



15-Sep-2011

Marla Miller
Malcolm Pirnie
211 N Florence Street
Suite 202
El Paso, TX 79901

Tel: (602) 797-4699
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Re: El Paso Smelter

Work Order: **1109206**

Dear Marla,

ALS Environmental received 1 sample on 08-Sep-2011 09:15 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. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Makenzie L. Henderson

Bethany Agarwal
Project Manager



Certificate No: T104704231-09A-TX

Client: Malcolm Pirnie
Project: El Paso Smelter
Work Order: 1109206

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1109206-01	QA090711	Water		9/7/2011 09:10	9/8/2011 09:15	<input type="checkbox"/>

Client: Malcolm Pirnie
Project: El Paso Smelter
Work Order: 1109206

Case Narrative

Batch R115854, Anions, Sample QA090711: MS/MSD recoveries outside control limits due to matrix interference.

Batch 55334, Metals, Sample QA090711: MS/MSD recoveries outside control limits due to matrix interference.

ALS Environmental

Date: 15-Sep-11

Client: Malcolm Pirnie
 Project: El Paso Smelter
 Sample ID: QA090711
 Collection Date: 9/7/2011 09:10 AM

Work Order: 1109206
 Lab ID: 1109206-01
 Matrix: WATER

Analyses	Result	Qual	SDL	MLL	Units	Dilution Factor	Date Analyzed
DISSOLVED MERCURY			Method: SW7470		Prep: SW7470 / 9/13/11		Analyst: JCJ
Mercury		U	0.000042	0.000200	mg/L	1	9/13/2011 16:44
MERCURY			Method: SW7470		Prep: SW7470 / 9/13/11		Analyst: JCJ
Mercury		U	0.000042	0.000200	mg/L	1	9/13/2011 14:42
DISSOLVED METALS			Method: SW6020		Prep: SW3010A / 9/12/11		Analyst: ALR
Antimony	0.00816		0.00050	0.00500	mg/L	1	9/12/2011 20:21
Arsenic	1.50		0.00090	0.00500	mg/L	1	9/12/2011 20:21
Barium	0.0239		0.00070	0.00500	mg/L	1	9/12/2011 20:21
Cadmium	0.000671	J	0.00060	0.00200	mg/L	1	9/12/2011 20:21
Chromium		U	0.00060	0.00500	mg/L	1	9/12/2011 20:21
Cobalt	0.000879	J	0.00050	0.00500	mg/L	1	9/12/2011 20:21
Copper	0.000616	J	0.00050	0.00500	mg/L	1	9/13/2011 18:48
Iron		U	0.036	0.200	mg/L	1	9/12/2011 20:21
Lead	0.000421	J	0.00040	0.00500	mg/L	1	9/12/2011 20:21
Molybdenum	0.442		0.00060	0.00500	mg/L	1	9/12/2011 20:21
Nickel	0.00275	J	0.0014	0.00500	mg/L	1	9/12/2011 20:21
Selenium	0.146		0.0025	0.00500	mg/L	1	9/12/2011 20:21
Silver		U	0.00070	0.00500	mg/L	1	9/12/2011 20:21
Thallium		U	0.00080	0.00200	mg/L	1	9/12/2011 20:21
Zinc	0.00614		0.0025	0.00500	mg/L	1	9/12/2011 20:21
METALS			Method: SW6020		Prep: SW3010A / 9/12/11		Analyst: ALR
Aluminum	0.0549		0.0040	0.0100	mg/L	1	9/13/2011 14:55
Antimony	0.00806		0.00080	0.00500	mg/L	1	9/12/2011 22:27
Arsenic	1.52		0.0013	0.00500	mg/L	1	9/12/2011 22:27
Barium	0.0262		0.00090	0.00500	mg/L	1	9/12/2011 22:27
Cadmium		U	0.00080	0.00200	mg/L	1	9/12/2011 22:27
Calcium	111		0.086	0.500	mg/L	1	9/13/2011 14:55
Chromium		U	0.0012	0.00500	mg/L	1	9/12/2011 22:27
Cobalt		U	0.00080	0.00500	mg/L	1	9/12/2011 22:27
Copper		U	0.0015	0.00500	mg/L	1	9/12/2011 22:27
Iron		U	0.078	0.200	mg/L	1	9/12/2011 22:27
Lead		U	0.00070	0.00500	mg/L	1	9/12/2011 22:27
Magnesium	50.3		0.082	0.200	mg/L	1	9/13/2011 14:55
Manganese	0.295		0.0025	0.00500	mg/L	1	9/12/2011 22:27
Molybdenum	0.420		0.0015	0.00500	mg/L	1	9/12/2011 22:27
Nickel	0.00342	J	0.0012	0.00500	mg/L	1	9/12/2011 22:27
Potassium	43.1		0.084	0.200	mg/L	1	9/13/2011 14:55
Selenium	0.154		0.0010	0.00500	mg/L	1	9/12/2011 22:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 15-Sep-11

Client: Malcolm Pirnie
 Project: El Paso Smelter
 Sample ID: QA090711
 Collection Date: 9/7/2011 09:10 AM

Work Order: 1109206
 Lab ID: 1109206-01
 Matrix: WATER

Analyses	Result	Qual	SDL	MLL	Units	Dilution Factor	Date Analyzed
Silver		U	0.00080	0.00500	mg/L	1	9/12/2011 22:27
Sodium	508		0.85	2.00	mg/L	10	9/13/2011 15:37
Thallium		U	0.0010	0.00200	mg/L	1	9/13/2011 14:55
Zinc	0.00660		0.0025	0.00500	mg/L	1	9/12/2011 22:27
ANIONS - EPA 300.0 (1993)			Method: E300			Analyst: RPM	
Chloride	282		2.00	5.00	mg/L	10	9/8/2011 14:25
Fluoride	3.16		0.0500	0.100	mg/L	1	9/8/2011 13:01
Nitrogen, Nitrate (As N)	4.63		0.0300	0.100	mg/L	1	9/8/2011 13:01
Nitrogen, Nitrite (As N)	0.0390	J	0.0300	0.100	mg/L	1	9/8/2011 13:01
Sulfate	999		5.00	5.00	mg/L	10	9/8/2011 14:25
Nitrate/Nitrite (as N)	4.67		0.0300	0.100	mg/L	1	9/8/2011 13:01
Surr: Selenate (surr)	113			85-115	%REC	1	9/8/2011 13:01
Surr: Selenate (surr)	112			85-115	%REC	10	9/8/2011 14:25
ALKALINITY			Method: SM2320B			Analyst: DM	
Alkalinity, Total (As CaCO3)	386		5.0	5.00	mg/L	1	9/14/2011 09:47
SULFIDE			Method: SM4500 S2-F			Analyst: JKP	
Sulfide	35.2		0.50	1.00	mg/L	1	9/12/2011 10:50
TOTAL DISSOLVED SOLIDS			Method: M2540C			Analyst: TDW	
Total Dissolved Solids (Residue, Filterable)	2,350		5.0	10.0	mg/L	1	9/12/2011 15:00
TOTAL ORGANIC CARBON - SM5310C			Method: SM5310C			Analyst: JKP	
Organic Carbon, Total	2.47		0.10	0.500	mg/L	1	9/15/2011 02:18
TOTAL SUSPENDED SOLIDS			Method: M2540D			Analyst: KAH	
Suspended Solids (Residue, Non-Filterable)	8.80		2.00	2.00	mg/L	1	9/8/2011 13:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

WorkOrder: 1109206
InstrumentID: Balance1
Test Code: TSS_W 2540D
Test Number: M2540D
Test Name: Total Suspended Solids

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Suspended Solids (Residue, Non-Filterable)	TSS	2.00	2.00	2.00

WorkOrder: 1109206
InstrumentID: ICP7500
Test Code: ICP_TW
Test Number: SW6020
Test Name: Metals

**METHOD DETECTION /
 REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Antimony	7440-36-0	0.0019	0.00080	0.0050
A	Arsenic	7440-38-2	0.0015	0.0013	0.0050
A	Barium	7440-39-3	0.0013	0.00090	0.0050
A	Cadmium	7440-43-9	0.0014	0.00080	0.0020
A	Chromium	7440-47-3	0.0015	0.0012	0.0050
A	Cobalt	7440-48-4	0.0015	0.00080	0.0050
A	Copper	7440-50-8	0.0016	0.0015	0.0050
A	Iron	7439-89-6	0.16	0.078	0.20
A	Lead	7439-92-1	0.0010	0.00070	0.0050
A	Manganese	7439-96-5	0.0016	0.0025	0.0050
A	Molybdenum	7439-98-7	0.0027	0.0015	0.0050
A	Nickel	7440-02-0	0.0016	0.0012	0.0050
A	Selenium	7782-49-2	0.0022	0.0010	0.0050
A	Silver	7440-22-4	0.0014	0.00080	0.0050
A	Sodium	7440-23-5	0.053	0.085	0.20
A	Zinc	7440-66-6	0.0024	0.0025	0.0050

WorkOrder: 1109206
InstrumentID: ICPMS03
Test Code: ICP_DISS
Test Number: SW6020
Test Name: Dissolved Metals

**METHOD DETECTION /
 REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Antimony	7440-36-0	0.0017	0.00050	0.0050
A	Arsenic	7440-38-2	0.0020	0.00090	0.0050
A	Barium	7440-39-3	0.0016	0.00070	0.0050
A	Cadmium	7440-43-9	0.0013	0.00060	0.0020
A	Chromium	7440-47-3	0.0013	0.00060	0.0050
A	Cobalt	7440-48-4	0.0012	0.00050	0.0050
A	Copper	7440-50-8	0.0012	0.00050	0.0050
A	Iron	7439-89-6	0.12	0.036	0.20
A	Lead	7439-92-1	0.0015	0.00040	0.0050
A	Molybdenum	7439-98-7	0.0040	0.00060	0.0050
A	Nickel	7440-02-0	0.0011	0.0014	0.0050
A	Selenium	7782-49-2	0.0041	0.0025	0.0050
A	Silver	7440-22-4	0.0014	0.00070	0.0050
A	Thallium	7440-28-0	0.0015	0.00080	0.0020
A	Zinc	7440-66-6	0.00098	0.0025	0.0050

WorkOrder: 1109206
InstrumentID: ICPMS03
Test Code: ICP_TW
Test Number: SW6020
Test Name: Metals

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Aluminum	7429-90-5	0.0080	0.0040	0.010
A	Calcium	7440-70-2	0.054	0.086	0.50
A	Magnesium	7439-95-4	0.15	0.082	0.20
A	Potassium	7440-09-7	0.14	0.084	0.20
A	Thallium	7440-28-0	0.0015	0.0010	0.0020

WorkOrder: 1109206
InstrumentID: ICS3000
Test Code: 300_W
Test Number: E300
Test Name: Anions - EPA 300.0 (1993)

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous Units: mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Chloride	16887-00-6	0.495	0.200	0.500
A	Fluoride	16984-48-8	0.0830	0.0500	0.100
A	Nitrogen, Nitrate (As N)	14797-55-8	0.0890	0.0300	0.100
A	Nitrogen, Nitrite (As N)	14797-65-0	0.0850	0.0300	0.100
A	Sulfate	14808-79-8	0.542	0.500	0.500
M	Nitrate/Nitrite (as N)		0.174	0.0300	0.100
S	Surr: Selenate (surr)	10102-23-5	0	0.100	0.100

WorkOrder: 1109206
InstrumentID: Mercury
Test Code: HG_DISS
Test Number: SW7470
Test Name: Dissolved Mercury

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous Units: mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Mercury	7439-97-6	0.000090	0.000042	0.00020

WorkOrder: 1109206
InstrumentID: Mercury
Test Code: HG_W
Test Number: SW7470
Test Name: Mercury

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Mercury	7439-97-6	0.000090	0.000042	0.00020

WorkOrder: 1109206
InstrumentID: TOC_02
Test Code: TOC_W 5310C
Test Number: SM5310C
Test Name: Total Organic Carbon - SM5310C

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Organic Carbon, Total	7440-44-0	0.21	0.10	0.50

WorkOrder: 1109206
InstrumentID: WetChem
Test Code: ALK_W 2320B
Test Number: SM2320B
Test Name: Alkalinity

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Alkalinity, Total (As CaCO3)	ALK	11	5.0	5.0

WorkOrder: 1109206
InstrumentID: WetChem
Test Code: SULFD_4500S F
Test Number: SM4500 S2-F
Test Name: Sulfide

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Sulfide	18496-25-8	0.60	0.50	1.0

WorkOrder: 1109206
InstrumentID: WetChem
Test Code: TDS_W 2540C
Test Number: M2540C
Test Name: Total Dissolved Solids

**METHOD DETECTION /
REPORTING LIMITS**

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS	MDL	Unadjusted MQL
A	Total Dissolved Solids (Residue, Filterable)	TDS	0	5.0	10

ALS Environmental

Date: 15-Sep-11

Client: Malcolm Pirnie
Work Order: 1109206
Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **55334** Instrument ID **ICPMS03** Method: **SW6020**

MBLK Sample ID: **MBLKW2-091211-55334** Units: **mg/L** Analysis Date: **9/13/2011 02:43 PM**

Client ID: Run ID: **ICPMS03_110913A** SeqNo: **2524705** Prep Date: **9/12/2011** DF: **1**

Analyte	Result	MQL	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								
Cadmium	U	0.0020								
Calcium	U	0.50								
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Magnesium	U	0.20								
Manganese	U	0.0050								
Molybdenum	0.001685	0.0050								J
Nickel	U	0.0050								
Potassium	U	0.20								
Selenium	0.001088	0.0050								J
Silver	U	0.0050								
Sodium	U	0.20								
Thallium	U	0.0020								
Zinc	0.003241	0.0050								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: 55334 Instrument ID ICPMS03 Method: SW6020

LCS Sample ID: MLCSW2-091211-55334 Units: mg/L Analysis Date: 9/13/2011 02:49 PM

Client ID: Run ID: ICPMS03_110913A SeqNo: 2524707 Prep Date: 9/12/2011 DF: 1

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09759	0.010	0.1	0	97.6	80-120	0			
Antimony	0.04627	0.0050	0.05	0	92.5	80-120	0			
Arsenic	0.04803	0.0050	0.05	0	96.1	80-120	0			
Barium	0.04777	0.0050	0.05	0	95.5	80-120	0			
Cadmium	0.04799	0.0020	0.05	0	96	80-120	0			
Calcium	4.871	0.50	5	0	97.4	80-120	0			
Chromium	0.04831	0.0050	0.05	0	96.6	80-120	0			
Cobalt	0.04804	0.0050	0.05	0	96.1	80-120	0			
Copper	0.04801	0.0050	0.05	0	96	80-120	0			
Iron	4.741	0.20	5	0	94.8	80-120	0			
Lead	0.04823	0.0050	0.05	0	96.5	80-120	0			
Magnesium	4.802	0.20	5	0	96	80-120	0			
Manganese	0.0476	0.0050	0.05	0	95.2	80-120	0			
Molybdenum	0.04725	0.0050	0.05	0	94.5	80-120	0			
Nickel	0.04832	0.0050	0.05	0	96.6	80-120	0			
Potassium	4.83	0.20	5	0	96.6	80-120	0			
Selenium	0.0474	0.0050	0.05	0	94.8	80-120	0			
Silver	0.04586	0.0050	0.05	0	91.7	80-120	0			
Sodium	4.758	0.20	5	0	95.2	80-120	0			
Thallium	0.04709	0.0020	0.05	0	94.2	80-120	0			
Zinc	0.04821	0.0050	0.05	0	96.4	80-120	0			

MS Sample ID: 1109206-01DMS Units: mg/L Analysis Date: 9/12/2011 10:39 PM

Client ID: QA090711 Run ID: ICP7500_110912A SeqNo: 2523834 Prep Date: 9/12/2011 DF: 1

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05533	0.0050	0.05	0.008057	94.5	80-120	0			
Arsenic	1.592	0.0050	0.05	1.525	134	80-120	0			SO
Barium	0.07692	0.0050	0.05	0.02618	101	80-120	0			
Cadmium	0.04888	0.0020	0.05	0.0006835	96.4	80-120	0			
Chromium	0.05025	0.0050	0.05	0.0005803	99.3	80-120	0			
Cobalt	0.04901	0.0050	0.05	0.0006735	96.7	80-120	0			
Copper	0.04887	0.0050	0.05	0.001417	94.9	80-120	0			
Iron	4.921	0.20	5	0.0659	97.1	80-120	0			
Lead	0.04934	0.0050	0.05	0.0006769	97.3	80-120	0			
Manganese	0.3468	0.0050	0.05	0.2947	104	80-120	0			O
Molybdenum	0.4675	0.0050	0.05	0.4196	95.8	80-120	0			O
Nickel	0.05167	0.0050	0.05	0.003417	96.5	80-120	0			
Selenium	0.2144	0.0050	0.05	0.1542	120	80-120	0			S
Silver	0.04192	0.0050	0.05	-0.0005041	84.8	80-120	0			
Zinc	0.05463	0.0050	0.05	0.006601	96.1	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: 55334 Instrument ID ICPMS03 Method: SW6020

MS Sample ID: 1109206-01DMS Units: mg/L Analysis Date: 9/13/2011 03:13 PM

Client ID: QA090711 Run ID: ICPMS03_110913A SeqNo: 2524716 Prep Date: 9/12/2011 DF: 1

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1552	0.010	0.1	0.05493	100	80-120	0			
Calcium	113.6	0.50	5	110.8	56	80-120	0			SO
Magnesium	53.96	0.20	5	50.3	73.2	80-120	0			SO
Potassium	47.49	0.20	5	43.14	87	80-120	0			O
Sodium	U	0.20	5	0	0	80-120	0			SX
Thallium	0.04529	0.0020	0.05	0	90.6	80-120	0			

MSD Sample ID: 1109206-01DMSD Units: mg/L Analysis Date: 9/12/2011 10:45 PM

Client ID: QA090711 Run ID: ICP7500_110912A SeqNo: 2523835 Prep Date: 9/12/2011 DF: 1

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05408	0.0050	0.05	0.008057	92	80-120	0.05533	2.28	15	
Arsenic	1.571	0.0050	0.05	1.525	92	80-120	1.592	1.33	15	O
Barium	0.07699	0.0050	0.05	0.02618	102	80-120	0.07692	0.091	15	
Cadmium	0.04867	0.0020	0.05	0.0006835	96	80-120	0.04888	0.431	15	
Chromium	0.04895	0.0050	0.05	0.0005803	96.7	80-120	0.05025	2.62	15	
Cobalt	0.0479	0.0050	0.05	0.0006735	94.5	80-120	0.04901	2.29	15	
Copper	0.04794	0.0050	0.05	0.001417	93	80-120	0.04887	1.92	15	
Iron	4.898	0.20	5	0.0659	96.6	80-120	4.921	0.468	15	
Lead	0.04955	0.0050	0.05	0.0006769	97.7	80-120	0.04934	0.425	15	
Manganese	0.3411	0.0050	0.05	0.2947	92.8	80-120	0.3468	1.66	15	O
Molybdenum	0.4624	0.0050	0.05	0.4196	85.6	80-120	0.4675	1.1	15	O
Nickel	0.05023	0.0050	0.05	0.003417	93.6	80-120	0.05167	2.83	15	
Selenium	0.2123	0.0050	0.05	0.1542	116	80-120	0.2144	0.984	15	
Silver	0.04131	0.0050	0.05	-0.0005041	83.6	80-120	0.04192	1.47	15	
Zinc	0.05551	0.0050	0.05	0.006601	97.8	80-120	0.05463	1.6	15	

MSD Sample ID: 1109206-01DMSD Units: mg/L Analysis Date: 9/13/2011 03:18 PM

Client ID: QA090711 Run ID: ICPMS03_110913A SeqNo: 2524719 Prep Date: 9/12/2011 DF: 1

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1525	0.010	0.1	0.05493	97.6	80-120	0.1552	1.75	15	
Calcium	113.5	0.50	5	110.8	54	80-120	113.6	0.0881	15	SO
Magnesium	53.41	0.20	5	50.3	62.2	80-120	53.96	1.02	15	SO
Potassium	46.98	0.20	5	43.14	76.8	80-120	47.49	1.08	15	SO
Sodium	U	0.20	5	0	0	80-120	0	0	15	SX
Thallium	0.04563	0.0020	0.05	0	91.3	80-120	0.04529	0.748	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: 55334 Instrument ID ICPMS03 Method: SW6020

DUP		Sample ID: 1109206-01DDUP			Units: mg/L			Analysis Date: 9/12/2011 10:33 PM		
Client ID: QA090711		Run ID: ICP7500_110912A			SeqNo: 2523833			Prep Date: 9/12/2011		DF: 1
Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.007918	0.0050	0	0	0	0-0	0.008057	1.74	25	
Arsenic	1.516	0.0050	0	0	0	0-0	1.525	0.592	25	
Barium	0.02543	0.0050	0	0	0	0-0	0.02618	2.91	25	
Cadmium	0.0008806	0.0020	0	0	0	0-0	0.0006835	0	25	J
Chromium	U	0.0050	0	0	0	0-0	0.0005803	0	25	
Cobalt	U	0.0050	0	0	0	0-0	0.0006735	0	25	
Copper	U	0.0050	0	0	0	0-0	0.001417	0	25	
Iron	U	0.20	0	0	0	0-0	0.0659	0	25	
Lead	U	0.0050	0	0	0	0-0	0.0006769	0	25	
Manganese	0.2921	0.0050	0	0	0	0-0	0.2947	0.886	25	
Molybdenum	0.4166	0.0050	0	0	0	0-0	0.4196	0.718	25	
Nickel	0.003624	0.0050	0	0	0	0-0	0.003417	0	25	J
Selenium	0.1538	0.0050	0	0	0	0-0	0.1542	0.26	25	
Silver	U	0.0050	0	0	0	0-0	-0.0005041	0	25	
Zinc	0.008229	0.0050	0	0	0	0-0	0.006601	22	25	

DUP		Sample ID: 1109206-01DDUP			Units: mg/L			Analysis Date: 9/13/2011 03:01 PM		
Client ID: QA090711		Run ID: ICPMS03_110913A			SeqNo: 2524710			Prep Date: 9/12/2011		DF: 1
Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05262	0.010	0	0	0	0-0	0.05493	4.3	25	
Calcium	111.7	0.50	0	0	0	0-0	110.8	0.809	25	
Magnesium	51.15	0.20	0	0	0	0-0	50.3	1.68	25	
Potassium	43.59	0.20	0	0	0	0-0	43.14	1.04	25	
Thallium	U	0.0020	0	0	0	0-0	0	0	25	

DUP		Sample ID: 1109206-01DDUP			Units: mg/L			Analysis Date: 9/13/2011 03:43 PM		
Client ID: QA090711		Run ID: ICP7500_110913A			SeqNo: 2524831			Prep Date: 9/12/2011		DF: 10
Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	525.4	2.0	0	0	0	0-0	508.4	0	25	

The following samples were analyzed in this batch: 1109206-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
Work Order: 1109206
Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **55337** Instrument ID **ICPMS03** Method: **SW6020** (**Dissolve**)

MBLK Sample ID: **MBLKW5-091211-55337** Units: **mg/L** Analysis Date: **9/12/2011 03:45 PM**

Client ID: Run ID: **ICPMS03_110912A** SeqNo: **2523350** Prep Date: **9/12/2011** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	U	0.0050								
Arsenic	U	0.0050								
Barium	0.00161	0.0050								J
Cadmium	U	0.0020								
Chromium	U	0.0050								
Cobalt	U	0.0050								
Copper	U	0.0050								
Iron	U	0.20								
Lead	U	0.0050								
Molybdenum	U	0.0050								
Nickel	U	0.0050								
Selenium	0.001325	0.0050								J
Silver	U	0.0050								
Thallium	U	0.0020								
Zinc	0.003706	0.0050								J

LCS Sample ID: **MLCSW5-091211-55337** Units: **mg/L** Analysis Date: **9/12/2011 03:51 PM**

Client ID: Run ID: **ICPMS03_110912A** SeqNo: **2523351** Prep Date: **9/12/2011** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.04807	0.0050	0.05	0	96.1	80-120	0			
Arsenic	0.04921	0.0050	0.05	0	98.4	80-120	0			
Barium	0.05035	0.0050	0.05	0	101	80-120	0			
Cadmium	0.04994	0.0020	0.05	0	99.9	80-120	0			
Chromium	0.04806	0.0050	0.05	0	96.1	80-120	0			
Cobalt	0.0481	0.0050	0.05	0	96.2	80-120	0			
Copper	0.04767	0.0050	0.05	0	95.3	80-120	0			
Iron	4.758	0.20	5	0	95.2	80-120	0			
Lead	0.05167	0.0050	0.05	0	103	80-120	0			
Molybdenum	0.04846	0.0050	0.05	0	96.9	80-120	0			
Nickel	0.0482	0.0050	0.05	0	96.4	80-120	0			
Selenium	0.04896	0.0050	0.05	0	97.9	80-120	0			
Silver	0.04767	0.0050	0.05	0	95.3	80-120	0			
Thallium	0.04866	0.0020	0.05	0	97.3	80-120	0			
Zinc	0.0518	0.0050	0.05	0	104	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: 55337 Instrument ID ICPMS03 Method: SW6020 (Dissolve)

MS		Sample ID: 1109167-01BMS				Units: mg/L		Analysis Date: 9/12/2011 04:14 PM			
Client ID:		Run ID: ICPMS03_110912A				SeqNo: 2523355		Prep Date: 9/12/2011		DF: 1	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Antimony	0.04962	0.0050	0.05	0.0004499	98.3	75-125	0				
Arsenic	0.05116	0.0050	0.05	0.001222	99.9	75-125	0				
Barium	0.4373	0.0050	0.05	0.3843	106	75-125	0			O	
Cadmium	0.04878	0.0020	0.05	0.0002887	97	75-125	0				
Chromium	0.0474	0.0050	0.05	0.0004275	93.9	75-125	0				
Cobalt	0.04767	0.0050	0.05	0.001819	91.7	75-125	0				
Copper	0.04498	0.0050	0.05	0.0008975	88.2	75-125	0				
Iron	4.661	0.20	5	0.01257	93	75-125	0				
Lead	0.05018	0.0050	0.05	0.000265	99.8	75-125	0				
Molybdenum	0.05266	0.0050	0.05	0.003151	99	75-125	0				
Nickel	0.04679	0.0050	0.05	0.002963	87.7	75-125	0				
Selenium	0.05066	0.0050	0.05	0.001699	97.9	75-125	0				
Silver	0.04608	0.0050	0.05	0.000327	91.5	75-125	0				
Thallium	0.04728	0.0020	0.05	0.000521	93.5	75-125	0				
Zinc	0.05205	0.0050	0.05	0.01254	79	75-125	0				

MSD		Sample ID: 1109167-01BMSD				Units: mg/L		Analysis Date: 9/12/2011 04:20 PM			
Client ID:		Run ID: ICPMS03_110912A				SeqNo: 2523356		Prep Date: 9/12/2011		DF: 1	
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Antimony	0.04985	0.0050	0.05	0.0004499	98.8	75-125	0.04962	0	25		
Arsenic	0.051	0.0050	0.05	0.001222	99.6	75-125	0.05116	0	25		
Barium	0.4408	0.0050	0.05	0.3843	113	75-125	0.4373	0	25	O	
Cadmium	0.04889	0.0020	0.05	0.0002887	97.2	75-125	0.04878	0	25		
Chromium	0.04696	0.0050	0.05	0.0004275	93.1	75-125	0.0474	0	25		
Cobalt	0.04746	0.0050	0.05	0.001819	91.3	75-125	0.04767	0	25		
Copper	0.04459	0.0050	0.05	0.0008975	87.4	75-125	0.04498	0	25		
Iron	4.631	0.20	5	0.01257	92.4	75-125	4.661	0	25		
Lead	0.05274	0.0050	0.05	0.000265	105	75-125	0.05018	0	25		
Molybdenum	0.0538	0.0050	0.05	0.003151	101	75-125	0.05266	0	25		
Nickel	0.04726	0.0050	0.05	0.002963	88.6	75-125	0.04679	0	25		
Selenium	0.05159	0.0050	0.05	0.001699	99.8	75-125	0.05066	0	25		
Silver	0.04684	0.0050	0.05	0.000327	93	75-125	0.04608	0	25		
Thallium	0.05063	0.0020	0.05	0.000521	100	75-125	0.04728	0	25		
Zinc	0.05295	0.0050	0.05	0.01254	80.8	75-125	0.05205	0	25		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: 55337 Instrument ID ICPMS03 Method: SW6020 (Dissolve)

DUP		Sample ID: 1109167-01BDUP				Units: mg/L		Analysis Date: 9/12/2011 04:02 PM		
Client ID:		Run ID: ICPMS03_110912A				SeqNo: 2523353		Prep Date: 9/12/2011		DF: 1
Analyte	Result	MLQ	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	U	0.0050	0	0	0	0-0	0.0004499	0	25	
Arsenic	U	0.0050	0	0	0	0-0	0.001222	0	25	
Barium	0.3856	0.0050	0	0	0	0-0	0.3843	0	25	
Cadmium	U	0.0020	0	0	0	0-0	0.0002887	0	25	
Chromium	U	0.0050	0	0	0	0-0	0.0004275	0	25	
Cobalt	0.001839	0.0050	0	0	0	0-0	0.001819	0	25	J
Copper	U	0.0050	0	0	0	0-0	0.0008975	0	25	
Iron	U	0.20	0	0	0	0-0	0.01257	0	25	
Lead	U	0.0050	0	0	0	0-0	0.000265	0	25	
Molybdenum	0.002377	0.0050	0	0	0	0-0	0.003151	0	25	J
Nickel	0.002479	0.0050	0	0	0	0-0	0.002963	0	25	J
Selenium	0.001505	0.0050	0	0	0	0-0	0.001699	0	25	J
Silver	U	0.0050	0	0	0	0-0	0.000327	0	25	
Thallium	U	0.0020	0	0	0	0-0	0.000521	0	25	
Zinc	0.006527	0.0050	0	0	0	0-0	0.01254	0	25	

The following samples were analyzed in this batch:

1109206-01C

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: 55338 Instrument ID Mercury Method: SW7470

MBLK	Sample ID: GBLKW1-091211-55338	Units: mg/L	Analysis Date: 9/13/2011 01:45 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524734	Prep Date: 9/13/2011 DF: 1							
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS	Sample ID: GLCSW1-091211-55338	Units: mg/L	Analysis Date: 9/13/2011 01:47 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524736	Prep Date: 9/13/2011 DF: 1							
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00525	0.00020	0.005	0	105	85-115	0			

MS	Sample ID: 1108897-03BMS	Units: mg/L	Analysis Date: 9/13/2011 01:54 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524739	Prep Date: 9/13/2011 DF: 1							
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00505	0.00020	0.005	-0.000001	101	85-115	0			

MS	Sample ID: 1108900-01BMS	Units: mg/L	Analysis Date: 9/13/2011 02:10 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524745	Prep Date: 9/13/2011 DF: 1							
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.00020	0.005	-0.000003	99.7	85-115	0			

MSD	Sample ID: 1108897-03BMSD	Units: mg/L	Analysis Date: 9/13/2011 01:56 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524740	Prep Date: 9/13/2011 DF: 1							
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00512	0.00020	0.005	-0.000001	102	85-115	0.00505	1.38	20	

MSD	Sample ID: 1108900-01BMSD	Units: mg/L	Analysis Date: 9/13/2011 02:12 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524746	Prep Date: 9/13/2011 DF: 1							
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00501	0.00020	0.005	-0.000003	100	85-115	0.00498	0.601	20	

DUP	Sample ID: 1108897-03BDUP	Units: mg/L	Analysis Date: 9/13/2011 01:52 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524738	Prep Date: 9/13/2011 DF: 1							
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0	-0.000001	0	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
Work Order: 1109206
Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **55338** Instrument ID **Mercury** Method: **SW7470**

DUP	Sample ID: 1108900-01BDUP	Units: mg/L	Analysis Date: 9/13/2011 02:08 PM							
Client ID:	Run ID: MERCURY_110913A	SeqNo: 2524744	Prep Date: 9/13/2011	DF: 1						
Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0	-0.000003	0	20	

The following samples were analyzed in this batch:

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **55361** Instrument ID **Mercury** Method: **SW7470** (Dissolve)

MBLK	Sample ID: GBLKW4-091311-55361					Units: mg/L	Analysis Date: 9/13/2011 04:40 PM			
Client ID:		Run ID: MERCURY_110913A			SeqNo: 2524938	Prep Date: 9/13/2011	DF: 1			
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020								

LCS	Sample ID: GLCSW4-091311-55361					Units: mg/L	Analysis Date: 9/13/2011 04:42 PM			
Client ID:		Run ID: MERCURY_110913A			SeqNo: 2524939	Prep Date: 9/13/2011	DF: 1			
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.00020	0.005	0	105	80-120	0			

MS	Sample ID: 1109206-01CMS					Units: mg/L	Analysis Date: 9/13/2011 04:48 PM			
Client ID: QA090711		Run ID: MERCURY_110913A			SeqNo: 2524943	Prep Date: 9/13/2011	DF: 1			
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00519	0.00020	0.005	0.000006	104	80-120	0			

MSD	Sample ID: 1109206-01CMSD					Units: mg/L	Analysis Date: 9/13/2011 04:50 PM			
Client ID: QA090711		Run ID: MERCURY_110913A			SeqNo: 2524945	Prep Date: 9/13/2011	DF: 1			
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00525	0.00020	0.005	0.000006	105	80-120	0.00519	1.15	20	

DUP	Sample ID: 1109206-01CDUP					Units: mg/L	Analysis Date: 9/13/2011 04:46 PM			
Client ID: QA090711		Run ID: MERCURY_110913A			SeqNo: 2524941	Prep Date: 9/13/2011	DF: 1			
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0	0.000006	0	20	

The following samples were analyzed in this batch:

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **R115854** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-090811-R115854** Units: **mg/L** Analysis Date: **9/8/2011 11:45 AM**

Client ID: Run ID: **ICS3000_110908A** SeqNo: **2520462** Prep Date: DF: **1**

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.50								
Fluoride	U	0.10								
Nitrogen, Nitrate (As N)	U	0.10								
Nitrogen, Nitrite (As N)	U	0.10								
Sulfate	U	0.50								
Nitrate/Nitrite (as N)	U	0.20								
<i>Surr: Selenate (surr)</i>	<i>4.995</i>	<i>0.10</i>	<i>5</i>	<i>0</i>	<i>99.9</i>	<i>85-115</i>	<i>0</i>			

LCS Sample ID: **WLCSW1-090811-R115854** Units: **mg/L** Analysis Date: **9/8/2011 11:23 AM**

Client ID: Run ID: **ICS3000_110908A** SeqNo: **2520461** Prep Date: DF: **1**

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.61	0.50	20	0	93.1	90-110	0			
Fluoride	3.892	0.10	4	0	97.3	90-110	0			
Nitrogen, Nitrate (As N)	4.223	0.10	4	0	106	90-110	0			
Nitrogen, Nitrite (As N)	4.146	0.10	4	0	104	90-110	0			
Sulfate	18.38	0.50	20	0	91.9	90-110	0			
Nitrate/Nitrite (as N)	8.369	0.20	8	0	105	90-110	0			
<i>Surr: Selenate (surr)</i>	<i>5.64</i>	<i>0.10</i>	<i>5</i>	<i>0</i>	<i>113</i>	<i>85-115</i>	<i>0</i>			

LCSD Sample ID: **WLCSDW1-090811-R115854** Units: **mg/L** Analysis Date: **9/8/2011 12:06 PM**

Client ID: Run ID: **ICS3000_110908A** SeqNo: **2520464** Prep Date: DF: **1**

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.63	0.50	20	0	93.1	90-110	18.61	0.0806	20	
Fluoride	3.801	0.10	4	0	95	90-110	3.892	2.37	20	
Nitrogen, Nitrate (As N)	4.228	0.10	4	0	106	90-110	4.223	0.118	20	
Nitrogen, Nitrite (As N)	4.121	0.10	4	0	103	90-110	4.146	0.605	20	
Sulfate	18.17	0.50	20	0	90.9	90-110	18.38	1.12	20	
Nitrate/Nitrite (as N)	8.349	0.20	8	0	104	90-110	8.369	0.239	20	
<i>Surr: Selenate (surr)</i>	<i>5.544</i>	<i>0.10</i>	<i>5</i>	<i>0</i>	<i>111</i>	<i>85-115</i>	<i>5.64</i>	<i>1.72</i>	<i>20</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: R115854 Instrument ID ICS3000 Method: E300

MS Sample ID: 1109206-01EMS Units: mg/L Analysis Date: 9/8/2011 01:22 PM

Client ID: QA090711 Run ID: ICS3000_110908A SeqNo: 2520467 Prep Date: DF: 1

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	277.4	0.50	10	281.6	-42.1	80-120	0			SEO
Fluoride	4.877	0.10	2	2.214	133	80-120	0			S
Nitrogen, Nitrate (As N)	6.648	0.10	2	4.045	130	80-120	0			S
Nitrogen, Nitrite (As N)	2.159	0.10	2	0	108	80-120	0			
Sulfate	971	0.50	10	998.7	-278	80-120	0			SEO
Nitrate/Nitrite (as N)	8.807	0.20	4	4.045	119	80-120	0			
Surr: Selenate (surr)	5.676	0.10	5	0	114	85-115	0			

MSD Sample ID: 1109206-01EMSD Units: mg/L Analysis Date: 9/8/2011 01:43 PM

Client ID: QA090711 Run ID: ICS3000_110908A SeqNo: 2520469 Prep Date: DF: 1

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	281.7	0.50	10	281.6	1.23	80-120	277.4	1.55	20	SEO
Fluoride	4.98	0.10	2	2.214	138	80-120	4.877	2.09	20	S
Nitrogen, Nitrate (As N)	6.728	0.10	2	4.045	134	80-120	6.648	1.2	20	S
Nitrogen, Nitrite (As N)	2.189	0.10	2	0	109	80-120	2.159	1.38	20	
Sulfate	985.4	0.50	10	998.7	-133	80-120	971	1.48	20	SEO
Nitrate/Nitrite (as N)	8.917	0.20	4	4.045	122	80-120	8.807	1.24	20	S
Surr: Selenate (surr)	5.562	0.10	5	0	111	85-115	5.676	2.03	20	

The following samples were analyzed in this batch:

1109206-01E

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **R115879** Instrument ID **BALANCE1** Method: **M2540D**

MBLK		Sample ID: WBLK-090811-R115879				Units: mg/L		Analysis Date: 9/8/2011 01:00 PM		
Client ID:		Run ID: BALANCE1_110908G				SeqNo: 2521011		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Suspended Solids (Residue, Non-Fi	U	2.0								

LCS		Sample ID: WLCS-090811-R115879				Units: mg/L		Analysis Date: 9/8/2011 01:00 PM		
Client ID:		Run ID: BALANCE1_110908G				SeqNo: 2521014		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Suspended Solids (Residue, Non-Fi	82	2.0	100	0	82	78-120	0			

DUP		Sample ID: 1109156-01BDUP				Units: mg/L		Analysis Date: 9/8/2011 01:00 PM		
Client ID:		Run ID: BALANCE1_110908G				SeqNo: 2520994		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Suspended Solids (Residue, Non-Fi	15.5	2.0	0	0	0	0-0	16.5	6.25	20	

DUP		Sample ID: 1109185-03DDUP				Units: mg/L		Analysis Date: 9/8/2011 01:00 PM		
Client ID:		Run ID: BALANCE1_110908G				SeqNo: 2521002		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Suspended Solids (Residue, Non-Fi	131.1	2.0	0	0	0	0-0	135.6	3.33	20	

The following samples were analyzed in this batch: 1109206-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
Work Order: 1109206
Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **R116034** Instrument ID **WetChem** Method: **SM4500 S2-F**

MBLK Sample ID: **WBLKW1-091211-R116034** Units: **mg/L** Analysis Date: **9/12/2011 10:50 AM**

Client ID: Run ID: **WETCHEM_110912J** SeqNo: **2523492** Prep Date: DF: **1**

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	U	1.0								

LCS Sample ID: **WLCSW1-091211-R116034** Units: **mg/L** Analysis Date: **9/12/2011 10:50 AM**

Client ID: Run ID: **WETCHEM_110912J** SeqNo: **2523493** Prep Date: DF: **1**

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	23.2	1.0	25	0	92.8	80-120	0			

LCSD Sample ID: **WLCSDW1-091211-R116034** Units: **mg/L** Analysis Date: **9/12/2011 10:50 AM**

Client ID: Run ID: **WETCHEM_110912J** SeqNo: **2523496** Prep Date: DF: **1**

Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	22.6	1.0	25	0	90.4	80-120	23.2	2.62	20	

The following samples were analyzed in this batch:

1109206-01B

Client: Malcolm Pirnie
Work Order: 1109206
Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **R116099** Instrument ID **WetChem** Method: **M2540C**

MBLK		Sample ID: BLANK-R116099				Units: mg/L		Analysis Date: 9/12/2011 03:00 PM		
Client ID:		Run ID: WETCHEM_110912N				SeqNo: 2524640		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	U	10								

LCS		Sample ID: LCS-R116099				Units: mg/L		Analysis Date: 9/12/2011 03:00 PM		
Client ID:		Run ID: WETCHEM_110912N				SeqNo: 2524641		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	950	10	1000		0	95	85-115		0	

DUP		Sample ID: 1109319-01ADUP				Units: mg/L		Analysis Date: 9/12/2011 03:00 PM		
Client ID:		Run ID: WETCHEM_110912N				SeqNo: 2524639		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	464	10	0		0	0	0-0	462	0.432	20

The following samples were analyzed in this batch:

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
Work Order: 1109206
Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **R116161** Instrument ID **WetChem** Method: **SM2320B**

MBLK		Sample ID: WBLKW1-091411-R116161				Units: mg/L		Analysis Date: 9/14/2011 09:47 AM		
Client ID:		Run ID: WETCHEM_110914B				SeqNo: 2525852		Prep Date:		DF: 1
Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	U	5.0								

LCS		Sample ID: WLCSW1-091411-R116161				Units: mg/L		Analysis Date: 9/14/2011 09:47 AM		
Client ID:		Run ID: WETCHEM_110914B				SeqNo: 2525853		Prep Date:		DF: 1
Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1015	5.0	1000	0	101	80-120	0			

DUP		Sample ID: 1109206-01EDUP				Units: mg/L		Analysis Date: 9/14/2011 09:47 AM		
Client ID: QA090711		Run ID: WETCHEM_110914B				SeqNo: 2525872		Prep Date:		DF: 1
Analyte	Result	ML	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	389.4	5.0	0	0	0	0-0	385.6	0.988	20	

The following samples were analyzed in this batch:

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Malcolm Pirnie
 Work Order: 1109206
 Project: El Paso Smelter

QC BATCH REPORT

Batch ID: **R116208** Instrument ID **TOC_02** Method: **SM5310C**

MBLK		Sample ID: WBLKW1-091511-R116208				Units: mg/L		Analysis Date: 9/15/2011 01:34 AM		
Client ID:		Run ID: TOC_02_110915A				SeqNo: 2526738		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	U	0.50								

LCS		Sample ID: WLCSW1-091511-R116208				Units: mg/L		Analysis Date: 9/15/2011 01:48 AM		
Client ID:		Run ID: TOC_02_110915A				SeqNo: 2526739		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.657	0.50	10	0	96.6	80-120	0			

LCSD		Sample ID: WLCSDW1-091511-R116208				Units: mg/L		Analysis Date: 9/15/2011 02:03 AM		
Client ID:		Run ID: TOC_02_110915A				SeqNo: 2526740		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.687	0.50	10	0	96.9	80-120	9.657	0.31	20	

MS		Sample ID: 1109048-01CMSZ				Units: mg/L		Analysis Date: 9/15/2011 03:11 AM		
Client ID:		Run ID: TOC_02_110915A				SeqNo: 2526749		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	30.85	0.50	10	19.83	110	80-120	0			

MSD		Sample ID: 1109048-01CMSDZ				Units: mg/L		Analysis Date: 9/15/2011 03:26 AM		
Client ID:		Run ID: TOC_02_110915A				SeqNo: 2526750		Prep Date:		DF: 1
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	30.94	0.50	10	19.83	111	80-120	30.85	0.291	20	

The following samples were analyzed in this batch:

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

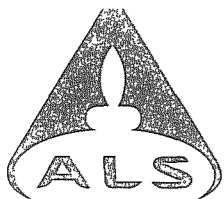
Client: Malcolm Pirnie
Project: El Paso Smelter
WorkOrder: 1109206

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	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 detected below quantitation limit
M	Manually integrated, see raw data for justification
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

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter



ALS LABORATORY GROUP
 10450 Stancliff Rd., Suite 210
 Houston, Texas 77099
 Tel. +1 281 530 5656
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Chain of Custody Form

1109206

MALCOLM PIRNIE-EL PASO: Malcolm Pirnie

Project: El Paso Smelter

Page 1 of 1

ALS Project Manager:



Customer Information		Project Information		Parameters	
Purchase Order		Project Name	El Paso Smelter	A	Total & Diss. Metals (6020): ^{Se, As, Ba, Cd, Cr, Co, Cu, Fe} Pb, Mo, Ni, Sc, Tl, Zn, Ag
Work Order		Project Number	6835001	B	Total & Diss. Hg (7470)
Company Name	Malcolm Pirnie	Bill To Company	Malcolm Pirnie	C	Total Cations (6010): Al, Ca, Mg, K, Na, Mn
Send Report To	Marla Miller	Invoice Attn	Marla Miller	D	Anions (300.0): Chloride, Sulfate, Nitrate/Nitrite
Address	211 N. Florence Street Suite 202	Address	211 N. Florence St. Suite 202	E	Fluoride (340.2)
				F	TDS (160.1)
City/State/Zip	El Paso, TX 79901	City/State/Zip	El Paso, TX 79901	G	TSS (160.2)
Phone	(915) 533-9025	Phone	(915) 533-9025	H	TOC (415.1)
Fax	(915) 533-9045	Fax	(915) 533-9045	I	Sulfide
e-Mail Address		e-Mail Address		J	Alkalinity

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	QA090711	9/7/11	0910	W	2,3,4,7,8	5	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method FEDEX		Required Turnaround Time: (Check Box) <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour				Results Due Date:			
Relinquished by:	Date: 9-7-11	Time: 1520	Received by:		Notes:						
Relinquished by:	Date:	Time:	Received by (Laboratory):		Cooler ID	Cooler Temp	QC Package: (Check One Box Below)				
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		3425		<input type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035							<input type="checkbox"/> Level III Std QC/Raw Date	<input type="checkbox"/> TRRP Level IV			
							<input type="checkbox"/> Level IV SW846/CLP	<input type="checkbox"/> Other _____			

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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Sample Receipt Checklist

Client Name: MALCOLM PIRNIE-EL PASO

Date/Time Received: 08-Sep-11 09:15

Work Order: 1109206

Received by: PMG

Checklist completed by Robert D. Harris 08-Sep-11
eSignature Date

Reviewed by: Lithany Agarwal 08-Sep-11
eSignature Date

Matrices: waters

Carrier name: FedEx

Shipping container/cooler in good condition? Yes [checked] No [] Not Present []
Custody seals intact on shipping container/cooler? Yes [checked] No [] Not Present []
Custody seals intact on sample bottles? Yes [] No [] Not Present [checked]
Chain of custody present? Yes [checked] No []
Chain of custody signed when relinquished and received? Yes [checked] No []
Chain of custody agrees with sample labels? Yes [checked] No []
Samples in proper container/bottle? Yes [] No [checked]
Sample containers intact? Yes [checked] No []
Sufficient sample volume for indicated test? Yes [checked] No []
All samples received within holding time? Yes [checked] No []
Container/Temp Blank temperature in compliance? Yes [checked] No []
Temperature(s)/Thermometer(s): 1.7c 002
Cooler(s)/Kit(s): 3425
Water - VOA vials have zero headspace? Yes [] No [] No VOA vials submitted [checked]
Water - pH acceptable upon receipt? Yes [checked] No [] N/A []
pH adjusted? Yes [] No [] N/A [checked]
pH adjusted by: []

Login Notes: TOC sample received in a 250PH2SO4 instead of 250AH2SO4.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments: []

CorrectiveAction: []

1104206



ALS Environmental

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date: _____
Name: _____
Company: _____

CUSTODY SEAL

Time: 1530
Date: _____
Signature: _____

Seal Broken By: _____

Date: _____



NEW Package
US Airbill

FedEx Tracking Number

8768 2279 1419

Form ID No.

0200

NEW Package

1 From _____
Date _____

Sender's Name _____ Phone _____

Company _____

Address _____ Dept./Floor/Suite/Room _____

City _____ State _____ ZIP _____

2 Your Internal Billing Reference

3 To Recipient's Name _____ Phone _____

Company _____

Address _____ Dept./Floor/Suite/Room _____
We cannot deliver to P.O. boxes or PO ZIP codes.

Address _____
Use this line for the HOLD location address or for continuation of your shipping address.

City _____ State _____ ZIP _____

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations

4 Express Package Service

* To most locations. Packages up to 150 lbs.
NOTE: Service order has changed. Please select carefully. For packages over 150 lbs. use the new FedEx Express Freight US Airbill.

- | Next Business Day | 2 or 3 Business Days |
|--|--|
| <input type="checkbox"/> FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected. | <input type="checkbox"/> NEW FedEx 2Day A.M.
Second business morning *
Saturday Delivery NOT available. |
| <input type="checkbox"/> FedEx Priority Overnight
Next business morning * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected. | <input type="checkbox"/> FedEx 2Day
Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected. |
| <input type="checkbox"/> FedEx Standard Overnight
Next business afternoon.*
Saturday Delivery NOT available | <input type="checkbox"/> FedEx Express Saver
Third business day.*
Saturday Delivery NOT available. |

5 Packaging

* Declared value limit \$500.

- FedEx Envelope* FedEx Pak* FedEx Box FedEx Tube Other

6 Special Handling and Delivery Signature Options

- SATURDAY Delivery**
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- No Signature Required**
Package may be left without obtaining a signature for delivery
- Direct Signature**
Someone at recipient's address may sign for delivery. *Fee applies.*
- Indirect Signature**
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods?

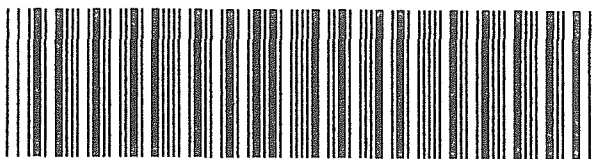
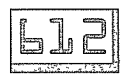
- No Yes As per attached Shipper's Declaration Yes Shipper's Declaration not required.
- Dry Ice**
Dry ice, 9, UN 1845 _____ x _____ kg
- Cargo Aircraft Only**
- Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below. Obtain recy Acct No
- Sender** Acct. No. in Section 1 will be billed. **Recipient** **Third Party** **Credit Card** **Cash/Check**

Total Packages _____ Total Weight _____ lbs Total Declared Value[†] \$ _____ Credit Card Auth. _____

[†]Our liability is limited to \$100 unless you declare a higher value. See the current FedEx Service Guide for details.



8768 2279 1419

FedEx.com 1.800.GoFedEx 1.800.463.3339