Raw Data for

DHL Work Order

1010174

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This Raw Data Package for GEOSTRATA: Hillcrest CEI (DHL Work Order 1010174) contains the following information:

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October 29, 2010

Approved: _____
Evelyn Ferrero

ICPMS#2 Metals Analysis
for
DHL Work Order

1010174

Lab Data Review Check List
EPA Method 6020 / 200.8 - Trace Metals by ICP-MS

Project Number(s): 1010167, 1010174, 1010163, 1010183, 1010142, 1010165, 1010129	Run ID: ICPMS2-101027A, B, C
Batch Number(s): 43580, 43587, 43559, 43597	SOP: Metals-ICP-MS-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	✓			—
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	✓			—
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	✓			✓

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	✓		—
P/A Factor	Before ICAL	Increasing trend	✓		—
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	✓		—
ICSA	After calibration & every 12 hours	< RL (except Mn & Zn)	✓		✓
ICSAB	After calibration & every 12 hours	80-120% (correct for ICSA result)	✓		—
ICV (Second Source Verification)	After ICAL	90-110%	✓		✓
ICB	After calibration	< MDL	✓		✓
CCV	Every 10 samples	90-110%	✓		✓
CCB	Every 10 samples	< MDL (ALL + DoD)	✓		✓
Internal Standards	Every sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD) 30-150% (Other)	✓		✓

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
LLCV	After ICAL, every 10 samples and end of run	70-130%	✓			✓
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit		✓		✓
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			✓	✓
Lab Control Sample (LCS)	Every Batch	80-120%	✓			—
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	✓			✓
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	✓			✓
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		✓		✓
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	✓	✓		—
Dilution Test (SD) - RPD	Every Batch	10		✓		—
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)		✓		✓

Lab Data Review Check List
EPA Method 6020 / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	✓			—
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	✓			—
3. Are ALL reported analytes and reported results > MDL circled by the analyst? (J flags are circled)		✓	**Return to analyst if NO**		✓
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	✓			—
2. Are all corrective actions included?		✓			—
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		✓			✓

Approved by: [signature] Date: 10/28/10

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ CCV out of control (± 10%)	___ Carryover from previous run	___ Reanalyze QC to confirm
___ CCB out of control (> MDL / >½ RL)	___ Cross contamination	___ Recalibrate
✓ MB out of control (> MDL / >½ RL)	___ Lab Artifact	___ Reprep/Reanalyze sample
___ LCS ___ LCSD out of control (± 20%)	___ Prep Spike error (describe)	___ Reprep/Reanalyze Batch
✓ MS ___ MSD out of control (± 20%)	___ Matrix Effect	___ Reanalyze Batch/Sample/QC
___ RPD out of control for MS/MSD (15/25)	___ High Levels of Target Metals	___ Verify reagents are clean
___ Internal Standard(s) out of control (see Method)	___ Insufficient sample for QC	___ Reanalyze sample to confirm
___ No MS/MSD prepared - LCS/LCSD used instead	___ Digestion/Prep Error	___ Sample results ND w/ dilution
___ Missing QC (other than MS/MSD)	___ Analytical Error	___ Client notified and approved
___ QC sample(s) was mis-spiked	___ Client Request	___ Flag data / Case narrative
___ ICSA/ICSAB missing or out of control (± 20%)		___ Accept data
___ LLCV out of control (± 30%)		___ Cal Std high and sample ND
___ Other (describe below)	___ Other (describe below)	___ Other (describe below)

General Comments and Impact on Data: MB-43597 has J-hit of Ca. Sample has 720x. No adverse effect to data. See run log.

Analyst: Karyn Lane Date: 10-28-10

Second-Level Review: [signature] Date: 10. 28. 2010

DHL Analytical

Run ID: ICP-MS2_101027A **Run No.:** 51997

Analytical Run Date: 10/27/2010 **InstrumentID:** ICP-MS2

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
ICV1-101027	1	ICPMS_TW	ICV	R51997	10/27/2010 11:20:00 AM		
ICB1-101027	1	ICPMS_TW	ICB	R51997	10/27/2010 11:31:00 AM		
LLICV1-101027	1	6020A_S	LCVL	R51997	10/27/2010 11:36:00 AM		
MB-43580	5	6020A_S	MBLK	43580	10/27/2010 11:42:00 AM		
LCS-43580	5	6020A_S	LCS	43580	10/27/2010 11:47:00 AM		
LCSD-43580	5	6020A_S	LCSD	43580	10/27/2010 11:53:00 AM		
1010174-01B	5	6020A_S	SAMP	43580	10/27/2010 12:04:00 PM		
1010167-04A	5	6020A_S	SAMP	43580	10/27/2010 12:09:00 PM		
1010167-04A SD	25	6020A_S	SD	43580	10/27/2010 12:15:00 PM		Cr failed. PDS ok.
1010167-04A PDS	5	6020A_S	PDS	43580	10/27/2010 12:20:00 PM		
1010167-04A MS	5	6020A_S	MS	43580	10/27/2010 12:25:00 PM		Ba failed.
1010167-04A MSD	5	6020A_S	MSD	43580	10/27/2010 12:31:00 PM		Ba failed. RPD failed. SD/PDS ok.
CCV1-101027	1	ICPMS_TW	CCV	R51997	10/27/2010 12:36:00 PM		
CCB1-101027	1	ICPMS_TW	CCB	R51997	10/27/2010 12:47:00 PM		
LLCCV1-101027	1	6020A_S	LCVL	R51997	10/27/2010 12:53:00 PM		

10-28-10 KL

10.28.2010

Std ID	Std Name	Type	Exp. Date
MET-CALB-101018	CAL BLANK		1/16/2011
MET-CCV-101018	ICPMS CCV 200/5000 PPB		1/16/2011
MET-H2CAL-10101	ICPMS High Cal2 2000ppb std 6		1/16/2011
MET-HCAL-101018	ICPMS High Cal 500ppb/10ppm		1/16/2011
MET-ICSA-101022	ICS-A		1/22/2011
MET-ICSAB-10102	ICS-AB		1/22/2011
MET-ICV-101018	ICPMS ICV 100/2500 PPB		1/16/2011
MET-IS-101019	INTERNAL STANDARD 1 PPM		1/19/2011
MET-L2CAL-10101	ICPMS Low Cal2 1/20ppb std 2		1/16/2011
MET-LCAL-101018	ICPMS Low Cal 10/200ppb std 3		1/16/2011
MET-MCAL-10101	ICPMS Mid Cal 250/5000ppb std		1/16/2011
MET-PDS-101005-	10 PPM CUSTOM PDS SOLUTIO		1/3/2011
MET-PDS-101005-	10 PPM Ag+Sb PDS		1/3/2011
MET-PDS-101005-	250 PPM Naturals+Al+Fe PDS		1/3/2011

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1102		BLANK	CAL ICPMS_TS	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1103		BLANK	CAL ICPMS_TS	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1104		BLANK	CAL ICPMS_TS	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_2.m	CalBlk	2101		BLANK STD 1	CAL ICPMS_TS	Level 1				
6	C:\ICPCHEM\1\METHODS\DHL_2.m	CalStd	2102		1 & 20ppb std 2	CAL ICPMS_TS	Level 2				
7	C:\ICPCHEM\1\METHODS\DHL_2.m	CalStd	2103		10 & 200ppb std 3	CAL ICPMS_TS	Level 3				
8	C:\ICPCHEM\1\METHODS\DHL_2.m	CalStd	2104		250 & 5000ppb std 4	CAL ICPMS_TS	Level 4				
9	C:\ICPCHEM\1\METHODS\DHL_2.m	CalStd	2105		500 & 10000ppb std 5	CAL ICPMS_TS	Level 5				
10	C:\ICPCHEM\1\METHODS\DHL_2.m	CalStd	2106		2000 ppb std 6	CAL ICPMS_TS	Level 6				
11	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1102		BLANK	CAL ICPMS_TS	1.000				
12	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1103		BLANK	CAL ICPMS_TS	1.000				
13		Keyword		CALEND	End of CALIB						
14		Keyword		ICSBEG	Start of ICS						
15	C:\ICPCHEM\1\METHODS\DHL_2.m	ICS-A	2109		ICSA-101027	ICSA\ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_2.m	ICS-AB	2110		ICSAB-101027	ICSB\ICPMS_TW	1.000				
17	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1102		RINSE	CCB ICPMS_TW	1.000				
18	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1103		RINSE	CCB ICPMS_TW	1.000				
19		Keyword		ICSEND	End of ICS						
20		Keyword		SMPLBEG	Start of SMPL						
21	C:\ICPCHEM\1\METHODS\DHL_2.m	ICV	2107		ICV1-101027	ICV ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_2.m	ICB	2108		ICB1-101027	ICB ICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_2.m	ICB	1105		ICB1-101027	ICB ICPMS_TW	1.000				
24	C:\ICPCHEM\1\METHODS\DHL_2.m	LCVL1	2102		LCVL1-101027	LCVL6020A_S	1.000				
25	C:\ICPCHEM\1\METHODS\DHL_2.m	PB	2201		MB-43580	MBLK6020A_S	5.000				

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	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_2.m	LCS	2202		LCS-43580	LCS 6020A_S	5.000				
27	C:\ICPCHEM\1\METHODS\DHL_2.m	LCS	2203		LCSD-43580	LCSD6020A_S	5.000				
28	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1101		~~RINSE~~	CAL ICPMS_TS	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleS	2204		1010174-01B	SAMP6020A_S	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_2.m	AllRef	2205		1010167-04A	SAMP6020A_S	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_2.m	DT	2206		1010167-04A SD	SD 6020A_S	25.00				
32	C:\ICPCHEM\1\METHODS\DHL_2.m	PDS 6020	2207		1010167-04A PDS	PDS 6020A_S	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_2.m	MS_S	2208		1010167-04A MS	MS 6020A_S	5.000				
34	C:\ICPCHEM\1\METHODS\DHL_2.m	MS_S	2209		1010167-04A MSD	MSD 6020A_S	5.000				
35	C:\ICPCHEM\1\METHODS\DHL_2.m	CCV1	1307		CCV1-101027	CCV ICPMS_TW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1103		~~CCB1-101027~~	CCB ICPMS_TW	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1105		CCB1-101027	CCB ICPMS_TW	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_2.m	LCVL1	2102		LLCCV1-101027	LCVL6020A_S	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_2.m	PB W	2301		MB-43587	MBLK200.8	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_2.m	LCS W	2302		LCS-43587	LCS 200.8	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_2.m	LCS W	2303		LCSD-43587	LCSD200.8	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1101		~~RINSE~~	CAL ICPMS_TS	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2304		1010163-01A	SAMP200.8	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2305		1010163-02A	SAMP200.8	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2306		~~1010183-01A~~	SAMP200.8	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2307		1010183-02A	SAMP200.8	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2308		1010183-04A	SAMP200.8	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2309		1010183-01A	SAMP200.8	100.0				
49	C:\ICPCHEM\1\METHODS\DHL_2.m	AllRef	2401		1010183-03A	SAMP200.8	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
50	C:\ICPCHEM\1\METHODS\DHL_2.m	DT	2402		1010183-03A SD	SD 200.8	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_2.m	PDS	2403		1010183-03A PDS	PDS 200.8	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_2.m	MS_W	2404		1010183-03A MS	MS 200.8	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_2.m	MS_W	2405		1010183-03A MSD	MSD 200.8	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_2.m	CCV1	1307		CCV2-101027	CCV ICPMS_TW	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1103		~~CCB2-101027~~	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1104		CCB2-101027	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1105		~~CCB2-101027~~	CCB ICPMS_TW	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1104		CCB2-101027	CCB ICPMS_TW	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2501		1010142-03B	SAMPICPMS_Twdod	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2502		1010142-08B	SAMPICPMS_Twdod	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2503		1010142-09B	SAMPICPMS_Twdod	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_2.m	SampleW	2504		1010142-11B	SAMPICPMS_Twdod	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1101		~~RINSE~~	CAL ICPMS_TS	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_2.m	AliRef	2505		1010142-04B	SAMPICPMS_Twdod	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_2.m	DT	2506		1010142-04B SD	SD ICPMS_Twdod	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_2.m	PDS	2507		1010142-04B PDS	PDS ICPMS_Twdod	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_2.m	CCV1	1307		CCV3-101027	CCV ICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1103		~~CCB3-101027~~	CCB ICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1104		CCB3-101027	CCB ICPMS_TW	1.000				
70	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1105		CCB3-101027	CCB ICPMS_TW	1.000				
71	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1103		CCB3-101027	CCB ICPMS_TW	1.000				
72	C:\ICPCHEM\1\METHODS\DHL_2.m	PB W	3101		MB-43597	MBLKICPMS_Twdod	1.000				
73	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1104		~~CCB3-101027~~	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
74	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1105		~~CCB3-101027~~	CCB ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1103		CCB3-101027	CCB ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_2.m	PB W	3101		MB-43597	MBLKICPMS_Twdod	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_2.m	LCS W	3102		LCS-43597	LCS ICPMS_Twdod	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_2.m	LCS W	3103		LCSD-43597	LCSDICPMS_Twdod	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1101		~~RINSE~~	CAL ICPMS_TS	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_2.m	AllRef	3104		1010179-01C	SAMPICPMS_Twdod	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_2.m	DT	3105		1010179-01C SD	SD ICPMS_Twdod	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_2.m	PDS	3106		1010179-01C PDS	PDS ICPMS_Twdod	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_2.m	MS W	3107		1010179-01C MS	MS ICPMS_Twdod	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_2.m	MS W	3108		1010179-01C MSD	MSD ICPMS_Twdod	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1101		~~RINSE~~	CAL ICPMS_TS	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_2.m	PB W	3109		~~MB-43597~~	MBLKICPMS_Twdod	1.000				
87	C:\ICPCHEM\1\METHODS\DHL_2.m	AllRef	3110		1010179-01C	SAMPICPMS_Twdod	10.00				
88	C:\ICPCHEM\1\METHODS\DHL_2.m	DT	3111		1010179-01C SD	SD ICPMS_Twdod	50.00				
89	C:\ICPCHEM\1\METHODS\DHL_2.m	PDS	3112		1010179-01C PDS	PDS ICPMS_Twdod	10.00				
90	C:\ICPCHEM\1\METHODS\DHL_2.m	CCV1	1307		CCV4-101027	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1102		~~CCB4-101027~~	CCB ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1103		CCB4-101027	CCB ICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1104		~~CCB4-101027~~	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_2.m	CCB	1105		CCB4-101027	CCB ICPMS_TW	1.000				
95	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1101		RINSE	CAL ICPMS_TS	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1102		RINSE	CAL ICPMS_TS	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1103		RINSE	CAL ICPMS_TS	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
98	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1104		~~RINSE~~	CAL ICPMS_TS	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_2.m	Blank	1105		~~RINSE~~	CAL ICPMS_TS	1.000				
100		Keyword		StandBy							
101		Keyword		SMPLEND	End of SMPL						
102		Keyword		End	End of Sequence						
103		Keyword		BLKBEG	Start of BLANK						
104		Keyword		BLKEND	End of BLANK						
105		Keyword		ERRBEG	Start of ERRTERM						
106		Keyword		ERREND	End of ERRTERM						

Prep Batch Selection List *Batch:* 43580

ClientID	*TestCode*	*SampID*	*ME_SEL*	*Due*
GEOSTRATA	6020A_S	1010167-04A	SEL Metals: AS BA CD CR PB SE AG	Fri, 10/29
GEOSTRATA	6020A_S	1010174-01B	SEL Metals: PB	Thu, 10/28
		1010167-04A MS	SEL Metals: AG AS BA CD CR PB SE	
		1010167-04A MSD	SEL Metals: AG AS BA CD CR PB SE	
		1010167-04A PDS	SEL Metals: AG AS BA CD CR PB SE	
		1010167-04A SD	SEL Metals: AG AS BA CD CR PB SE	
		LCS-43580	SEL Metals: AG AS BA CD CR PB SE	
		LCSD-43580	SEL Metals: AG AS BA CD CR PB SE	
		MB-43580	SEL Metals: AG AS BA CD CR PB SE	

DHL Analytical

PREP BATCH REPORT

Prep Start Date: **10/26/2010 9:00:45 AM**
Prep End Date: **10/26/2010 2:05:12 PM**

Prep Factor Units: **mL/g**

Prep Batch **43580** Prep Code: **3050_I** Technician: **Lynette Mercado**

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	Factor	Bottle #	PrepEnd
1010167-04A	Soil		1.09	0	0	50	45.872	1 of 1	10/26/2010
1010167-04A MS	Soil		1.11	0	0	50	45.045	of	10/26/2010
1010167-04A MSD	Soil		1.07	0	0	50	46.729	of	10/26/2010
1010167-04A PDS	Soil		1.09	0	0	50	45.872	of	10/26/2010
1010167-04A SD	Soil		1.09	0	0	50	45.872	of	10/26/2010
1010174-01B	Soil		1.07	0	0	50	46.729	1 of 1	10/26/2010
LCS-43580	Soil		1	0	0	50	50.000	of	10/26/2010
LCSD-43580	Soil		1	0	0	50	50.000	of	10/26/2010
MB-43580	Soil		1	0	0	50	50.000	of	10/26/2010

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EJV
10-28-2010

Number	Reagent Name	Exp. Date
5507	Hydrogen Peroxide	8/19/2011
5536	HCL Acid (Trace Grade)	9/3/2011
5556	Digestion Vessels	3/14/2011
5579	Boiling Chips	2/8/2011
5620	Nitric Acid (Trace Grade)	10/6/2011

Spk ID	Spike Name	SampType	AmtAdd(mL)	Exp. Date
MET-100525-6	1000 PPM ALUMINUM STD IN 2% HNO3	LCS/MS/MSD	0.25	6/11/2011
MET-100525-7	1000 PPM IRON STD IN 2% HNO3	LCS/MS/MSD	0.25	7/1/2011
MET-SPIKE-101004	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	11/4/2010
MET-SPIKE-101026-1	50 PPM Custom+Li,Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	11/27/2010
MET-SPIKE-101026-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	11/27/2010

LM
10.26.10

DHL Analytical

PREP BATCH REPORT

Prep Start Date: **10/26/2010 9:00:45 AM**
Prep End Date:

Prep Factor Units: mL/g

Prep Batch **43580** Prep Code: **3050_I** Technician: **ADMIN**

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	Factor	Bottle #	PrepEnd
1010167-04A	Soil		1.09	0	0	50	50.000	1 of 1	
1010167-04A MS	Soil		1.11	0	0	50	50.000	of	
1010167-04A MSD	Soil		1.07	0	0	50	50.000	of	
1010167-04A PDS	Soil		1.09	0	0	50	50.000	of	
1010167-04A SD	Soil		1.09	0	0	50	50.000	of	
1010174-01B	Soil		1.07	0	0	50	50.000	1 of 1	
LCS-43580	Soil		1	0	0	50	50.000	of	
LCSD-43580	Soil		1	0	0	50	50.000	of	
MB-43580	Soil		1	0	0	50	50.000	of	

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EJK
10.28.2010

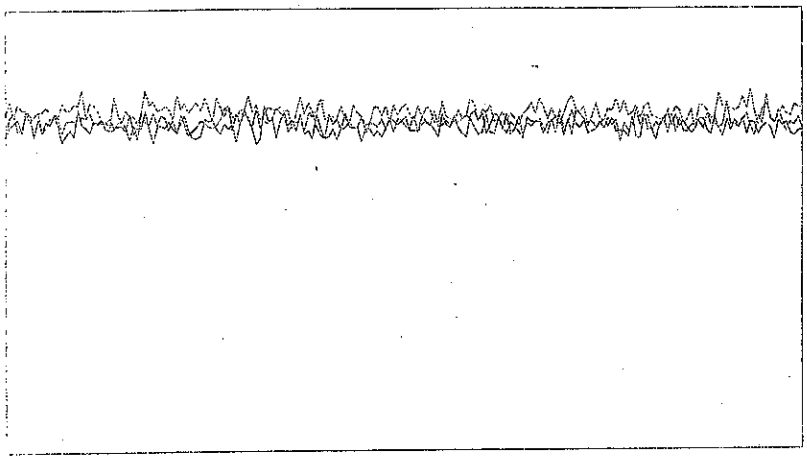
Number	Reagent Name	Exp. Date
5507	Hydrogen Peroxide	8/19/2011
5536	HCL Acid (Trace Grade)	9/3/2011
5556	Digestion Vessels	3/14/2011
5579	Boiling Chips	2/8/2011
5620	Nitric Acid (Trace Grade)	10/6/2011

Spk ID	Spike Name	SampType	AmtAdd(mL)	Exp. Date
MET-100525-6	1000 PPM ALUMINUM STD IN 2% HNO3	LCS/MS/MSD	0.25	6/11/2011
MET-100525-7	1000 PPM IRON STD IN 2% HNO3	LCS/MS/MSD	0.25	7/1/2011
MET-SPIKE-101004	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	11/4/2010
MET-SPIKE-101026-1	50 PPM Custom+Li,Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	11/27/2010
MET-SPIKE-101026-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	11/27/2010

UM
10.26.10

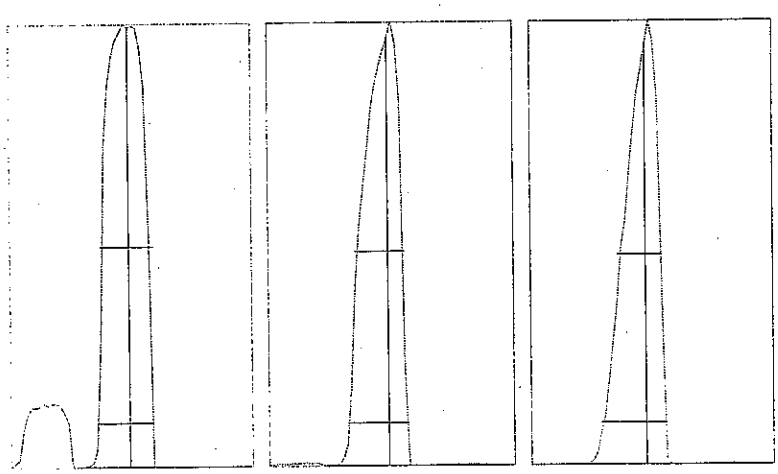
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	0.781%
Doubly Charged:	70/140	1.636%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	7230.0	7337.6	2.46	2.00
89	20,000	14527.0	14816.3	2.27	1.90
205	10,000	7730.0	7670.2	2.39	2.50
156/140	2	0.833%	0.780%	11.32	
70/140	5	1.402%	1.578%	8.06	



m/z:	7	89	205
Height:	7,217	14,781	7,252
Axis:	7.00	89.00	204.95
W-50%:	0.65	0.60	0.55
W-10%:	0.700	0.7500	0.800

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

Generated : Oct 27, 2010 09:42:47
Printed : Oct 27, 2010 09:42:50

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1600 W	Extract 1	:	0 V	AMU Gain	:	124
RF Matching	:	1.74 V	Extract 2	:	-105 V	AMU Offset	:	124
Smpl Depth	:	8 mm	Omega Bias-ce	:	-26 V	Axis Gain	:	0.9992
Torch-H	:	0.4 mm	Omega Lens-ce	:	1.2 V	Axis Offset	:	-0.01
Torch-V	:	1.2 mm	Cell Entrance	:	-26 V	QP Bias	:	-1 V
Carrier Gas	:	1.1 L/min	QP Focus	:	2 V			
Makeup Gas	:	0 L/min	Cell Exit	:	-32 V	===Detector Parameters===		
Optional Gas	:	--- %				Discriminator	:	8 mV
Nebulizer Pump	:	0.1 rps	===Octopole Parameters===			Analog HV	:	1720 V
Sample Pump	:	--- rps	OctP RF	:	170 V	Pulse HV	:	1590 V
S/C Temp	:	2 degC	OctP Bias	:	-6 V			

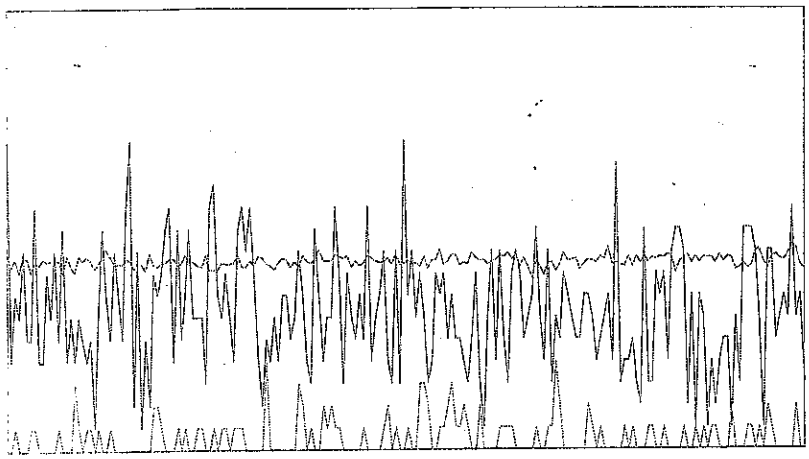
===Reaction Cell===

Reaction Mode	:	OFF						
H2 Gas	:	0 mL/min	He Gas	:	0 mL/min	Optional Gas	:	--- %

Generated : Oct 27, 2010 09:42:47
Printed : Oct 27, 2010 09:42:52

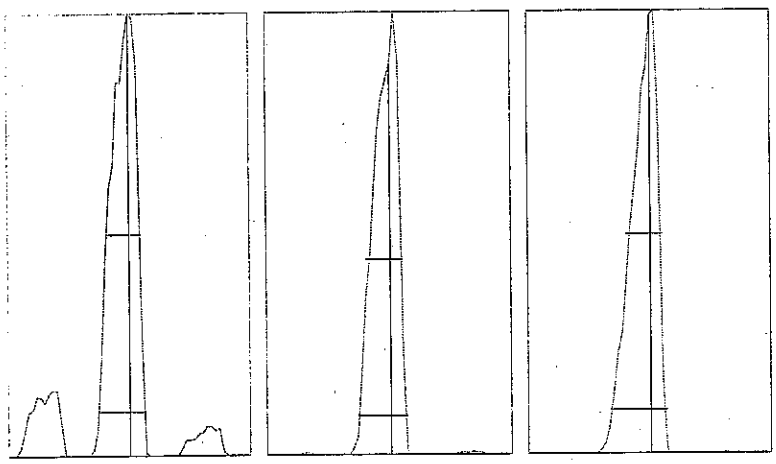
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.437%
Doubly Charged:	70/140	1.306%

m/z	Range	Count	Mean	RSD%	Background
51	20	3.0	6.3	43.52	0.10
59	5,000	2034.0	2132.5	2.89	0.10
75	20	0.0	0.5	150.34	0.10
51/59	2	0.147%	0.296%	43.54	



m/z:	59	89	205
Height:	2,274	1,439	2,573
Axis:	59.05	89.05	205.05
W-50%:	0.45	0.45	0.45
W-10%:	0.600	0.600	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Page: 1

Generated : Oct 27, 2010 09:46:55
Printed : Oct 27, 2010 09:46:57

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1600 W	Extract 1	:	0 V	AMU Gain	:	123
RF Matching	:	1.74 V	Extract 2	:	-105 V	AMU Offset	:	128
Smpl Depth	:	8 mm	Omega Bias-ce	:	-26 V	Axis Gain	:	0.9994
Torch-H	:	0.4 mm	Omega Lens-ce	:	1.2 V	Axis Offset	:	0
Torch-V	:	1.2 mm	Cell Entrance	:	-30 V	QP Bias	:	-16.5 V
Carrier Gas	:	1.1 L/min	QP Focus	:	-10 V			
Makeup Gas	:	0 L/min	Cell Exit	:	-40 V	===Detector Parameters===		
Optional Gas	:	--- %				Discriminator	:	8 mV
Nebulizer Pump	:	0.1 rps	===Octopole Parameters===			Analog HV	:	1720 V
Sample Pump	:	--- rps	OctP RF	:	150 V	Pulse HV	:	1590 V
S/C Temp	:	2 degC	OctP Bias	:	-18 V			

===Reaction Cell===

Reaction Mode	:	ON						
H2 Gas	:	0 mL/min	He Gas	:	4.6 mL/min	Optional Gas	:	--- %

Generated : Oct 27, 2010 09:46:55
Printed : Oct 27, 2010 09:46:59

P/A Factor Tuning Report

Acquired:Oct 27 2010 09:49 am

Mass[amu]	Element	P/A Factor
6	Li	0.077650
7	Li	Sensitivity too low
9	Be	0.087684
11	B	Sensitivity too low
23	Na	0.095613
24	Mg	0.099997
27	Al	0.103047
39	K	0.102723
44	Ca	Sensitivity too low
45	Sc	0.103850
47	Ti	Sensitivity too low
51	V	0.106426
52	Cr	0.109687
55	Mn	0.111146
56	Fe	0.103668
59	Co	0.115298
60	Ni	0.117960
63	Cu	0.120154
66	Zn	0.119422
72	Ge	0.118260
75	As	0.116938
78	Se	Sensitivity too low
88	Sr	0.118009
95	Mo	0.117342
106	(Cd)	0.124082
107	Ag	Sensitivity too low
108	(Cd)	0.124477
111	Cd	0.125964
115	In	0.124725
118	Sn	0.124763
121	Sb	0.124251
137	Ba	Sensitivity too low
205	Tl	0.135184
206	(Pb)	0.135194
207	(Pb)	0.135439
208	Pb	0.134546
209	Bi	0.134564

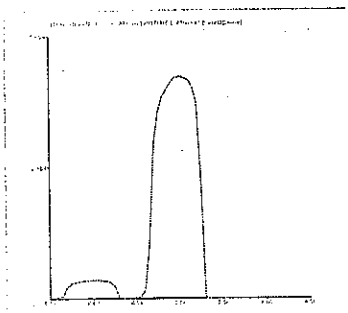
===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1720 V
Pulse HV: 1590 V

6020 QC Tune Report

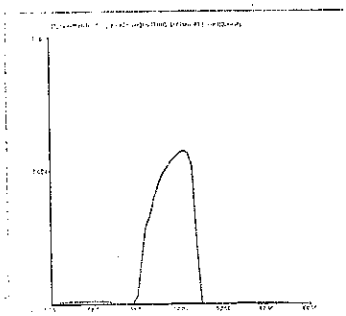
Data File: C:\ICPCHEM\1\DATA\10J27j00.B\001TUNE.D
Date Acquired: Oct 27 2010 09:51 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

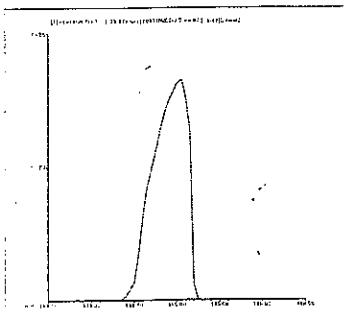
Element	Actual	Required	Flag
7 Li	1.59	5.00	
59 Co	1.05	5.00	
115 In	1.18	5.00	
205 Tl	1.25	5.00	



7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



115 In

Mass Calib.

Actual: 115.00

Required: 114.90 - 115.10

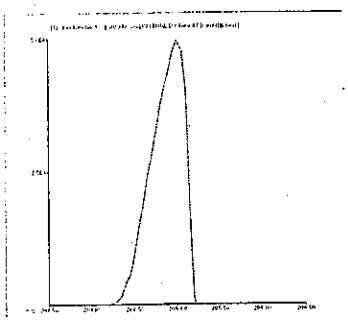
Flag:

Peak Width

Actual: 0.60

Required: 0.90

Flag:



205 Tl

Mass Calib.

Actual: 204.95

Required: 204.90 - 205.10

Flag:

Peak Width

Actual: 0.60

Required: 0.90

Flag:

Calibration Standard QC Report

Acq. Method: DHL 2.m
Sample Name: 1 & 20ppb std 2
Operator: KL
Instrument: ICPMS2
Date Acquired: Oct 27 2010 10:20 am
Last Cal. Update: Oct 27 2010 10:18 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	294145.50	P	1783.00	0.61
7	Li	2	45	26027.17	P	553.30	2.13
9	Be	2	45	1254.52	P	74.34	5.93
11	B	2	45	2061.29	P	163.30	7.92
23	Na	1	45	13813.23	P	145.20	1.05
24	Mg	1	45	1258.97	P	43.50	3.46
27	Al	1	45	275.56	P	21.26	7.72
39	K	1	45	3982.76	P	117.50	2.95
44	Ca	2	45	8467.83	P	354.80	4.19
45	Sc	1	---	13116.76	P	102.20	0.78
45	Sc	2	---	437010.50	P	1987.00	0.45
47	Ti	1	45	13.78	P	4.29	31.11
51	V	1	45	581.35	P	38.74	6.66
51	V	2	---		P		
52	Cr	1	45	913.81	P	21.39	2.34
55	Mn	1	45	382.68	P	20.95	5.47
56	Fe	1	72	13073.29	P	475.80	3.64
59	Co	1	72	1318.73	P	41.08	3.12
60	Ni	1	72	872.47	P	48.16	5.52
60	Ni	2	---		P		
63	Cu	1	72	1637.87	P	119.50	7.30
63	Cu	2	---		P		
66	Zn	1	72	220.89	P	10.10	4.57
66	Zn	2	---		P		
72	Ge	1	---	10149.39	P	81.94	0.81
72	Ge	2	---		P		
75	As	1	72	98.52	P	1.54	1.56
78	Se	1	72	7.00	P	0.68	9.66
88	Sr	2	115	7049.41	P	248.80	3.53
95	Mo	2	115	1343.43	P	36.05	2.68
107	Ag	2	115	3018.14	P	179.40	5.94
111	Cd	2	115	675.82	P	64.51	9.55
115	In	2	---	601189.31	P	4775.00	0.79
118	Sn	2	115	2408.02	P	60.50	2.51
121	Sb	2	115	2988.13	P	85.28	2.85
137	Ba	2	115	948.95	P	80.58	8.49
205	Tl	2	209	4500.80	P	12.02	0.27
208	Pb	2	209	6444.08	P	183.20	2.84
209	Bi	2	---	422063.50	P	4476.00	1.06

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag

6	Li	2	294145.47	0.61	298113.94	98.7	60 -	120
45	Sc	1	13116.76	0.78	13033.35	100.6	60 -	120
45	Sc	2	437010.53	0.45	441170.59	99.1	60 -	120
72	Ge	1	10149.39	0.81	10140.71	100.1	60 -	120
115	In	2	601189.25	0.79	598432.00	100.5	60 -	120
209	Bi	2	422063.47	1.06	423206.13	99.7	60 -	120

Calibration Standard QC Report

Acq. Method: DHL 2.m
Sample Name: 10 & 200ppb std 3
Operator: KL
Instrument: ICPMS2
Date Acquired: Oct 27 2010 10:25 am
Last Cal. Update: Oct 27 2010 10:23 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	
6	Li	2	---	308828.50	P	3138.00	1.02	
7	Li	2	45	63711.52	P	566.90	0.89	Fail
9	Be	2	45	11335.84	P	137.60	1.21	Fail
11	B	2	45	7817.37	P	110.70	1.42	Fail
23	Na	1	45	38210.86	P	117.70	0.31	Fail
24	Mg	1	45	9445.98	P	236.60	2.50	Fail
27	Al	1	45	2531.75	P	36.58	1.44	Fail
39	K	1	45	10458.81	P	253.30	2.42	Fail
44	Ca	2	45	32570.86	P	968.80	2.97	Fail
45	Sc	1	---	13921.13	P	305.30	2.19	
45	Sc	2	---	454142.09	P	1974.00	0.43	
47	Ti	1	45	146.22	P	6.84	4.68	
51	V	1	45	5708.52	P	80.19	1.40	Fail
51	V	2	---		P			
52	Cr	1	45	7529.19	P	75.18	1.00	Fail
55	Mn	1	45	3407.92	P	71.47	2.10	Fail
56	Fe	1	72	118605.40	P	1967.00	1.66	Fail
59	Co	1	72	12576.07	P	211.00	1.68	
60	Ni	1	72	3952.92	P	121.50	3.07	Fail
60	Ni	2	---		P			
63	Cu	1	72	10228.79	P	59.98	0.59	Fail
63	Cu	2	---		P			
66	Zn	1	72	1396.07	P	20.53	1.47	Fail
66	Zn	2	---		P			
72	Ge	1	---	10388.86	P	82.57	0.79	
72	Ge	2	---		P			
75	As	1	72	890.36	P	14.44	1.62	Fail
78	Se	1	72	47.19	P	3.30	6.99	Fail
88	Sr	2	115	68234.39	P	688.70	1.01	Fail
95	Mo	2	115	12891.79	P	347.70	2.70	Fail
107	Ag	2	115	31285.96	P	417.20	1.33	Fail
111	Cd	2	115	6394.11	P	101.80	1.59	Fail
115	In	2	---	614402.00	P	3057.00	0.50	
118	Sn	2	115	18372.70	P	229.30	1.25	Fail
121	Sb	2	115	28934.39	P	266.70	0.92	Fail
137	Ba	2	115	9475.21	P	325.50	3.44	Fail
205	Tl	2	209	45684.98	P	667.40	1.46	Fail
208	Pb	2	209	63640.93	P	532.20	0.84	Fail
209	Bi	2	---	430278.91	P	5196.00	1.21	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag

6	Li	2	308828.53	1.02	298113.94	103.6	60 -	120
45	Sc	1	13921.13	2.19	13033.35	106.8	60 -	120
45	Sc	2	454142.09	0.43	441170.59	102.9	60 -	120
72	Ge	1	10388.86	0.79	10140.71	102.4	60 -	120
115	In	2	614402.00	0.50	598432.00	102.7	60 -	120
209	Bi	2	430278.94	1.21	423206.13	101.7	60 -	120

Calibration Standard QC Report

Acq. Method: DHL 2.m
Sample Name: 250 & 5000ppb std 4
Operator: KL
Instrument: ICPMS2
Date Acquired: Oct 27 2010 10:31 am
Last Cal. Update: Oct 27 2010 10:29 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	
6	Li	2	---	252105.41	P	2298.00	0.91	
7	Li	2	45	993389.31	A	10320.00	1.04	Fail
9	Be	2	45	270432.91	P	1181.00	0.44	Fail
11	B	2	45	151224.91	P	1016.00	0.67	Fail
23	Na	1	45	494722.50	P	6547.00	1.32	Fail
24	Mg	1	45	225736.80	P	1015.00	0.45	
27	Al	1	45	64779.00	P	928.50	1.43	
39	K	1	45	179648.70	P	1310.00	0.73	Fail
44	Ca	2	45	638634.31	P	3939.00	0.62	Fail
45	Sc	1	---	14461.09	P	15.35	0.11	
45	Sc	2	---	435606.41	P	1373.00	0.32	
47	Ti	1	45	3709.30	P	43.91	1.18	
51	V	1	45	143349.80	P	695.20	0.48	
51	V	2	---		A			
52	Cr	1	45	183618.30	P	1527.00	0.83	
55	Mn	1	45	81933.16	P	565.80	0.69	
56	Fe	1	72	2623316.00	A	37110.00	1.41	
59	Co	1	72	311844.41	P	2921.00	0.94	
60	Ni	1	72	84857.38	P	1022.00	1.20	
60	Ni	2	---		P			
63	Cu	1	72	234471.09	P	1390.00	0.59	
63	Cu	2	---		P			
66	Zn	1	72	32187.32	P	300.70	0.93	
66	Zn	2	---		P			
72	Ge	1	---	10973.65	P	244.30	2.23	
72	Ge	2	---		P			
75	As	1	72	22577.35	P	86.00	0.38	
78	Se	1	72	1123.22	P	7.09	0.63	
88	Sr	2	115	1680045.00	A	8266.00	0.49	
95	Mo	2	115	307450.31	P	3306.00	1.08	Fail
107	Ag	2	115	746705.13	P	3182.00	0.43	
111	Cd	2	115	155812.91	P	840.60	0.54	
115	In	2	---	581531.38	P	6437.00	1.11	
118	Sn	2	115	434488.19	P	1149.00	0.26	Fail
121	Sb	2	115	700652.69	P	1123.00	0.16	
137	Ba	2	115	229294.80	P	1480.00	0.65	
205	Tl	2	209	1110107.00	P	7431.00	0.67	
208	Pb	2	209	1521622.00	P	5220.00	0.34	
209	Bi	2	---	411562.81	P	3679.00	0.89	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag

6	Li	2	252105.36	0.91	298113.94	84.6	60 -	120
45	Sc	1	14461.10	0.11	13033.35	111.0	60 -	120
45	Sc	2	435606.38	0.32	441170.59	98.7	60 -	120
72	Ge	1	10973.65	2.23	10140.71	108.2	60 -	120
115	In	2	581531.44	1.11	598432.00	97.2	60 -	120
209	Bi	2	411562.78	0.89	423206.13	97.2	60 -	120

Calibration Standard QC Report

Acq. Method: DHL 2.m
Sample Name: 500 & 10000ppb std
Operator: KL
Instrument: ICPMS2
Date Acquired: Oct 27 2010 10:36 am
Last Cal. Update: Oct 27 2010 10:34 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	
6	Li	2	---	202790.09	P	2351.00	1.16	
7	Li	2	45	1868133.00	A	19420.00	1.04	Fail
9	Be	2	45	523838.69	P	2345.00	0.45	
11	B	2	45	295604.59	P	922.30	0.31	Fail
23	Na	1	45	936143.38	A	8870.00	0.95	
24	Mg	1	45	421580.59	P	2618.00	0.62	
27	Al	1	45	119742.20	P	1638.00	1.37	
39	K	1	45	325569.19	P	2342.00	0.72	
44	Ca	2	45	1247385.00	A	9325.00	0.75	Fail
45	Sc	1	---	13551.52	P	60.07	0.44	
45	Sc	2	---	424340.69	P	193.00	0.05	
47	Ti	1	45	7020.53	P	88.74	1.26	
51	V	1	45	273328.09	P	849.30	0.31	
51	V	2	---		A			
52	Cr	1	45	348358.81	P	1655.00	0.48	
55	Mn	1	45	153959.41	P	553.10	0.36	
56	Fe	1	72	4856421.00	A	5441.00	0.11	
59	Co	1	72	585774.81	P	989.70	0.17	
60	Ni	1	72	160164.80	P	1086.00	0.68	
60	Ni	2	---		P			
63	Cu	1	72	442124.69	P	1476.00	0.33	
63	Cu	2	---		A			
66	Zn	1	72	60524.00	P	570.90	0.94	
66	Zn	2	---		P			
72	Ge	1	---	10305.03	P	50.15	0.49	
72	Ge	2	---		P			
75	As	1	72	43134.30	P	208.30	0.48	
78	Se	1	72	2127.80	P	8.00	0.38	
88	Sr	2	115	3253133.00	A	11020.00	0.34	
95	Mo	2	115	605403.13	P	9959.00	1.65	
107	Ag	2	115	1471330.00	A	14250.00	0.97	
111	Cd	2	115	304824.41	P	1260.00	0.41	
115	In	2	---	573134.31	P	4151.00	0.72	
118	Sn	2	115	854022.50	P	3846.00	0.45	Fail
121	Sb	2	115	1406487.00	A	5625.00	0.40	
137	Ba	2	115	450353.09	P	1777.00	0.39	
205	Tl	2	209	2285441.00	A	6797.00	0.30	
208	Pb	2	209	3065139.00	A	12670.00	0.41	
209	Bi	2	---	400657.31	P	1065.00	0.27	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag

6	Li	2	202790.09	1.16	298113.94	68.0	60 -	120
45	Sc	1	13551.52	0.44	13033.35	104.0	60 -	120
45	Sc	2	424340.72	0.05	441170.59	96.2	60 -	120
72	Ge	1	10305.03	0.49	10140.71	101.6	60 -	120
115	In	2	573134.25	0.72	598432.00	95.8	60 -	120
209	Bi	2	400657.31	0.27	423206.13	94.7	60 -	120

Calibration Standard QC Report

Acq. Method: DHL 2.m
Sample Name: 2000 ppb std 6
Operator: KL
Instrument: ICPMS2
Date Acquired: Oct 27 2010 10:42 am
Last Cal. Update: Oct 27 2010 10:40 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	
6	Li	2	---	279776.91	P	3450.00	1.23	
7	Li	2	45	22906.51	P	373.50	1.63	Fail
9	Be	2	45	2193450.00	A	12690.00	0.58	
11	B	2	45	1284229.00	A	6744.00	0.53	Fail
23	Na	1	45	2177916.00	A	27300.00	1.25	
24	Mg	1	45	1014510.00	A	22240.00	2.19	
27	Al	1	45	114.22	P	1.54	1.35	Fail
39	K	1	45	783444.38	P	3755.00	0.48	
44	Ca	2	45	2960230.00	A	23260.00	0.79	Fail
45	Sc	1	---	13281.31	P	102.00	0.77	
45	Sc	2	---	418702.09	P	1392.00	0.33	
47	Ti	1	45	7.11	P	5.55	78.06	
51	V	1	45	1086147.00	A	4993.00	0.46	
51	V	2	---		A			
52	Cr	1	45	1372529.00	A	771.30	0.06	
55	Mn	1	45	609295.88	P	5465.00	0.90	
56	Fe	1	72	5494.27	P	873.40	15.90	Fail
59	Co	1	72	2332974.00	A	3965.00	0.17	
60	Ni	1	72	637243.81	P	1364.00	0.21	
60	Ni	2	---		A			
63	Cu	1	72	1761764.00	A	15140.00	0.86	
63	Cu	2	---		A			
66	Zn	1	72	243714.30	P	439.70	0.18	
66	Zn	2	---		A			
72	Ge	1	---	9957.50	P	34.75	0.35	
72	Ge	2	---		P			
75	As	1	72	175577.20	P	224.20	0.13	
78	Se	1	72	8509.19	P	33.48	0.39	
88	Sr	2	115	3211.50	P	142.10	4.42	Fail
95	Mo	2	115	1893.50	P	111.70	5.90	Fail
107	Ag	2	115	358.90	P	42.99	11.98	Fail
111	Cd	2	115	1272530.00	A	3063.00	0.24	
115	In	2	---	566532.19	P	1662.00	0.29	
118	Sn	2	115	1936.84	P	77.68	4.01	Fail
121	Sb	2	115	1331.21	P	79.34	5.96	Fail
137	Ba	2	115	1900134.00	A	11190.00	0.59	
205	Tl	2	209	8945128.00	A	44170.00	0.49	
208	Pb	2	209	12389920.00	A	23250.00	0.19	
209	Bi	2	---	393565.19	P	1430.00	0.36	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag

6	Li	2	279776.94	1.23	298113.94	93.8	60 -	120
45	Sc	1	13281.31	0.77	13033.35	101.9	60 -	120
45	Sc	2	418702.13	0.33	441170.59	94.9	60 -	120
72	Ge	1	9957.50	0.35	10140.71	98.2	60 -	120
115	In	2	566532.25	0.29	598432.00	94.7	60 -	120
209	Bi	2	393565.19	0.36	423206.13	93.0	60 -	120

ICSA QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\012ICSA.D\012ICSA.D#

Date Acquired:	Oct 27 2010 10:58 am	Sample Name:	ICSA-101027
Acq. Method:	DHL 2.m	Misc Info:	ICSAICPMS TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am		
Instrument:	ICPMS2		

QC Elements

Element				Conc.	RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.196 ppb	0.64	8.00	5.00	
9	Be	2	45	0.314 ppb	27.93	0.32	0.80	
11	B	2	45	7.886 ppb	3.39	30.00	30.00	
23	Na	1	45	93710.000 ppb	0.57	#######	#######	
24	Mg	1	45	93110.000 ppb	0.41	#######	#######	
27	Al	1	45	99470.000 ppb	0.57	#######	#######	
39	K	1	45	95950.000 ppb	0.38	#######	#######	
44	Ca	2	45	97810.000 ppb	0.50	#######	#######	
47	Ti	1	45	2070.000 ppb	0.12	10.00	10.00	
51	V	1	45	0.226 ppb	17.24	10.00	10.00	
52	Cr	1	45	4.736 ppb	3.00	8.00	5.00	
55	Mn	1	45	5.106 ppb	0.43	8.00	10.00	
56	Fe	1	72	92050.000 ppb	0.90	#######	#######	
59	Co	1	72	1.506 ppb	3.62	8.00	10.00	
60	Ni	1	72	3.143 ppb	4.29	8.00	10.00	
63	Cu	1	72	0.622 ppb	4.25	8.00	10.00	
66	Zn	1	72	2.253 ppb	4.33	10.00	5.00	
75	As	1	72	0.286 ppb	8.86	4.00	5.00	
78	Se	1	72	0.474 ppb	5.21	2.00	5.00	
88	Sr	2	115	2.716 ppb	2.65	10.00	10.00	
95	Mo	2	115	2064.000 ppb	0.74	8.00	5.00	
107	Ag	2	115	0.078 ppb	18.29	0.80	2.00	
111	Cd	2	115	0.627 ppb	14.17	1.20	1.00	
118	Sn	2	115	0.065 ppb	12.96	10.00	10.00	
121	Sb	2	115	0.155 ppb	23.82	4.00	2.50	
137	Ba	2	115	0.666 ppb	15.56	8.00	10.00	
205	Tl	2	209	0.478 ppb	14.57	4.00	1.50	
208	Pb	2	209	0.699 ppb	13.92	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	273974.28	0.85	298113.94	91.9	60 -	120	
45	Sc	1	14583.19	0.97	13033.35	111.9	60 -	120	
45	Sc	2	426672.53	0.65	441170.59	96.7	60 -	120	
72	Ge	1	11189.35	1.42	10140.71	110.3	60 -	120	
115	In	2	558577.31	0.39	598432.00	93.3	60 -	120	
209	Bi	2	386029.09	0.12	423206.13	91.2	60 -	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\013ICSB.D\013ICSB.D#

Date Acquired:	Oct 27 2010 11:03 am	Sample Name:	ICSAB-101027
Acq. Method:	DHL 2.m	Misc Info:	ICSBICPMS TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am		
Instrument:	ICPMS2		

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)		Flag
7	Li	2	45	0.40 ppb	1.37	---	80 -	120	
9	Be	2	45	0.19 ppb	23.47	---	80 -	120	
11	B	2	45	5.14 ppb	2.51	---	80 -	120	
23	Na	1	45	93110.00 ppb	0.74	100000.00	80 -	120	
24	Mg	1	45	92890.00 ppb	0.87	100000.00	80 -	120	
27	Al	1	45	97190.00 ppb	0.89	100000.00	80 -	120	
39	K	1	45	94550.00 ppb	0.67	100000.00	80 -	120	
44	Ca	2	45	97260.00 ppb	0.45	100000.00	80 -	120	
47	Ti	1	45	2017.00 ppb	0.85	---	80 -	120	
51	V	1	45	39.44 ppb	0.39	40.00	80 -	120	
52	Cr	1	45	20.96 ppb	0.98	20.00	80 -	120	
55	Mn	1	45	24.30 ppb 5.106	0.56	20.00	80 -	120	~~Fail~~ OK
56	Fe	1	72	90200.00 ppb	0.92	100000.00	80 -	120	
59	Co	1	72	37.44 ppb	1.69	40.00	80 -	120	
60	Ni	1	72	38.54 ppb	0.46	40.00	80 -	120	
63	Cu	1	72	18.31 ppb	1.50	20.00	80 -	120	
66	Zn	1	72	19.41 ppb	2.42	20.00	80 -	120	
75	As	1	72	19.23 ppb	1.25	20.00	80 -	120	
78	Se	1	72	19.96 ppb	1.92	20.00	80 -	120	
88	Sr	2	115	1.21 ppb	2.85	---	80 -	120	
95	Mo	2	115	2072.00 ppb	1.30	---	80 -	120	
107	Ag	2	115	19.39 ppb	0.94	20.00	80 -	120	
111	Cd	2	115	10.30 ppb	4.06	10.00	80 -	120	
118	Sn	2	115	0.08 ppb	8.98	---	80 -	120	
121	Sb	2	115	0.11 ppb	8.22	---	80 -	120	
137	Ba	2	115	1.16 ppb	5.95	---	80 -	120	
205	Tl	2	209	0.39 ppb	14.47	---	80 -	120	
208	Pb	2	209	0.27 ppb	13.97	---	80 -	120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	264775.19	1.04	298113.94	88.8	60 -	120	
45	Sc	1	13922.68	0.38	13033.35	106.8	60 -	120	
45	Sc	2	416962.66	0.49	441170.59	94.5	60 -	120	
72	Ge	1	10911.62	0.30	10140.71	107.6	60 -	120	
115	In	2	553108.88	0.18	598432.00	92.4	60 -	120	
209	Bi	2	386622.03	0.26	423206.13	91.4	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\016ICV.D\016ICV.D#

Date Acquired:	Oct 27 2010 11:20 am	Sample Name:	ICV1-101027
Acq. Method:	DHL 2.m	Misc Info:	ICV ICPMS TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am		
Instrument:	ICPMS2		

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	96.21 ppb	1.28	100.00	90 -	110	96.2	
9	Be	2	45	105.00 ppb	0.36	100.00	90 -	110	105.0	
11	B	2	45	100.00 ppb	2.23	100.00	90 -	110	100.0	
23	Na	1	45	2567.00 ppb	0.87	2500.00	90 -	110	102.7	
24	Mg	1	45	2524.00 ppb	0.56	2500.00	90 -	110	101.0	
27	Al	1	45	2424.00 ppb	0.85	2500.00	90 -	110	97.0	
39	K	1	45	2479.00 ppb	0.91	2500.00	90 -	110	99.2	
44	Ca	2	45	2474.00 ppb	0.91	2500.00	90 -	110	99.0	
47	Ti	1	45	103.90 ppb	5.94	100.00	90 -	110	103.9	
51	V	1	45	103.20 ppb	1.18	100.00	90 -	110	103.2	
52	Cr	1	45	103.50 ppb	0.97	100.00	90 -	110	103.5	
55	Mn	1	45	103.10 ppb	0.33	100.00	90 -	110	103.1	
56	Fe	1	72	2495.00 ppb	0.37	2500.00	90 -	110	99.8	
59	Co	1	72	100.80 ppb	0.67	100.00	90 -	110	100.8	
60	Ni	1	72	101.40 ppb	1.06	100.00	90 -	110	101.4	
63	Cu	1	72	102.30 ppb	0.31	100.00	90 -	110	102.3	
66	Zn	1	72	101.90 ppb	1.13	100.00	90 -	110	101.9	
75	As	1	72	99.84 ppb	0.42	100.00	90 -	110	99.8	
78	Se	1	72	103.20 ppb	1.20	100.00	90 -	110	103.2	
88	Sr	2	115	93.52 ppb	0.58	100.00	90 -	110	93.5	
95	Mo	2	115	94.50 ppb	0.77	100.00	90 -	110	94.5	
107	Ag	2	115	98.90 ppb	0.55	100.00	90 -	110	98.9	
111	Cd	2	115	95.37 ppb	1.32	100.00	90 -	110	95.4	
118	Sn	2	115	106.70 ppb	0.61	100.00	90 -	110	106.7	
121	Sb	2	115	97.71 ppb	0.20	100.00	90 -	110	97.7	
137	Ba	2	115	98.24 ppb	0.81	100.00	90 -	110	98.2	
205	Tl	2	209	97.35 ppb	0.79	100.00	90 -	110	97.4	
208	Pb	2	209	97.65 ppb	0.28	100.00	90 -	110	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	242870.59	1.00	298113.94	81.5	60 -	120	
45	Sc	1	12178.99	0.65	13033.35	93.4	60 -	120	
45	Sc	2	375138.88	0.47	441170.59	85.0	60 -	120	
72	Ge	1	9520.59	1.18	10140.71	93.9	60 -	120	
115	In	2	561983.63	1.19	598432.00	93.9	60 -	120	
209	Bi	2	419068.72	0.92	423206.13	99.0	60 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\018_ICB.D\018_ICB.D#

Date Acquired:	Oct 27 2010 11:31 am	Sample Name:	ICB1-101027
Acq. Method:	DHL 2.m	Misc Info:	ICB ICPMS TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am	Instrument:	ICPMS2

QC Elements

Element				Conc.	RSD(%)	High Limit	Flag
7	Li	2	45	0.14 ppb	3.23	5.00	
9	Be	2	45	0.07 ppb	15.27	0.80	
11	B	2	45	1.45 ppb	4.48	10.00	
23	Na	1	45	30.53 ppb	1.82	50.00	
24	Mg	1	45	14.39 ppb	13.89	50.00	
27	Al	1	45	13.13 ppb	11.78	30.00	
39	K	1	45	19.89 ppb	1.24	50.00	
44	Ca	2	45	-8.18 ppb	8.67	50.00	
47	Ti	1	45	0.17 ppb	34.64	10.00	
51	V	1	45	0.06 ppb	13.16	10.00	
52	Cr	1	45	0.06 ppb	8.88	3.00	
55	Mn	1	45	-0.01 ppb	17.58	10.00	
56	Fe	1	72	13.68 ppb	20.86	50.00	
59	Co	1	72	0.03 ppb	24.73	3.00	
60	Ni	1	72	0.01 ppb	8.43	3.00	
63	Cu	1	72	-0.16 ppb	4.49	3.00	
66	Zn	1	72	0.55 ppb	4.13	10.00	
75	As	1	72	-0.01 ppb	15.58	10.00	
78	Se	1	72	0.29 ppb	5.89	10.00	
88	Sr	2	115	-0.02 ppb	14.86	10.00	
95	Mo	2	115	0.48 ppb	14.06	10.00	
107	Ag	2	115	0.02 ppb	16.04	2.00	
111	Cd	2	115	0.02 ppb	103.31	1.00	
118	Sn	2	115	0.01 ppb	3.24	10.00	
121	Sb	2	115	0.01 ppb	19.00	1.00	
137	Ba	2	115	0.06 ppb	1.71	3.00	
205	Tl	2	209	0.25 ppb	3.89	1.00	
208	Pb	2	209	0.04 ppb	24.15	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	243338.53	0.25	298113.94	81.6	60 - 120	
45	Sc	1	12405.14	0.09	13033.35	95.2	60 - 120	
45	Sc	2	367168.03	0.48	441170.59	83.2	60 - 120	
72	Ge	1	9722.03	1.23	10140.71	95.9	60 - 120	
115	In	2	564961.44	0.58	598432.00	94.4	60 - 120	
209	Bi	2	422194.44	0.99	423206.13	99.8	60 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\019LCVL.D\019LCVL.D#

Date Acquired:	Oct 27 2010 11:36 am	Sample Name:	LLICV1-10102
Acq. Method:	DHL 2.m	Misc Info:	LCVL6020A S
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am		
Instrument:	ICPMS2		

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1.08 ppb	0.77	1.00	70 -	130	108.3	
9	Be	2	45	1.01 ppb	2.98	1.00	70 -	130	100.6	
11	B	2	45	1.98 ppb	7.21	1.00	70 -	130	197.8	Fail
23	Na	1	45	43.45 ppb	3.46	20.00	70 -	130	217.3	Fail
24	Mg	1	45	33.06 ppb	14.00	20.00	70 -	130	165.3	Fail
27	Al	1	45	27.93 ppb	16.07	20.00	70 -	130	139.7	Fail
39	K	1	45	37.29 ppb	5.73	20.00	70 -	130	186.5	Fail
44	Ca	2	45	6.98 ppb	4.54	20.00	70 -	130	34.9	Fail
47	Ti	1	45	1.21 ppb	10.19	1.00	70 -	130	120.8	
51	V	1	45	1.03 ppb	10.60	1.00	70 -	130	102.7	
52	Cr	1	45	1.03 ppb	1.35	1.00	70 -	130	103.4	
55	Mn	1	45	0.93 ppb	6.21	1.00	70 -	130	92.8	
56	Fe	1	72	33.59 ppb	8.70	20.00	70 -	130	168.0	Fail
59	Co	1	72	0.99 ppb	4.82	1.00	70 -	130	99.4	
60	Ni	1	72	0.61 ppb	4.97	1.00	70 -	130	61.2	Fail
63	Cu	1	72	0.65 ppb	2.52	1.00	70 -	130	65.1	Fail
66	Zn	1	72	1.00 ppb	6.19	1.00	70 -	130	99.7	
75	As	1	72	0.88 ppb	4.30	1.00	70 -	130	88.0	
78	Se	1	72	1.21 ppb	3.95	1.00	70 -	130	120.6	
88	Sr	2	115	0.90 ppb	1.50	1.00	70 -	130	90.1	
95	Mo	2	115	1.26 ppb	3.99	1.00	70 -	130	126.2	
107	Ag	2	115	0.98 ppb	4.83	1.00	70 -	130	97.7	
111	Cd	2	115	0.93 ppb	9.36	1.00	70 -	130	92.5	
118	Sn	2	115	0.84 ppb	3.82	1.00	70 -	130	84.3	
121	Sb	2	115	0.94 ppb	7.18	1.00	70 -	130	94.2	
137	Ba	2	115	0.96 ppb	4.03	1.00	70 -	130	96.0	
205	Tl	2	209	1.03 ppb	2.20	1.00	70 -	130	103.1	
208	Pb	2	209	0.93 ppb	5.02	1.00	70 -	130	92.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	244282.20	1.36	298113.94	81.9	60 -	120	
45	Sc	1	12091.82	0.45	13033.35	92.8	60 -	120	
45	Sc	2	368178.47	0.46	441170.59	83.5	60 -	120	
72	Ge	1	9533.05	1.60	10140.71	94.0	60 -	120	
115	In	2	563176.25	1.22	598432.00	94.1	60 -	120	
209	Bi	2	420868.44	0.17	423206.13	99.4	60 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\020__PB.D\020__PB.D#

Date Acquired:	Oct 27 2010 11:42 am	Sample Name:	MB-43580
Acq. Method:	DHL 2.m	Misc Info:	MBLK6020A S
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Oct 27 2010 10:45 am	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	5.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	0.139 ppb	1.24	2.0	8.00	
9	Be	2	45	0.011 ppb	11.25	0.8	0.32	
11	B	2	45	16.180 ppb	2.74	10.0	30.00	J
23	Na	1	45	33.610 ppb	3.20	50.0	50.00	
24	Mg	1	45	15.790 ppb	4.00	50.0	50.00	
27	Al	1	45	87.330 ppb	2.86	50.0	50.00	Fail
39	K	1	45	15.310 ppb	1.44	50.0	50.00	
44	Ca	2	45	180.700 ppb	1.02	50.0	50.00	Fail
47	Ti	1	45	0.352 ppb	17.32	4.0	10.00	
51	V	1	45	0.065 ppb	6.65	4.0	10.00	
52	Cr	1	45	0.211 ppb	7.55	2.0	8.00	
55	Mn	1	45	0.297 ppb	7.00	2.0	8.00	
56	Fe	1	72	17.330 ppb	6.48	50.0	50.00	
59	Co	1	72	0.027 ppb	7.57	2.0	8.00	
60	Ni	1	72	-0.074 ppb	8.51	2.0	8.00	
63	Cu	1	72	-0.374 ppb	9.25	2.0	8.00	
66	Zn	1	72	1.901 ppb	3.00	4.0	10.00	
75	As	1	72	-0.043 ppb	4.14	2.0	4.00	
78	Se	1	72	-0.034 ppb	20.84	0.6	2.00	
88	Sr	2	115	0.435 ppb	5.97	4.0	10.00	
95	Mo	2	115	0.271 ppb	6.86	2.0	8.00	
107	Ag	2	115	0.018 ppb	25.76	0.4	0.80	
111	Cd	2	115	0.022 ppb	43.26	0.4	1.20	
118	Sn	2	115	4.388 ppb	0.35	4.0	10.00	J
121	Sb	2	115	-0.010 ppb	15.95	2.0	4.00	
137	Ba	2	115	0.651 ppb	17.15	2.0	8.00	
205	Tl	2	209	0.148 ppb	5.75	2.0	4.00	
208	Pb	2	209	0.247 ppb	3.56	0.4	1.20	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	246052.98	0.30	298113.94	82.5	60 - 120	
45	Sc	1	12229.47	1.97	13033.35	93.8	60 - 120	
45	Sc	2	369759.97	0.50	441170.59	83.8	60 - 120	
72	Ge	1	9840.10	2.65	10140.71	97.0	60 - 120	
115	In	2	556306.81	0.54	598432.00	93.0	60 - 120	
209	Bi	2	417673.16	0.30	423206.13	98.7	60 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\021_LCS.D\021_LCS.D#

Date Acquired:	Oct 27 2010 11:47 am	Sample Name:	LCS-43580
Acq. Method:	DHL 2.m	Misc Info:	LCS 6020A S
Operator:	KL	Bench Diln:	~~5.00~~
Last Cal. Update:	Oct 27 2010 10:45 am	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	5.00

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	205.20 ppb	0.62	200.00	80 -	120	102.6	
9	Be	2	45	208.10 ppb	0.97	200.00	80 -	120	104.1	
11	B	2	45	210.60 ppb	0.50	200.00	80 -	120	105.3	
23	Na	1	45	1060.00 ppb	1.32	1000.00	80 -	120	106.0	
24	Mg	1	45	1039.00 ppb	1.53	1000.00	80 -	120	103.9	
27	Al	1	45	1064.00 ppb	2.61	1000.00	80 -	120	106.4	
39	K	1	45	1032.00 ppb	2.68	1000.00	80 -	120	103.2	
44	Ca	2	45	1160.00 ppb	0.95	1000.00	80 -	120	116.0	
47	Ti	1	45	199.10 ppb	4.21	200.00	80 -	120	99.6	
51	V	1	45	200.30 ppb	1.72	200.00	80 -	120	100.2	
52	Cr	1	45	205.60 ppb	0.60	200.00	80 -	120	102.8	
55	Mn	1	45	203.30 ppb	0.96	200.00	80 -	120	101.7	
56	Fe	1	72	1139.00 ppb	0.64	1000.00	80 -	120	113.9	
59	Co	1	72	197.00 ppb	1.53	200.00	80 -	120	98.5	
60	Ni	1	72	195.70 ppb	0.92	200.00	80 -	120	97.9	
63	Cu	1	72	194.60 ppb	1.00	200.00	80 -	120	97.3	
66	Zn	1	72	192.80 ppb	1.18	200.00	80 -	120	96.4	
75	As	1	72	189.70 ppb	1.15	200.00	80 -	120	94.9	
78	Se	1	72	198.30 ppb	1.28	200.00	80 -	120	99.2	
88	Sr	2	115	197.50 ppb	1.47	200.00	80 -	120	98.8	
95	Mo	2	115	197.70 ppb	0.50	200.00	80 -	120	98.9	
107	Ag	2	115	203.20 ppb	0.63	200.00	80 -	120	101.6	
111	Cd	2	115	196.10 ppb	0.20	200.00	80 -	120	98.1	
118	Sn	2	115	211.20 ppb	0.23	200.00	80 -	120	105.6	
121	Sb	2	115	197.90 ppb	0.61	200.00	80 -	120	99.0	
137	Ba	2	115	198.30 ppb	1.54	200.00	80 -	120	99.2	
205	Tl	2	209	197.60 ppb	1.66	200.00	80 -	120	98.8	
208	Pb	2	209	198.00 ppb	1.11	200.00	80 -	120	99.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	226552.31	1.25	298113.94	76.0	60 -	120	
45	Sc	1	13126.32	3.28	13033.35	100.7	60 -	120	
45	Sc	2	376574.97	0.34	441170.59	85.4	60 -	120	
72	Ge	1	10259.89	1.39	10140.71	101.2	60 -	120	
115	In	2	563194.88	0.37	598432.00	94.1	60 -	120	
209	Bi	2	416371.44	0.56	423206.13	98.4	60 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\022_LCS.D\022_LCS.D#

Date Acquired:	Oct 27 2010 11:53 am	Sample Name:	LCSD-43580
Acq. Method:	DHL 2.m	Misc Info:	LCSD6020A S
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Oct 27 2010 10:45 am	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	5.00

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	201.90 ppb	0.49	200.00	80 -	120	101.0	
9	Be	2	45	208.30 ppb	1.35	200.00	80 -	120	104.2	
11	B	2	45	207.20 ppb	1.48	200.00	80 -	120	103.6	
23	Na	1	45	1053.00 ppb	0.66	1000.00	80 -	120	105.3	
24	Mg	1	45	1036.00 ppb	0.68	1000.00	80 -	120	103.6	
27	Al	1	45	1037.00 ppb	2.15	1000.00	80 -	120	103.7	
39	K	1	45	1038.00 ppb	1.45	1000.00	80 -	120	103.8	
44	Ca	2	45	1097.00 ppb	0.59	1000.00	80 -	120	109.7	
47	Ti	1	45	196.80 ppb	2.60	200.00	80 -	120	98.4	
51	V	1	45	202.30 ppb	0.72	200.00	80 -	120	101.2	
52	Cr	1	45	206.70 ppb	0.89	200.00	80 -	120	103.4	
55	Mn	1	45	205.40 ppb	0.71	200.00	80 -	120	102.7	
56	Fe	1	72	1136.00 ppb	0.38	1000.00	80 -	120	113.6	
59	Co	1	72	199.20 ppb	1.06	200.00	80 -	120	99.6	
60	Ni	1	72	197.40 ppb	0.50	200.00	80 -	120	98.7	
63	Cu	1	72	196.80 ppb	0.25	200.00	80 -	120	98.4	
66	Zn	1	72	195.30 ppb	0.66	200.00	80 -	120	97.7	
75	As	1	72	194.00 ppb	0.47	200.00	80 -	120	97.0	
78	Se	1	72	201.00 ppb	1.30	200.00	80 -	120	100.5	
88	Sr	2	115	199.30 ppb	1.41	200.00	80 -	120	99.7	
95	Mo	2	115	200.70 ppb	0.37	200.00	80 -	120	100.4	
107	Ag	2	115	206.70 ppb	0.76	200.00	80 -	120	103.4	
111	Cd	2	115	196.00 ppb	0.70	200.00	80 -	120	98.0	
118	Sn	2	115	212.00 ppb	0.83	200.00	80 -	120	106.0	
121	Sb	2	115	200.80 ppb	1.04	200.00	80 -	120	100.4	
137	Ba	2	115	199.00 ppb	1.08	200.00	80 -	120	99.5	
205	Tl	2	209	198.30 ppb	0.24	200.00	80 -	120	99.2	
208	Pb	2	209	197.90 ppb	0.61	200.00	80 -	120	99.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	220217.66	1.06	298113.94	73.9	60 -	120	
45	Sc	1	12972.65	4.34	13033.35	99.5	60 -	120	
45	Sc	2	371698.88	0.58	441170.59	84.3	60 -	120	
72	Ge	1	10136.04	2.70	10140.71	100.0	60 -	120	
115	In	2	546015.44	0.94	598432.00	91.2	60 -	120	
209	Bi	2	405223.97	0.60	423206.13	95.8	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\024SMPL.D\024SMPL.D#

Date Acquired: Oct 27 2010 12:04 pm
Acq. Method: DHL 2.m
Operator: KL
Last Cal. Update: Oct 27 2010 10:45 am
Instrument: ICPMS2

Sample Name: ~~1010~~174-01B
Misc Info: SAMP6020A S
Bench Dilu: 5.00

QC Elements

Element				Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7	Li	2	45	32.180 ppb	0.00	0.82	500.00	>RL	Li
9	Be	2	45	2.515 ppb	0.00	1.26	2000.00	>RL	Be
11	B	2	45	105.700 ppb	0.00	0.38	500.00	>RL	B
23	Na	1	45	8044.000 ppb	0.00	0.33	25000.00	>RL	Na
24	Mg	1	45	14400.000 ppb	0.00	0.63	25000.00	>RL	Mg
27	Al	1	45	67030.000 ppb	0.00	0.42	10000.00	OUTCAL	Al
39	K	1	45	14120.000 ppb	0.00	0.41	25000.00	>RL	K
44	Ca	2	45	87280.000 ppb	0.00	1.13	25000.00	OUTCAL	Ca
47	Ti	1	45	468.400 ppb	0.00	1.43	500.00	>RL	Ti
51	V	1	45	91.140 ppb	0.00	0.82	2000.00	>RL	V
52	Cr	1	45	43.070 ppb	0.00	0.77	2000.00	>RL	Cr
55	Mn	1	45	895.500 ppb	0.00	0.27	2000.00	>RL	Mn
56	Fe	1	72	46180.000 ppb	0.00	0.98	10000.00	OUTCAL	Fe
59	Co	1	72	18.450 ppb	0.00	0.36	2000.00	>RL	Co
60	Ni	1	72	27.000 ppb	0.00	1.05	2000.00	>RL	Ni
63	Cu	1	72	20.620 ppb	0.00	0.96	2000.00	>RL	Cu
66	Zn	1	72	130.100 ppb	0.00	0.85	2000.00	>RL	Zn
75	As	1	72	11.800 ppb	0.00	1.53	2000.00	>RL	As
78	Se	1	72	4.421 ppb	0.00	6.57	2000.00	>RL	Se
88	Sr	2	115	225.100 ppb	0.00	0.94	500.00	>RL	Sr
95	Mo	2	115	1.273 ppb	0.00	1.92	500.00	ND	Mo
107	Ag	2	115	0.163 ppb	0.00	7.90	500.00	ND	Ag
111	Cd	2	115	1.027 ppb	0.00	18.26	2000.00	J	Cd
118	Sn	2	115	7.478 ppb	0.00	1.40	500.00	J	Sn
121	Sb	2	115	0.300 ppb	0.00	4.46	500.00	ND	Sb
137	Ba	2	115	285.300 ppb	0.00	1.44	2000.00	>RL	Ba
205	Tl	2	209	~~1.308 ppb~~	0.00	2.83	500.00	ND	Tl
208	Pb	2	209	34.800 ppb	0.00	0.61	2000.00	>RL	Pb

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	233078.84	0.66	298113.94	78.2	60 - 120	
45	Sc	1	14427.53	2.12	13033.35	110.7	60 - 120	
45	Sc	2	428367.53	0.44	441170.59	97.1	60 - 120	
72	Ge	1	10045.33	1.78	10140.71	99.1	60 - 120	
115	In	2	531728.31	0.20	598432.00	88.9	60 - 120	
209	Bi	2	392889.88	1.12	423206.13	92.8	60 - 120	

10.28.2010

Sample QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\025AREF.D\025AREF.D#

Date Acquired: Oct 27 2010 12:09 pm
Acq. Method: DHL 2.m
Operator: KL
Last Cal. Update: Oct 27 2010 10:45 am
Instrument: ICPMS2

Sample Name: 1010167-04A
Misc Info: SAMP6020A S
Bench Diln: 5.00

QC Elements

Element				Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7	Li	2	45	36.760 ppb	0.00	1.34	500.00	>RL	Li
9	Be	2	45	2.996 ppb	0.00	2.08	2000.00	>RL	Be
11	B	2	45	64.530 ppb	0.00	1.93	500.00	>RL	B
23	Na	1	45	1202.000 ppb	0.00	0.40	25000.00	>RL	Na
24	Mg	1	45	19820.000 ppb	0.00	0.98	25000.00	>RL	Mg
27	Al	1	45	89420.000 ppb	0.00	1.80	10000.00	OUTCAL	Al
39	K	1	45	18530.000 ppb	0.00	1.36	25000.00	>RL	K
44	Ca	2	45	51830.000 ppb	0.00	0.59	25000.00	OUTCAL	Ca
47	Ti	1	45	543.700 ppb	0.00	2.12	500.00	OUTCAL	Ti
51	V	1	45	92.220 ppb	0.00	0.54	2000.00	>RL	V
52	Cr	1	45	55.960 ppb	0.00	1.39	2000.00	>RL	Cr
55	Mn	1	45	974.400 ppb	0.00	0.49	2000.00	>RL	Mn
56	Fe	1	72	51570.000 ppb	0.00	0.37	10000.00	OUTCAL	Fe
59	Co	1	72	18.770 ppb	0.00	1.56	2000.00	>RL	Co
60	Ni	1	72	38.280 ppb	0.00	0.31	2000.00	>RL	Ni
63	Cu	1	72	35.270 ppb	0.00	0.39	2000.00	>RL	Cu
66	Zn	1	72	172.800 ppb	0.00	0.60	2000.00	>RL	Zn
75	As	1	72	13.090 ppb	0.00	1.73	2000.00	>RL	As
78	Se	1	72	5.487 ppb	0.00	3.12	2000.00	>RL	Se
88	Sr	2	115	210.900 ppb	0.00	0.22	500.00	>RL	Sr
95	Mo	2	115	0.736 ppb	0.00	1.96	500.00		Mo
107	Ag	2	115	0.742 ppb	0.00	7.16	500.00	J	Ag
111	Cd	2	115	1.307 ppb	0.00	5.02	2000.00	>RL	Cd
118	Sn	2	115	7.737 ppb	0.00	2.06	500.00	J	Sn
121	Sb	2	115	0.332 ppb	0.00	7.19	500.00		Sb
137	Ba	2	115	492.500 ppb	0.00	0.23	2000.00	>RL	Ba
205	Tl	2	209	1.311 ppb	0.00	0.66	500.00		Tl
208	Pb	2	209	43.220 ppb	0.00	0.39	2000.00	>RL	Pb

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	233245.59	1.31	298113.94	78.2	60 - 120	
45	Sc	1	14433.09	1.87	13033.35	110.7	60 - 120	
45	Sc	2	436006.13	0.80	441170.59	98.8	60 - 120	
72	Ge	1	10098.02	2.17	10140.71	99.6	60 - 120	
115	In	2	532246.38	0.57	598432.00	88.9	60 - 120	
209	Bi	2	394789.38	1.18	423206.13	93.3	60 - 120	

10.28.2010

DT QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\026DT1.D\026DT1.D#

Date Acquired:	Oct 27 2010 12:15 pm	Sample Name:	1010167-04A SD
Acq. Method:	DHL 2.m	Misc Info:	SD 6020A S
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Oct 27 2010 10:45 am	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	25.00

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	8.30 ppb	1.58	253767.39	90 - 110	0.0	
9	Be	2	45	0.73 ppb	5.69	3.00	90 - 110	121.2	
11	B	2	45	14.70 ppb	0.95	64.53	90 - 110	113.9	
23	Na	1	45	279.30 ppb	0.84	1202.00	90 - 110	116.2	
24	Mg	1	45	4624.00 ppb	1.00	19820.00	90 - 110	116.6	
27	Al	1	45	21050.00 ppb	1.79	89420.00	90 - 110	117.7	
39	K	1	45	4372.00 ppb	1.31	18530.00	90 - 110	118.0	
44	Ca	2	45	12050.00 ppb	0.36	51830.00	90 - 110	116.2	
47	Ti	1	45	123.40 ppb	3.81	543.70	90 - 110	113.5	
51	V	1	45	20.51 ppb	0.56	92.22	90 - 110	111.2	
52	Cr	1	45	12.74 ppb	0.99	55.96	90 - 110	113.8	
55	Mn	1	45	224.60 ppb	1.42	974.40	90 - 110	115.3	
56	Fe	1	72	10970.00 ppb	1.07	51570.00	90 - 110	106.4	GOOD
59	Co	1	72	4.00 ppb	1.68	18.77	90 - 110	106.5	GOOD
60	Ni	1	72	7.81 ppb	2.17	38.28	90 - 110	102.0	GOOD
63	Cu	1	72	7.12 ppb	0.97	35.27	90 - 110	100.9	GOOD
66	Zn	1	72	36.40 ppb	2.56	172.80	90 - 110	105.3	GOOD
75	As	1	72	2.63 ppb	1.65	13.09	90 - 110	100.4	GOOD
78	Se	1	72	1.17 ppb	13.07	5.49	90 - 110	106.9	GOOD
88	Sr	2	115	40.34 ppb	0.83	210.90	90 - 110	95.6	GOOD
95	Mo	2	115	0.23 ppb	10.02	0.74	90 - 110	159.1	
107	Ag	2	115	0.17 ppb	1.83	0.74	90 - 110	114.5	
111	Cd	2	115	0.29 ppb	23.04	1.31	90 - 110	112.3	
118	Sn	2	115	1.30 ppb	6.39	7.74	90 - 110	84.3	
121	Sb	2	115	0.05 ppb	11.25	0.33	90 - 110	74.0	
137	Ba	2	115	96.16 ppb	0.95	492.50	90 - 110	97.6	GOOD
205	Tl	2	209	0.33 ppb	4.95	1.31	90 - 110	126.1	
208	Pb	2	209	8.41 ppb	1.08	43.22	90 - 110	97.3	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	253767.39	0.98	298113.94	85.1	60 - 120	
45	Sc	1	13847.95	0.81	13033.35	106.3	60 - 120	
45	Sc	2	403196.78	0.28	441170.59	91.4	60 - 120	
72	Ge	1	10476.91	1.29	10140.71	103.3	60 - 120	
115	In	2	576210.69	0.60	598432.00	96.3	60 - 120	
209	Bi	2	426745.28	0.49	423206.13	100.8	60 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\027_PDS.D\027_PDS.D#

Date Acquired:	Oct 27 2010 12:20 pm	Sample Name:	1010167-04A PDS
Acq. Method:	DHL 2.m	Misc Info:	PDS 6020A S
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Oct 27 2010 10:45 am	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	5.00

QC Elements

Element				Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	200.30 ppb	1.31	219055.33	200	80-120	######	Fail
9	Be	2	45	182.30 ppb	0.69	3.00	200	80-120	89.7	
11	B	2	45	230.70 ppb	0.21	64.53	200	80-120	83.1	
23	Na	1	45	5476.00 ppb	0.28	1202.00	5000	80-120	85.5	
24	Mg	1	45	23230.00 ppb	0.61	19820.00	5000	80-120	68.2	Fail
27	Al	1	45	90640.00 ppb	0.23	89420.00	5000	80-120	24.4	Fail
39	K	1	45	22290.00 ppb	0.63	18530.00	5000	80-120	75.2	
44	Ca	2	45	54780.00 ppb	0.98	51830.00	5000	80-120	59.0	Fail
47	Ti	1	45	698.60 ppb	1.68	543.70	200	80-120	77.4	
51	V	1	45	260.00 ppb	0.95	92.22	200	80-120	83.9	
52	Cr	1	45	223.70 ppb	0.37	55.96	200	80-120	83.9	
55	Mn	1	45	1090.00 ppb	0.97	974.40	200	80-120	57.8	Fail
56	Fe	1	72	54860.00 ppb	1.09	51570.00	5000	80-120	65.8	Fail
59	Co	1	72	204.60 ppb	0.64	18.77	200	80-120	92.9	
60	Ni	1	72	224.60 ppb	0.73	38.28	200	80-120	93.2	
63	Cu	1	72	217.80 ppb	1.37	35.27	200	80-120	91.3	
66	Zn	1	72	353.70 ppb	0.37	172.80	200	80-120	90.5	
75	As	1	72	204.90 ppb	0.24	13.09	200	80-120	95.9	
78	Se	1	72	205.20 ppb	1.32	5.49	200	80-120	99.9	
88	Sr	2	115	415.90 ppb	0.43	210.90	200	80-120	102.5	
95	Mo	2	115	203.60 ppb	0.61	0.74	200	80-120	101.4	
107	Ag	2	115	207.10 ppb	0.48	0.74	200	80-120	103.2	
111	Cd	2	115	198.70 ppb	0.45	1.31	200	80-120	98.7	
118	Sn	2	115	238.50 ppb	0.14	7.74	200	80-120	115.4	
121	Sb	2	115	208.50 ppb	0.59	0.33	200	80-120	104.1	
137	Ba	2	115	696.50 ppb	0.27	492.50	200	80-120	102.0	
205	Tl	2	209	205.70 ppb	1.02	1.31	200	80-120	102.2	
208	Pb	2	209	245.90 ppb	0.50	43.22	200	80-120	101.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	219055.33	0.77	298113.94	73.5	60 -	120	
45	Sc	1	15237.73	2.95	13033.35	116.9	60 -	120	
45	Sc	2	436863.09	0.51	441170.59	99.0	60 -	120	
72	Ge	1	10283.24	3.15	10140.71	101.4	60 -	120	
115	In	2	526595.44	0.57	598432.00	88.0	60 -	120	
209	Bi	2	385250.81	0.57	423206.13	91.0	60 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\028_MS.D\028_MS.D#

Date Acquired:	Oct 27 2010 12:25 pm	Sample Name:	1010167-04A MS
Acq. Method:	DHL 2.m	Misc Info:	MS 6020A S
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Oct 27 2010 10:45 am	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	5.00

QC Elements

Element				Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	195.20 ppb	1.64	########	200	80-120	######	Fail
9	Be	2	45	166.30 ppb	0.39	3.00	200	80-120	81.7	
11	B	2	45	229.30 ppb	0.36	64.53	200	80-120	82.4	
23	Na	1	45	2234.00 ppb	0.79	1202.00	1000	80-120	103.2	
24	Mg	1	45	20750.00 ppb	1.56	19820.00	1000	80-120	93.0	
27	Al	1	45	88650.00 ppb	0.74	89420.00	1000	80-120	-77.0	Fail
39	K	1	45	18540.00 ppb	0.17	18530.00	1000	80-120	1.0	Fail
44	Ca	2	45	90410.00 ppb	0.72	51830.00	1000	80-120	3858.0	Fail
47	Ti	1	45	703.30 ppb	0.71	543.70	200	80-120	79.8	Fail
51	V	1	45	270.90 ppb	0.42	92.22	200	80-120	89.3	
52	Cr	1	45	220.10 ppb	0.45	55.96	200	80-120	82.1	
55	Mn	1	45	998.00 ppb	0.86	974.40	200	80-120	11.8	Fail
56	Fe	1	72	51440.00 ppb	1.07	51570.00	1000	80-120	-13.0	Fail
59	Co	1	72	195.30 ppb	1.25	18.77	200	80-120	88.3	
60	Ni	1	72	209.50 ppb	0.49	38.28	200	80-120	85.6	
63	Cu	1	72	207.50 ppb	0.97	35.27	200	80-120	86.1	
66	Zn	1	72	363.70 ppb	0.77	172.80	200	80-120	95.5	
75	As	1	72	187.20 ppb	0.39	13.09	200	80-120	87.1	
78	Se	1	72	183.50 ppb	0.55	5.49	200	80-120	89.0	
88	Sr	2	115	479.00 ppb	0.79	210.90	200	80-120	134.1	Fail
95	Mo	2	115	180.80 ppb	0.61	0.74	200	80-120	90.0	
107	Ag	2	115	195.10 ppb	0.85	0.74	200	80-120	97.2	
111	Cd	2	115	189.10 ppb	0.82	1.31	200	80-120	93.9	
118	Sn	2	115	208.10 ppb	0.74	7.74	200	80-120	100.2	
121	Sb	2	115	70.39 ppb	0.99	0.33	200	80-120	35.0	Fail
137	Ba	2	115	806.00 ppb	0.52	492.50	200	80-120	156.8	Fail
205	Tl	2	209	194.60 ppb	0.58	1.31	200	80-120	96.6	
208	Pb	2	209	229.80 ppb	0.96	43.22	200	80-120	93.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	196597.05	0.95	298113.94	65.9	60 -	120	
45	Sc	1	14392.16	2.98	13033.35	110.4	60 -	120	
45	Sc	2	420547.25	0.60	441170.59	95.3	60 -	120	
72	Ge	1	9951.72	2.71	10140.71	98.1	60 -	120	
115	In	2	517726.09	0.36	598432.00	86.5	60 -	120	
209	Bi	2	381518.50	0.73	423206.13	90.1	60 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\029_MS.D\029_MS.D#

Date Acquired:	Oct 27 2010 12:31 pm	Sample Name:	1010167-04A MSD
Acq. Method:	DHL 2.m	Misc Info:	MSD 6020A S
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Oct 27 2010 10:45 am	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	5.00

QC Elements

Element				Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	196.30 ppb	1.89	########	200	80-120	######	Fail
9	Be	2	45	175.30 ppb	0.50	3.00	200	80-120	86.2	
11	B	2	45	225.80 ppb	0.68	64.53	200	80-120	80.6	
23	Na	1	45	1631.00 ppb	0.40	1202.00	1000	80-120	42.9	Fail
24	Mg	1	45	19770.00 ppb	0.61	19820.00	1000	80-120	-5.0	Fail
27	Al	1	45	88960.00 ppb	0.79	89420.00	1000	80-120	-46.0	Fail
39	K	1	45	19780.00 ppb	0.18	18530.00	1000	80-120	125.0	Fail
44	Ca	2	45	34980.00 ppb	0.53	51830.00	1000	80-120	######	Fail
47	Ti	1	45	657.70 ppb	0.84	543.70	200	80-120	57.0	Fail
51	V	1	45	271.20 ppb	1.10	92.22	200	80-120	89.5	
52	Cr	1	45	227.30 ppb	0.39	55.96	200	80-120	85.7	
55	Mn	1	45	3293.00 ppb	0.21	974.40	200	80-120	1159.3	Fail
56	Fe	1	72	51070.00 ppb	0.31	51570.00	1000	80-120	-50.0	Fail
59	Co	1	72	212.50 ppb	0.99	18.77	200	80-120	96.9	
60	Ni	1	72	232.80 ppb	1.63	38.28	200	80-120	97.3	
63	Cu	1	72	220.50 ppb	0.30	35.27	200	80-120	92.6	
66	Zn	1	72	405.10 ppb	1.00	172.80	200	80-120	116.2	
75	As	1	72	190.60 ppb	0.41	13.09	200	80-120	88.8	
78	Se	1	72	187.90 ppb	1.49	5.49	200	80-120	91.2	
88	Sr	2	115	370.70 ppb	1.13	210.90	200	80-120	79.9	Fail
95	Mo	2	115	186.80 ppb	1.35	0.74	200	80-120	93.0	
107	Ag	2	115	199.10 ppb	0.91	0.74	200	80-120	99.2	
111	Cd	2	115	194.70 ppb	0.66	1.31	200	80-120	96.7	
118	Sn	2	115	213.90 ppb	0.77	7.74	200	80-120	103.1	
121	Sb	2	115	79.68 ppb	0.37	0.33	200	80-120	39.7	Fail
137	Ba	2	115	1169.00 ppb	0.75	492.50	200	80-120	338.3	Fail
205	Tl	2	209	197.20 ppb	0.33	1.31	200	80-120	97.9	
208	Pb	2	209	252.70 ppb	0.29	43.22	200	80-120	104.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	197289.95	0.23	298113.94	66.2	60 -	120	
45	Sc	1	14006.31	2.29	13033.35	107.5	60 -	120	
45	Sc	2	419781.38	0.23	441170.59	95.2	60 -	120	
72	Ge	1	9949.27	1.89	10140.71	98.1	60 -	120	
115	In	2	519427.06	0.43	598432.00	86.8	60 -	120	
209	Bi	2	385133.09	1.03	423206.13	91.0	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\030CCV1.D\030CCV1.D#

Date Acquired:	Oct 27 2010 12:36 pm	Sample Name:	CCV1-101027
Acq. Method:	DHL 2.m	Misc Info:	CCV ICPMS TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am		
Instrument:	ICPMS2		

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	196.40 ppb	1.03	200.00	90 -	110	98.2	
9	Be	2	45	200.90 ppb	1.33	200.00	90 -	110	100.5	
11	B	2	45	202.90 ppb	1.97	200.00	90 -	110	101.5	
23	Na	1	45	5223.00 ppb	0.60	5000.00	90 -	110	104.5	
24	Mg	1	45	5204.00 ppb	0.39	5000.00	90 -	110	104.1	
27	Al	1	45	5088.00 ppb	1.51	5000.00	90 -	110	101.8	
39	K	1	45	5112.00 ppb	2.42	5000.00	90 -	110	102.2	
44	Ca	2	45	5143.00 ppb	0.88	5000.00	90 -	110	102.9	
47	Ti	1	45	206.10 ppb	2.90	200.00	90 -	110	103.1	
51	V	1	45	206.30 ppb	0.65	200.00	90 -	110	103.2	
52	Cr	1	45	207.50 ppb	0.58	200.00	90 -	110	103.8	
55	Mn	1	45	206.70 ppb	1.25	200.00	90 -	110	103.4	
56	Fe	1	72	5078.00 ppb	1.53	5000.00	90 -	110	101.6	
59	Co	1	72	198.60 ppb	0.92	200.00	90 -	110	99.3	
60	Ni	1	72	198.60 ppb	0.96	200.00	90 -	110	99.3	
63	Cu	1	72	200.70 ppb	0.96	200.00	90 -	110	100.4	
66	Zn	1	72	199.30 ppb	0.86	200.00	90 -	110	99.7	
75	As	1	72	196.40 ppb	0.54	200.00	90 -	110	98.2	
78	Se	1	72	204.40 ppb	0.71	200.00	90 -	110	102.2	
88	Sr	2	115	196.40 ppb	1.42	200.00	90 -	110	98.2	
95	Mo	2	115	196.60 ppb	0.44	200.00	90 -	110	98.3	
107	Ag	2	115	198.80 ppb	0.58	200.00	90 -	110	99.4	
111	Cd	2	115	193.90 ppb	1.00	200.00	90 -	110	97.0	
118	Sn	2	115	202.30 ppb	0.64	200.00	90 -	110	101.2	
121	Sb	2	115	198.30 ppb	1.67	200.00	90 -	110	99.2	
137	Ba	2	115	195.50 ppb	1.15	200.00	90 -	110	97.8	
205	Tl	2	209	194.60 ppb	0.99	200.00	90 -	110	97.3	
208	Pb	2	209	192.30 ppb	0.53	200.00	90 -	110	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	206748.42	0.75	298113.94	69.4	60 -	120	
45	Sc	1	11717.58	1.42	13033.35	89.9	60 -	120	
45	Sc	2	355278.84	0.90	441170.59	80.5	60 -	120	
72	Ge	1	9281.35	0.97	10140.71	91.5	60 -	120	
115	In	2	541947.31	0.70	598432.00	90.6	60 -	120	
209	Bi	2	403081.28	0.56	423206.13	95.2	60 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\032_CCB.D\032_CCB.D#

Date Acquired:	Oct 27 2010 12:47 pm	Sample Name:	CCB1-101027
Acq. Method:	DHL 2.m	Misc Info:	CCB ICPMS TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am		
Instrument:	ICPMS2		

QC Elements

Element				Conc.	RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.230 ppb	0.62	2.00	2.00	
9	Be	2	45	0.021 ppb	13.06	0.10	0.30	
11	B	2	45	2.876 ppb	0.53	10.00	10.00	
23	Na	1	45	20.160 ppb	2.88	50.00	#####	
24	Mg	1	45	13.040 ppb	26.16	50.00	#####	
27	Al	1	45	50.390 ppb	27.34	50.00	10.00	Failsoil
39	K	1	45	18.810 ppb	5.38	50.00	#####	
44	Ca	2	45	-6.203 ppb	6.07	50.00	#####	
47	Ti	1	45	0.430 ppb	43.29	4.00	3.00	
51	V	1	45	0.148 ppb	19.86	4.00	3.00	
52	Cr	1	45	0.134 ppb	11.37	2.00	2.00	
55	Mn	1	45	1.141 ppb	15.20	2.00	3.00	
56	Fe	1	72	32.770 ppb	20.17	50.00	50.00	
59	Co	1	72	0.072 ppb	20.72	2.00	3.00	
60	Ni	1	72	-0.180 ppb	11.12	2.00	3.00	
63	Cu	1	72	-0.190 ppb	4.09	2.00	2.00	
66	Zn	1	72	0.585 ppb	3.27	4.00	2.00	
75	As	1	72	0.056 ppb	20.38	2.00	2.00	
78	Se	1	72	0.200 ppb	4.87	0.60	2.00	
88	Sr	2	115	0.040 ppb	4.32	4.00	3.00	
95	Mo	2	115	0.355 ppb	6.17	2.00	2.00	
107	Ag	2	115	0.045 ppb	4.14	0.40	1.00	
111	Cd	2	115	0.037 ppb	17.25	0.40	0.30	
118	Sn	2	115	0.187 ppb	3.64	4.00	3.00	
121	Sb	2	115	0.040 ppb	4.36	2.00	0.80	
137	Ba	2	115	0.205 ppb	6.59	2.00	3.00	
205	Tl	2	209	0.470 ppb	3.25	2.00	0.50	
208	Pb	2	209	0.041 ppb	4.02	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	232173.30	1.16	298113.94	77.9	60 - 120	
45	Sc	1	11998.42	0.52	13033.35	92.1	60 - 120	
45	Sc	2	352129.09	0.59	441170.59	79.8	60 - 120	
72	Ge	1	9477.00	0.67	10140.71	93.5	60 - 120	
115	In	2	548862.88	0.61	598432.00	91.7	60 - 120	
209	Bi	2	407099.22	0.84	423206.13	96.2	60 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\10J27j01.B\033LCVL.D\033LCVL.D#

Date Acquired:	Oct 27 2010 12:53 pm	Sample Name:	LLCCV1-10102
Acq. Method:	DHL 2.m	Misc Info:	LCVL6020A S
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Oct 27 2010 10:45 am		
Instrument:	ICPMS2		

QC Elements

Element				Conc.	RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1.07 ppb	0.71	1.00	70 -	130	106.7	
9	Be	2	45	1.01 ppb	4.30	1.00	70 -	130	101.1	
11	B	2	45	2.84 ppb	5.31	1.00	70 -	130	284.3	Fail
23	Na	1	45	38.62 ppb	2.03	20.00	70 -	130	193.1	Fail
24	Mg	1	45	30.06 ppb	6.73	20.00	70 -	130	150.3	Fail
27	Al	1	45	55.74 ppb	19.78	20.00	70 -	130	278.7	Fail
39	K	1	45	33.41 ppb	2.22	20.00	70 -	130	167.1	Fail
44	Ca	2	45	16.29 ppb	15.59	20.00	70 -	130	81.5	
47	Ti	1	45	0.99 ppb	40.06	1.00	70 -	130	98.9	
51	V	1	45	1.12 ppb	4.69	1.00	70 -	130	111.8	
52	Cr	1	45	1.06 ppb	3.27	1.00	70 -	130	106.4	
55	Mn	1	45	1.83 ppb	10.46	1.00	70 -	130	182.5	Fail
56	Fe	1	72	43.90 ppb	14.54	20.00	70 -	130	219.5	Fail
59	Co	1	72	1.01 ppb	4.32	1.00	70 -	130	101.1	
60	Ni	1	72	0.52 ppb	6.55	1.00	70 -	130	51.8	Fail
63	Cu	1	72	0.55 ppb	1.19	1.00	70 -	130	55.1	Fail
66	Zn	1	72	0.79 ppb	2.52	1.00	70 -	130	78.5	
75	As	1	72	0.96 ppb	2.23	1.00	70 -	130	95.8	
78	Se	1	72	1.03 ppb	12.69	1.00	70 -	130	102.9	
88	Sr	2	115	0.99 ppb	4.03	1.00	70 -	130	99.1	
95	Mo	2	115	1.06 ppb	6.80	1.00	70 -	130	106.4	
107	Ag	2	115	0.96 ppb	4.28	1.00	70 -	130	96.4	
111	Cd	2	115	0.90 ppb	4.24	1.00	70 -	130	89.7	
118	Sn	2	115	1.02 ppb	0.87	1.00	70 -	130	102.1	
121	Sb	2	115	1.02 ppb	10.43	1.00	70 -	130	101.6	
137	Ba	2	115	1.19 ppb	11.92	1.00	70 -	130	119.0	
205	Tl	2	209	1.24 ppb	3.25	1.00	70 -	130	124.1	
208	Pb	2	209	0.96 ppb	2.41	1.00	70 -	130	95.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	232249.78	0.62	298113.94	77.9	60 -	120	
45	Sc	1	11729.58	1.30	13033.35	90.0	60 -	120	
45	Sc	2	356340.13	0.18	441170.59	80.8	60 -	120	
72	Ge	1	9368.74	1.51	10140.71	92.4	60 -	120	
115	In	2	547994.38	0.73	598432.00	91.6	60 -	120	
209	Bi	2	407515.97	0.67	423206.13	96.3	60 -	120	

Percent Moisture Analysis
for
DHL Work Order

1010174

DHL Analytical

Run ID: PMOIST_101026A **Run No.:** 51984

Analytical Run Date: 10/26/2010 **InstrumentID:** Pmoist

Analyst: Alice Aertker

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
1010126-01C	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010126-02C	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010135-01B	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010135-02B	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010145-02C	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010145-03C	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010145-03C-DUP	1	PMOIST	DUP	43593	10/27/2010 8:55:00 AM		
1010145-09C	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010145-14C	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010171-01A	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010171-02A	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010171-03A	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		
1010174-01B	1	PMOIST	SAMP	43593	10/27/2010 8:55:00 AM		

AA
10/27/10

EJR
10.27.2010

Run ID: 101026 PMOIST A

Percent Moisture - Bench Sheet			
Enter ALL weights into the DHL LIMS - Single Analyte Worksheet			
Date Started:	10/26/2010	Date Ended:	10/27/10
Time Started:	515PM	Time Ended:	855AM
Analyst Start:	AA	Analyst End:	AA
Balance #	20	Balance #	20
Sample ID	**Tare Wt**	**Tare + Sample**	**Final Wt**
1010126-01C	1.01	12.37	11.05
1010126-02C	1.01	11.96	10.70
1010135-01B	1.00	12.74	~~10~~. 11.06
1010135-02B	0.99	12.05	10.84
1010145-02C	1.01	11.04	9.44
1010145-03C	1.01	11.95	11.00
1010145-03C-DUP	1.03	11.09	10.22
1010145-09C	1.02	13.08	10.98
1010145-14C	1.01	12.26	10.46
1010171-01A	1.03	14.05	10.99
1010171-02A	1.01	12.65	10.11
1010171-03A	1.02	13.37	10.46
1010174-01B	1.03	13.14	10.93
/	/	/	/

AA 10/27/10

AA 10/27/10

Data Folder Contents	Review Items	Check	2nd Level Review
Hard Copies MUST match LIMS data			
1. Is the Prep Batch Report included?	Prep Start/End Dates SampAmt=10, FinVol=10 20 field samples/batch, 1 DUP/batch	✓	—
2. Is the Run Log included?	Test Code, Sample Type Batch ID, and Analysis Date/Time	✓	—
3. Is PMOIST bench sheet included?	Bench sheet vs. LIMS - Single Analyte Worksheet	✓	—
4. Is the RPD for the sample DUP ≤30%?	If RPD fails criteria, then state reason below:	Yes	—

Analyst: [signature] Date: 10/27/10

Second-Level Review: [signature] Date: 10-27-2010

F:\IC\Pmoist\PMOIST 2010\101026 PMOIST A

DHL Analytical

PREP BATCH REPORT

Prep Start Date: **10/26/2010 4:49:28 PM**
Prep End Date: **10/27/2010 8:55:00 AM**

Prep Factor Units: **mL/g**

Prep Batch **43593** Prep Code: **PMOIST_PRE** Technician: **Alice Aertker**

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	Factor	Bottle #	PrepEnd
1010126-01C	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010126-02C	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010135-01B	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010135-02B	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010145-02C	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010145-03C	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010145-03C-DUP	Soil		10	0	0	10	1.000	of	10/27/2010
1010145-09C	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010145-14C	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010171-01A	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010171-02A	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010171-03A	Soil		10	0	0	10	1.000	1 of 1	10/27/2010
1010174-01B	Soil		10	0	0	10	1.000	1 of 1	10/27/2010

AA 10/27/10

10.27.2010

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