

April 08, 2022

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: Michaella Gorospe, jcarroll, Jeremy Scott Collyard, Marcus Powell, Sharon Clouse, Drew Werth, Casandra Woodward, Shubhangi Agarwal, Anupama Subbakrishna, Revathi Ekambaram, Clark Short, Angela Pe

Project ID: 4512060294
ACZ Project ID: L71349

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 10, 2022. This project has been assigned to ACZ's project number, L71349. 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 L71349. 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 May 08, 2022. 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.



Mark McNeal has reviewed
and approved this report.



Rio Algom Mining Company

April 08, 2022

Project ID: 4512060294

ACZ Project ID: L71349

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 2 groundwater samples from Rio Algom Mining Company on February 10, 2022. 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 L71349. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

Any analyses not performed within EPA recommended holding times have been qualified with an "H" flag.

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. Qualifier: (N1) Applies to: L71349-01, L71349-02 CYANIDE

Failing ICV = high biased calibration. All undetect values for sxs past hold date accepted with case narrative.

Prior analyses performed while troubleshooting instrument. Reanalysis after resolving issue is likely more representative of true values and should be favored over prior data.

2. Qualifier: (DE) Applies to: L71349-01, L71349-02 RADIUM 228

Sample required dilution. QC lost, analyst had to restart with less sample volume available.

3. Qualifier: (N1) Applies to: L71349-01, L71349-02 THORIUM 230

Prep Blank Water (Th-230) fails high by 0.2pCi/L. Due to elevated blank activity, unable to rule out possible contamination in samples where the activity is 0.2pCi/L higher than 2X Lower Level of Detection.

4. Qualifier: (N1) Applies to: L71349-02 LEAD 210

Sx run on 10X dilution due to SX matrix. Still interfered with Pb Carrier recovery. This caused Pb Carrier recovery to be below acceptance limits.

Rio Algom Mining Company

Project ID: 4512060294
 Sample ID: 30-48 KD-R-02082022

ACZ Sample ID: **L71349-01**
 Date Sampled: 02/08/22 13:35
 Date Received: 02/10/22
 Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	02/22/22 13:43	kja
Arsenic, dissolved	M200.8 ICP-MS	5	<0.001	U		mg/L	0.001	0.005	02/22/22 13:43	kja
Barium, dissolved	M200.7 ICP	5	<0.035	U		mg/L	0.035	0.175	02/22/22 15:49	aeh
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U		mg/L	0.0004	0.00125	02/22/22 13:43	kja
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U		mg/L	0.00025	0.00125	02/22/22 13:43	kja
Calcium, dissolved	M200.7 ICP	5	573			mg/L	0.5	2.5	02/22/22 15:49	aeh
Iron, dissolved	M200.7 ICP	5	3.41			mg/L	0.3	0.75	02/22/22 15:49	aeh
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/22/22 13:43	kja
Magnesium, dissolved	M200.7 ICP	5	209			mg/L	1	5	02/22/22 15:49	aeh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.0219			mg/L	0.001	0.0025	02/22/22 13:43	kja
Nickel, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.005	02/22/22 13:43	kja
Potassium, dissolved	M200.7 ICP	5	9.17			mg/L	1	5	02/22/22 15:49	aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 11:49	mlh
Sodium, dissolved	M200.7 ICP	5	385			mg/L	1	5	02/22/22 15:49	aeh
Uranium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/22/22 13:43	kja

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	281			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO3		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO3		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	281			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-5.3			%			04/07/22 0:00	calc
Sum of Anions			70			meq/L			04/07/22 0:00	calc
Sum of Cations			63			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	10	544		*	mg/L	5	20	02/25/22 14:36	mjj1
Conductivity @25C	SM2510B	1	4780			umhos/cm	1	10	02/15/22 18:10	eep
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 15:10	md
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	<0.02	U	*	mg/L	0.02	0.1	02/25/22 2:35	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4200		*	mg/L	40	80	02/14/22 11:13	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	100	2350		*	mg/L	100	500	02/21/22 17:23	syw
TDS (calculated)	Calculation		4240			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.99						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294
 Sample ID: DUP-04-02082022

ACZ Sample ID: **L71349-02**
 Date Sampled: 02/08/22 00:00
 Date Received: 02/10/22
 Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	02/22/22 13:45	kja
Arsenic, dissolved	M200.8 ICP-MS	5	<0.001	U		mg/L	0.001	0.005	02/22/22 13:45	kja
Barium, dissolved	M200.7 ICP	5	<0.035	U		mg/L	0.035	0.175	02/22/22 15:58	aeh
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U		mg/L	0.0004	0.00125	02/22/22 13:45	kja
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U		mg/L	0.00025	0.00125	02/22/22 13:45	kja
Calcium, dissolved	M200.7 ICP	5	577			mg/L	0.5	2.5	02/22/22 15:58	aeh
Iron, dissolved	M200.7 ICP	5	3.41			mg/L	0.3	0.75	02/22/22 15:58	aeh
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/22/22 13:45	kja
Magnesium, dissolved	M200.7 ICP	5	210			mg/L	1	5	02/22/22 15:58	aeh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.0211			mg/L	0.001	0.0025	02/22/22 13:45	kja
Nickel, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.005	02/22/22 13:45	kja
Potassium, dissolved	M200.7 ICP	5	9.29			mg/L	1	5	02/22/22 15:58	aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 11:55	mlh
Sodium, dissolved	M200.7 ICP	5	389			mg/L	1	5	02/22/22 15:58	aeh
Uranium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/22/22 13:45	kja

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	284			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO3		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO3		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	284			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-3.8			%			04/07/22 0:00	calc
Sum of Anions			69			meq/L			04/07/22 0:00	calc
Sum of Cations			64			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	10	551		*	mg/L	5	20	02/25/22 14:36	mjj1
Conductivity @25C	SM2510B	1	4760			umhos/cm	1	10	02/15/22 18:19	eep
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 15:16	md
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	<0.02	U	*	mg/L	0.02	0.1	02/25/22 2:36	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4170		*	mg/L	40	80	02/14/22 11:15	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	100	2270		*	mg/L	100	500	02/21/22 17:23	syw
TDS (calculated)	Calculation		4180			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.00						04/07/22 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:

<https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

QUIVIRA

ACZ Project ID: **L71349**

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
WG536739													
WG536739PBW1	PBW	02/15/22 17:08				6.5	mg/L		-20	20			
WG536739LCSW3	LCSW	02/15/22 17:27	WC220202-3	820.0001		824.5	mg/L	101	90	110			
L71351-01DUP	DUP	02/15/22 19:00			953	932.3	mg/L				2	20	
WG536739LCSW6	LCSW	02/15/22 21:39	WC220202-3	820.0001		823.3	mg/L	100	90	110			
WG536739PBW2	PBW	02/15/22 21:46				4.2	mg/L		-20	20			
WG536739LCSW12	LCSW	02/16/22 5:17	WC220202-3	820.0001		837.3	mg/L	102	90	110			

Antimony, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.0201		.01988	mg/L	99	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.00088	0.00088			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.01		.0092	mg/L	92	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.01	U	.00988	mg/L	99	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.01	U	.01002	mg/L	100	70	130	1	20	

Arsenic, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.05		.05053	mg/L	101	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.00044	0.00044			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.05005		.0504	mg/L	101	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.05005	.00034	.05797	mg/L	115	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.05005	.00034	.05909	mg/L	117	70	130	2	20	

Barium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	2		1.9942	mg/L	100	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.021	0.021			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	.5		.4946	mg/L	99	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	2.5	U	2.506	mg/L	100	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	2.5	U	2.5155	mg/L	101	85	115	0	20	

Beryllium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.05		.051647	mg/L	103	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.000176	0.000176			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.05005		.051433	mg/L	103	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.05005	U	.051413	mg/L	103	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.05005	U	.052643	mg/L	105	70	130	2	20	

QUIVIRA

ACZ Project ID: **L71349**

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
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.05		.052564	mg/L	105	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.00011	0.00011			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.05005		.052068	mg/L	104	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.05005	U	.052528	mg/L	105	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.05005	U	.052944	mg/L	106	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
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	100		99.75	mg/L	100	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.3	0.3			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	67.99026		63.66	mg/L	94	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	339.9513	573	884.5	mg/L	92	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	339.9513	573	884	mg/L	91	85	115	0	20	

Chloride

SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537384													
WG537384ICB	ICB	02/25/22 11:23				U	mg/L		-1.5	1.5			
WG537384ICV	ICV	02/25/22 11:23	WI210503-1	54.89		57.1	mg/L	104	90	110			
WG537384LFB1	LFB	02/25/22 14:01	WI210908-11	29.97		31.76	mg/L	106	90	110			
WG537384LFB2	LFB	02/25/22 14:05	WI210908-11	29.97		32.08	mg/L	107	90	110			
L71349-01AS	AS	02/25/22 14:36	10XCL	30	544	561.3	mg/L	58	90	110			M3
L71349-02DUP	DUP	02/25/22 14:36			551	546.6	mg/L				1	20	

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536739													
WG536739LCSW2	LCSW	02/15/22 17:14	PCN65017	1408		1405	umhos/cm	100	90	110			
L71351-01DUP	DUP	02/15/22 19:00			8080	8090	umhos/cm				0	20	
WG536739LCSW5	LCSW	02/15/22 21:26	PCN65017	1408		1396	umhos/cm	99	90	110			
WG536739LCSW8	LCSW	02/16/22 1:40	PCN65017	1408		1391	umhos/cm	99	90	110			
WG536739LCSW11	LCSW	02/16/22 5:04	PCN65017	1408		1382	umhos/cm	98	90	110			

Cyanide, Total

D7511-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537617													
WG537617ICV	ICV	03/04/22 15:00	WI220218-7	.3003		.3332	mg/L	111	90	110			N1
WG537617ICB	ICB	03/04/22 15:02				U	mg/L		-0.003	0.003			
WG537617LFB	LFB	03/04/22 15:08	WI220218-5	.1		.115	mg/L	115	84	116			
L71349-01AS	AS	03/04/22 15:12	WI220218-5	.1	U	.1112	mg/L	111	84	116			
L71349-01ASD	ASD	03/04/22 15:14	WI220218-5	.1	U	.1097	mg/L	110	84	116	1	20	

QUIVIRA

ACZ Project ID: **L71349**

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
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	2		1.987	mg/L	99	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.18	0.18			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	1.0001		1.004	mg/L	100	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	5.0005	3.41	8.385	mg/L	99	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	5.0005	3.41	8.39	mg/L	100	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
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.05		.05451	mg/L	109	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.00022	0.00022			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.05005		.05429	mg/L	108	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.05005	U	.05743	mg/L	115	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.05005	U	.05819	mg/L	116	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
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	100		95.23	mg/L	95	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.6	0.6			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	49.99828		48.05	mg/L	96	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	249.9914	209	448.75	mg/L	96	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	249.9914	209	449.2	mg/L	96	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
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.02		.02031	mg/L	102	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.00044	0.00044			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.05005		.05122	mg/L	102	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.05005	.0194	.07492	mg/L	111	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.05005	.0194	.07484	mg/L	111	70	130	0	20	

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.05		.05068	mg/L	101	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.00088	0.00088			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.05		.04988	mg/L	100	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.05	.00084	.05136	mg/L	101	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.05	.00084	.05185	mg/L	102	70	130	1	20	

QUIVIRA

ACZ Project ID: **L71349**

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
WG537368													
WG537368ICV	ICV	02/24/22 22:23	WI211205-1	2.4161		2.332	mg/L	97	90	110			
WG537368ICB	ICB	02/24/22 22:24				U	mg/L		-0.02	0.02			
WG537371													
WG537371LFB	LFB	02/25/22 2:08	WI211001-5	2		2.021	mg/L	101	90	110			
L64832-50AS	AS	02/25/22 2:30	WI211001-5	2	U	1.972	mg/L	99	90	110			
L64835-50DUP	DUP	02/25/22 2:50			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
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	20		19.62	mg/L	98	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.6	0.6			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	99.95169		99.02	mg/L	99	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	499.75845	9.17	510	mg/L	100	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	499.75845	9.17	510.5	mg/L	100	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
WG536632													
WG536632PBW	PBW	02/14/22 11:08				U	mg/L		-20	20			
WG536632LCSW	LCSW	02/14/22 11:10	PCN64729	1000		984	mg/L	98	80	120			
L71425-03DUP	DUP	02/14/22 11:39			17600	20800	mg/L				17	10	RA

Selenium, dissolved SM 3114 B, AA-Hydride

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536614													
WG536614ICV	ICV	02/14/22 11:41	SE220124-2	.025		.026	mg/L	104	90	110			
WG536614ICB	ICB	02/14/22 11:43				U	mg/L		-0.006	0.006			
WG536614LRB	LRB	02/14/22 11:45				U	mg/L		-0.006	0.006			
WG536614LFB	LFB	02/14/22 11:47	SE220124-4	.0225		.0226	mg/L	100	85	115			
L71349-01LFM	LFM	02/14/22 11:51	SE220124-4	.0225	U	.0191	mg/L	85	85	115			
L71349-01LFMD	LFMD	02/14/22 11:53	SE220124-4	.0225	U	.0201	mg/L	89	85	115	5	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	100		98.9	mg/L	99	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.6	0.6			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	100.0039		99.25	mg/L	99	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	500.0195	385	869.5	mg/L	97	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	500.0195	385	864.5	mg/L	96	85	115	1	20	

QUIVIRA

ACZ Project ID: **L71349**

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/-11 - TURBIDIMETRIC

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537110													
WG537110ICB	ICB	02/21/22 10:50				U	mg/L		-3	3			
WG537110ICV	ICV	02/21/22 10:50	WI220215-3	20.46		19.5	mg/L	95	90	110			
WG537110LFB	LFB	02/21/22 16:21	WI211230-5	9.95		10.2	mg/L	103	90	110			
L71385-02AS	AS	02/21/22 17:25	SO4TURB	10	3760	3725.4	mg/L	-346	90	110			M3
L71379-02DUP	DUP	02/21/22 17:27			1030	1071.2	mg/L				4	20	

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537112													
WG537112ICV	ICV	02/22/22 13:24	MS220105-1	.05		.05273	mg/L	105	90	110			
WG537112ICB	ICB	02/22/22 13:27				U	mg/L		-0.00022	0.00022			
WG537112LFB	LFB	02/22/22 13:29	MS220126-3	.05		.05195	mg/L	104	85	115			
L71285-02AS	AS	02/22/22 13:35	MS220126-3	.05	.0162	.0741	mg/L	116	70	130			
L71285-02ASD	ASD	02/22/22 13:37	MS220126-3	.05	.0162	.07493	mg/L	117	70	130	1	20	

Rio Algom Mining Company

ACZ Project ID: **L71349**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71349-01	WG537384	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.
	WG537617	Cyanide, Total	D7511-09	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [$<$ MDL].
			D7511-09	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			D7511-09	N1	See Case Narrative.
	WG537371	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).
	WG536632	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).
WG537110	Sulfate	D516-02/-07/-11 - 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.	
L71349-02	WG537384	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.
	WG537617	Cyanide, Total	D7511-09	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [$<$ MDL].
			D7511-09	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			D7511-09	N1	See Case Narrative.
	WG537371	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).
	WG536632	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).
WG537110	Sulfate	D516-02/-07/-11 - 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

Project ID: 4512060294
 Sample ID: 30-48 KD-R-02082022
 Locator:

ACZ Sample ID: **L71349-01**
 Date Sampled: 02/08/22 13:35
 Date Received: 02/10/22
 Sample Matrix: Groundwater

Lead 210, dissolved
 EICHROM, OTW01

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	04/05/22 15:32		0.85	19	56	pCi/L	*	fdw

Polonium 210, dissolved
 HASL Po-01-RC

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Polonium 210, dissolved	03/07/22 14:41		0.0	32	4.1	pCi/L	*	slc

Radium 226, dissolved
 M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/18/22 0:02		2	0.16	0.41	pCi/L	*	fdw

Radium 228, dissolved
 M9320

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/24/22 16:35		4.9	1.6	3.5	pCi/L	*	slc

Thorium 230, dissolved
 ESM 4506

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/25/22 11:58		1.68	0.92	1.3	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294
 Sample ID: DUP-04-02082022
 Locator:

ACZ Sample ID: **L71349-02**
 Date Sampled: 02/08/22 0:00
 Date Received: 02/10/22
 Sample Matrix: Groundwater

Lead 210, dissolved
 EICHROM, OTW01

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	04/05/22 15:32		-10	37	110	pCi/L	*	fdw

Polonium 210, dissolved
 HASL Po-01-RC

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Polonium 210, dissolved	03/07/22 14:41		0.0	24	3.2	pCi/L	*	slc

Radium 226, dissolved
 M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/18/22 0:05		2.4	0.16	0.26	pCi/L	*	fdw

Radium 228, dissolved
 M9320

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/24/22 16:35		13	2	4	pCi/L	*	slc

Thorium 230, dissolved
 ESM 4506

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/25/22 11:58		2.89	1.1	1.3	pCi/L	*	amk

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:

<https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

QUIVIRA

ACZ Project ID: **L71349**

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.

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
WG539097																
WG539097LCSW	LCSW	04/05/22	PCN64364	98.31				99	4.5	6.7	101	55	121			
WG539097PBW	PBW	04/05/22						-2.6	2.3	6.9			13.8			
L71280-01DUP	DUP-RPD	04/05/22			6.9	19	54	7.1	12	35				3	20	
L72132-01MS	MS	04/06/22	PCN64364	983	4.8	14	37	830	34	43	84	55	121			
L72132-02DUP	DUP-RPD	04/06/22			-34	25	70	7.7	16	43				317	20	RG
L72132-02DUP	DUP-RER	04/06/22			-34	25	70	7.7	16	43				1.4	2	

Polonium 210, dissolved

HASL Po-01-RC

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG537575																
WG537575LCSW	LCSW	03/07/22	PCN64364	500				500	110	4.5	100	51	128			
L71349-02DUP	DUP-RPD	03/07/22			0	24	3.2	0	20	2.8				0	20	
WG537575PBW	PBW	03/07/22						.18	1.9	2.5			5			
L71379-01DUP	DUP-RPD	03/08/22			0	42	5.8	0	30	4				0	20	
L71353-04MS	MS	03/08/22	PCN64364	500	0	40	5.9	517	120	6.1	103	51	128			

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
WG537124																
WG537124LCSW	LCSW	03/18/22	PCN64374	20				16	0.45	0.41	80	43	148			
WG537124PBW	PBW	03/18/22						.11	0.1	0.7			1.4			
L71349-01DUP	DUP-RPD	03/18/22			2	0.16	0.41	1.9	0.16	0.43				5	20	
L71351-01MS	MS	03/18/22	PCN64374	20	2.2	0.15	0.29	9.4	0.28	0.23	36	43	148			M2
L71541-01DUP	DUP-RPD	03/18/22			0.03	0.04	0.23	.34	0.07	0.3				168	20	RM

QUIVIRA

ACZ Project ID: **L71349**

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
WG538074																
WG538074LCSW	LCSW	03/24/22	PCN64684	9.48				8.6	1.1	2	91	47	123			
WG538074PBW	PBW	03/24/22						.3	0.71	1.8			3.6			
L71291-01DUP	DUP-RER	03/24/22			4.7	1.6	3.5	2.1	1.7	4				1.11	2	
L71291-01DUP	DUP-RPD	03/24/22			4.7	1.6	3.5	2.1	1.7	4				76	20	RG
L71300-01MS	MS	03/24/22	PCN64684	9.48	0.49	1.3	2.9	9.6	1.2	2	96	47	123			
L71350-01DUP	DUP-RPD	03/24/22			1.8	1.1	2.7	2.1	1	2.4				15	20	

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
WG538651																
WG538651LCSW	LCSW	03/25/22	PCN63437	200				205	26	0.31	103	91	126			
L71282-01DUP	DUP-RER	03/25/22			0.081	0.43	0.79	.738	1	1.8				0.6	2	
L71282-01DUP	DUP-RPD	03/25/22			0.081	0.43	0.79	.738	1	1.8				160	20	RG
WG538651PBW	PBW	03/28/22						1.2	0.45	0.5			1			N1
L71379-01MS	MS	03/28/22	PCN63437	200	0.641	0.36	0.48	190	24	0.38	95	91	126			
L71943-06DUP	DUP-RPD	03/29/22			0.736	0.44	0.62	1.03	0.91	1.4				33	20	RG
L71943-06DUP	DUP-RER	03/29/22			0.736	0.44	0.62	1.03	0.91	1.4				0.29	2	

Rio Algom Mining Company

ACZ Project ID: **L71349**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71349-01	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
	WG537124	Radium 226, dissolved	M903.1	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG538074	Radium 228, dissolved	M9320	DE	Sample required dilution. See Case Narrative.
			M9320	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
WG538651	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.	
		ESM 4506	N1	See Case Narrative.	
		ESM 4506	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.	
L71349-02	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
	WG537124	Radium 226, dissolved	EICHROM, OTW01	N1	See Case Narrative.
			M903.1	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG538074	Radium 228, dissolved	M9320	DE	Sample required dilution. See Case Narrative.
WG538651	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.	
		ESM 4506	N1	See Case Narrative.	
		ESM 4506	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.	

Rio Algom Mining Company

ACZ Project ID: **L71349**

Radiochemistry

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

Lead 210, dissolved	EICHROM, OTW01
Polonium 210, dissolved	HASL Po-01-RC
Thorium 230, dissolved	ESM 4506

Rio Algom Mining Company
 4512060294

ACZ Project ID: L71349
 Date Received: 02/10/2022 09:28
 Received By:
 Date Printed: 2/11/2022

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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?
6266	0.2	<=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
4512060294

ACZ Project ID: L71349
Date Received: 02/10/2022 09:28
Received By:
Date Printed: 2/11/2022

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).

