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

Analytical Report

March 30, 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: L71283

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 07, 2022. This project has been assigned to ACZ's project number, L71283. 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 L71283. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 29, 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.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

Rio Algom Mining Company

March 30, 2022

Project ID: 4512060294
ACZ Project ID: L71283

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 groundwater sample from Rio Algom Mining Company on February 7, 2022. The sample was received in good condition. Upon receipt, the sample custodian removed the sample from the cooler, inspected the contents, and logged the sample into ACZ's computerized Laboratory Information Management System (LIMS). The sample was assigned ACZ LIMS project number L71283. 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

This sample was 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: L71283-01/CYANIDE

Prior analyses performed while troubleshooting the instrument. Reanalysis after resolving the instrument issues is likely to be more representative of the true values and should be favored over historic data from previous runs.

2. Qualifier: (DE) Applies to: L71283-01/RADIUM 228

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

3. Qualifier: (N1) Applies to: L71283-01/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: 19-77 TRB-02032022

ACZ Sample ID: ***L71283-01***
Date Sampled: *02/03/22 12:30*
Date Received: *02/07/22*
Sample Matrix: *Groundwater*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	2	117			mg/L	0.2	1	02/22/22 11:57	jlw
Iron, dissolved	M200.7 ICP	2	<0.12	U		mg/L	0.12	0.3	02/23/22 10:34	jlw
Magnesium, dissolved	M200.7 ICP	2	55.8			mg/L	0.4	2	02/22/22 11:57	jlw
Molybdenum, dissolved	M200.8 ICP-MS	2	0.00343			mg/L	0.0004	0.001	02/19/22 15:26	bsu
Nickel, dissolved	M200.8 ICP-MS	2	0.00187	B		mg/L	0.0008	0.002	02/19/22 15:26	bsu
Potassium, dissolved	M200.7 ICP	2	7.50			mg/L	0.4	2	02/22/22 11:57	jlw
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/09/22 12:20	mlh
Sodium, dissolved	M200.7 ICP	2	919			mg/L	0.4	2	02/22/22 11:57	jlw
Uranium, dissolved	M200.8 ICP-MS	2	0.00808			mg/L	0.0002	0.001	02/19/22 15:26	bsu

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	514			mg/L	2	20	02/11/22 0:00	eep
Carbonate as CaCO3		1	<2	U		mg/L	2	20	02/11/22 0:00	eep
Hydroxide as CaCO3		1	<2	U		mg/L	2	20	02/11/22 0:00	eep
Total Alkalinity		1	514			mg/L	2	20	02/11/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-6.4			%			03/30/22 0:00	calc
Sum of Anions			58			meq/L			03/30/22 0:00	calc
Sum of Cations			51			meq/L			03/30/22 0:00	calc
Chloride	SM4500Cl-E	1	16.5		*	mg/L	0.5	2	02/15/22 14:59	syw
Conductivity @25C	SM2510B	1	4610			umhos/cm	1	10	02/11/22 0:39	eep
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:14	md
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.319		*	mg/L	0.02	0.1	02/24/22 1:52	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	3440			mg/L	40	80	02/08/22 11:05	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	100	2260		*	mg/L	100	500	02/21/22 17:23	syw
TDS (calculated)	Calculation		3690			mg/L			03/30/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.93						03/30/22 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

REP001.03.15.02

QUIVIRA

ACZ Project ID: ***L71283***

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
WG536519													
WG536519PBW1	PBW	02/10/22 17:20				6.1	mg/L		-20	20			
WG536519LCSW3	LCSW	02/10/22 17:39	WC220202-3	820.0001		780.6	mg/L	95	90	110			
WG536519LCSW6	LCSW	02/10/22 20:37	WC220202-3	820.0001		799.4	mg/L	97	90	110			
WG536519PBW2	PBW	02/10/22 20:44				5.7	mg/L		-20	20			
L71300-01DUP	DUP	02/11/22 1:27			266	272.1	mg/L				2	20	
WG536519LCSW9	LCSW	02/11/22 1:47	WC220202-3	820.0001		810.7	mg/L	99	90	110			
WG536519PBW3	PBW	02/11/22 1:54				4.9	mg/L		-20	20			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537114													
WG537114ICV	ICV	02/22/22 10:50	II220215-3	100		99.44	mg/L	99	95	105			
WG537114ICB	ICB	02/22/22 10:56				U	mg/L		-0.3	0.3			
WG537114LFB	LFB	02/22/22 11:09	II220215-2	67.99026		63.34	mg/L	93	85	115			
L71291-02AS	AS	02/22/22 12:17	II220215-2	67.99026	116	174.8	mg/L	86	85	115			
L71291-02ASD	ASD	02/22/22 12:26	II220215-2	67.99026	116	173.8	mg/L	85	85	115	1	20	

Chloride SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536701													
WG536701ICB	ICB	02/15/22 14:46				U	mg/L		-1.5	1.5			
WG536701ICV	ICV	02/15/22 14:46	WI210503-1	54.89		57.93	mg/L	106	90	110			
L71280-01AS	AS	02/15/22 14:59	WI210908-11	29.97	14.1	47.03	mg/L	110	90	110			
L71282-01DUP	DUP	02/15/22 14:59			82.4	81.04	mg/L				2	20	
WG536701LFB1	LFB	02/15/22 15:41	WI210908-11	29.97		30.47	mg/L	102	90	110			
WG536701LFB2	LFB	02/15/22 15:41	WI210908-11	29.97		31.9	mg/L	106	90	110			

Conductivity @25C SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536519													
WG536519LCSW2	LCSW	02/10/22 17:27	PCN65017	1408		1442	umhos/cm	102	90	110			
WG536519LCSW5	LCSW	02/10/22 20:24	PCN65017	1408		1433	umhos/cm	102	90	110			
L71300-01DUP	DUP	02/11/22 1:27			4210	4230	umhos/cm				0	20	
WG536519LCSW8	LCSW	02/11/22 1:34	PCN65017	1408		1429	umhos/cm	101	90	110			
WG536519LCSW11	LCSW	02/11/22 5:33	PCN65017	1408		1424	umhos/cm	101	90	110			
WG536519LCSW14	LCSW	02/11/22 8:56	PCN65017	1408		1414	umhos/cm	100	90	110			

Cyanide, Total D7511-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537610													
WG537610ICV	ICV	03/04/22 12:50	WI220218-7	.3003		.3248	mg/L	108	90	110			
WG537610ICB	ICB	03/04/22 12:52				U	mg/L		-0.003	0.003			
WG537610LFB	LFB	03/04/22 12:58	WI220218-5	.1		.1098	mg/L	110	84	116			
L71279-01AS	AS	03/04/22 13:02	WI220218-5	.1	U	.1105	mg/L	111	84	116			
L71279-01ASD	ASD	03/04/22 13:04	WI220218-5	.1	U	.1088	mg/L	109	84	116	2	20	

QUIVIRA

ACZ Project ID: ***L71283***

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
WG537190													
WG537190ICV	ICV	02/23/22 9:27	II220215-3	2		2.003	mg/L	100	95	105			
WG537190ICB	ICB	02/23/22 9:33				U	mg/L		-0.18	0.18			
WG537190LFB	LFB	02/23/22 9:46	II220215-2	1.0001		1.008	mg/L	101	85	115			
L71291-02AS	AS	02/23/22 10:54	II220215-2	1.0001	.094	1.114	mg/L	102	85	115			
L71291-02ASD	ASD	02/23/22 11:03	II220215-2	1.0001	.094	1.138	mg/L	104	85	115	2	20	

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537114													
WG537114ICV	ICV	02/22/22 10:50	II220215-3	100		95.2	mg/L	95	95	105			
WG537114ICB	ICB	02/22/22 10:56				U	mg/L		-0.6	0.6			
WG537114LFB	LFB	02/22/22 11:09	II220215-2	49.99828		47.99	mg/L	96	85	115			
L71291-02AS	AS	02/22/22 12:17	II220215-2	49.99828	46.1	92.6	mg/L	93	85	115			
L71291-02ASD	ASD	02/22/22 12:26	II220215-2	49.99828	46.1	91.94	mg/L	92	85	115	1	20	

Molybdenum, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537026													
WG537026ICV	ICV	02/19/22 15:10	MS220125-1	.02		.01986	mg/L	99	90	110			
WG537026ICB	ICB	02/19/22 15:11				U	mg/L		-0.00044	0.00044			
WG537026LFB	LFB	02/19/22 15:13	MS220126-3	.05005		.04819	mg/L	96	85	115			
L71280-01AS	AS	02/19/22 15:20	MS220126-3	.05005	.00209	.05565	mg/L	107	70	130			
L71280-01ASD	ASD	02/19/22 15:22	MS220126-3	.05005	.00209	.05571	mg/L	107	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
WG537026													
WG537026ICV	ICV	02/19/22 15:10	MS220125-1	.05		.05349	mg/L	107	90	110			
WG537026ICB	ICB	02/19/22 15:11				U	mg/L		-0.00088	0.00088			
WG537026LFB	LFB	02/19/22 15:13	MS220126-3	.05		.04827	mg/L	97	85	115			
L71280-01AS	AS	02/19/22 15:20	MS220126-3	.05	U	.05007	mg/L	100	70	130			
L71280-01ASD	ASD	02/19/22 15:22	MS220126-3	.05	U	.04916	mg/L	98	70	130	2	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
WG537289													
WG537289ICV	ICV	02/24/22 0:43	WI211205-1	2.4161		2.277	mg/L	94	90	110			
WG537289ICB	ICB	02/24/22 0:44				U	mg/L		-0.02	0.02			
WG537290													
WG537290LFB	LFB	02/24/22 1:44	WI211001-5	2		2.014	mg/L	101	90	110			
L71279-01AS	AS	02/24/22 1:46	WI211001-5	2	1.16	3.204	mg/L	102	90	110			
L71279-02DUP	DUP	02/24/22 1:49			.03	.027	mg/L				11	20	RA

QUIVIRA

ACZ Project ID: ***L71283***

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Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537114													
WG537114ICV	ICV	02/22/22 10:50	II220215-3	20		19.7	mg/L	99	95	105			
WG537114ICB	ICB	02/22/22 10:56				U	mg/L		-0.6	0.6			
WG537114LFB	LFB	02/22/22 11:09	II220215-2	99.95169		98.19	mg/L	98	85	115			
L71291-02AS	AS	02/22/22 12:17	II220215-2	99.95169	5.05	103	mg/L	98	85	115			
L71291-02ASD	ASD	02/22/22 12:26	II220215-2	99.95169	5.05	102.7	mg/L	98	85	115	0	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536319													
WG536319PBW	PBW	02/08/22 10:37				U	mg/L		-20	20			
WG536319LCSW	LCSW	02/08/22 10:39	PCN64730	1000		976	mg/L	98	80	120			
L71283-01DUP	DUP	02/08/22 11:08			3440	3452	mg/L				0	10	

Selenium, dissolved SM 3114 B, AA-Hydride

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536384													
WG536384ICV	ICV	02/09/22 11:24	SE220124-2	.025		.026	mg/L	104	90	110			
WG536384ICB	ICB	02/09/22 11:26				U	mg/L		-0.006	0.006			
WG536385													
WG536385LRB	LRB	02/09/22 12:03				U	mg/L		-0.006	0.006			
WG536385LFB	LFB	02/09/22 12:06	SE220124-4	.0225		.0216	mg/L	96	85	115			
L71280-01LFM	LFM	02/09/22 12:12	SE220124-4	.0225	U	.0205	mg/L	91	85	115			
L71280-01LFMD	LFMD	02/09/22 12:14	SE220124-4	.0225	U	.0197	mg/L	88	85	115	4	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537114													
WG537114ICV	ICV	02/22/22 10:50	II220215-3	100		98.31	mg/L	98	95	105			
WG537114ICB	ICB	02/22/22 10:56				U	mg/L		-0.6	0.6			
WG537114LFB	LFB	02/22/22 11:09	II220215-2	100.0039		98.02	mg/L	98	85	115			
L71291-02AS	AS	02/22/22 12:17	II220215-2	100.0039	257	347.8	mg/L	91	85	115			
L71291-02ASD	ASD	02/22/22 12:26	II220215-2	100.0039	257	343.7	mg/L	87	85	115	1	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			
L71279-02AS	AS	02/21/22 16:55	SO4TURB50X	10	1670	1601.7	mg/L	-683	90	110			M3
L71279-01DUP	DUP	02/21/22 17:21			2890	2972.4	mg/L				3	20	

QUIVIRA

ACZ Project ID: ***L71283***

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Uranium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537026													
WG537026ICV	ICV	02/19/22 15:10	MS220125-1	.05		.05132	mg/L	103	90	110			
WG537026ICB	ICB	02/19/22 15:11				U	mg/L		-0.00022	0.00022			
WG537026LFB	LFB	02/19/22 15:13	MS220126-3	.05		.04726	mg/L	95	85	115			
L71280-01AS	AS	02/19/22 15:20	MS220126-3	.05	U	.05396	mg/L	108	70	130			
L71280-01ASD	ASD	02/19/22 15:22	MS220126-3	.05	U	.05433	mg/L	109	70	130	1	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: ***L71283***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71283-01	WG536701	Chloride	SM4500Cl-E	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG537610	Cyanide, Total	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.
	WG537290	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: 19-77 TRB-02032022
Locator:

ACZ Sample ID: ***L71283-01***
Date Sampled: *02/03/22 12:30*
Date Received: *02/07/22*
Sample Matrix: *Groundwater*

Lead 210, dissolved — Prep Method:
EICHROM, OTW01

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Lead 210, dissolved	03/22/22 11:42		1.4	2.1	5.6	pCi/L	*	amk

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

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Polonium 210, dissolved	02/11/22 13:24		0.0	23	3.5	pCi/L	*	slc

Radium 226, dissolved — Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/11/22 0:12		0.22	0.06	0.14	pCi/L	*	fdw

Radium 228, dissolved — Prep Method:
M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/24/22 13:29		1.1	1.1	2.8	pCi/L	*	slc

Thorium 230, dissolved — Prep Method:
ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/25/22 11:58		0.61	0.68	1.1	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: ***L71283***

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
WG537353																
WG537353LCSW	LCSW	03/22/22	PCN64363	98.43				83	3.1	3.6	84	55	121			
WG537353PBW	PBW	03/22/22						-.36	1.2	3.3			6.6			
L71215-04MS	MS	03/22/22	PCN64363	328.08	-3.9	4.7	13	240	11	14	74	55	121			
L71215-04DUP	DUP-RER	03/22/22			-3.9	4.7	13	3.1	4.1	11				1.12	2	
L71215-04DUP	DUP-RPD	03/22/22			-3.9	4.7	13	3.1	4.1	11				1750	20	RG
L71353-08DUP	DUP-RPD	03/22/22			1.5	1.6	4.2	1.6	1.7	4.3				6	20	

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
WG536399																
L71283-01DUP	DUP-RER	02/11/22			0	23	3.5	.331	2.4	3.1				0.01	2	
WG536399LCSW	LCSW	02/11/22	PCN64363	500				518	120	4.3	104	51	128			
L71283-01DUP	DUP-RPD	02/11/22			0	23	3.5	.331	2.4	3.1				200	20	RG
WG536399PBW	PBW	02/11/22						.756	2.7	3.2			6.4			
L71280-01MS	MS	02/11/22	PCN64363	500	0	28	4	545	120	4.1	109	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
WG536562																
WG536562LCSW	LCSW	03/11/22	PCN64374	20				18	0.44	0.35	90	43	148			
WG536562PBW	PBW	03/11/22						.06	0.08	0.6			1.2			
L71279-01DUP	DUP-RER	03/11/22			0.24	0.07	0.34	.34	0.08	0.36				0.94	2	
L71279-01DUP	DUP-RPD	03/11/22			0.24	0.07	0.34	.34	0.08	0.36				34	20	RG
L71279-02MS	MS	03/11/22	PCN64374	20	1.1	0.11	0.25	19	0.43	0.29	90	43	148			
L71377-01DUP	DUP-RPD	03/11/22			0.11	0.07	0.3	.15	0.1	0.35				31	20	RG
L71377-01DUP	DUP-RER	03/11/22			0.11	0.07	0.3	.15	0.1	0.35				0.33	2	

QUIVIRA

ACZ Project ID: ***L71283***

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	

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

RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: ***L71283***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71283-01	WG537353	Lead 210, dissolved	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.
	WG536399	Polonium 210, dissolved	HASL Po-01-RC	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.
	WG536562	Radium 226, dissolved	M903.1	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.
	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.

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: L71283
Date Received: 02/07/2022 11:11
Received By:
Date Printed: 2/8/2022

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?
6734	2.2	<=6.0	15	Yes

Was ice present in the shipment container(s)?

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

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

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

Sample Receipt

Rio Algom Mining Company
4512060294

ACZ Project ID: L71283
Date Received: 02/07/2022 11:11
Received By:
Date Printed: 2/8/2022

[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 | L71283

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:** Kelly Hoehn
*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-TRB
19-77 TRB-02032022	2/3/2022 12:30	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
Kelly Hoehn Kelly Hoehn	2/4/22 1145	ACZ	2/7/22 12:55

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

L71283 Chain of Custod