

September 06, 2018

Report to:

Kent Applegate
Rio Algom Mining Company
P.O. Box 218
Grants, NM 87020

Bill to:

Accounts Payable
Rio Algom Mining Company
P.O. Box 218
Grants, NM 87020

cc: Clark Short, Angela Persico

Project ID: 4506946843

ACZ Project ID: L46425

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 22, 2018. This project has been assigned to ACZ's project number, L46425. Please reference this number in all future inquiries.

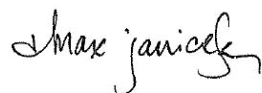
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L46425. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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 October 06, 2018. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/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 raw data reports for ten years.

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



Max Janicek has reviewed and
approved this report.



Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-02

ACZ Sample ID: **L46425-01**

Date Sampled: 08/17/18 09:48

Date Received: 08/22/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	148			mg/L	0.5	3	08/31/18 14:51	dcm
Magnesium, dissolved	M200.7 ICP	5	485			mg/L	1	5	08/31/18 14:51	dcm
Potassium, dissolved	M200.7 ICP	5	9			mg/L	1	5	08/31/18 14:51	dcm
Sodium, dissolved	M200.7 ICP	5	726			mg/L	1	5	08/31/18 14:51	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	20	1140		*	mg/L	10	40	09/04/18 12:50	mss2
Conductivity @25C	SM2510B	1	6650		*	umhos/cm	1	10	08/31/18 1:27	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.14		*	mg/L	0.02	0.1	08/30/18 23:48	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4560	H	*	mg/L	20	40	08/28/18 15:50	oah
Sulfate	D516-02/-07 - Turbidimetric	50	1560		*	mg/L	50	250	09/01/18 13:03	wtc


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 unless omitted or equal to the PQL (see comment #5). 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. Synonymous with the EPA term "minimum level".
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Recovered amount of the true value or spike added, 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. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

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.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

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.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

Rio Algom Mining Company

ACZ Project ID: **L46425**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455329													
WG455329ICV	ICV	08/31/18 12:58	II180824-2	100		100.03	mg/L	100	95	105			
WG455329ICB	ICB	08/31/18 13:05				U	mg/L		-0.3	0.3			
WG455329LFB	LFB	08/31/18 13:18	II180827-2	68.16145		69.55	mg/L	102	85	115			
L46421-01AS	AS	08/31/18 14:38	II180827-2	68.16145	8.8	78.8	mg/L	103	85	115			
L46421-01ASD	ASD	08/31/18 14:41	II180827-2	68.16145	8.8	77.84	mg/L	101	85	115	1	20	

Chloride

SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455531													
WG455531ICB	ICB	09/04/18 9:16				U	mg/L		-1.5	1.5			
WG455531ICV	ICV	09/04/18 9:16	WI180530-1	54.89		55.95	mg/L	102	90	110			
WG455531LFB1	LFB	09/04/18 12:13	WI171229-5	30.03		32.74	mg/L	109	90	110			
L46484-01DUP	DUP	09/04/18 12:17			37.7	37.54	mg/L				0	20	
L46484-02AS	AS	09/04/18 12:23	WI171229-5	30.03	20.1	48.53	mg/L	95	90	110			
WG455531LFB2	LFB	09/04/18 12:49	WI171229-5	30.03		31.95	mg/L	106	90	110			

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455257													
WG455257LCSW2	LCSW	08/30/18 14:12	PCN56415	1410		1400	umhos/cm	99	90	110			
WG455257LCSW5	LCSW	08/30/18 16:46	PCN56415	1410		1390	umhos/cm	99	90	110			
WG455257LCSW8	LCSW	08/30/18 20:23	PCN56415	1410		1390	umhos/cm	99	90	110			
WG455257LCSW11	LCSW	08/31/18 0:09	PCN56415	1410		1380	umhos/cm	98	90	110			
L46435-01DUP	DUP	08/31/18 1:45			264	256	umhos/cm				3	20	
WG455257LCSW14	LCSW	08/31/18 3:21	PCN56415	1410		1370	umhos/cm	97	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455329													
WG455329ICV	ICV	08/31/18 12:58	II180824-2	100		101	mg/L	101	95	105			
WG455329ICB	ICB	08/31/18 13:05				U	mg/L		-0.6	0.6			
WG455329LFB	LFB	08/31/18 13:18	II180827-2	50.2933		48.26	mg/L	96	85	115			
L46421-01AS	AS	08/31/18 14:38	II180827-2	50.2933	3.4	52	mg/L	97	85	115			
L46421-01ASD	ASD	08/31/18 14:41	II180827-2	50.2933	3.4	51.45	mg/L	96	85	115	1	20	

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455347													
WG455347ICV	ICV	08/30/18 21:22	WI180602-1	2.416		2.373	mg/L	98	90	110			
WG455347ICB	ICB	08/30/18 21:23				U	mg/L		-0.02	0.02			
WG455351													
WG455351LFB	LFB	08/30/18 23:09	WI180703-7	2		1.951	mg/L	98	90	110			
L46400-02AS	AS	08/30/18 23:31	WI180703-7	20	12.5	32.16	mg/L	98	90	110			
L46401-01DUP	DUP	08/30/18 23:33			8.8	8.78	mg/L				0	20	

Rio Algom Mining Company

ACZ Project ID: **L46425**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455329													
WG455329ICV	ICV	08/31/18 12:58	II180824-2	20		20.18	mg/L	101	95	105			
WG455329ICB	ICB	08/31/18 13:05				U	mg/L		-0.6	0.6			
WG455329LFB	LFB	08/31/18 13:18	II180827-2	101.3833		101.8	mg/L	100	85	115			
L46421-01AS	AS	08/31/18 14:38	II180827-2	101.3833	10.2	112.9	mg/L	101	85	115			
L46421-01ASD	ASD	08/31/18 14:41	II180827-2	101.3833	10.2	111.8	mg/L	100	85	115	1	20	

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455091													
WG455091PBW	PBW	08/28/18 15:45				U	mg/L		-20	20			
WG455091LCSW	LCSW	08/28/18 15:47	PCN56355	260		242	mg/L	93	80	120			
L46561-01DUP	DUP	08/28/18 16:16			2870	2880	mg/L				0	10	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455329													
WG455329ICV	ICV	08/31/18 12:58	II180824-2	100		100.85	mg/L	101	95	105			
WG455329ICB	ICB	08/31/18 13:05				U	mg/L		-0.6	0.6			
WG455329LFB	LFB	08/31/18 13:18	II180827-2	100.8796		101.9	mg/L	101	85	115			
L46421-01AS	AS	08/31/18 14:38	II180827-2	100.8796	236	328.2	mg/L	91	85	115			
L46421-01ASD	ASD	08/31/18 14:41	II180827-2	100.8796	236	323.6	mg/L	87	85	115	1	20	

Sulfate

D516-02/-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455458													
WG455458ICB	ICB	09/01/18 11:01				U	mg/L		-3	3			
WG455458ICV	ICV	09/01/18 11:01	W1180827-2	20		19.8	mg/L	99	90	110			
WG455458LFB	LFB	09/01/18 12:32	W1180726-1	10		9.5	mg/L	95	90	110			
L46452-03DUP	DUP	09/01/18 13:01			737	728	mg/L				1	20	
L46452-02AS	AS	09/01/18 13:10	SO4TURB50X	10	1470	1490	mg/L	200	90	110			M3

Rio Algom Mining Company

ACZ Project ID: **L46425**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46425-01	WG455531	Chloride	SM4500Cl-E	Q6	Sample was received above recommended temperature.
	WG455257	Conductivity @25C	SM2510B	Q6	Sample was received above recommended temperature.
	WG455351	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	Q6	Sample was received above recommended temperature.
	WG455091	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
			SM2540C	Q6	Sample was received above recommended temperature.
	WG455458	Sulfate	D516-02/-07 - Turbidimetric	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-02/-07 - Turbidimetric	Q6	Sample was received above recommended temperature.

Rio Algom Mining Company

ACZ Project ID: **L46425**

No certification qualifiers associated with this analysis

Rio Algom Mining Company
4506946843

ACZ Project ID: L46425

Date Received: 08/22/2018 11:02

Received By:

Date Printed: 8/23/2018

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
-----	-----	-----	-----	-----
5229	3.1	<=6.0	14	Yes

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

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

Rio Algom Mining Company
4506946843

ACZ Project ID: L46425

Date Received: 08/22/2018 11:02

Received By:

Date Printed: 8/23/2018

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ**Laboratories, Inc.** L46425

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

CHAIN of CUSTODY

Report to:

Name: Kent Applegate

Company: Rio Algom Mining LLC

E-mail: Kent.KC.Applegate@bhpbilliton.com

Address: PO Box 218

Grants, NM 87020

Telephone: 1-505-287-8851

Copy of Report to:

Name: Michaela Gorospe/Clark Short

Company: INTERA, INC.

E-mail: See remarks

Telephone: 505-246-1600 x1207

Invoice to:

Name: Kent Applegate

Company: Rio Algom Mining LLC

E-mail: Kent.KC.Applegate@BHPBilliton.com

Address: PO Box 218

Grants, NM 87020

Telephone: 1-505-287-8851

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 instructions. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

Are samples for SDWA Compliance Monitoring?

Yes ☐ No ☐

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Sara Taube

Sampler's Site Information

State NMZip code 87020Time Zone MST*Sampler's Signature: Sara Taube

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATIONQuote #: 4502696253PO#: 58769

Reporting state for compliance testing:

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION

DATE:TIME

Matrix

of Containers

SAP:GW

DP-169

5-028/17/2018 09:18GW4☐☒☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐5-028/17/2018 09:18GW4☐☐☐☐☐☐☐☐☐☐

Matrix

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

REMARKSRAML COC#: 18-13. Note different COC's may have different PO's. Shipment of _____ Coolers.

Please CC report to: cshort@intera.com, apersico@intera.com, Michaela.Gorospe@bhpbilliton.com

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

Sara Taube8/21/18 1500JSC8-22-18 11:02

FRMAD050.06.14.14

White - Return with sample.

Yellow - Retain for your records.