

March 05, 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: 4502696253

ACZ Project ID: L42844

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 23, 2018. This project has been assigned to ACZ's project number, L42844. 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 L42844. 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 04, 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.



Scott Habermehl has reviewed
and approved this report.



Rio Algom Mining Company

Project ID: 4502696253
 Sample ID: 32-72

ACZ Sample ID: **L42844-01**
 Date Sampled: 02/20/18 09:41
 Date Received: 02/23/18
 Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	435			mg/L	1	5	02/28/18 16:44	aeh
Magnesium, dissolved	M200.7 ICP	10	2280			mg/L	2	10	02/28/18 16:44	aeh
Potassium, dissolved	M200.7 ICP	10	19			mg/L	2	10	02/28/18 16:44	aeh
Sodium, dissolved	M200.7 ICP	10	348			mg/L	2	10	02/28/18 16:44	aeh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	214		*	mg/L	5	20	02/26/18 15:31	kea
Conductivity @25C	SM2510B	1	11400			umhos/cm	1	10	02/27/18 17:49	ecc
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.09	B	*	mg/L	0.02	0.1	03/02/18 23:51	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	14500			mg/L	50	100	02/24/18 12:05	che
Sulfate	D516-02/-07 - Turbidimetric	500	9220		*	mg/L	500	2500	02/26/18 13:23	kea

Rio Algom Mining Company

Project ID: 4502696253
Sample ID: 32-60

ACZ Sample ID: **L42844-02**
Date Sampled: 02/20/18 11:29
Date Received: 02/23/18
Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	588			mg/L	1	5	02/28/18 16:47	aeh
Magnesium, dissolved	M200.7 ICP	10	1330			mg/L	2	10	02/28/18 16:47	aeh
Potassium, dissolved	M200.7 ICP	10	16			mg/L	2	10	02/28/18 16:47	aeh
Sodium, dissolved	M200.7 ICP	10	1680			mg/L	2	10	02/28/18 16:47	aeh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	2450		*	mg/L	30	100	02/26/18 15:31	kea
Conductivity @25C	SM2510B	1	14600			umhos/cm	1	10	02/27/18 17:51	ecc
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	5	9.1		*	mg/L	0.1	0.5	03/02/18 23:52	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	13400			mg/L	50	100	02/24/18 12:06	che
Sulfate	D516-02/-07 - Turbidimetric	200	5440		*	mg/L	200	1000	02/26/18 13:24	kea

Rio Algom Mining Company

Project ID: 4502696253
Sample ID: S-12

ACZ Sample ID: **L42844-03**
Date Sampled: 02/20/18 12:10
Date Received: 02/22/18
Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	634			mg/L	1	5	02/28/18 16:50	aeh
Magnesium, dissolved	M200.7 ICP	10	1200			mg/L	2	10	02/28/18 16:50	aeh
Potassium, dissolved	M200.7 ICP	10	13			mg/L	2	10	02/28/18 16:50	aeh
Sodium, dissolved	M200.7 ICP	10	1690			mg/L	2	10	02/28/18 16:50	aeh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	2860		*	mg/L	30	100	02/26/18 15:33	kea
Conductivity @25C	SM2510B	1	14500		*	umhos/cm	1	10	02/27/18 17:53	ecc
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.44		*	mg/L	0.02	0.1	03/02/18 23:57	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	12800			mg/L	50	100	02/24/18 12:08	che
Sulfate	D516-02/-07 - Turbidimetric	120	4660		*	mg/L	120	600	02/26/18 12:49	kea



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: **L42844**

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442632													
WG442632ICV	ICV	02/28/18 15:07	II180208-1	100		100.03	mg/L	100	95	105			
WG442632ICB	ICB	02/28/18 15:13				U	mg/L		-0.3	0.3			
WG442632LFB	LFB	02/28/18 15:25	II180216-3	68.03333		71.38	mg/L	105	85	115			
L42828-01AS	AS	02/28/18 16:26	II180216-3	68.03333	66.1	133	mg/L	98	85	115			
L42828-01ASD	ASD	02/28/18 16:29	II180216-3	68.03333	66.1	130.8	mg/L	95	85	115	2	20	

Chloride SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442473													
WG442473ICB	ICB	02/26/18 14:20				U	mg/L		-1.5	1.5			
WG442473ICV	ICV	02/26/18 14:20	WI170807-5	55.165		59.06	mg/L	107	90	110			
WG442473LFB2	LFB	02/26/18 15:15	WI171229-5	30.03		31.97	mg/L	106	90	110			
L42823-02DUP	DUP	02/26/18 15:17			79.4	79.06	mg/L				0	20	
WG442473LFB1	LFB	02/26/18 15:23	WI171229-5	30.03		32.13	mg/L	107	90	110			
L42823-01AS	AS	02/26/18 15:47	WI171229-5	300.3	72	102.6	mg/L	10	90	110			M2

Conductivity @25C SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442575													
WG442575LCSW2	LCSW	02/27/18 16:03	PCN55151	1410		1460	umhos/cm	104	90	110			
L42845-04DUP	DUP	02/27/18 18:42			4380	4400	umhos/cm				0	20	
WG442575LCSW5	LCSW	02/27/18 18:46	PCN55151	1410		1440	umhos/cm	102	90	110			
WG442575LCSW8	LCSW	02/27/18 21:27	PCN55151	1410		1420	umhos/cm	101	90	110			
WG442575LCSW11	LCSW	02/28/18 0:42	PCN55151	1410		1330	umhos/cm	94	90	110			
WG442575LCSW14	LCSW	02/28/18 2:18	PCN55151	1410		1340	umhos/cm	95	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442632													
WG442632ICV	ICV	02/28/18 15:07	II180208-1	100		100.46	mg/L	100	95	105			
WG442632ICB	ICB	02/28/18 15:13				U	mg/L		-0.6	0.6			
WG442632LFB	LFB	02/28/18 15:25	II180216-3	50.05743		49.64	mg/L	99	85	115			
L42828-01AS	AS	02/28/18 16:26	II180216-3	50.05743	2.5	50.98	mg/L	97	85	115			
L42828-01ASD	ASD	02/28/18 16:29	II180216-3	50.05743	2.5	49.91	mg/L	95	85	115	2	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
WG442818													
WG442818ICV	ICV	03/02/18 21:15	WI180301-7	2.416		2.364	mg/L	98	90	110			
WG442818ICB	ICB	03/02/18 21:16				U	mg/L		-0.02	0.02			
WG442821													
WG442821LFB	LFB	03/02/18 23:08	WI180103-12	2		2.025	mg/L	101	90	110			
L42804-02AS	AS	03/02/18 23:29	WI180103-12	2	.19	2.318	mg/L	106	90	110			
L42804-03DUP	DUP	03/02/18 23:32			.19	.188	mg/L				1	20	RA

Rio Algom Mining Company

ACZ Project ID: **L42844**

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442632													
WG442632ICV	ICV	02/28/18 15:07	II180208-1	20		20.03	mg/L	100	95	105			
WG442632ICB	ICB	02/28/18 15:13				U	mg/L		-0.6	0.6			
WG442632LFB	LFB	02/28/18 15:25	II180216-3	100.0094		104.9	mg/L	105	85	115			
L42828-01AS	AS	02/28/18 16:26	II180216-3	100.0094	.3	103.8	mg/L	103	85	115			
L42828-01ASD	ASD	02/28/18 16:29	II180216-3	100.0094	.3	102.2	mg/L	102	85	115	2	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442435													
WG442435PBW	PBW	02/24/18 11:55				10	mg/L		-20	20			
WG442435LCSW	LCSW	02/24/18 11:56	PCN55381	260		262	mg/L	101	80	120			
L42845-01DUP	DUP	02/24/18 12:10			3730	3740	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
WG442632													
WG442632ICV	ICV	02/28/18 15:07	II180208-1	100		100.35	mg/L	100	95	105			
WG442632ICB	ICB	02/28/18 15:13				U	mg/L		-0.6	0.6			
WG442632LFB	LFB	02/28/18 15:25	II180216-3	100.0062		103.2	mg/L	103	85	115			
L42828-01AS	AS	02/28/18 16:26	II180216-3	100.0062	8.1	110	mg/L	102	85	115			
L42828-01ASD	ASD	02/28/18 16:29	II180216-3	100.0062	8.1	109.3	mg/L	101	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
WG442470													
WG442470ICB	ICB	02/26/18 10:08				1.2	mg/L		-3	3			
WG442470ICV	ICV	02/26/18 10:08	WI180222-2	20		20	mg/L	100	90	110			
WG442470LFB	LFB	02/26/18 12:18	WI171212-5	10		9.5	mg/L	95	90	110			
L42815-02DUP	DUP	02/26/18 12:36			1820	1800	mg/L				1	20	
L42815-07AS	AS	02/26/18 12:38	WI171212-5	500	1820	1820	mg/L	0	90	110			M3

Rio Algom Mining Company

ACZ Project ID: **L42844**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L42844-01	WG442473	Chloride	SM4500CI-E	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG442821	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG442470	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.
L42844-02	WG442473	Chloride	SM4500CI-E	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG442821	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG442470	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.
L42844-03	WG442473	Chloride	SM4500CI-E	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG442575	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG442821	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG442470	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.

Rio Algom Mining Company

ACZ Project ID: **L42844**

No certification qualifiers associated with this analysis

Rio Algom Mining Company

ACZ Project ID: L42844
 Date Received: 02/23/2018 10:30
 Received By:
 Date Printed: 2/23/2018

Receipt Verification

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

Samples/Containers

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

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?
4619	1.2	<=6.0	14	Yes
4764	2.4	<=6.0	15	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was 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

ACZ Project ID: L42844

Date Received: 02/23/2018 10:30

Received By:

Date Printed: 2/23/2018

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).



Laboratories, Inc.

L42844

CHAIN of CUSTODY

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

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: Clark Short/Angie Persico (both)
Company: INTERA, INC.

E-mail: cshort@intera.com/apersico@intera.com
Telephone: 505-246-1600 x1207

Invoice to:

Name: Gail Alexander
Company: Rio Algom Mining LLC
E-mail: Gail.Alexander@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 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.

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 NM Zip code 87020 Time 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 INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Table with columns: Quote #, PO#, Reporting state, Check box for NRC material, SAMPLE IDENTIFICATION, DATE: TIME, Matrix, # of Containers, and analysis columns (SAP, GW, DP-10, etc.).

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

REMARKS

RAML COC#: 17-39. Note different COC's may have different PO's. Shipment of 4 Coolers.
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.

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

42844 Chain of Custody