

APPENDIX D

ANALYTICAL DATA REPORTS FROM ACZ LABORATORIES

HGC SECOND QUARTER 2007 LAB DATA

March 30, 2007

Report to:

Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:

Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Jim Norris, Bill Dorris, Kim Garcia

Project ID: OJ03DL

ACZ Project ID: L61630

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 21, 2007. This project has been assigned to ACZ's project number, L61630. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L61630. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 30, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

30/Mar/07

Scott Habermehl, Project Manager, has reviewed and approved this report in its entirety.



Phelps Dodge Sierrita

Project ID: OJ00XN
 Sample ID: GW-623105-032007

Filtered

ACZ Sample ID: **L61630-01**
 Date Sampled: 03/20/07 11:30
 Date Received: 03/21/07
 Sample Matrix: Ground Water

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	1187			mS/cm			03/20/07 11:30	ma
pH (Field)	Field Measurement	7.7			units			03/20/07 11:30	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	174			mg/L	0.2	1	03/27/07 1:33	djt
Magnesium, dissolved	M200.7 ICP	16.9			mg/L	0.2	1	03/27/07 1:33	djt
Potassium, dissolved	M200.7 ICP	5.4			mg/L	0.3	2	03/27/07 1:33	djt
Sodium, dissolved	M200.7 ICP	67.6			mg/L	0.3	2	03/27/07 1:33	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		114		*	mg/L	2	20	03/26/07 0:00	wpa/ct
Carbonate as CaCO3			U	*	mg/L	2	20	03/26/07 0:00	wpa/ct
Hydroxide as CaCO3			U	*	mg/L	2	20	03/26/07 0:00	wpa/ct
Total Alkalinity		114		*	mg/L	2	20	03/26/07 0:00	wpa/ct
Cation-Anion Balance	Calculation								
Cation-Anion Balance		4.8			%			03/30/07 0:00	calc
Sum of Anions		12.0			meq/L	0.1	0.5	03/30/07 0:00	calc
Sum of Cations		13.2			meq/L	0.1	0.5	03/30/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	48 ✓			mg/L	3	10	03/23/07 22:01	nps
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	710		*	mg/L	10	20	03/26/07 10:00	lcp
Sulfate	300.0 - Ion Chromatography	397 ✓		*	mg/L	3	10	03/23/07 22:01	nps
TDS (calculated)	Calculation	777			mg/L	10	50	03/30/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	0.91						03/30/07 0:00	calc

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ00XN
Sample ID: GW-623105-032007

ACZ Sample ID: **L61630-02**
Date Sampled: 03/20/07 11:35
Date Received: 03/21/07
Sample Matrix: Ground Water

Unfiltered

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	1187			mS/cm			03/20/07 11:35	ma
pH (Field)	Field Measurement	7.7			units			03/20/07 11:35	ma

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	393 ✓		*	mg/L	3	10	03/23/07 22:20	nps

Arizona license number: AZ0102



Report Header Explanations

Table with 2 columns: Term and Definition. Includes terms like Batch, Found, Limit, Lower, MDL, PCN/SCN, PQL, QC, Rec, RPD, Upper, and Sample.

QC Sample Types

Table with 4 columns: Sample Type, Description, Code, and Definition. Lists various QC sample types like AS, ASD, CCB, etc.

QC Sample Type Explanations

Table with 2 columns: Sample Type and Explanation. Explains Blanks, Control Samples, Duplicates, Spikes/Fortified Matrix, and Standard.

ACZ Qualifiers (Qual)

Table with 2 columns: Qualifier and Description. Lists B, H, and U with their respective meanings.

Method References

- List of 6 method references including EPA 600/4-83-020, EPA 600/R-93-100, EPA 600/R-94-111, EPA SW-846, and Standard Methods for the Examination of Water and Wastewater.

Comments

- Three comments regarding QC results, matrix reporting (dry weight vs as received), and animal matrices.

Phelps Dodge Sierrita
 Project ID: OJ03DL

ACZ Project ID: **L61630**

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222210													
WG222210LCSW2	LCSW	03/26/07 17:43	WC070302-2	820		807.8	mg/L	98.5	80	120			
WG222210LCSW5	LCSW	03/26/07 20:50	WC070302-2	820		812.1	mg/L	99	80	120			
L61628-02DUP	DUP	03/26/07 22:56			25	24.7	mg/L				1.2	20	
WG222210LCSW8	LCSW	03/26/07 23:16	WC070302-2	820		813	mg/L	99.1	80	120			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222197													
WG222197ICV	ICV	03/26/07 0:01	II070301-1	100		97.26	mg/L	97.3	95	105			
WG222197ICB	ICB	03/27/07 0:04				U	mg/L		-0.6	0.6			
WG222197LFB	LFB	03/27/07 0:17	II070310-2	67.97554		69.92	mg/L	102.9	85	115			
L61547-02AS	AS	03/27/07 1:10	II070310-2	67.97554	1.1	76.09	mg/L	110.3	85	115			
L61547-02ASD	ASD	03/27/07 1:13	II070310-2	67.97554	1.1	74.68	mg/L	108.2	85	115	1.87	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222028													
WG222028ICV	ICV	03/23/07 13:16	IC070306-1	20		20.3	mg/L	101.5	90	110			
WG222028ICB	ICB	03/23/07 13:34				U	mg/L		-1.5	1.5			
WG222028LFB	LFB	03/23/07 13:53	IC070205-3	30		31.4	mg/L	104.7	90	110			
L61537-02DUP	DUP	03/23/07 18:42			15	15.03	mg/L				0.2	20	
L61593-01AS	AS	03/23/07 19:18	IC070205-3	300	20	324.1	mg/L	101.4	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222197													
WG222197ICV	ICV	03/26/07 0:01	II070301-1	100		95.24	mg/L	95.2	95	105			
WG222197ICB	ICB	03/27/07 0:04				U	mg/L		-0.6	0.6			
WG222197LFB	LFB	03/27/07 0:17	II070310-2	54.9596		55.87	mg/L	101.7	85	115			
L61547-02AS	AS	03/27/07 1:10	II070310-2	54.9596	1.3	61.01	mg/L	108.6	85	115			
L61547-02ASD	ASD	03/27/07 1:13	II070310-2	54.9596	1.3	60.15	mg/L	107.1	85	115	1.42	20	

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222197													
WG222197ICV	ICV	03/26/07 0:01	II070301-1	20		20.26	mg/L	101.3	95	105			
WG222197ICB	ICB	03/27/07 0:04				U	mg/L		-0.9	0.9			
WG222197LFB	LFB	03/27/07 0:17	II070310-2	99.61502		105.97	mg/L	106.4	85	115			
L61547-02AS	AS	03/27/07 1:10	II070310-2	99.61502	.5	113.01	mg/L	112.9	85	115			
L61547-02ASD	ASD	03/27/07 1:13	II070310-2	99.61502	.5	112.59	mg/L	112.5	85	115	0.37	20	

Phelps Dodge Sierrita

Project ID: OJ03DL

ACZ Project ID: L61630

Residue, Filterable (TDS) @180C M160.1 - Gravimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222160													
WG222160PBW	PBW	03/26/07 9:50				U	mg/L		-20	20			
WG222160LCSW	LCSW	03/26/07 9:51	PCN26279	260		242	mg/L	93.1	80	120			
L61632-03DUP	DUP	03/26/07 10:05			630	722	mg/L				13.6	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222197													
WG222197ICV	ICV	03/26/07 0:01	11070301-1	100		102.05	mg/L	102.1	95	105			
WG222197ICB	ICB	03/27/07 0:04				U	mg/L		-0.9	0.9			
WG222197LFB	LFB	03/27/07 0:17	11070310-2	99.92361		107.42	mg/L	107.5	85	115			
L61547-02AS	AS	03/27/07 1:10	11070310-2	99.92361	283	380.71	mg/L	97.8	85	115			
L61547-02ASD	ASD	03/27/07 1:13	11070310-2	99.92361	283	385.41	mg/L	102.5	85	115	1.23	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG222028													
WG222028ICV	ICV	03/23/07 13:16	IC070306-1	50.15		51.24	mg/L	102.2	90	110			
WG222028ICB	ICB	03/23/07 13:34				U	mg/L		-1.5	1.5			
WG222028LFB	LFB	03/23/07 13:53	IC070205-3	30		32.68	mg/L	108.9	90	110			
L61537-02DUP	DUP	03/23/07 18:42			U	U	mg/L				0	20	RA
L61593-01AS	AS	03/23/07 19:18	IC070205-3	300	651	940.2	mg/L	96.4	90	110			

Phelps Dodge Sierrita

ACZ Project ID: **L61630**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L61630-01	WG222210	Bicarbonate as CaCO ₃	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
		Carbonate as CaCO ₃	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
		Hydroxide as CaCO ₃	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG222160	Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	ZK	Analyte concentration in the blank was less than the lower acceptance limit. Sample concentration is at least ten times greater than the absolute value of the blank concentration.
	WG222028	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG222210	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L61630-02	WG222028	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

Phelps Dodge Sierrita

ACZ Project ID: **L61630**

No certification qualifiers associated with this analysis

Chelms Dodge Sierrita
OJ00XN

ACZ Project ID: L61630
Date Received: 3/21/2007
Received By:
Date Printed: 3/21/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
NA3208	4.8	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

Phelps Dodge Sierrita
OJ00XN

ACZ Project ID: L61630
Date Received: 3/21/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y < 2	YG < 2	B < 2	O < 2	T > 12	N/A	RAD	ID
L61630-01	GW-623105-032007		Y									<input type="checkbox"/>
L61630-02	GW-623105-032007									X		<input type="checkbox"/>

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: *Kim Garcia*
 Company: *Hydro Geo Chem*
 E-mail:

Address:
 Telephone:

Copy of Report to:

Name: *Ned Hall/Billy Doris/Jim Norris*
 Company: *Phelps Dodge, HGL*

E-mail:
 Telephone:

Invoice to:

Name: *Ned Hall/Billy Doris*
 Company: *Phelps Dodge Sierrita*
 E-mail:

Address:
 Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES
 NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: *Sierrita Short*
 Project/PO #: *OJ00XN*
 Reporting state for compliance testing: *AZ*
 Sampler's Name: *Mark Arneson*
 Are any samples NRC licensable material? *No*

# of Containers	Metals	Ca Mg Na K	Wet chem	AH, TDs, Anions	pH	EC
-----------------	--------	------------	----------	-----------------	----	----

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals	Ca Mg Na K	Wet chem	AH, TDs, Anions	pH	EC
<i>GW-623105-032007</i>	<i>03/20/2007 1130</i>	<i>GW</i>	<i>2</i>	<i>X</i>		<i>X</i>		<i>7.67</i>	<i>1187</i>

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Metals + Wet Chem Samples

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
<i>Mark Arneson</i>	<i>3-20-07 1230</i>	<i>MGS</i>	<i>3-21-07 1126</i>

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Kim Garcia
 Company: Hydro Geo Chem Inc.
 E-mail:

Address:
 Telephone:

Copy of Report to:

Name: Ned Hall / Billy Dorris / Jim Norris
 Company: Phelps Dodge HGC

E-mail:
 Telephone:

Invoice to:

Name: Ned Hall / Billy Dorris
 Company: Phelps Dodge Sierrita
 E-mail:

Address:
 Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES
 NO

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: Sierrita Short
 Project/PO #: OJ00XN
 Reporting state for compliance testing: AZ
 Sampler's Name: Mark Arneson
 Are any samples NRC licensable material? NO

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Sulfate	pH	EC
<u>GW-623/05-032007</u>	<u>3/20/2007 1135</u>		<u>1</u>	<u>X</u>	<u>7.67</u>	<u>1147</u>

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Raw Sulfate Sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
<u>Mark Arneson</u>	<u>3-20-07 1230</u>	<u>[Signature]</u>	<u>3-21-07 11:20</u>

April 26, 2007

Report to:

Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:

Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris

Project ID: OJO325

ACZ Project ID: L62047

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 17, 2007. This project has been assigned to ACZ's project number, L62047. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L62047. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after May 26, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

26/Apr/07

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.



Phelps Dodge SierritaProject ID: OJO325
Sample ID: GW-515867-041607ACZ Sample ID: **L62047-01**
Date Sampled: 04/16/07 09:27
Date Received: 04/17/07
Sample Matrix: Ground Water*Filtered*

Field Data

Parameter	EPA Method	Result	Qual	XO	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	655			mS/cm			04/16/07 9:27	ma/js
pH (Field)	Field Measurement	7.3			units			04/16/07 9:27	ma/js
Temperature (Field)	Field Measurement	23.3			C			04/16/07 9:27	ma/js

Wet Chemistry

Parameter	EPA Method	Result	Qual	XO	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	105			mg/L	1	5	04/24/07 22:07	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJO325
Sample ID: GW-515867-041607

ACZ Sample ID: **L62047-02**
Date Sampled: 04/16/07 09:27
Date Received: 04/17/07
Sample Matrix: Ground Water

unfiltered

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	655			mS/cm			04/16/07 9:27	ma/js
pH (Field)	Field Measurement	7.3			units			04/16/07 9:27	ma/js
Temperature (Field)	Field Measurement	23.3			C			04/16/07 9:27	ma/js

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	105			mg/L	1	5	04/24/07 22:25	nps

Arizona license number: AZ0102

Phelps Dodge SierritaProject ID: OJO325
Sample ID: GW-501760-041607ACZ Sample ID: **L62047-03**
Date Sampled: 04/16/07 11:40
Date Received: 04/17/07
Sample Matrix: Ground Water*Filtered*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	767			mS/cm			04/16/07 11:40	ma/js
pH (Field)	Field Measurement	7.4			units			04/16/07 11:40	ma/js
Temperature (Field)	Field Measurement	22.6			C			04/16/07 11:40	ma/js

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	133			mg/L	1	5	04/24/07 23:19	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJO325
Sample ID: GW-501760-041607

ACZ Sample ID: **L62047-04**
Date Sampled: 04/16/07 11:40
Date Received: 04/17/07
Sample Matrix: Ground Water

unfiltered

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	767			mS/cm			04/16/07 11:40	ma/js
pH (Field)	Field Measurement	7.4			units			04/16/07 11:40	ma/js
Temperature (Field)	Field Measurement	22.6			C			04/16/07 11:40	ma/js

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	130			mg/L	1	5	04/24/07 23:37	nps

Arizona license number: AZ0102

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit, typically 5 times the MDL.
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
- (5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
- (6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.

Phelps Dodge Sierrita
Project ID: OJO325

ACZ Project ID: **L62047**

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223535													
WG223535ICV1	ICV	04/24/07 13:03	IC070405-1	50.15		52.3	mg/L	104.3	90	110			
WG223535ICB	ICB	04/24/07 13:21				U	mg/L		-1.5	1.5			
WG223535LFB	LFB	04/24/07 13:40	IC070205-3	30		31.18	mg/L	103.9	90	110			
L61997-01AS	AS	04/24/07 15:10	IC070205-3	150	79	232.3	mg/L	102.2	90	110			
L62005-04DUP	DUP	04/24/07 19:05			3540	3546	mg/L				0.2	20	

Phelps Dodge Sierrita

ACZ Project ID: **L62047**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
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No extended qualifiers associated with this analysis

helps Dodge Sierrita

ACZ Project ID: **L62047**

No certification qualifiers associated with this analysis

Phelps Dodge Sierrita
OJO325

ACZ Project ID: L62047
Date Received: 4/17/2007
Received By:
Date Printed: 4/17/2007

Receipt Verification

- 1) Does this project require special handling procedures such as CLP protocol?
- 2) Are the custody seals on the cooler intact?
- 3) Are the custody seals on the sample containers intact?
- 4) Is there a Chain of Custody or other directive shipping papers present?
- 5) Is the Chain of Custody complete?
- 6) Is the Chain of Custody in agreement with the samples received?
- 7) Is there enough sample for all requested analyses?
- 8) Are all samples within holding times for requested analyses?
- 9) Were all sample containers received intact?
- 10) Are the temperature blanks present?
- 11) Are the trip blanks (VOA and/or Cyanide) present?
- 12) Are samples requiring no headspace, headspace free?
- 13) Do the samples that require a Foreign Soils Permit have one?

YES	NO	NA
		X
X		
		X
X		
X		
X		
X		
X		
		X
		X
		X
		X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
NA3385	3.2	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

Phelps Dodge Sierrita
OJO325

ACZ Project ID: L62047
Date Received: 4/17/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y < 2	YG < 2	B < 2	O < 2	T > 12	N/A	RAD	ID
L62047-01	GW-515867-041607		Y									<input type="checkbox"/>
L62047-02	GW-515867-041607									X		<input type="checkbox"/>
L62047-03	GW-501760-041607		Y									<input type="checkbox"/>
L62047-04	GW-501760-041607									X		<input type="checkbox"/>

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____



Laboratories, Inc.

L62047

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Kim Garcia
Company: Hydrogeo Geo Chem, Inc
E-mail: KimG@HGCInc.com

Address: 51 W. Wetmore, Rd
Tucson AZ 85705-1678
Telephone: 520-293-1500 x 123

Copy of Report to:

Name: Ned Hall / Billy Dorris / Jim Norris
Company: PDSE and HGC

E-mail: Jim.norris - JimN@HGCInc.com
Telephone: 520-293 1500 x 112

Invoice to:

Name: Ned Hall / Billy Dorris
Company: PDSE (Phelps Dodge, Sierrita Inc)
E-mail: E.Hall@phelpsDodge.com ; B.Dorris@phelpsDodge.com

Address: 1200 W Dual Mine Rd
85622 P.O. Box 527 Green Valley AZ
Telephone: 520-648-8857; 520-648-8873

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES [X]
NO []

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: Sierrita Short
Project/PO #: OJO 325
Reporting state for compliance testing: AZ
Sampler's Name: Mark Arneson/Johanna Sautamana
Are any samples NRC licensable material? NO

Table with columns: # of Containers, Filtered, Unfiltered, Field Parameters. Includes handwritten notes like 'pH, Hg, Pb, Ni, K' and 'Sulfate Only'.

Table with columns: SAMPLE IDENTIFICATION, DATE:TIME, Matrix. Contains two rows of sample data.

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Raw and Filtered Samples on one COC.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

Table with columns: RELINQUISHED BY, DATE:TIME, RECEIVED BY, DATE:TIME. Includes signatures and dates.

May 01, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Kim Garcia

Project ID: OJ03Z5
ACZ Project ID: L61960

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 11, 2007. This project has been assigned to ACZ's project number, L61960. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L61960. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after June 01, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

01/May/07

Scott Habermehl, Project Manager, has reviewed and approved this report in its entirety.



Phelps Dodge Sierrita

Project ID: OJ03Z5
 Sample ID: GW-603429-041007

ACZ Sample ID: **L61960-01**
 Date Sampled: 04/10/07 11:56
 Date Received: 04/11/07
 Sample Matrix: Ground Water

Filtered

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	479			mS/cm			04/10/07 11:56	kg
pH (Field)	Field Measurement	7.6			units			04/10/07 11:56	kg
Temperature (Field)	Field Measurement	24.1			C			04/10/07 11:56	kg

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	75.0			mg/L	0.2	1	04/17/07 2:45	djt
Magnesium, dissolved	M200.7 ICP	12.3			mg/L	0.2	1	04/18/07 19:57	msh
Potassium, dissolved	M200.7 ICP	3.4			mg/L	0.3	2	04/17/07 2:45	djt
Sodium, dissolved	M200.7 ICP	37.1			mg/L	0.3	2	04/17/07 2:45	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		190	H		mg/L	2	20	04/26/07 0:00	cas
Carbonate as CaCO3			UH		mg/L	2	20	04/26/07 0:00	cas
Hydroxide as CaCO3			UH		mg/L	2	20	04/26/07 0:00	cas
Total Alkalinity		190	H	*	mg/L	2	20	04/26/07 0:00	cas
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-1.5			%			04/30/07 0:00	calc
Sum of Anions		6.6			meq/L	0.1	0.5	04/30/07 0:00	calc
Sum of Cations		6.4			meq/L	0.1	0.5	04/30/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	22.1			mg/L	0.5	3	04/17/07 1:11	nps
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	400			mg/L	10	20	04/12/07 13:48	seb
Sulfate	300.0 - Ion Chromatography	106			mg/L	1	5	04/17/07 13:18	nps
TDS (calculated)	Calculation	370			mg/L	10	50	04/30/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.08						04/30/07 0:00	calc

Arizona license number: AZ0102

Phelps Dodge SierritaProject ID: OJ03Z5
Sample ID: GW-603429-041007ACZ Sample ID: **L61960-02**
Date Sampled: 04/10/07 11:56
Date Received: 04/11/07
Sample Matrix: Ground Water*Unfiltered*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	479			mS/cm			04/10/07 11:56	kg
pH (Field)	Field Measurement	7.6			units			04/10/07 11:56	kg
Temperature (Field)	Field Measurement	24.1			C			04/10/07 11:56	kg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	107			mg/L	1	5	04/17/07 13:36	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
 Sample ID: GW-603428-041007

ACZ Sample ID: **L61960-03**
 Date Sampled: 04/10/07 09:35
 Date Received: 04/11/07
 Sample Matrix: Ground Water

Filtered

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	421			mS/cm			04/10/07 9:35	kg
pH (Field)	Field Measurement	7.7			units			04/10/07 9:35	kg
Temperature (Field)	Field Measurement	27.2			C			04/10/07 9:35	kg

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	47.6			mg/L	0.2	1	04/17/07 2:49	djt
Magnesium, dissolved	M200.7 ICP	6.9			mg/L	0.2	1	04/18/07 20:01	msh
Potassium, dissolved	M200.7 ICP	2.9			mg/L	0.3	2	04/17/07 2:49	djt
Sodium, dissolved	M200.7 ICP	33.4			mg/L	0.3	2	04/17/07 2:49	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		146	H		mg/L	2	20	04/26/07 0:00	cas
Carbonate as CaCO3		3	BH		mg/L	2	20	04/26/07 0:00	cas
Hydroxide as CaCO3			UH		mg/L	2	20	04/26/07 0:00	cas
Total Alkalinity		149	H	*	mg/L	2	20	04/26/07 0:00	cas
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.3			%			04/30/07 0:00	calc
Sum of Anions		4.2			meq/L	0.1	0.5	04/30/07 0:00	calc
Sum of Cations		4.4			meq/L	0.1	0.5	04/30/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	12.3			mg/L	0.5	3	04/17/07 2:06	nps
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	260			mg/L	10	20	04/12/07 13:49	seb
Sulfate	300.0 - Ion Chromatography	43.2			mg/L	0.5	3	04/17/07 2:06	nps
TDS (calculated)	Calculation	237			mg/L	10	50	04/30/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.10						04/30/07 0:00	calc

Arizona license number: AZ0102

Phelps Dodge SierritaProject ID: OJ03Z5
Sample ID: GW-603428-041007ACZ Sample ID: **L61960-04**
Date Sampled: 04/10/07 09:35
Date Received: 04/11/07
Sample Matrix: Ground Water*Unfiltered*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	POL	Date	Analyst
Conductivity (Field)	Field Measurement	421			mS/cm			04/10/07 9:35	kg
pH (Field)	Field Measurement	7.7			units			04/10/07 9:35	kg
Temperature (Field)	Field Measurement	27.2			C			04/10/07 9:35	kg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	POL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	43.6			mg/L	0.5	3	04/17/07 2:42	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
 Sample ID: GW-208825-041007

ACZ Sample ID: **L61960-05**
 Date Sampled: 04/10/07 10:40
 Date Received: 04/11/07
 Sample Matrix: Ground Water

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	367			mS/cm			04/10/07 10:40	kg
pH (Field)	Field Measurement	7.5			units			04/10/07 10:40	kg
Temperature (Field)	Field Measurement	26.8			C			04/10/07 10:40	kg

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	41.8			mg/L	0.2	1	04/17/07 2:53	djt
Magnesium, dissolved	M200.7 ICP	6.2			mg/L	0.2	1	04/18/07 20:05	msh
Potassium, dissolved	M200.7 ICP	3.0			mg/L	0.3	2	04/17/07 2:53	djt
Sodium, dissolved	M200.7 ICP	30.2			mg/L	0.3	2	04/17/07 2:53	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		178	H		mg/L	2	20	04/26/07 0:00	cas
Carbonate as CaCO3			UH		mg/L	2	20	04/26/07 0:00	cas
Hydroxide as CaCO3			UH		mg/L	2	20	04/26/07 0:00	cas
Total Alkalinity		178	H	*	mg/L	2	20	04/26/07 0:00	cas
Cation-Anion Balance	Calculation								
Cation-Anion Balance		1.3			%			04/30/07 0:00	calc
Sum of Anions		3.9			meq/L	0.1	0.5	04/30/07 0:00	calc
Sum of Cations		4.0			meq/L	0.1	0.5	04/30/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	8.1			mg/L	0.5	3	04/17/07 3:54	nps
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	220			mg/L	10	20	04/12/07 13:51	seb
Sulfate	300.0 - Ion Chromatography	6.6			mg/L	0.5	3	04/17/07 3:54	nps
TDS (calculated)	Calculation	203			mg/L	10	50	04/30/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.08						04/30/07 0:00	calc

Arizona license number: AZ0102

Phelps Dodge SierritaProject ID: OJ03Z5
Sample ID: GW-208825-041007ACZ Sample ID: **L61960-06**
Date Sampled: 04/10/07 10:40
Date Received: 04/11/07
Sample Matrix: Ground Water

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	367			mS/cm			04/10/07 10:40	kg
pH (Field)	Field Measurement	7.5			units			04/10/07 10:40	kg
Temperature (Field)	Field Measurement	26.8			C			04/10/07 10:40	kg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	6.6			mg/L	0.5	3	04/17/07 4:12	nps

Arizona license number: AZ0102

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit, typically 5 times the MDL.
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
- (5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
- (6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: L61960

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223712													
WG223712LCSW2	LCSW	04/26/07 17:57	WC070421-1	820		812.6	mg/L	99.1	80	120			
L62112-03DUP	DUP	04/26/07 19:40			126	126	mg/L				0	20	
WG223712LCSW5	LCSW	04/26/07 21:20	WC070421-1	820		812.2	mg/L	99	80	120			
WG223712LCSW8	LCSW	04/27/07 0:26	WC070421-1	820		825.8	mg/L	100.7	80	120			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223191													
WG223191ICV	ICV	04/17/07 0:45	II070403-5	100		94.64	mg/L	94.6	95	105			
WG223191ICB	ICB	04/17/07 0:49				U	mg/L		-0.6	0.6			
WG223191LFB	LFB	04/17/07 1:05	II070328-2	67.97554		65.3	mg/L	96.1	85	115			
L61959-01AS	AS	04/17/07 2:33	II070328-2	67.97554	117	175.59	mg/L	86.2	85	115			
L61959-01ASD	ASD	04/17/07 2:37	II070328-2	67.97554	117	180.25	mg/L	93	85	115	2.62	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223158													
WG223158ICV	ICV	04/16/07 16:26	IC070405-1	20		20.26	mg/L	101.3	90	110			
WG223158ICB	ICB	04/16/07 16:44				U	mg/L		-1.5	1.5			
WG223158LFB1	LFB	04/16/07 17:02	IC070205-3	30		30.04	mg/L	100.1	90	110			
L61815-04DUP	DUP	04/16/07 21:52			6.8	6.85	mg/L				0.7	20	
WG223158LFB2	LFB	04/17/07 1:48	IC070205-3	30		30.42	mg/L	101.4	90	110			
L61960-03DUP	DUP	04/17/07 2:24			12.3	12.39	mg/L				0.7	20	
L61960-04AS	AS	04/17/07 3:00	IC070205-3	30	12.3	43.61	mg/L	104.4	90	110			
WG223158ICV1	ICV	04/17/07 11:11	IC070405-1	20		20.58	mg/L	102.9	90	110			
L61815-05AS	AS	04/17/07 13:00	IC070205-3	3000	8020	11287	mg/L	108.9	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223212													
WG223212ICV	ICV	04/18/07 17:51	II070403-5	100		96.87	mg/L	96.9	95	105			
WG223212ICB	ICB	04/18/07 17:55				U	mg/L		-0.6	0.6			
WG223212LFB	LFB	04/18/07 18:12	II070328-2	54.9596		55.34	mg/L	100.7	85	115			
L61959-01AS	AS	04/18/07 19:44	II070328-2	54.9596	61.2	114.55	mg/L	97.1	85	115			
L61959-01ASD	ASD	04/18/07 19:48	II070328-2	54.9596	61.2	120.86	mg/L	108.6	85	115	5.36	20	

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223191													
WG223191ICV	ICV	04/17/07 0:45	II070403-5	20		19.51	mg/L	97.6	95	105			
WG223191ICB	ICB	04/17/07 0:49				U	mg/L		-0.9	0.9			
WG223191LFB	LFB	04/17/07 1:05	II070328-2	99.61502		95.35	mg/L	95.7	85	115			
L61959-01AS	AS	04/17/07 2:33	II070328-2	99.61502	4.6	102.76	mg/L	98.5	85	115			
L61959-01ASD	ASD	04/17/07 2:37	II070328-2	99.61502	4.6	111.64	mg/L	107.5	85	115	8.28	20	

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: L61960

Residue, Filterable (TDS) @180C M160.1 - Gravimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223038													
WG223038PBW	PBW	04/12/07 13:35				U	mg/L		-20	20			
WG223038LCSW	LCSW	04/12/07 13:36	PCN26761	260		260	mg/L	100	80	120			
L61960-03DUP	DUP	04/12/07 13:50			260	270	mg/L				3.8	20	
L61970-06DUP	DUP	04/12/07 14:04			4080	4104	mg/L				0.6	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223191													
WG223191ICV	ICV	04/17/07 0:45	11070403-5	100		98.18	mg/L	98.2	95	105			
WG223191ICB	ICB	04/17/07 0:49				U	mg/L		-0.9	0.9			
WG223191LFB	LFB	04/17/07 1:05	11070328-2	99.92361		97.04	mg/L	97.1	85	115			
L61959-01AS	AS	04/17/07 2:33	11070328-2	99.92361	15.6	113.02	mg/L	97.5	85	115			
L61959-01ASD	ASD	04/17/07 2:37	11070328-2	99.92361	15.6	122.47	mg/L	107	85	115	8.03	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG223158													
WG223158ICV	ICV	04/16/07 16:26	IC070405-1	50.15		52.72	mg/L	105.1	90	110			
WG223158ICB	ICB	04/16/07 16:44				U	mg/L		-1.5	1.5			
WG223158LFB1	LFB	04/16/07 17:02	IC070205-3	30		31.18	mg/L	103.9	90	110			
L61815-05AS	AS	04/16/07 22:28	IC070205-3	1500	U	1517	mg/L	101.1	90	110			
WG223158LFB2	LFB	04/17/07 1:48	IC070205-3	30		30.95	mg/L	103.2	90	110			
L61960-03DUP	DUP	04/17/07 2:24			43.2	43.49	mg/L				0.7	20	
L61960-04AS	AS	04/17/07 3:00	IC070205-3	30	43.6	73.78	mg/L	100.6	90	110			
WG223158ICV1	ICV	04/17/07 11:11	IC070405-1	50.15		52.8	mg/L	105.3	90	110			
L61815-04DUP	DUP	04/17/07 12:23			130	130.3	mg/L				0.2	20	

helps Dodge Sierrita

ACZ Project ID: **L61960**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L61960-01	WG223712	Total Alkalinity	SM2320B - Titration	H1	Sample analysis performed past holding time.
L61960-03	WG223712	Total Alkalinity	SM2320B - Titration	H1	Sample analysis performed past holding time.
L61960-05	WG223712	Total Alkalinity	SM2320B - Titration	H1	Sample analysis performed past holding time.

Phelps Dodge Sierrita

ACZ Project ID: **L61960**

No certification qualifiers associated with this analysis

Thelms Dodge Sierrita
OJ03Z5

ACZ Project ID: L61960
Date Received: 4/11/2007
Received By:
Date Printed: 4/11/2007

Receipt Verification

- 1) Does this project require special handling procedures such as CLP protocol?
- 2) Are the custody seals on the cooler intact?
- 3) Are the custody seals on the sample containers intact?
- 4) Is there a Chain of Custody or other directive shipping papers present?
- 5) Is the Chain of Custody complete?
- 6) Is the Chain of Custody in agreement with the samples received?
- 7) Is there enough sample for all requested analyses?
- 8) Are all samples within holding times for requested analyses?
- 9) Were all sample containers received intact?
- 10) Are the temperature blanks present?
- 11) Are the trip blanks (VOA and/or Cyanide) present?
- 12) Are samples requiring no headspace, headspace free?
- 13) Do the samples that require a Foreign Soils Permit have one?

YES	NO	NA
		X
X		
		X
X		
X		
X		
X		
X		
		X
		X
		X
		X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
NA3350	2.7	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L61960
Date Received: 4/11/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y < 2	YG < 2	B < 2	O < 2	T > 12	N/A	RAD	ID
L61960-01	GW-603429-041007		Y									<input type="checkbox"/>
L61960-02	GW-603429-041007									X		<input type="checkbox"/>
L61960-03	GW-603428-041007		Y									<input type="checkbox"/>
L61960-04	GW-603428-041007									X		<input type="checkbox"/>
L61960-05	GW-208825-041007		Y									<input type="checkbox"/>
L61960-06	GW-208825-041007									X		<input type="checkbox"/>

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: <u>Kim Garcia</u>	Address: <u>51 W. Wetmore Rd</u>
Company: <u>Hydro Geochem, Inc [HGC]</u>	<u>Tucson AZ 85705-1678</u>
E-mail: <u>KimG@HGC.Inc.com</u>	Telephone: <u>520-293-1500 x.123</u>

Copy of Report to:

Name: <u>Ned Hall / Billy Dorris / Jim Morris</u>	E-mail: <u>Jim Morris - JimN@HGC.Inc.com</u>
Company: <u>DST & HGC</u>	Telephone: <u>520-293-1500 x.112</u>

Invoice to:

Name: <u>Ned Hall / Billy Dorris</u>	Address: <u>1200 W. Bural Mine Rd,</u>
Company: <u>DST (Phelps Dodge Serrita Inc)</u>	<u>85022 P.O. Box 527, Green Valley AZ</u>
E-mail: <u>EHall@PhelpsDodge.com; BDorris@PhelpsDodge.com</u>	Telephone: <u>520-648-8857, 520-648-8873</u>

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: <u>Sierrita Short</u>	# of Containers	Filtered		Unfiltered		Field Param										
Project/PO #: <u>010375</u>		3	X	X	X	X	7.60	479	24.1							
Reporting state for compliance testing: <u>AZ</u>										3	X	X	X	7.69	421	27.2
Sampler's Name: <u>Kimberly A. Garcia</u>																
Are any samples NRC licensable material? <u>No</u>																

SAMPLE IDENTIFICATION	DATE-TIME	Matrix		Ca Mg	Na/K	Alk TDS	Amides	Conductivity	PH	EC	Temp
<u>GW-03429-041007</u>	<u>4.10.07 1526</u>	<u>GW</u>	<u>3</u>	<u>X</u>	<u>X</u>			<u>X</u>			
<u>GW-003428-041007</u>	<u>4.10.07 0935</u>	<u>GW</u>	<u>3</u>	<u>X</u>	<u>X</u>			<u>X</u>			
<u>GW-208825-041007</u>	<u>4.10.07 1040</u>	<u>GW</u>	<u>3</u>	<u>X</u>	<u>X</u>			<u>X</u>			

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Raw & Filtered samples on one COC.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE-TIME	RECEIVED BY:	DATE-TIME
<u>[Signature]</u>	<u>4/10/07 1550</u>	<u>[Signature]</u>	<u>4.11.07 10:30</u>

May 23, 2007

Report to:

Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:

Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Kim Garcia, Bill Dorris, Jim Norris

Project ID: OJ03Z5

ACZ Project ID: L62584

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 15, 2007. This project has been assigned to ACZ's project number, L62584. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L62584. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after June 23, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

23/May/07

Scott Habermehl, Project Manager, has reviewed and approved this report in its entirety.



Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: FGW-627485-051407

ACZ Sample ID: **L62584-01**
Date Sampled: 05/14/07 13:30
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	68.7			mg/L	0.5	3	05/18/07 20:01	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: UGW-627485-051407

ACZ Sample ID: **L62584-02**
Date Sampled: 05/14/07 13:30
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XG	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	69.3			mg/L	0.5	3	05/18/07 20:37	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: FGW-502546-051407

ACZ Sample ID: **L62584-03**
Date Sampled: 05/14/07 10:07
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	874			mg/L	5	30	05/21/07 21:51	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: UGW-502546-051407

ACZ Sample ID: **L62584-04**
Date Sampled: 05/14/07 10:07
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	874			mg/L	5	30	05/21/07 22:10	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: FGW-543600-051407

ACZ Sample ID: **L62584-05**
Date Sampled: 05/14/07 11:11
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XG	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	529			mg/L	5	30	05/21/07 22:28	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: UGW-543600-051407

ACZ Sample ID: **L62584-06**
Date Sampled: 05/14/07 11:11
Date Received: 05/15/07
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Anal. XQ	Units	NDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	530		mg/L	5	30	05/21/07 22:46	nps

Arizona license number: **AZ0102**

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: FGW-588121-051407

ACZ Sample ID: **L62584-07**
Date Sampled: 05/14/07 12:00
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	FOI	Date	Analyst
Sulfate	300.0 - Ion Chromatography	47.8			mg/L	0.5	3	05/18/07 23:02	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: UGW-588121-051407

ACZ Sample ID: **L62584-08**
Date Sampled: 05/14/07 12:00
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	47.2			mg/L	0.5	3	05/18/07 23:20	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: FGW-207982-051407

ACZ Sample ID: **L62584-09**
Date Sampled: 05/14/07 12:45
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	POI	Date	Analyst
Sulfate	300.0 - Ion Chromatography	52.8			mg/L	0.5	3	05/18/07 23:38	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: UGW-207982-051407

ACZ Sample ID: **L62584-10**
Date Sampled: 05/14/07 12:45
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	52.8			mg/L	0.5	3	05/18/07 23:56	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: FGW-623102-051407

ACZ Sample ID: **L62584-11**
Date Sampled: 05/14/07 14:20
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	FDL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	113			mg/L	1	5	05/21/07 23:04	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: UGW-623102-051407

ACZ Sample ID: **L62584-12**
Date Sampled: 05/14/07 14:20
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PCL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	112			mg/L	1	5	05/21/07 23:40	nps

Arizona license number: AZ0102

Phelps Dodge Sierrita

Project ID: OJ03Z5
Sample ID: FGW-623103-051407

ACZ Sample ID: **L62584-13**
Date Sampled: 05/14/07 15:05
Date Received: 05/15/07
Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	28.4			mg/L	0.5	3	05/19/07 2:21	nps

Arizona license number: AZ0102