

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 <sub>3</sub>	SM2320B - Titration									
Bicarbonate as CaCO <sub>3</sub>		1	81.3			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO <sub>3</sub>		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO <sub>3</sub>		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 <sub>2</sub> SO <sub>4</sub> 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 <sub>3</sub>	SM2320B - Titration									
Bicarbonate as CaCO <sub>3</sub>		1	813			mg/L	2	20	08/17/18 0:00	emk
Carbonate as CaCO <sub>3</sub>		1		U		mg/L	2	20	08/17/18 0:00	emk
Hydroxide as CaCO <sub>3</sub>		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 <sub>2</sub> SO <sub>4</sub> 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 <sub>3</sub>	SM2320B - Titration									
Bicarbonate as CaCO <sub>3</sub>		1	1520			mg/L	2	20	08/18/18 0:00	emk
Carbonate as CaCO <sub>3</sub>		1		U		mg/L	2	20	08/18/18 0:00	emk
Hydroxide as CaCO <sub>3</sub>		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 <sub>2</sub> SO <sub>4</sub> 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
<b>WG454327</b>													
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
<b>WG454778</b>													
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
<b>WG454610</b>													
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
<b>WG454327</b>													
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			
<b>WG454440</b>													
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
<b>WG453859</b>													
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
<b>WG454778</b>													
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
<b>WG454778</b>													
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
<b>WG455056</b>													
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
<b>WG455056</b>													
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
<b>WG454699</b>													
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			
<b>WG454703</b>													
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
<b>WG454778</b>													
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
<b>WG453860</b>													
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
<b>WG454156</b>													
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
<b>WG454778</b>													
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 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.

**Sulfate**

D516-02/-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
<b>WG455064</b>													
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
<b>WG455056</b>													
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
<b>L46201-01</b>	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.
<b>L46201-02</b>	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.
<b>L46201-03</b>	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.
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**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
<b>WG454470</b>																
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
<b>WG456032</b>																
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			
<b>WG456907</b>																
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
<b>WG454785</b>																
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
<b>WG455502</b>																
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	
<b>WG455769</b>																
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
<b>WG455123</b>																
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? <sup>1</sup>	<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  
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<sup>1</sup> 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), Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 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	<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"/>
31-67 TRB		8/10/18 1024	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31-65 ALL		8/10/18 1213	GW	5	<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"/>

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



L46201 Chain of Custody