

March 07, 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: 4504862628

ACZ Project ID: L42843

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, L42843. 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 L42843. 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 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.



Scott Habermehl has reviewed
and approved this report.



Rio Algom Mining Company

Project ID: 4504862628
Sample ID: 32-01R

ACZ Sample ID: **L42843-01**
Date Sampled: 02/22/18 10:56
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	422			mg/L	1	5	02/28/18 18:48	aeh
Magnesium, dissolved	M200.7 ICP	10	1400			mg/L	2	10	02/28/18 18:48	aeh
Potassium, dissolved	M200.7 ICP	10	84			mg/L	2	10	02/28/18 18:48	aeh
Sodium, dissolved	M200.7 ICP	10	1790			mg/L	2	10	02/28/18 18:48	aeh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	2510			mg/L	30	100	02/27/18 11:59	kea
Conductivity @25C	SM2510B	1	19700		*	umhos/cm	1	10	02/27/18 17:43	ecc
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	03/06/18 22:27	pjb
Residue, Filterable (TDS) @180C	SM2540C	50	22600			mg/L	500	1000	02/26/18 16:13	mh
Sulfate	D516-02/-07 - Turbidimetric	500	11900		*	mg/L	500	2500	02/26/18 11:20	kea

Rio Algom Mining Company

Project ID: 4504862628
Sample ID: AW-2

ACZ Sample ID: **L42843-02**
Date Sampled: 02/22/18 11:13
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	2	655			mg/L	0.2	1	02/28/18 18:51	aeh
Magnesium, dissolved	M200.7 ICP	2	204			mg/L	0.4	2	02/28/18 18:51	aeh
Potassium, dissolved	M200.7 ICP	2	4.9			mg/L	0.4	2	02/28/18 18:51	aeh
Sodium, dissolved	M200.7 ICP	2	662			mg/L	0.4	2	02/28/18 18:51	aeh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	393			mg/L	5	20	02/27/18 11:59	kea
Conductivity @25C	SM2510B	1	5890			umhos/cm	1	10	02/27/18 17:45	ecc
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	5.62		*	mg/L	0.06	0.3	03/06/18 22:59	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5420			mg/L	20	40	02/26/18 16:16	mh
Sulfate	D516-02/-07 - Turbidimetric	100	3060		*	mg/L	100	500	02/26/18 10:56	kea

Rio Algom Mining Company

Project ID: 4504862628
Sample ID: AW-3

ACZ Sample ID: **L42843-03**
Date Sampled: 02/22/18 14:00
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	2	667			mg/L	0.2	1	02/28/18 18:54	aeh
Magnesium, dissolved	M200.7 ICP	2	208			mg/L	0.4	2	02/28/18 18:54	aeh
Potassium, dissolved	M200.7 ICP	2	5.0			mg/L	0.4	2	02/28/18 18:54	aeh
Sodium, dissolved	M200.7 ICP	2	678			mg/L	0.4	2	02/28/18 18:54	aeh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	399			mg/L	5	20	02/27/18 12:37	kea
Conductivity @25C	SM2510B	1	5890			umhos/cm	1	10	02/27/18 17:47	ecc
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	5.56		*	mg/L	0.06	0.3	03/06/18 23:01	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5420			mg/L	20	40	02/26/18 16:20	mh
Sulfate	D516-02/-07 - Turbidimetric	100	2910		*	mg/L	100	500	02/26/18 10:56	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: **L42843**

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442659													
WG442659ICV	ICV	02/28/18 17:12	II180208-1	100		98.21	mg/L	98	95	105			
WG442659ICB	ICB	02/28/18 17:17				U	mg/L		-0.3	0.3			
WG442659LFB	LFB	02/28/18 17:30	II180228-3	68.03333		68.13	mg/L	100	85	115			
L42833-01AS	AS	02/28/18 18:24	II180228-3	340.16665	534	851.5	mg/L	93	85	115			
L42833-01ASD	ASD	02/28/18 18:27	II180228-3	340.16665	534	851	mg/L	93	85	115	0	20	

Chloride SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442532													
WG442532ICB	ICB	02/27/18 11:23				U	mg/L		-1.5	1.5			
WG442532ICV	ICV	02/27/18 11:23	WI170807-5	55.165		59.99	mg/L	109	90	110			
WG442532LFB	LFB	02/27/18 11:46	WI171229-5	30.03		31.24	mg/L	104	90	110			
L42822-02AS	AS	02/27/18 11:48	WI171229-5	30.03	59.2	86.69	mg/L	92	90	110			
L42822-03DUP	DUP	02/27/18 11:57			140	141.7	mg/L				1	20	
WG442553													
WG442553ICB	ICB	02/27/18 11:23				U	mg/L		-1.5	1.5			
WG442553ICV	ICV	02/27/18 11:23	WI170807-5	55.165		59.99	mg/L	109	90	110			
WG442553LFB	LFB	02/27/18 12:28	WI171229-5	30.03		31.78	mg/L	106	90	110			
L42828-02AS	AS	02/27/18 12:28	WI171229-5	30.03	U	31.87	mg/L	106	90	110			
L42833-01DUP	DUP	02/27/18 12:28			57.5	57.45	mg/L				0	20	

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
WG442659													
WG442659ICV	ICV	02/28/18 17:12	II180208-1	100		97.79	mg/L	98	95	105			
WG442659ICB	ICB	02/28/18 17:17				U	mg/L		-0.6	0.6			
WG442659LFB	LFB	02/28/18 17:30	II180228-3	50.05743		46.98	mg/L	94	85	115			
L42833-01AS	AS	02/28/18 18:24	II180228-3	250.28715	281	502.5	mg/L	88	85	115			
L42833-01ASD	ASD	02/28/18 18:27	II180228-3	250.28715	281	502	mg/L	88	85	115	0	20	

Rio Algom Mining Company

ACZ Project ID: **L42843**

Nitrate/Nitrite as N M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442969													
WG442969ICV	ICV	03/06/18 21:28	WI180301-7	2.416		2.388	mg/L	99	90	110			
WG442969ICB	ICB	03/06/18 21:29				U	mg/L		-0.02	0.02			
WG442969LFB1	LFB	03/06/18 22:07	WI180103-12	2		1.977	mg/L	99	90	110			
L42843-01AS	AS	03/06/18 22:28	WI180103-12	2	U	.406	mg/L	20	90	110			M2
WG442969LFB2	LFB	03/06/18 22:46	WI180103-12	2		1.869	mg/L	93	90	110			
L42843-02DUP	DUP	03/06/18 23:00			5.62	5.632	mg/L				0	20	

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442659													
WG442659ICV	ICV	02/28/18 17:12	II180208-1	20		19.6	mg/L	98	95	105			
WG442659ICB	ICB	02/28/18 17:17				U	mg/L		-0.6	0.6			
WG442659LFB	LFB	02/28/18 17:30	II180228-3	100.0094		99.33	mg/L	99	85	115			
L42833-01AS	AS	02/28/18 18:24	II180228-3	500.047	7	499.9	mg/L	99	85	115			
L42833-01ASD	ASD	02/28/18 18:27	II180228-3	500.047	7	499.8	mg/L	99	85	115	0	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442510													
WG442510PBW	PBW	02/26/18 15:59				U	mg/L		-20	20			
WG442510LCSW	LCSW	02/26/18 16:02	PCN55381	260		266	mg/L	102	80	120			
L42853-02DUP	DUP	02/26/18 16:41			10400	10200	mg/L				2	10	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG442659													
WG442659ICV	ICV	02/28/18 17:12	II180208-1	100		99.94	mg/L	100	95	105			
WG442659ICB	ICB	02/28/18 17:17				U	mg/L		-0.6	0.6			
WG442659LFB	LFB	02/28/18 17:30	II180228-3	100.0062		100.2	mg/L	100	85	115			
L42833-01AS	AS	02/28/18 18:24	II180228-3	500.031	197	686	mg/L	98	85	115			
L42833-01ASD	ASD	02/28/18 18:27	II180228-3	500.031	197	690.5	mg/L	99	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
WG442453													
WG442453ICB	ICB	02/26/18 10:08				1.2	mg/L		-3	3			
WG442453ICV	ICV	02/26/18 10:08	WI180222-2	20		20	mg/L	100	90	110			
WG442453LFB	LFB	02/26/18 10:24	WI171212-5	10		10	mg/L	100	90	110			
L42814-04DUP	DUP	02/26/18 10:27			29.3	29.3	mg/L				0	20	
L42814-05AS	AS	02/26/18 10:27	WI171212-5	10	29.1	36.7	mg/L	76	90	110			M2

Rio Algom Mining Company

ACZ Project ID: **L42843**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L42843-01	WG442575	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG442969	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG442453	Sulfate	D516-02/-07 - Turbidimetric	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L42843-02	WG442969	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG442453	Sulfate	D516-02/-07 - Turbidimetric	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L42843-03	WG442969	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG442453	Sulfate	D516-02/-07 - Turbidimetric	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

Rio Algom Mining Company

ACZ Project ID: **L42843**

No certification qualifiers associated with this analysis

Rio Algom Mining Company
 4502696253

ACZ Project ID: L42843
 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? A change was made in the Sample ID: # of Containers Line 1 section prior to ACZ custody.	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?
5106	5.5	<=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
4502696253

ACZ Project ID: L42843
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.

L42843

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 []

Are samples for SDWA Compliance Monitoring? Yes [] No []

Sampler's Name: Java Taube Sampler's Site Information State NM Zip code 87020 Time Zone MST

*Sampler's Signature: Java Taube

PROJECT INFORMATION

Quote #: 58741
PO#: 4502696253
Reporting state for compliance testing:
Check box if samples include NRC licensed material? []

Table with columns: SAMPLE IDENTIFICATION, DATE:TIME, Matrix, # of Containers, and various analysis columns (SAP-GW, MGD-109, etc.). Rows include 32-01R, AW-2, AW-3.

REMARKS

RAML COC# 17-4. Note different COC's may have different PO's. Shipment of 1 Coolers.

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

RELINQUISHED BY: Java Taube DATE:TIME 2/22/18 1500 RECEIVED BY: [Signature] DATE:TIME 2/23/18 10:30

L42843 Chain of Custody