ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

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: L71379

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, L71379. 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 L71379. 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: L71379

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 L71379. 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: L71379-01, L71379-02 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: (N1A) Applies to: L71379-02 THORIUM 230

Duplicated sample tracer recovery fails low due to sample loss during filtration step.

3. Qualifier: (N1) Applies to: L71379-01, L71379-02 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.

Rio Algom Mining Company
Project ID: 4512060294
Sample ID: 33-01 TRA-02082022

ACZ Sample ID: ***L71379-01***
Date Sampled: *02/08/22 15:07*
Date Received: *02/10/22*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	2	166			mg/L	0.2	1	02/22/22 20:51	jlw
Iron, dissolved	M200.7 ICP	2	0.294	B		mg/L	0.12	0.3	02/22/22 20:51	jlw
Magnesium, dissolved	M200.7 ICP	2	52.7			mg/L	0.4	2	02/23/22 14:36	jlw
Molybdenum, dissolved	M200.8 ICP-MS	2	0.00285			mg/L	0.0004	0.001	02/21/22 21:05	kja
Nickel, dissolved	M200.8 ICP-MS	2	<0.0008	U		mg/L	0.0008	0.002	02/21/22 21:05	kja
Potassium, dissolved	M200.7 ICP	2	5.92			mg/L	0.4	2	02/22/22 20:51	jlw
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 12:18	mlh
Sodium, dissolved	M200.7 ICP	2	584			mg/L	0.4	2	02/22/22 20:51	jlw
Uranium, dissolved	M200.8 ICP-MS	2	0.00045	B		mg/L	0.0002	0.001	02/21/22 21:05	kja

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	82.2			mg/L	2	20	02/18/22 0:00	eep
Carbonate as CaCO3		1	<2	U		mg/L	2	20	02/18/22 0:00	eep
Hydroxide as CaCO3		1	<2	U		mg/L	2	20	02/18/22 0:00	eep
Total Alkalinity		1	82.2			mg/L	2	20	02/18/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-4.9			%			04/07/22 0:00	calc
Sum of Anions			43			meq/L			04/07/22 0:00	calc
Sum of Cations			39			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	1	32.0		*	mg/L	0.5	2	02/25/22 14:01	mjj1
Conductivity @25C	SM2510B	1	3350			umhos/cm	1	10	02/16/22 0:49	eep
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 15:20	md
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	<0.02	U	*	mg/L	0.02	0.1	02/25/22 2:46	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	2690			mg/L	20	40	02/10/22 15:51	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	50	1920		*	mg/L	50	250	02/21/22 17:25	syw
TDS (calculated)	Calculation		2810			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.96						04/07/22 0:00	calc

Rio Algom Mining Company
Project ID: 4512060294
Sample ID: 31-01 TRA-R-02092022

ACZ Sample ID: ***L71379-02***
Date Sampled: *02/09/22 09:55*
Date Received: *02/10/22*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	1	199			mg/L	0.1	0.5	02/22/22 20:54	jlw
Iron, dissolved	M200.7 ICP	1	<0.06	U		mg/L	0.06	0.15	02/22/22 20:54	jlw
Magnesium, dissolved	M200.7 ICP	1	83.5			mg/L	0.2	1	02/23/22 14:40	jlw
Molybdenum, dissolved	M200.8 ICP-MS	1	0.00449			mg/L	0.0002	0.0005	02/21/22 21:07	kja
Nickel, dissolved	M200.8 ICP-MS	1	0.00311			mg/L	0.0004	0.001	02/21/22 21:07	kja
Potassium, dissolved	M200.7 ICP	1	6.40			mg/L	0.2	1	02/22/22 20:54	jlw
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 12:24	mlh
Sodium, dissolved	M200.7 ICP	1	142			mg/L	0.2	1	02/22/22 20:54	jlw
Uranium, dissolved	M200.8 ICP-MS	1	0.00089			mg/L	0.0001	0.0005	02/21/22 21:07	kja

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	144			mg/L	2	20	02/18/22 0:00	eep
Carbonate as CaCO3		1	<2	U		mg/L	2	20	02/18/22 0:00	eep
Hydroxide as CaCO3		1	<2	U		mg/L	2	20	02/18/22 0:00	eep
Total Alkalinity		1	144			mg/L	2	20	02/18/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-4.2			%			04/07/22 0:00	calc
Sum of Anions			25			meq/L			04/07/22 0:00	calc
Sum of Cations			23			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	1	14.7		*	mg/L	0.5	2	02/25/22 14:01	mjj1
Conductivity @25C	SM2510B	1	1900			umhos/cm	1	10	02/16/22 0:58	eep
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 15:22	md
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.076	B	*	mg/L	0.02	0.1	02/25/22 2:47	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	1620			mg/L	20	40	02/10/22 15:54	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	50	1030		*	mg/L	50	250	02/21/22 17:25	syw
TDS (calculated)	Calculation		1560			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.04						04/07/22 0:00	calc

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	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: ***L71379***

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
WG536892													
WG536892PBW1	PBW	02/17/22 16:14				15.7	mg/L		-20	20			
WG536892LCSW3	LCSW	02/17/22 16:31	WC220202-3	820.0001		806.8	mg/L	98	90	110			
WG536892LCSW6	LCSW	02/17/22 19:07	WC220202-3	820.0001		811.1	mg/L	99	90	110			
WG536892PBW2	PBW	02/17/22 19:13				6.5	mg/L		-20	20			
WG536892LCSW9	LCSW	02/17/22 21:38	WC220202-3	820.0001		828.7	mg/L	101	90	110			
WG536892PBW3	PBW	02/17/22 21:44				6.3	mg/L		-20	20			
L71379-01DUP	DUP	02/18/22 1:04			82.2	81.3	mg/L				1	20	
WG536892LCSW12	LCSW	02/18/22 1:32	WC220202-3	820.0001		831.1	mg/L	101	90	110			
WG536892PBW4	PBW	02/18/22 1:38				6.8	mg/L		-20	20			
WG536892LCSW15	LCSW	02/18/22 5:21	WC220202-3	820.0001		840.3	mg/L	102	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537168													
WG537168ICV	ICV	02/22/22 20:19	II220215-3	100		98.24	mg/L	98	95	105			
WG537168ICB	ICB	02/22/22 20:25				U	mg/L		-0.3	0.3			
WG537168LFB	LFB	02/22/22 20:38	II220215-2	67.99026		63.42	mg/L	93	85	115			
L71350-01AS	AS	02/22/22 20:44	II220215-2	339.9513	440	763	mg/L	95	85	115			
L71350-01ASD	ASD	02/22/22 20:47	II220215-2	339.9513	440	760	mg/L	94	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			
WG536739LCSW5	LCSW	02/15/22 21:26	PCN65017	1408		1396	umhos/cm	99	90	110			
L71442-02DUP	DUP	02/16/22 1:34			1330	1331	umhos/cm				0	20	
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: ***L71379***

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
WG537168													
WG537168ICV	ICV	02/22/22 20:19	II220215-3	2		1.954	mg/L	98	95	105			
WG537168ICB	ICB	02/22/22 20:25				U	mg/L		-0.18	0.18			
WG537168LFB	LFB	02/22/22 20:38	II220215-2	1.0001		1.011	mg/L	101	85	115			
L71350-01AS	AS	02/22/22 20:44	II220215-2	5.0005	U	5.12	mg/L	102	85	115			
L71350-01ASD	ASD	02/22/22 20:47	II220215-2	5.0005	U	5.095	mg/L	102	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
WG537210													
WG537210ICV	ICV	02/23/22 14:04	II220215-3	100		95.49	mg/L	95	95	105			
WG537210ICB	ICB	02/23/22 14:10				U	mg/L		-0.6	0.6			
WG537210LFB	LFB	02/23/22 14:23	II220215-2	49.99828		49.48	mg/L	99	85	115			
L71350-01AS	AS	02/23/22 14:30	II220215-2	249.9914	259	502	mg/L	97	85	115			
L71350-01ASD	ASD	02/23/22 14:33	II220215-2	249.9914	259	502.5	mg/L	97	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
WG537121													
WG537121ICV	ICV	02/21/22 20:44	MS220105-1	.02		.02052	mg/L	103	90	110			
WG537121ICB	ICB	02/21/22 20:47				.00023	mg/L		-0.00044	0.00044			
WG537121LFB	LFB	02/21/22 20:49	MS220126-3	.05005		.04769	mg/L	95	85	115			
L71379-02AS	AS	02/21/22 21:14	MS220126-3	.05005	.00449	.04847	mg/L	88	70	130			
L71379-02ASD	ASD	02/21/22 21:16	MS220126-3	.05005	.00449	.05508	mg/L	101	70	130	13	20	

Nickel, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537121													
WG537121ICV	ICV	02/21/22 20:44	MS220105-1	.05		.0515	mg/L	103	90	110			
WG537121ICB	ICB	02/21/22 20:47				U	mg/L		-0.00088	0.00088			
WG537121LFB	LFB	02/21/22 20:49	MS220126-3	.05		.04759	mg/L	95	85	115			
L71379-02AS	AS	02/21/22 21:14	MS220126-3	.05	.00311	.03842	mg/L	71	70	130			
L71379-02ASD	ASD	02/21/22 21:16	MS220126-3	.05	.00311	.04364	mg/L	81	70	130	13	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
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

QUIVIRA

ACZ Project ID: ***L71379***

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
WG537168													
WG537168ICV	ICV	02/22/22 20:19	II220215-3	20		19.6	mg/L	98	95	105			
WG537168ICB	ICB	02/22/22 20:25				U	mg/L		-0.6	0.6			
WG537168LFB	LFB	02/22/22 20:38	II220215-2	99.95169		99.69	mg/L	100	85	115			
L71350-01AS	AS	02/22/22 20:44	II220215-2	499.75845	17.5	520.5	mg/L	101	85	115			
L71350-01ASD	ASD	02/22/22 20:47	II220215-2	499.75845	17.5	523	mg/L	101	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
WG536516													
WG536516PBW	PBW	02/10/22 15:07				U	mg/L		-20	20			
WG536516LCSW	LCSW	02/10/22 15:09	PCN64730	1000		982	mg/L	98	80	120			
L71385-02DUP	DUP	02/10/22 16:07			5820	5760	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
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			
L71379-01LFM	LFM	02/14/22 12:20	SE220124-4	.0225	U	.0191	mg/L	85	85	115			
L71379-01LFMD	LFMD	02/14/22 12:22	SE220124-4	.0225	U	.0214	mg/L	95	85	115	11	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537168													
WG537168ICV	ICV	02/22/22 20:19	II220215-3	100		98.13	mg/L	98	95	105			
WG537168ICB	ICB	02/22/22 20:25				U	mg/L		-0.6	0.6			
WG537168LFB	LFB	02/22/22 20:38	II220215-2	100.0039		100.1	mg/L	100	85	115			
L71350-01AS	AS	02/22/22 20:44	II220215-2	500.0195	1530	2025.5	mg/L	99	85	115			
L71350-01ASD	ASD	02/22/22 20:47	II220215-2	500.0195	1530	2026	mg/L	99	85	115	0	20	

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	

QUIVIRA

ACZ Project ID: ***L71379***

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.

Uranium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537121													
WG537121ICV	ICV	02/21/22 20:44	MS220105-1	.05		.05163	mg/L	103	90	110			
WG537121ICB	ICB	02/21/22 20:47				U	mg/L		-0.00022	0.00022			
WG537121LFB	LFB	02/21/22 20:49	MS220126-3	.05		.04901	mg/L	98	85	115			
L71379-02AS	AS	02/21/22 21:14	MS220126-3	.05	.00089	.04985	mg/L	98	70	130			
L71379-02ASD	ASD	02/21/22 21:16	MS220126-3	.05	.00089	.05667	mg/L	112	70	130	13	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: ***L71379***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71379-01	WG537384	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.
	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).
	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.
L71379-02	WG537384	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.
	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).
	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: 33-01 TRA-02082022
Locator:

ACZ Sample ID: ***L71379-01***
Date Sampled: *02/08/22 15:07*
Date Received: *02/10/22*
Sample Matrix: *Groundwater*

Lead 210, dissolved — Prep Method:
EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	04/06/22 9:36		-16	20	57	pCi/L	*	fdw

Polonium 210, dissolved — Prep Method:
HASL Po-01-RC

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Polonium 210, dissolved	03/08/22 9:28		0.0	42	5.8	pCi/L	*	slc

Radium 226, dissolved — Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/18/22 0:23		1.2	0.11	0.25	pCi/L	*	fdw

Radium 228, dissolved — Prep Method:
M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/22/22 16:30		2.3	0.96	2	pCi/L	*	ttg

Thorium 230, dissolved — Prep Method:
ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/28/22 14:32		0.641	0.36	0.48	pCi/L	*	amk

Rio Algom Mining Company
Project ID: 4512060294
Sample ID: 31-01 TRA-R-02092022
Locator:

ACZ Sample ID: ***L71379-02***
Date Sampled: *02/09/22 9:55*
Date Received: *02/10/22*
Sample Matrix: *Groundwater*

Lead 210, dissolved — Prep Method:
EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	04/06/22 9:36		14	21	56	pCi/L	*	fdw

Polonium 210, dissolved — Prep Method:
HASL Po-01-RC

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Polonium 210, dissolved	03/08/22 9:28		0.0	29	4	pCi/L	*	slc

Radium 226, dissolved — Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/18/22 0:24		0.43	0.08	0.26	pCi/L	*	fdw

Radium 228, dissolved — Prep Method:
M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/22/22 16:30		1.5	0.81	2	pCi/L	*	ttg

Thorium 230, dissolved — Prep Method:
ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/28/22 20:41		0.537	0.34	0.48	pCi/L	*	amk

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Error(+/-)	Calculated sample specific uncertainty
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
LCL	Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD	Calculated sample specific Lower Limit of Detection
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RER	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
UCL	Upper Control Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

DUP	Sample Duplicate	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	*PBS*	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	*PBW*	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:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

QUIVIRA

ACZ Project ID: ***L71379***

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: ***L71379***

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
WG538294																
WG538294LCSW	LCSW	03/22/22	PCN64684	9.48				11	1.4	2.4	116	47	123			
WG538294PBW	PBW	03/22/22						.61	0.81	2.1			4.2			
L71456-01DUP	DUP-RER	03/22/22			0.2	0.97	2.4	-.46	0.9	2.3				0.5	2	
L71456-01DUP	DUP-RPD	03/22/22			0.2	0.97	2.4	-.46	0.9	2.3				508	20	RG
L71456-02MS	MS	03/22/22	PCN64684	9.48	-0.02	0.76	1.9	11	1.2	2	116	47	123			
L71644-01DUP	DUP-RPD	03/23/22			0.45	0.9	2.3	.41	1	2.6				9	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	

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RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: ***L71379***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71379-01	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	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.
	WG537124	Radium 226, dissolved	M903.1	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M903.1	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
	WG538294	Radium 228, dissolved	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	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.
L71379-02	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	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.
	WG537124	Radium 226, dissolved	M903.1	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M903.1	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
	WG538294	Radium 228, dissolved	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	N1	See Case Narrative.
			ESM 4506	N1A	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.

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

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rio Algom Mining Company
4512060294

ACZ Project ID: L71379
Date Received: 02/10/2022 09:29
Received By:
Date Printed: 2/11/2022

Receipt Verification

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

Samples/Containers

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

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
6729	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.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rio Algom Mining Company
4512060294

ACZ Project ID: L71379
Date Received: 02/10/2022 09:29
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).

ACZ LABORATORIES | Accredited Environmental Testing | 2773 Downhill Drive, Steamboat Springs, CO 80487, (970) 879-6590 | L71379

CHAIN of CUSTODY

Report to:

Name: Kent Applegate
Company: Rio Algom Mining LLC
E-mail: Kent.Applegate@bhp.com
Address: 201 C Sante Fe Avenue, Grants NM 87020
Telephone: 505-801-1761

Copy of Report to:

Name: See Remarks
Company:
E-mail: See Remarks
Telephone:

Invoice to:

Name: Kent Applegate
Company: Rio Algom Mining LLC
E-mail: Kent.Applegate@bhp.com
Address: 201 C Sante Fe Avenue, Grants NM 87020
Telephone: 505-801-1761

Copy of Invoice to:

Name: See Remarks
Company:
E-mail: See Remarks
Address:
Telephone:

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: Kelly Hoehn Sampler's Site Information State NM Zip code 87020 Time Zone MST
*Sampler's 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

Quote #: BO48856
PO#: 4512060294
Reporting state for compliance testing:
Check box if samples include NRC licensed material? ✔

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	NRC-TRA
33-01 TRA-02082022	2/8/2022 15:07	GW	6	✔
31-01 TRA-R-02092022	2/9/2022 09:55	GW	6	✔

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

REMARKS

Please CC Report to email list.

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Joe Sepka	2/9 1538		2/10/22 9:25

Qualtrax ID: 1984 Revision #: 2 White - Return with sample. Yellow - Retain for your records.

L71379 Chain of Custod