1114.00	2.37	#######	
95 Mo	1.27 ppb	12.68	3.73	#######	
97 Mo	1.37 ppb	13.72	2.34	#######	
98 Mo	1.28 ppb	12.83	2.71	#######	
99 (Mo)	225.80 ppb	2258.00	61.96	#######	
99 (Mo)	395.80 ppb	3958.00	86.58	#######	
106 Cd	8.68 ppb	86.79	19.61	#######	
106 Cd	2.72 ppb	27.24	34.66	#######	
107 Ag	0.38 ppb	3.80	7.44	#######	
107 Ag	0.44 ppb	4.39	1.10	#######	
108 (Cd)	1.08 ppb	10.79	20.82	#######	
108 (Cd)	1.55 ppb	15.52	35.72	#######	
109 Ag	0.39 ppb	3.91	7.29	#######	
111 Cd	1.14 ppb	11.35	2.46	#######	
111 Cd	1.09 ppb	10.91	19.66	#######	
114 Cd	1.17 ppb	11.68	2.07	#######	
118 Sn	1.61 ppb	16.12	1.82	#######	
119 Sn	1.43 ppb	14.32	2.85	#######	
121 Sb	2.66 ppb	26.58	1.16	#######	
121 Sb	2.88 ppb	28.81	2.07	#######	
123 Sb	2.77 ppb	27.72	0.85	#######	
135 Ba	30.85 ppb	308.50	2.57	#######	
137 Ba	31.45 ppb	314.50	2.21	#######	
203 Tl	0.01 ppb	0.14	531.79	#######	
205 Tl	0.01 ppb	0.07	847.03	#######	
206 Pb	8.96 ppb	89.56	1.91	#######	
207 Pb	8.96 ppb	89.61	3.10	#######	
208 Pb	8.95 ppb	89.52	2.18	#######	
238 U	0.03 ppb	0.33	18.65	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	693095	1.59	724791	95.6	70 - 125	
89 Y	6949344	1.47	7492231	92.8	70 - 125	
89 Y	1469708	0.87	1569660	93.6	70 - 125	
115 In	570962	1.70	611544	93.4	70 - 125	
209 Bi	514677	1.57	533015	96.6	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\16I21k00.B\021SMPL.D\021SMPL.D#
Date Acquired:	Sep 21 2016 11:54 am
Operator:	rhughes, ICPMS2
Sample Name:	16091057-01C
Misc Info:	6020W B91654
Vial Number:	2107
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update:	Sep 21 2016 11:00 am
Sample Type:	Sample
Prep Dil Factor:	1.00
Total Dil Factor:	1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	38.12 ppb	38.12	1.23	#######	
9 Be	0.12 ppb	0.12	7.64	#######	
11 B	3267.00 ppb	3267.00	1.89	#######	
23 Na	39660.00 ppb	39660.00	1.10	#######	
24 Mg	21510.00 ppb	21510.00	0.96	#######	
27 Al	2304.00 ppb	2304.00	0.91	#######	
28 Si	26850.00 ppb	26850.00	1.37	#######	
29 Si	26330.00 ppb	26330.00	1.47	#######	
39 K	29780.00 ppb	29780.00	1.95	#######	
44 Ca	239700.00 ppb	239700.00	1.65	#######	
47 Ti	77.60 ppb	77.60	1.48	#######	
51 V	12.38 ppb	12.38	1.75	#######	
51 V	12.78 ppb	12.78	4.27	#######	
52 Cr	15.16 ppb	15.16	0.93	#######	
52 Cr	16.32 ppb	16.32	0.69	#######	
53 Cr	1.19 ppb	1.19	84.12	#######	
53 Cr	15.87 ppb	15.87	8.71	#######	
55 Mn	519.30 ppb	519.30	2.06	#######	
55 Mn	514.30 ppb	514.30	0.80	#######	
56 Fe	10660.00 ppb	10660.00	1.44	#######	
56 Fe	10530.00 ppb	10530.00	1.66	#######	
59 Co	5.43 ppb	5.43	2.03	#######	
59 Co	4.87 ppb	4.87	2.59	#######	
60 Ni	16.40 ppb	16.40	1.16	#######	
62 Ni	12.61 ppb	12.61	7.76	#######	
63 Cu	113.10 ppb	113.10	1.08	#######	
63 Cu	115.00 ppb	115.00	1.41	#######	
65 Cu	119.30 ppb	119.30	0.54	#######	
66 Zn	1234.00 ppb	1234.00	1.15	#######	
66 Zn	1200.00 ppb	1200.00	1.61	#######	
68 Zn	1154.00 ppb	1154.00	1.01	#######	
75 As	11.47 ppb	11.47	6.81	#######	
75 As	10.86 ppb	10.86	3.74	#######	
77 (As)	115.80 ppb	115.80	2.89	#######	
77 (As)	6.06 ppb	6.06	11.38	#######	
78 Se	0.27 ppb	0.27	43.81	#######	
78 Se	0.33 ppb	0.33	26.71	#######	
82 Se	-0.25 ppb	-0.25	395.03	#######	
82 Se	1.00 ppb	1.00	411.75	#######	
83 (Se)	826.10 ppb	826.10	44.03	#######	
83 (Se)	90.11	90.11	261.35	#######	
88 Sr	1063.00 ppb	1063.00	1.37	#######	
95 Mo	11.71 ppb	11.71	1.70	#######	
97 Mo	11.91 ppb	11.91	3.11	#######	
98 Mo	11.84 ppb	11.84	2.24	#######	
99 (Mo)	286.10 ppb	286.10	45.82	#######	
99 (Mo)	612.60 ppb	612.60	100.26	#######	
106 Cd	23.84 ppb	23.84	14.29	#######	
106 Cd	15.82 ppb	15.82	15.29	#######	
107 Ag	4.09 ppb	4.09	2.49	#######	
107 Ag	4.10 ppb	4.10	1.48	#######	
108 (Cd)	11.38 ppb	11.38	4.20	#######	
108 (Cd)	11.71 ppb	11.71	19.36	#######	
109 Ag	4.10 ppb	4.10	1.44	#######	
111 Cd	10.99 ppb	10.99	1.16	#######	
111 Cd	11.60 ppb	11.60	1.92	#######	
114 Cd	11.39 ppb	11.39	0.72	#######	
118 Sn	16.58 ppb	16.58	1.76	#######	
119 Sn	14.87 ppb	14.87	2.10	#######	
121 Sb	27.40 ppb	27.40	1.54	#######	
121 Sb	28.34 ppb	28.34	0.99	#######	
123 Sb	28.54 ppb	28.54	1.82	#######	
135 Ba	315.30 ppb	315.30	1.79	#######	
137 Ba	324.00 ppb	324.00	1.72	#######	
203 Tl	0.03 ppb	0.03	132.71	#######	
205 Tl	0.03 ppb	0.03	162.28	#######	
206 Pb	92.04 ppb	92.04	1.97	#######	
207 Pb	91.49 ppb	91.49	1.52	#######	
208 Pb	91.45 ppb	91.45	1.30	#######	
238 U	0.48 ppb	0.48	1.63	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	894758	1.96	724791	123.5	70 - 125	
89 Y	6911999	1.97	7492231	92.3	70 - 125	
89 Y	1427127	0.99	1569660	90.9	70 - 125	
115 In	551235	1.70	611544	90.1	70 - 125	
209 Bi	480262	2.00	533015	90.1	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\16I21k00.B\022SMPL.D\022SMPL.D#
Date Acquired:	Sep 21 2016 11:59 am
Operator:	zhughes, ICPMS2
Sample Name:	1609970-02ASD
Misc Info:	6020W B91654
Vial Number:	Z111
Current Method:	C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File:	C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update:	Sep 21 2016 11:00 am
Sample Type:	Sample
Prep Dil Factor:	5.00
Total Dil Factor:	5.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	0.27 ppb	1.34	43.84	#######	
9 Be	-0.01 ppb	-0.04	173.19	#######	
11 B	74.88 ppb	374.40	7.42	#######	
23 Na	6419.00 ppb	32095.00	0.44	#######	
24 Mg	4456.00 ppb	22280.00	0.96	#######	
27 Al	-3.55 ppb	-17.75	32.28	#######	
28 Si	1011.00 ppb	5055.00	1.42	#######	
29 Si	867.20 ppb	4336.00	2.77	#######	
39 K	1908.00 ppb	9540.00	0.86	#######	
44 Ca	17170.00 ppb	85850.00	1.26	#######	
47 Ti	0.47 ppb	2.36	31.48	#######	
51 V	0.15 ppb	0.76	80.66	#######	
51 V	0.00 ppb	0.02	1412.60	#######	
52 Cr	-0.20 ppb	-0.99	16.26	#######	
52 Cr	0.07 ppb	0.33	61.19	#######	
53 Cr	-4.21 ppb	-21.03	55.04	#######	
53 Cr	0.13 ppb	0.66	115.11	#######	
55 Mn	24.54 ppb	122.70	0.86	#######	
55 Mn	24.40 ppb	122.00	0.55	#######	
56 Fe	6.81 ppb	34.06	30.35	#######	
56 Fe	2.60 ppb	12.99	8.36	#######	
59 Co	0.21 ppb	1.03	10.71	#######	
59 Co	0.14 ppb	0.72	6.77	#######	
60 Ni	0.54 ppb	2.69	3.61	#######	
62 Ni	-0.15 ppb	-0.74	130.69	#######	
63 Cu	-0.89 ppb	-4.47	24.00	#######	
63 Cu	-0.37 ppb	-1.87	16.32	#######	
65 Cu	-0.52 ppb	-2.60	46.78	#######	
66 Zn	0.43 ppb	2.14	29.92	#######	
66 Zn	0.07 ppb	0.34	112.29	#######	
68 Zn	0.42 ppb	2.12	37.65	#######	
75 As	0.32 ppb	1.61	104.12	#######	
75 As	0.22 ppb	1.09	90.62	#######	
77 (As)	3.51 ppb	17.54	48.70	#######	
77 (As)	2.42 ppb	12.08	27.62	#######	
78 Se	0.74 ppb	3.72	22.32	#######	
78 Se	0.71 ppb	3.57	10.95	#######	
82 Se	1.00 ppb	5.00	54.97	#######	
82 Se	2.80 ppb	14.00	116.61	#######	
83 (Se)	-196.60 ppb	-983.00	19.25	#######	
83 (Se)	104.10	520.50	190.59	#######	
88 Sr	33.84 ppb	169.20	1.64	#######	
95 Mo	2.63 ppb	13.17	0.61	#######	
97 Mo	2.68 ppb	13.42	5.13	#######	
98 Mo	2.61 ppb	13.03	0.39	#######	
99 (Mo)	218.30 ppb	1091.50	46.36	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	7.92 ppb	39.62	47.94	#######	
106 Cd	2.55 ppb	12.74	73.07	#######	
107 Ag	-0.04 ppb	-0.20	9.18	#######	
107 Ag	-0.02 ppb	-0.12	42.54	#######	
108 (Cd)	0.00 ppb	-0.02	7111.10	#######	
108 (Cd)	0.06 ppb	0.32	3.59	#######	
109 Ag	-0.02 ppb	-0.11	77.59	#######	
111 Cd	0.01 ppb	0.05	109.44	#######	
111 Cd	0.01 ppb	0.03	434.44	#######	
114 Cd	0.01 ppb	0.04	221.07	#######	
118 Sn	0.16 ppb	0.78	4.92	#######	
119 Sn	0.16 ppb	0.81	26.07	#######	
121 Sb	0.32 ppb	1.60	4.28	#######	
121 Sb	0.31 ppb	1.54	10.34	#######	
123 Sb	0.35 ppb	1.75	6.34	#######	
135 Ba	4.43 ppb	22.17	2.71	#######	
137 Ba	4.54 ppb	22.70	1.69	#######	
203 Tl	-0.02 ppb	-0.12	168.86	#######	
205 Tl	-0.01 ppb	-0.07	430.77	#######	
206 Pb	0.01 ppb	0.05	232.32	#######	
207 Pb	0.01 ppb	0.04	101.21	#######	
208 Pb	0.01 ppb	0.04	266.50	#######	
238 U	0.35 ppb	1.77	3.93	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	710255	1.56	724791	98.0	70 - 125	
89 Y	7246902	1.15	7492231	96.7	70 - 125	
89 Y	1409197	1.23	1569660	94.9	70 - 125	
115 In	591930	0.95	611544	96.8	70 - 125	
209 Bi	530968	0.89	533015	99.6	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\023SMPL.D\023SMPL.D#
Date Acquired: Sep 21 2016 12:04 pm
Operator: rhughes, ICPMS2
Sample Name: 1609970-02APDS
Misc Info: 6020W B91654
Vial Number: 2112
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: Sample
Prep Dil Factor: 1.00
Total Dil Factor: 1.00

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 Li	95.79 ppb	95.79	0.70	#######	
9 Be	94.18 ppb	94.18	0.35	#######	
11 B	711.50 ppb	711.50	1.27	#######	
23 Na	42030.00 ppb	42030.00	1.66	#######	
24 Mg	32180.00 ppb	32180.00	1.37	#######	
27 Al	106.50 ppb	106.50	1.47	#######	
28 Si	5136.00 ppb	5136.00	2.02	#######	
29 Si	5231.00 ppb	5231.00	1.45	#######	
39 K	19540.00 ppb	19540.00	2.06	#######	
44 Ca	95610.00 ppb	95610.00	1.83	#######	
47 Ti	2.40 ppb	2.40	1.46	#######	
51 V	97.17 ppb	97.17	2.74	#######	
51 V	101.30 ppb	101.30	1.06	#######	
52 Cr	91.89 ppb	91.89	2.00	#######	
52 Cr	98.30 ppb	98.30	1.07	#######	
53 Cr	80.26 ppb	80.26	1.86	#######	
53 Cr	97.33 ppb	97.33	1.76	#######	
55 Mn	217.60 ppb	217.60	1.44	#######	
55 Mn	212.60 ppb	212.60	0.44	#######	
56 Fe	9787.00 ppb	9787.00	1.77	#######	
56 Fe	9778.00 ppb	9778.00	0.64	#######	
59 Co	89.44 ppb	89.44	1.84	#######	
59 Co	97.27 ppb	97.27	0.67	#######	
60 Ni	92.59 ppb	92.59	2.05	#######	
62 Ni	89.02 ppb	89.02	3.21	#######	
63 Cu	91.13 ppb	91.13	1.22	#######	
63 Cu	94.40 ppb	94.40	0.82	#######	
65 Cu	92.59 ppb	92.59	1.82	#######	
66 Zn	95.70 ppb	95.70	0.92	#######	
66 Zn	95.59 ppb	95.59	1.02	#######	
68 Zn	94.81 ppb	94.81	1.65	#######	
75 As	95.54 ppb	95.54	2.59	#######	
75 As	100.90 ppb	100.90	1.36	#######	
77 (As)	142.60 ppb	142.60	2.82	#######	
77 (As)	105.50 ppb	105.50	4.94	#######	
78 Se	100.70 ppb	100.70	2.42	#######	
78 Se	105.60 ppb	105.60	2.40	#######	
82 Se	100.10 ppb	100.10	3.40	#######	
82 Se	101.40 ppb	101.40	5.63	#######	
83 (Se)	278.50 ppb	278.50	154.51	#######	
83 (Se)	126.80	126.80	3.09	#######	
88 Sr	275.30 ppb	275.30	1.50	#######	
95 Mo	109.70 ppb	109.70	1.48	#######	
97 Mo	109.80 ppb	109.80	2.71	#######	
98 Mo	110.50 ppb	110.50	2.49	#######	
99 (Mo)	227.70 ppb	227.70	64.82	#######	
99 (Mo)	0.00 ppb	0.00	0.00	#######	
106 Cd	108.80 ppb	108.80	0.81	#######	
106 Cd	100.20 ppb	100.20	3.76	#######	
107 Ag	89.18 ppb	89.18	2.69	#######	
107 Ag	91.31 ppb	91.31	0.30	#######	
108 (Cd)	95.34 ppb	95.34	4.18	#######	
108 (Cd)	102.00 ppb	102.00	3.29	#######	
109 Ag	89.05 ppb	89.05	2.53	#######	
111 Cd	97.13 ppb	97.13	1.65	#######	
111 Cd	98.65 ppb	98.65	1.14	#######	
114 Cd	98.82 ppb	98.82	2.05	#######	
118 Sn	103.40 ppb	103.40	1.86	#######	
119 Sn	92.41 ppb	92.41	2.72	#######	
121 Sb	79.26 ppb	79.26	5.48	#######	
121 Sb	89.82 ppb	89.82	2.57	#######	
123 Sb	81.91 ppb	81.91	5.68	#######	
135 Ba	119.70 ppb	119.70	1.75	#######	
137 Ba	123.30 ppb	123.30	2.24	#######	
203 Tl	108.50 ppb	108.50	3.06	#######	
205 Tl	97.89 ppb	97.89	2.75	#######	
206 Pb	98.13 ppb	98.13	3.12	#######	
207 Pb	102.20 ppb	102.20	2.45	#######	
208 Pb	99.82 ppb	99.82	2.46	#######	
238 U	1.86 ppb	1.86	0.56	#######	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	764602	3.17	724791	105.5	70 - 125	
89 Y	7128598	2.86	7492231	95.1	70 - 125	
89 Y	1493448	1.23	1569660	95.1	70 - 125	
115 In	573644	1.29	611544	93.8	70 - 125	
209 Bi	498297	1.69	533015	93.5	70 - 125	

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Pass**
ISTD: **Pass**

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\030CCV1.D\030CCV1.D#
Date Acquired: Sep 21 2016 12:47 pm
Operator: rhughes, ICPMS2
Sample Name: CCV
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: CCV1
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	93.99	2.09	100	94.0	90 - 110	
9 Be	45	2	91.46	1.38	100	91.5	90 - 110	
11 B	45	2	245.40	0.49	250	98.2	90 - 110	
23 Na	89	2	10190.00	0.20	10000	101.9	90 - 110	
24 Mg	89	2	10100.00	0.49	10000	101.0	90 - 110	
27 Al	89	2	104.80	0.79	100	104.8	90 - 110	
28 Si	89	2	9816.00	0.40	10000	98.2	90 - 110	
29 Si	89	2	9804.00	0.14	10000	98.0	90 - 110	
39 K	89	2	9948.00	0.73	10000	99.5	90 - 110	
44 Ca	89	2	9951.00	0.03	10000	99.5	90 - 110	
47 Ti	89	2	95.38	0.89	100	95.4	90 - 110	
51 V	89	2	95.72	0.96	100	95.7	90 - 110	
51 V	89	3	95.77	1.49	100	95.8	90 - 110	
52 Cr	89	2	92.33	0.91	100	92.3	90 - 110	
52 Cr	89	3	95.94	1.96	100	95.9	90 - 110	
55 Mn	89	2	99.01	0.74	100	99.0	90 - 110	
55 Mn	89	3	95.24	1.80	100	95.2	90 - 110	
56 Fe	89	2	9633.00	0.50	10000	96.3	90 - 110	
56 Fe	89	3	9644.00	0.96	10000	96.4	90 - 110	
59 Co	89	2	89.92	0.55	100	89.9	90 - 110	
59 Co	89	3	96.32	0.66	100	96.3	90 - 110	
60 Ni	89	2	92.36	0.37	100	92.4	90 - 110	
62 Ni	89	2	93.16	0.90	100	93.2	90 - 110	
63 Cu	89	2	92.81	0.69	100	92.8	90 - 110	
63 Cu	89	3	93.19	1.26	100	93.2	90 - 110	
65 Cu	89	2	92.35	0.55	100	92.4	90 - 110	
66 Zn	89	2	95.33	0.52	100	95.3	90 - 110	
66 Zn	89	3	94.96	2.72	100	95.0	90 - 110	
68 Zn	89	2	94.62	0.33	100	94.6	90 - 110	
75 As	89	2	91.36	1.12	100	91.4	90 - 110	
75 As	89	3	94.88	1.54	100	94.9	90 - 110	
78 Se	89	2	94.15	0.54	100	94.2	90 - 110	
78 Se	89	3	97.33	1.58	100	97.3	90 - 110	
82 Se	89	2	92.46	0.69	100	92.5	90 - 110	
82 Se	89	3	95.62	7.11	100	95.6	90 - 110	
88 Sr	89	2	98.80	0.56	100	98.8	90 - 110	
95 Mo	89	2	95.50	1.65	100	95.5	90 - 110	
97 Mo	89	2	94.61	1.65	100	94.6	90 - 110	
98 Mo	89	2	95.81	0.78	100	95.8	90 - 110	
106 Cd	115	2	120.20	4.78	100	120.2	90 - 110	
107 Ag	115	2	95.68	0.72	100	95.7	90 - 110	
107 Ag	89	3	96.07	1.26	100	96.1	90 - 110	
109 Ag	115	2	95.54	0.55	100	95.5	90 - 110	
111 Cd	115	2	96.88	0.33	100	96.9	90 - 110	
111 Cd	89	3	99.56	0.69	100	99.6	90 - 110	
114 Cd	115	2	98.60	0.34	100	98.6	90 - 110	
118 Sn	115	2	100.00	0.74	100	100.0	90 - 110	
119 Sn	115	2	96.64	1.01	100	96.6	90 - 110	
121 Sb	115	2	97.71	0.67	100	97.7	90 - 110	
121 Sb	89	3	100.60	0.68	100	100.6	90 - 110	
123 Sb	115	2	100.80	0.78	100	100.8	90 - 110	
135 Ba	115	2	97.10	1.24	100	97.1	90 - 110	
137 Ba	115	2	100.00	0.27	100	100.0	90 - 110	
203 Tl	209	2	107.30	3.12	100	107.3	90 - 110	
205 Tl	209	2	97.31	2.99	100	97.3	90 - 110	
206 Pb	209	2	99.75	0.86	100	99.8	90 - 110	
207 Pb	209	2	99.09	0.84	100	99.1	90 - 110	
208 Pb	209	2	99.19	0.79	100	99.2	90 - 110	
238 U	209	2	97.30	0.82	100	97.3	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	781193	4.22	724791	107.8	83 - 117	
89 Y	2	7018987	3.08	7492231	93.7	83 - 117	
89 Y	3	1510765	0.69	1569660	96.2	83 - 117	
115 In	2	561722	2.68	611544	91.9	83 - 117	
209 Bi	2	494146	2.71	533015	92.7	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\031 CCB.D\031 CCB.D#
Date Acquired: Sep 21 2016 12:52 pm
Operator: rhughes, ICPMS2
Sample Name: CCB
Misc Info:
Vial Number: 1302
Current Method: C:\ICPCHEM\1\METHODS\ICP 6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP 6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: CCB
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
7 Li	45	2	0.31 ppb	24.97	#######	
9 Be	45	2	0.08 ppb	34.43	#######	
11 B	45	2	4.79 ppb	13.79	#######	
23 Na	89	2	8.21 ppb	257.86	#######	
24 Mg	89	2	9.28 ppb	87.27	#######	
27 Al	89	2	-1.97 ppb	49.58	#######	
28 Si	89	2	5.24 ppb	74.36	#######	
29 Si	89	2	-41.18 ppb	18.86	#######	
39 K	89	2	16.69 ppb	40.17	#######	
44 Ca	89	2	-102.30 ppb	16.09	#######	
47 Ti	89	2	0.10 ppb	62.26	#######	
51 V	89	2	-0.05 ppb	97.20	#######	
51 V	89	3	0.00 ppb	9511.80	#######	
52 Cr	89	2	-0.40 ppb	7.38	#######	
52 Cr	89	3	0.05 ppb	20.86	#######	
55 Mn	89	2	0.03 ppb	266.62	#######	
55 Mn	89	3	0.12 ppb	24.54	#######	
56 Fe	89	2	2.72 ppb	120.78	#######	
56 Fe	89	3	8.16 ppb	2.48	#######	
59 Co	89	2	0.08 ppb	34.03	#######	
59 Co	89	3	0.05 ppb	10.23	#######	
60 Ni	89	2	-0.01 ppb	79.49	#######	
62 Ni	89	2	0.09 ppb	284.44	#######	
63 Cu	89	2	-0.89 ppb	30.86	#######	
63 Cu	89	3	-0.45 ppb	11.11	#######	
65 Cu	89	2	-0.86 ppb	29.23	#######	
66 Zn	89	2	0.06 ppb	31.25	#######	
66 Zn	89	3	0.07 ppb	72.10	#######	
68 Zn	89	2	0.14 ppb	16.14	#######	
75 As	89	2	0.40 ppb	37.71	#######	
75 As	89	3	0.36 ppb	48.15	#######	
77 (As)	89	2	-16.26 ppb	4.27	#######	
78 Se	89	2	0.25 ppb	78.71	#######	
78 Se	89	3	0.15 ppb	157.72	#######	
82 Se	89	2	0.59 ppb	57.79	#######	
82 Se	89	3	3.03 ppb	37.68	#######	
83 (Se)	89	2	-191.30 ppb	74.75	#######	
83 (Se)	89	3	76.26	140.97	#######	
88 Sr	89	2	0.14 ppb	68.41	#######	
95 Mo	89	2	0.24 ppb	21.33	#######	
97 Mo	89	2	0.25 ppb	13.50	#######	
98 Mo	89	2	0.21 ppb	11.73	#######	
99 (Mo)	89	2	55.74 ppb	104.25	#######	
106 Cd	115	2	32.42 ppb	9.98	#######	
107 Ag	115	2	0.05 ppb	22.86	#######	
107 Ag	89	3	0.05 ppb	15.82	#######	
108 (Cd)	115	2	0.06 ppb	338.84	#######	
108 (Cd)	89	3	0.00 ppb	3265.90	#######	
109 Ag	115	2	0.05 ppb	34.23	#######	
111 Cd	115	2	0.07 ppb	59.30	#######	
111 Cd	89	3	0.05 ppb	54.92	#######	
114 Cd	115	2	0.07 ppb	30.38	#######	
118 Sn	115	2	0.03 ppb	48.41	#######	
119 Sn	115	2	0.04 ppb	125.02	#######	
121 Sb	115	2	0.11 ppb	25.29	#######	
121 Sb	89	3	0.12 ppb	9.24	#######	
123 Sb	115	2	0.10 ppb	21.83	#######	
135 Ba	115	2	0.03 ppb	119.33	#######	
137 Ba	115	2	0.01 ppb	729.47	#######	
203 Tl	209	2	0.28 ppb	37.67	#######	
205 Tl	209	2	0.26 ppb	33.71	#######	
206 Pb	209	2	0.05 ppb	83.05	#######	
207 Pb	209	2	0.06 ppb	10.15	#######	
208 Pb	209	2	0.05 ppb	56.75	#######	
238 U	209	2	0.07 ppb	31.42	#######	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	696091	1.48	724791	96.0	83 - 117	
89 Y	2	7281025	1.62	7492231	97.2	83 - 117	
89 Y	3	1548012	0.52	1569660	98.6	83 - 117	
115 In	2	592880	1.24	611544	96.9	83 - 117	
209 Bi	2	529516	1.19	533015	99.3	83 - 117	

Tune File# 1 C:\ICPCHEM\1\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\1\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\16I21k00.B\032ICV2.D\032ICV2.D#
Date Acquired: Sep 21 2016 12:57 pm
Operator: rhughes, ICPMS2
Sample Name: LLCCV
Misc Info:
Vial Number: 1205
Current Method: C:\ICPCHEM\1\METHODS\ICP_6020.M
Calibration File: C:\ICPCHEM\1\CALIB\ICP_6020.c
Last Cal Update: Sep 21 2016 11:00 am
Sample Type: ICV2
Total Dil Factor: 1.00

Data Results:
Analytes: Pass
ISTD: Pass

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
7 Li	45	2	10.61	1.17	10	106.1	70 - 130	
9 Be	45	2	2.11	1.05	2	105.3	70 - 130	
11 B	45	2	24.38	1.17	20	121.9	70 - 130	
23 Na	89	2	203.30	8.07	200	101.7	70 - 130	
24 Mg	89	2	213.60	2.06	200	106.8	70 - 130	
27 Al	89	2	8.34	8.38	10	83.4	70 - 130	
28 Si	89	2	1019.00	1.22	200	509.5	70 - 130	
29 Si	89	2	974.80	2.02	200	487.4	70 - 130	
39 K	89	2	209.90	2.23	200	105.0	70 - 130	
44 Ca	89	3	406.90	2.84	500	81.4	70 - 130	
47 Ti	89	2	5.52	3.26	5	110.4	70 - 130	
51 V	89	2	4.61	4.72	5	92.2	70 - 130	
51 V	89	3	4.79	0.52	5	95.7	70 - 130	
52 Cr	89	2	4.35	1.57	5	87.0	70 - 130	
52 Cr	89	3	4.75	1.66	5	94.9	70 - 130	
53 Cr	89	2	-4.74	23.71	5	-94.8	70 - 130	
53 Cr	89	3	4.50	2.74	5	90.0	70 - 130	
55 Mn	89	2	4.75	0.38	5	94.9	70 - 130	
55 Mn	89	3	4.75	1.96	5	94.9	70 - 130	
56 Fe	89	2	81.45	1.29	80	101.8	70 - 130	
56 Fe	89	3	82.87	0.53	80	103.6	70 - 130	
59 Co	89	2	4.57	1.19	5	91.3	70 - 130	
59 Co	89	3	4.86	3.50	5	97.1	70 - 130	
60 Ni	89	2	4.73	1.23	5	94.6	70 - 130	
62 Ni	89	2	4.60	3.47	5	91.9	70 - 130	
63 Cu	89	2	3.96	5.73	5	79.1	70 - 130	
63 Cu	89	3	4.40	3.12	5	88.1	70 - 130	
65 Cu	89	2	3.92	7.72	5	78.5	70 - 130	
66 Zn	89	2	9.76	0.62	10	97.6	70 - 130	
66 Zn	89	3	10.00	1.15	10	100.0	70 - 130	
68 Zn	89	2	9.66	2.52	10	96.6	70 - 130	
75 As	89	2	5.30	2.06	5	106.0	70 - 130	
75 As	89	3	4.94	5.44	5	98.8	70 - 130	
77 (As)	89	2	-7.89	7.90	0	#DIV/0!	##### - #####	
77 (As)	89	3	6.20	13.29	0	#DIV/0!	##### - #####	
78 Se	89	2	4.73	10.88	5	94.5	70 - 130	
78 Se	89	3	4.82	10.00	5	96.4	70 - 130	
82 Se	89	2	4.78	20.62	5	95.6	70 - 130	
82 Se	89	3	9.10	53.39	5	182.1	70 - 130	
83 (Se)	89	2	-29.63	828.21	0	#DIV/0!	##### - #####	
83 (Se)	89	3	158.00	197.34	0	#DIV/0!	##### - #####	
88 Sr	89	2	5.12	1.16	5	102.5	70 - 130	
95 Mo	89	2	4.95	0.61	5	98.9	70 - 130	
97 Mo	89	2	4.77	0.75	5	95.4	70 - 130	
98 Mo	89	2	4.88	0.76	5	97.6	70 - 130	
99 (Mo)	89	2	148.70	42.47	0	#DIV/0!	##### - #####	
99 (Mo)	89	3	0.00	0.00	0	#DIV/0!	##### - #####	
106 Cd	115	2	32.63	2.46	2	1631.5	70 - 130	
106 Cd	89	3	9.49	17.15	2	474.4	70 - 130	
107 Ag	115	2	4.77	1.18	5	95.4	70 - 130	
107 Ag	89	3	4.87	2.57	5	97.4	70 - 130	
108 (Cd)	115	2	1.56	15.92	0	#DIV/0!	##### - #####	
108 (Cd)	89	3	2.35	13.18	0	#DIV/0!	##### - #####	
109 Ag	115	2	4.72	1.16	5	94.4	70 - 130	
111 Cd	115	2	1.94	4.53	2	96.8	70 - 130	
111 Cd	89	3	2.10	9.67	2	105.0	70 - 130	
114 Cd	115	2	1.93	3.42	2	96.4	70 - 130	
118 Sn	115	2	1.96	1.12	2	97.9	70 - 130	
119 Sn	115	2	2.15	3.74	2	107.6	70 - 130	
121 Sb	115	2	4.14	3.19	5	82.8	70 - 130	
121 Sb	89	3	4.65	1.66	5	93.0	70 - 130	
123 Sb	115	2	4.33	3.74	5	86.5	70 - 130	
135 Ba	115	2	4.68	1.53	5	93.5	70 - 130	
137 Ba	115	2	4.83	2.26	5	96.6	70 - 130	
203 Tl	209	2	5.21	1.04	5	104.2	70 - 130	
205 Tl	209	2	4.64	1.89	5	92.8	70 - 130	
206 Pb	209	2	4.79	2.33	5	95.7	70 - 130	
207 Pb	209	2	4.88	3.98	5	97.6	70 - 130	
208 Pb	209	2	4.87	2.00	5	97.3	70 - 130	
238 U	209	2	4.34	1.76	5	86.8	70 - 130	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2	696248	1.41	724791	96.1	83 - 117	
89 Y	2	7150389	1.79	7492231	95.4	83 - 117	
89 Y	3	1547534	0.46	1569660	98.6	83 - 117	
115 In	2	587212	1.43	611544	96.0	83 - 117	
209 Bi	2	524362	1.54	533015	98.4	83 - 117	

Tune File# 1 C:\ICPCHEM\I\7500\
Tune File# 2 c:\icpchem\1\7500\nogas.u
Tune File# 3 c:\icpchem\1\7500\he.u

ISTD Ref File : C:\ICPCHEM\I\DATA\16I21k00.B\003CALB.D\003CALB.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

ALS Group USA, Corp

PREP BATCH REPORT

Batch ID: 91654 Prep Code: MP 6020 W

Start Date: 9/20/2016 8:00:35 AM End Date: 9/20/2016 12:07:46 PM

Technician: Chris Ciaravino

InitSamp Wt/Vol: 50 mL
FinSampVol: 50 mL
OriginalFac: 1
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
16091006-01C	Water			50	0	50	1
16091006-02C	Water			50	0	50	1
16091008-01C	Water			50	0	50	1
16091008-02C	Water			50	0	50	1
16091008-03C	Water			50	0	50	1
16091011-01C	Water			50	0	50	1
16091011-02C	Water			50	0	50	1
16091034-01A	Tclp Extract			5	0	50	10
16091049-01A	Tclp Extract			5	0	50	10
16091049-02A	Tclp Extract			5	0	50	10
16091057-01C	Surface Water			50	0	50	1
1609875-01B	Water			50	0	50	1
1609881-18C	Groundwater			50	0	50	1
1609937-01A	Tclp Extract			5	0	50	10
1609967-01B	Water			50	0	50	1
1609970-01A	Aqueous			50	0	50	1
1609970-02A	Aqueous			50	0	50	1
1609970-02AMS	Aqueous			50	0	50	1
1609970-02AMSD	Aqueous			50	0	50	1
1609970-03A	Aqueous			50	0	50	1
1609970-04A	Aqueous			50	0	50	1
LCS-91652				50	0	50	1
LCS-91654				50	0	50	1
MBLK-91652				50	0	50	1

Notes: *All samples are B1/D1 unless otherwise noted.*
Spike BPL: 2049-9-08/1461-60-08/1461-60-14;
HNO3: 2049-11-06; HCl: 2049-14-04; Block 2
@95/95'C; Digestion Cups: 1512329

ALS Group USA, Corp

PREP BATCH REPORT

Batch ID: 91654 Prep Code: MP_6020_W

Start Date: 9/20/2016 8:00:35 AM End Date: 9/20/2016 12:07:46 PM

Technician: Chris Ciaravino

InitSamp Wt/Vol: 50 mL
FinSampVol: 50 mL
OriginalFac: 1
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
MBLK-91654				50	0	50	1

Notes: *All samples are B1/D1 unless otherwise noted. Spike BPL: 2049-9-08/1461-60-08/1461-60-14; HNO3: 2049-11-06; HCl: 2049-14-04; Block 2 @95/95'C; Digestion Cups: 1512329*

Cold Vapor

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ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

ALS Group USA, Corp

Analytical Run Summary

21-Sep-16

Run ID HG1_160920A

Analyst Lisa Robinson

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4036700	Calibration Blank	HG_7471_S	SAMP		9/20/2016 14:53	1	R196140		1
4036701	Standard #1 (0.2 ppb	HG_7471_S	SAMP		9/20/2016 14:56	1	R196140		1
4036702	Standard #2 (0.5 ppb	HG_7471_S	SAMP		9/20/2016 14:58	1	R196140		1
4036703	Standard #3 (1.0 ppb	HG_7471_S	SAMP		9/20/2016 15:01	1	R196140		1
4036704	Standard #4 (2.0 ppb	HG_7471_S	SAMP		9/20/2016 15:03	1	R196140		1
4036705	Standard #5 (4.0 ppb	HG_7471_S	SAMP		9/20/2016 15:06	1	R196140		1
4036706	ICV	HG_7470_GW	ICV		9/20/2016 15:09	1	R196140		1
4036707	ICB	HG_7470_GW	ICB		9/20/2016 15:11	1	R196140		1
4036708	IPC/CCV	HG_7470_GW	CCV		9/20/2016 15:14	1	R196140		1
4036709	CRDL	HG_7470_GW	CRA		9/20/2016 15:16	1	R196140		1
4036710	CCB	HG_7470_GW	CCB		9/20/2016 15:19	1	R196140		1
4036711	MBLK-91472	HG_7471_S	MBLK		9/20/2016 16:11	1	91472	9/19/2016	1
4036712	LCS-91472	HG_7471_S	LCS		9/20/2016 16:14	1	91472	9/19/2016	1
4036713	1609536-02A	HG_7471_S	SAMP		9/20/2016 16:16	1	91472	9/19/2016	1
4036714	1609536-04A	HG_7471_S	SAMP		9/20/2016 16:19	1	91472	9/19/2016	1
4036715	1609536-06A	HG_7471_S	SAMP		9/20/2016 16:21	1	91472	9/19/2016	1
4036716	1609536-08A	HG_7471_S	SAMP		9/20/2016 16:24	1	91472	9/19/2016	1
4036717	1609536-09B	HG_7471_S	SAMP		9/20/2016 16:26	1	91472	9/19/2016	1
4036718	1609536-09BMS	HG_7471_S	MS		9/20/2016 16:29	1	91472	9/19/2016	1
4036719	1609536-09BMSD	HG_7471_S	MSD		9/20/2016 16:41	1	91472	9/19/2016	1
4036720	1609536-10B	HG_7471_S	SAMP		9/20/2016 16:44	1	91472	9/19/2016	1
4036721	IPC/CCV	HG_7470_GW	CCV		9/20/2016 16:46	1	R196140		1
4036722	CRDL	HG_7470_GW	CRA		9/20/2016 16:49	1	R196140		1
4036723	CCB	HG_7470_GW	CCB		9/20/2016 16:51	1	R196140		1
4036739	MBLK-91625	HG_7471_S	MBLK		9/20/2016 16:54	1	91625	9/20/2016	1
4036740	LCS-91625	HG_7471_S	LCS		9/20/2016 16:57	1	91625	9/20/2016	1
4036741	1609618-01A	HG_7471_S	SAMP		9/20/2016 16:59	1	91625	9/20/2016	1
4036742	1609648-01A	HG_7471_S	SAMP		9/20/2016 17:02	1	91625	9/20/2016	1
4036743	1609648-02A	HG_7471_S	SAMP		9/20/2016 17:04	1	91625	9/20/2016	1
4036744	1609751-01C	HG_7471_S	SAMP		9/20/2016 17:07	1	91625	9/20/2016	1
4036745	1609751-01CMS	HG_7471_S	MS		9/20/2016 17:09	1	91625	9/20/2016	1
4036746	1609751-01CMSD	HG_7471_S	MSD		9/20/2016 17:12	1	91625	9/20/2016	1
4036747	IPC/CCV	HG_7470_GW	CCV		9/20/2016 17:14	1	R196140		1
4036758	CRDL	HG_7470_GW	CRA		9/20/2016 17:17	1	R196140		1
4036759	CCB	HG_7470_GW	CCB		9/20/2016 17:20	1	R196140		1
4036863	MBLK-91678	HG_7470_GW	MBLK		9/20/2016 17:22	1	91678	9/20/2016	1
4036864	LCS-91678	HG_7470_GW	LCS		9/20/2016 17:26	1	91678	9/20/2016	1
4036865	16091037-02A	TCHG_7470_S	SAMP		9/20/2016 17:28	1	91678	9/20/2016	1
4036866	16091037-02AMS	TCHG_7470_S	MS		9/20/2016 17:31	1	91678	9/20/2016	1
4036867	16091037-02AMSD	TCHG_7470_S	MSD		9/20/2016 17:33	1	91678	9/20/2016	1
4036868	16091049-01A	TCHG_7470_S	SAMP		9/20/2016 17:36	1	91678	9/20/2016	1
4036869	16091049-02A	TCHG_7470_S	SAMP		9/20/2016 17:38	1	91678	9/20/2016	1
4036870	IPC/CCV	HG_7470_GW	CCV		9/20/2016 17:41	1	R196140		1
4036871	CRDL	HG_7470_GW	CRA		9/20/2016 17:43	1	R196140		1
4036872	CCB	HG_7470_GW	CCB		9/20/2016 17:46	1	R196140		1
4036873	16091057-01C	HG_7470_GW	SAMP		9/20/2016 17:49	1	91678	9/20/2016	1
4036874	16091034-01A	TCHG_7470_S	SAMP		9/20/2016 17:51	1	91678	9/20/2016	1
4036875	1609536-11B	HG_7471_S	SAMP		9/20/2016 17:54	1	91472	9/19/2016	1
4036876	IPC/CCV	HG_7470_GW	CCV		9/20/2016 17:56	1	R196140		1
4036877	CRDL	HG_7470_GW	CRA		9/20/2016 17:59	1	R196140		1
4036878	CCB	HG_7470_GW	CCB		9/20/2016 18:01	1	R196140		1
4036879	1609536-12B	HG_7471_S	SAMP		9/20/2016 18:04	1	91472	9/19/2016	1
4036880	1609536-13B	HG_7471_S	SAMP		9/20/2016 18:07	1	91472	9/19/2016	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4036881	1609536-14B	HG_7471_S	SAMP		9/20/2016 18:09	1	91472	9/19/2016	1
4036882	1609536-15B	HG_7471_S	SAMP		9/20/2016 18:12	1	91472	9/19/2016	1
4036883	1609536-16B	HG_7471_S	SAMP		9/20/2016 18:14	1	91472	9/19/2016	1
4036884	1609536-17B	HG_7471_S	SAMP		9/20/2016 18:17	1	91472	9/19/2016	1
4036885	1609536-18B	HG_7471_S	SAMP		9/20/2016 18:19	1	91472	9/19/2016	1
4036886	1609536-19B	HG_7471_S	SAMP		9/20/2016 18:22	1	91472	9/19/2016	1
4036887	1609536-20B	HG_7471_S	SAMP		9/20/2016 18:24	1	91472	9/19/2016	1
4036888	1609536-21B	HG_7471_S	SAMP		9/20/2016 18:27	1	91472	9/19/2016	1
4036889	IPC/CCV	HG_7470_GW	CCV		9/20/2016 18:29	1	R196140		1
4036890	CRDL	HG_7470_GW	CRA		9/20/2016 18:32	1	R196140		1
4036891	CCB	HG_7470_GW	CCB		9/20/2016 18:35	1	R196140		1
4036892	1609536-22B	HG_7471_S	SAMP		9/20/2016 18:37	1	91472	9/19/2016	1
4036893	1609536-23B	HG_7471_S	SAMP		9/20/2016 18:40	1	91472	9/19/2016	1
4036894	1609536-24B	HG_7471_S	SAMP		9/20/2016 18:42	1	91472	9/19/2016	1
4036895	1609644-01B	HG_7471_S	SAMP		9/20/2016 18:45	1	91625	9/20/2016	1
4036896	1609644-02B	HG_7471_S	SAMP		9/20/2016 18:47	1	91625	9/20/2016	1
4036897	1609644-03B	HG_7471_S	SAMP		9/20/2016 18:50	1	91625	9/20/2016	1
4036898	1609644-04B	HG_7471_S	SAMP		9/20/2016 18:52	1	91625	9/20/2016	1
4036899	IPC/CCV	HG_7470_GW	CCV		9/20/2016 18:55	1	R196140		1
4036900	CRDL	HG_7470_GW	CRA		9/20/2016 18:58	1	R196140		1
4036901	CCB	HG_7470_GW	CCB		9/20/2016 19:00	1	R196140		1
4036902	MBLK-91619	HG_7471_S	MBLK		9/20/2016 19:03	1	91619	9/19/2016	1
4036903	LCS-91619	HG_7471_S	LCS		9/20/2016 19:05	1	91619	9/19/2016	1
4036904	1609536-25B	HG_7471_S	SAMP		9/20/2016 19:08	1	91619	9/19/2016	1
4036905	1609536-26B	HG_7471_S	SAMP		9/20/2016 19:10	1	91619	9/19/2016	1
4036906	1609536-27B	HG_7471_S	SAMP		9/20/2016 19:13	1	91619	9/19/2016	1
4036907	1609536-28B	HG_7471_S	SAMP		9/20/2016 19:15	1	91619	9/19/2016	1
4036908	1609536-28BMS	HG_7471_S	MS		9/20/2016 19:18	1	91619	9/19/2016	1
4036909	IPC/CCV	HG_7470_GW	CCV		9/20/2016 19:21	1	R196140		1
4036910	CRDL	HG_7470_GW	CRA		9/20/2016 19:23	1	R196140		1
4036911	CCB	HG_7470_GW	CCB		9/20/2016 19:26	1	R196140		1
4036912	1609536-28BMSD	HG_7471_S	MSD		9/20/2016 19:28	1	91619	9/19/2016	1
4036913	1609536-29B	HG_7471_S	SAMP		9/20/2016 19:31	1	91619	9/19/2016	1
4036914	1609536-30B	HG_7471_S	SAMP		9/20/2016 19:33	1	91619	9/19/2016	1
4036915	1609536-31B	HG_7471_S	SAMP		9/20/2016 19:36	1	91619	9/19/2016	1
4036916	1609536-32B	HG_7471_S	SAMP		9/20/2016 19:38	1	91619	9/19/2016	1
4036917	1609536-33B	HG_7471_S	SAMP		9/20/2016 19:41	1	91619	9/19/2016	1
4036918	1609536-34B	HG_7471_S	SAMP		9/20/2016 19:44	1	91619	9/19/2016	1
4036919	1609536-35B	HG_7471_S	SAMP		9/20/2016 19:46	1	91619	9/19/2016	1
4036920	1609536-36B	HG_7471_S	SAMP		9/20/2016 19:49	1	91619	9/19/2016	1
4036921	1609536-37B	HG_7471_S	SAMP		9/20/2016 19:51	1	91619	9/19/2016	1
4036922	IPC/CCV	HG_7470_GW	CCV		9/20/2016 19:54	1	R196140		1
4036923	CRDL	HG_7470_GW	CRA		9/20/2016 19:56	1	R196140		1
4036924	CCB	HG_7470_GW	CCB		9/20/2016 19:59	1	R196140		1
4036925	1609536-38B	HG_7471_S	SAMP		9/20/2016 20:02	1	91619	9/19/2016	1
4036926	1609536-39B	HG_7471_S	SAMP		9/20/2016 20:04	1	91619	9/19/2016	1
4036927	1609536-40B	HG_7471_S	SAMP		9/20/2016 20:07	1	91619	9/19/2016	1
4036928	1609536-41B	HG_7471_S	SAMP		9/20/2016 20:09	1	91619	9/19/2016	1
4036929	1609536-42B	HG_7471_S	SAMP		9/20/2016 20:12	1	91619	9/19/2016	1
4036930	1609536-43B	HG_7471_S	SAMP		9/20/2016 20:14	1	91619	9/19/2016	1
4036931	1609536-44B	HG_7471_S	SAMP		9/20/2016 20:17	1	91619	9/19/2016	1
4036932	1609536-45B	HG_7471_S	SAMP		9/20/2016 20:19	1	91625	9/20/2016	1
4036933	1609536-46B	HG_7471_S	SAMP		9/20/2016 20:22	1	91625	9/20/2016	1
4036934	1609536-47B	HG_7471_S	SAMP		9/20/2016 20:24	1	91625	9/20/2016	1
4036935	IPC/CCV	HG_7470_GW	CCV		9/20/2016 20:27	1	R196140		1
4036936	CRDL	HG_7470_GW	CRA		9/20/2016 20:30	1	R196140		1
4036937	CCB	HG_7470_GW	CCB		9/20/2016 20:32	1	R196140		1
4036938	1609536-48B	HG_7471_S	SAMP		9/20/2016 20:35	1	91625	9/20/2016	1
4036939	1609536-49B	HG_7471_S	SAMP		9/20/2016 20:37	1	91625	9/20/2016	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4036940	1609731-01B	HG_7471_S	SAMP		9/20/2016 20:40	1	91625	9/20/2016	1
4036941	1609731-02B	HG_7471_S	SAMP		9/20/2016 20:42	1	91625	9/20/2016	1
4036942	1609731-03B	HG_7471_S	SAMP		9/20/2016 20:45	1	91625	9/20/2016	1
4036943	1609736-01B	HG_7471_S	SAMP		9/20/2016 20:47	1	91625	9/20/2016	1
4036944	1609736-02B	HG_7471_S	SAMP		9/20/2016 20:50	1	91625	9/20/2016	1
4036945	1609744-01A	HG_7471_S	SAMP		9/20/2016 20:53	1	91625	9/20/2016	1
4036946	IPC/CCV	HG_7470_GW	CCV		9/20/2016 20:55	1	R196140		1
4036947	CRDL	HG_7470_GW	CRA		9/20/2016 20:58	1	R196140		1
4036948	CCB	HG_7470_GW	CCB		9/20/2016 21:00	1	R196140		1
4036949	1609775-01A	HG_7471_S	SAMP		9/20/2016 21:03	1	91625	9/20/2016	1
4036950	IPC/CCV	HG_7470_GW	CCV		9/20/2016 21:05	1	R196140		1
4036951	CRDL	HG_7470_GW	CRA		9/20/2016 21:08	1	R196140		1
4036952	CCB	HG_7470_GW	CCB		9/20/2016 21:11	1	R196140		1
4036953	IPC/CCV	HG_7470_GW	CCV		9/20/2016 21:41	1	R196140		1
4036954	CRDL	HG_7470_GW	CRA		9/20/2016 21:43	1	R196140		1
4036955	CCB	HG_7470_GW	CCB		9/20/2016 21:46	1	R196140		1
4036956	1609745-01D	HG_7470_WD	SAMP		9/20/2016 21:49	1	91678	9/20/2016	1
4036957	1609745-01C	HG_7470_GW	SAMP		9/20/2016 21:51	1	91678	9/20/2016	0
4036958	1609745-02D	HG_7470_WD	SAMP		9/20/2016 21:54	1	91678	9/20/2016	1
4036959	1609745-02C	HG_7470_GW	SAMP		9/20/2016 21:56	1	91678	9/20/2016	1
4036960	1609745-09C	HG_7470_GW	SAMP		9/20/2016 22:01	1	91678	9/20/2016	1
4036961	1609745-09D	HG_7470_WD	SAMP		9/20/2016 22:04	1	91678	9/20/2016	1
4036962	1609834-01C	HG_7470_GW	SAMP		9/20/2016 22:06	1	91678	9/20/2016	1
4036963	1609834-02C	HG_7470_GW	SAMP		9/20/2016 22:09	1	91678	9/20/2016	1
4036964	1609834-03C	HG_7470_GW	SAMP		9/20/2016 22:12	1	91678	9/20/2016	1
4036965	1609844-01C	HG_7470_GW	SAMP		9/20/2016 22:14	1	91678	9/20/2016	1
4036966	IPC/CCV	HG_7470_GW	CCV		9/20/2016 22:17	1	R196140		1
4036967	CRDL	HG_7470_GW	CRA		9/20/2016 22:19	1	R196140		1
4036968	CCB	HG_7470_GW	CCB		9/20/2016 22:22	1	R196140		1
4036969	1609844-03C	HG_7470_GW	SAMP		9/20/2016 22:24	1	91678	9/20/2016	1
4036970	1609844-04C	HG_7470_GW	SAMP		9/20/2016 22:27	1	91678	9/20/2016	1
4036971	1609845-02C	HG_7470_GW	SAMP		9/20/2016 22:30	1	91678	9/20/2016	1
4036972	1609845-04C	HG_7470_GW	SAMP		9/20/2016 22:32	1	91678	9/20/2016	1
4036973	1609845-06C	HG_7470_GW	SAMP		9/20/2016 22:35	1	91678	9/20/2016	1
4036974	EQB-91621	TCHG_7470_S	SAMP		9/20/2016 22:37	1	91678	9/20/2016	1
4036975	MBLK-91691	HG_245.1_WW	MBLK		9/20/2016 22:40	1	91691	9/20/2016	1
4036976	LCS-91691	HG_245.1_WW	LCS		9/20/2016 22:42	1	91691	9/20/2016	1
4036977	1609840-01A	HG_245.1_WW	SAMP		9/20/2016 22:45	1	91691	9/20/2016	1
4036978	1609910-01A	HG_245.1_WW	SAMP		9/20/2016 22:47	1	91691	9/20/2016	1
4036979	IPC/CCV	HG_245.1_WW	CCV		9/20/2016 22:50	1	R196140		1
4036980	CRDL	HG_245.1_WW	CRA		9/20/2016 22:53	1	R196140		1
4036981	CCB	HG_245.1_WW	CCB		9/20/2016 22:55	1	R196140		1
4036982	1609914-01A	HG_245.1_WW	SAMP		9/20/2016 22:58	1	91691	9/20/2016	1
4036983	1609914-01ADUP	HG_245.1_WW	DUP		9/20/2016 23:00	1	91691	9/20/2016	1
4036984	1609943-01D	HG_245.1_WW	SAMP		9/20/2016 23:03	1	91691	9/20/2016	1
4036985	1609943-01DMS	HG_245.1_WW	MS		9/20/2016 23:05	1	91691	9/20/2016	1
4036986	1609943-01DMSD	HG_245.1_WW	MSD		9/20/2016 23:08	1	91691	9/20/2016	1
4036987	1609959-06C	HG_245.1_WW	SAMP		9/20/2016 23:10	1	91691	9/20/2016	1
4036988	1609959-06CMS	HG_245.1_WW	MS		9/20/2016 23:13	1	91691	9/20/2016	1
4036989	1609959-06CMSD	HG_245.1_WW	MSD		9/20/2016 23:16	1	91691	9/20/2016	1
4036990	1609959-07C	HG_245.1_WW	SAMP		9/20/2016 23:18	1	91691	9/20/2016	1
4036991	1609959-08C	HG_245.1_WW	SAMP		9/20/2016 23:21	1	91691	9/20/2016	1
4036992	IPC/CCV	HG_245.1_WW	CCV		9/20/2016 23:23	1	R196140		1
4036993	CRDL	HG_245.1_WW	CRA		9/20/2016 23:26	1	R196140		1
4036994	CCB	HG_245.1_WW	CCB		9/20/2016 23:28	1	R196140		1
4036995	1609959-13A	HG_245.1_WW	SAMP		9/20/2016 23:31	1	91691	9/20/2016	1
4036996	1609959-15A	HG_245.1_WW	SAMP		9/20/2016 23:34	1	91691	9/20/2016	1
4036997	1609959-16A	HG_245.1_WW	SAMP		9/20/2016 23:36	1	91691	9/20/2016	1
4036998	1609959-17A	HG_245.1_WW	SAMP		9/20/2016 23:39	1	91691	9/20/2016	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
4036999	1609959-18A	HG_245.1_WW	SAMP		9/20/2016 23:41	1	91691	9/20/2016	1
4037000	1609959-19A	HG_245.1_WW	SAMP		9/20/2016 23:44	1	91691	9/20/2016	1
4037001	1609959-20A	HG_245.1_WW	SAMP		9/20/2016 23:46	1	91691	9/20/2016	1
4037002	1609959-21A	HG_245.1_WW	SAMP		9/20/2016 23:49	1	91691	9/20/2016	1
4037003	1609959-22A	HG_245.1_WW	SAMP		9/20/2016 23:51	1	91691	9/20/2016	1
4037004	1609959-23A	HG_245.1_WW	SAMP		9/20/2016 23:54	1	91691	9/20/2016	1
4037005	IPC/CCV	HG_245.1_WW	CCV		9/20/2016 23:57	1	R196140		1
4037006	CRDL	HG_245.1_WW	CRA		9/20/2016 23:59	1	R196140		1
4037007	CCB	HG_245.1_WW	CCB		9/21/2016 00:02	1	R196140		1
4037798	1609959-24A	HG_245.1_WW	SAMP		9/21/2016 00:04	1	91691	9/20/2016	1
4037799	1609959-25A	HG_245.1_WW	SAMP		9/21/2016 00:07	1	91691	9/20/2016	1
4037848	MBLK-91626	HG_7471_S	MBLK		9/21/2016 00:10	1	91626	9/20/2016	1
4037849	LCS-91626	HG_7471_S	LCS		9/21/2016 00:13	1	91626	9/20/2016	1
4037850	1609630-01C	HG_7471_S	SAMP		9/21/2016 00:16	1	91626	9/20/2016	1
4037851	1609630-01CMS	HG_7471_S	MS		9/21/2016 00:18	1	91626	9/20/2016	1
4037852	1609630-01CMSD	HG_7471_S	MSD		9/21/2016 00:21	1	91626	9/20/2016	1
4037853	1609630-02C	HG_7471_S	SAMP		9/21/2016 00:24	1	91626	9/20/2016	1
4037854	1609630-03C	HG_7471_S	SAMP		9/21/2016 00:26	1	91626	9/20/2016	1
4037855	1609630-04C	HG_7471_S	SAMP		9/21/2016 00:29	1	91626	9/20/2016	1
4037856	IPC/CCV	HG_7470_GW	CCV		9/21/2016 00:31	1	R196140		1
4037857	CRDL	HG_7470_GW	CRA		9/21/2016 00:34	1	R196140		1
4037858	CCB	HG_7470_GW	CCB		9/21/2016 00:36	1	R196140		1
4037859	1609630-05C	HG_7471_S	SAMP		9/21/2016 00:39	1	91626	9/20/2016	1
4037860	1609630-06C	HG_7471_S	SAMP		9/21/2016 00:42	1	91626	9/20/2016	1
4037861	1609630-07C	HG_7471_S	SAMP		9/21/2016 00:44	1	91626	9/20/2016	1
4037862	1609630-08C	HG_7471_S	SAMP		9/21/2016 00:47	1	91626	9/20/2016	1
4037863	1609630-09C	HG_7471_S	SAMP		9/21/2016 00:49	1	91626	9/20/2016	1
4037864	1609630-10C	HG_7471_S	SAMP		9/21/2016 00:52	1	91626	9/20/2016	1
4037865	1609745-03B	HG_7471_S	SAMP		9/21/2016 00:54	1	91626	9/20/2016	0
4037866	1609745-04B	HG_7471_S	SAMP		9/21/2016 00:57	1	91626	9/20/2016	0
4037867	1609745-05B	HG_7471_S	SAMP		9/21/2016 01:08	1	91626	9/20/2016	0
4037868	1609745-06A	HG_7471_S	SAMP		9/21/2016 01:15	1	91626	9/20/2016	1
4037869	IPC/CCV	HG_7470_GW	CCV		9/21/2016 01:18	1	R196140		1
4037870	CRDL	HG_7470_GW	CRA		9/21/2016 01:21	1	R196140		1
4037871	CCB	HG_7470_GW	CCB		9/21/2016 01:23	1	R196140		1
4037872	1609745-07A	HG_7471_S	SAMP		9/21/2016 01:26	1	91626	9/20/2016	1
4037873	1609748-01A	HG_7471_S	SAMP		9/21/2016 01:28	1	91626	9/20/2016	1
4037874	1609776-01B	HG_7471_S	SAMP		9/21/2016 01:31	1	91626	9/20/2016	1
4037875	1609776-03B	HG_7471_S	SAMP		9/21/2016 01:33	1	91626	9/20/2016	1
4037876	1609776-05B	HG_7471_S	SAMP		9/21/2016 01:36	1	91626	9/20/2016	1
4037877	1609887-01C	HG_7471_S	SAMP		9/21/2016 01:39	1	91626	9/20/2016	1
4037923	1609745-01C	HG_7470_GW	SAMP		9/21/2016 01:41	5	91678	9/20/2016	1
4037924	IPC/CCV	HG_7470_GW	CCV		9/21/2016 01:44	1	R196140		1
4037925	CRDL	HG_7470_GW	CRA		9/21/2016 01:46	1	R196140		1
4037926	CCB	HG_7470_GW	CCB		9/21/2016 01:49	1	R196140		1

Method 245.1 / 7470A / 7471B

Report Generated By CETAC QuickTrace
Analyst: alshn.hg
Worksheet file: C:\Program Files\QuickTrace\Worksheets\160920A.wsz
Date Started: 9/20/2016 2:11:18 PM
Comment:

Hg1-160920A

Results

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
Calibration Blank					STD	09/20/16 02:53:43 pm	0.000	18	281.54	
Replicates	-12.6	8.1	-15.4	89.9						
							2026.60			
Standard #1 (0.2 ppb)					STD	09/20/16 02:56:15 pm	0.200	3723	0.85	
Replicates	3690.1	3742.8	3756.0	3702.8						
Standard #2 (0.5 ppb)					STD	09/20/16 02:58:47 pm	0.500	8829	0.49	
Replicates	8784.8	8800.9	8850.4	8878.2						
Standard #3 (1.0 ppb)					STD	09/20/16 03:01:20 pm	1.000	17485	0.37	
Replicates	17408.9	17454.2	17533.0	17545.2						
Standard #4 (2.0 ppb)					STD	09/20/16 03:03:53 pm	2.000	34137	0.54	
Replicates	33884.0	34119.9	34295.6	34247.1						
Standard #5 (4.0 ppb)					STD	09/20/16 03:06:27 pm	4.000	66954	0.65	
Replicates	66430.3	66783.4	67181.9	67420.1						

Calibration

Equation: A = 435.791 + 16692.230C
R2: 0.99985
SEE: 342.9285
Flags:

✓ UL

ICV					ICV	09/20/16 03:09:02 pm	2.060	34811	0.38	
Replicates	34652.8	34771.6	34851.6	34967.6						
% Recovery	102.97									

✓ UL

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
ICB					ICB	09/20/16 03:11:37 pm	-0.025	12	158.76	
	Replicates	27.7	2.8	30.0	-10.7					
IPC/CCV					CCV	09/20/16 03:14:13 pm	2.030	34371	0.42	
	Replicates	34155.9	34426.3	34430.0	34472.8					
	% Recovery	101.65								
CRDL					CRDL	09/20/16 03:16:49 pm	0.187	3556	0.94	
	Replicates	3586.2	3510.1	3553.6	3575.1					
	% Recovery	93.47								
CCB					CCB	09/20/16 03:19:24 pm	-0.022	61	32.06	
	Replicates	80.6	72.2	35.9	56.4					
MBLK-91472					UNK	09/20/16 04:11:40 pm	-0.016	175	11.18	
	Replicates	191.6	171.4	148.9	188.4					
LCS-91472					UNK	09/20/16 04:14:11 pm	2.140	36230	0.35	
	Replicates	36094.8	36154.6	36306.6	36362.6					
1609536-02A					UNK	09/20/16 04:16:43 pm	0.164	3166	0.52	
	Replicates	3177.8	3168.3	3142.3	3176.6					
1609536-04A					UNK	09/20/16 04:19:14 pm	0.072	1642	2.58	
	Replicates	1602.0	1633.1	1630.1	1701.6					
1609536-06A					UNK	09/20/16 04:21:46 pm	0.133	2654	0.81	
	Replicates	2672.1	2663.0	2656.2	2623.0					
1609536-08A					UNK	09/20/16 04:24:18 pm	0.205	3855	0.63	
	Replicates	3858.8	3830.5	3844.2	3887.0					
1609536-09B					UNK	09/20/16 04:26:51 pm	0.456	8052	0.60	
	Replicates	8009.9	8013.2	8108.5	8075.2					
1609536-09BMS					UNK	09/20/16 04:29:24 pm	2.500	42196	0.43	
	Replicates	41961.1	42146.8	42308.3	42366.6					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609536-09BMSD					UNK	09/20/16 04:41:35 pm	2.470	41638	0.60	
Replicates	41320.6	41592.4	41714.9	41922.9						
1609536-10B					UNK	09/20/16 04:44:09 pm	0.705	12211	0.79	
Replicates	12085.8	12234.1	12205.6	12319.6						
IPC/CCV					CCV	09/20/16 04:46:45 pm	2.030	34372	0.42	
Replicates	34192.1	34348.8	34410.1	34536.3						
% Recovery	101.65									
CRDL					CRDL	09/20/16 04:49:21 pm	0.189	3584	0.99	
Replicates	3547.4	3566.2	3595.9	3628.4						
% Recovery	94.32									
CCB					CCB	09/20/16 04:51:56 pm	-0.026	8	358.34	
Replicates	40.8	-23.1	26.9	-10.8						
MBLK-91625					UNK	09/20/16 04:54:29 pm	-0.023	51	91.21	
Replicates	-6.4	36.9	72.9	102.4						
LCS-91625					UNK	09/20/16 04:57:03 pm	2.160	36464	0.47	
Replicates	36261.9	36401.5	36529.3	36663.0						
1609618-01A					UNK	09/20/16 04:59:37 pm	0.281	5132	0.87	
Replicates	5092.3	5115.8	5196.3	5125.3						
1609648-01A					UNK	09/20/16 05:02:09 pm	0.423	7491	0.65	
Replicates	7423.3	7492.2	7509.7	7538.4						
1609648-02A					UNK	09/20/16 05:04:41 pm	3.910	65727	0.35	
Replicates	65415.2	65730.4	65806.1	65956.9						
1609751-01C					UNK	09/20/16 05:07:13 pm	0.428	7572	0.79	
Replicates	7555.3	7504.5	7580.5	7648.0						
1609751-01CMS					UNK	09/20/16 05:09:46 pm	2.620	44249	0.44	
Replicates	44001.2	44213.3	44319.6	44461.8						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609751-01CMSD					UNK	09/20/16 05:12:18 pm	2.630	44338	0.45	
Replicates	44129.2	44232.9	44416.1	44575.4						
IPC/CCV					CCV	09/20/16 05:14:54 pm	2.010	34067	0.42	
Replicates	33916.8	34022.9	34067.4	34261.1						
% Recovery	100.74									
CRDL					CRDL	09/20/16 05:17:30 pm	0.193	3653	1.79	
Replicates	3589.3	3661.9	3619.6	3740.4						
% Recovery	96.36									
CCB					CCB	09/20/16 05:20:05 pm	-0.024	41	51.70	
Replicates	24.0	63.7	21.9	54.4						
MBLK-91678					UNK	09/20/16 05:22:39 pm	0.018	743	2.26	
Replicates	745.6	725.4	765.1	736.9						
LCS-91678					UNK	09/20/16 05:26:08 pm	2.000	33791	0.42	
Replicates	33609.6	33762.3	33851.8	33938.5						
16061037-02A					UNK	09/20/16 05:28:39 pm	-0.028	-33	91.62	
Replicates	-76.7	-6.1	-21.1	-29.3						
16091037-02AMS					UNK	09/20/16 05:31:10 pm	2.110	35610	0.47	
Replicates	35402.9	35555.7	35701.4	35781.2						
16091037-02AMSD					UNK	09/20/16 05:33:42 pm	2.110	35600	0.45	
Replicates	35403.8	35543.0	35694.0	35760.5						
16091049-01A					UNK	09/20/16 05:36:14 pm	0.072	1631	2.44	
Replicates	1585.3	1679.6	1642.4	1618.6						
16091049-02A					UNK	09/20/16 05:38:46 pm	-0.019	115	17.37	
Replicates	117.8	142.0	100.0	99.8						
IPC/CCV					CCV	09/20/16 05:41:22 pm	2.030	34398	0.46	
Replicates	34209.6	34327.5	34489.5	34564.8						
% Recovery	101.73									

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CRDL					CRDL	09/20/16 05:43:58 pm	0.194	3673	1.53	
	Replicates	3659.2	3700.0	3732.7	3602.0					
	% Recovery	96.98								
CCB					CCB	09/20/16 05:46:33 pm	-0.026	8	350.65	
	Replicates	7.1	18.1	-30.4	37.9					
16091057-01C					UNK	09/20/16 05:49:05 pm	0.691	11962	0.90	
	Replicates	11862.3	11937.3	11932.5	12115.0					
16091034-01A					UNK	09/20/16 05:51:38 pm	-0.027	-17	280.19	
	Replicates	-81.4	-18.4	22.1	11.4					
1609536-11B					UNK	09/20/16 05:54:10 pm	0.493	8658	0.42	
	Replicates	8622.9	8657.1	8643.1	8707.9					
IPC/CCV					CCV	09/20/16 05:56:46 pm	2.000	33862	0.46	
	Replicates	33702.3	33849.5	33818.2	34076.5					
	% Recovery	100.12								
CRDL					CRDL	09/20/16 05:59:23 pm	0.190	3610	1.81	
	Replicates	3555.3	3558.4	3634.1	3690.9					
	% Recovery	95.07								
CCB					CCB	09/20/16 06:01:58 pm	-0.023	46	62.60	
	Replicates	73.9	6.9	57.4	43.9					
1609536-12B					UNK	09/20/16 06:04:31 pm	0.192	3643	1.23	
	Replicates	3641.9	3599.5	3626.3	3704.8					
1609536-13B					UNK	09/20/16 06:07:04 pm	0.102	2135	2.00	
	Replicates	2124.1	2112.8	2105.0	2198.0					
1609536-14B					UNK	09/20/16 06:09:38 pm	0.125	2523	1.32	
	Replicates	2526.9	2479.5	2560.5	2523.5					
1609536-15B					UNK	09/20/16 06:12:12 pm	1.410	23975	0.08	
	Replicates	23982.5	23983.6	23946.1	23987.1					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609536-16B					UNK	09/20/16 06:14:43 pm	0.840	14461	1.10	
Replicates	14253.1	14428.0	14551.0	14613.5						
1609536-17B					UNK	09/20/16 06:17:14 pm	0.352	6314	0.57	
Replicates	6282.5	6288.0	6358.5	6328.5						
1609536-18B					UNK	09/20/16 06:19:45 pm	0.506	8876	0.76	
Replicates	8810.0	8857.0	8867.5	8969.5						
1609536-19B					UNK	09/20/16 06:22:17 pm	0.341	6120	0.45	
Replicates	6149.8	6128.6	6084.1	6115.8						
1609536-20B					UNK	09/20/16 06:24:48 pm	0.958	16424	0.47	
Replicates	16322.1	16451.8	16503.8	16417.3						
1609536-21B					UNK	09/20/16 06:27:21 pm	0.854	14686	0.56	
Replicates	14613.8	14620.9	14723.9	14784.6						
IPC/CCV					CCV	09/20/16 06:29:56 pm	2.040	34525	0.42	
Replicates	34342.5	34480.2	34620.7	34658.2						
% Recovery	102.11									
CRDL					CRDL	09/20/16 06:32:33 pm	0.192	3648	1.16	
Replicates	3592.0	3638.6	3671.1	3688.6						
% Recovery	96.21									
CCB					CCB	09/20/16 06:35:08 pm	-0.024	28	111.98	
Replicates	48.9	-18.7	40.1	41.8						
1609536-22B					UNK	09/20/16 06:37:40 pm	0.598	10418	0.53	
Replicates	10446.8	10342.3	10414.0	10468.5						
1609536-23B					UNK	09/20/16 06:40:13 pm	0.719	12446	1.00	
Replicates	12308.9	12372.5	12538.0	12564.0						
1609536-24B					UNK	09/20/16 06:42:46 pm	1.130	19270	0.49	
Replicates	19143.0	19253.3	19344.6	19339.3						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609644-01B					UNK	09/20/16 06:45:18 pm	0.631	10969	0.54	
Replicates	10890.2	10970.2	11033.7	10982.9						
1609644-02B					UNK	09/20/16 06:47:49 pm	0.281	5129	0.36	
Replicates	5106.1	5144.5	5123.0	5143.5						
1609644-03B					UNK	09/20/16 06:50:21 pm	0.273	4998	1.04	
Replicates	4940.1	5002.1	5064.9	4983.4						
1609644-04B					UNK	09/20/16 06:52:52 pm	0.157	3065	1.34	
Replicates	3018.3	3057.9	3117.9	3064.2						
IPC/CCV					CCV	09/20/16 06:55:28 pm	2.040	34426	0.53	
Replicates	34217.6	34338.2	34532.7	34615.2						
% Recovery	101.81									
CRDL					CRDL	09/20/16 06:58:04 pm	0.193	3665	0.82	
Replicates	3625.1	3694.0	3661.0	3681.8						
% Recovery	96.74									
CCB					CCB	09/20/16 07:00:39 pm	-0.025	27	172.55	
Replicates	-40.5	62.9	31.4	55.6						
MBLK-91619					UNK	09/20/16 07:03:12 pm	-0.018	139	46.64	
Replicates	112.0	233.7	86.2	125.4						
LCS-91619					UNK	09/20/16 07:05:45 pm	2.090	35373	0.44	
Replicates	35239.6	35264.6	35413.6	35576.1						
1609536-25B					UNK	09/20/16 07:08:18 pm	0.555	9694	0.46	
Replicates	9666.1	9752.8	9704.0	9655.0						
1609536-26B					UNK	09/20/16 07:10:52 pm	1.240	21128	0.35	
Replicates	21041.5	21103.9	21150.1	21218.4						
1609536-27B					UNK	09/20/16 07:13:26 pm	0.525	9193	0.04	
Replicates	9193.3	9197.4	9189.4	9191.9						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609536-28B					UNK	09/20/16 07:15:57 pm	0.396	7040	1.14	
Replicates	7025.5	6933.0	7089.0	7113.0						
1609536-28BMS					UNK	09/20/16 07:18:29 pm	2.490	41953	0.49	
Replicates	41673.6	41945.1	42029.1	42164.6						
IPC/CCV					CCV	09/20/16 07:21:04 pm	2.020	34182	0.48	
Replicates	34015.3	34075.0	34270.5	34365.8						
% Recovery	101.08									
CRDL					CRDL	09/20/16 07:23:41 pm	0.190	3609	2.14	
Replicates	3514.4	3688.9	3581.9	3651.4						
% Recovery	95.06									
CCB					CCB	09/20/16 07:26:16 pm	-0.024	35	104.45	
Replicates	48.7	68.2	37.2	-16.0						
1609536-28BMSD					UNK	09/20/16 07:28:47 pm	2.500	42174	0.52	
Replicates	41923.3	42093.0	42245.5	42436.0						
1609536-29B					UNK	09/20/16 07:31:19 pm	0.529	9268	0.81	
Replicates	9179.8	9291.8	9241.3	9357.3						
1609536-30B					UNK	09/20/16 07:33:51 pm	0.601	10461	0.70	
Replicates	10363.7	10459.8	10479.5	10539.8						
1609536-31B					UNK	09/20/16 07:36:23 pm	0.578	10087	0.50	
Replicates	10016.9	10116.8	10086.8	10128.8						
1609536-32B					UNK	09/20/16 07:38:55 pm	0.497	8728	0.64	
Replicates	8664.6	8717.6	8730.6	8800.1						
1609536-33B					UNK	09/20/16 07:41:28 pm	0.409	7269	0.76	
Replicates	7221.9	7251.7	7255.0	7349.2						
1609536-34B					UNK	09/20/16 07:44:01 pm	0.571	9962	0.68	
Replicates	9931.3	9881.2	10013.0	10023.2						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609536-35B					UNK	09/20/16 07:46:35 pm	0.596	10388	1.00	
Replicates	10275.2	10428.2	10336.9	10512.4						
1609536-36B					UNK	09/20/16 07:49:08 pm	0.601	10468	0.52	
Replicates	10404.3	10460.3	10536.1	10473.1						
1609536-37B					UNK	09/20/16 07:51:42 pm	0.558	9752	0.34	
Replicates	9750.9	9745.0	9716.5	9796.0						
IPC/CCV					CCV	09/20/16 07:54:18 pm	2.000	33840	0.87	
Replicates	33498.5	33709.7	33978.7	34171.7						
% Recovery	100.06									
CRDL					CRDL	09/20/16 07:56:54 pm	0.188	3573	1.57	
Replicates	3593.6	3489.6	3604.1	3606.1						
% Recovery	93.98									
CCB					CCB	09/20/16 07:59:29 pm	-0.027	-11	307.85	
Replicates	-48.7	36.1	-20.1	-13.1						
1609536-38B					UNK	09/20/16 08:02:01 pm	0.989	16946	0.15	
Replicates	16920.7	16936.0	16945.5	16980.0						
1609536-39B					UNK	09/20/16 08:04:33 pm	0.556	9712	0.51	
Replicates	9658.9	9757.1	9679.4	9750.6						
1609536-40B					UNK	09/20/16 08:07:05 pm	0.380	6771	1.01	
Replicates	6681.4	6811.6	6755.4	6836.1						
1609536-41B					UNK	09/20/16 08:09:38 pm	0.550	9609	0.29	
Replicates	9569.3	9614.6	9619.3	9632.8						
1609536-42B					UNK	09/20/16 08:12:10 pm	0.157	3058	1.62	
Replicates	3002.5	3084.1	3034.1	3113.1						
1609536-43B					UNK	09/20/16 08:14:42 pm	0.573	9996	0.90	
Replicates	9874.9	9981.1	10067.1	10060.9						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609536-44B					UNK	09/20/16 08:17:14 pm	0.502	8816	0.53	
Replicates	8752.5	8827.7	8863.2	8822.2						
1609536-45B					UNK	09/20/16 08:19:47 pm	0.562	9813	0.52	
Replicates	9768.7	9830.8	9776.3	9877.1						
1609536-46B					UNK	09/20/16 08:22:20 pm	0.435	7691	1.05	
Replicates	7582.1	7676.4	7760.6	7743.9						
1609536-47B					UNK	09/20/16 08:24:54 pm	0.365	6522	0.93	
Replicates	6467.8	6476.0	6594.0	6550.0						
IPC/CCV					CCV	09/20/16 08:27:29 pm	1.990	33648	0.54	
Replicates	33461.1	33585.0	33654.5	33890.5						
% Recovery	99.48									
CRDL					CRDL	09/20/16 08:30:06 pm	0.190	3607	0.39	
Replicates	3594.2	3595.9	3623.1	3613.6						
% Recovery	94.98									
CCB					CCB	09/20/16 08:32:41 pm	-0.026	-1	999.95	
Replicates	8.0	43.6	12.1	-68.4						
1609536-48B					UNK	09/20/16 08:35:14 pm	0.096	2039	1.76	
Replicates	2031.0	2076.1	1992.6	2055.9						
1609536-49B					UNK	09/20/16 08:37:48 pm	0.174	3348	2.18	
Replicates	3330.5	3252.9	3415.2	3394.2						
1609731-01B					UNK	09/20/16 08:40:21 pm	0.552	9653	0.60	
Replicates	9585.2	9644.6	9655.6	9726.1						
1609731-02B					UNK	09/20/16 08:42:53 pm	0.302	5472	0.65	
Replicates	5420.6	5477.8	5492.1	5498.6						
1609731-03B					UNK	09/20/16 08:45:25 pm	0.429	7594	0.48	
Replicates	7551.3	7581.9	7605.6	7638.1						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609736-01B					UNK	09/20/16 08:47:58 pm	0.151	2957	0.87	
	Replicates	2939.7	2965.8	2934.3	2990.0					
1609736-02B					UNK	09/20/16 08:50:30 pm	0.126	2538	1.50	
	Replicates	2535.7	2515.3	2509.8	2593.0					
1609744-01A					UNK	09/20/16 08:53:03 pm	0.566	9887	0.18	
	Replicates	9906.0	9867.4	9895.9	9877.2					
IPC/CCV					CCV	09/20/16 08:55:38 pm	1.970	33350	0.47	
	Replicates	33208.0	33278.5	33339.2	33573.2					
	% Recovery	98.59								
CRDL					CRDL	09/20/16 08:58:15 pm	0.187	3560	1.40	
	Replicates	3587.5	3486.1	3576.6	3590.9					
	% Recovery	93.59								
CCB					CCB	09/20/16 09:00:50 pm	-0.027	-20	167.54	
	Replicates	-0.9	-63.2	13.0	-29.5					
1609775-01A					UNK	09/20/16 09:03:23 pm	0.415	7361	0.84	
	Replicates	7352.6	7278.7	7390.7	7421.7					
IPC/CCV					CCV	09/20/16 09:05:58 pm	1.990	33662	0.56	
	Replicates	33440.6	33574.0	33775.5	33858.3					
	% Recovery	99.53								
CRDL					CRDL	09/20/16 09:08:35 pm	0.184	3505	1.37	
	Replicates	3502.0	3543.7	3438.0	3535.7					
	% Recovery	91.93								
CCB					CCB	09/20/16 09:11:10 pm	-0.027	-10	379.63	
	Replicates	-30.6	47.6	-20.7	-37.7					
IPC/CCV					CCV	09/20/16 09:41:15 pm	1.970	33237	0.65	
	Replicates	33007.5	33139.9	33284.9	33515.1					
	% Recovery	98.25								
CRDL					CRDL	09/20/16 09:43:52 pm	0.186	3545	1.13	
	Replicates	3529.9	3495.4	3578.7	3576.9					
	% Recovery	93.14								

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB					CCB	09/20/16 09:46:27 pm	-0.024	30	124.55	
Replicates	76.3	34.9	26.4	-16.1						
1609745-~~01C~~ 01D UR 9-20-16					UNK	09/20/16 09:49:00 pm	1.220	20773	1.06	
Replicates	20527.3	20662.1	20879.1	21023.6						
1609745-~~01D~~ 01C UR 9-20-16					UNK	09/20/16 09:51:34 pm	8.980	150296	0.59	O NR
Replicates	149173.0	150071.0	150703.7	151234.5						
1609745-~~02C~~ 02D UR 9-20-16					UNK	09/20/16 09:54:08 pm	1.350	22943	0.80	
Replicates	22774.0	22844.3	22957.8	23194.5						
1609745-~~02D~~ 02C UR 9-20-16					UNK	09/20/16 09:56:41 pm	1.390	23610	0.56	
Replicates	23436.2	23598.6	23651.1	23754.3						
1609745-09C					UNK	09/20/16 10:01:51 pm	0.191	3618	1.00	✓
Replicates	3565.7	3627.3	3629.5	3649.8						
1609745-09D					UNK	09/20/16 10:04:23 pm	0.045	1191	1.67	✓
Replicates	1219.2	1182.5	1187.0	1173.5						
1609834-01C					UNK	09/20/16 10:06:56 pm	0.401	7126	1.57	
Replicates	6971.9	7115.5	7199.0	7216.7						
1609834-02C					UNK	09/20/16 10:09:29 pm	0.003	478	4.63	
Replicates	454.3	507.2	481.0	471.0						
1609834-03C					UNK	09/20/16 10:12:01 pm	-0.010	276	10.00	
Replicates	255.3	258.4	315.4	276.4						
1609844-01C					UNK	09/20/16 10:14:34 pm	-0.004	366	10.22	
Replicates	409.2	321.2	380.7	354.9						
IPC/CCV					CCV	09/20/16 10:17:09 pm	2.050	34657	0.40	✓ UR
Replicates	34487.7	34635.4	34677.4	34828.7						
% Recovery	102.51									

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CRDL					CRDL	09/20/16 10:19:46 pm	0.194	3677	1.47	
	Replicates	3707.8	3598.7	3716.7	3684.2					
	% Recovery	97.08								
CCB					CCB	09/20/16 10:22:21 pm	-0.024	33	81.29	
	Replicates	30.0	-2.4	60.9	42.9					
1609844-03C					UNK	09/20/16 10:24:54 pm	-0.001	420	4.21	
	Replicates	433.0	435.2	413.7	397.7					
1609844-04C					UNK	09/20/16 10:27:27 pm	-0.015	179	24.72	
	Replicates	173.9	239.0	170.2	132.5					
1609845-02C					UNK	09/20/16 10:30:00 pm	-0.011	260	27.47	
	Replicates	324.6	309.8	232.8	171.3					
1609845-04C					UNK	09/20/16 10:32:34 pm	-0.007	313	7.70	
	Replicates	331.0	283.3	334.1	303.3					
1609845-06C					UNK	09/20/16 10:35:08 pm	-0.012	237	13.55	
	Replicates	194.4	254.3	267.6	230.6					
EQB-91621					UNK	09/20/16 10:37:41 pm	-0.022	69	63.57	
	Replicates	30.4	31.7	112.2	100.0					
MBLK-91691					UNK	09/20/16 10:40:14 pm	0.100	2106	1.66	
	Replicates	2148.4	2083.9	2071.7	2120.9					
LCS-91691					UNK	09/20/16 10:42:46 pm	2.000	33825	0.57	
	Replicates	33559.3	33838.8	33887.8	34013.5					
1609840-01A					UNK	09/20/16 10:45:19 pm	-0.008	302	20.09	
	Replicates	320.7	228.9	373.6	286.4					
1609910-01A					UNK	09/20/16 10:47:52 pm	0.372	6653	0.40	
	Replicates	6654.3	6618.2	6657.7	6683.4					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
IPC/CCV					CCV	09/20/16 10:50:28 pm	2.010	33978	0.48	✓ UR
Replicates	33786.0	33906.8	34080.3	34139.3						
% Recovery	100.47									
CRDL					CRDL	09/20/16 10:53:04 pm	0.194	3672	0.88	
Replicates	3627.9	3705.8	3678.3	3675.5						
% Recovery	96.93									
CCB					CCB	09/20/16 10:55:39 pm	-0.025	16	157.66	
Replicates	-16.1	30.4	8.9	40.6						
1609914-01A					UNK	09/20/16 10:58:12 pm	0.002	467	6.56	
Replicates	463.4	510.6	443.4	448.6						
1609914-01ADUP					UNK	09/20/16 11:00:45 pm	0.000	440	8.37	
Replicates	387.5	443.1	469.1	461.4						
1609943-01D					UNK	09/20/16 11:03:18 pm	-0.017	145	25.46	
Replicates	154.7	126.0	107.3	192.0						
1609943-01DMS					UNK	09/20/16 11:05:51 pm	2.050	34629	0.53	
Replicates	34375.2	34634.4	34704.4	34800.4						
1609943-01DMSD					UNK	09/20/16 11:08:25 pm	2.010	33922	0.48	
Replicates	33729.2	33849.2	34087.2	34023.7						
1609959-06C					UNK	09/20/16 11:10:58 pm	-0.016	162	11.33	
Replicates	153.6	144.1	164.4	186.9						
1609959-06CMS					UNK	09/20/16 11:13:32 pm	2.000	33898	0.40	
Replicates	33724.5	33858.0	33978.2	34032.5						
1609959-06CMSD					UNK	09/20/16 11:16:05 pm	2.010	33969	0.36	
Replicates	33831.5	33916.0	34012.2	34117.5						
1609959-07C					UNK	09/20/16 11:18:38 pm	-0.023	46	49.33	
Replicates	64.3	45.9	58.1	13.9						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609959-08C					UNK	09/20/16 11:21:12 pm	-0.022	72	41.58	
Replicates	66.7	33.8	82.3	105.0						
IPC/CCV					CCV	09/20/16 11:23:47 pm	2.010	34049	0.55	
Replicates	33791.2	34028.0	34178.0	34198.3						
% Recovery	100.68									
CRDL					CRDL	09/20/16 11:26:23 pm	0.194	3668	1.67	
Replicates	3609.2	3621.4	3713.4	3728.1						
% Recovery	96.82									
CCB					CCB	09/20/16 11:28:59 pm	-0.027	-12	296.57	
Replicates	-36.7	-42.0	-6.5	36.5						
1609959-13A					UNK	09/20/16 11:31:32 pm	-0.011	243	10.75	
Replicates	243.6	278.5	216.5	233.7						
1609959-15A					UNK	09/20/16 11:34:05 pm	0.006	532	2.41	
Replicates	524.1	525.9	550.9	525.9						
1609959-16A					UNK	09/20/16 11:36:38 pm	-0.005	350	7.34	
Replicates	327.8	384.4	355.9	333.4						
1609959-17A					UNK	09/20/16 11:39:11 pm	-0.005	358	8.53	
Replicates	403.3	344.0	344.5	339.0						
1609959-18A					UNK	09/20/16 11:41:44 pm	0.034	998	3.95	
Replicates	1026.6	947.7	1032.2	985.7						
1609959-19A					UNK	09/20/16 11:44:18 pm	-0.003	393	16.01	
Replicates	325.4	465.1	357.6	421.9						
1609959-20A					UNK	09/20/16 11:46:51 pm	-0.009	293	9.33	
Replicates	326.4	266.6	275.1	303.3						
1609959-21A					UNK	09/20/16 11:49:24 pm	-0.009	281	24.03	
Replicates	362.9	246.1	209.4	306.4						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609959-22A					UNK	09/20/16 11:51:58 pm	-0.021	78	66.20	
Replicates	92.1	16.1	138.6	63.6						
1609959-23A					UNK	09/20/16 11:54:32 pm	-0.013	211	11.62	
Replicates	220.4	202.6	238.6	181.4						
IPC/CCV					CCV	09/20/16 11:57:08 pm	2.000	33871	0.41	UR
Replicates	33705.8	33822.9	33926.2	34027.4						
% Recovery	100.15									
CRDL					CRDL	09/20/16 11:59:44 pm	0.193	3665	1.63	
Replicates	3602.6	3649.1	3662.4	3745.9						
% Recovery	96.73									
CCB					CCB	09/21/16 12:02:19 am	-0.024	30	132.50	
Replicates	33.3	76.1	-22.1	34.4						
1609959-24A					UNK	09/21/16 12:04:53 am	-0.013	210	16.85	
Replicates	159.0	212.5	237.0	230.3						
1609959-25A					UNK	09/21/16 12:07:26 am	-0.019	124	25.29	
Replicates	111.2	167.9	123.9	94.4						
MBLK-91626					UNK	09/21/16 12:10:00 am	-0.020	96	19.54	
Replicates	108.5	79.3	81.0	116.0						
LCS-91626					UNK	09/21/16 12:13:50 am	2.140	36086	0.40	
Replicates	35918.7	36033.6	36131.1	36262.4						
1609630-01C					UNK	09/21/16 12:16:23 am	0.018	737	5.24	
Replicates	770.6	748.8	747.3	681.3						
1609630-01CMS					UNK	09/21/16 12:18:57 am	2.160	36469	0.28	
Replicates	36370.5	36392.9	36533.4	36578.9						
1609630-01CMSD					UNK	09/21/16 12:21:31 am	2.170	36635	0.64	
Replicates	36380.2	36506.0	36750.3	36903.8						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609630-02C					UNK	09/21/16 12:24:05 am	0.000	438	13.28	
Replicates	414.7	525.0	399.8	413.8						
1609630-03C					UNK	09/21/16 12:26:38 am	0.001	457	9.19	
Replicates	472.0	482.1	480.3	394.6						
1609630-04C					UNK	09/21/16 12:29:12 am	0.331	5956	0.65	
Replicates	5900.8	5966.4	5990.4	5967.4						
IPC/CCV					CCV	09/21/16 12:31:48 am	1.980	33493	0.58	✓ OK
Replicates	33242.8	33456.4	33578.4	33696.2						
% Recovery	99.02									
CRDL					CRDL	09/21/16 12:34:24 am	0.190	3604	2.18	
Replicates	3627.4	3509.1	3583.6	3696.8						
% Recovery	94.91									
CCB					CCB	09/21/16 12:36:59 am	-0.021	81	45.24	
Replicates	74.2	55.5	59.5	134.5						
1609630-05C					UNK	09/21/16 12:39:33 am	1.470	24947	0.34	
Replicates	24876.0	24869.9	25028.1	25012.4						
1609630-06C					UNK	09/21/16 12:42:07 am	0.156	3035	1.51	
Replicates	2998.0	3054.6	2997.1	3090.6						
1609630-07C					UNK	09/21/16 12:44:41 am	0.019	749	0.68	
Replicates	747.1	746.0	756.2	745.5						
1609630-08C					UNK	09/21/16 12:47:15 am	0.004	499	5.79	
Replicates	504.1	467.9	488.4	536.4						
1609630-09C					UNK	09/21/16 12:49:48 am	1.110	19034	0.41	
Replicates	18922.4	19048.9	19066.4	19098.6						
1609630-10C					UNK	09/21/16 12:52:22 am	0.007	549	9.29	
Replicates	606.2	544.8	483.0	561.5						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags	
1609745-03B					UNK	09/21/16 12:54:56 am	6.090	102140	0.39	O	NR
Replicates	101671.9	101980.6	102309.9	102596.1							
1609745-04B					UNK	09/21/16 12:57:30 am	42.700	713709	0.03	O	NR
Replicates	713528.2	713561.8	713813.8	713930.8							
1609745-05B					UNK	09/21/16 01:08:39 am	33.400	557650	0.13	O	NR
Replicates	556777.3	557429.7	557989.9	558402.7							
1609745-06A					UNK	09/21/16 01:15:53 am	1.020	17389	0.41		
Replicates	17287.9	17389.2	17436.7	17441.5							
IPC/CCV					CCV	09/21/16 01:18:29 am	1.950	33008	0.57		✓ UR
Replicates	32821.9	32919.5	33033.5	33256.0							
% Recovery	97.57										
CRDL					CRDL	09/21/16 01:21:05 am	0.175	3355	0.50		
Replicates	3360.8	3337.6	3345.9	3375.9							
% Recovery	87.44										
CCB					CCB	09/21/16 01:23:40 am	-0.035	-148	25.41		
Replicates	-197.9	-127.4	-154.4	-112.1							
1609745-07A					UNK	09/21/16 01:26:14 am	0.319	5757	1.18		
Replicates	5709.1	5766.7	5703.7	5849.7							
1609748-01A					UNK	09/21/16 01:28:48 am	0.748	12915	0.21		
Replicates	12879.6	12908.4	12937.9	12934.9							
1609776-01B					UNK	09/21/16 01:31:22 am	0.958	16426	0.59		
Replicates	16300.7	16397.8	16495.1	16511.1							
1609776-03B					UNK	09/21/16 01:33:56 am	0.276	5044	0.55		
Replicates	5039.7	5015.8	5081.8	5036.8							
1609776-05B					UNK	09/21/16 01:36:30 am	0.369	6596	1.15		
Replicates	6526.9	6574.5	6705.0	6579.5							

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1609887-01C					UNK	09/21/16 01:39:04 am	-0.028	-33	115.18	
Replicates	-0.7	-86.2	-34.9	-10.7						
1609745-01D DF5					UNK	09/21/16 01:41:38 am	1.530	25986	1.40	✓
Replicates	25563.2	25853.7	26117.5	26411.2						
IPC/CCV					CCV	09/21/16 01:44:14 am	1.950	32970	0.64	✓ UR
Replicates	32722.2	32893.8	33045.6	33218.3						
% Recovery	97.45									
CRDL					CRDL	09/21/16 01:46:51 am	0.177	3395	1.78	
Replicates	3310.2	3391.8	3443.0	3433.5						
% Recovery	88.63									
CCB					CCB	09/21/16 01:49:26 am	-0.031	-79	10.69	
Replicates	-78.5	-74.4	-71.9	-90.9						

ALS Group USA, Corp

PREP BATCH REPORT

Batch ID: 91678 Prep Code: HGPR_7470_W

Start Date: 9/20/2016 1:47:05 PM End Date: 9/20/2016 3:50:57 PM

Technician: Lisa Robinson

InitSamp Wt/Vol: 50 mL
FinSampVol: 50 mL
OriginalFac: 1
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
16091034-01A	Tclp Extract			5	0	50	10
16091037-02A	Tclp Extract			5	0	50	10
16091037-02AMS				5	0	50	10
16091037-02AMS				5	0	50	10
16091049-01A	Tclp Extract			5	0	50	10
16091049-02A	Tclp Extract			5	0	50	10
16091057-01C	Surface Water			50	0	50	1
1609745-01C	Water			30	0	50	1.66667
	Matrix Interference Permanganate Consumed						
1609745-01D	Water			30	0	50	1.66667
	Matrix Interference Permanganate Consumed						
1609745-02C	Water			50	0	50	1
1609745-02D	Water			50	0	50	1
1609745-09C	Water			50	0	50	1
1609745-09D	Water			50	0	50	1
1609834-01C	Water			50	0	50	1
1609834-02C	Water			50	0	50	1
1609834-03C	Water			50	0	50	1
1609844-01C	Water			50	0	50	1
1609844-03C	Water			50	0	50	1
1609844-04C	Water			50	0	50	1
1609845-02C	Water			50	0	50	1
1609845-04C	Water			50	0	50	1
1609845-06C	Water			50	0	50	1
EQB-91621				50	0	50	1

Notes: *ALL SAMPLES ARE B1/D1 UNLESS OTHERWISE NOTED. BLOCK B 96 degrees C*

ALS Group USA, Corp

PREP BATCH REPORT

Batch ID: 91678 Prep Code: HGPR 7470 W

Start Date: 9/20/2016 1:47:05 PM End Date: 9/20/2016 3:50:57 PM

Technician: Lisa Robinson

InitSamp Wt/Vol: 50 mL
FinSampVol: 50 mL
OriginalFac: 1
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
LCS-91678				50	0	50	1
MBLK-91678				50	0	50	1

Notes: *ALL SAMPLES ARE B1/D1 UNLESS OTHERWISE NOTED. BLOCK B 96 degrees C*

Section VII

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA | PHONE +1 616 399 6070 | FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

22-Sep-2016

Dennis Linley
CT Laboratories
1230 Lange Court
Baraboo, WI 53913

Re: **TOCON - TPA-Pile 6 - 091916** Work Order: **16091057**

Dear Dennis,

ALS Environmental received 2 samples on 19-Sep-2016 03:30 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 44.

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

Sincerely,

Joseph Ribar

Electronically approved by: Joseph Ribar

Joseph Ribar
Project Manager

Certificate No: WI: 399084510

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

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ALS Group USA, Corp

Date: 22-Sep-16

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Work Order: **16091057**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
16091057-01	TPA-Pile 6 - 091916	Surface Water		9/19/2016	9/19/2016 15:30	☐
16091057-02	Trip Blank	Surface Water		9/19/2016	9/19/2016 15:30	☐

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Work Order: 16091057

Case Narrative

Samples for the above noted Work Order were received on 09/19/2016. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:
Batch R196101a, Method 8260, Sample 16091057-01A: The reporting limit is elevated due to dilution for high concentrations of target analytes.

Batch R196197A, Method 8260, Sample 16091057-01A MS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: trans-1,3-dichloropropene, Acetone, and 1,1,1,2-Tetrachloroethane

Batch R196197A, Method 8260, Sample 16091057-01A MSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: trans-1,3-dichloropropene

No other deviations or anomalies were noted.

Extractable Organics:
Batch 91630, Method 8270, Sample 16091057-01B DUP: The RPD between the sample and its duplicate was out of control. The corresponding sample result should be considered estimated for this analyte: Acetophenone, Di-n-octyl phthalate, and Dibenzo(a,h)anthracene

Batch 91634A, Method 8082, Sample 16091057-01B: Surrogate high due to matrix interference.

Batch 91636, Method 8081, Sample 16091057-01B: The reporting limit is elevated due to dilution needed to eliminate matrix-related interference.

No other deviations or anomalies were noted.

Metals:
No other deviations or anomalies were noted.

Wet Chemistry:
No other deviations or anomalies were noted.

ALS Group USA, Corp

Date: *22-Sep-16*

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Sample ID: TPA-Pile 6 - 091916
Collection Date: 9/19/2016

Work Order: 16091057
Lab ID: 16091057-01
Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES		Method:	**SW8151**		Prep: SW8151M / 9/20/16		Analyst: **KYM**
2,4,5-TP (Silvex)	U		0.025	2.0	µg/L	1	9/22/2016 05:30
2,4-D	U		0.035	2.0	µg/L	1	9/22/2016 05:30
Surr: DCAA	*37.4*			*23-142*	*%REC*	1	9/22/2016 05:30
PCBS		Method:	**SW8082**				Analyst: **EB**
Aroclor 1016	U		0.051	0.21	µg/L	1	9/21/2016 16:51
Aroclor 1221	U		0.051	0.21	µg/L	1	9/21/2016 16:51
Aroclor 1232	U		0.051	0.21	µg/L	1	9/21/2016 16:51
Aroclor 1242	**4.3**		**0.051**	**0.21**	**µg/L**	1	9/21/2016 16:51
Aroclor 1248	U		0.051	0.21	µg/L	1	9/21/2016 16:51
Aroclor 1254	**1.5**		**0.033**	**0.21**	**µg/L**	1	9/21/2016 16:51
Aroclor 1260	U		0.033	0.21	µg/L	1	9/21/2016 16:51
PCBs, Total	**5.8**		**0.051**	**0.21**	**µg/L**	1	9/21/2016 16:51
Surr: Decachlorobiphenyl	*182*	S		*40-110*	*%REC*	1	9/21/2016 16:51
Surr: Tetrachloro-m-xylene	*304*	S		*40-110*	*%REC*	1	9/21/2016 16:51
PESTICIDES		Method:	**SW8081**		Prep: SW3510 / 9/20/16		Analyst: **BLM**
4,4´-DDD	U		0.012	0.20	µg/L	10	9/21/2016 13:54
4,4´-DDE	U		0.012	0.20	µg/L	10	9/21/2016 13:54
4,4´-DDT	U		0.017	0.20	µg/L	10	9/21/2016 13:54
Aldrin	U		0.015	0.10	µg/L	10	9/21/2016 13:54
alpha-BHC	U		0.025	0.10	µg/L	10	9/21/2016 13:54
alpha-Chlordane	U		0.017	0.20	µg/L	10	9/21/2016 13:54
beta-BHC	U		0.044	0.10	µg/L	10	9/21/2016 13:54
Chlordane, Technical	U		0.34	5.0	µg/L	10	9/21/2016 13:54
delta-BHC	U		0.015	0.10	µg/L	10	9/21/2016 13:54
Dieldrin	U		0.017	0.20	µg/L	10	9/21/2016 13:54
Endosulfan I	U		0.017	0.20	µg/L	10	9/21/2016 13:54
Endosulfan II	U		0.012	0.20	µg/L	10	9/21/2016 13:54
Endosulfan sulfate	U		0.012	0.20	µg/L	10	9/21/2016 13:54
Endrin	U		0.012	0.20	µg/L	10	9/21/2016 13:54
Endrin aldehyde	U		0.030	0.20	µg/L	10	9/21/2016 13:54
Endrin ketone	U		0.012	0.20	µg/L	10	9/21/2016 13:54
gamma-BHC (Lindane)	U		0.012	0.10	µg/L	10	9/21/2016 13:54
gamma-Chlordane	U		0.012	0.20	µg/L	10	9/21/2016 13:54
Heptachlor	U		0.017	0.10	µg/L	10	9/21/2016 13:54
Heptachlor epoxide	U		0.017	0.10	µg/L	10	9/21/2016 13:54
Methoxychlor	U		0.015	0.40	µg/L	10	9/21/2016 13:54
Toxaphene	U		1.1	20	µg/L	10	9/21/2016 13:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Sep-16*

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Sample ID: TPA-Pile 6 - 091916
Collection Date: 9/19/2016

Work Order: 16091057
Lab ID: 16091057-01
Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Decachlorobiphenyl	*60.0*			*42-119*	*%REC*	10	9/21/2016 13:54
Surr: Tetrachloro-m-xylene	*80.0*			*32-104*	*%REC*	10	9/21/2016 13:54
MERCURY BY CVAA			Method: **SW7470A**		Prep: SW7470 / 9/20/16		Analyst: **LR**
Mercury	**0.00069**		**0.000019**	**0.00020**	**mg/L**	1	9/20/2016 17:49
METALS BY ICP-MS			Method: **SW6020A**		Prep: SW3005A / 9/20/16		Analyst: **RH**
Aluminum	**2.3**		**0.0042**	**0.010**	**mg/L**	1	9/21/2016 11:54
Antimony	**0.028**		**0.00017**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Arsenic	**0.011**		**0.00087**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Barium	**0.32**		**0.0022**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Beryllium	U		0.00012	0.0020	mg/L	1	9/21/2016 11:54
Cadmium	**0.011**		**0.000050**	**0.0020**	**mg/L**	1	9/21/2016 11:54
Calcium	**240**		**0.86**	**5.0**	**mg/L**	10	9/21/2016 11:48
Chromium	**0.016**		**0.00065**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Cobalt	**0.0054**		**0.00014**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Copper	**0.12**		**0.00028**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Iron	**11**		**0.0046**	**0.080**	**mg/L**	1	9/21/2016 11:54
Lead	**0.091**		**0.00033**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Magnesium	**22**		**0.0068**	**0.20**	**mg/L**	1	9/21/2016 11:54
Manganese	**0.52**		**0.00051**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Nickel	**0.016**		**0.00041**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Potassium	**30**		**0.017**	**0.20**	**mg/L**	1	9/21/2016 11:54
Selenium	U		0.00090	0.0050	mg/L	1	9/21/2016 11:54
Silver	**0.0041**	J	**0.000050**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Sodium	**40**		**0.034**	**0.20**	**mg/L**	1	9/21/2016 11:54
Thallium	U		0.00016	0.0050	mg/L	1	9/21/2016 11:54
Vanadium	**0.012**		**0.00098**	**0.0050**	**mg/L**	1	9/21/2016 11:54
Zinc	**1.2**		**0.0014**	**0.010**	**mg/L**	1	9/21/2016 11:54
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: **SW846 8270D**		Prep: SW3510 / 9/20/16		Analyst: **JF**
1,1`-Biphenyl	U		0.45	1.1	µg/L	1	9/21/2016 14:19
2,4,5-Trichlorophenol	U		0.18	1.1	µg/L	1	9/21/2016 14:19
2,4,6-Trichlorophenol	U		0.27	1.1	µg/L	1	9/21/2016 14:19
2,4-Dichlorophenol	U		0.37	1.1	µg/L	1	9/21/2016 14:19
2,4-Dimethylphenol	U		0.38	1.1	µg/L	1	9/21/2016 14:19
2,4-Dinitrophenol	U		0.43	5.3	µg/L	1	9/21/2016 14:19
2,4-Dinitrotoluene	U		0.45	1.1	µg/L	1	9/21/2016 14:19
2,6-Dinitrotoluene	U		0.35	1.1	µg/L	1	9/21/2016 14:19
2-Chloronaphthalene	U		0.080	0.11	µg/L	1	9/21/2016 14:19
2-Chlorophenol	U		0.24	1.1	µg/L	1	9/21/2016 14:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Sep-16*

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Sample ID: TPA-Pile 6 - 091916
Collection Date: 9/19/2016

Work Order: 16091057
Lab ID: 16091057-01
Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
2-Methylnaphthalene	**0.48**		**0.069**	**0.11**	**µg/L**	1	9/21/2016 14:19
2-Methylphenol	**4.6**		**0.27**	**1.1**	**µg/L**	1	9/21/2016 14:19
2-Nitroaniline	U		0.22	1.1	µg/L	1	9/21/2016 14:19
2-Nitrophenol	U		0.36	1.1	µg/L	1	9/21/2016 14:19
3&4-Methylphenol	**7.2**		**0.22**	**1.1**	**µg/L**	1	9/21/2016 14:19
3,3´-Dichlorobenzidine	U		1.7	5.3	µg/L	1	9/21/2016 14:19
3-Nitroaniline	U		0.68	1.1	µg/L	1	9/21/2016 14:19
4,6-Dinitro-2-methylphenol	U		0.29	1.1	µg/L	1	9/21/2016 14:19
4-Bromophenyl phenyl ether	U		0.35	1.1	µg/L	1	9/21/2016 14:19
4-Chloro-3-methylphenol	U		0.28	1.1	µg/L	1	9/21/2016 14:19
4-Chloroaniline	U		0.36	1.1	µg/L	1	9/21/2016 14:19
4-Chlorophenyl phenyl ether	U		0.33	1.1	µg/L	1	9/21/2016 14:19
4-Nitroaniline	U		0.61	1.1	µg/L	1	9/21/2016 14:19
4-Nitrophenol	U		0.26	5.3	µg/L	1	9/21/2016 14:19
Acenaphthene	**0.88**		**0.086**	**0.11**	**µg/L**	1	9/21/2016 14:19
Acenaphthylene	U		0.080	0.11	µg/L	1	9/21/2016 14:19
Acetophenone	**4.5**		**0.39**	**1.1**	**µg/L**	1	9/21/2016 14:19
Anthracene	**1.6**		**0.030**	**0.11**	**µg/L**	1	9/21/2016 14:19
Benzaldehyde	**2.2**		**0.55**	**1.1**	**µg/L**	1	9/21/2016 14:19
Benzidine	U		2.1	5.3	µg/L	1	9/21/2016 14:19
Benzo(a)anthracene	**2.3**		**0.023**	**0.11**	**µg/L**	1	9/21/2016 14:19
Benzo(a)pyrene	**2.8**		**0.047**	**0.11**	**µg/L**	1	9/21/2016 14:19
Benzo(b)fluoranthene	**3.6**		**0.054**	**0.11**	**µg/L**	1	9/21/2016 14:19
Benzo(g,h,i)perylene	**1.7**		**0.032**	**0.11**	**µg/L**	1	9/21/2016 14:19
Benzo(k)fluoranthene	**1.6**		**0.051**	**0.11**	**µg/L**	1	9/21/2016 14:19
Bis(2-chloroethoxy)methane	U		0.31	1.1	µg/L	1	9/21/2016 14:19
Bis(2-chloroethyl)ether	U		0.39	1.1	µg/L	1	9/21/2016 14:19
Bis(2-chloroisopropyl)ether	U		0.24	1.1	µg/L	1	9/21/2016 14:19
Bis(2-ethylhexyl)phthalate	**36**		**0.43**	**1.1**	**µg/L**	1	9/21/2016 14:19
Butyl benzyl phthalate	U		0.32	1.1	µg/L	1	9/21/2016 14:19
Caprolactam	U		1.0	5.3	µg/L	1	9/21/2016 14:19
Carbazole	**1.6**		**0.11**	**1.1**	**µg/L**	1	9/21/2016 14:19
Chrysene	**2.3**		**0.051**	**0.11**	**µg/L**	1	9/21/2016 14:19
Dibenzo(a,h)anthracene	**0.50**		**0.032**	**0.11**	**µg/L**	1	9/21/2016 14:19
Dibenzofuran	**0.69**	J	**0.24**	**1.1**	**µg/L**	1	9/21/2016 14:19
Diethyl phthalate	**0.22**	J	**0.18**	**1.1**	**µg/L**	1	9/21/2016 14:19
Dimethyl phthalate	U		0.19	1.1	µg/L	1	9/21/2016 14:19
Di-n-butyl phthalate	**0.70**	J	**0.22**	**1.1**	**µg/L**	1	9/21/2016 14:19
Di-n-octyl phthalate	**24**		**0.16**	**1.1**	**µg/L**	1	9/21/2016 14:19
Fluoranthene	**3.1**		**0.040**	**0.11**	**µg/L**	1	9/21/2016 14:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Sep-16*

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Sample ID: TPA-Pile 6 - 091916
Collection Date: 9/19/2016

Work Order: 16091057
Lab ID: 16091057-01
Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	**1.5**		**0.054**	**0.11**	**µg/L**	1	9/21/2016 14:19
Hexachlorobenzene	U		0.47	1.1	µg/L	1	9/21/2016 14:19
Hexachlorobutadiene	U		0.30	1.1	µg/L	1	9/21/2016 14:19
Hexachlorocyclopentadiene	U		1.2	5.3	µg/L	1	9/21/2016 14:19
Hexachloroethane	U		0.22	1.1	µg/L	1	9/21/2016 14:19
Indeno(1,2,3-cd)pyrene	**2.5**		**0.071**	**0.11**	**µg/L**	1	9/21/2016 14:19
Isophorone	**180**		**1.8**	**27**	**µg/L**	5	9/22/2016 12:02
Naphthalene	**2.4**		**0.071**	**0.11**	**µg/L**	1	9/21/2016 14:19
Nitrobenzene	U		0.28	1.1	µg/L	1	9/21/2016 14:19
N-Nitrosodi-n-propylamine	U		0.37	1.1	µg/L	1	9/21/2016 14:19
N-Nitrosodiphenylamine	U		0.24	1.1	µg/L	1	9/21/2016 14:19
Pentachlorophenol	U		1.0	5.3	µg/L	1	9/21/2016 14:19
Phenanthrene	**3.7**		**0.032**	**0.11**	**µg/L**	1	9/21/2016 14:19
Phenol	**0.84**	J	**0.22**	**1.1**	**µg/L**	1	9/21/2016 14:19
Pyrene	**5.0**		**0.038**	**0.11**	**µg/L**	1	9/21/2016 14:19
Surr: 2,4,6-Tribromophenol	*75.4*			*38-115*	*%REC*	1	9/21/2016 14:19
Surr: 2-Fluorobiphenyl	*67.5*			*32-100*	*%REC*	1	9/21/2016 14:19
Surr: 2-Fluorophenol	*33.5*			*22-59*	*%REC*	1	9/21/2016 14:19
Surr: 4-Terphenyl-d14	*81.8*			*23-112*	*%REC*	1	9/21/2016 14:19
Surr: Nitrobenzene-d5	*53.3*			*31-93*	*%REC*	1	9/21/2016 14:19
Surr: Phenol-d6	*20.6*			*13-36*	*%REC*	1	9/21/2016 14:19
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260B**					Analyst: **BG**
1,1,1-Trichloroethane	U		3.6	10	µg/L	10	9/20/2016 14:32
1,1,2,2-Tetrachloroethane	U		1.9	10	µg/L	10	9/20/2016 14:32
1,1,2-Trichloroethane	U		4.0	10	µg/L	10	9/20/2016 14:32
1,1,2-Trichlorotrifluoroethane	U		4.2	10	µg/L	10	9/20/2016 14:32
1,1-Dichloroethane	U		3.1	10	µg/L	10	9/20/2016 14:32
1,1-Dichloroethene	U		2.8	10	µg/L	10	9/20/2016 14:32
1,2,4-Trichlorobenzene	U		2.1	10	µg/L	10	9/20/2016 14:32
1,2-Dibromo-3-chloropropane	U		9.7	10	µg/L	10	9/20/2016 14:32
1,2-Dibromoethane	U		9.8	10	µg/L	10	9/20/2016 14:32
1,2-Dichlorobenzene	U		2.2	10	µg/L	10	9/20/2016 14:32
1,2-Dichloroethane	U		1.7	10	µg/L	10	9/20/2016 14:32
1,2-Dichloropropane	U		2.5	10	µg/L	10	9/20/2016 14:32
1,3-Dichlorobenzene	U		2.9	10	µg/L	10	9/20/2016 14:32
1,4-Dichlorobenzene	U		2.1	10	µg/L	10	9/20/2016 14:32
2-Butanone	**2,500**		**120**	**1,000**	**µg/L**	200	9/21/2016 15:16
2-Hexanone	U		1.3	50	µg/L	10	9/20/2016 14:32
4-Methyl-2-pentanone	**28**		**1.1**	**10**	**µg/L**	10	9/20/2016 14:32

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Sep-16*

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Sample ID: TPA-Pile 6 - 091916
Collection Date: 9/19/2016

Work Order: 16091057
Lab ID: 16091057-01
Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Acetone	**13,000**		**180**	**2,000**	**µg/L**	200	9/21/2016 15:16
Benzene	U		3.0	10	µg/L	10	9/20/2016 14:32
Bromodichloromethane	U		2.3	10	µg/L	10	9/20/2016 14:32
Bromoform	U		7.7	10	µg/L	10	9/20/2016 14:32
Bromomethane	U		3.8	10	µg/L	10	9/20/2016 14:32
Carbon disulfide	U		2.3	10	µg/L	10	9/20/2016 14:32
Carbon tetrachloride	U		3.1	10	µg/L	10	9/20/2016 14:32
Chlorobenzene	U		2.7	10	µg/L	10	9/20/2016 14:32
Chloroethane	U		2.9	10	µg/L	10	9/20/2016 14:32
Chloroform	U		2.6	10	µg/L	10	9/20/2016 14:32
Chloromethane	U		1.7	10	µg/L	10	9/20/2016 14:32
cis-1,2-Dichloroethene	U		2.5	10	µg/L	10	9/20/2016 14:32
cis-1,3-Dichloropropene	U		3.9	10	µg/L	10	9/20/2016 14:32
Cyclohexane	U		2.2	10	µg/L	10	9/20/2016 14:32
Dibromochloromethane	U		3.8	10	µg/L	10	9/20/2016 14:32
Dichlorodifluoromethane	U		1.3	10	µg/L	10	9/20/2016 14:32
Ethylbenzene	**6.0**	J	**4.0**	**10**	**µg/L**	10	9/20/2016 14:32
Isopropylbenzene	U		3.1	10	µg/L	10	9/20/2016 14:32
Methyl acetate	U		2.3	20	µg/L	10	9/20/2016 14:32
Methyl tert-butyl ether	U		1.2	10	µg/L	10	9/20/2016 14:32
Methylcyclohexane	U		2.7	10	µg/L	10	9/20/2016 14:32
Methylene chloride	U		5.6	50	µg/L	10	9/20/2016 14:32
Styrene	U		2.4	10	µg/L	10	9/20/2016 14:32
Tetrachloroethene	U		2.7	10	µg/L	10	9/20/2016 14:32
Toluene	**620**		**3.7**	**10**	**µg/L**	10	9/20/2016 14:32
trans-1,2-Dichloroethene	U		2.8	10	µg/L	10	9/20/2016 14:32
trans-1,3-Dichloropropene	U		8.2	10	µg/L	10	9/20/2016 14:32
Trichloroethene	U		3.0	10	µg/L	10	9/20/2016 14:32
Trichlorofluoromethane	U		2.0	10	µg/L	10	9/20/2016 14:32
Vinyl chloride	U		2.0	10	µg/L	10	9/20/2016 14:32
Xylenes, Total	U		13	30	µg/L	10	9/20/2016 14:32
Surr: 1,2-Dichloroethane-d4	*100*			*75-120*	*%REC*	10	9/20/2016 14:32
Surr: 1,2-Dichloroethane-d4	*97.6*			*75-120*	*%REC*	200	9/21/2016 15:16
Surr: 4-Bromofluorobenzene	*96.8*			*80-110*	*%REC*	10	9/20/2016 14:32
Surr: 4-Bromofluorobenzene	*94.0*			*80-110*	*%REC*	200	9/21/2016 15:16
Surr: Dibromofluoromethane	*94.2*			*85-115*	*%REC*	10	9/20/2016 14:32
Surr: Dibromofluoromethane	*90.7*			*85-115*	*%REC*	200	9/21/2016 15:16
Surr: Toluene-d8	*98.7*			*85-110*	*%REC*	10	9/20/2016 14:32
Surr: Toluene-d8	*99.2*			*85-110*	*%REC*	200	9/21/2016 15:16

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Sep-16*

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Sample ID: Trip Blank
Collection Date: 9/19/2016

Work Order: 16091057
Lab ID: 16091057-02
Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260B**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	9/20/2016 14:06
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	9/20/2016 14:06
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	9/20/2016 14:06
1,1,2-Trichlorotrifluoroethane	U		0.42	1.0	µg/L	1	9/20/2016 14:06
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	9/20/2016 14:06
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	9/20/2016 14:06
1,2,4-Trichlorobenzene	U		0.21	1.0	µg/L	1	9/20/2016 14:06
1,2-Dibromo-3-chloropropane	U		0.97	1.0	µg/L	1	9/20/2016 14:06
1,2-Dibromoethane	U		0.98	1.0	µg/L	1	9/20/2016 14:06
1,2-Dichlorobenzene	U		0.22	1.0	µg/L	1	9/20/2016 14:06
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	9/20/2016 14:06
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	9/20/2016 14:06
1,3-Dichlorobenzene	U		0.29	1.0	µg/L	1	9/20/2016 14:06
1,4-Dichlorobenzene	U		0.21	1.0	µg/L	1	9/20/2016 14:06
2-Butanone	U		0.58	5.0	µg/L	1	9/20/2016 14:06
2-Hexanone	U		0.13	5.0	µg/L	1	9/20/2016 14:06
4-Methyl-2-pentanone	U		0.11	1.0	µg/L	1	9/20/2016 14:06
Acetone	U		0.92	10	µg/L	1	9/20/2016 14:06
Benzene	U		0.30	1.0	µg/L	1	9/20/2016 14:06
Bromodichloromethane	U		0.23	1.0	µg/L	1	9/20/2016 14:06
Bromoform	U		0.77	1.0	µg/L	1	9/20/2016 14:06
Bromomethane	U		0.38	1.0	µg/L	1	9/20/2016 14:06
Carbon disulfide	U		0.23	1.0	µg/L	1	9/20/2016 14:06
Carbon tetrachloride	U		0.31	1.0	µg/L	1	9/20/2016 14:06
Chlorobenzene	U		0.27	1.0	µg/L	1	9/20/2016 14:06
Chloroethane	U		0.29	1.0	µg/L	1	9/20/2016 14:06
Chloroform	U		0.26	1.0	µg/L	1	9/20/2016 14:06
Chloromethane	U		0.17	1.0	µg/L	1	9/20/2016 14:06
cis-1,2-Dichloroethene	U		0.25	1.0	µg/L	1	9/20/2016 14:06
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	9/20/2016 14:06
Cyclohexane	U		0.22	1.0	µg/L	1	9/20/2016 14:06
Dibromochloromethane	U		0.38	1.0	µg/L	1	9/20/2016 14:06
Dichlorodifluoromethane	U		0.13	1.0	µg/L	1	9/20/2016 14:06
Ethylbenzene	U		0.40	1.0	µg/L	1	9/20/2016 14:06
Isopropylbenzene	U		0.31	1.0	µg/L	1	9/20/2016 14:06
Methyl acetate	U		0.23	2.0	µg/L	1	9/20/2016 14:06
Methyl tert-butyl ether	U		0.12	1.0	µg/L	1	9/20/2016 14:06
Methylcyclohexane	U		0.27	1.0	µg/L	1	9/20/2016 14:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *22-Sep-16*

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
Sample ID: Trip Blank
Collection Date: 9/19/2016

Work Order: 16091057
Lab ID: 16091057-02
Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methylene chloride	U		0.56	5.0	µg/L	1	9/20/2016 14:06
Styrene	U		0.24	1.0	µg/L	1	9/20/2016 14:06
Tetrachloroethene	U		0.27	1.0	µg/L	1	9/20/2016 14:06
Toluene	U		0.37	1.0	µg/L	1	9/20/2016 14:06
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	9/20/2016 14:06
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	9/20/2016 14:06
Trichloroethene	U		0.30	1.0	µg/L	1	9/20/2016 14:06
Trichlorofluoromethane	U		0.20	1.0	µg/L	1	9/20/2016 14:06
Vinyl chloride	U		0.20	1.0	µg/L	1	9/20/2016 14:06
Xylenes, Total	U		1.3	3.0	µg/L	1	9/20/2016 14:06
Surr: 1,2-Dichloroethane-d4	*96.4*			*75-120*	*%REC*	1	9/20/2016 14:06
Surr: 4-Bromofluorobenzene	*96.8*			*80-110*	*%REC*	1	9/20/2016 14:06
Surr: Dibromofluoromethane	*92.4*			*85-115*	*%REC*	1	9/20/2016 14:06
Surr: Toluene-d8	*100*			*85-110*	*%REC*	1	9/20/2016 14:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 22-Sep-16

Client: CT Laboratories
Project: TOCON - TPA-Pile 6 - 091916
WorkOrder: **16091057**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: 22-Sep-16

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91633** Instrument ID **GC7** Method: **SW8151**

MBLK Sample ID: **HBLKW1-91633-91633** Units: **µg/L** Analysis Date: **9/21/2016 06:59 PM**

Client ID: Run ID: **GC7_160921A** SeqNo: **4040267** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	U	2.0								
2,4-D	U	2.0								
Surr: DCAA	*15*	0	*50*	0	*30*	*23-142*	0			

LCS Sample ID: **HLCSW1-91633-91633** Units: **µg/L** Analysis Date: **9/21/2016 07:18 PM**

Client ID: Run ID: **GC7_160921A** SeqNo: **4040268** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	9	2.0	10	0	90	28-147	0			
2,4-D	94.6	2.0	100	0	94.6	24-154	0			
Surr: DCAA	*16.2*	0	*50*	0	*32.4*	*23-142*	0			

MS Sample ID: **16091057-01B MS** Units: **µg/L** Analysis Date: **9/22/2016 04:52 AM**

Client ID: **TPA-Pile 6 - 091916** Run ID: **GC7_160921A** SeqNo: **4040269** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	9.7	2.0	10	0	97	28-147	0			
2,4-D	97	2.0	100	0	97	24-154	0			
Surr: DCAA	*17.1*	0	*50*	0	*34.2*	*23-142*	0			

MSD Sample ID: **16091057-01B MSD** Units: **µg/L** Analysis Date: **9/22/2016 05:11 AM**

Client ID: **TPA-Pile 6 - 091916** Run ID: **GC7_160921A** SeqNo: **4040270** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	9.4	2.0	10	0	94	28-147	9.7	3.14	30	
2,4-D	96.4	2.0	100	0	96.4	24-154	97	0.62	30	
Surr: DCAA	*19.7*	0	*50*	0	*39.4*	*23-142*	17.1	*14.1*	*30*	

The following samples were analyzed in this batch: 16091057-01B

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91634A** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKW1-91634-91634A** Units: **µg/L** Analysis Date: **9/21/2016 04:15 PM**

Client ID: Run ID: **GC14_160921A** SeqNo: **4039477** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	U	0.20								
Aroclor 1221	U	0.20								
Aroclor 1232	U	0.20								
Aroclor 1242	U	0.20								
Aroclor 1248	U	0.20								
Aroclor 1254	U	0.20								
Aroclor 1260	U	0.20								
PCBs, Total	U	0.20								
Surr: Decachlorobiphenyl	*0.073*	0	*0.1*	0	*73*	*40-110*	0			
Surr: Tetrachloro-m-xylene	*0.07*	0	*0.1*	0	*70*	*40-110*	0			

LCS Sample ID: **PLCSW1-91634-91634A** Units: **µg/L** Analysis Date: **9/21/2016 04:33 PM**

Client ID: Run ID: **GC14_160921A** SeqNo: **4039478** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.861	0.20	2.5	0	74.4	50-130	0			
Aroclor 1260	1.973	0.20	2.5	0	78.9	50-130	0			
Surr: Decachlorobiphenyl	*0.073*	0	*0.1*	0	*73*	*40-110*	0			
Surr: Tetrachloro-m-xylene	*0.067*	0	*0.1*	0	*67*	*40-110*	0			

MS Sample ID: **1609826-01A MS** Units: **µg/L** Analysis Date: **9/21/2016 05:44 PM**

Client ID: Run ID: **GC14_160921A** SeqNo: **4040589** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.845	0.20	2.5	0	73.8	40-140	0			
Aroclor 1260	2.245	0.20	2.5	0	89.8	40-140	0			
Surr: Decachlorobiphenyl	*0.075*	0	*0.1*	0	*75*	*40-110*	0			
Surr: Tetrachloro-m-xylene	*0.062*	0	*0.1*	0	*62*	*40-110*	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91634A** Instrument ID **GC14** Method: **SW8082**

DUP Sample ID: **1609826-02A DUP** Units: **µg/L** Analysis Date: **9/21/2016 06:20 PM**

Client ID: Run ID: **GC14_160921A** SeqNo: **4040591** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	U	0.20	0	0	0	0-0	0	0	50	
Aroclor 1221	U	0.20	0	0	0	0-0	0	0	50	
Aroclor 1232	U	0.20	0	0	0	0-0	0	0	50	
Aroclor 1242	U	0.20	0	0	0	0-0	0	0	50	
Aroclor 1248	U	0.20	0	0	0	0-0	0	0	50	
Aroclor 1254	U	0.20	0	0	0	0-0	0	0	50	
Aroclor 1260	0.783	0.20	0	0	0	0-0	0.772	1.41	50	
PCBs, Total	0.783	0.20	0	0	0		0.772	1.41	50	
Surr: Decachlorobiphenyl	*0.058*	0	*0.1*	0	*58*	*40-110*	0.07	*18.8*	*50*	
Surr: Tetrachloro-m-xylene	*0.043*	0	*0.1*	0	*43*	*40-110*	0.051	*17*	*50*	

The following samples were analyzed in this batch: 16091057-01B

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91636** Instrument ID **GC12** Method: **SW8081**

MBLK Sample ID: **PBLKW1-91636-91636** Units: **µg/L** Analysis Date: **9/21/2016 01:19 PM**

Client ID: Run ID: **GC12_160921A** SeqNo: **4039274** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	U	0.020								
4,4´-DDE	U	0.020								
4,4´-DDT	U	0.020								
Aldrin	U	0.010								
alpha-BHC	U	0.010								
alpha-Chlordane	U	0.020								
beta-BHC	U	0.010								
Chlordane, Technical	U	0.50								
delta-BHC	U	0.010								
Dieldrin	U	0.020								
Endosulfan I	U	0.020								
Endosulfan II	U	0.020								
Endosulfan sulfate	U	0.020								
Endrin	U	0.020								
Endrin aldehyde	U	0.020								
Endrin ketone	U	0.020								
gamma-BHC (Lindane)	U	0.010								
gamma-Chlordane	U	0.020								
Heptachlor	U	0.010								
Heptachlor epoxide	U	0.010								
Methoxychlor	U	0.040								
Toxaphene	U	2.0								
Surr: Decachlorobiphenyl	*0.076*	0	*0.1*	0	*76*	*42-119*	0			
Surr: Tetrachloro-m-xylene	*0.059*	0	*0.1*	0	*59*	*32-104*	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91636** Instrument ID **GC12** Method: **SW8081**

LCS Sample ID: **PLCSW1-91636-91636** Units: **µg/L** Analysis Date: **9/21/2016 01:37 PM**

Client ID: Run ID: **GC12_160921A** SeqNo: **4039275** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.075	0.020	0.1	0	75	33-126	0			
4,4´-DDE	0.063	0.020	0.1	0	63	34-112	0			
4,4´-DDT	0.068	0.020	0.1	0	68	41-122	0			
Aldrin	0.053	0.010	0.1	0	53	18-110	0			
alpha-BHC	0.063	0.010	0.1	0	63	31-109	0			
alpha-Chlordane	0.064	0.020	0.1	0	64	34-108	0			
beta-BHC	0.07	0.010	0.1	0	70	38-108	0			
delta-BHC	0.07	0.010	0.1	0	70	36-114	0			
Dieldrin	0.069	0.020	0.1	0	69	35-114	0			
Endosulfan I	0.068	0.020	0.1	0	68	32-114	0			
Endosulfan II	0.075	0.020	0.1	0	75	40-119	0			
Endosulfan sulfate	0.08	0.020	0.1	0	80	42-120	0			
Endrin	0.074	0.020	0.1	0	74	39-123	0			
Endrin aldehyde	0.079	0.020	0.1	0	79	29-116	0			
Endrin ketone	0.079	0.020	0.1	0	79	36-117	0			
gamma-BHC (Lindane)	0.064	0.010	0.1	0	64	32-114	0			
gamma-Chlordane	0.07	0.020	0.1	0	70	32-109	0			
Heptachlor	0.062	0.010	0.1	0	62	34-112	0			
Heptachlor epoxide	0.067	0.010	0.1	0	67	36-109	0			
Methoxychlor	0.078	0.040	0.1	0	78	44-133	0			
Surr: Decachlorobiphenyl	*0.063*	0	*0.1*	0	*63*	*42-119*	0			
Surr: Tetrachloro-m-xylene	*0.068*	0	*0.1*	0	*68*	*32-104*	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91636** Instrument ID **GC12** Method: **SW8081**

MS Sample ID: **1609913-01A MS** Units: **µg/L** Analysis Date: **9/21/2016 03:04 PM**

Client ID: Run ID: **GC12_160921A** SeqNo: **4039278** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.35	0.10	0.5	0	70	33-126	0			H
4,4´-DDE	0.315	0.10	0.5	0	63	34-112	0			H
4,4´-DDT	0.345	0.10	0.5	0	69	41-122	0			H
Aldrin	0.26	0.050	0.5	0	52	18-110	0			H
alpha-BHC	0.295	0.050	0.5	0	59	31-109	0			H
alpha-Chlordane	0.305	0.10	0.5	0	61	34-108	0			H
beta-BHC	0.335	0.050	0.5	0	67	38-108	0			H
delta-BHC	0.33	0.050	0.5	0	66	36-114	0			H
Dieldrin	0.325	0.10	0.5	0	65	35-114	0			H
Endosulfan I	0.31	0.10	0.5	0	62	32-114	0			H
Endosulfan II	0.345	0.10	0.5	0	69	40-119	0			H
Endosulfan sulfate	0.37	0.10	0.5	0	74	42-120	0			H
Endrin	0.34	0.10	0.5	0	68	39-123	0			H
Endrin aldehyde	0.355	0.10	0.5	0	71	29-116	0			H
Endrin ketone	0.36	0.10	0.5	0	72	36-117	0			H
gamma-BHC (Lindane)	0.305	0.050	0.5	0	61	32-114	0			H
gamma-Chlordane	0.34	0.10	0.5	0	68	32-109	0			H
Heptachlor	0.3	0.050	0.5	0	60	34-112	0			H
Heptachlor epoxide	0.3	0.050	0.5	0	60	36-109	0			H
Methoxychlor	0.365	0.20	0.5	0	73	44-133	0			H
Surr: Decachlorobiphenyl	*0.41*	0	*0.5*	0	*82*	*42-119*	0			
Surr: Tetrachloro-m-xylene	*0.305*	0	*0.5*	0	*61*	*32-104*	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91636** Instrument ID **GC12** Method: **SW8081**

MSD Sample ID: **1609913-01A MSD** Units: **µg/L** Analysis Date: **9/21/2016 04:14 PM**

Client ID: Run ID: **GC12_160921A** SeqNo: **4039300** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.29	0.10	0.5	0	58	33-126	0.35	18.8	50	H
4,4´-DDE	0.25	0.10	0.5	0	50	34-112	0.315	23	50	H
4,4´-DDT	0.285	0.10	0.5	0	57	41-122	0.345	19	50	H
Aldrin	0.2	0.050	0.5	0	40	18-110	0.26	26.1	50	H
alpha-BHC	0.23	0.050	0.5	0	46	31-109	0.295	24.8	50	H
alpha-Chlordane	0.25	0.10	0.5	0	50	34-108	0.305	19.8	50	H
beta-BHC	0.27	0.050	0.5	0	54	38-108	0.335	21.5	50	H
delta-BHC	0.265	0.050	0.5	0	53	36-114	0.33	21.8	50	H
Dieldrin	0.265	0.10	0.5	0	53	35-114	0.325	20.3	50	H
Endosulfan I	0.255	0.10	0.5	0	51	32-114	0.31	19.5	50	H
Endosulfan II	0.29	0.10	0.5	0	58	40-119	0.345	17.3	50	H
Endosulfan sulfate	0.305	0.10	0.5	0	61	42-120	0.37	19.3	50	H
Endrin	0.275	0.10	0.5	0	55	39-123	0.34	21.1	50	H
Endrin aldehyde	0.295	0.10	0.5	0	59	29-116	0.355	18.5	50	H
Endrin ketone	0.3	0.10	0.5	0	60	36-117	0.36	18.2	50	H
gamma-BHC (Lindane)	0.235	0.050	0.5	0	47	32-114	0.305	25.9	50	H
gamma-Chlordane	0.285	0.10	0.5	0	57	32-109	0.34	17.6	50	H
Heptachlor	0.235	0.050	0.5	0	47	34-112	0.3	24.3	50	H
Heptachlor epoxide	0.24	0.050	0.5	0	48	36-109	0.3	22.2	50	H
Methoxychlor	0.305	0.20	0.5	0	61	44-133	0.365	17.9	50	H
Surr: Decachlorobiphenyl	*0.35*	0	*0.5*	0	*70*	*42-119*	0.41	*15.8*	*50*	
Surr: Tetrachloro-m-xylene	*0.24*	0	*0.5*	0	*48*	*32-104*	0.305	*23.9*	*50*	

The following samples were analyzed in this batch: 16091057-01B

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91678** Instrument ID **HG1** Method: **SW7470A**

MBLK Sample ID: **MBLK-91678-91678** Units: **mg/L** Analysis Date: **9/20/2016 05:22 PM**
Client ID: Run ID: **HG1_160920A** SeqNo: **4036863** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS Sample ID: **LCS-91678-91678** Units: **mg/L** Analysis Date: **9/20/2016 05:26 PM**
Client ID: Run ID: **HG1_160920A** SeqNo: **4036864** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002	0.00020	0.002	0	100	80-120		0		

MS Sample ID: **16091037-02AMS** Units: **mg/L** Analysis Date: **9/20/2016 05:31 PM**
Client ID: Run ID: **HG1_160920A** SeqNo: **4036866** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0211	0.0020	0.02	-0.00028	107	75-125		0		

MSD Sample ID: **16091037-02AMSD** Units: **mg/L** Analysis Date: **9/20/2016 05:33 PM**
Client ID: Run ID: **HG1_160920A** SeqNo: **4036867** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0211	0.0020	0.02	-0.00028	107	75-125	0.0211	0	20	

The following samples were analyzed in this batch: 16091057-01C

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91654** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-91654-91654** Units: **mg/L** Analysis Date: **9/21/2016 12:18 AM**

Client ID: Run ID: **ICPMS2_160920A** SeqNo: **4037169** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.010								
Antimony	U	0.0050								
Arsenic	U	0.0050								
Barium	U	0.0050								
Beryllium	U	0.0020								
Cadmium	U	0.0020								
Calcium	U	0.50								
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.080								
Lead	U	0.0050								
Magnesium	U	0.20								
Manganese	U	0.0050								
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	U	0.0050								
Silver	U	0.0050								
Sodium	U	0.20								
Thallium	U	0.0050								
Vanadium	U	0.0050								
Zinc	U	0.010								

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91654** Instrument ID **ICPMS2** Method: **SW6020A**

LCS Sample ID: **LCS-91654-91654** Units: **mg/L** Analysis Date: **9/21/2016 12:24 AM**

Client ID: Run ID: **ICPMS2_160920A** SeqNo: **4037170** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09035	0.010	0.1	0	90.4	80-120	0			
Antimony	0.09115	0.0050	0.1	0	91.2	80-120	0			
Arsenic	0.09447	0.0050	0.1	0	94.5	80-120	0			
Barium	0.08944	0.0050	0.1	0	89.4	80-120	0			
Beryllium	0.0888	0.0020	0.1	0	88.8	80-120	0			
Cadmium	0.0888	0.0020	0.1	0	88.8	80-120	0			
Calcium	9.136	0.50	10	0	91.4	80-120	0			
Chromium	0.08927	0.0050	0.1	0	89.3	80-120	0			
Cobalt	0.0883	0.0050	0.1	0	88.3	80-120	0			
Copper	0.09104	0.0050	0.1	0	91	80-120	0			
Iron	9.131	0.080	10	0	91.3	80-120	0			
Lead	0.08896	0.0050	0.1	0	89	80-120	0			
Magnesium	8.988	0.20	10	0	89.9	80-120	0			
Manganese	0.08635	0.0050	0.1	0	86.4	80-120	0			
Nickel	0.0889	0.0050	0.1	0	88.9	80-120	0			
Potassium	8.85	0.20	10	0	88.5	80-120	0			
Selenium	0.08611	0.0050	0.1	0	86.1	80-120	0			
Silver	0.08722	0.0050	0.1	0	87.2	80-120	0			
Sodium	8.982	0.20	10	0	89.8	80-120	0			
Thallium	0.08683	0.0050	0.1	0	86.8	80-120	0			
Vanadium	0.08898	0.0050	0.1	0	89	80-120	0			
Zinc	0.093	0.010	0.1	0	93	80-120	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91654** Instrument ID **ICPMS2** Method: **SW6020A**

MS Sample ID: **1609970-02AMS** Units: **mg/L** Analysis Date: **9/21/2016 04:08 AM**

Client ID: Run ID: **ICPMS2_160920A** SeqNo: **4037209** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09349	0.010	0.1	0.001396	92.1	75-125	0			
Antimony	0.09316	0.0050	0.1	0.001006	92.2	75-125	0			
Arsenic	0.09862	0.0050	0.1	0.0009894	97.6	75-125	0			
Barium	0.1145	0.0050	0.1	0.02269	91.8	75-125	0			
Beryllium	0.08651	0.0020	0.1	6.265E-06	86.5	75-125	0			
Cadmium	0.09087	0.0020	0.1	0.00003261	90.8	75-125	0			
Calcium	89.11	0.50	10	85.11	40	75-125	0			SO
Chromium	0.09231	0.0050	0.1	0.00006639	92.2	75-125	0			
Cobalt	0.09084	0.0050	0.1	0.001256	89.6	75-125	0			
Copper	0.0927	0.0050	0.1	0.003907	88.8	75-125	0			
Iron	9.325	0.080	10	0.004176	93.2	75-125	0			
Lead	0.09416	0.0050	0.1	0.00002821	94.1	75-125	0			
Magnesium	29.58	0.20	10	21.81	77.7	75-125	0			
Manganese	0.2076	0.0050	0.1	0.1246	83	75-125	0			
Nickel	0.09267	0.0050	0.1	0.004077	88.6	75-125	0			
Potassium	18.24	0.20	10	9.684	85.6	75-125	0			
Selenium	0.09939	0.0050	0.1	0.00358	95.8	75-125	0			
Silver	0.08547	0.0050	0.1	-1.554E-05	85.5	75-125	0			
Sodium	38.63	0.20	10	31.36	72.7	75-125	0			S
Thallium	0.09337	0.0050	0.1	0.00005306	93.3	75-125	0			
Vanadium	0.09507	0.0050	0.1	0.0002926	94.8	75-125	0			
Zinc	0.09197	0.010	0.1	0.002144	89.8	75-125	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91654** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **1609970-02AMSD** Units: **mg/L** Analysis Date: **9/21/2016 04:13 AM**

Client ID: Run ID: **ICPMS2_160920A** SeqNo: **4037210** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09312	0.010	0.1	0.001396	91.7	75-125	0.09349	0.397	20	
Antimony	0.0938	0.0050	0.1	0.001006	92.8	75-125	0.09316	0.685	20	
Arsenic	0.09789	0.0050	0.1	0.0009894	96.9	75-125	0.09862	0.743	20	
Barium	0.1145	0.0050	0.1	0.02269	91.8	75-125	0.1145	0	20	
Beryllium	0.08808	0.0020	0.1	6.265E-06	88.1	75-125	0.08651	1.8	20	
Cadmium	0.09208	0.0020	0.1	0.00003261	92	75-125	0.09087	1.32	20	
Calcium	86.44	0.50	10	85.11	13.3	75-125	89.11	3.04	20	SO
Chromium	0.0919	0.0050	0.1	0.00006639	91.8	75-125	0.09231	0.445	20	
Cobalt	0.09168	0.0050	0.1	0.001256	90.4	75-125	0.09084	0.92	20	
Copper	0.09389	0.0050	0.1	0.003907	90	75-125	0.0927	1.28	20	
Iron	9.357	0.080	10	0.004176	93.5	75-125	9.325	0.343	20	
Lead	0.09504	0.0050	0.1	0.00002821	95	75-125	0.09416	0.93	20	
Magnesium	28.85	0.20	10	21.81	70.4	75-125	29.58	2.5	20	S
Manganese	0.2036	0.0050	0.1	0.1246	79	75-125	0.2076	1.95	20	
Nickel	0.09359	0.0050	0.1	0.004077	89.5	75-125	0.09267	0.988	20	
Potassium	17.92	0.20	10	9.684	82.4	75-125	18.24	1.77	20	
Selenium	0.09709	0.0050	0.1	0.00358	93.5	75-125	0.09939	2.34	20	
Silver	0.08612	0.0050	0.1	-1.554E-05	86.1	75-125	0.08547	0.758	20	
Sodium	37.58	0.20	10	31.36	62.2	75-125	38.63	2.76	20	S
Thallium	0.09483	0.0050	0.1	0.00005306	94.8	75-125	0.09337	1.55	20	
Vanadium	0.09591	0.0050	0.1	0.0002926	95.6	75-125	0.09507	0.88	20	
Zinc	0.09284	0.010	0.1	0.002144	90.7	75-125	0.09197	0.942	20	

The following samples were analyzed in this batch: 16091057-01C

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK Sample ID: **SBLKW1-91630-91630** Units: **µg/L** Analysis Date: **9/21/2016 10:15 AM**

Client ID: Run ID: **SVMS5_160921A** SeqNo: **4038570** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	U	5.0								
2,4,5-Trichlorophenol	U	5.0								
2,4,6-Trichlorophenol	U	5.0								
2,4-Dichlorophenol	U	5.0								
2,4-Dimethylphenol	U	5.0								
2,4-Dinitrophenol	U	5.0								
2,4-Dinitrotoluene	U	5.0								
2,6-Dinitrotoluene	U	5.0								
2-Chloronaphthalene	U	5.0								
2-Chlorophenol	U	5.0								
2-Methylnaphthalene	U	5.0								
2-Methylphenol	U	5.0								
2-Nitroaniline	U	5.0								
2-Nitrophenol	U	5.0								
3&4-Methylphenol	U	5.0								
3,3´-Dichlorobenzidine	U	5.0								
3-Nitroaniline	U	5.0								
4,6-Dinitro-2-methylphenol	U	5.0								
4-Bromophenyl phenyl ether	U	5.0								
4-Chloro-3-methylphenol	U	5.0								
4-Chloroaniline	U	5.0								
4-Chlorophenyl phenyl ether	U	5.0								
4-Nitroaniline	U	5.0								
4-Nitrophenol	U	5.0								
Acenaphthene	U	5.0								
Acenaphthylene	U	5.0								
Acetophenone	U	1.0								
Anthracene	U	5.0								
Benzaldehyde	U	1.0								
Benzidine	U	10								
Benzo(a)anthracene	U	5.0								
Benzo(a)pyrene	U	5.0								
Benzo(b)fluoranthene	U	5.0								
Benzo(g,h,i)perylene	U	5.0								
Benzo(k)fluoranthene	U	5.0								
Bis(2-chloroethoxy)methane	U	5.0								
Bis(2-chloroethyl)ether	U	5.0								
Bis(2-chloroisopropyl)ether	U	5.0								
Bis(2-ethylhexyl)phthalate	U	5.0								
Butyl benzyl phthalate	U	5.0								
Caprolactam	U	10								
Carbazole	U	5.0								

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

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

Chrysene	U	5.0					
Dibenzo(a,h)anthracene	U	5.0					
Dibenzofuran	U	5.0					
Diethyl phthalate	U	5.0					
Dimethyl phthalate	U	5.0					
Di-n-butyl phthalate	U	5.0					
Di-n-octyl phthalate	U	5.0					
Fluoranthene	U	5.0					
Fluorene	U	5.0					
Hexachlorobenzene	U	5.0					
Hexachlorobutadiene	U	5.0					
Hexachlorocyclopentadiene	U	5.0					
Hexachloroethane	U	5.0					
Indeno(1,2,3-cd)pyrene	U	5.0					
Isophorone	U	5.0					
Naphthalene	U	5.0					
Nitrobenzene	U	5.0					
N-Nitrosodi-n-propylamine	U	5.0					
N-Nitrosodiphenylamine	U	5.0					
Pentachlorophenol	U	5.0					
Phenanthrene	U	5.0					
Phenol	U	5.0					
Pyrene	U	5.0					
Surr: 2,4,6-Tribromophenol	*32.61*	0	*50*	0	*65.2*	*38-115*	0
Surr: 2-Fluorobiphenyl	*37*	0	*50*	0	*74*	*32-100*	0
Surr: 2-Fluorophenol	*22.23*	0	*50*	0	*44.5*	*22-59*	0
Surr: 4-Terphenyl-d14	*39.52*	0	*50*	0	*79*	*23-112*	0
Surr: Nitrobenzene-d5	*31.88*	0	*50*	0	*63.8*	*31-93*	0
Surr: Phenol-d6	*11.37*	0	*50*	0	*22.7*	*13-36*	0

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

LCS Sample ID: **SLCSW1-91630-91630** Units: **µg/L** Analysis Date: **9/21/2016 10:38 AM**

Client ID: Run ID: **SVMS5_160921A** SeqNo: **4038571** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	14.68	5.0	20	0	73.4	30-120	0			
2,4,5-Trichlorophenol	14.99	5.0	20	0	75	50-110	0			
2,4,6-Trichlorophenol	13.35	5.0	20	0	66.8	50-115	0			
2,4-Dichlorophenol	13.23	5.0	20	0	66.2	50-105	0			
2,4-Dimethylphenol	11.62	5.0	20	0	58.1	30-110	0			
2,4-Dinitrophenol	14.04	5.0	20	0	70.2	15-140	0			
2,4-Dinitrotoluene	15.92	5.0	20	0	79.6	50-120	0			
2,6-Dinitrotoluene	15.92	5.0	20	0	79.6	50-115	0			
2-Chloronaphthalene	15.33	5.0	20	0	76.6	50-105	0			
2-Chlorophenol	14.18	5.0	20	0	70.9	35-105	0			
2-Methylnaphthalene	14.75	5.0	20	0	73.8	45-105	0			
2-Methylphenol	11.93	5.0	20	0	59.6	40-110	0			
2-Nitroaniline	14.48	5.0	20	0	72.4	50-115	0			
2-Nitrophenol	13.64	5.0	20	0	68.2	40-115	0			
3&4-Methylphenol	11.56	5.0	20	0	57.8	30-110	0			
3,3´-Dichlorobenzidine	15	5.0	20	0	75	30-120	0			
3-Nitroaniline	15.35	5.0	20	0	76.8	20-125	0			
4,6-Dinitro-2-methylphenol	15.35	5.0	20	0	76.8	40-130	0			
4-Bromophenyl phenyl ether	14.37	5.0	20	0	71.8	50-115	0			
4-Chloro-3-methylphenol	13.17	5.0	20	0	65.8	45-110	0			
4-Chloroaniline	14.63	5.0	20	0	73.2	15-110	0			
4-Chlorophenyl phenyl ether	15.61	5.0	20	0	78	50-110	0			
4-Nitroaniline	16.88	5.0	20	0	84.4	35-150	0			
4-Nitrophenol	5.82	5.0	20	0	29.1	10-58	0			
Acenaphthene	15.66	5.0	20	0	78.3	45-110	0			
Acenaphthylene	17.3	5.0	20	0	86.5	50-105	0			
Acetophenone	15.85	1.0	20	0	79.2	30-120	0			
Anthracene	16.93	5.0	20	0	84.6	55-110	0			
Benzaldehyde	17.45	1.0	20	0	87.2	30-120	0			
Benzo(a)anthracene	16.18	5.0	20	0	80.9	55-110	0			
Benzo(a)pyrene	16.19	5.0	20	0	81	55-110	0			
Benzo(b)fluoranthene	14.28	5.0	20	0	71.4	45-120	0			
Benzo(g,h,i)perylene	16.61	5.0	20	0	83	40-125	0			
Benzo(k)fluoranthene	18.36	5.0	20	0	91.8	45-125	0			
Bis(2-chloroethoxy)methane	15.5	5.0	20	0	77.5	45-105	0			
Bis(2-chloroethyl)ether	14.77	5.0	20	0	73.8	35-110	0			
Bis(2-ethylhexyl)phthalate	16.93	5.0	20	0	84.6	40-125	0			
Butyl benzyl phthalate	15.45	5.0	20	0	77.2	45-115	0			
Carbazole	16.44	5.0	20	0	82.2	50-150	0			
Chrysene	17.67	5.0	20	0	88.4	55-110	0			
Dibenzo(a,h)anthracene	17.01	5.0	20	0	85	40-125	0			
Dibenzofuran	15.3	5.0	20	0	76.5	55-105	0			

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

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

Diethyl phthalate	17.55	5.0	20	0	87.8	40-120	0
Dimethyl phthalate	16.7	5.0	20	0	83.5	25-125	0
Di-n-butyl phthalate	17.56	5.0	20	0	87.8	55-115	0
Di-n-octyl phthalate	14.93	5.0	20	0	74.6	35-135	0
Fluoranthene	16.5	5.0	20	0	82.5	55-115	0
Fluorene	15.91	5.0	20	0	79.6	50-110	0
Hexachlorobenzene	15.08	5.0	20	0	75.4	50-110	0
Hexachlorobutadiene	13.31	5.0	20	0	66.6	25-105	0
Hexachlorocyclopentadiene	14.53	5.0	20	0	72.6	25-105	0
Hexachloroethane	14.1	5.0	20	0	70.5	30-95	0
Indeno(1,2,3-cd)pyrene	19.08	5.0	20	0	95.4	45-125	0
Isophorone	15.53	5.0	20	0	77.6	50-110	0
Naphthalene	14.4	5.0	20	0	72	40-100	0
Nitrobenzene	14.48	5.0	20	0	72.4	45-110	0
N-Nitrosodi-n-propylamine	15.8	5.0	20	0	79	35-130	0
N-Nitrosodiphenylamine	14.98	5.0	20	0	74.9	50-110	0
Pentachlorophenol	13.73	5.0	20	0	68.6	40-115	0
Phenanthrene	15.84	5.0	20	0	79.2	50-115	0
Phenol	6.55	5.0	20	0	32.8	12-43	0
Pyrene	16.73	5.0	20	0	83.6	50-130	0
Surr: 2,4,6-Tribromophenol	*36.61*	0	*50*	0	*73.2*	*38-115*	0
Surr: 2-Fluorobiphenyl	*36.14*	0	*50*	0	*72.3*	*32-100*	0
Surr: 2-Fluorophenol	*21.09*	0	*50*	0	*42.2*	*22-59*	0
Surr: 4-Terphenyl-d14	*38.49*	0	*50*	0	*77*	*23-112*	0
Surr: Nitrobenzene-d5	*32.52*	0	*50*	0	*65*	*31-93*	0
Surr: Phenol-d6	*12.81*	0	*50*	0	*25.6*	*13-36*	0

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

MS Sample ID: **1609912-01B MS** Units: **µg/L** Analysis Date: **9/21/2016 01:33 PM**

Client ID: Run ID: **SVMS5_160921A** SeqNo: **4039218** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	15.58	5.0	20	0	77.9	30-120	0			
2,4,5-Trichlorophenol	21.03	5.0	20	0	105	50-110	0			
2,4,6-Trichlorophenol	17.76	5.0	20	0	88.8	50-115	0			
2,4-Dichlorophenol	16.29	5.0	20	0	81.4	50-105	0			
2,4-Dimethylphenol	13.05	5.0	20	0	65.2	30-110	0			
2,4-Dinitrophenol	25.66	5.0	20	0	128	15-140	0			
2,4-Dinitrotoluene	19.24	5.0	20	0	96.2	50-120	0			
2,6-Dinitrotoluene	19.24	5.0	20	0	96.2	50-115	0			
2-Chloronaphthalene	16.43	5.0	20	0	82.2	50-105	0			
2-Chlorophenol	14.64	5.0	20	0	73.2	35-105	0			
2-Methylnaphthalene	15.3	5.0	20	0	76.5	45-105	0			
2-Methylphenol	12.86	5.0	20	0	64.3	40-110	0			
2-Nitroaniline	13.61	5.0	20	0	68	50-115	0			
2-Nitrophenol	15.19	5.0	20	0	76	40-115	0			
3&4-Methylphenol	13.29	5.0	20	0	66.4	30-110	0			
3,3´-Dichlorobenzidine	1.98	5.0	20	0	9.9	30-120	0			JS
3-Nitroaniline	4.64	5.0	20	0	23.2	20-125	0			J
4,6-Dinitro-2-methylphenol	18.72	5.0	20	0	93.6	40-130	0			
4-Bromophenyl phenyl ether	16.28	5.0	20	0	81.4	50-115	0			
4-Chloro-3-methylphenol	18.19	5.0	20	0	91	45-110	0			
4-Chloroaniline	8.85	5.0	20	0	44.2	15-110	0			
4-Chlorophenyl phenyl ether	17.53	5.0	20	0	87.6	50-110	0			
4-Nitroaniline	3.57	5.0	20	0	17.8	35-150	0			JS
4-Nitrophenol	9.09	5.0	20	0	45.4	1-58	0			
Acenaphthene	17.31	5.0	20	0	86.6	45-110	0			
Acenaphthylene	24.16	5.0	20	3.85	102	50-105	0			
Acetophenone	16.2	1.0	20	0	81	30-120	0			
Anthracene	21.64	5.0	20	0	108	55-110	0			
Benzaldehyde	18.49	1.0	20	0	92.4	30-120	0			
Benzo(a)anthracene	22.37	5.0	20	2.84	97.6	55-110	0			
Benzo(a)pyrene	23.77	5.0	20	4.61	95.8	55-110	0			
Benzo(b)fluoranthene	25.37	5.0	20	5.47	99.5	45-120	0			
Benzo(g,h,i)perylene	20.43	5.0	20	2.94	87.4	40-125	0			
Benzo(k)fluoranthene	23.28	5.0	20	2.73	103	45-125	0			
Bis(2-chloroethoxy)methane	15.9	5.0	20	0	79.5	45-105	0			
Bis(2-chloroethyl)ether	14.58	5.0	20	0	72.9	35-110	0			
Bis(2-ethylhexyl)phthalate	20.82	5.0	20	1.39	97.2	40-125	0			
Butyl benzyl phthalate	19.27	5.0	20	0	96.4	45-115	0			
Carbazole	20.56	5.0	20	0	103	50-150	0			
Chrysene	22.24	5.0	20	2.37	99.4	55-110	0			
Dibenzo(a,h)anthracene	19.07	5.0	20	0.85	91.1	40-125	0			
Dibenzofuran	17.2	5.0	20	0	86	55-105	0			

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

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

Diethyl phthalate	20.09	5.0	20	0	100	40-120	0
Dimethyl phthalate	18.79	5.0	20	0	94	25-125	0
Di-n-butyl phthalate	20.42	5.0	20	0	102	55-115	0
Di-n-octyl phthalate	22.88	5.0	20	0	114	35-135	0
Fluoranthene	21.8	5.0	20	2.17	98.2	55-115	0
Fluorene	18.36	5.0	20	0	91.8	50-110	0
Hexachlorobenzene	16.41	5.0	20	0	82	50-110	0
Hexachlorobutadiene	14.04	5.0	20	0	70.2	25-105	0
Hexachlorocyclopentadiene	11.35	5.0	20	0	56.8	25-105	0
Hexachloroethane	14.78	5.0	20	0	73.9	30-95	0
Indeno(1,2,3-cd)pyrene	18.13	5.0	20	3.76	71.8	45-125	0
Isophorone	15.76	5.0	20	0	78.8	50-110	0
Naphthalene	15.18	5.0	20	0	75.9	40-100	0
Nitrobenzene	17.2	5.0	20	0	86	45-110	0
N-Nitrosodi-n-propylamine	15.87	5.0	20	0	79.4	35-130	0
N-Nitrosodiphenylamine	18.52	5.0	20	0	92.6	50-110	0
Pentachlorophenol	20.68	5.0	20	0	103	40-115	0
Phenanthrene	18.15	5.0	20	0	90.8	50-115	0
Phenol	5.76	5.0	20	0	28.8	12-43	0
Pyrene	20.85	5.0	20	2.1	93.8	50-130	0
Surr: 2,4,6-Tribromophenol	*44.24*	0	*50*	0	*88.5*	*38-115*	0
Surr: 2-Fluorobiphenyl	*36.63*	0	*50*	0	*73.3*	*32-100*	0
Surr: 2-Fluorophenol	*21.29*	0	*50*	0	*42.6*	*22-59*	0
Surr: 4-Terphenyl-d14	*36.05*	0	*50*	0	*72.1*	*23-112*	0
Surr: Nitrobenzene-d5	*33.59*	0	*50*	0	*67.2*	*31-93*	0
Surr: Phenol-d6	*13.21*	0	*50*	0	*26.4*	*13-36*	0

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

DUP Sample ID: **16091057-01B DUP** Units: **µg/L** Analysis Date: **9/21/2016 02:43 PM**

Client ID: **TPA-Pile 6 - 091916** Run ID: **SVMS5_160921A** SeqNo: **4039259** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	U	1.1	0	0	0		0	0	30	
2,4,5-Trichlorophenol	U	1.1	0	0	0	0-0	0	0	30	
2,4,6-Trichlorophenol	U	1.1	0	0	0	0-0	0	0	30	
2,4-Dichlorophenol	U	1.1	0	0	0	0-0	0	0	30	
2,4-Dimethylphenol	U	1.1	0	0	0	0-0	0	0	30	
2,4-Dinitrophenol	U	5.6	0	0	0	0-0	0	0	30	
2,4-Dinitrotoluene	U	1.1	0	0	0	0-0	0	0	30	
2,6-Dinitrotoluene	U	1.1	0	0	0	0-0	0	0	30	
2-Chloronaphthalene	U	0.11	0	0	0	0-0	0	0	30	
2-Chlorophenol	U	1.1	0	0	0	0-0	0	0	30	
2-Methylnaphthalene	0.6034	0.11	0	0	0	0-0	0.4787	23	30	
2-Methylphenol	4.559	1.1	0	0	0	0-0	4.617	1.27	30	
2-Nitroaniline	U	1.1	0	0	0	0-0	0	0	30	
2-Nitrophenol	U	1.1	0	0	0	0-0	0	0	30	
3&4-Methylphenol	6.168	1.1	0	0	0		7.191	15.3	30	
3,3´-Dichlorobenzidine	U	5.6	0	0	0	0-0	0	0	30	
3-Nitroaniline	U	1.1	0	0	0	0-0	0	0	30	
4,6-Dinitro-2-methylphenol	U	1.1	0	0	0	0-0	0	0	30	
4-Bromophenyl phenyl ether	U	1.1	0	0	0	0-0	0	0	30	
4-Chloro-3-methylphenol	U	1.1	0	0	0	0-0	0	0	30	
4-Chloroaniline	U	1.1	0	0	0	0-0	0	0	30	
4-Chlorophenyl phenyl ether	U	1.1	0	0	0	0-0	0	0	30	
4-Nitroaniline	U	1.1	0	0	0	0-0	0	0	30	
4-Nitrophenol	U	5.6	0	0	0	0-0	0	0	30	
Acenaphthene	0.9609	0.11	0	0	0	0-0	0.883	8.45	30	
Acenaphthylene	U	0.11	0	0	0	0-0	0	0	30	
Acetophenone	11.11	1.1	0	0	0	0-0	4.543	83.9	30	R
Anthracene	1.363	0.11	0	0	0	0-0	1.574	14.4	30	
Benzaldehyde	2.514	1.1	0	0	0		2.16	15.2	30	
Benzidine	U	5.6	0	0	0	0-0	0	0	30	
Benzo(a)anthracene	1.978	0.11	0	0	0	0-0	2.298	15	30	
Benzo(a)pyrene	2.57	0.11	0	0	0	0-0	2.777	7.73	30	
Benzo(b)fluoranthene	3.218	0.11	0	0	0	0-0	3.553	9.9	30	
Benzo(g,h,i)perylene	1.508	0.11	0	0	0	0-0	1.67	10.2	30	
Benzo(k)fluoranthene	1.441	0.11	0	0	0	0-0	1.606	10.8	30	
Bis(2-chloroethoxy)methane	U	1.1	0	0	0	0-0	0	0	30	
Bis(2-chloroethyl)ether	U	1.1	0	0	0	0-0	0	0	30	
Bis(2-chloroisopropyl)ether	U	1.1	0	0	0	0-0	0	0	30	
Bis(2-ethylhexyl)phthalate	43.84	1.1	0	0	0	0-0	35.74	20.4	30	
Butyl benzyl phthalate	U	1.1	0	0	0	0-0	0	0	30	
Caprolactam	U	5.6	0	0	0		0	0	30	
Carbazole	1.587	1.1	0	0	0	0-0	1.585	0.0937	30	

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **91630** Instrument ID **SVMS5** Method: **SW846 8270D**

Chrysene	2	0.11	0	0	0	0-0	2.298	13.9	30	
Dibenzo(a,h)anthracene	0.6816	0.11	0	0	0	0-0	0.5	30.7	30	R
Dibenzofuran	0.7486	1.1	0	0	0	0-0	0.6915	0	30	J
Diethyl phthalate	0.1899	1.1	0	0	0	0-0	0.2234	0	30	J
Dimethyl phthalate	U	1.1	0	0	0	0-0	0	0	30	
Di-n-butyl phthalate	0.8939	1.1	0	0	0	0-0	0.7021	0	30	J
Di-n-octyl phthalate	33.34	1.1	0	0	0	0-0	23.7	33.8	30	R
Fluoranthene	2.592	0.11	0	0	0	0-0	3.149	19.4	30	
Fluorene	1.765	0.11	0	0	0	0-0	1.521	14.9	30	
Hexachlorobenzene	U	1.1	0	0	0	0-0	0	0	30	
Hexachlorobutadiene	U	1.1	0	0	0	0-0	0	0	30	
Hexachlorocyclopentadiene	U	5.6	0	0	0	0-0	0	0	30	
Hexachloroethane	U	1.1	0	0	0	0-0	0	0	30	
Indeno(1,2,3-cd)pyrene	2.76	0.11	0	0	0	0-0	2.479	10.7	30	
Isophorone	140	5.6	0	0	0	0-0	138.4	1.16	30	E
Naphthalene	2.793	0.11	0	0	0	0-0	2.362	16.7	30	
Nitrobenzene	U	1.1	0	0	0	0-0	0	0	30	
N-Nitrosodi-n-propylamine	U	1.1	0	0	0	0-0	0	0	30	
N-Nitrosodiphenylamine	U	1.1	0	0	0	0-0	0	0	30	
Pentachlorophenol	U	5.6	0	0	0	0-0	0	0	30	
Phenanthrene	3.52	0.11	0	0	0	0-0	3.734	5.91	30	
Phenol	0.9497	1.1	0	0	0	0-0	0.8404	0	30	J
Pyrene	3.911	0.11	0	0	0	0-0	4.979	24	30	
Surr: 2,4,6-Tribromophenol	*36.39*	0	*55.87*	0	*65.1*	*38-115*	40.11	*9.71*	*40*	
Surr: 2-Fluorobiphenyl	*34.89*	0	*55.87*	0	*62.5*	*32-100*	35.88	*2.8*	*40*	
Surr: 2-Fluorophenol	*17.91*	0	*55.87*	0	*32.1*	*22-59*	17.82	*0.512*	*40*	
Surr: 4-Terphenyl-d14	*39.06*	0	*55.87*	0	*69.9*	*23-112*	43.53	*10.8*	*40*	
Surr: Nitrobenzene-d5	*29.06*	0	*55.87*	0	*52*	*31-93*	28.35	*2.47*	*40*	
Surr: Phenol-d6	*11.31*	0	*55.87*	0	*20.2*	*13-36*	10.96	*3.14*	*40*	

The following samples were analyzed in this batch: 16091057-01B

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

MBLK Sample ID: **VBLKW1-160920-R196101a** Units: **µg/L** Analysis Date: **9/20/2016 01:14 PM**

Client ID: Run ID: **VMS6_160920A** SeqNo: **4037509** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								
Styrene	U	1.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								

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

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*19.56*	0	*20*	0	*97.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.52*	0	*20*	0	*97.6*	*80-110*	0
Surr: Dibromofluoromethane	*19.29*	0	*20*	0	*96.4*	*85-115*	0
Surr: Toluene-d8	*19.72*	0	*20*	0	*98.6*	*85-110*	0

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

LCS Sample ID: **VLCSW1-160920-R196101a** Units: **µg/L** Analysis Date: **9/20/2016 11:56 AM**

Client ID: Run ID: **VMS6_160920A** SeqNo: **4037508** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.19	1.0	20	0	101	75-130	0			
1,1,2,2-Tetrachloroethane	18.61	1.0	20	0	93	75-130	0			
1,1,2-Trichloroethane	18.57	1.0	20	0	92.8	75-125	0			
1,1-Dichloroethane	19.33	1.0	20	0	96.6	75-133	0			
1,1-Dichloroethene	20.9	1.0	20	0	104	70-145	0			
1,2,4-Trichlorobenzene	18.8	1.0	20	0	94	70-135	0			
1,2-Dibromo-3-chloropropane	13.06	1.0	20	0	65.3	60-130	0			
1,2-Dibromoethane	17.1	1.0	20	0	85.5	80-150	0			
1,2-Dichlorobenzene	18.4	1.0	20	0	92	70-130	0			
1,2-Dichloroethane	17.45	1.0	20	0	87.2	78-125	0			
1,2-Dichloropropane	18.13	1.0	20	0	90.6	75-125	0			
1,3-Dichlorobenzene	18.53	1.0	20	0	92.6	75-130	0			
1,4-Dichlorobenzene	17.83	1.0	20	0	89.2	75-130	0			
2-Butanone	14.22	5.0	20	0	71.1	55-150	0			
2-Hexanone	14.66	5.0	20	0	73.3	60-135	0			
4-Methyl-2-pentanone	18.33	1.0	20	0	91.6	77-178	0			
Acetone	14.46	10	20	0	72.3	60-160	0			
Benzene	19.39	1.0	20	0	97	85-125	0			
Bromodichloromethane	16.12	1.0	20	0	80.6	75-125	0			
Bromoform	14.29	1.0	20	0	71.4	60-125	0			
Bromomethane	21.84	1.0	20	0	109	30-185	0			
Carbon disulfide	21.59	1.0	20	0	108	60-165	0			
Carbon tetrachloride	18.03	1.0	20	0	90.2	65-140	0			
Chlorobenzene	18.36	1.0	20	0	91.8	80-120	0			
Chloroethane	15.83	1.0	20	0	79.2	50-140	0			
Chloroform	18.33	1.0	20	0	91.6	80-130	0			
Chloromethane	16.23	1.0	20	0	81.2	50-130	0			
cis-1,2-Dichloroethene	18.53	1.0	20	0	92.6	75-134	0			
cis-1,3-Dichloropropene	15.63	1.0	20	0	78.2	70-130	0			
Dibromochloromethane	13.97	1.0	20	0	69.8	60-115	0			
Dichlorodifluoromethane	11.78	1.0	20	0	58.9	20-120	0			
Ethylbenzene	17.54	1.0	20	0	87.7	85-125	0			
Isopropylbenzene	19.12	1.0	20	0	95.6	80-127	0			
Methyl tert-butyl ether	16.21	1.0	20	0	81	80-130	0			
Methylene chloride	18.01	5.0	20	0	90	75-140	0			
Styrene	17.14	1.0	20	0	85.7	85-125	0			
Tetrachloroethene	19.01	1.0	20	0	95	77-138	0			
Toluene	19.18	1.0	20	0	95.9	85-125	0			
trans-1,2-Dichloroethene	19.98	1.0	20	0	99.9	80-140	0			
trans-1,3-Dichloropropene	14.85	1.0	20	0	74.2	72-120	0			
Trichloroethene	19.33	1.0	20	0	96.6	84-130	0			
Trichlorofluoromethane	17.21	1.0	20	0	86	60-140	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

Vinyl chloride	16.85	1.0	20	0	84.2	50-136	0
Xylenes, Total	52.02	3.0	60	0	86.7	80-126	0
Surr: 1,2-Dichloroethane-d4	*19.94*	0	*20*	0	*99.7*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.86*	0	*20*	0	*99.3*	*80-110*	0
Surr: Dibromofluoromethane	*20.65*	0	*20*	0	*103*	*85-115*	0
Surr: Toluene-d8	*20.21*	0	*20*	0	*101*	*85-110*	0

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

MS Sample ID: **1609923-01A MS** Units: **µg/L** Analysis Date: **9/20/2016 09:02 PM**

Client ID: Run ID: **VMS6_160920A** SeqNo: **4037522** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	204.2	10	200	0	102	75-130	0			
1,1,2,2-Tetrachloroethane	187.7	10	200	0	93.8	75-130	0			
1,1,2-Trichloroethane	187.8	10	200	0	93.9	75-125	0			
1,1-Dichloroethane	201.3	10	200	0	101	75-133	0			
1,1-Dichloroethene	225.9	10	200	0	113	70-145	0			
1,2,4-Trichlorobenzene	172.7	10	200	0	86.4	70-135	0			
1,2-Dibromo-3-chloropropane	120.8	10	200	0	60.4	60-130	0			
1,2-Dibromoethane	173.1	10	200	0	86.6	80-150	0			
1,2-Dichlorobenzene	188.3	10	200	0	94.2	70-130	0			
1,2-Dichloroethane	179.4	10	200	0	89.7	78-125	0			
1,2-Dichloropropane	185.6	10	200	0	92.8	75-125	0			
1,3-Dichlorobenzene	191.8	10	200	0	95.9	75-130	0			
1,4-Dichlorobenzene	181.7	10	200	0	90.8	75-130	0			
2-Butanone	164.1	50	200	0	82	55-150	0			
2-Hexanone	157	50	200	0	78.5	60-135	0			
4-Methyl-2-pentanone	196.7	10	200	0	98.4	77-178	0			
Acetone	165.9	100	200	0	83	60-160	0			
Benzene	199.4	10	200	1.12	99.1	85-125	0			
Bromodichloromethane	156.5	10	200	0	78.2	75-125	0			
Bromoform	130.7	10	200	0	65.4	60-125	0			
Bromomethane	194	10	200	0	97	30-185	0			
Carbon disulfide	208.5	10	200	0	104	60-165	0			
Carbon tetrachloride	183.5	10	200	0	91.8	65-140	0			
Chlorobenzene	191	10	200	0	95.5	80-120	0			
Chloroethane	172	10	200	0	86	50-140	0			
Chloroform	191.9	10	200	0	96	80-130	0			
Chloromethane	143.6	10	200	0	71.8	50-130	0			
cis-1,2-Dichloroethene	197.6	10	200	7.51	95	75-134	0			
cis-1,3-Dichloropropene	149.8	10	200	0	74.9	70-130	0			
Dibromochloromethane	130.8	10	200	0	65.4	60-115	0			
Dichlorodifluoromethane	135.8	10	200	0	67.9	20-120	0			
Ethylbenzene	189	10	200	0	94.5	85-125	0			
Isopropylbenzene	210	10	200	0	105	80-127	0			
Methyl tert-butyl ether	169	10	200	0	84.5	80-130	0			
Methylene chloride	204	50	200	0	102	75-140	0			
Styrene	182.5	10	200	0	91.2	85-125	0			
Tetrachloroethene	232.4	10	200	27.77	102	77-138	0			
Toluene	199.1	10	200	0	99.6	85-125	0			
trans-1,2-Dichloroethene	209.9	10	200	0	105	80-140	0			
trans-1,3-Dichloropropene	136	10	200	0	68	72-120	0			S
Trichloroethene	212.3	10	200	11.62	100	84-130	0			
Trichlorofluoromethane	187.7	10	200	0	93.8	60-140	0			

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

Vinyl chloride	178	10	200	0	89	50-136	0
Xylenes, Total	558.4	30	600	0	93.1	80-126	0
Surr: 1,2-Dichloroethane-d4	*196.2*	0	*200*	0	*98.1*	*75-120*	0
Surr: 4-Bromofluorobenzene	*200.1*	0	*200*	0	*100*	*80-110*	0
Surr: Dibromofluoromethane	*201.1*	0	*200*	0	*101*	*85-115*	0
Surr: Toluene-d8	*198*	0	*200*	0	*99*	*85-110*	0

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

MSD Sample ID: **1609923-01A MSD** Units: **µg/L** Analysis Date: **9/20/2016 09:28 PM**

Client ID: Run ID: **VMS6_160920A** SeqNo: **4037523** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	214.7	10	200	0	107	75-130	204.2	5.01	30	
1,1,2,2-Tetrachloroethane	197.9	10	200	0	99	75-130	187.7	5.29	30	
1,1,2-Trichloroethane	195.4	10	200	0	97.7	75-125	187.8	3.97	30	
1,1-Dichloroethane	211.6	10	200	0	106	75-133	201.3	4.99	30	
1,1-Dichloroethene	229.9	10	200	0	115	70-145	225.9	1.76	30	
1,2,4-Trichlorobenzene	185.6	10	200	0	92.8	70-135	172.7	7.2	30	
1,2-Dibromo-3-chloropropane	129.5	10	200	0	64.8	60-130	120.8	6.95	30	
1,2-Dibromoethane	181.6	10	200	0	90.8	80-150	173.1	4.79	30	
1,2-Dichlorobenzene	197.4	10	200	0	98.7	70-130	188.3	4.72	30	
1,2-Dichloroethane	193	10	200	0	96.5	78-125	179.4	7.3	30	
1,2-Dichloropropane	195.9	10	200	0	98	75-125	185.6	5.4	30	
1,3-Dichlorobenzene	201.8	10	200	0	101	75-130	191.8	5.08	30	
1,4-Dichlorobenzene	192.9	10	200	0	96.4	75-130	181.7	5.98	30	
2-Butanone	176.3	50	200	0	88.2	55-150	164.1	7.17	30	
2-Hexanone	158.1	50	200	0	79	60-135	157	0.698	30	
4-Methyl-2-pentanone	194.8	10	200	0	97.4	77-178	196.7	0.971	30	
Acetone	182.3	100	200	0	91.2	60-160	165.9	9.42	30	
Benzene	211.2	10	200	1.12	105	85-125	199.4	5.75	30	
Bromodichloromethane	166.1	10	200	0	83	75-125	156.5	5.95	30	
Bromoform	139.8	10	200	0	69.9	60-125	130.7	6.73	30	
Bromomethane	214	10	200	0	107	30-185	194	9.8	30	
Carbon disulfide	218.3	10	200	0	109	60-165	208.5	4.59	30	
Carbon tetrachloride	192.6	10	200	0	96.3	65-140	183.5	4.84	30	
Chlorobenzene	201.9	10	200	0	101	80-120	191	5.55	30	
Chloroethane	174.5	10	200	0	87.2	50-140	172	1.44	30	
Chloroform	200.1	10	200	0	100	80-130	191.9	4.18	30	
Chloromethane	167.7	10	200	0	83.8	50-130	143.6	15.5	30	
cis-1,2-Dichloroethene	206.2	10	200	7.51	99.3	75-134	197.6	4.26	30	
cis-1,3-Dichloropropene	161.7	10	200	0	80.8	70-130	149.8	7.64	30	
Dibromochloromethane	140.8	10	200	0	70.4	60-115	130.8	7.36	30	
Dichlorodifluoromethane	138.7	10	200	0	69.4	20-120	135.8	2.11	30	
Ethylbenzene	199.4	10	200	0	99.7	85-125	189	5.36	30	
Isopropylbenzene	219.6	10	200	0	110	80-127	210	4.47	30	
Methyl tert-butyl ether	175.5	10	200	0	87.8	80-130	169	3.77	30	
Methylene chloride	205.7	50	200	0	103	75-140	204	0.83	30	
Styrene	190.7	10	200	0	95.4	85-125	182.5	4.39	30	
Tetrachloroethene	245	10	200	27.77	109	77-138	232.4	5.28	30	
Toluene	210.1	10	200	0	105	85-125	199.1	5.38	30	
trans-1,2-Dichloroethene	212.6	10	200	0	106	80-140	209.9	1.28	30	
trans-1,3-Dichloropropene	144.8	10	200	0	72.4	72-120	136	6.27	30	
Trichloroethene	220.9	10	200	11.62	105	84-130	212.3	3.97	30	
Trichlorofluoromethane	195.3	10	200	0	97.6	60-140	187.7	3.97	30	

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196101a** Instrument ID **VMS6** Method: **SW8260B**

Vinyl chloride	186.1	10	200	0	93	50-136	178	4.45	30
Xylenes, Total	584.9	30	600	0	97.5	80-126	558.4	4.64	30
Surr: 1,2-Dichloroethane-d4	*198.6*	0	*200*	0	*99.3*	*75-120*	196.2	*1.22*	*30*
Surr: 4-Bromofluorobenzene	*202.5*	0	*200*	0	*101*	*80-110*	200.1	*1.19*	*30*
Surr: Dibromofluoromethane	*201.9*	0	*200*	0	*101*	*85-115*	201.1	*0.397*	*30*
Surr: Toluene-d8	*198.1*	0	*200*	0	*99*	*85-110*	198	*0.0505*	*30*

The following samples were analyzed in this batch:

16091057-01A	16091057-02A

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196197A** Instrument ID **VMS6** Method: **SW8260B**

MBLK Sample ID: **VBLKW1-160921-R196197A** Units: **µg/L** Analysis Date: **9/21/2016 02:24 PM**

Client ID: Run ID: **VMS6_160921A** SeqNo: **4039170** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Butanone	U	5.0								
Acetone	U	10								
Surr: 1,2-Dichloroethane-d4	*19.31*	0	*20*	0	*96.6*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*18.97*	0	*20*	0	*94.8*	*80-110*	0			
Surr: Dibromofluoromethane	*19*	0	*20*	0	*95*	*85-115*	0			
Surr: Toluene-d8	*19.59*	0	*20*	0	*98*	*85-110*	0			

LCS Sample ID: **VLCSW1-160921-R196197A** Units: **µg/L** Analysis Date: **9/21/2016 01:31 PM**

Client ID: Run ID: **VMS6_160921A** SeqNo: **4039169** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Butanone	18.05	5.0	20	0	90.2	55-150	0			
Acetone	19.29	10	20	0	96.4	60-160	0			
Surr: 1,2-Dichloroethane-d4	*19.4*	0	*20*	0	*97*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.78*	0	*20*	0	*98.9*	*80-110*	0			
Surr: Dibromofluoromethane	*20.03*	0	*20*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*19.95*	0	*20*	0	*99.8*	*85-110*	0			

MS Sample ID: **16091057-01A MS** Units: **µg/L** Analysis Date: **9/21/2016 11:05 PM**

Client ID: **TPA-Pile 6 - 091916** Run ID: **VMS6_160921A** SeqNo: **4040256** Prep Date: DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Butanone	5834	1,000	4000	2458	84.4	55-150	0			
Acetone	15680	2,000	4000	13470	55.3	60-160	0			S
Surr: 1,2-Dichloroethane-d4	*3916*	0	*4000*	0	*97.9*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*4030*	0	*4000*	0	*101*	*80-110*	0			
Surr: Dibromofluoromethane	*3960*	0	*4000*	0	*99*	*85-115*	0			
Surr: Toluene-d8	*3988*	0	*4000*	0	*99.7*	*85-110*	0			

MSD Sample ID: **16091057-01A MSD** Units: **µg/L** Analysis Date: **9/21/2016 11:32 PM**

Client ID: **TPA-Pile 6 - 091916** Run ID: **VMS6_160921A** SeqNo: **4040257** Prep Date: DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Butanone	6230	1,000	4000	2458	94.3	55-150	5834	6.56	30	
Acetone	16020	2,000	4000	13470	63.8	60-160	15680	2.13	30	
Surr: 1,2-Dichloroethane-d4	*3942*	0	*4000*	0	*98.6*	*75-120*	3916	*0.662*	*30*	
Surr: 4-Bromofluorobenzene	*3974*	0	*4000*	0	*99.4*	*80-110*	4030	*1.4*	*30*	
Surr: Dibromofluoromethane	*4018*	0	*4000*	0	*100*	*85-115*	3960	*1.45*	*30*	
Surr: Toluene-d8	*4008*	0	*4000*	0	*100*	*85-110*	3988	*0.5*	*30*	

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

Client: CT Laboratories
Work Order: 16091057
Project: TOCON - TPA-Pile 6 - 091916

QC BATCH REPORT

Batch ID: **R196197A** Instrument ID **VMS6** Method: **SW8260B**

The following samples were analyzed in this batch:

16091057-01A

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

16091057

Rev. 4/2010

CHAIN OF CUSTODY

Page 1 of 1

Company: Tetra Tech
Project Contact: Andre Baker
Telephone: 630.379.3749
Project Name: TOCON
Project #: 163x902600015051607008
Location: Goshen, IN
Sampled By: AB

CT LABORATORIES

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Lab Use Only
Place Header Sticker Here:

Program:
QSM RCRA SDWA NPDES
Solid Waste Other _____

PO #

Report To: Andre.Baker@TetraTech.com
EMAIL: Chris.Burns@TetraTech.com
Company: Tetra Tech
Address: 1 South Wacker Dr Chicago IL 60606
Invoice To:* Dennis Linley
EMAIL: dlinley@ctlaboratories.com
Company: CT Laboratories
Address: 1230 Lange Ct, Baraboo WI 53913

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

48hr TAT

Matrix:
GW - groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed: 9/21/16
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Collection Date	Collection Time	Matrix	Grab/Comp	Sample ID Description	Filtered? Y/N	8260 VOCs	8270 SVOCs	TAL Metals	Pesticides	Herbicides	PCB's								Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
9/14/16		SW	Grab	TPA-Pile 6-091916	N	X	X	X	X	X	X								8		
				Trip Blank		X													1		

Fill in Spaces with Bottles per Test

Relinquished By:	Date/Time	Received By:	Date/Time	Lab Use Only
[signature]	9/14/16	[signature]	9/19/16 1530	Ice Present Yes No
Received by:	Date/Time	Received for Laboratory by:	Date/Time	Temperature 4.0°C
				Cooler # _____

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **CTLABORATORIES** Date/Time Received: **19-Sep-16 15:30**

Work Order: **16091057** Received by: **MBB**

Checklist completed by Diane Shaw (eSignature) 19-Sep-16 (Date) Reviewed by: Joseph Ribar (eSignature) 20-Sep-16 (Date)

Matrices: Surface Water
Carrier name: Client

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☐	☐	☑
Custody seals intact on sample bottles?	☐	☐	☑
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	
Sample(s) received on ice?	☑	☐	

Temperature(s)/Thermometer(s): 4.0/4.0 c SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 9/19/2016 4:27:22 PM

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

pH adjusted by: -

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

30-Sep-2016

Dennis Linley
CT Laboratories
1230 Lange Court
Baraboo, WI 53913

Re: **TOCON** Work Order: **16091644**

Dear Dennis,

ALS Environmental received 1 sample on 28-Sep-2016 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 12.

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

Sincerely,

Joseph Ribar

Electronically approved by: Joseph Ribar

Joseph Ribar
Project Manager

Certificate No: WI: 399084510

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Group USA, Corp

Date: 30-Sep-16

Client: CT Laboratories
Project: TOCON
Work Order: **16091644**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
16091644-01	TPA-BACKFILL-092216	Soil		9/22/2016 15:00	9/28/2016 10:00	☐

ALS Group USA, Corp

Date: 30-Sep-16

Client: CT Laboratories
Project: TOCON
Work Order: 16091644

Case Narrative

Samples for the above noted Work Order were received on 09/28/2016. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics:
No other deviations or anomalies were noted.

Metals:
Batch 92111, Method 7471, Sample 16091644-01AMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Hg

Batch 92140, Method 6010, Sample 16091644-01AMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba,Zn

Batch 92140, Method 6010, Sample 16091644-01AMS: The matrix spike recovery was outside of the control limit. However, the matrix spike duplicate recovery and the RPD between the MS and MSD were in control. No qualification is required for this analyte: As,Pb

Batch 92140, Method 6010, Sample 16091644-01AMSD: The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Ba

No other deviations or anomalies were noted.

Wet Chemistry:
No other deviations or anomalies were noted.

ALS Group USA, Corp

Date: *30-Sep-16*

Client: CT Laboratories
Project: TOCON
Sample ID: TPA-BACKFILL-092216
Collection Date: 9/22/2016 03:00 PM

Work Order: 16091644
Lab ID: 16091644-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS		Method:	**SW8082**				Analyst: **EB**
Aroclor 1016	U		14	85	µg/Kg-dry	1	9/30/2016 03:19
Aroclor 1221	U		14	85	µg/Kg-dry	1	9/30/2016 03:19
Aroclor 1232	U		14	85	µg/Kg-dry	1	9/30/2016 03:19
Aroclor 1242	U		14	85	µg/Kg-dry	1	9/30/2016 03:19
Aroclor 1248	U		14	85	µg/Kg-dry	1	9/30/2016 03:19
Aroclor 1254	**170**		**23**	**85**	**µg/Kg-dry**	1	9/30/2016 03:19
Aroclor 1260	U		23	85	µg/Kg-dry	1	9/30/2016 03:19
PCBs, Total	**170**		**23**	**85**	**µg/Kg-dry**	1	9/30/2016 03:19
Surr: Decachlorobiphenyl	*82.1*			*40-140*	*%REC*	1	9/30/2016 03:19
Surr: Tetrachloro-m-xylene	*72.1*			*45-124*	*%REC*	1	9/30/2016 03:19
MERCURY BY CVAA		Method:	**SW7471B**		Prep: SW7471 / 9/29/16		Analyst: **LR**
Mercury	**1.3**		**0.025**	**0.15**	**mg/Kg-dry**	10	9/29/2016 18:04
METALS ANALYSIS BY ICP		Method:	**SW846 6010C**		Prep: SW3050B / 9/29/16		Analyst: **JEC**
Arsenic	**4.1**		**0.095**	**0.37**	**mg/Kg-dry**	1	9/29/2016 22:15
Barium	**58**		**0.15**	**0.37**	**mg/Kg-dry**	1	9/29/2016 22:15
Cadmium	**0.24**	J	**0.035**	**0.73**	**mg/Kg-dry**	1	9/29/2016 22:15
Chromium	**11**		**0.020**	**0.37**	**mg/Kg-dry**	1	9/29/2016 22:15
Lead	**17**		**0.077**	**0.37**	**mg/Kg-dry**	1	9/29/2016 22:15
Selenium	U		0.20	0.73	mg/Kg-dry	1	9/29/2016 22:15
Silver	U		0.045	0.37	mg/Kg-dry	1	9/29/2016 22:15
MOISTURE		Method:	**SW3550C**				Analyst: **EDL**
Moisture	**5.0**		**0.025**	**0.050**	**% of sample**	1	9/28/2016 16:16

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 30-Sep-16

Client: CT Laboratories
Project: TOCON
WorkOrder: **16091644**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group USA, Corp

Client: CT Laboratories
Work Order: 16091644
Project: TOCON

Date: 30-Sep-16

QC BATCH REPORT

Batch ID: **92148B** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-92148-92148B** Units: **µg/Kg** Analysis Date: **9/29/2016 09:47 PM**

Client ID: Run ID: **GC14_160929A** SeqNo: **4058406** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	U	83								
Aroclor 1221	U	83								
Aroclor 1232	U	83								
Aroclor 1242	U	83								
Aroclor 1248	U	83								
Aroclor 1254	U	83								
Aroclor 1260	U	83								
PCBs, Total	U	83								
Surr: Decachlorobiphenyl	*31.33*	0	*33.3*	0	*94.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*28.67*	0	*33.3*	0	*86.1*	*45-124*	0			

LCS Sample ID: **PLCSS1-92148-92148B** Units: **µg/Kg** Analysis Date: **9/29/2016 10:04 PM**

Client ID: Run ID: **GC14_160929A** SeqNo: **4058407** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	877.7	83	833	0	105	50-130	0			
Aroclor 1260	867.7	83	833	0	104	50-130	0			
Surr: Decachlorobiphenyl	*31.67*	0	*33.3*	0	*95.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*28.33*	0	*33.3*	0	*85.1*	*45-124*	0			

MS Sample ID: **16091691-02A MS** Units: **µg/Kg** Analysis Date: **9/29/2016 10:39 PM**

Client ID: Run ID: **GC14_160929A** SeqNo: **4058409** Prep Date: **9/29/2016** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	827.7	160	818.2	0	101	40-140	0			
Aroclor 1260	1321	160	818.2	426.7	109	40-140	0			
Surr: Decachlorobiphenyl	*27.5*	0	*32.71*	0	*84.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*26.19*	0	*32.71*	0	*80.1*	*45-124*	0			

MSD Sample ID: **16091691-02A MSD** Units: **µg/Kg** Analysis Date: **9/29/2016 10:56 PM**

Client ID: Run ID: **GC14_160929A** SeqNo: **4058410** Prep Date: **9/29/2016** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	761.2	160	804.6	0	94.6	40-140	827.7	8.38	50	
Aroclor 1260	1158	160	804.6	426.7	90.9	40-140	1321	13.1	50	
Surr: Decachlorobiphenyl	*28.98*	0	*32.17*	0	*90.1*	*40-140*	27.5	*5.22*	*50*	
Surr: Tetrachloro-m-xylene	*24.47*	0	*32.17*	0	*76.1*	*45-124*	26.19	*6.8*	*50*	

The following samples were analyzed in this batch: 16091644-01A

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

Client: CT Laboratories
Work Order: 16091644
Project: TOCON

QC BATCH REPORT

Batch ID: **92111** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-92111-92111** Units: **mg/Kg** Analysis Date: **9/29/2016 05:22 PM**
Client ID: Run ID: **HG1_160929A** SeqNo: **4058087** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.020								

LCS Sample ID: **LCS-92111-92111** Units: **mg/Kg** Analysis Date: **9/29/2016 05:25 PM**
Client ID: Run ID: **HG1_160929A** SeqNo: **4058088** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1808	0.020	0.1665	0	109	80-120	0			

MS Sample ID: **16091644-01AMS** Units: **mg/Kg** Analysis Date: **9/29/2016 06:06 PM**
Client ID: **TPA-BACKFILL-092216** Run ID: **HG1_160929A** SeqNo: **4058093** Prep Date: **9/29/2016** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	1.185	0.14	0.1189	1.275	-76.3	75-125	0			SO

MSD Sample ID: **16091644-01AMSD** Units: **mg/Kg** Analysis Date: **9/29/2016 06:09 PM**
Client ID: **TPA-BACKFILL-092216** Run ID: **HG1_160929A** SeqNo: **4058094** Prep Date: **9/29/2016** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	1.238	0.14	0.1178	1.275	-31.4	75-125	1.185	4.43	35	SO

The following samples were analyzed in this batch: 16091644-01A

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

Client: CT Laboratories
Work Order: 16091644
Project: TOCON

QC BATCH REPORT

Batch ID: **92140** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-92140-92140** Units: **mg/Kg** Analysis Date: **9/29/2016 07:42 PM**

Client ID: Run ID: **ICP2_160929A** SeqNo: **4057505** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.01865	0.25								J
Lead	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								

LCS Sample ID: **LCS-92140-92140** Units: **mg/Kg** Analysis Date: **9/29/2016 07:48 PM**

Client ID: Run ID: **ICP2_160929A** SeqNo: **4057509** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.086	0.25	5	0	102	80-120	0			
Barium	4.789	0.25	5	0	95.8	80-120	0			
Cadmium	5.099	0.50	5	0	102	80-120	0			
Chromium	5.309	0.25	5	0	106	80-120	0			
Lead	4.861	0.25	5	0	97.2	80-120	0			
Selenium	5.137	0.50	5	0	103	80-120	0			
Silver	4.786	0.25	5	0	95.7	80-120	0			

MS Sample ID: **16091644-01AMS** Units: **mg/Kg** Analysis Date: **9/29/2016 10:21 PM**

Client ID: **TPA-BACKFILL-092216** Run ID: **ICP2_160929A** SeqNo: **4057571** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.54	0.35	6.916	3.89	125	75-125	0			S
Barium	67.46	0.35	6.916	55.07	179	75-125	0			SO
Cadmium	8.325	0.69	6.916	0.2246	117	75-125	0			
Chromium	17.29	0.35	6.916	10.41	99.5	75-125	0			
Lead	20.91	0.35	6.916	16.57	62.7	75-125	0			S
Selenium	7.805	0.69	6.916	-0.08543	114	75-125	0			
Silver	7.149	0.35	6.916	-0.115	105	75-125	0			

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

Client: CT Laboratories
Work Order: 16091644
Project: TOCON

QC BATCH REPORT

Batch ID: **92140** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **16091644-01AMSD** Units: **mg/Kg** Analysis Date: **9/29/2016 10:27 PM**

Client ID: **TPA-BACKFILL-092216** Run ID: **ICP2_160929A** SeqNo: **4057572** Prep Date: **9/29/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.3	0.35	6.906	3.89	122	75-125	12.54	1.91	20	
Barium	87.94	0.35	6.906	55.07	476	75-125	67.46	26.4	20	SRO
Cadmium	8.336	0.69	6.906	0.2246	117	75-125	8.325	0.132	20	
Chromium	16.01	0.35	6.906	10.41	81.1	75-125	17.29	7.68	20	
Lead	24.27	0.35	6.906	16.57	112	75-125	20.91	14.9	20	
Selenium	7.782	0.69	6.906	-0.08543	114	75-125	7.805	0.286	20	
Silver	7.63	0.35	6.906	-0.115	112	75-125	7.149	6.5	20	

The following samples were analyzed in this batch: 16091644-01A

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

Client: CT Laboratories
Work Order: 16091644
Project: TOCON

QC BATCH REPORT

Batch ID: **R196905** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R196905** Units: **% of sample** Analysis Date: **9/28/2016 04:16 PM**

Client ID: Run ID: **MOIST_160928B** SeqNo: **4055351** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R196905** Units: **% of sample** Analysis Date: **9/28/2016 04:16 PM**

Client ID: Run ID: **MOIST_160928B** SeqNo: **4055350** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **16091442-14B DUP** Units: **% of sample** Analysis Date: **9/28/2016 04:16 PM**

Client ID: Run ID: **MOIST_160928B** SeqNo: **4055329** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	20.82	0.050	0	0	0		20.96	0.67	20	

DUP Sample ID: **1609934-11A DUP** Units: **% of sample** Analysis Date: **9/28/2016 04:16 PM**

Client ID: Run ID: **MOIST_160928B** SeqNo: **4055342** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	24.53	0.050	0	0	0		25.2	2.69	20	

The following samples were analyzed in this batch: 16091644-01A

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

16091644

CT LABORATORIES
delivering more than data from your environmental analyses

1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

Sub-Contract Laboratory Chain-of-Custody and Purchase Order

PURCHASE ORDER # 122391 ALSMI

The PO# must appear on all invoice and reports!

Upon Receipt of Samples, please verify that samples were received in acceptable condition then sign this form and fax to (608)356-2766 or email to the project manager. Sample temperature, upon receipt, must be recorded on this document unless thermal preservation is not a method requirement.

Ship to: **ALS - MI**
3352 128th AVE
Holland, MI 49424

Return Invoice and Results to: **bszymanski@ctlaboratories.com**

CTLaboratories
Brett M Szymanski
1230 Lange Court
Baraboo WI 53913

Date Due: 3-Day TAT ***RUSH TURNAROUND NEEDED?*** (Y) ***or N (Circle One)***

Project Name: TOCON ASBESTOS **Project State:** IN

Analytical/QC Criteria: NONE INDICATED STATE DOD QSM NELAP (Circle one) (OTHER) EPA

Report results as EDD? N (Y) (Circle one and indicate type: Excel (START)) Data Deliverable Package LEVEL: IV

CTLabs ID#	Sample Date/Time	Matrix	Sample Description	Analyses / Method	Cost
778648	09/22/2016 1500	SOIL	TPA-BACKFILL-092216	RCRA Metals (6010C/7471B)	
778648	09/22/2016 1500	SOIL	TPA-BACKFILL-092216	PCB (8082A)	

Relinquished by: Brett Szymanski Date/Time: 09/27/2016 15:30

Received by: Date/Time: 9/28/16 1000 Receipt Temperature (C) _____

COMMENTS:

REPORT ALL SOLIDS ON A DRY WEIGHT BASIS UNLESS OTHERWISE INDICATED

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **CTLABORATORIES** Date/Time Received: **28-Sep-16 10:00**

Work Order: **16091644** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 28-Sep-16 (Date) Reviewed by: Joseph Ribar (eSignature) 28-Sep-16 (Date)

Matrices: Soil
Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6/1.6 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/28/2016 1:59:52 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

EMSL Analytical, Inc.
14375 23rd Avenue North, Minneapolis, Mn 55447
Phone/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com minneapolislab@emsl.com

EMSL Order:	351602944
CustomerID:	CTLA62
CustomerPO:	
ProjectID:	

Attn: **Dennis Linley**
CT Laboratories
1230 Lange Court
Baraboo, WI 53913-3109

Phone:	(608) 356-2760
Fax:	(608) 356-2766
Received:	05/13/16 9:20 AM
Analysis Date:	5/16/2016
Collected:	5/12/2016

Project: **Former Vermont School**

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method, Revision 3, Issue 2, 8/15/94

Sample	*Location*	*Sample Date*	*Volume (liters)*	*Fibers*	*Fields*	*LOD (fib/cc)*	*Fibers/ mm²*	*Fibers/ cc*	*Notes*
1 *351602944-0001*	FVS-FB-051216	5/12/2016		<5.5	100		<7.01		Field Blank
2 *351602944-0002*	FVS-A1-051216	5/12/2016	3807.60	9.5	100	0.001	12.1	0.001	
3 *351602944-0003*	FVS-A2-051216	5/12/2016	3718.56	<5.5	100	0.001	<7.01	<0.001	
4 *351602944-0004*	FVS-A3-051216	5/12/2016	3774.38	7.5	100	0.001	9.55	0.001	
5 *351602944-0005*	FVS-A4-051216	5/12/2016	3830.40	<5.5	100	0.001	<7.01	<0.001	

The results reported have been blank corrected as applicable.

Analyst(s)

George Sullivan (5)

Rachel Travis, Laboratory Manager
or other approved signatory

*Following EMSL Analytical SOP Asbestos and Other Fibers by PCM. Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.35, 21-50 fibers = 0.30, 51-100 fibers = 0.20. The laboratory is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn

Initial report from 05/16/2016 08:29:04

THIS IS THE LAST PAGE OF THE REPORT.

OrderID: 351602944

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*

2944

EMSL ANALYTICAL, INC.
14375 23RD AVE NORTH
MINNEAPOLIS, MN 55447
PHONE: (763) 449-4922
FAX:

Company : Tetra Tech	**EMSL-Bill to:** ☐ Same ☒ Different If Bill to is Different note instructions in Comments**
Street: 1 South Wacker Drive Suite 3700	*Third Party Billing requires written authorization from third party*
City: Chicago / **State/Province: IL**	**Zip/Postal Code: 60606** / **Country: United States**
Report To (Name): Dennis Linley	**Fax #:**
Telephone #: 608-356-2760	**Email Address: dlinley@ctlaboratories.com**
Project Name/Number: Former Vermont School	
Please Provide Results: ☐ Fax ☒ Email / **Purchase Order:**	**U.S. State Samples Taken: Illinois**

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☒ NIOSH 7400
- ☐ w/ OSHA 8hr TWA

PLM - Bulk (reporting limit)
- ☐ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198 6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2 5

TEM – Water: EPA 100 2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0 1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: Karl Schultz | **Samplers Signature:** Kl Schultz

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1	FVS-FB-051216	-	05/12/16
2	FVS-A1-051216	3807.60	05/12/16
3	FVS-A2-051216	3718.56	05/12/16
4	FVS-A3-051216	3774.38	05/12/16
5	FVS-A4-051216	3830.40	05/12/16
6			
7			

Client Sample # (s): - **Total # of Samples:** 5

Relinquished (Client): Karl Schultz **Date:** 05/12/16 **Time:** 1800

Received (Lab): ymclaypool FE **Date:** 5/13/16 **Time:** 9:20

Comments/Special Instructions: Report and Invoice go to CT Laboratories.
8086 3103 6764

EMSL Analytical, Inc.

14375 23rd Avenue North Minneapolis, Mn 55447

Tel/Fax: (763) 449-4922 / (763) 449-4924

http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 351605986
Customer ID: TEHC25
Customer PO:
Project ID:

Attention: Chris Burns
Tetra Tech, Inc.
1 South Wacker Dr.
Suite 3700
Chicago, IL 60606
Project: Tocon Property Asbestos

Phone: (312) 201-7700
Fax:
Received Date: 08/23/2016 9:20 AM
Analysis Date: 08/23/2016
Collected Date: 08/22/2016

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method, Revision 3, Issue 2, 8/15/94

Sample	*Location*	*Sample Date*	*Volume (liters)*	*Fibers*	*Fields*	*LOD (fib/cc)*	*Fibers/ mm²*	*Fibers/ cc*	*Notes*
1	TPA-W2-001-082216	8/22/2016	5019.30	<5.5	100	0.001	<7.01	<0.001	
351605986-0001									
2	TPA-S3-004-082216	8/22/2016	4320.12	<5.5	100	0.001	<7.01	<0.001	
351605986-0002									
3	TPA-N1-003-082216	8/22/2016	5115.60	<5.5	100	0.001	<7.01	<0.001	
351605986-0003									
4	TPA-N2-002-082216	8/22/2016	4612.19	<5.5	100	0.001	<7.01	<0.001	
351605986-0004									
5	Field Blank-005	8/22/2016		<5.5	100		<7.0		Field Blank
351605986-0005									
6	Lab Blank-006	8/22/2016		<5.5	100		<7.01		Lab Blank
351605986-0006									

The results reported have been blank corrected as applicable.

Analyst(s):
George Sullivan PCM (6)

Rachel Travis, Laboratory Manager
or Other Approved Signatory

*Following EMSL Analytical SOP Asbestos and Other Fibers by PCM. Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.35, 21-50 fibers = 0.30, 51-100 fibers = 0.20. The laboratory is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn

Initial report from: 08/23/2016 12:36:29

OrderID: 351605986

EMSL ANALYTICAL INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*: 59866

EMSL ANALYTICAL INC.

PHONE: (
FAX:

Company : Tetra Tech		**EMSL-Bill to:** ☐ Same ☒ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*	
Street: 1 S Wacker Drive			
City: Chicago	**State/Province: IL**	**Zip/Postal Code: 60606**	**Country: United States**
Report To (Name): Chris Burns and Andre Baker		**Fax #:**	
Telephone #: 312.201.7719 **312.201.7760**		**Email Address: Chris.burns@tetratech.com** **Andre.baker@tetratech.com**	
Project Name/Number: Tocon Property Asbestos			
Please Provide Results: ☐ Fax ☒ Email	**Purchase Order:**	**U.S. State Samples Taken: Indiana**	

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT You will be asked to sign an authorization form for this service Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☒ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☐ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0 1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
- ☐ AHERA 40 CFR, Part 763
- ☒ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: Andre Baker **Samplers Signature:** Andre B

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1	TPA-W2-001 -082216	519.30 L	08/22/16
2	TPA-S3-004 -082216	4320.12 L	08/22/16
3	TPA-N1-003 -082216	515.60 L	08/22/16
4	TPA-N2-002 -082216	4612.19 L	08/22/16
5	Field Blank ~005		
6	Lab Blank ~006		
7			

Client Sample # (s): - **Total # of Samples:** 6

Relinquished (Client): Andre Baker Andre B **Date:** 8/22/16 **Time:** 1800

Received (Lab): K Gerrits FE **Date:** 8/23/16 **Time:** 920

Comments/Special Instructions: **PCM Sample has a 24 hr TAT**
TEM has 1 Week TAT * Please invoice Dennis Linley (dlinley@ctlaboratories.com) CT Labs and Copy Report**

Controlled Document – Asbestos COC – R2 – 1/12/2010

8083 7043 1523

EMSL Analytical, Inc.
14375 23rd Avenue North, Minneapolis, Mn 55447
Phone/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com minneapolislab@emsl.com

EMSL Order:	351605986
CustomerID:	TEHC25
CustomerPO:	
ProjectID:	

Attn: **Chris Burns**
Tetra Tech, Inc.
1 South Wacker Dr.
Suite 3700
Chicago, IL 60606

Phone:	(312) 201-7700
Fax:	
Received:	08/23/16 9:20 AM
Analysis Date:	8/26/2016
Collected:	8/22/2016

Project: **Tocon Property Asbestos**

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	*Volume (Liters)*	*Non Asbestos Fibers*	*PCM F/cc*	*Asbestos Type(s)*	*Asbestos Fibers*	*Asbestos % of total*	*7402 Adjusted (TEM) F/cc*	*Notes*
1 *351605986-0001*	5019.30	1	<0.001			0	**<0.001**	
2 *351605986-0002*	4320.12	0	<0.001			0	**<0.001**	
3 *351605986-0003*	5115.6	0	<0.001			0	**<0.001**	
4 *351605986-0004*	4612.19	0	<0.001			0	**<0.001**	

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.
This method requires a minimum of 2 field blank analyses per set.The above results are not blank corrected
Average number of asbestos fibers on field blanks: n/a
Average number of non-asbestos fibers on field blanks: n/a

Analyst(s)
Lynn Scott (4)

Rachel Travis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn

Initial report from 08/23/2016 12:36:29

THIS IS THE LAST PAGE OF THE REPORT.

EMSL Analytical, Inc.

14375 23rd Avenue North Minneapolis, Mn 55447

Tel/Fax: (763) 449-4922 / (763) 449-4924

http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 351606029
Customer ID: TEHC25
Customer PO:
Project ID:

Attention: Chris Burns
Tetra Tech, Inc.
1 South Wacker Dr.
Suite 3700
Chicago, IL 60606
Project: Tocon Property Asbestos

Phone: (312) 201-7700
Fax:
Received Date: 08/24/2016 9:15 AM
Analysis Date: 08/24/2016
Collected Date: 08/23/2016

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method, Revision 3, Issue 2, 8/15/94

Sample	*Location*	*Sample Date*	*Volume (liters)*	*Fibers*	*Fields*	*LOD (fib/cc)*	*Fibers/ mm²*	*Fibers/ cc*	*Notes*
1	TPA-W2-007-082316	8/23/2016	4529.25	<5.5	100	0.001	<7.01	<0.001	
351606029-0001									
2	TPA-S2-008-082316	8/23/2016	4024.76	<5.5	100	0.001	<7.01	<0.001	
351606029-0002									
3	TPA-N1-009-082316	8/23/2016	5865.80	<5.5	100	0.0005	<7.01	<0.0005	
351606029-0003									
4	TPA-N2-010-082316	8/23/2016	4220.25	<5.5	100	0.001	<7.01	<0.001	
351606029-0004									
5	Field Blank-011	8/23/2016		<5.5	100		<7.01		Field Blank
351606029-0005									
6	Lab Blank-012	8/23/2016		<5.5	100		<7.01		Field Blank
351606029-0006									

The results reported have been blank corrected as applicable.

Analyst(s):

George Sullivan PCM (6)

Rachel Travis, Laboratory Manager
or Other Approved Signatory

*Following EMSL Analytical SOP Asbestos and Other Fibers by PCM. Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.35, 21-50 fibers = 0.30, 51-100 fibers = 0.20. The laboratory is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn

Initial Report From: 08/24/2016 14:39:55

EMSL Analytical, Inc.
14375 23rd Avenue North, Minneapolis, Mn 55447
Phone/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com minneapolislab@emsl.com

EMSL Order:	351606029
CustomerID:	TEHC25
CustomerPO:	
ProjectID:	

Attn: **Chris Burns**
Tetra Tech, Inc.
1 South Wacker Dr.
Suite 3700
Chicago, IL 60606

Phone:	(312) 201-7700
Fax:	
Received:	08/24/16 9:15 AM
Analysis Date:	8/30/2016
Collected:	8/23/2016

Project: **Tocon Property Asbestos**

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	*Volume (Liters)*	*Non Asbestos Fibers*	*PCM F/cc*	*Asbestos Type(s)*	*Asbestos Fibers*	*Asbestos % of total*	*7402 Adjusted (TEM) F/cc*	*Notes*
1 *351606029-0001*	4529.25	0	<0.001			0	**<0.001**	
2 *351606029-0002*	4024.76	0	<0.001			0	**<0.001**	
3 *351606029-0003*	5865.80	0	<0.005			0	**<0.005**	
4 *351606029-0004*	4220.25	1	<0.001			0	**<0.001**	

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.
This method requires a minimum of 2 field blank analyses per set.The above results are not blank corrected
Average number of asbestos fibers on field blanks: n/a
Average number of non-asbestos fibers on field blanks: n/a

Analyst(s)
Lynn Scott (4)

Rachel Travis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn

Initial report from 08/30/2016 14:45:32

THIS IS THE LAST PAGE OF THE REPORT.

EMSL Analytical, Inc.

14375 23rd Avenue North Minneapolis, Mn 55447

Tel/Fax: (763) 449-4922 / (763) 449-4924

http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 351606100
Customer ID: TEHC25
Customer PO:
Project ID:

Attention: Andre Baker
Tetra Tech, Inc.
1 South Wacker Dr.
Suite 3700
Chicago, IL 60606
Project: Tocon Property Asbestos

Phone: (312) 201-7700
Fax:
Received Date: 08/25/2016 9:20 AM
Analysis Date: 08/26/2016
Collected Date: 08/24/2016

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method, Revision 3, Issue 2, 8/15/94

Sample	*Location*	*Sample Date*	*Volume (liters)*	*Fibers*	*Fields*	*LOD (fib/cc)*	*Fibers/ mm²*	*Fibers/ cc*	*Notes*
1	TPA-N2-013-082416	8/24/2016	2055.52	<5.5	100	0.001	<7.01	<0.001	
351606100-0001									
2	TPA-SW-014-082416	8/24/2016	2128.68	<5.5	100	0.001	<7.01	<0.001	
351606100-0002									
3	Field Blank-015	8/24/2016		<5.5	100		<7.01		Field Blank
351606100-0003									
4	Lab Blank-016	8/24/2016		<5.5	100		<7.01		Lab Blank
351606100-0004									

The results reported have been blank corrected as applicable.

Analyst(s):

George Sullivan PCM (4)

Rachel Travis, Laboratory Manager
or Other Approved Signatory

*Following EMSL Analytical SOP Asbestos and Other Fibers by PCM. Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.35, 21-50 fibers = 0.30, 51-100 fibers = 0.20. The laboratory is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn

Initial Report From: 08/26/2016 09:15:59

OrderID: 351606100

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*: 6100

EMSL ANALYTICAL, INC.

PHONE: (
FAX:

Company : Tetra Tech	**EMSL-Bill to:** ☐ Same ☒ Different If Bill to is Different note instructions in Comments**
Street: 1 S Wacker Drive	*Third Party Billing requires written authorization from third party*
City: Chicago / **State/Province: IL**	**Zip/Postal Code: 60606** / **Country: United States**
Report To (Name): Chris Burns and Andre Baker	**Fax #:**
Telephone #: 312.201.7719 **312.201.7760**	**Email Address: Chris.burns@tetratech.com** **Andre.baker@tetratech.com**

Project Name/Number: Tocon Property Asbestos

Please Provide Results: ☐ Fax ☒ Email | **Purchase Order:** | **U.S. State Samples Taken: Indiana**

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☒ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☐ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☒ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: Andre Baker | **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1	TPA-N2-013-082416	2055.52 L	8/24/16
2	TPA-SW-014-082416	2128.68 L	8/24/16
3	Field Blank-015		
4	Lab Blank-016		
5			
6			
7			

Client Sample # (s): - **Total # of Samples:** 4

Relinquished (Client): Andre Baker **Date:** 8/24/16 **Time:** 1800

Received (Lab): KSmith FE **Date:** 8/25/16 **Time:** 9:20

Comments/Special Instructions: PCM Sample has a 24 hr TAT
TEM has 1 Week TAT * Please invoice Dennis Linley (dlinley@ctlaboratories.com) CT Labs and Copy Report**

Controlled Document – Asbestos COC – R2 – 1/12/2010

8083 7043 1545