

August 31, 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: Michaela Gorospe, Clark Short

Project ID: 4506946843

ACZ Project ID: L46299

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 16, 2018. This project has been assigned to ACZ's project number, L46299. 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 L46299. 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 September 30, 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: 4506946843

Sample ID: 32-02 R

ACZ Sample ID: **L46299-01**

Date Sampled: 08/13/18 16:53

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	538			mg/L	0.5	3	08/29/18 15:23	dcm
Magnesium, dissolved	M200.7 ICP	5	715			mg/L	1	5	08/29/18 15:23	dcm
Potassium, dissolved	M200.7 ICP	5	11			mg/L	1	5	08/29/18 15:23	dcm
Sodium, dissolved	M200.7 ICP	5	758			mg/L	1	5	08/29/18 15:23	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	694		*	mg/L	5	20	08/27/18 12:04	mss2
Conductivity @25C	SM2510B	1	8450			umhos/cm	1	10	08/28/18 21:02	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	4	6.15		*	mg/L	0.08	0.4	08/25/18 2:11	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	8110			mg/L	50	100	08/17/18 14:13	oah
Sulfate	D516-02/-07 - Turbidimetric	200	4510		*	mg/L	200	1000	08/30/18 11:27	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: AW-1

ACZ Sample ID: **L46299-02**

Date Sampled: 08/13/18 16:16

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	635			mg/L	0.5	3	08/29/18 15:27	dcm
Magnesium, dissolved	M200.7 ICP	5	603			mg/L	1	5	08/29/18 15:27	dcm
Potassium, dissolved	M200.7 ICP	5	8			mg/L	1	5	08/29/18 15:27	dcm
Sodium, dissolved	M200.7 ICP	5	640			mg/L	1	5	08/29/18 15:27	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	733		*	mg/L	5	20	08/27/18 12:04	mss2
Conductivity @25C	SM2510B	1	7830			umhos/cm	1	10	08/28/18 21:04	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	4.66		*	mg/L	0.06	0.3	08/25/18 2:12	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	7310			mg/L	20	40	08/17/18 14:16	oah
Sulfate	D516-02/-07 - Turbidimetric	200	4340		*	mg/L	200	1000	08/30/18 11:28	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 30-04 R

ACZ Sample ID: **L46299-03**

Date Sampled: 08/13/18 15:34

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	539			mg/L	0.5	3	08/29/18 15:30	dcm
Magnesium, dissolved	M200.7 ICP	5	419			mg/L	1	5	08/29/18 15:30	dcm
Potassium, dissolved	M200.7 ICP	5	9			mg/L	1	5	08/29/18 15:30	dcm
Sodium, dissolved	M200.7 ICP	5	523			mg/L	1	5	08/29/18 15:30	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	641		*	mg/L	5	20	08/27/18 11:49	mss2
Conductivity @25C	SM2510B	1	6360			umhos/cm	1	10	08/28/18 21:06	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	5	7.9		*	mg/L	0.1	0.5	08/25/18 2:13	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5510			mg/L	20	40	08/17/18 14:18	oah
Sulfate	D516-02/-07 - Turbidimetric	100	3350		*	mg/L	100	500	08/30/18 11:28	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 30-48

ACZ Sample ID: **L46299-04**

Date Sampled: 08/13/18 14:51

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	632			mg/L	0.5	3	08/29/18 15:33	dcm
Magnesium, dissolved	M200.7 ICP	5	79			mg/L	1	5	08/29/18 15:33	dcm
Potassium, dissolved	M200.7 ICP	5	5			mg/L	1	5	08/29/18 15:33	dcm
Sodium, dissolved	M200.7 ICP	5	85			mg/L	1	5	08/29/18 15:33	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	649		*	mg/L	5	20	08/27/18 11:49	mss2
Conductivity @25C	SM2510B	1	4900			umhos/cm	1	10	08/28/18 21:08	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	08/25/18 1:21	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4300			mg/L	20	40	08/20/18 17:03	nmc
Sulfate	D516-02/-07 - Turbidimetric	100	2490		*	mg/L	100	500	08/30/18 11:28	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 30-47

ACZ Sample ID: **L46299-05**

Date Sampled: 08/13/18 13:22

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	2	384			mg/L	0.2	1	08/29/18 15:36	dcm
Magnesium, dissolved	M200.7 ICP	2	168			mg/L	0.4	2	08/29/18 15:36	dcm
Potassium, dissolved	M200.7 ICP	2	7.6			mg/L	0.4	2	08/29/18 15:36	dcm
Sodium, dissolved	M200.7 ICP	2	245			mg/L	0.4	2	08/29/18 15:36	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	743		*	mg/L	5	20	08/27/18 11:55	mss2
Conductivity @25C	SM2510B	1	4790			umhos/cm	1	10	08/28/18 21:10	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.03	B	*	mg/L	0.02	0.1	08/25/18 1:23	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	3940			mg/L	20	40	08/17/18 14:26	oah
Sulfate	D516-02/-07 - Turbidimetric	20	407		*	mg/L	20	100	08/30/18 11:27	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-71

ACZ Sample ID: **L46299-06**

Date Sampled: 08/13/18 12:41

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	529			mg/L	0.5	3	08/29/18 15:40	dcm
Magnesium, dissolved	M200.7 ICP	5	258			mg/L	1	5	08/29/18 15:40	dcm
Potassium, dissolved	M200.7 ICP	5	2	B		mg/L	1	5	08/29/18 15:40	dcm
Sodium, dissolved	M200.7 ICP	5	364			mg/L	1	5	08/29/18 15:40	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	551		*	mg/L	5	20	08/27/18 11:55	mss2
Conductivity @25C	SM2510B	1	5030			umhos/cm	1	10	08/28/18 21:12	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.07	B	*	mg/L	0.02	0.1	08/25/18 1:24	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4270			mg/L	20	40	08/20/18 17:06	nmc
Sulfate	D516-02/-07 - Turbidimetric	100	2180		*	mg/L	100	500	08/30/18 11:39	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-05 R

ACZ Sample ID: **L46299-07**

Date Sampled: 08/13/18 11:57

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	521			mg/L	0.5	3	08/29/18 15:43	dcm
Magnesium, dissolved	M200.7 ICP	5	587			mg/L	1	5	08/29/18 15:43	dcm
Potassium, dissolved	M200.7 ICP	5	20			mg/L	1	5	08/29/18 15:43	dcm
Sodium, dissolved	M200.7 ICP	5	429			mg/L	1	5	08/29/18 15:43	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	577		*	mg/L	5	20	08/27/18 11:55	mss2
Conductivity @25C	SM2510B	1	7070			umhos/cm	1	10	08/28/18 21:14	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.98		*	mg/L	0.02	0.1	08/25/18 1:25	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6240			mg/L	20	40	08/17/18 14:31	oah
Sulfate	D516-02/-07 - Turbidimetric	120	3220		*	mg/L	120	600	08/30/18 12:16	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-70 R

ACZ Sample ID: **L46299-08**

Date Sampled: 08/13/18 11:11

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	617			mg/L	0.5	3	08/29/18 15:46	dcm
Magnesium, dissolved	M200.7 ICP	5	376			mg/L	1	5	08/29/18 15:46	dcm
Potassium, dissolved	M200.7 ICP	5	12			mg/L	1	5	08/29/18 15:46	dcm
Sodium, dissolved	M200.7 ICP	5	629			mg/L	1	5	08/29/18 15:46	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	860		*	mg/L	30	100	08/27/18 12:06	mss2
Conductivity @25C	SM2510B	1	7150			umhos/cm	1	10	08/28/18 21:16	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	20	50.1		*	mg/L	0.4	2	08/25/18 1:26	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5840	H	*	mg/L	20	40	08/24/18 13:30	oah
Sulfate	D516-02/-07 - Turbidimetric	120	2280		*	mg/L	120	600	08/30/18 12:16	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: AW-2

ACZ Sample ID: **L46299-09**

Date Sampled: 08/14/18 10:41

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	662			mg/L	0.5	3	08/29/18 15:49	dcm
Magnesium, dissolved	M200.7 ICP	5	202			mg/L	1	5	08/29/18 15:49	dcm
Potassium, dissolved	M200.7 ICP	5	6			mg/L	1	5	08/29/18 15:49	dcm
Sodium, dissolved	M200.7 ICP	5	651			mg/L	1	5	08/29/18 15:49	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	401		*	mg/L	5	20	08/27/18 11:57	mss2
Conductivity @25C	SM2510B	1	5970			umhos/cm	1	10	08/28/18 21:18	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	5	4.7			mg/L	0.1	0.5	08/25/18 1:29	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5580			mg/L	20	40	08/17/18 14:37	oah
Sulfate	D516-02/-07 - Turbidimetric	120	2610		*	mg/L	120	600	08/30/18 12:16	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-51

ACZ Sample ID: **L46299-10**

Date Sampled: 08/14/18 11:43

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	503			mg/L	0.5	3	08/29/18 15:53	dcm
Magnesium, dissolved	M200.7 ICP	5	299			mg/L	1	5	08/29/18 15:53	dcm
Potassium, dissolved	M200.7 ICP	5	3	B		mg/L	1	5	08/29/18 15:53	dcm
Sodium, dissolved	M200.7 ICP	5	461			mg/L	1	5	08/29/18 15:53	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	456		*	mg/L	5	20	08/27/18 11:57	mss2
Conductivity @25C	SM2510B	1	5370		*	umhos/cm	1	10	08/28/18 21:28	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	4.92			mg/L	0.06	0.3	08/25/18 1:31	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4880			mg/L	20	40	08/17/18 14:39	oah
Sulfate	D516-02/-07 - Turbidimetric	120	2530		*	mg/L	120	600	08/30/18 12:16	mss2

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-50 TRB-R

ACZ Sample ID: **L46299-11**

Date Sampled: 08/14/18 12:31

Date Received: 08/16/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	510			mg/L	0.5	3	08/29/18 16:02	dcm
Magnesium, dissolved	M200.7 ICP	5	418			mg/L	1	5	08/29/18 16:02	dcm
Potassium, dissolved	M200.7 ICP	5	5			mg/L	1	5	08/29/18 16:02	dcm
Sodium, dissolved	M200.7 ICP	5	627			mg/L	1	5	08/29/18 16:02	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	586		*	mg/L	5	20	08/27/18 11:57	mss2
Conductivity @25C	SM2510B	1	6570			umhos/cm	1	10	08/28/18 21:39	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	3.62			mg/L	0.02	0.1	08/25/18 2:03	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5880			mg/L	20	40	08/17/18 14:42	oah
Sulfate	D516-02/-07 - Turbidimetric	120	2840		*	mg/L	120	600	08/30/18 12:16	mss2


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: **L46299**

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
WG455094													
WG455094ICV	ICV	08/29/18 14:25	II180824-2	100		98.77	mg/L	99	95	105			
WG455094ICB	ICB	08/29/18 14:31				U	mg/L		-0.3	0.3			
WG455094LFB	LFB	08/29/18 14:44	II180827-2	68.16145		66.89	mg/L	98	85	115			
L46279-05AS	AS	08/29/18 15:01	II180827-2	68.16145	60.8	123.9	mg/L	93	85	115			
L46279-05ASD	ASD	08/29/18 15:04	II180827-2	68.16145	60.8	123.2	mg/L	92	85	115	1	20	
L46335-04AS	AS	08/29/18 16:09	II180827-2	68.16145	6.5	73.3	mg/L	98	85	115			
L46335-04ASD	ASD	08/29/18 16:12	II180827-2	68.16145	6.5	72.85	mg/L	97	85	115	1	20	

Chloride

SM4500CI-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454949													
WG454949ICB	ICB	08/27/18 8:15				U	mg/L		-1.5	1.5			
WG454949ICV	ICV	08/27/18 8:15	WI180530-1	54.89		55.53	mg/L	101	90	110			
WG454949LFB2	LFB	08/27/18 11:39	WI171229-5	30.03		32.44	mg/L	108	90	110			
WG454949LFB1	LFB	08/27/18 11:41	WI171229-5	30.03		31.57	mg/L	105	90	110			
L46154-01DUP	DUP	08/27/18 11:47			23.9	23.04	mg/L				4	20	
L46293-01AS	AS	08/27/18 11:47	WI171229-5	30.03	2.5	36.02	mg/L	112	90	110			M1
L46299-03DUP	DUP	08/27/18 11:49			641	640.4	mg/L				0	20	
L46299-04AS	AS	08/27/18 11:55	10XCL	30	649	682.4	mg/L	111	90	110			M3

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455060													
WG455060LCSW2	LCSW	08/28/18 15:20	PCN56415	1410		1380	umhos/cm	98	90	110			
WG455060LCSW5	LCSW	08/28/18 17:54	PCN56415	1410		1370	umhos/cm	97	90	110			
WG455060LCSW8	LCSW	08/28/18 20:06	PCN56415	1410		1360	umhos/cm	96	90	110			
L46299-10DUP	DUP	08/28/18 21:37			5370	5390	umhos/cm				0	20	
WG455060LCSW11	LCSW	08/28/18 22:09	PCN56415	1410		1270	umhos/cm	90	90	110			
L46335-05DUP	DUP	08/28/18 23:18			128	129	umhos/cm				1	20	
WG455060LCSW14	LCSW	08/29/18 1:06	PCN56415	1410		1350	umhos/cm	96	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455094													
WG455094ICV	ICV	08/29/18 14:25	II180824-2	100		100.1	mg/L	100	95	105			
WG455094ICB	ICB	08/29/18 14:31				U	mg/L		-0.6	0.6			
WG455094LFB	LFB	08/29/18 14:44	II180827-2	50.2933		46.47	mg/L	92	85	115			
L46279-05AS	AS	08/29/18 15:01	II180827-2	50.2933	36.9	81.44	mg/L	89	85	115			
L46279-05ASD	ASD	08/29/18 15:04	II180827-2	50.2933	36.9	81.29	mg/L	88	85	115	0	20	
L46335-04AS	AS	08/29/18 16:09	II180827-2	50.2933	1.5	48.14	mg/L	93	85	115			
L46335-04ASD	ASD	08/29/18 16:12	II180827-2	50.2933	1.5	47.83	mg/L	92	85	115	1	20	

Rio Algom Mining Company

ACZ Project ID: **L46299**

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.

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454895													
WG454895ICV	ICV	08/24/18 21:26	WI180602-1	2.416		2.388	mg/L	99	90	110			
WG454895ICB	ICB	08/24/18 21:27				U	mg/L		-0.02	0.02			
WG454900													
WG454900LFB1	LFB	08/25/18 0:11	WI180703-7	2		2	mg/L	100	90	110			
L46289-10AS	AS	08/25/18 0:33	WI180703-7	2	.08	2.136	mg/L	103	90	110			
L46289-11DUP	DUP	08/25/18 0:35			U	.025	mg/L				200	20	RA
WG454900LFB2	LFB	08/25/18 1:28	WI180703-7	2		1.881	mg/L	94	90	110			
L46299-09AS	AS	08/25/18 1:30	WI180703-7	10	4.7	14.79	mg/L	101	90	110			
L46299-10DUP	DUP	08/25/18 1:33			4.92	4.9	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
WG455094													
WG455094ICV	ICV	08/29/18 14:25	II180824-2	20		19.88	mg/L	99	95	105			
WG455094ICB	ICB	08/29/18 14:31				U	mg/L		-0.6	0.6			
WG455094LFB	LFB	08/29/18 14:44	II180827-2	101.3833		97.42	mg/L	96	85	115			
L46279-05AS	AS	08/29/18 15:01	II180827-2	101.3833	2	99.92	mg/L	97	85	115			
L46279-05ASD	ASD	08/29/18 15:04	II180827-2	101.3833	2	98.65	mg/L	95	85	115	1	20	
L46335-04AS	AS	08/29/18 16:09	II180827-2	101.3833	.7	99.78	mg/L	98	85	115			
L46335-04ASD	ASD	08/29/18 16:12	II180827-2	101.3833	.7	98.85	mg/L	97	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
WG454306													
WG454306PBW	PBW	08/17/18 13:50				U	mg/L		-20	20			
WG454306LCSW	LCSW	08/17/18 13:52	PCN56357	260		268	mg/L	103	80	120			
L46299-03DUP	DUP	08/17/18 14:21			5510	5660	mg/L				3	10	
L46312-02DUP	DUP	08/17/18 14:50			1300	1320	mg/L				2	10	
WG454449													
WG454449PBW	PBW	08/20/18 16:09				U	mg/L		-20	20			
WG454449LCSW	LCSW	08/20/18 16:11	PCN56357	260		254	mg/L	98	80	120			
L46299-06DUP	DUP	08/20/18 17:09			4270	4270	mg/L				0	10	
WG454882													
WG454882PBW	PBW	08/24/18 13:25				U	mg/L		-20	20			
WG454882LCSW	LCSW	08/24/18 13:27	PCN56355	260		272	mg/L	105	80	120			
L46489-09DUP	DUP	08/24/18 13:56			192	260	mg/L				30	10	RA

Rio Algom Mining Company

ACZ Project ID: **L46299**

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.

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455094													
WG455094ICV	ICV	08/29/18 14:25	II180824-2	100		99.89	mg/L	100	95	105			
WG455094ICB	ICB	08/29/18 14:31				U	mg/L		-0.6	0.6			
WG455094LFB	LFB	08/29/18 14:44	II180827-2	100.8796		98.21	mg/L	97	85	115			
L46279-05AS	AS	08/29/18 15:01	II180827-2	100.8796	12.5	110.1	mg/L	97	85	115			
L46279-05ASD	ASD	08/29/18 15:04	II180827-2	100.8796	12.5	109.9	mg/L	97	85	115	0	20	
L46335-04AS	AS	08/29/18 16:09	II180827-2	100.8796	3	101.5	mg/L	98	85	115			
L46335-04ASD	ASD	08/29/18 16:12	II180827-2	100.8796	3	100.5	mg/L	97	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
WG455267													
WG455267ICB	ICB	08/30/18 8:13				U	mg/L		-3	3			
WG455267ICV	ICV	08/30/18 8:13	W1180827-2	20		18.6	mg/L	93	90	110			
L46298-02DUP	DUP	08/30/18 10:43			U	U	mg/L				0	20	RA
L46298-03AS	AS	08/30/18 10:43	SO4TURB20X	10	U	194	mg/L	1940	90	110			M3
WG455267LFB	LFB	08/30/18 11:33	W1180726-1	10		10.3	mg/L	103	90	110			
WG455268													
WG455268ICB	ICB	08/30/18 8:13				U	mg/L		-3	3			
WG455268ICV	ICV	08/30/18 8:13	W1180827-2	20		18.6	mg/L	93	90	110			
WG455268LFB	LFB	08/30/18 11:51	W1180726-1	10		9.2	mg/L	92	90	110			
L46165-01DUP	DUP	08/30/18 12:05			2480	2430	mg/L				2	20	RA
L46165-02AS	AS	08/30/18 12:08	SO4TURB5X	10	190	185	mg/L	-50	90	110			M3
L46312-02AS	AS	08/30/18 12:09	SO4TURB50X	10	787	757	mg/L	-300	90	110			M3
L46312-01DUP	DUP	08/30/18 12:45			U	U	mg/L				0	20	RA

Rio Algom Mining Company

ACZ Project ID: **L46299**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46299-01	WG454949	Chloride	SM4500Cl-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454900	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).
	WG455267	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	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).
L46299-02	WG454949	Chloride	SM4500Cl-E	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.
	WG454900	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).
	WG455267	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	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).
L46299-03	WG454949	Chloride	SM4500Cl-E	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.
	WG454900	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).
	WG455267	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	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).
L46299-04	WG454949	Chloride	SM4500Cl-E	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.
	WG454900	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).
	WG455267	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	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).

Rio Algom Mining Company

ACZ Project ID: **L46299**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46299-05	WG454949	Chloride	SM4500Cl-E	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.
	WG454900	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).
	WG455267	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	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).
L46299-06	WG454949	Chloride	SM4500Cl-E	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.
	WG454900	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).
	WG455267	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	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).
L46299-07	WG454949	Chloride	SM4500Cl-E	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.
	WG454900	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).
	WG455268	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	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).
L46299-08	WG454949	Chloride	SM4500Cl-E	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.
	WG454900	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).
	WG454882	Residue, Filterable (TDS) @180C	SM2540C	H1	Sample prep or analysis performed past holding time. See case narrative.
			SM2540C	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).
	WG455268	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	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).

Rio Algom Mining Company

ACZ Project ID: **L46299**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46299-09	WG454949	Chloride	SM4500CI-E	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.
	WG455268	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	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).
L46299-10	WG454949	Chloride	SM4500CI-E	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.
	WG455060	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG455268	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	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).
L46299-11	WG454949	Chloride	SM4500CI-E	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.
	WG455268	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	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).

Rio Algom Mining Company

ACZ Project ID: **L46299**

No certification qualifiers associated with this analysis

Rio Algom Mining Company
4506946843

ACZ Project ID: L46299
Date Received: 08/16/2018 11:18
Received By:
Date Printed: 8/16/2018

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A change was made in the Sample Id Date:Time Line 1. Remarks section prior to ACZ custody.			

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?
4312	3.4	<=6.0	15	N/A
4062	1.8	<=6.0	14	N/A

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
4506946843

ACZ Project ID: L46299

Date Received: 08/16/2018 11:18

Received By:

Date Printed: 8/16/2018

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).

1/2



Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5498

46299

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 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 POL for Colorado.

Sampler's Name: B. Williamson

Sampler's Site Information

State NM Zip code 87020 Time Zone MST

*Sampler's Signature: *B. Williamson*

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the true/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)

Quote #: 58763

PO#: 4502696253

Reporting state for compliance testing:

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	SAP-GW	DP-169															
32-02R	8/13/18 15:53	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AW-1	8/13/18 16:16	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30-04R	8/13/18 15:34	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30-48	8/13/18 14:51	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30-47	8/13/18 13:22	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31-71	8/13/18 12:41	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31-08R	8/13/18 11:57	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31-70R	8/13/18 11:11	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AW-2	8/14/18 10:41	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32-51	8/14/18 11:43	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

REMARKS

RAML COC#: 14-08. Note different COC's may have different PO's. Shipment of 3 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

B. Williamson

8/15/18 16:55

P. CR

8/16/18 11:18

FRMAD050.06.14.14

White - Return with sample.

Yellow - Retain for your records.



46299 Chain of Custody

2/2

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5499		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 <input type="checkbox"/> NO <input type="checkbox"/>																																																																																																																																																																																																																																																													
<small>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.</small>																																																																																																																																																																																																																																																															
Are samples for SDWA Compliance Monitoring?		Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																																																																																																																																																																																													
If yes, please include state forms. Results will be reported to PQ for Colorado.																																																																																																																																																																																																																																																															
Sampler's Name: <u>B. Williams</u>		Sampler's Site Information																																																																																																																																																																																																																																																													
*Sampler's Signature: <u>[Signature]</u>		State <u>NM</u> Zip code <u>87020</u> Time Zone <u>MST</u>																																																																																																																																																																																																																																																													
<small>*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.</small>																																																																																																																																																																																																																																																															
PROJECT INFORMATION		ANALYSES REQUESTED (attach list or use quote number)																																																																																																																																																																																																																																																													
Quote #: <u>58763</u> PO#: <u>4502696253</u> Reporting state for compliance testing: Check box if samples include NRC licensed material? <input type="checkbox"/>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th># of Containers</th> <th>SAP-GW</th> <th>DP-169</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td>4</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> </table>		# of Containers	SAP-GW	DP-169																4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
# of Containers	SAP-GW	DP-169																																																																																																																																																																																																																																																													
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																																																																																																																														
Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)																																																																																																																																																																																																																																																															
REMARKS																																																																																																																																																																																																																																																															
RAML COC#: <u>18-08</u> . Note different COC's may have different PO's. Shipment of <u>3</u> 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:		RECEIVED BY:																																																																																																																																																																																																																																																													
<u>B. Williams</u>		<u>BCIC</u>																																																																																																																																																																																																																																																													
DATE: TIME <u>6/16/18 16:57</u>		DATE: TIME <u>8/16/18 11:18</u>																																																																																																																																																																																																																																																													

FRMAD050.06.14.14

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

August 27, 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: L46195

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 10, 2018. This project has been assigned to ACZ's project number, L46195. Please reference this number in all future inquiries.

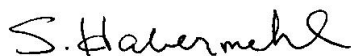
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L46195. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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 September 26, 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: 4506946843

Sample ID: 5-01

ACZ Sample ID: **L46195-01**

Date Sampled: 08/07/18 13:01

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	426			mg/L	0.5	3	08/27/18 11:26	dcm
Magnesium, dissolved	M200.7 ICP	5	223			mg/L	1	5	08/27/18 11:26	dcm
Potassium, dissolved	M200.7 ICP	5	2	B		mg/L	1	5	08/27/18 11:26	dcm
Sodium, dissolved	M200.7 ICP	5	374			mg/L	1	5	08/27/18 11:26	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	165		*	mg/L	5	20	08/17/18 12:54	mss2
Conductivity @25C	SM2510B	1	3690		*	umhos/cm	1	10	08/17/18 20:42	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	4	7.06		*	mg/L	0.08	0.4	08/22/18 1:37	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4270		*	mg/L	20	40	08/11/18 10:17	nmc
Sulfate	D516-02/-07 - Turbidimetric	120	2950			mg/L	120	600	08/20/18 12:43	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-58

ACZ Sample ID: **L46195-02**

Date Sampled: 08/08/18 10:11

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	602			mg/L	1	5	08/27/18 11:29	dcm
Magnesium, dissolved	M200.7 ICP	10	1670			mg/L	2	10	08/27/18 11:29	dcm
Potassium, dissolved	M200.7 ICP	10		U		mg/L	2	10	08/27/18 11:29	dcm
Sodium, dissolved	M200.7 ICP	10	1630			mg/L	2	10	08/27/18 11:29	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	3450		*	mg/L	30	100	08/17/18 13:18	mss2
Conductivity @25C	SM2510B	1	11600			umhos/cm	1	10	08/17/18 20:44	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	15	35.7		*	mg/L	0.3	2	08/22/18 1:38	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	15000		*	mg/L	50	100	08/11/18 10:21	nmc
Sulfate	D516-02/-07 - Turbidimetric	500	5680		*	mg/L	500	2500	08/20/18 12:43	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 23-85

ACZ Sample ID: **L46195-03**

Date Sampled: 08/08/18 11:05

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	594			mg/L	1	5	08/27/18 11:32	dcm
Magnesium, dissolved	M200.7 ICP	10	1650			mg/L	2	10	08/27/18 11:32	dcm
Potassium, dissolved	M200.7 ICP	10		U		mg/L	2	10	08/27/18 11:32	dcm
Sodium, dissolved	M200.7 ICP	10	1610			mg/L	2	10	08/27/18 11:32	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	3410		*	mg/L	30	100	08/17/18 13:18	mss2
Conductivity @25C	SM2510B	1	11400			umhos/cm	1	10	08/17/18 20:46	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	15	35.8		*	mg/L	0.3	2	08/22/18 1:40	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	15300		*	mg/L	50	100	08/11/18 10:25	nmc
Sulfate	D516-02/-07 - Turbidimetric	500	5900		*	mg/L	500	2500	08/20/18 12:43	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: S-9

ACZ Sample ID: **L46195-04**

Date Sampled: 08/08/18 11:10

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	16.4		*	mg/L	0.5	3	08/27/18 11:36	dcm
Magnesium, dissolved	M200.7 ICP	5	1410			mg/L	1	5	08/27/18 11:36	dcm
Potassium, dissolved	M200.7 ICP	5	14			mg/L	1	5	08/27/18 11:36	dcm
Sodium, dissolved	M200.7 ICP	5	1070			mg/L	1	5	08/27/18 11:36	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	2320		*	mg/L	30	100	08/17/18 13:18	mss2
Conductivity @25C	SM2510B	1	7850			umhos/cm	1	10	08/17/18 20:48	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.04	B	*	mg/L	0.02	0.1	08/22/18 1:41	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	9930		*	mg/L	50	100	08/11/18 10:29	nmc
Sulfate	D516-02/-07 - Turbidimetric	100	3960		*	mg/L	100	500	08/20/18 12:16	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-60

ACZ Sample ID: **L46195-05**

Date Sampled: 08/08/18 16:54

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	577		*	mg/L	1	5	08/27/18 11:39	dcm
Magnesium, dissolved	M200.7 ICP	10	1230			mg/L	2	10	08/27/18 11:39	dcm
Potassium, dissolved	M200.7 ICP	10	14			mg/L	2	10	08/27/18 11:39	dcm
Sodium, dissolved	M200.7 ICP	10	1540			mg/L	2	10	08/27/18 11:39	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	2360		*	mg/L	30	100	08/17/18 13:18	mss2
Conductivity @25C	SM2510B	1	9860			umhos/cm	1	10	08/17/18 20:51	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	5	10.6		*	mg/L	0.1	0.5	08/22/18 1:42	pjb
Residue, Filterable (TDS) @180C	SM2540C	10	13300			mg/L	100	200	08/13/18 16:18	nmc
Sulfate	D516-02/-07 - Turbidimetric	500	4940		*	mg/L	500	2500	08/20/18 12:43	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: S-12

ACZ Sample ID: **L46195-06**

Date Sampled: 08/09/18 10:45

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	623		*	mg/L	1	5	08/27/18 11:42	dcm
Magnesium, dissolved	M200.7 ICP	10	1170			mg/L	2	10	08/27/18 11:42	dcm
Potassium, dissolved	M200.7 ICP	10	11			mg/L	2	10	08/27/18 11:42	dcm
Sodium, dissolved	M200.7 ICP	10	1630			mg/L	2	10	08/27/18 11:42	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	50	2820		*	mg/L	30	100	08/17/18 13:19	mss2
Conductivity @25C	SM2510B	1	10200			umhos/cm	1	10	08/17/18 20:53	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	1.21		*	mg/L	0.02	0.1	08/22/18 1:25	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	12700		*	mg/L	50	100	08/11/18 10:37	nmc
Sulfate	D516-02/-07 - Turbidimetric	500	4120		*	mg/L	500	2500	08/20/18 12:45	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-72

ACZ Sample ID: **L46195-07**

Date Sampled: 08/09/18 11:24

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	439		*	mg/L	1	5	08/27/18 11:45	dcm
Magnesium, dissolved	M200.7 ICP	10	2190			mg/L	2	10	08/27/18 11:45	dcm
Potassium, dissolved	M200.7 ICP	10	18			mg/L	2	10	08/27/18 11:45	dcm
Sodium, dissolved	M200.7 ICP	10	345			mg/L	2	10	08/27/18 11:45	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	256		*	mg/L	5	20	08/17/18 12:48	mss2
Conductivity @25C	SM2510B	1	7320			umhos/cm	1	10	08/17/18 20:55	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.21		*	mg/L	0.02	0.1	08/22/18 1:26	pjb
Residue, Filterable (TDS) @180C	SM2540C	10	14900			mg/L	100	200	08/13/18 16:24	nmc
Sulfate	D516-02/-07 - Turbidimetric	500	8730		*	mg/L	500	2500	08/20/18 12:45	las


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: **L46195**

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
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	100		98.4	mg/L	98	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.3	0.3			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	68.16145		66.99	mg/L	98	85	115			
L46045-04AS	AS	08/27/18 11:03	II180809-4	68.16145	U	67.26	mg/L	99	85	115			
L46045-04ASD	ASD	08/27/18 11:07	II180809-4	68.16145	U	66.31	mg/L	97	85	115	1	20	
L46228-01AS	AS	08/27/18 12:08	II180809-4	68.16145	217	271.5	mg/L	80	85	115			M3
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	68.16145	217	272.2	mg/L	81	85	115	0	20	M3

Chloride

SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454305													
WG454305ICB	ICB	08/17/18 8:28				U	mg/L		-1.5	1.5			
WG454305ICV	ICV	08/17/18 8:28	WI180530-1	54.89		56.08	mg/L	102	90	110			
WG454305LFB	LFB	08/17/18 12:34	WI171229-5	30.03		32.43	mg/L	108	90	110			
L46192-01AS	AS	08/17/18 12:54	10XCL	30	103	139.9	mg/L	123	90	110			M1
L46188-02DUP	DUP	08/17/18 14:08			61.5	60.87	mg/L				1	20	

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454327													
WG454327LCSW2	LCSW	08/17/18 16:29	PCN55810	1410		1440	umhos/cm	102	90	110			
WG454327LCSW5	LCSW	08/17/18 20:23	PCN55810	1410		1360	umhos/cm	96	90	110			
L46197-02DUP	DUP	08/17/18 21:35			1780	1790	umhos/cm				1	20	
WG454327LCSW8	LCSW	08/17/18 23:46	PCN55810	1410		1350	umhos/cm	96	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	100		99.43	mg/L	99	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.6	0.6			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	50.2933		46.39	mg/L	92	85	115			
L46045-04AS	AS	08/27/18 11:03	II180809-4	50.2933	U	46.53	mg/L	93	85	115			
L46045-04ASD	ASD	08/27/18 11:07	II180809-4	50.2933	U	46.07	mg/L	92	85	115	1	20	
L46228-01AS	AS	08/27/18 12:08	II180809-4	50.2933	27.9	72.31	mg/L	88	85	115			
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	50.2933	27.9	72.41	mg/L	89	85	115	0	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
WG454581													
WG454581ICV	ICV	08/21/18 21:43	WI180602-1	2.416		2.374	mg/L	98	90	110			
WG454581ICB	ICB	08/21/18 21:44				U	mg/L		-0.02	0.02			
WG454585													
WG454585LFB1	LFB	08/22/18 0:27	WI180703-7	2		1.957	mg/L	98	90	110			
WG454585LFB2	LFB	08/22/18 1:08	WI180703-7	2		1.979	mg/L	99	90	110			
L46188-01AS	AS	08/22/18 1:10	WI180703-7	2	U	2.098	mg/L	105	90	110			
L46188-02DUP	DUP	08/22/18 1:13			.15	.143	mg/L				5	20	RA

Rio Algom Mining Company

ACZ Project ID: **L46195**

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
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	20		19.69	mg/L	98	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.6	0.6			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	101.3833		97.45	mg/L	96	85	115			
L46045-04AS	AS	08/27/18 11:03	II180809-4	101.3833	U	97.73	mg/L	96	85	115			
L46045-04ASD	ASD	08/27/18 11:07	II180809-4	101.3833	U	96.85	mg/L	96	85	115	1	20	
L46228-01AS	AS	08/27/18 12:08	II180809-4	101.3833	4	101.4	mg/L	96	85	115			
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	101.3833	4	101.6	mg/L	96	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
WG453813													
WG453813PBW	PBW	08/11/18 9:15				U	mg/L		-20	20			
WG453813LCSW	LCSW	08/11/18 9:18	PCN56037	260		266	mg/L	102	80	120			
L46165-04DUP	DUP	08/11/18 10:02			658	640	mg/L				3	10	
L46195-07DUP	DUP	08/11/18 10:45			13900	14600	mg/L				5	10	
WG453909													
WG453909PBW	PBW	08/13/18 15:50				U	mg/L		-20	20			
WG453909LCSW	LCSW	08/13/18 15:52	PCN56037	260		258	mg/L	99	80	120			
L46195-05DUP	DUP	08/13/18 16:21			13300	13000	mg/L				2	10	
L46211-08DUP	DUP	08/13/18 16:50			504	508	mg/L				1	10	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	100		98.59	mg/L	99	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.6	0.6			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	100.8796		96.6	mg/L	96	85	115			
L46045-04AS	AS	08/27/18 11:03	II180809-4	100.8796	U	96.54	mg/L	96	85	115			
L46045-04ASD	ASD	08/27/18 11:07	II180809-4	100.8796	U	95.51	mg/L	95	85	115	1	20	
L46228-01AS	AS	08/27/18 12:08	II180809-4	100.8796	51.2	143.7	mg/L	92	85	115			
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	100.8796	51.2	144.2	mg/L	92	85	115	0	20	

Sulfate

D516-02/-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454405													
WG454405ICB	ICB	08/20/18 10:39				U	mg/L		-3	3			
WG454405ICV	ICV	08/20/18 10:39	WI180809-9	20		19.3	mg/L	97	90	110			
WG454405LFB	LFB	08/20/18 12:04	WI180726-1	10		9.2	mg/L	92	90	110			
L46164-01DUP	DUP	08/20/18 12:13			581	535	mg/L				8	20	
L46164-02AS	AS	08/20/18 12:13	SO4TURB50X	10	1120	1130	mg/L	100	90	110			
L46202-04AS	AS	08/20/18 12:21	SO4TURB50X	10	1010	1040	mg/L	300	90	110			M3
L46202-03DUP	DUP	08/20/18 12:54			11200	11700	mg/L				4	20	

Rio Algom Mining Company

ACZ Project ID: **L46195**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46195-01	WG454305	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454327	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG454585	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).
	WG453813	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
L46195-02	WG454305	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454585	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).
	WG453813	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG454405	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.
L46195-03	WG454305	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454585	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).
	WG453813	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG454405	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.
L46195-04	WG454778	Calcium, dissolved	M200.7 ICP	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.
	WG454305	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454585	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).
	WG453813	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG454405	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: **L46195**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46195-05	WG454778	Calcium, dissolved	M200.7 ICP	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.
	WG454305	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454585	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).
	WG454405	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.
L46195-06	WG454778	Calcium, dissolved	M200.7 ICP	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.
	WG454305	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454585	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).
	WG453813	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG454405	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.
L46195-07	WG454778	Calcium, dissolved	M200.7 ICP	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.
	WG454305	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454585	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).
	WG454405	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: **L46195**

No certification qualifiers associated with this analysis

Rio Algom Mining Company
4506946843

ACZ Project ID: L46195
Date Received: 08/10/2018 10:54
Received By:
Date Printed: 8/13/2018

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A change was made in the Sample ID: Line 5 section prior to ACZ custody.			

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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Some parameters were received past hold time.

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?
-----	-----	-----	-----	-----
4491	2.4	<=6.0	15	N/A
4656	1.7	<=6.0	15	N/A

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Rio Algom Mining Company
4506946843

ACZ Project ID: L46195

Date Received: 08/10/2018 10:54

Received By:

Date Printed: 8/13/2018

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

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.**

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 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 PQ for Colorado.

Sampler's Name: C. SHORT

Sampler's Site Information

State NM

Zip code 87020

Time Zone MST

*Sampler's Signature: Mike Short

*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)

Quote #: 58759

PO#: 4502696254

Reporting state for compliance testing:

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION DATE: TIME Matrix

SAMPLE IDENTIFICATION	DATE: TIME	Matrix	# of Containers	SAP:GW	DP-169														
5-51	08/07/2018 1201	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32-58	08/08/2018 1011	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23-85	08/08/2018 1105	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S-9	08/08/2018 1110	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32-60	08/08/2018 1654	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S-12	08/08/2018 1045	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32-72	08/09/2018 1124	GW	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

REMARKS

RAML COC#: 1802. Note different COC's may have different PO's. Shipment of 4 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

C. Short

8/9/18 1300

JL

8/10/18 10:55

FRMAD050.06.14.14

White - Return with sample.

Yellow - Retain for your records.

August 27, 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, Michaela Gorospe

Project ID: 4506946843
ACZ Project ID: L46202

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 11, 2018. This project has been assigned to ACZ's project number, L46202. 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 L46202. 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 September 26, 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: 4506946843

Sample ID: 32-43 N

ACZ Sample ID: **L46202-01**

Date Sampled: 08/10/18 09:21

Date Received: 08/11/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	677			mg/L	1	5	08/24/18 16:54	aeH
Magnesium, dissolved	M200.7 ICP	10	1030			mg/L	2	10	08/24/18 16:54	aeH
Potassium, dissolved	M200.7 ICP	10	16			mg/L	2	10	08/24/18 16:54	aeH
Sodium, dissolved	M200.7 ICP	10	1210			mg/L	2	10	08/24/18 16:54	aeH

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	40	2170		*	mg/L	20	80	08/23/18 13:06	wtc
Conductivity @25C	SM2510B	1	7920			umhos/cm	1	10	08/21/18 0:27	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.44		*	mg/L	0.02	0.1	08/23/18 0:25	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	10600			mg/L	50	100	08/13/18 11:44	oah
Sulfate	D516-02/-07 - Turbidimetric	200	3900		*	mg/L	200	1000	08/20/18 12:45	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-69

ACZ Sample ID: **L46202-02**

Date Sampled: 08/10/18 10:10

Date Received: 08/11/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	647			mg/L	1	5	08/24/18 16:57	aeH
Magnesium, dissolved	M200.7 ICP	10	1110			mg/L	2	10	08/24/18 16:57	aeH
Potassium, dissolved	M200.7 ICP	10	14			mg/L	2	10	08/24/18 16:57	aeH
Sodium, dissolved	M200.7 ICP	10	1430			mg/L	2	10	08/24/18 16:57	aeH

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	40	1940		*	mg/L	20	80	08/23/18 13:06	wtc
Conductivity @25C	SM2510B	1	8210			umhos/cm	1	10	08/21/18 0:29	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	15	35.5		*	mg/L	0.3	2	08/23/18 0:26	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	12100		*	mg/L	50	100	08/13/18 11:50	oah
Sulfate	D516-02/-07 - Turbidimetric	500	5030		*	mg/L	500	2500	08/20/18 12:45	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-01 R

ACZ Sample ID: **L46202-03**

Date Sampled: 08/10/18 11:33

Date Received: 08/11/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	20	428			mg/L	2	10	08/24/18 17:00	aeH
Magnesium, dissolved	M200.7 ICP	20	1420			mg/L	4	20	08/24/18 17:00	aeH
Potassium, dissolved	M200.7 ICP	20	85			mg/L	4	20	08/24/18 17:00	aeH
Sodium, dissolved	M200.7 ICP	20	1810			mg/L	4	20	08/24/18 17:00	aeH

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	40	2660		*	mg/L	20	80	08/23/18 13:08	wtc
Conductivity @25C	SM2510B	1	11900		*	umhos/cm	1	10	08/21/18 0:38	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	10		U	*	mg/L	0.2	1	08/23/18 0:27	pjb
Residue, Filterable (TDS) @180C	SM2540C	10	22900		*	mg/L	100	200	08/13/18 11:53	oah
Sulfate	D516-02/-07 - Turbidimetric	1000	11200		*	mg/L	1000	5000	08/20/18 12:54	las

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-41

ACZ Sample ID: **L46202-04**

Date Sampled: 08/10/18 13:36

Date Received: 08/11/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	2	263			mg/L	0.2	1	08/24/18 17:03	aeH
Magnesium, dissolved	M200.7 ICP	2	251			mg/L	0.4	2	08/24/18 17:03	aeH
Potassium, dissolved	M200.7 ICP	2	12.9			mg/L	0.4	2	08/24/18 17:03	aeH
Sodium, dissolved	M200.7 ICP	2	342			mg/L	0.4	2	08/24/18 17:03	aeH

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	40	1340		*	mg/L	20	80	08/23/18 13:27	wtc
Conductivity @25C	SM2510B	1	5890			umhos/cm	1	10	08/23/18 16:27	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	08/23/18 0:30	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	3430			mg/L	20	40	08/15/18 19:19	nmc
Sulfate	D516-02/-07 - Turbidimetric	50	1010		*	mg/L	50	250	08/20/18 12:21	las


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: **L46202**

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
WG454866													
WG454866ICV	ICV	08/24/18 16:31	II180727-1	100		101.45	mg/L	101	95	105			
WG454866ICB	ICB	08/24/18 16:37				U	mg/L		-0.3	0.3			
WG454866LFB	LFB	08/24/18 16:50	II180809-4	68.16145		68.87	mg/L	101	85	115			
L46203-01AS	AS	08/24/18 17:10	II180809-4	68.16145	39.6	105.2	mg/L	96	85	115			
L46203-01ASD	ASD	08/24/18 17:13	II180809-4	68.16145	39.6	104.9	mg/L	96	85	115	0	20	

Chloride

SM4500CI-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454610													
WG454610ICB	ICB	08/23/18 12:08				U	mg/L		-1.5	1.5			
WG454610ICV	ICV	08/23/18 12:08	WI180530-1	54.89		58.84	mg/L	107	90	110			
L46197-01DUP	DUP	08/23/18 12:21			26.5	26.04	mg/L				2	20	
L46197-02AS	AS	08/23/18 12:21	WI171229-5	30.03	14.9	48.9	mg/L	113	90	110			M1
WG454610LFB1	LFB	08/23/18 13:06	WI171229-5	30.03		31.25	mg/L	104	90	110			
WG454610LFB2	LFB	08/23/18 13:06	WI171229-5	30.03		31.2	mg/L	104	90	110			
L46202-03DUP	DUP	08/23/18 13:08			2660	2703	mg/L				2	20	
L46202-04AS	AS	08/23/18 13:27	40XCL	30	1340	1601	mg/L	870	90	110			M3

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454440													
WG454440LCSW2	LCSW	08/20/18 17:15	PCN55810	1410		1550	umhos/cm	110	90	110			
WG454440LCSW5	LCSW	08/20/18 19:50	PCN55810	1410		1530	umhos/cm	109	90	110			
WG454440LCSW8	LCSW	08/20/18 22:13	PCN55810	1410		1510	umhos/cm	107	90	110			
L46202-03DUP	DUP	08/21/18 0:46			11900	11700	umhos/cm				2	20	
WG454440LCSW11	LCSW	08/21/18 0:51	PCN55810	1410		1280	umhos/cm	91	90	110			
WG454789													
WG454789LCSW2	LCSW	08/23/18 16:06	PCN55810	1410		1450	umhos/cm	103	90	110			
L46241-02DUP	DUP	08/23/18 16:59			116	117	umhos/cm				1	20	
WG454789LCSW5	LCSW	08/23/18 17:56	PCN55810	1410		1470	umhos/cm	104	90	110			
WG454789LCSW8	LCSW	08/23/18 21:37	PCN55810	1410		1460	umhos/cm	104	90	110			
WG454789LCSW11	LCSW	08/24/18 0:35	PCN55810	1410		1470	umhos/cm	104	90	110			
WG454789LCSW14	LCSW	08/24/18 3:31	PCN55810	1410		1450	umhos/cm	103	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454866													
WG454866ICV	ICV	08/24/18 16:31	II180727-1	100		102	mg/L	102	95	105			
WG454866ICB	ICB	08/24/18 16:37				U	mg/L		-0.6	0.6			
WG454866LFB	LFB	08/24/18 16:50	II180809-4	50.2933		47.63	mg/L	95	85	115			
L46203-01AS	AS	08/24/18 17:10	II180809-4	50.2933	26.9	73.14	mg/L	92	85	115			
L46203-01ASD	ASD	08/24/18 17:13	II180809-4	50.2933	26.9	73	mg/L	92	85	115	0	20	

Rio Algom Mining Company

ACZ Project ID: **L46202**

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.

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454699													
WG454699ICV	ICV	08/22/18 22:05	WI180602-1	2.416		2.426	mg/L	100	90	110			
WG454699ICB	ICB	08/22/18 22:07				U	mg/L		-0.02	0.02			
WG454703													
WG454703LFB	LFB	08/22/18 23:42	WI180703-7	2		2.064	mg/L	103	90	110			
L46045-01AS	AS	08/22/18 23:45	WI180703-7	2	U	2.164	mg/L	108	90	110			
L46045-02DUP	DUP	08/22/18 23:47			U	U	mg/L				0	20	RA
L46202-03AS	AS	08/23/18 0:29	WI180703-7	20	U	15.46	mg/L	77	90	110			M2
L46202-04DUP	DUP	08/23/18 0:31			U	U	mg/L				0	20	RA

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454866													
WG454866ICV	ICV	08/24/18 16:31	II180727-1	20		20.57	mg/L	103	95	105			
WG454866ICB	ICB	08/24/18 16:37				U	mg/L		-0.6	0.6			
WG454866LFB	LFB	08/24/18 16:50	II180809-4	101.3833		100.8	mg/L	99	85	115			
L46203-01AS	AS	08/24/18 17:10	II180809-4	101.3833	8.2	107.9	mg/L	98	85	115			
L46203-01ASD	ASD	08/24/18 17:13	II180809-4	101.3833	8.2	107.7	mg/L	98	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
WG453860													
WG453860PBW	PBW	08/13/18 11:10				10	mg/L		-20	20			
WG453860LCSW	LCSW	08/13/18 11:13	PCN56037	260		258	mg/L	99	80	120			
L46202-01DUP	DUP	08/13/18 11:47			10600	10500	mg/L				1	10	
L46202-04DUP	DUP	08/13/18 12:00			3560	3570	mg/L				0	10	
WG454138													
WG454138PBW	PBW	08/15/18 19:16				U	mg/L		-20	20			
WG454138LCSW	LCSW	08/15/18 19:17	PCN56042	260		262	mg/L	101	80	120			
L46267-01DUP	DUP	08/15/18 19:39			29600	30400	mg/L				3	10	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454866													
WG454866ICV	ICV	08/24/18 16:31	II180727-1	100		102.03	mg/L	102	95	105			
WG454866ICB	ICB	08/24/18 16:37				U	mg/L		-0.6	0.6			
WG454866LFB	LFB	08/24/18 16:50	II180809-4	100.8796		100.8	mg/L	100	85	115			
L46203-01AS	AS	08/24/18 17:10	II180809-4	100.8796	122	216	mg/L	93	85	115			
L46203-01ASD	ASD	08/24/18 17:13	II180809-4	100.8796	122	215.9	mg/L	93	85	115	0	20	

Rio Algom Mining Company

ACZ Project ID: **L46202**

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.

Sulfate

D516-02/-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454405													
WG454405ICB	ICB	08/20/18 10:39				U	mg/L		-3	3			
WG454405ICV	ICV	08/20/18 10:39	WI180809-9	20		19.3	mg/L	97	90	110			
WG454405LFB	LFB	08/20/18 12:04	WI180726-1	10		9.2	mg/L	92	90	110			
L46202-04AS	AS	08/20/18 12:21	SO4TURB50X	10	1010	1040	mg/L	300	90	110			M3
L46202-03DUP	DUP	08/20/18 12:54			11200	11700	mg/L				4	20	

Rio Algom Mining Company

ACZ Project ID: **L46202**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46202-01	WG454610	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454703	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).
	WG454405	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.
L46202-02	WG454610	Chloride	SM4500CI-E	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.
	WG454703	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).
	WG453860	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
	WG454405	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.
L46202-03	WG454610	Chloride	SM4500CI-E	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.
	WG454440	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG454703	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	D1	Sample required dilution due to matrix.
			M353.2 - H2SO4 preserved	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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).
	WG453860	Residue, Filterable (TDS) @180C	SM2540C	RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
L46202-04	WG454610	Chloride	SM4500CI-E	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.
	WG454703	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.
			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).
	WG454405	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: **L46202**

No certification qualifiers associated with this analysis

Rio Algom Mining Company
4506946843

ACZ Project ID: L46202
Date Received: 08/11/2018 11:26
Received By:
Date Printed: 8/13/2018

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? A change was made in the Matrix Line1 section prior to ACZ custody.	<input checked="" type="checkbox"/>	<input 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?
3920	4.8	<=6.0	14	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
4506946843

ACZ Project ID: L46202

Date Received: 08/11/2018 11:26

Received By:

Date Printed: 8/13/2018

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.**

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 344-5493

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 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 PQI for Colorado.

Sampler's Name: Jara Tamba

Sampler's Site Information

State NMZip code 87020Time Zone MST*Sampler's Signature: Jara Tamba

*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)

Quote #: 58760PO#: 4502690253

Reporting state for compliance testing:

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION

DATE:TIME

Matrix

of Containers

SAP:GW

NRCED DRUG

32-43N

8/10/18 6921

GW

4

☐☒☐☐☐☐☐☐☐

32-69

8/10/18 1010

GW

4

☐☒☐☐☐☐☐☐☐

32-01R

8/10/18 1133

GW

4

☐☒☐☐☐☐☐☐☐

32-41

8/10/18 1336

GW

4

☐☒☐☐☐☐☐☐☐

Matrix

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

REMARKS

RAML COC#: 1804. Note different COC's may have different PO's. Shipment of 2 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

Jara Tamba8/10/18 1700BCR8/11/18 1126

FRMAD050.06.14.14

White - Return with sample.

Yellow - Retain for your records.



L46202 Chain of Custody

September 04, 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: Michaela Gorospe, Clark Short

Project ID: 4506946843

ACZ Project ID: L46350

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 18, 2018. This project has been assigned to ACZ's project number, L46350. Please reference this number in all future inquiries.

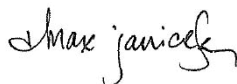
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L46350. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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 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.



Max Janicek has reviewed and
approved this report.



Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-52

ACZ Sample ID: **L46350-01**

Date Sampled: 08/16/18 17:29

Date Received: 08/18/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	2	326			mg/L	0.2	1	08/29/18 22:03	dcm
Magnesium, dissolved	M200.7 ICP	2	85.9			mg/L	0.4	2	08/29/18 22:03	dcm
Potassium, dissolved	M200.7 ICP	2	1.6	B		mg/L	0.4	2	08/29/18 22:03	dcm
Sodium, dissolved	M200.7 ICP	2	452			mg/L	0.4	2	08/29/18 22:03	dcm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500Cl-E	10	236		*	mg/L	5	20	09/04/18 10:40	mss2
Conductivity @25C	SM2510B	1	4080			umhos/cm	1	10	08/28/18 23:56	enb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	08/29/18 15:13	krh
Residue, Filterable (TDS) @180C	SM2540C	1	3340			mg/L	10	20	08/21/18 10:57	oah
Sulfate	D516-02/-07 - Turbidimetric	50	1690		*	mg/L	50	250	08/31/18 9:38	mss2


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: **L46350**

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
WG455212													
WG455212ICV	ICV	08/29/18 20:32	II180824-2	100		100.9	mg/L	101	95	105			
WG455212ICB	ICB	08/29/18 20:38				U	mg/L		-0.3	0.3			
WG455212LFB	LFB	08/29/18 20:50	II180827-2	68.16145		69.28	mg/L	102	85	115			
L46328-02AS	AS	08/29/18 21:48	II180827-2	68.16145	45.6	111.9	mg/L	97	85	115			
L46328-02ASD	ASD	08/29/18 21:51	II180827-2	68.16145	45.6	111.6	mg/L	97	85	115	0	20	

Chloride

SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455494													
WG455494ICB	ICB	09/04/18 9:16				U	mg/L		-1.5	1.5			
WG455494ICV	ICV	09/04/18 9:16	WI180530-1	54.89		55.95	mg/L	102	90	110			
WG455494LFB1	LFB	09/04/18 10:25	WI171229-5	30.03		31.82	mg/L	106	90	110			
L46389-01DUP	DUP	09/04/18 10:25			4.4	4.39	mg/L				0	20	RA
L46389-02AS	AS	09/04/18 10:25	WI171229-5	30.03	4.4	36.52	mg/L	107	90	110			
WG455494LFB2	LFB	09/04/18 10:34	WI171229-5	30.03		31.86	mg/L	106	90	110			

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455060													
WG455060LCSW2	LCSW	08/28/18 15:20	PCN56415	1410		1380	umhos/cm	98	90	110			
WG455060LCSW5	LCSW	08/28/18 17:54	PCN56415	1410		1370	umhos/cm	97	90	110			
WG455060LCSW8	LCSW	08/28/18 20:06	PCN56415	1410		1360	umhos/cm	96	90	110			
WG455060LCSW11	LCSW	08/28/18 22:09	PCN56415	1410		1270	umhos/cm	90	90	110			
L46399-25DUP	DUP	08/29/18 0:43			232	231	umhos/cm				0	20	
WG455060LCSW14	LCSW	08/29/18 1:06	PCN56415	1410		1350	umhos/cm	96	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455212													
WG455212ICV	ICV	08/29/18 20:32	II180824-2	100		101.78	mg/L	102	95	105			
WG455212ICB	ICB	08/29/18 20:38				U	mg/L		-0.6	0.6			
WG455212LFB	LFB	08/29/18 20:50	II180827-2	50.2933		48.28	mg/L	96	85	115			
L46328-02AS	AS	08/29/18 21:48	II180827-2	50.2933	1.8	50.72	mg/L	97	85	115			
L46328-02ASD	ASD	08/29/18 21:51	II180827-2	50.2933	1.8	49.36	mg/L	95	85	115	3	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
WG455205													
WG455205ICV	ICV	08/29/18 15:09	WI180602-1	2.416		2.31	mg/L	96	90	110			
WG455205ICB	ICB	08/29/18 15:10				U	mg/L		-0.02	0.02			
WG455205LFB	LFB	08/29/18 15:11	WI180703-7	2		1.987	mg/L	99	90	110			
L46473-01AS	AS	08/29/18 15:15	WI180703-7	2	U	2.009	mg/L	100	90	110			
L46562-01DUP	DUP	08/29/18 15:17			U	U	mg/L				0	20	RA

Rio Algom Mining Company

ACZ Project ID: **L46350**

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
WG455212													
WG455212ICV	ICV	08/29/18 20:32	II180824-2	20		20.2	mg/L	101	95	105			
WG455212ICB	ICB	08/29/18 20:38				U	mg/L		-0.6	0.6			
WG455212LFB	LFB	08/29/18 20:50	II180827-2	101.3833		101.5	mg/L	100	85	115			
L46328-02AS	AS	08/29/18 21:48	II180827-2	101.3833	.3	104.7	mg/L	103	85	115			
L46328-02ASD	ASD	08/29/18 21:51	II180827-2	101.3833	.3	101.4	mg/L	100	85	115	3	20	

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454494													
WG454494PBW	PBW	08/21/18 10:05				U	mg/L		-20	20			
WG454494LCSW	LCSW	08/21/18 10:07	PCN56357	260		248	mg/L	95	80	120			
L46351-02DUP	DUP	08/21/18 11:05			2010	2020	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
WG455212													
WG455212ICV	ICV	08/29/18 20:32	II180824-2	100		102.15	mg/L	102	95	105			
WG455212ICB	ICB	08/29/18 20:38				U	mg/L		-0.6	0.6			
WG455212LFB	LFB	08/29/18 20:50	II180827-2	100.8796		102.2	mg/L	101	85	115			
L46328-02AS	AS	08/29/18 21:48	II180827-2	100.8796	5.7	109.6	mg/L	103	85	115			
L46328-02ASD	ASD	08/29/18 21:51	II180827-2	100.8796	5.7	107.1	mg/L	101	85	115	2	20	

Sulfate

D516-02/-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455356													
WG455356ICB	ICB	08/31/18 8:19				U	mg/L		-3	3			
WG455356ICV	ICV	08/31/18 8:19	WI180827-2	20		19.6	mg/L	98	90	110			
L45307-06DUP	DUP	08/31/18 9:21			180	181	mg/L				1	20	
L45307-07AS	AS	08/31/18 9:23	SO4TURB5X	10	111	119	mg/L	80	90	110			M3
WG455356LFB	LFB	08/31/18 9:37	WI180726-1	10		10.3	mg/L	103	90	110			

Rio Algom Mining Company

ACZ Project ID: **L46350**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46350-01	WG455494	Chloride	SM4500Cl-E	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).
	WG455205	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).
	WG455356	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: **L46350**

No certification qualifiers associated with this analysis

Rio Algom Mining Company
4506946843

ACZ Project ID: L46350
Date Received: 08/18/2018 11:35
Received By:
Date Printed: 8/20/2018

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?
-----	-----	-----	-----	-----
4428	4.5	<=6.0	15	N/A

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
4506946843

ACZ Project ID: L46350

Date Received: 08/18/2018 11:35

Received By:

Date Printed: 8/20/2018

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).

Project Number: L 46350

Cooler
Number

Cooler Tag

1

4428 11:35 08/18/18
Temp: 4.5 C By: cmb
Rad: 15 uR Seal: N/A

2

3

4

5

6

7

8

9

10

Sample
Number

Associated Cooler

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

Log-In Order Verified:

Initials/Date:

CS 8.18.18

September 19, 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: L46194

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 10, 2018. This project has been assigned to ACZ's project number, L46194. 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 L46194. 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 19, 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

September 19, 2018

Project ID: 4506946843

ACZ Project ID: L46194

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 11 groundwater samples from Rio Algom Mining Company on August 10, 2018. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L46194. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic, radiochemistry parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

1. (N1) Carrier recovery outside of acceptance limits due to sx matrix. Sample had excessive amounts of precipitation after step 11.16 resulting in low carrier yield.

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-45 KD-R

ACZ Sample ID: **L46194-01**

Date Sampled: 08/06/18 16:21

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	1	0.0011	B		mg/L	0.0004	0.002	08/31/18 1:49	msh
Arsenic, dissolved	M200.8 ICP-MS	1	0.0005	B		mg/L	0.0002	0.001	08/31/18 1:49	msh
Barium, dissolved	M200.7 ICP	1	0.031			mg/L	0.003	0.02	08/29/18 16:46	aeH
Beryllium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.00005	0.0003	08/31/18 1:49	msh
Cadmium, dissolved	M200.8 ICP-MS	1		U		mg/L	0.0001	0.0005	08/31/18 1:49	msh
Calcium, dissolved	M200.7 ICP	1	222		*	mg/L	0.1	0.5	08/29/18 16:46	aeH
Iron, dissolved	M200.7 ICP	1	0.05			mg/L	0.02	0.05	08/29/18 16:46	aeH
Lead, dissolved	M200.8 ICP-MS	1	0.0001	B		mg/L	0.0001	0.0005	08/31/18 1:49	msh
Magnesium, dissolved	M200.7 ICP	1	56.8			mg/L	0.2	1	08/29/18 16:46	aeH
Molybdenum, dissolved	M200.8 ICP-MS	1	0.133			mg/L	0.0005	0.003	08/31/18 1:49	msh
Nickel, dissolved	M200.8 ICP-MS	1	0.0018	B		mg/L	0.0006	0.003	08/31/18 1:49	msh
Potassium, dissolved	M200.7 ICP	1	7.2			mg/L	0.2	1	08/29/18 16:46	aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0011	B	*	mg/L	0.001	0.005	08/16/18 13:29	che
Sodium, dissolved	M200.7 ICP	1	164			mg/L	0.2	1	08/29/18 16:46	aeH
Uranium, dissolved	M200.8 ICP-MS	1	0.0588			mg/L	0.0001	0.0005	08/31/18 1:49	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	322			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	322			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.2			%			09/18/18 0:00	calc
Sum of Anions			22			meq/L			09/18/18 0:00	calc
Sum of Cations			23			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	1	95.2		*	mg/L	0.5	2	08/27/18 12:45	mss2
Conductivity @25C	SM2510B	1	1890			umhos/cm	1	10	08/17/18 17:54	emk
Cyanide, Total	D7511-09	1		U		mg/L	0.003	0.01	08/13/18 11:53	rht
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	0.55			mg/L	0.02	0.1	08/29/18 0:17	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	1490			mg/L	10	20	08/10/18 16:52	nmc
Sulfate	D516-02/-07 - Turbidimetric	50	605		*	mg/L	50	250	08/30/18 13:21	mss2
TDS (calculated)	Calculation		1350			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.10						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-01 TRA-R

ACZ Sample ID: **L46194-02**

Date Sampled: 08/06/18 15:17

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	1	205		*	mg/L	0.1	0.5	08/29/18 16:55	aeH
Iron, dissolved	M200.7 ICP	1	0.06			mg/L	0.02	0.05	08/29/18 16:55	aeH
Magnesium, dissolved	M200.7 ICP	1	88.4			mg/L	0.2	1	08/29/18 16:55	aeH
Molybdenum, dissolved	M200.8 ICP-MS	1	0.0088			mg/L	0.0005	0.003	08/31/18 1:52	msh
Nickel, dissolved	M200.8 ICP-MS	1	0.0036			mg/L	0.0006	0.003	08/31/18 1:52	msh
Potassium, dissolved	M200.7 ICP	1	6.6			mg/L	0.2	1	08/29/18 16:55	aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	*	mg/L	0.001	0.005	08/16/18 13:31	che
Sodium, dissolved	M200.7 ICP	1	150			mg/L	0.2	1	08/29/18 16:55	aeH
Uranium, dissolved	M200.8 ICP-MS	1	0.0008			mg/L	0.0001	0.0005	08/31/18 1:52	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	154			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	154			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-2.0			%			09/18/18 0:00	calc
Sum of Anions			25			meq/L			09/18/18 0:00	calc
Sum of Cations			24			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	1	21.2		*	mg/L	0.5	2	08/27/18 12:45	mss2
Conductivity @25C	SM2510B	1	1850			umhos/cm	1	10	08/17/18 18:13	emk
Cyanide, Total	D7511-09	1		U		mg/L	0.003	0.01	08/13/18 11:59	rbt
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	0.03	B		mg/L	0.02	0.1	08/29/18 0:18	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	1590	H	*	mg/L	10	20	08/15/18 11:21	oah
Sulfate	D516-02/-07 - Turbidimetric	50	1000		*	mg/L	50	250	08/30/18 13:21	mss2
TDS (calculated)	Calculation		1570			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.01						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-02 TRB-R

ACZ Sample ID: **L46194-03**

Date Sampled: 08/06/18 14:20

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	675		*	mg/L	0.5	3	08/29/18 16:58	aeH
Iron, dissolved	M200.7 ICP	5	6.2			mg/L	0.1	0.3	08/29/18 16:58	aeH
Magnesium, dissolved	M200.7 ICP	5	771			mg/L	1	5	08/29/18 16:58	aeH
Molybdenum, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	08/31/18 2:01	msh
Nickel, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.02	08/31/18 2:01	msh
Potassium, dissolved	M200.7 ICP	5	20			mg/L	1	5	08/29/18 16:58	aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	*	mg/L	0.001	0.005	08/16/18 13:33	che
Sodium, dissolved	M200.7 ICP	5	633			mg/L	1	5	08/29/18 16:58	aeH
Uranium, dissolved	M200.8 ICP-MS	5	0.0037			mg/L	0.0005	0.003	08/31/18 2:01	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	1100			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	1100			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-0.4			%			09/18/18 0:00	calc
Sum of Anions			127			meq/L			09/18/18 0:00	calc
Sum of Cations			126			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	50	1150			mg/L	30	100	08/27/18 13:36	mss2
Conductivity @25C	SM2510B	1	7710			umhos/cm	1	10	08/17/18 18:31	emk
Cyanide, Total	D7511-09	1		U	*	mg/L	0.003	0.01	08/13/18 12:01	rbt
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1		U		mg/L	0.02	0.1	08/29/18 0:24	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	7770	H	*	mg/L	50	100	08/15/18 11:24	oah
Sulfate	D516-02/-07 - Turbidimetric	250	3490		*	mg/L	250	1250	08/30/18 13:21	mss2
TDS (calculated)	Calculation		7420			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.05						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 36-06 KD

ACZ Sample ID: **L46194-04**

Date Sampled: 08/06/18 12:00

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	5		U		mg/L	0.002	0.01	08/31/18 2:04	msh
Arsenic, dissolved	M200.8 ICP-MS	5	0.005			mg/L	0.001	0.005	08/31/18 2:04	msh
Barium, dissolved	M200.7 ICP	5		U		mg/L	0.02	0.08	08/29/18 17:01	aeH
Beryllium, dissolved	M200.8 ICP-MS	5	0.0092			mg/L	0.0003	0.001	08/31/18 2:04	msh
Cadmium, dissolved	M200.8 ICP-MS	5	0.0077			mg/L	0.0005	0.003	08/31/18 2:04	msh
Calcium, dissolved	M200.7 ICP	5	519		*	mg/L	0.5	3	08/29/18 17:01	aeH
Iron, dissolved	M200.7 ICP	5	12.4			mg/L	0.1	0.3	08/29/18 17:01	aeH
Lead, dissolved	M200.8 ICP-MS	5	0.0018	B		mg/L	0.0005	0.003	08/31/18 2:04	msh
Magnesium, dissolved	M200.7 ICP	5	338			mg/L	1	5	08/29/18 17:01	aeH
Molybdenum, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	08/31/18 2:04	msh
Nickel, dissolved	M200.8 ICP-MS	5	0.131			mg/L	0.003	0.02	08/31/18 2:04	msh
Potassium, dissolved	M200.7 ICP	5	12			mg/L	1	5	08/29/18 17:01	aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0026	B	*	mg/L	0.001	0.005	08/16/18 13:35	che
Sodium, dissolved	M200.7 ICP	5	499			mg/L	1	5	08/29/18 17:01	aeH
Uranium, dissolved	M200.8 ICP-MS	5	0.463			mg/L	0.0005	0.003	08/31/18 2:04	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1		U		mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-7.8			%			09/18/18 0:00	calc
Sum of Anions			90			meq/L			09/18/18 0:00	calc
Sum of Cations			77			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	50	930			mg/L	30	100	08/27/18 13:36	mss2
Conductivity @25C	SM2510B	1	6670			umhos/cm	1	10	08/17/18 18:35	emk
Cyanide, Total	D7511-09	1		U		mg/L	0.003	0.01	08/13/18 12:05	rht
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1		U		mg/L	0.02	0.1	08/29/18 0:25	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6050			mg/L	20	40	08/13/18 16:08	nmc
Sulfate	D516-02/-07 - Turbidimetric	120	3050		*	mg/L	120	600	08/30/18 13:27	mss2
TDS (calculated)	Calculation		5360			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.13						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-08 ALL-R

ACZ Sample ID: **L46194-05**

Date Sampled: 08/07/18 09:52

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	2	524		*	mg/L	0.2	1	08/29/18 17:04	aeH
Iron, dissolved	M200.7 ICP	2		U		mg/L	0.04	0.1	08/29/18 17:04	aeH
Magnesium, dissolved	M200.7 ICP	2	185			mg/L	0.4	2	08/29/18 17:04	aeH
Molybdenum, dissolved	M200.8 ICP-MS	2	0.004	B		mg/L	0.001	0.005	08/31/18 2:07	msh
Nickel, dissolved	M200.8 ICP-MS	2	0.002	B		mg/L	0.001	0.006	08/31/18 2:07	msh
Potassium, dissolved	M200.7 ICP	2	4.0			mg/L	0.4	2	08/29/18 17:04	aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0095		*	mg/L	0.001	0.005	08/16/18 13:37	che
Sodium, dissolved	M200.7 ICP	2	302			mg/L	0.4	2	08/29/18 17:04	aeH
Uranium, dissolved	M200.8 ICP-MS	2	0.0235			mg/L	0.0002	0.001	08/31/18 2:07	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	234			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	234			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			4.8			%			09/18/18 0:00	calc
Sum of Anions			50.0			meq/L			09/18/18 0:00	calc
Sum of Cations			55			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	10	164			mg/L	5	20	08/27/18 13:00	mss2
Conductivity @25C	SM2510B	1	3760			umhos/cm	1	10	08/17/18 18:44	emk
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	10	21.6			mg/L	0.2	1	08/29/18 1:06	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	3810	H	*	mg/L	10	20	08/15/18 11:27	oah
Sulfate	D516-02/-07 - Turbidimetric	100	1940		*	mg/L	100	500	08/30/18 13:28	mss2
TDS (calculated)	Calculation		3260			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.17						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-04 ALL

ACZ Sample ID: **L46194-06**

Date Sampled: 08/07/18 11:04

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	286		*	mg/L	0.5	3	08/29/18 17:08	aeH
Iron, dissolved	M200.7 ICP	5	46.4			mg/L	0.1	0.3	08/29/18 17:08	aeH
Magnesium, dissolved	M200.7 ICP	5	674			mg/L	1	5	08/29/18 17:08	aeH
Molybdenum, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	08/31/18 2:11	msh
Nickel, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.02	08/31/18 2:11	msh
Potassium, dissolved	M200.7 ICP	5	5			mg/L	1	5	08/29/18 17:08	aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	*	mg/L	0.001	0.005	08/16/18 13:43	che
Sodium, dissolved	M200.7 ICP	5	315			mg/L	1	5	08/29/18 17:08	aeH
Uranium, dissolved	M200.8 ICP-MS	5		U		mg/L	0.0005	0.003	08/31/18 2:11	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	15.3	B		mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	15.3	B	*	mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.4			%			09/18/18 0:00	calc
Sum of Anions			82			meq/L			09/18/18 0:00	calc
Sum of Cations			86.0			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	10	970			mg/L	5	20	08/27/18 13:00	mss2
Conductivity @25C	SM2510B	1	5070		*	umhos/cm	1	10	08/17/18 18:52	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U		mg/L	0.02	0.1	08/29/18 1:07	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	5440	H	*	mg/L	50	100	08/15/18 11:29	oah
Sulfate	D516-02/-07 - Turbidimetric	100	2610		*	mg/L	100	500	08/30/18 13:28	mss2
TDS (calculated)	Calculation		4920			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.11						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-73 ALL-R

ACZ Sample ID: **L46194-07**

Date Sampled: 08/07/18 15:22

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	797		*	mg/L	0.5	3	08/29/18 17:16	aeh
Iron, dissolved	M200.7 ICP	5		U		mg/L	0.1	0.3	08/29/18 17:16	aeh
Magnesium, dissolved	M200.7 ICP	5	376			mg/L	1	5	08/29/18 17:16	aeh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.005	B		mg/L	0.003	0.01	08/31/18 2:20	msh
Nickel, dissolved	M200.8 ICP-MS	5	0.011	B		mg/L	0.003	0.02	08/31/18 2:20	msh
Potassium, dissolved	M200.7 ICP	5	2	B		mg/L	1	5	08/29/18 17:16	aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	5	0.105			mg/L	0.005	0.025	08/16/18 14:22	che
Sodium, dissolved	M200.7 ICP	5	779			mg/L	1	5	08/29/18 17:16	aeh
Uranium, dissolved	M200.8 ICP-MS	5	1.64			mg/L	0.0005	0.003	08/31/18 2:20	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	592			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	592		*	mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			8.2			%			09/18/18 0:00	calc
Sum of Anions			89			meq/L			09/18/18 0:00	calc
Sum of Cations			105			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	50	1520			mg/L	30	100	08/27/18 13:36	mss2
Conductivity @25C	SM2510B	1	6620		*	umhos/cm	1	10	08/17/18 19:03	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	5.24			mg/L	0.06	0.3	08/29/18 2:32	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	6510	H	*	mg/L	50	100	08/21/18 10:10	oah
Sulfate	D516-02/-07 - Turbidimetric	250	1630		*	mg/L	250	1250	08/30/18 13:22	mss2
TDS (calculated)	Calculation		5470			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.19						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-03 ALL-R

ACZ Sample ID: **L46194-08**

Date Sampled: 08/07/18 17:01

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	543		*	mg/L	0.5	3	08/29/18 17:20	aeh
Iron, dissolved	M200.7 ICP	5		U		mg/L	0.1	0.3	08/29/18 17:20	aeh
Magnesium, dissolved	M200.7 ICP	5	290			mg/L	1	5	08/29/18 17:20	aeh
Molybdenum, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	08/31/18 2:23	msh
Nickel, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.02	08/31/18 2:23	msh
Potassium, dissolved	M200.7 ICP	5	4	B		mg/L	1	5	08/29/18 17:20	aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0016	B	*	mg/L	0.001	0.005	08/16/18 13:47	che
Sodium, dissolved	M200.7 ICP	5	442			mg/L	1	5	08/29/18 17:20	aeh
Uranium, dissolved	M200.8 ICP-MS	5	0.0926			mg/L	0.0005	0.003	08/31/18 2:23	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	299			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	299			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.9			%			09/18/18 0:00	calc
Sum of Anions			67			meq/L			09/18/18 0:00	calc
Sum of Cations			71			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	10	604			mg/L	5	20	08/27/18 13:02	mss2
Conductivity @25C	SM2510B	1	4040			umhos/cm	1	10	08/17/18 19:13	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.46			mg/L	0.02	0.1	08/29/18 0:33	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4430			mg/L	20	40	08/13/18 16:10	nmc
Sulfate	D516-02/-07 - Turbidimetric	100	2080		*	mg/L	100	500	08/30/18 15:03	mss2
TDS (calculated)	Calculation		4150			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.07						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-59 ALL

ACZ Sample ID: **L46194-09**

Date Sampled: 08/08/18 08:46

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	562		*	mg/L	0.5	3	08/29/18 17:23	aeh
Iron, dissolved	M200.7 ICP	5		U		mg/L	0.1	0.3	08/29/18 17:23	aeh
Magnesium, dissolved	M200.7 ICP	5	244			mg/L	1	5	08/29/18 17:23	aeh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.004	B		mg/L	0.003	0.01	08/31/18 2:26	msh
Nickel, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.02	08/31/18 2:26	msh
Potassium, dissolved	M200.7 ICP	5	2	B		mg/L	1	5	08/29/18 17:23	aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	10	0.249			mg/L	0.01	0.05	08/16/18 14:31	che
Sodium, dissolved	M200.7 ICP	5	535			mg/L	1	5	08/29/18 17:23	aeh
Uranium, dissolved	M200.8 ICP-MS	5	0.210			mg/L	0.0005	0.003	08/31/18 2:26	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	327			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	327			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			9.9			%			09/18/18 0:00	calc
Sum of Anions			59.0			meq/L			09/18/18 0:00	calc
Sum of Cations			72			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	10	547			mg/L	5	20	08/27/18 13:02	mss2
Conductivity @25C	SM2510B	1	4110			umhos/cm	1	10	08/17/18 19:22	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	2.39			mg/L	0.02	0.1	08/29/18 0:34	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4530			mg/L	20	40	08/13/18 16:13	nmc
Sulfate	D516-02/-07 - Turbidimetric	100	1770		*	mg/L	100	500	08/30/18 15:03	mss2
TDS (calculated)	Calculation		3860			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.17						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-61 ALL

ACZ Sample ID: **L46194-10**

Date Sampled: 08/08/18 15:56

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	568			mg/L	1	5	08/29/18 17:26	aeh
Iron, dissolved	M200.7 ICP	10		U		mg/L	0.2	0.5	08/29/18 17:26	aeh
Magnesium, dissolved	M200.7 ICP	10	1370			mg/L	2	10	08/29/18 17:26	aeh
Molybdenum, dissolved	M200.8 ICP-MS	10		U		mg/L	0.005	0.03	08/31/18 2:30	msh
Nickel, dissolved	M200.8 ICP-MS	10	0.054			mg/L	0.006	0.03	08/31/18 2:30	msh
Potassium, dissolved	M200.7 ICP	10	29			mg/L	2	10	08/29/18 17:26	aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0070			mg/L	0.001	0.005	08/16/18 13:51	che
Sodium, dissolved	M200.7 ICP	10	1760			mg/L	2	10	08/29/18 17:26	aeh
Uranium, dissolved	M200.8 ICP-MS	10	0.646			mg/L	0.001	0.005	08/31/18 2:30	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	1860			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	1860			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-2.4			%			09/18/18 0:00	calc
Sum of Anions			230			meq/L			09/18/18 0:00	calc
Sum of Cations			219			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	50	2010			mg/L	30	100	08/27/18 13:36	mss2
Conductivity @25C	SM2510B	1	11600			umhos/cm	1	10	08/17/18 19:45	emk
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	4	7.46			mg/L	0.08	0.4	08/29/18 1:15	pjb
Residue, Filterable (TDS) @180C	SM2540C	10	14100			mg/L	100	200	08/13/18 16:16	nmc
Sulfate	D516-02/-07 - Turbidimetric	500	6490		*	mg/L	500	2500	08/30/18 14:23	mss2
TDS (calculated)	Calculation		13400			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.05						09/18/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 36-02 TRB

ACZ Sample ID: **L46194-11**

Date Sampled: 08/08/18 09:18

Date Received: 08/10/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	385			mg/L	0.5	3	08/29/18 17:29	aeh
Iron, dissolved	M200.7 ICP	5	24.1			mg/L	0.1	0.3	08/29/18 17:29	aeh
Magnesium, dissolved	M200.7 ICP	5	1190			mg/L	1	5	08/29/18 17:29	aeh
Molybdenum, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	08/31/18 2:33	msh
Nickel, dissolved	M200.8 ICP-MS	5	0.005	B		mg/L	0.003	0.02	08/31/18 2:33	msh
Potassium, dissolved	M200.7 ICP	5	16			mg/L	1	5	08/29/18 17:29	aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0013	B		mg/L	0.001	0.005	08/16/18 13:58	che
Sodium, dissolved	M200.7 ICP	5	676			mg/L	1	5	08/29/18 17:29	aeh
Uranium, dissolved	M200.8 ICP-MS	5	0.0031			mg/L	0.0005	0.003	08/31/18 2:33	msh

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	1180			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	1180		*	mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			3.9			%			09/18/18 0:00	calc
Sum of Anions			137			meq/L			09/18/18 0:00	calc
Sum of Cations			148			meq/L			09/18/18 0:00	calc
Chloride	SM4500Cl-E	50	2020			mg/L	30	100	08/27/18 13:36	mss2
Conductivity @25C	SM2510B	1	7140		*	umhos/cm	1	10	08/17/18 20:02	emk
Cyanide, Total	D7511-09	1		U	*	mg/L	0.003	0.01	08/13/18 12:15	rbr
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U		mg/L	0.02	0.1	08/29/18 0:41	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	8500		*	mg/L	50	100	08/15/18 11:34	oah
Sulfate	D516-02/-07 - Turbidimetric	250	2700		*	mg/L	250	1250	08/30/18 14:23	mss2
TDS (calculated)	Calculation		7730			mg/L			09/18/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.10						09/18/18 0:00	calc


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: **L46194**

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.

Alkalinity as CaCO3

SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454327													
WG454327PBW1	PBW	08/17/18 16:24				2.1	mg/L		-20	20			
WG454327LCSW3	LCSW	08/17/18 16:41	WC180807-3	820.0001		797	mg/L	97	90	110			
L46194-01DUP	DUP	08/17/18 18:04			322	342	mg/L				6	20	
L46194-11DUP	DUP	08/17/18 20:18			1180	1170	mg/L				1	20	
WG454327LCSW6	LCSW	08/17/18 20:35	WC180807-3	820.0001		802	mg/L	98	90	110			
WG454327PBW2	PBW	08/17/18 20:40				U	mg/L		-20	20			
WG454327LCSW9	LCSW	08/17/18 23:58	WC180807-3	820.0001		787	mg/L	96	90	110			
WG454327PBW3	PBW	08/18/18 0:03				U	mg/L		-20	20			
WG454327LCSW12	LCSW	08/18/18 3:18	WC180807-3	820.0001		819	mg/L	100	90	110			
WG454327PBW4	PBW	08/18/18 3:23				U	mg/L		-20	20			
WG454327LCSW15	LCSW	08/18/18 6:51	WC180807-3	820.0001		793	mg/L	97	90	110			

Antimony, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.02		.01965	mg/L	98	90	110			
WG455341ICB	ICB	08/31/18 1:42				U	mg/L		-0.00088	0.00088			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.01		.0096	mg/L	96	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.01	U	.00964	mg/L	96	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.01	U	.00982	mg/L	98	70	130	2	20	

Arsenic, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.05		.05015	mg/L	100	90	110			
WG455341ICB	ICB	08/31/18 1:42				U	mg/L		-0.00044	0.00044			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.0501		.04944	mg/L	99	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.0501	.0009	.05382	mg/L	106	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.0501	.0009	.05324	mg/L	104	70	130	1	20	

Barium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455169													
WG455169ICV	ICV	08/29/18 16:22	II180824-2	2		1.992	mg/L	100	95	105			
WG455169ICB	ICB	08/29/18 16:28				U	mg/L		-0.009	0.009			
WG455169LFB	LFB	08/29/18 16:40	II180827-2	.5025		.5371	mg/L	107	85	115			
L46194-01AS	AS	08/29/18 16:49	II180827-2	.5025	.031	.5672	mg/L	107	85	115			
L46194-01ASD	ASD	08/29/18 16:52	II180827-2	.5025	.031	.5617	mg/L	106	85	115	1	20	

Beryllium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.05		.04653	mg/L	93	90	110			
WG455341ICB	ICB	08/31/18 1:42				.000065	mg/L		-0.00011	0.00011			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.05035		.04747	mg/L	94	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.05035	U	.04479	mg/L	89	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.05035	U	.04529	mg/L	90	70	130	1	20	

Rio Algom Mining Company

ACZ Project ID: **L46194**

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.

Cadmium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.05		.05089	mg/L	102	90	110			
WG455341ICB	ICB	08/31/18 1:42				U	mg/L		-0.00022	0.00022			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.05005		.04953	mg/L	99	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.05005	U	.04891	mg/L	98	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.05005	U	.04916	mg/L	98	70	130	1	20	

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455169													
WG455169ICV	ICV	08/29/18 16:22	II180824-2	100		97.88	mg/L	98	95	105			
WG455169ICB	ICB	08/29/18 16:28				U	mg/L		-0.3	0.3			
WG455169LFB	LFB	08/29/18 16:40	II180827-2	68.16145		68.46	mg/L	100	85	115			
L46194-01AS	AS	08/29/18 16:49	II180827-2	68.16145	222	279.7	mg/L	85	85	115			
L46194-01ASD	ASD	08/29/18 16:52	II180827-2	68.16145	222	278	mg/L	82	85	115	1	20	M3
L46335-01AS	AS	08/29/18 17:41	II180827-2	68.16145	17.9	87.04	mg/L	101	85	115			
L46335-01ASD	ASD	08/29/18 17:44	II180827-2	68.16145	17.9	87.75	mg/L	102	85	115	1	20	

Chloride

SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454952													
WG454952ICB	ICB	08/27/18 8:15				U	mg/L		-1.5	1.5			
WG454952ICV	ICV	08/27/18 8:15	WI180530-1	54.89		55.53	mg/L	101	90	110			
WG454952LFB1	LFB	08/27/18 12:43	WI171229-5	30.03		31.98	mg/L	106	90	110			
L42792-27DUP	DUP	08/27/18 12:43			U	U	mg/L				0	20	RA
L42793-27AS	AS	08/27/18 12:43	WI171229-5	30.03	U	32.27	mg/L	107	90	110			
WG454952LFB2	LFB	08/27/18 12:47	WI171229-5	30.03		32.12	mg/L	107	90	110			
L46194-05AS	AS	08/27/18 13:00	10XCL	30	164	191.3	mg/L	91	90	110			
L46194-04DUP	DUP	08/27/18 13:36			930	900	mg/L				3	20	

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454327													
WG454327LCSW2	LCSW	08/17/18 16:29	PCN55810	1410		1440	umhos/cm	102	90	110			
L46194-01DUP	DUP	08/17/18 18:04			1890	1880	umhos/cm				1	20	
L46194-11DUP	DUP	08/17/18 20:18			7140	7290	umhos/cm				2	20	
WG454327LCSW5	LCSW	08/17/18 20:23	PCN55810	1410		1360	umhos/cm	96	90	110			
WG454327LCSW8	LCSW	08/17/18 23:46	PCN55810	1410		1350	umhos/cm	96	90	110			

Cyanide, Total

D7511-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG453859													
WG453859ICV	ICV	08/13/18 11:43	WI180809-7	.3		.296	mg/L	99	90	110			
WG453859ICB	ICB	08/13/18 11:45				U	mg/L		-0.003	0.003			
WG453859LFB	LFB	08/13/18 11:51	WI180809-4	.1		.099	mg/L	99	84	116			
L46194-01AS	AS	08/13/18 11:55	WI180809-4	.1	U	.097	mg/L	97	84	116			
L46194-01ASD	ASD	08/13/18 11:57	WI180809-4	.1	U	.1058	mg/L	106	84	116	9	20	

Rio Algom Mining Company

ACZ Project ID: **L46194**

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.

Iron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455169													
WG455169ICV	ICV	08/29/18 16:22	II180824-2	2		1.911	mg/L	96	95	105			
WG455169ICB	ICB	08/29/18 16:28				U	mg/L		-0.06	0.06			
WG455169LFB	LFB	08/29/18 16:40	II180827-2	1.0018		1.068	mg/L	107	85	115			
L46194-01AS	AS	08/29/18 16:49	II180827-2	1.0018	.05	1.08	mg/L	103	85	115			
L46194-01ASD	ASD	08/29/18 16:52	II180827-2	1.0018	.05	1.088	mg/L	104	85	115	1	20	
L46335-01AS	AS	08/29/18 17:41	II180827-2	1.0018	.04	1.103	mg/L	106	85	115			
L46335-01ASD	ASD	08/29/18 17:44	II180827-2	1.0018	.04	1.105	mg/L	106	85	115	0	20	

Lead, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.05		.05101	mg/L	102	90	110			
WG455341ICB	ICB	08/31/18 1:42				U	mg/L		-0.00022	0.00022			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.0496		.04861	mg/L	98	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.0496	.0001	.05104	mg/L	103	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.0496	.0001	.05036	mg/L	101	70	130	1	20	

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455169													
WG455169ICV	ICV	08/29/18 16:22	II180824-2	100		98.94	mg/L	99	95	105			
WG455169ICB	ICB	08/29/18 16:28				U	mg/L		-0.6	0.6			
WG455169LFB	LFB	08/29/18 16:40	II180827-2	50.2933		47.84	mg/L	95	85	115			
L46194-01AS	AS	08/29/18 16:49	II180827-2	50.2933	56.8	102	mg/L	90	85	115			
L46194-01ASD	ASD	08/29/18 16:52	II180827-2	50.2933	56.8	101.3	mg/L	88	85	115	1	20	
L46335-01AS	AS	08/29/18 17:41	II180827-2	50.2933	5.1	53.39	mg/L	96	85	115			
L46335-01ASD	ASD	08/29/18 17:44	II180827-2	50.2933	5.1	53.88	mg/L	97	85	115	1	20	

Molybdenum, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.02006		.01989	mg/L	99	90	110			
WG455341ICB	ICB	08/31/18 1:42				U	mg/L		-0.0011	0.0011			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.05015		.04658	mg/L	93	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.05015	.0088	.0573	mg/L	97	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.05015	.0088	.05781	mg/L	98	70	130	1	20	
L46323-01AS	AS	08/31/18 2:39	MS180806-8	.05015	U	.04642	mg/L	93	70	130			
L46323-01ASD	ASD	08/31/18 2:42	MS180806-8	.05015	U	.04549	mg/L	91	70	130	2	20	

Rio Algom Mining Company

ACZ Project ID: **L46194**

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.

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.05		.05242	mg/L	105	90	110			
WG455341ICB	ICB	08/31/18 1:42				U	mg/L		-0.00132	0.00132			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.0501		.04755	mg/L	95	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.0501	.0036	.0493	mg/L	91	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.0501	.0036	.04922	mg/L	91	70	130	0	20	
L46323-01AS	AS	08/31/18 2:39	MS180806-8	.0501	U	.04781	mg/L	95	70	130			
L46323-01ASD	ASD	08/31/18 2:42	MS180806-8	.0501	U	.046	mg/L	92	70	130	4	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
WG455107													
WG455107ICV	ICV	08/28/18 23:26	WI180602-1	2.416		2.359	mg/L	98	90	110			
WG455107ICB	ICB	08/28/18 23:27				U	mg/L		-0.02	0.02			
WG455109													
WG455109LFB1	LFB	08/29/18 0:07	WI180703-7	2		1.948	mg/L	97	90	110			
L46165-01AS	AS	08/29/18 0:09	WI180703-7	2	U	1.83	mg/L	92	90	110			
L46165-02DUP	DUP	08/29/18 0:12			2.72	2.738	mg/L				1	20	
WG455109LFB2	LFB	08/29/18 0:47	WI180703-7	2		1.906	mg/L	95	90	110			
L46194-06AS	AS	08/29/18 1:08	WI180703-7	2	U	1.908	mg/L	95	90	110			
L46194-07DUP	DUP	08/29/18 2:33			5.24	5.158	mg/L				2	20	

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455169													
WG455169ICV	ICV	08/29/18 16:22	II180824-2	20		19.76	mg/L	99	95	105			
WG455169ICB	ICB	08/29/18 16:28				U	mg/L		-0.6	0.6			
WG455169LFB	LFB	08/29/18 16:40	II180827-2	101.3833		101.1	mg/L	100	85	115			
L46194-01AS	AS	08/29/18 16:49	II180827-2	101.3833	7.2	109.8	mg/L	101	85	115			
L46194-01ASD	ASD	08/29/18 16:52	II180827-2	101.3833	7.2	108.8	mg/L	100	85	115	1	20	
L46335-01AS	AS	08/29/18 17:41	II180827-2	101.3833	1.2	103.8	mg/L	101	85	115			
L46335-01ASD	ASD	08/29/18 17:44	II180827-2	101.3833	1.2	105.1	mg/L	102	85	115	1	20	

Rio Algom Mining Company

ACZ Project ID: **L46194**

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.

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG453799													
WG453799PBW	PBW	08/10/18 16:19				U	mg/L		-20	20			
WG453799LCSW	LCSW	08/10/18 16:22	PCN56037	260		246	mg/L	95	80	120			
L46194-01DUP	DUP	08/10/18 16:56			1490	1490	mg/L				0	10	
WG453909													
WG453909PBW	PBW	08/13/18 15:50				U	mg/L		-20	20			
WG453909LCSW	LCSW	08/13/18 15:52	PCN56037	260		258	mg/L	99	80	120			
L46195-05DUP	DUP	08/13/18 16:21			13300	13000	mg/L				2	10	
WG454076													
WG454076PBW	PBW	08/15/18 10:40				10	mg/L		-20	20			
WG454076LCSW	LCSW	08/15/18 10:42	PCN56042	260		266	mg/L	102	80	120			
L46228-02DUP	DUP	08/15/18 11:40			950	800	mg/L				17	10	RA
WG454494													
WG454494PBW	PBW	08/21/18 10:05				U	mg/L		-20	20			
WG454494LCSW	LCSW	08/21/18 10:07	PCN56357	260		248	mg/L	95	80	120			
L46347-02DUP	DUP	08/21/18 10:36			244	246	mg/L				1	10	

Selenium, dissolved

SM 3114 B, AA-Hydride

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454156													
WG454156ICV	ICV	08/16/18 13:15	SE180801-2	.025025		.0263	mg/L	105	90	110			
WG454156ICB	ICB	08/16/18 13:17				U	mg/L		-0.003	0.003			
WG454156LRB	LRB	08/16/18 13:19				U	mg/L		-0.003	0.003			
WG454156LFB	LFB	08/16/18 13:21	SE180709-4	.02224		.0234	mg/L	105	85	115			
L46050-01LFM	LFM	08/16/18 13:25	SE5XPREP	.1112	.0919	.1	mg/L	7	85	115			M2
L46050-01LFMD	LFMD	08/16/18 13:27	SE5XPREP	.1112	.0919	.0998	mg/L	7	85	115	0	20	M2
L46194-10LFM	LFM	08/16/18 13:53	SE180709-4	.02224	.007	.029	mg/L	99	85	115			
L46194-10LFMD	LFMD	08/16/18 13:56	SE180709-4	.02224	.007	.0288	mg/L	98	85	115	1	20	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455169													
WG455169ICV	ICV	08/29/18 16:22	II180824-2	100		98.56	mg/L	99	95	105			
WG455169ICB	ICB	08/29/18 16:28				U	mg/L		-0.6	0.6			
WG455169LFB	LFB	08/29/18 16:40	II180827-2	100.8796		100.9	mg/L	100	85	115			
L46194-01AS	AS	08/29/18 16:49	II180827-2	100.8796	164	258.6	mg/L	94	85	115			
L46194-01ASD	ASD	08/29/18 16:52	II180827-2	100.8796	164	256.1	mg/L	91	85	115	1	20	
L46335-01AS	AS	08/29/18 17:41	II180827-2	100.8796	8.3	111	mg/L	102	85	115			
L46335-01ASD	ASD	08/29/18 17:44	II180827-2	100.8796	8.3	112.2	mg/L	103	85	115	1	20	

Rio Algom Mining Company

ACZ Project ID: **L46194**

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.

Sulfate

D516-02/-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455303													
WG455303ICB	ICB	08/30/18 8:13				U	mg/L		-3	3			
WG455303ICV	ICV	08/30/18 8:13	WI180827-2	20		18.6	mg/L	93	90	110			
L41361-40DUP	DUP	08/30/18 13:16			155	150	mg/L				3	20	
L41361-41AS	AS	08/30/18 13:16	SO4TURB5X	10	132	156	mg/L	240	90	110			M3
WG455303LFB	LFB	08/30/18 13:19	WI180726-1	10		9.5	mg/L	95	90	110			
L46323-01DUP	DUP	08/30/18 13:39			64.1	64.8	mg/L				1	20	
L46323-02AS	AS	08/30/18 13:39	SO4TURB5X	10	106	120	mg/L	140	90	110			M3

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455341													
WG455341ICV	ICV	08/31/18 1:39	MS180730-1	.05		.05266	mg/L	105	90	110			
WG455341ICB	ICB	08/31/18 1:42				U	mg/L		-0.00022	0.00022			
WG455341LFB	LFB	08/31/18 1:45	MS180806-8	.05		.05118	mg/L	102	85	115			
L46194-02AS	AS	08/31/18 1:55	MS180806-8	.05	.0008	.05679	mg/L	112	70	130			
L46194-02ASD	ASD	08/31/18 1:58	MS180806-8	.05	.0008	.05668	mg/L	112	70	130	0	20	
L46323-01AS	AS	08/31/18 2:39	MS180806-8	.05	.0001	.05086	mg/L	102	70	130			
L46323-01ASD	ASD	08/31/18 2:42	MS180806-8	.05	.0001	.04905	mg/L	98	70	130	4	20	

Rio Algom Mining Company

ACZ Project ID: **L46194**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46194-01	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG454952	Chloride	SM4500CI-E	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).
	WG454156	Selenium, dissolved	SM 3114 B, AA-Hydride	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455303	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.
L46194-02	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG454952	Chloride	SM4500CI-E	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).
	WG454076	Residue, Filterable (TDS) @180C	SM2540C	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM2540C	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).
	WG454156	Selenium, dissolved	SM 3114 B, AA-Hydride	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455303	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.
L46194-03	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG453859	Cyanide, Total	D7511-09	Q3	Sample received with improper or inadequate chemical preservation.
	WG454076	Residue, Filterable (TDS) @180C	SM2540C	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM2540C	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).
	WG454156	Selenium, dissolved	SM 3114 B, AA-Hydride	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455303	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.
L46194-04	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG454156	Selenium, dissolved	SM 3114 B, AA-Hydride	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455303	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: **L46194**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46194-05	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG454076	Residue, Filterable (TDS) @180C	SM2540C	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM2540C	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).
	WG454156	Selenium, dissolved	SM 3114 B, AA-Hydride	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455303	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.
L46194-06	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG454327	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG454076	Residue, Filterable (TDS) @180C	SM2540C	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM2540C	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).
	WG454156	Selenium, dissolved	SM 3114 B, AA-Hydride	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455303	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.
	WG454327	Total Alkalinity	SM2320B - Titration	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
L46194-07	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG454327	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG454494	Residue, Filterable (TDS) @180C	SM2540C	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
	WG455303	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.
	WG454327	Total Alkalinity	SM2320B - Titration	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
L46194-08	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG454156	Selenium, dissolved	SM 3114 B, AA-Hydride	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455303	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: **L46194**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46194-09	WG455169	Calcium, dissolved	M200.7 ICP	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.
	WG455303	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.
L46194-10	WG455303	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.
L46194-11	WG454327	Conductivity @25C	SM2510B	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
	WG453859	Cyanide, Total	D7511-09	Q3	Sample received with improper or inadequate chemical preservation.
	WG454076	Residue, Filterable (TDS) @180C	SM2540C	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).
	WG455303	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.
	WG454327	Total Alkalinity	SM2320B - Titration	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-45 KD-R

Locator:

ACZ Sample ID: **L46194-01**

Date Sampled: 08/06/18 16:21

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha - Corrected

Prep Method:

Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	09/18/18 11:06		110			pCi/L		calc

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		150	20	14	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 13:43		2.1	1.3	2.3	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:08		1.1	0.17	0.13	pCi/L		amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 16:50		1.6	0.77	0.73	pCi/L		jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:02		-0.05	0.39	0.71	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-01 TRA-R

Locator:

ACZ Sample ID: **L46194-02**

Date Sampled: 08/06/18 15:17

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha - Corrected

Prep Method:

Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	09/18/18 11:06		0.06			pCi/L		calc

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		0.6	3.4	17	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 13:43		1.2	1.3	2.4	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:10		0.33	0.12	0.23	pCi/L		amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 16:50		0.6	0.8	0.81	pCi/L		jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:04		0.07	0.31	0.63	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-02 TRB-R

Locator:

ACZ Sample ID: **L46194-03**

Date Sampled: 08/06/18 14:20

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha - Corrected

Prep Method:

Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	09/18/18 11:06		6.3			pCi/L		calc

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		8.8	24	87	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 13:43		2.5	1.4	2.7	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:11		3.7	0.26	0.19	pCi/L	*	amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 16:50		11	1.2	0.75	pCi/L	*	jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:05		0.0	0.22	0.71	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 36-06 KD

Locator:

ACZ Sample ID: **L46194-04**

Date Sampled: 08/06/18 12:00

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha - Corrected

Prep Method:

Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	09/18/18 11:06		-90			pCi/L		calc

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		220	48	65	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 13:43		6.2	2.7	4.8	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:12		11	0.47	0.11	pCi/L		amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 16:50		7.1	0.98	0.72	pCi/L		jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:07		21	1.6	0.85	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-08 ALL-R

Locator:

ACZ Sample ID: **L46194-05**

Date Sampled: 08/07/18 9:52

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		2.5	8.2	34	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 13:43		2.2	1.6	3.1	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:14		0.27	0.08	0.2	pCi/L		amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 16:50		2.7	1.6	1.5	pCi/L	*	jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:08		0.17	0.47	1.4	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-04 ALL

Locator:

ACZ Sample ID: **L46194-06**

Date Sampled: 08/07/18 11:04

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		1.9	13	63	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 13:43		2.2	2	3.7	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:15		0.53	0.1	0.11	pCi/L		amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 16:50		-0.13	0.84	0.89	pCi/L		jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:10		-0.08	0.25	1.1	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-73 ALL-R

Locator:

ACZ Sample ID: **L46194-07**

Date Sampled: 08/07/18 15:22

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		710	100	170	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 15:21		3	4.1	8	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:17		0.26	0.1	0.26	pCi/L	*	amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 18:28		2	2.5	2.6	pCi/L	*	jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:11		-0.76	1.5	3.4	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 5-03 ALL-R

Locator:

ACZ Sample ID: **L46194-08**

Date Sampled: 08/07/18 17:01

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		42	22	42	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 15:21		1	1.5	2.9	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:18		0.36	0.08	0.2	pCi/L		amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 18:28		-0.14	0.8	0.84	pCi/L		jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:12		-0.35	0.31	0.91	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 32-59 ALL

Locator:

ACZ Sample ID: **L46194-09**

Date Sampled: 08/08/18 8:46

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		84	26	50	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 15:21		0.48	1.8	3.6	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:20		0.13	0.08	0.13	pCi/L		amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 18:28		0.31	1.5	1.6	pCi/L	*	jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:14		-0.22	0.24	1.4	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-61 ALL

Locator:

ACZ Sample ID: **L46194-10**

Date Sampled: 08/08/18 15:56

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		190	89	180	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 15:21		0.51	4.7	9.3	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:21		0.39	0.1	0.07	pCi/L	*	amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 18:28		1.9	0.89	0.84	pCi/L	*	jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:15		-0.19	0.21	0.79	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 36-02 TRB

Locator:

ACZ Sample ID: **L46194-11**

Date Sampled: 08/08/18 9:18

Date Received: 08/10/18

Sample Matrix: Groundwater

Gross Alpha - Corrected

Prep Method:

Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	09/18/18 11:06		-25			pCi/L		calc

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		-23	23	170	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 15:21		7.1	7.7	15	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/22/18 0:23		0.72	0.13	0.07	pCi/L	*	amk

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 18:28		1.2	0.85	0.83	pCi/L	*	jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:17		-0.24	0.19	0.85	pCi/L	*	jlg/djc

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<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
<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>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

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: **L46194**

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.

Gross Alpha, dissolved

M9310

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG454470																
L46173-01DUP	DUP-RER	08/20/18			38	6.7	7.6	49	7.7	13				1.08	2	
WG453910LCSWA	LCSW	08/20/18	PCN55778	100				88	7.8	1.3	88	67	144			
WG453910PBW	PBW	08/20/18						.24	0.66	0.85			1.7			
L46080-01DUP	DUP-RER	08/20/18			0.73	1.6	2	-.57	1.1	2				0.67	2	
L46080-01MSA	MS	08/20/18	PCN55778	75.19	0.73	1.6	2	42	6.7	2	55	67	144			M2

Lead 210, dissolved

EICHROM, OTW01

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG456032																
WG455293LCSW	LCSW	09/17/18	PCN54282	96.72				87	3.2	2.3	90	55	121			
WG455293PBW	PBW	09/17/18						1.8	1.3	2.4			4.8			
L46194-03DUP	DUP-RER	09/17/18			2.5	1.4	2.7	3	1.4	2.6				0.25	2	
L46201-01DUP	DUP-RER	09/17/18			2	1.3	2.4	1.1	1.3	2.5				0.49	2	
L46301-01MS	MS	09/17/18	PCN54282	96.72	2.5	1.5	2.8	96	4.1	3.1	97	55	121			

Radium 226, dissolved

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG454661																
WG453970PBW	PBW	08/22/18						.07	0.06	0.05			0.1			
WG453970LCSW	LCSW	08/22/18	PCN54813	20				22	0.6	0.05	110	43	148			
L46194-01DUP	DUP-RER	08/22/18			1.1	0.17	0.13	1.1	0.15	0.06				0	2	
L46194-10DUP	DUP-RER	08/22/18			0.39	0.1	0.07	.26	0.1	0.06				0.92	2	
L45931-01MS	MS	08/22/18	PCN54813	20	0.11	0.07	0.09	24	0.62	0.1	119	43	148			

Rio Algom Mining Company

ACZ Project ID: **L46194**

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.

Radium 228, dissolved

M9320

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG455769																
WG455209LCSW	LCSW	09/05/18	PCN57186	9.95				9.6	1.2	0.83	97	47	123			
WG455209PBW	PBW	09/05/18						-.08	0.41	0.43			0.86			
L46194-08DUP	DUP-RER	09/05/18			-0.14	0.8	0.84	.91	1.7	1.7				0.56	2	
L46194-11MS	MS	09/05/18	PCN57186	24.86	1.2	0.85	0.83	29	3.1	2.1	112	47	123			
L46488-01DUP	DUP-RER	09/05/18			0.24	0.91	0.95	.8	0.84	0.84				0.45	2	

Thorium 230, dissolved

ESM 4506

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG455123																
WG454386PBW	PBW	08/23/18						-.12	0.18	0.66			1.32			
WG454386LCSW	LCSW	08/23/18	PCN56774	200				210	4.7	0.64	105	91	126			
L46194-02DUP	DUP-RER	08/23/18			0.07	0.31	0.63	-.05	0.37	0.68				0.25	2	
L46196-01DUP	DUP-RER	08/23/18			0.29	0.24	0.72	-.13	0.31	0.7				1.07	2	
L46194-06MS	MS	08/23/18	PCN56774	200	-0.08	0.25	1.1	220	5.2	0.84	110	91	126			

Rio Algom Mining Company

ACZ Project ID: **L46194**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46194-01	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L46194-02	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L46194-03	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG456032	Lead 210, dissolved	EICHROM, OTW01	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG454661	Radium 226, dissolved	M903.1	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG455769	Radium 228, dissolved	M9320	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
L46194-04	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L46194-05	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG455769	Radium 228, dissolved	M9320	DJ	Sample dilution required due to insufficient sample.
	WG455123	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
L46194-06	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L46194-07	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG456032	Lead 210, dissolved	EICHROM, OTW01	DJ	Sample dilution required due to insufficient sample.
	WG454661	Radium 226, dissolved	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG455769	Radium 228, dissolved	M9320	DJ	Sample dilution required due to insufficient sample.
	WG455123	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
L46194-08	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L46194-09	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG456032	Lead 210, dissolved	EICHROM, OTW01	DJ	Sample dilution required due to insufficient sample.
	WG455769	Radium 228, dissolved	M9320	DJ	Sample dilution required due to insufficient sample.
	WG455123	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
L46194-10	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG456032	Lead 210, dissolved	EICHROM, OTW01	DJ	Sample dilution required due to insufficient sample.
			EICHROM, OTW01	N1	See Case Narrative.
			EICHROM, OTW01	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG454661	Radium 226, dissolved	M903.1	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG455769	Radium 228, dissolved	M9320	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

Rio Algom Mining Company

ACZ Project ID: **L46194**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46194-11	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG456032	Lead 210, dissolved	EICHROM, OTW01	N1	See Case Narrative.
			EICHROM, OTW01	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG454661	Radium 226, dissolved	M903.1	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG455769	Radium 228, dissolved	M9320	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

Rio Algom Mining Company

ACZ Project ID: **L46194**

Radiochemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Lead 210, dissolved

EICHROM, OTW01

Thorium 230, dissolved

ESM 4506

Rio Algom Mining Company
4506946843

ACZ Project ID: L46194
Date Received: 08/10/2018 10:54
Received By:
Date Printed: 8/13/2018

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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

L46194-03 Container B2022399 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

L46194-03 Container B2022399 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

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?
4089	13.5	NA	15	N/A
4189	15.7	NA	15	N/A
4491	2.4	<=6.0	15	N/A

Rio Algom Mining Company
4506946843

ACZ Project ID: L46194

Date Received: 08/10/2018 10:54

Received By:

Date Printed: 8/13/2018

4656 1.7 <=6.0 15 N/A

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.

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).

1/2



Laboratories, Inc.

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

L-16194

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 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: C. Short

Sampler's Site Information

State NM Zip code 87020 Time Zone MST

*Sampler's Signature: C. Short

*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)

Quote #: 58757

PO#: 4502696253

Reporting state for compliance testing:

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION		DATE:TIME	Matrix	# of Containers	SAP-GW	NRC-GW	NRC-TRA	NRC-TRB	NRC-ALL				
32-45 KD-R		08/06/2018 1621	GW	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31-01 TRA-R		08/06/2018 1517	GW	6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31-02 TRB-R		08/06/2018 1426	GW	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30-06 KD		08/06/2018 1200	GW	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-08 AU-R		08/07/2018 0952	GW	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-04 AU		08/07/2018 1104	GW	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-73 AU-R		08/07/2018 1522	GW	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-03 AU-R		08/07/2018 1701	GW	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

REMARKS

RAML COC#: 18-01 ^{P2 1/2} Note different COC's may have different PO's. Shipment of 4 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
C. Short	8/9/18 1300	[Signature]	8/10/18 16:55

FRMAD050.06.14.14

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



ACZ Laboratories, Inc.						CHAIN of CUSTODY							
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493													
Report to:													
Name: Kent Applegate						Address: PO Box 218							
Company: Rio Algom Mining LLC						Grants, NM 87020							
E-mail: Kent.KC.Applegate@bhpbilliton.com						Telephone: 1-505-287-8851							
Copy of Report to:													
Name: Michaela Gorospe/Clark Short						E-mail: See remarks							
Company: INTERA, INC.						Telephone: 505-246-1600 x1207							
Invoice to:													
Name: Kent Applegate						Address: PO Box 218							
Company: Rio Algom Mining LLC						Grants, NM 87020							
E-mail: Kent.KC.Applegate@BHPBilliton.com						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	<input type="checkbox"/>
												NO	<input type="checkbox"/>
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 <input type="checkbox"/> No <input type="checkbox"/>													
If yes, please include state forms. Results will be reported to PQI for Colorado.													
Sampler's Name: L. SHERT						State NM		Zip code 87020		Time Zone MST			
Sampler's Signature: [Signature]						*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)													
Quote #: 58757													
PO#: 4502696253													
Reporting state for compliance testing:													
Check box if samples include NRC licensed material? <input type="checkbox"/>													
SAMPLE IDENTIFICATION DATE:TIME Matrix						# of Containers	SAP-GW	NRC-KD	NRC-TBA	NRC-TRB	NRC-MLL		
32-59 ALL		08/08/2018 0846		GW	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31-61 ALL		08/08/2018 1556		GW	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36-02 TRB		08/09/2018 0918		GW	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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.

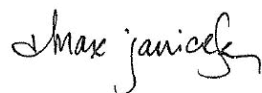
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L46425. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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 INFORMATION

Quote #: 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☐☒☐☐☐☐☐☐☐

Matrix

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

REMARKS

RAML 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.

September 24, 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: Michaela Gorospe, Clark Short

Project ID: 4506946843

ACZ Project ID: L46201

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 11, 2018. This project has been assigned to ACZ's project number, L46201. 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 L46201. 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 24, 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: 4506946843

Sample ID: 33-01 TRA

ACZ Sample ID: **L46201-01**

Date Sampled: 08/09/18 15:25

Date Received: 08/11/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	2	160		*	mg/L	0.2	1	08/27/18 11:48	dcm
Iron, dissolved	M200.7 ICP	2		U		mg/L	0.04	0.1	08/27/18 11:48	dcm
Magnesium, dissolved	M200.7 ICP	2	51.7			mg/L	0.4	2	08/27/18 11:48	dcm
Molybdenum, dissolved	M200.8 ICP-MS	2	0.003	B		mg/L	0.001	0.005	08/28/18 19:19	bsu
Nickel, dissolved	M200.8 ICP-MS	2	0.001	B		mg/L	0.001	0.006	08/28/18 19:19	bsu
Potassium, dissolved	M200.7 ICP	2	5.2			mg/L	0.4	2	08/27/18 11:48	dcm
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U		mg/L	0.001	0.005	08/16/18 14:00	che
Sodium, dissolved	M200.7 ICP	2	535			mg/L	0.4	2	08/27/18 11:48	dcm
Uranium, dissolved	M200.8 ICP-MS	2	0.0006	B		mg/L	0.0002	0.001	08/28/18 19:19	bsu

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	81.3			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	81.3			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-10.0			%			09/24/18 0:00	calc
Sum of Anions			44.0			meq/L			09/24/18 0:00	calc
Sum of Cations			36			meq/L			09/24/18 0:00	calc
Chloride	SM4500Cl-E	1	34.5		*	mg/L	0.5	2	08/23/18 12:21	wtc
Conductivity @25C	SM2510B	1	2690			umhos/cm	1	10	08/17/18 23:12	emk
Cyanide, Total	D7511-09	1		U		mg/L	0.003	0.01	08/13/18 12:19	rbt
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1		U	*	mg/L	0.02	0.1	08/22/18 23:52	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	2690			mg/L	10	20	08/13/18 11:35	oah
Sulfate	D516-02/-07 - Turbidimetric	50	1970		*	mg/L	50	250	08/29/18 14:16	mss2
TDS (calculated)	Calculation		2810			mg/L			09/24/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.96						09/24/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-67 TRB

ACZ Sample ID: **L46201-02**

Date Sampled: 08/10/18 10:24

Date Received: 08/11/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	5	664		*	mg/L	0.5	3	08/27/18 11:52	dcm
Iron, dissolved	M200.7 ICP	5	2.2			mg/L	0.1	0.3	08/27/18 11:52	dcm
Magnesium, dissolved	M200.7 ICP	5	620			mg/L	1	5	08/27/18 11:52	dcm
Molybdenum, dissolved	M200.8 ICP-MS	5		U		mg/L	0.003	0.01	08/28/18 19:25	bsu
Nickel, dissolved	M200.8 ICP-MS	5	0.007	B		mg/L	0.003	0.02	08/28/18 19:25	bsu
Potassium, dissolved	M200.7 ICP	5	14			mg/L	1	5	08/27/18 11:52	dcm
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U		mg/L	0.001	0.005	08/16/18 14:02	che
Sodium, dissolved	M200.7 ICP	5	582			mg/L	1	5	08/27/18 11:52	dcm
Uranium, dissolved	M200.8 ICP-MS	5	0.0122			mg/L	0.0005	0.003	08/28/18 19:25	bsu

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	813			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/17/18 0:00	emk
Total Alkalinity		1	813			mg/L	2	20	08/17/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-3.5			%			09/24/18 0:00	calc
Sum of Anions			118			meq/L			09/24/18 0:00	calc
Sum of Cations			110			meq/L			09/24/18 0:00	calc
Chloride	SM4500Cl-E	40	1220		*	mg/L	20	80	08/23/18 13:28	wtc
Conductivity @25C	SM2510B	1	5580			umhos/cm	1	10	08/17/18 23:27	emk
Cyanide, Total	D7511-09	1		U	*	mg/L	0.003	0.01	08/13/18 12:21	rbt
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1		U	*	mg/L	0.02	0.1	08/22/18 23:54	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	7330			mg/L	20	40	08/13/18 11:38	oah
Sulfate	D516-02/-07 - Turbidimetric	120	3210		*	mg/L	120	600	08/29/18 14:18	mss2
TDS (calculated)	Calculation		6810			mg/L			09/24/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.08						09/24/18 0:00	calc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-65 ALL

ACZ Sample ID: **L46201-03**

Date Sampled: 08/10/18 12:13

Date Received: 08/11/18

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	10	577		*	mg/L	1	5	08/27/18 11:55	dcm
Iron, dissolved	M200.7 ICP	10	148			mg/L	0.2	0.5	08/27/18 11:55	dcm
Magnesium, dissolved	M200.7 ICP	10	1460			mg/L	2	10	08/27/18 11:55	dcm
Molybdenum, dissolved	M200.8 ICP-MS	10		U		mg/L	0.005	0.03	08/28/18 19:26	bsu
Nickel, dissolved	M200.8 ICP-MS	10	0.123			mg/L	0.006	0.03	08/28/18 19:26	bsu
Potassium, dissolved	M200.7 ICP	10	44			mg/L	2	10	08/27/18 11:55	dcm
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0041	B		mg/L	0.001	0.005	08/16/18 14:08	che
Sodium, dissolved	M200.7 ICP	10	1710			mg/L	2	10	08/27/18 11:55	dcm
Uranium, dissolved	M200.8 ICP-MS	10	0.077			mg/L	0.001	0.005	08/28/18 19:26	bsu

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	1520			mg/L	2	20	08/18/18 0:00	emk
Carbonate as CaCO ₃		1		U		mg/L	2	20	08/18/18 0:00	emk
Hydroxide as CaCO ₃		1		U		mg/L	2	20	08/18/18 0:00	emk
Total Alkalinity		1	1520		*	mg/L	2	20	08/18/18 0:00	emk
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-1.3			%			09/24/18 0:00	calc
Sum of Anions			239			meq/L			09/24/18 0:00	calc
Sum of Cations			233			meq/L			09/24/18 0:00	calc
Chloride	SM4500Cl-E	40	1980		*	mg/L	20	80	08/23/18 13:08	wtc
Conductivity @25C	SM2510B	1	11600			umhos/cm	1	10	08/21/18 0:25	enb
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	0.24		*	mg/L	0.02	0.1	08/23/18 0:24	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	15500			mg/L	50	100	08/13/18 11:41	oah
Sulfate	D516-02/-07 - Turbidimetric	1000	7300		*	mg/L	1000	5000	08/29/18 14:11	mss2
TDS (calculated)	Calculation		14100			mg/L			09/24/18 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.10						09/24/18 0:00	calc


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: **L46201**

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.

Alkalinity as CaCO3

SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454327													
WG454327PBW1	PBW	08/17/18 16:24				2.1	mg/L		-20	20			
WG454327LCSW3	LCSW	08/17/18 16:41	WC180807-3	820.0001		797	mg/L	97	90	110			
WG454327LCSW6	LCSW	08/17/18 20:35	WC180807-3	820.0001		802	mg/L	98	90	110			
WG454327PBW2	PBW	08/17/18 20:40				U	mg/L		-20	20			
L46201-02DUP	DUP	08/17/18 23:41			813	873	mg/L				7	20	
WG454327LCSW9	LCSW	08/17/18 23:58	WC180807-3	820.0001		787	mg/L	96	90	110			
WG454327PBW3	PBW	08/18/18 0:03				U	mg/L		-20	20			
L46203-05DUP	DUP	08/18/18 1:33			385	394	mg/L				2	20	
WG454327LCSW12	LCSW	08/18/18 3:18	WC180807-3	820.0001		819	mg/L	100	90	110			
WG454327PBW4	PBW	08/18/18 3:23				U	mg/L		-20	20			
WG454327LCSW15	LCSW	08/18/18 6:51	WC180807-3	820.0001		793	mg/L	97	90	110			

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	100		98.4	mg/L	98	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.3	0.3			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	68.16145		66.99	mg/L	98	85	115			
L46228-01AS	AS	08/27/18 12:08	II180809-4	68.16145	217	271.5	mg/L	80	85	115			M3
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	68.16145	217	272.2	mg/L	81	85	115	0	20	M3

Chloride

SM4500CI-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454610													
WG454610ICB	ICB	08/23/18 12:08				U	mg/L		-1.5	1.5			
WG454610ICV	ICV	08/23/18 12:08	WI180530-1	54.89		58.84	mg/L	107	90	110			
L46197-01DUP	DUP	08/23/18 12:21			26.5	26.04	mg/L				2	20	
L46197-02AS	AS	08/23/18 12:21	WI171229-5	30.03	14.9	48.9	mg/L	113	90	110			M1
WG454610LFB1	LFB	08/23/18 13:06	WI171229-5	30.03		31.25	mg/L	104	90	110			
WG454610LFB2	LFB	08/23/18 13:06	WI171229-5	30.03		31.2	mg/L	104	90	110			

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454327													
WG454327LCSW2	LCSW	08/17/18 16:29	PCN55810	1410		1440	umhos/cm	102	90	110			
WG454327LCSW5	LCSW	08/17/18 20:23	PCN55810	1410		1360	umhos/cm	96	90	110			
L46201-02DUP	DUP	08/17/18 23:41			5580	5600	umhos/cm				0	20	
WG454327LCSW8	LCSW	08/17/18 23:46	PCN55810	1410		1350	umhos/cm	96	90	110			
WG454440													
WG454440LCSW2	LCSW	08/20/18 17:15	PCN55810	1410		1550	umhos/cm	110	90	110			
WG454440LCSW5	LCSW	08/20/18 19:50	PCN55810	1410		1530	umhos/cm	109	90	110			
WG454440LCSW8	LCSW	08/20/18 22:13	PCN55810	1410		1510	umhos/cm	107	90	110			
L46202-03DUP	DUP	08/21/18 0:46			11900	11700	umhos/cm				2	20	
WG454440LCSW11	LCSW	08/21/18 0:51	PCN55810	1410		1280	umhos/cm	91	90	110			

Rio Algom Mining Company

ACZ Project ID: **L46201**

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.

Cyanide, Total

D7511-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG453859													
WG453859ICV	ICV	08/13/18 11:43	WI180809-7	.3		.296	mg/L	99	90	110			
WG453859ICB	ICB	08/13/18 11:45				U	mg/L		-0.003	0.003			
WG453859LFB	LFB	08/13/18 11:51	WI180809-4	.1		.099	mg/L	99	84	116			
L46194-01AS	AS	08/13/18 11:55	WI180809-4	.1	U	.097	mg/L	97	84	116			
L46194-01ASD	ASD	08/13/18 11:57	WI180809-4	.1	U	.1058	mg/L	106	84	116	9	20	

Iron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	2		1.895	mg/L	95	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.06	0.06			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	1.0018		1.02	mg/L	102	85	115			
L46228-01AS	AS	08/27/18 12:08	II180809-4	1.0018	U	.997	mg/L	100	85	115			
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	1.0018	U	.994	mg/L	99	85	115	0	20	

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	100		99.43	mg/L	99	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.6	0.6			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	50.2933		46.39	mg/L	92	85	115			
L46228-01AS	AS	08/27/18 12:08	II180809-4	50.2933	27.9	72.31	mg/L	88	85	115			
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	50.2933	27.9	72.41	mg/L	89	85	115	0	20	

Molybdenum, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455056													
WG455056ICV	ICV	08/28/18 18:50	MS180730-1	.02006		.01964	mg/L	98	90	110			
WG455056ICB	ICB	08/28/18 18:52				U	mg/L		-0.0011	0.0011			
WG455056LFB	LFB	08/28/18 18:54	MS180806-8	.05015		.05095	mg/L	102	85	115			
L46201-01AS	AS	08/28/18 19:21	MS180806-8	.1003	.003	.0973	mg/L	94	70	130			
L46201-01ASD	ASD	08/28/18 19:23	MS180806-8	.1003	.003	.1005	mg/L	97	70	130	3	20	

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455056													
WG455056ICV	ICV	08/28/18 18:50	MS180730-1	.05		.04872	mg/L	97	90	110			
WG455056ICB	ICB	08/28/18 18:52				U	mg/L		-0.00132	0.00132			
WG455056LFB	LFB	08/28/18 18:54	MS180806-8	.0501		.0509	mg/L	102	85	115			
L46201-01AS	AS	08/28/18 19:21	MS180806-8	.1002	.001	.087	mg/L	86	70	130			
L46201-01ASD	ASD	08/28/18 19:23	MS180806-8	.1002	.001	.0894	mg/L	88	70	130	3	20	

Rio Algom Mining Company

ACZ Project ID: **L46201**

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.

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454699													
WG454699ICV	ICV	08/22/18 22:05	WI180602-1	2.416		2.426	mg/L	100	90	110			
WG454699ICB	ICB	08/22/18 22:07				U	mg/L		-0.02	0.02			
WG454703													
WG454703LFB	LFB	08/22/18 23:42	WI180703-7	2		2.064	mg/L	103	90	110			
L46045-01AS	AS	08/22/18 23:45	WI180703-7	2	U	2.164	mg/L	108	90	110			
L46045-02DUP	DUP	08/22/18 23:47			U	U	mg/L				0	20	RA

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	20		19.69	mg/L	98	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.6	0.6			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	101.3833		97.45	mg/L	96	85	115			
L46228-01AS	AS	08/27/18 12:08	II180809-4	101.3833	4	101.4	mg/L	96	85	115			
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	101.3833	4	101.6	mg/L	96	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
WG453860													
WG453860PBW	PBW	08/13/18 11:10				10	mg/L		-20	20			
WG453860LCSW	LCSW	08/13/18 11:13	PCN56037	260		258	mg/L	99	80	120			
L46202-01DUP	DUP	08/13/18 11:47			10600	10500	mg/L				1	10	

Selenium, dissolved

SM 3114 B, AA-Hydride

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454156													
WG454156ICV	ICV	08/16/18 13:15	SE180801-2	.025025		.0263	mg/L	105	90	110			
WG454156ICB	ICB	08/16/18 13:17				U	mg/L		-0.003	0.003			
WG454156LRB	LRB	08/16/18 13:19				U	mg/L		-0.003	0.003			
WG454156LFB	LFB	08/16/18 13:21	SE180709-4	.02224		.0234	mg/L	105	85	115			
L46194-10LFM	LFM	08/16/18 13:53	SE180709-4	.02224	.007	.029	mg/L	99	85	115			
L46194-10LFMD	LFMD	08/16/18 13:56	SE180709-4	.02224	.007	.0288	mg/L	98	85	115	1	20	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG454778													
WG454778ICV	ICV	08/27/18 10:28	II180727-1	100		98.59	mg/L	99	95	105			
WG454778ICB	ICB	08/27/18 10:34				U	mg/L		-0.6	0.6			
WG454778LFB	LFB	08/27/18 10:47	II180809-4	100.8796		96.6	mg/L	96	85	115			
L46228-01AS	AS	08/27/18 12:08	II180809-4	100.8796	51.2	143.7	mg/L	92	85	115			
L46228-01ASD	ASD	08/27/18 12:11	II180809-4	100.8796	51.2	144.2	mg/L	92	85	115	0	20	

Rio Algom Mining CompanyACZ Project ID: **L46201**

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.

Sulfate

D516-02/-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455064													
WG455064ICB	ICB	08/29/18 10:05				1.2	mg/L		-3	3			
WG455064ICV	ICV	08/29/18 10:05	WI180827-2	20		20.8	mg/L	104	90	110			
WG455064LFB	LFB	08/29/18 13:33	WI180726-1	10		10.7	mg/L	107	90	110			
L46201-01DUP	DUP	08/29/18 14:16			1970	1860	mg/L				6	20	
L46201-02AS	AS	08/29/18 14:18	SO4TURB	10.0000008	3210	2500	mg/L	-7100	90	110			M3

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG455056													
WG455056ICV	ICV	08/28/18 18:50	MS180730-1	.05		.04984	mg/L	100	90	110			
WG455056ICB	ICB	08/28/18 18:52				U	mg/L		-0.00022	0.00022			
WG455056LFB	LFB	08/28/18 18:54	MS180806-8	.05		.05288	mg/L	106	85	115			
L46201-01AS	AS	08/28/18 19:21	MS180806-8	.1	.0006	.10422	mg/L	104	70	130			
L46201-01ASD	ASD	08/28/18 19:23	MS180806-8	.1	.0006	.10751	mg/L	107	70	130	3	20	

Rio Algom Mining Company

ACZ Project ID: **L46201**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46201-01	WG454778	Calcium, dissolved	M200.7 ICP	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.
	WG454610	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454703	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).
	WG455064	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.
L46201-02	WG454778	Calcium, dissolved	M200.7 ICP	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.
	WG454610	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG453859	Cyanide, Total	D7511-09	Q3	Sample received with improper or inadequate chemical preservation.
	WG454703	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).
	WG455064	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.
L46201-03	WG454778	Calcium, dissolved	M200.7 ICP	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.
	WG454610	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG454703	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).
	WG455064	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.
	WG454327	Total Alkalinity	SM2320B - Titration	ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 33-01 TRA

Locator:

ACZ Sample ID: **L46201-01**

Date Sampled: 08/09/18 15:25

Date Received: 08/11/18

Sample Matrix: Groundwater

Gross Alpha - Corrected

Prep Method:

Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	09/21/18 15:24		6.4			pCi/L		calc

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		6.8	7.6	22	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 15:21		2	1.3	2.4	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/23/18 0:24		0.63	0.12	0.05	pCi/L		tjr

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	08/31/18 13:17		1.9	0.96	0.92	pCi/L		jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:20		-0.18	0.25	0.71	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-67 TRB

Locator:

ACZ Sample ID: **L46201-02**

Date Sampled: 08/10/18 10:24

Date Received: 08/11/18

Sample Matrix: Groundwater

Gross Alpha - Corrected

Prep Method:

Calculation

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha - Corrected	09/21/18 15:24		35			pCi/L		calc

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		43	33	110	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/17/18 15:21		1.9	1.6	3	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/23/18 0:25		3.2	0.23	0.05	pCi/L		tjr

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	08/31/18 13:17		13	1.3	0.88	pCi/L		jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:21		-0.2	0.23	0.9	pCi/L	*	jlg/djc

Rio Algom Mining Company

Project ID: 4506946843

Sample ID: 31-65 ALL

Locator:

ACZ Sample ID: **L46201-03**

Date Sampled: 08/10/18 12:13

Date Received: 08/11/18

Sample Matrix: Groundwater

Gross Alpha, dissolved

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha, dissolved	08/20/18 0:00		33	60	220	pCi/L	*	amk

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	09/21/18 11:42		8.3	3.3	6.7	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	08/23/18 0:27		0.27	0.15	0.14	pCi/L	*	tjr

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	09/05/18 18:28		0.68	0.83	0.83	pCi/L	*	jlg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	08/23/18 0:23		-0.02	0.32	0.66	pCi/L	*	jlg/djc

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<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
<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>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

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: **L46201**

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.

Gross Alpha, dissolved

M9310

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG454470																
L46080-01MSA	MS	08/20/18	PCN55778	75.19	0.73	1.6	2	42	6.7	2	55	67	144			M2
L46173-01DUP	DUP-RER	08/20/18			38	6.7	7.6	49	7.7	13				1.08	2	
WG453910LCSWA	LCSW	08/20/18	PCN55778	100				88	7.8	1.3	88	67	144			
WG453910PBW	PBW	08/20/18						.24	0.66	0.85			1.7			
L46080-01DUP	DUP-RER	08/20/18			0.73	1.6	2	-.57	1.1	2				0.67	2	

Lead 210, dissolved

EICHROM, OTW01

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG456032																
WG455293LCSW	LCSW	09/17/18	PCN54282	96.72				87	3.2	2.3	90	55	121			
WG455293PBW	PBW	09/17/18						1.8	1.3	2.4			4.8			
L46201-01DUP	DUP-RER	09/17/18			2	1.3	2.4	1.1	1.3	2.5				0.49	2	
L46194-03DUP	DUP-RER	09/17/18			2.5	1.4	2.7	3	1.4	2.6				0.25	2	
L46301-01MS	MS	09/17/18	PCN54282	96.72	2.5	1.5	2.8	96	4.1	3.1	97	55	121			
WG456907																
L46710-01DUP	DUP-RER	09/21/18			140	10	13	140	10	14				0	2	
L46710-01MS	MS	09/21/18	PCN54282	483.45	140	10	13	560	18	15	87	55	121			
WG456443LCSW	LCSW	09/21/18	PCN54282	96.69				99	3.4	2.8	102	55	121			
WG456443PBW	PBW	09/21/18						2.9	1.4	2.8			5.6			

Rio Algom Mining Company

ACZ Project ID: **L46201**

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.

Radium 226, dissolved

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG454785																
WG453900PBW	PBW	08/23/18						.18	0.07	0.17			0.34			
WG453900LCSW	LCSW	08/23/18	PCN54813	20				19	0.53	0.21	95	43	148			
L46071-02DUP	DUP-RER	08/23/18			2.2	0.19	0.07	3	0.31	0.2				2.2	2	N1
L46201-02DUP	DUP-RER	08/23/18			3.2	0.23	0.05	3.5	0.41	0.16				0.64	2	
L46071-02MS	MS	08/23/18	PCN54813	66.67	2.2	0.19	0.07	74	2	0.18	108	43	148			

Radium 228, dissolved

M9320

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG455502																
WG454757LCSW	LCSW	08/31/18	PCN57186	9.96				10	1.2	0.78	100	47	123			
WG454757PBW	PBW	08/31/18						.51	0.38	0.37			0.74			
L45903-01DUP	DUP-RER	08/31/18			0.87	0.83	0.83	.46	0.87	0.89				0.34	2	
L45903-03MS	MS	08/31/18	PCN57186	9.96	0.76	0.79	0.8	12	1.3	0.92	113	47	123			
L45902-02DUP	DUP-RER	08/31/18			0.41	0.76	0.78	.98	0.82	0.82				0.51	2	
WG455769																
WG455209LCSW	LCSW	09/05/18	PCN57186	9.95				9.6	1.2	0.83	97	47	123			
WG455209PBW	PBW	09/05/18						-.08	0.41	0.43			0.86			
L46194-11MS	MS	09/05/18	PCN57186	24.86	1.2	0.85	0.83	29	3.1	2.1	112	47	123			
L46194-08DUP	DUP-RER	09/05/18			-0.14	0.8	0.84	.91	1.7	1.7				0.56	2	
L46488-01DUP	DUP-RER	09/05/18			0.24	0.91	0.95	.8	0.84	0.84				0.45	2	

Rio Algom Mining Company

ACZ Project ID: **L46201**

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.

Thorium 230, dissolved

ESM 4506

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG455123																
WG454386PBW	PBW	08/23/18						-.12	0.18	0.66			1.32			
WG454386LCSW	LCSW	08/23/18	PCN56774	200				210	4.7	0.64	105	91	126			
L46194-02DUP	DUP-RER	08/23/18			0.07	0.31	0.63	-.05	0.37	0.68				0.25	2	
L46196-01DUP	DUP-RER	08/23/18			0.29	0.24	0.72	-.13	0.31	0.7				1.07	2	
L46194-06MS	MS	08/23/18	PCN56774	200	-0.08	0.25	1.1	220	5.2	0.84	110	91	126			

Rio Algom Mining Company

ACZ Project ID: **L46201**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L46201-01	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L46201-02	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L46201-03	WG454470	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	QB	Method-specified preservation criteria cannot be met due to sample matrix.
	WG456907	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
	WG454785	Radium 226, dissolved	M903.1	DJ	Sample dilution required due to insufficient sample.
			M903.1	QB	Method-specified preservation criteria cannot be met due to sample matrix.
	WG455769	Radium 228, dissolved	M9320	QB	Method-specified preservation criteria cannot be met due to sample matrix.

Rio Algom Mining Company

ACZ Project ID: **L46201**

Radiochemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Lead 210, dissolved	EICHROM, OTW01
Thorium 230, dissolved	ESM 4506

Rio Algom Mining Company
4506946843

ACZ Project ID: L46201
Date Received: 08/11/2018 11:26
Received By:
Date Printed: 8/13/2018

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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L46201-03 Container B2022588 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample. The pH is 7.			
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?
-----	-----	-----	-----	-----
4275	21.6	NA	15	Yes
3920	4.8	<=6.0	14	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
4506946843

ACZ Project ID: L46201
Date Received: 08/11/2018 11:26
Received By:
Date Printed: 8/13/2018

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.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 331-5483

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 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)

Quote #: 58761

PO#: 4502696253

Reporting state for compliance testing:

Check box if samples include NRC licensed material?

SAMPLE IDENTIFICATION

DATE:TIME

Matr x

of Containers

SAP-GW

NRL-TRA

NRL-TRB

NRL-ALL

33-01 TPA

8/9/18 1525

GW

6

☐

☒

☐

☐

☐

☐

☐

☐

☐

☐

31-67 TRB

8/10/18 1024

GW

6

☐

☐

☒

☐

☐

☐

☐

☐

☐

☐

31-65 ALL

8/10/18 1213

GW

5

☐

☐

☐

☒

☐

☐

☐

☐

☐

☐

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

REMARKS

RAML COC#: 18-05. Note different COC's may have different PO's. Shipment of 2 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 Taube

8/10/18 1400

BCR

8/11/18 1120

FRMAD050.06.14.14

White - Return with sample.

Yellow - Retain for your records.



L46201 Chain of Custody

L46201-1809240933

Page 22 of 22