

March 25, 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: Michaela 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: L71281

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, L71281. 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 L71281. 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 24, 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 25, 2022

Project ID: 4512060294

ACZ Project ID: L71281

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 L71281. 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. (N1) Applies to: L71281-01/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.

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 32-04-TRA-02022022

ACZ Sample ID: **L71281-01**

Date Sampled: 02/02/22 11:15

Date Received: 02/07/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1	<0.05	U		mg/L	0.05	0.25	02/16/22 15:28	jlw
Antimony, dissolved	M200.8 ICP-MS	1	0.00058	B		mg/L	0.0004	0.002	02/08/22 18:26	bsu
Arsenic, dissolved	M200.8 ICP-MS	1	0.00090	B		mg/L	0.0002	0.001	02/08/22 18:26	bsu
Barium, dissolved	M200.7 ICP	1	0.0164	B		mg/L	0.007	0.035	02/16/22 15:28	jlw
Beryllium, dissolved	M200.8 ICP-MS	1	<0.00008	U		mg/L	0.00008	0.00025	02/08/22 18:26	bsu
Boron, dissolved	M200.7 ICP	1	0.406			mg/L	0.03	0.1	02/16/22 15:28	jlw
Cadmium, dissolved	M200.8 ICP-MS	1	<0.00005	U		mg/L	0.00005	0.00025	02/08/22 18:26	bsu
Calcium, dissolved	M200.7 ICP	1	175		*	mg/L	0.1	0.5	02/16/22 15:28	jlw
Chromium, dissolved	M200.8 ICP-MS	1	<0.0005	U		mg/L	0.0005	0.002	02/08/22 18:26	bsu
Cobalt, dissolved	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.05	02/16/22 15:28	jlw
Copper, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	02/16/22 15:28	jlw
Iron, dissolved	M200.7 ICP	1	<0.06	U		mg/L	0.06	0.15	02/16/22 15:28	jlw
Lead, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	02/08/22 18:26	bsu
Magnesium, dissolved	M200.7 ICP	1	56.0			mg/L	0.2	1	02/16/22 15:28	jlw
Manganese, dissolved	M200.7 ICP	1	<0.01	U	*	mg/L	0.01	0.05	02/17/22 14:04	jlw
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/10/22 16:50	mlh
Molybdenum, dissolved	M200.8 ICP-MS	1	0.00999			mg/L	0.0002	0.0005	02/08/22 18:26	bsu
Nickel, dissolved	M200.8 ICP-MS	1	0.00079	B		mg/L	0.0004	0.001	02/08/22 18:26	bsu
Potassium, dissolved	M200.7 ICP	1	7.33			mg/L	0.2	1	02/16/22 15:28	jlw
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/09/22 12:16	mlh
Selenium, dissolved	M200.8 ICP-MS	1	0.00012	B		mg/L	0.0001	0.00025	02/08/22 18:26	bsu
Silver, dissolved	M200.7 ICP	1	<0.01	U	*	mg/L	0.01	0.025	02/16/22 15:28	jlw
Sodium, dissolved	M200.7 ICP	1	258			mg/L	0.2	1	02/16/22 15:28	jlw
Thallium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	02/08/22 18:26	bsu
Uranium, dissolved	M200.8 ICP-MS	1	0.00591			mg/L	0.0001	0.0005	02/08/22 18:26	bsu
Zinc, dissolved	M200.7 ICP	1	<0.02	U		mg/L	0.02	0.05	02/16/22 15:28	jlw

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 32-04-TRA-02022022

ACZ Sample ID: **L71281-01**

Date Sampled: 02/02/22 11:15

Date Received: 02/07/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	150			mg/L	2	20	02/11/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/11/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/11/22 0:00	eep
Total Alkalinity		1	150			mg/L	2	20	02/11/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.0			%			03/25/22 0:00	calc
Sum of Anions			24			meq/L			03/25/22 0:00	calc
Sum of Cations			25			meq/L			03/25/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	20	29.7	B	*	mg/L	8	40	02/24/22 0:57	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:10	md
Fluoride	M300.0 - Ion Chromatography	20	<1	U	*	mg/L	1	5	02/24/22 0:57	md
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.084	B	*	mg/L	0.02	0.1	02/13/22 1:09	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	1710		*	mg/L	20	40	02/07/22 14:31	anc
Sulfate	M300.0 - Ion Chromatography	50	943			mg/L	20	100	02/21/22 20:51	md
TDS (calculated)	Calculation		1560			mg/L			03/25/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.10						03/25/22 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: **L71281**

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			

Aluminum, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	2		2.033	mg/L	102	95	105			
WG536792ICB	ICB	02/16/22 14:56				.137	mg/L		-0.15	0.15			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	1.0008		1.118	mg/L	112	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	1.0008	.066	1.115	mg/L	105	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	1.0008	.066	1.104	mg/L	104	85	115	1	20	

Antimony, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.0201		.01957	mg/L	97	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00088	0.00088			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.01		.0099	mg/L	99	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.01	U	.00978	mg/L	98	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.01	U	.00957	mg/L	96	70	130	2	20	

Arsenic, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.05214	mg/L	104	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00044	0.00044			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05005		.047	mg/L	94	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05005	.00139	.0521	mg/L	101	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05005	.00139	.05349	mg/L	104	70	130	3	20	

Barium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	2		1.9828	mg/L	99	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.021	0.021			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	.5		.5074	mg/L	101	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	.5	.0602	.5363	mg/L	95	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	.5	.0602	.5381	mg/L	96	85	115	0	20	

QUIVIRA

ACZ Project ID: **L71281**

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.

Beryllium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.052035	mg/L	104	90	110			
WG536371ICB	ICB	02/08/22 17:29				.000091	mg/L		-0.000176	0.000176			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05005		.048221	mg/L	96	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05005	U	.046636	mg/L	93	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05005	U	.047397	mg/L	95	70	130	2	20	

Boron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	2		2.026	mg/L	101	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.09	0.09			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	.5005		.549	mg/L	110	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	.5005	.128	.643	mg/L	103	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	.5005	.128	.661	mg/L	106	85	115	3	20	

Cadmium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.053212	mg/L	106	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00011	0.00011			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05005		.048078	mg/L	96	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05005	U	.047735	mg/L	95	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05005	U	.048247	mg/L	96	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
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	100		99.35	mg/L	99	95	105			
WG536792ICB	ICB	02/16/22 14:56				.1	mg/L		-0.3	0.3			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	67.99026		66.92	mg/L	98	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	67.99026	246	298.1	mg/L	77	85	115			M3
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	67.99026	246	298.3	mg/L	77	85	115	0	20	M3

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536286													
WG536286ICV	ICV	02/04/22 22:11	WI220207-4	19.96		20.21	mg/L	101	90	110			
WG536286ICB	ICB	02/04/22 22:29				U	mg/L		-0.4	0.4			
WG537187													
WG537187LFB	LFB	02/24/22 0:39	WI211112-6	30		29.3	mg/L	98	90	110			
L71281-01DUP	DUP	02/24/22 1:14			29.7	29.65	mg/L				0	20	RA
L71353-09AS	AS	02/25/22 21:08	WI211112-6	1500	1580	3009.99	mg/L	95	90	110			

QUIVIRA

ACZ Project ID: **L71281**

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.

Chromium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.05286	mg/L	106	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.0011	0.0011			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05		.04766	mg/L	95	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05	U	.04758	mg/L	95	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05	U	.04867	mg/L	97	70	130	2	20	

Cobalt, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	2.01		1.968	mg/L	98	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.06	0.06			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	.5005		.502	mg/L	100	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	.5005	U	.477	mg/L	95	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	.5005	U	.481	mg/L	96	85	115	1	20	

Copper, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	2		1.99	mg/L	100	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.03	0.03			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	.5		.51	mg/L	102	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	.5	U	.494	mg/L	99	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	.5	U	.494	mg/L	99	85	115	0	20	

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	

Fluoride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536286													
WG536286ICV	ICV	02/04/22 22:11	WI220207-4	4.016		4.05	mg/L	101	90	110			
WG536286ICB	ICB	02/04/22 22:29				U	mg/L		-0.05	0.05			
WG537187													
WG537187LFB	LFB	02/24/22 0:39	WI211112-6	1.5		1.497	mg/L	100	90	110			
L71281-01DUP	DUP	02/24/22 1:14			U	U	mg/L				0	20	RA
L71353-09AS	AS	02/25/22 21:08	WI211112-6	75	U	71.757	mg/L	96	90	110			

QUIVIRA

ACZ Project ID: **L71281**

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
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	2		1.971	mg/L	99	95	105			
WG536792ICB	ICB	02/16/22 14:56				.119	mg/L		-0.18	0.18			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	1.0001		1.042	mg/L	104	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	1.0001	U	.996	mg/L	100	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	1.0001	U	.998	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
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.0533	mg/L	107	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00022	0.00022			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05005		.04851	mg/L	97	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05005	U	.05021	mg/L	100	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05005	U	.05143	mg/L	103	70	130	2	20	

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	100		95.6	mg/L	96	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.6	0.6			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	49.99828		50.91	mg/L	102	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	49.99828	23	70.63	mg/L	95	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	49.99828	23	70.21	mg/L	94	85	115	1	20	

Manganese, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536848													
WG536848ICV	ICV	02/17/22 13:16	II220215-3	2		1.961	mg/L	98	95	105			
WG536848ICB	ICB	02/17/22 13:22				U	mg/L		-0.03	0.03			
WG536848LFB	LFB	02/17/22 13:35	II220215-2	.499		.495	mg/L	99	85	115			
L67720-27AS	AS	02/17/22 13:51	II220215-2	.499	1.48	1.883	mg/L	81	85	115			M2
L67720-27ASD	ASD	02/17/22 13:55	II220215-2	.499	1.48	1.885	mg/L	81	85	115	0	20	M2

Mercury, total

M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536405													
WG536405ICV1	ICV	02/10/22 11:22	HG220124-3	.00501		.00521	mg/L	104	95	105			
WG536405ICB	ICB	02/10/22 11:23				U	mg/L		-0.0002	0.0002			
WG536452													
WG536452LRB	LRB	02/10/22 16:33				U	mg/L		-0.00044	0.00044			
WG536452LFB	LFB	02/10/22 16:34	HG220131-4	.002002		.00184	mg/L	92	85	115			
L71292-07LFM	LFM	02/10/22 16:59	HG220131-4	.002002	U	.00187	mg/L	93	85	115			
L71292-07LFMD	LFMD	02/10/22 17:00	HG220131-4	.002002	U	.00186	mg/L	93	85	115	1	20	

QUIVIRA

ACZ Project ID: **L71281**

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.

Molybdenum, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.02		.01991	mg/L	100	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00044	0.00044			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05005		.04777	mg/L	95	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05005	.0051	.05534	mg/L	100	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05005	.0051	.05604	mg/L	102	70	130	1	20	

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.05341	mg/L	107	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00088	0.00088			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05		.04808	mg/L	96	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05	.00228	.04716	mg/L	90	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05	.00228	.04798	mg/L	91	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
WG536613													
WG536613ICV	ICV	02/13/22 0:27	WI211205-1	2.4161		2.338	mg/L	97	90	110			
WG536613ICB	ICB	02/13/22 0:28				U	mg/L		-0.02	0.02			
WG536613LFB	LFB	02/13/22 0:32	WI211001-5	2		1.929	mg/L	96	90	110			
L65078-46AS	AS	02/13/22 0:54	WI211001-5	2	.038	2.089	mg/L	103	90	110			
L71223-01DUP	DUP	02/13/22 0:57			.044	.043	mg/L				2	20	RA

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	20		19.78	mg/L	99	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.6	0.6			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	99.95169		104.1	mg/L	104	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	99.95169	16.5	117.3	mg/L	101	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	99.95169	16.5	115.8	mg/L	99	85	115	1	20	

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536279													
WG536279PBW	PBW	02/07/22 13:39				U	mg/L		-20	20			
WG536279LCSW	LCSW	02/07/22 13:41	PCN64725	1000		980	mg/L	98	80	120			
L71284-04DUP	DUP	02/07/22 14:39			U	U	mg/L				0	10	RA

QUIVIRA

ACZ Project ID: **L71281**

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.

Selenium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.05216	mg/L	104	90	110			
WG536371ICB	ICB	02/08/22 17:29				.00013	mg/L		-0.00022	0.00022			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05		.04785	mg/L	96	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05	U	.05247	mg/L	105	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05	U	.05457	mg/L	109	70	130	4	20	

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	

Silver, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	1		1.007	mg/L	101	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.03	0.03			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	.5		.506	mg/L	101	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	.5	U	.279	mg/L	56	85	115			M2 ZA
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	.5	U	.287	mg/L	57	85	115	3	20	M2 ZA

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	100		99.18	mg/L	99	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.6	0.6			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	100.0039		104.4	mg/L	104	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	100.0039	166	260.3	mg/L	94	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	100.0039	166	257.8	mg/L	92	85	115	1	20	

Sulfate

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536286													
WG536286ICV	ICV	02/04/22 22:11	WI220207-4	51.15		48.39	mg/L	95	90	110			
WG536286ICB	ICB	02/04/22 22:29				U	mg/L		-0.4	0.4			
WG536839													
WG536839LFB1	LFB	02/17/22 15:32	WI211112-6	30		29.6	mg/L	99	90	110			
WG536839LFB2	LFB	02/18/22 0:11	WI211112-6	30		28.15	mg/L	94	90	110			
L71223-05DUP	DUP	02/18/22 0:47			145	137.8	mg/L				5	20	
L71223-06AS	AS	02/21/22 19:22	WI211112-6	60	87.3	146.57	mg/L	99	90	110			

QUIVIRA

ACZ Project ID: **L71281**

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.

Thallium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.05417	mg/L	108	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00022	0.00022			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05		.04722	mg/L	94	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05	U	.0501	mg/L	100	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05	U	.05128	mg/L	103	70	130	2	20	

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536371													
WG536371ICV	ICV	02/08/22 17:28	MS220125-1	.05		.05242	mg/L	105	90	110			
WG536371ICB	ICB	02/08/22 17:29				U	mg/L		-0.00022	0.00022			
WG536371LFB	LFB	02/08/22 17:37	MS220126-3	.05		.04772	mg/L	95	85	115			
L71228-03AS	AS	02/08/22 18:09	MS220126-3	.05	.00233	.05452	mg/L	104	70	130			
L71228-03ASD	ASD	02/08/22 18:11	MS220126-3	.05	.00233	.05524	mg/L	106	70	130	1	20	

Zinc, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536792													
WG536792ICV	ICV	02/16/22 14:49	II220215-3	2		1.921	mg/L	96	95	105			
WG536792ICB	ICB	02/16/22 14:56				U	mg/L		-0.06	0.06			
WG536792LFB	LFB	02/16/22 15:09	II220215-2	.50045		.537	mg/L	107	85	115			
L71292-06AS	AS	02/16/22 15:48	II220215-2	.50045	.024	.528	mg/L	101	85	115			
L71292-06ASD	ASD	02/16/22 15:51	II220215-2	.50045	.024	.524	mg/L	100	85	115	1	20	

Rio Algom Mining Company

ACZ Project ID: **L71281**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71281-01	WG536792	Calcium, dissolved	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG537187	Chloride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
			M300.0 - Ion Chromatography	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).
			M300.0 - Ion Chromatography	ZU	Analysis date/time precedes filter date/time. A portion of sample was filtered and analyzed prior to the creation of a Filter workgroup.
	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.
	WG537187	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
			M300.0 - Ion Chromatography	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).
	WG536848	Manganese, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG536613	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).
	WG536279	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).
	WG536792	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 32-04-TRA-02022022

Locator:

ACZ Sample ID: **L71281-01**

Date Sampled: 02/02/22 11:15

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		-1.2	1.8	5.1	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 13:25		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 0:10		0.22	0.07	0.23	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:31		0.73	0.76	1.9	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/16/22 14:06		1.16	0.45	0.5	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.
---	-------------------------------------

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://aczk.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

QUIVIRA

ACZ Project ID: **L71281**

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	
L71283-01DUP	DUP-RPD	02/11/22			0	23	3.5	.331	2.4	3.1				200	20	RG
WG536399LCSW	LCSW	02/11/22	PCN64363	500				518	120	4.3	104	51	128			
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: **L71281**

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
WG537188																
WG537188LCSW	LCSW	03/09/22	PCN64684	9.52				7.5	1.1	2.1	79	47	123			
WG537188PBW	PBW	03/09/22						1.1	0.71	1.9			3.8			
L71212-02MS	MS	03/09/22	PCN64684	1904.93	1000	180	340	2800	270	390	94	47	123			
L71212-02DUP	DUP-RPD	03/09/22			1000	180	340	1600	230	430				46	20	RM
L71353-01DUP	DUP-RPD	03/09/22			2.3	3.3	8.1	3.2	3.9	9.4				33	20	RG
L71353-01DUP	DUP-RER	03/09/22			2.3	3.3	8.1	3.2	3.9	9.4				0.18	2	

Thorium 230, dissolved

ESM 4506

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG537467																
WG537467LCSW	LCSW	03/16/22	PCN63437	200				188	24	0.62	94	91	126			
WG537467PBW	PBW	03/16/22						.537	0.31	0.41			0.82			
L71215-04DUP	DUP-RPD	03/16/22			28.6	11	13	53.1	17	17				60	20	RG
L71215-04DUP	DUP-RER	03/16/22			28.6	11	13	53.1	17	17				1.21	2	
L71215-04MS	MS	03/16/22	PCN63437	5000	28.6	11	13	4990	620	12	99	91	126			

Rio Algom Mining Company

ACZ Project ID: **L71281**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71281-01	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.
	WG537188	Radium 228, dissolved	M9320	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.
	WG537467	Thorium 230, dissolved	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: **L71281**

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: L71281
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?	<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?
-----	-----	-----	-----	-----
5109	2.7	<=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.

Rio Algom Mining Company
4512060294

ACZ Project ID: L71281

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).

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: L71352

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, L71352. 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 L71352. 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: L71352

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 6 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 L71352. 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: L71352-01 RADIUM 228

Barium recovery was above of acceptance limits due to sample matrix, thusly Barium recovery set to 100%.

2. Qualifier: (N1) Applies to: L71352-01, L71352-02, L71352-03, L71352-04, L71352-05

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.

3. Qualifier: (N1) Applies to: L71352-06

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.

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-06 TRB-02072022

ACZ Sample ID: **L71352-01**

Date Sampled: 02/07/22 16:00

Date Received: 02/10/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	5	<0.25	U		mg/L	0.25	1.25	02/17/22 18:09	mtc/aeH
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	02/15/22 20:58	kja
Arsenic, dissolved	M200.8 ICP-MS	5	<0.001	U		mg/L	0.001	0.005	02/15/22 20:58	kja
Barium, dissolved	M200.7 ICP	5	<0.035	U		mg/L	0.035	0.175	02/17/22 18:09	mtc/aeH
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U		mg/L	0.0004	0.00125	02/18/22 18:08	kja
Boron, dissolved	M200.7 ICP	5	0.494	B		mg/L	0.15	0.5	02/17/22 18:09	mtc/aeH
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U	*	mg/L	0.00025	0.00125	02/15/22 20:58	kja
Calcium, dissolved	M200.7 ICP	5	630			mg/L	0.5	2.5	02/18/22 23:03	mtc/aeH
Chromium, dissolved	M200.8 ICP-MS	5	<0.0025	U	*	mg/L	0.0025	0.01	02/15/22 20:58	kja
Cobalt, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:09	mtc/aeH
Copper, dissolved	M200.7 ICP	5	<0.05	U		mg/L	0.05	0.25	02/17/22 18:09	mtc/aeH
Iron, dissolved	M200.7 ICP	5	7.06			mg/L	0.3	0.75	02/18/22 23:03	mtc/aeH
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/15/22 20:58	kja
Magnesium, dissolved	M200.7 ICP	5	512			mg/L	1	5	02/17/22 18:09	mtc/aeH
Manganese, dissolved	M200.7 ICP	5	0.401			mg/L	0.05	0.25	02/18/22 23:03	mtc/aeH
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/15/22 14:29	mlh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.00242	B		mg/L	0.001	0.0025	02/15/22 20:58	kja
Nickel, dissolved	M200.8 ICP-MS	5	0.00668			mg/L	0.002	0.005	02/23/22 19:43	kja
Potassium, dissolved	M200.7 ICP	5	15.1			mg/L	1	5	02/17/22 18:09	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 12:01	mlh
Selenium, dissolved	M200.8 ICP-MS	5	<0.0005	U	*	mg/L	0.0005	0.00125	02/15/22 20:58	kja
Silver, dissolved	M200.7 ICP	5	<0.05	U	*	mg/L	0.05	0.125	02/18/22 23:03	mtc/aeH
Sodium, dissolved	M200.7 ICP	5	546			mg/L	1	5	02/21/22 20:02	jlw
Thallium, dissolved	M200.8 ICP-MS	5	<0.0005	U	*	mg/L	0.0005	0.0025	02/15/22 20:58	kja
Uranium, dissolved	M200.8 ICP-MS	5	0.0739			mg/L	0.0005	0.0025	02/23/22 19:43	kja
Zinc, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:09	mtc/aeH

Rio Algom Mining Company

Project ID: 4512060294
Sample ID: 30-06 TRB-02072022

ACZ Sample ID: **L71352-01**
Date Sampled: 02/07/22 16:00
Date Received: 02/10/22
Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	639			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	639			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			1.0			%			04/07/22 0:00	calc
Sum of Anions			96			meq/L			04/07/22 0:00	calc
Sum of Cations			98			meq/L			04/07/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	50	799			mg/L	20	100	02/20/22 1:38	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:40	md
Fluoride	M300.0 - Ion Chromatography	50	<2.5	U	*	mg/L	2.5	12.5	02/20/22 1:38	md
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	<0.02	U		mg/L	0.02	0.1	02/19/22 22:41	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6160			mg/L	40	80	02/10/22 12:18	eep
Sulfate	M300.0 - Ion Chromatography	100	2890			mg/L	40	200	03/03/22 19:14	md
TDS (calculated)	Calculation		5790			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.06						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-05 TRA-02072022

ACZ Sample ID: **L71352-02**

Date Sampled: 02/07/22 14:34

Date Received: 02/10/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	2	<0.1	U		mg/L	0.1	0.5	02/17/22 18:12	mtc/aeH
Antimony, dissolved	M200.8 ICP-MS	2	<0.0008	U		mg/L	0.0008	0.004	02/15/22 21:00	kja
Arsenic, dissolved	M200.8 ICP-MS	2	0.00310			mg/L	0.0004	0.002	02/15/22 21:00	kja
Barium, dissolved	M200.7 ICP	2	0.0196	B		mg/L	0.014	0.07	02/17/22 18:12	mtc/aeH
Beryllium, dissolved	M200.8 ICP-MS	2	<0.00016	U		mg/L	0.00016	0.0005	02/18/22 18:10	kja
Boron, dissolved	M200.7 ICP	2	0.425			mg/L	0.06	0.2	02/17/22 18:12	mtc/aeH
Cadmium, dissolved	M200.8 ICP-MS	2	<0.0001	U	*	mg/L	0.0001	0.0005	02/15/22 21:00	kja
Calcium, dissolved	M200.7 ICP	2	168			mg/L	0.2	1	02/18/22 23:06	mtc/aeH
Chromium, dissolved	M200.8 ICP-MS	2	<0.001	U	*	mg/L	0.001	0.004	02/15/22 21:00	kja
Cobalt, dissolved	M200.7 ICP	2	<0.04	U		mg/L	0.04	0.1	02/17/22 18:12	mtc/aeH
Copper, dissolved	M200.7 ICP	2	<0.02	U		mg/L	0.02	0.1	02/17/22 18:12	mtc/aeH
Iron, dissolved	M200.7 ICP	2	<0.12	U		mg/L	0.12	0.3	02/18/22 23:06	mtc/aeH
Lead, dissolved	M200.8 ICP-MS	2	<0.0002	U		mg/L	0.0002	0.001	02/15/22 21:00	kja
Magnesium, dissolved	M200.7 ICP	2	66.9			mg/L	0.4	2	02/17/22 18:12	mtc/aeH
Manganese, dissolved	M200.7 ICP	2	0.143			mg/L	0.02	0.1	02/18/22 23:06	mtc/aeH
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/15/22 14:32	mlh
Molybdenum, dissolved	M200.8 ICP-MS	2	0.0125			mg/L	0.0004	0.001	02/15/22 21:00	kja
Nickel, dissolved	M200.8 ICP-MS	2	0.00131	B		mg/L	0.0008	0.002	02/23/22 19:45	kja
Potassium, dissolved	M200.7 ICP	2	8.01			mg/L	0.4	2	02/17/22 18:12	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 12:03	mlh
Selenium, dissolved	M200.8 ICP-MS	2	<0.0002	U	*	mg/L	0.0002	0.0005	02/15/22 21:00	kja
Silver, dissolved	M200.7 ICP	2	<0.02	U	*	mg/L	0.02	0.05	02/18/22 23:06	mtc/aeH
Sodium, dissolved	M200.7 ICP	2	387			mg/L	0.4	2	02/21/22 20:05	jlw
Thallium, dissolved	M200.8 ICP-MS	2	<0.0002	U	*	mg/L	0.0002	0.001	02/15/22 21:00	kja
Uranium, dissolved	M200.8 ICP-MS	2	0.00278			mg/L	0.0002	0.001	02/23/22 19:45	kja
Zinc, dissolved	M200.7 ICP	2	<0.04	U		mg/L	0.04	0.1	02/17/22 18:12	mtc/aeH

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-05 TRA-02072022

ACZ Sample ID: **L71352-02**

Date Sampled: 02/07/22 14:34

Date Received: 02/10/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	162			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	162			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			0.0			%			04/07/22 0:00	calc
Sum of Anions			31			meq/L			04/07/22 0:00	calc
Sum of Cations			31			meq/L			04/07/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	20	41.8			mg/L	8	40	02/20/22 2:14	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:48	md
Fluoride	M300.0 - Ion Chromatography	20	<1	U	*	mg/L	1	5	02/20/22 2:14	md
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	<0.02	U	*	mg/L	0.02	0.1	02/19/22 22:42	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	2130			mg/L	20	40	02/10/22 12:20	eep
Sulfate	M300.0 - Ion Chromatography	20	1240			mg/L	8	40	03/03/22 19:50	md
TDS (calculated)	Calculation		2010			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.06						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 36-07 KD-02072022

ACZ Sample ID: **L71352-03**

Date Sampled: 02/07/22 15:45

Date Received: 02/10/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	5	<0.25	U		mg/L	0.25	1.25	02/17/22 18:15	mtc/aeH
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	02/15/22 21:02	kja
Arsenic, dissolved	M200.8 ICP-MS	5	0.00330	B		mg/L	0.001	0.005	02/15/22 21:02	kja
Barium, dissolved	M200.7 ICP	5	<0.035	U		mg/L	0.035	0.175	02/17/22 18:15	mtc/aeH
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U		mg/L	0.0004	0.00125	02/18/22 18:12	kja
Boron, dissolved	M200.7 ICP	5	0.233	B		mg/L	0.15	0.5	02/17/22 18:15	mtc/aeH
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U	*	mg/L	0.00025	0.00125	02/15/22 21:02	kja
Calcium, dissolved	M200.7 ICP	5	697			mg/L	0.5	2.5	02/18/22 23:09	mtc/aeH
Chromium, dissolved	M200.8 ICP-MS	5	<0.0025	U	*	mg/L	0.0025	0.01	02/15/22 21:02	kja
Cobalt, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:15	mtc/aeH
Copper, dissolved	M200.7 ICP	5	<0.05	U		mg/L	0.05	0.25	02/17/22 18:15	mtc/aeH
Iron, dissolved	M200.7 ICP	5	12.4			mg/L	0.3	0.75	02/18/22 23:09	mtc/aeH
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/15/22 21:02	kja
Magnesium, dissolved	M200.7 ICP	5	220			mg/L	1	5	02/17/22 18:15	mtc/aeH
Manganese, dissolved	M200.7 ICP	5	12.8			mg/L	0.05	0.25	02/18/22 23:09	mtc/aeH
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/15/22 14:59	mlh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.00128	B		mg/L	0.001	0.0025	02/15/22 21:02	kja
Nickel, dissolved	M200.8 ICP-MS	5	0.00606			mg/L	0.002	0.005	02/23/22 19:47	kja
Potassium, dissolved	M200.7 ICP	5	16.1			mg/L	1	5	02/17/22 18:15	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 12:10	mlh
Selenium, dissolved	M200.8 ICP-MS	5	0.00136			mg/L	0.0005	0.00125	02/27/22 14:01	bsu
Silver, dissolved	M200.7 ICP	5	<0.05	U	*	mg/L	0.05	0.125	02/18/22 23:09	mtc/aeH
Sodium, dissolved	M200.7 ICP	5	355			mg/L	1	5	02/21/22 20:08	jlw
Thallium, dissolved	M200.8 ICP-MS	5	<0.0005	U	*	mg/L	0.0005	0.0025	02/15/22 21:02	kja
Uranium, dissolved	M200.8 ICP-MS	5	0.0274			mg/L	0.0005	0.0025	02/23/22 19:47	kja
Zinc, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:15	mtc/aeH

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 36-07 KD-02072022

ACZ Sample ID: **L71352-03**

Date Sampled: 02/07/22 15:45

Date Received: 02/10/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	309			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	309			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.2			%			04/07/22 0:00	calc
Sum of Anions			68			meq/L			04/07/22 0:00	calc
Sum of Cations			71			meq/L			04/07/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	50	805			mg/L	20	100	02/20/22 2:50	md
Cyanide, Total	D7511-09	1	0.045	H	*	mg/L	0.003	0.01	03/04/22 13:50	md
Fluoride	M300.0 - Ion Chromatography	50	<2.5	U	*	mg/L	2.5	12.5	02/20/22 2:50	md
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	10	<0.2	U	*	mg/L	0.2	1	02/19/22 23:04	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4350			mg/L	40	80	02/10/22 12:23	eep
Sulfate	M300.0 - Ion Chromatography	20	1890			mg/L	8	40	03/03/22 20:08	md
TDS (calculated)	Calculation		4200			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.04						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 36-08 TRA-02072022

ACZ Sample ID: **L71352-04**

Date Sampled: 02/07/22 17:40

Date Received: 02/10/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	20	<1	U		mg/L	1	5	02/17/22 18:18	mtc/aeH
Antimony, dissolved	M200.8 ICP-MS	20	<0.008	U		mg/L	0.008	0.04	02/18/22 18:15	kja
Arsenic, dissolved	M200.8 ICP-MS	20	<0.004	U		mg/L	0.004	0.02	02/18/22 18:15	kja
Barium, dissolved	M200.7 ICP	20	<0.14	U		mg/L	0.14	0.7	02/17/22 18:18	mtc/aeH
Beryllium, dissolved	M200.8 ICP-MS	20	<0.0016	U		mg/L	0.0016	0.005	02/18/22 18:15	kja
Boron, dissolved	M200.7 ICP	20	<0.6	U		mg/L	0.6	2	02/17/22 18:18	mtc/aeH
Cadmium, dissolved	M200.8 ICP-MS	20	0.00172	B		mg/L	0.001	0.005	02/18/22 18:15	kja
Calcium, dissolved	M200.7 ICP	20	523			mg/L	2	10	02/18/22 23:13	mtc/aeH
Chromium, dissolved	M200.8 ICP-MS	20	<0.01	U		mg/L	0.01	0.04	02/18/22 18:15	kja
Cobalt, dissolved	M200.7 ICP	20	<0.4	U		mg/L	0.4	1	02/17/22 18:18	mtc/aeH
Copper, dissolved	M200.7 ICP	20	<0.2	U		mg/L	0.2	1	02/17/22 18:18	mtc/aeH
Iron, dissolved	M200.7 ICP	20	<1.2	U		mg/L	1.2	3	02/18/22 23:13	mtc/aeH
Lead, dissolved	M200.8 ICP-MS	20	<0.002	U		mg/L	0.002	0.01	02/18/22 18:15	kja
Magnesium, dissolved	M200.7 ICP	20	5190			mg/L	4	20	02/17/22 18:18	mtc/aeH
Manganese, dissolved	M200.7 ICP	20	9.38			mg/L	0.2	1	02/18/22 23:13	mtc/aeH
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/15/22 15:00	mlh
Molybdenum, dissolved	M200.8 ICP-MS	20	<0.004	U		mg/L	0.004	0.01	02/18/22 18:15	kja
Nickel, dissolved	M200.8 ICP-MS	20	0.111			mg/L	0.008	0.02	02/18/22 18:15	kja
Potassium, dissolved	M200.7 ICP	20	20.3			mg/L	4	20	02/17/22 18:18	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	5	0.111			mg/L	0.01	0.025	02/14/22 14:04	mlh
Selenium, dissolved	M200.8 ICP-MS	20	0.131		*	mg/L	0.002	0.005	02/18/22 18:15	kja
Silver, dissolved	M200.7 ICP	20	<0.2	U	*	mg/L	0.2	0.5	02/18/22 23:13	mtc/aeH
Sodium, dissolved	M200.7 ICP	20	399			mg/L	4	20	02/21/22 20:11	jlw
Thallium, dissolved	M200.8 ICP-MS	20	<0.002	U		mg/L	0.002	0.01	02/18/22 18:15	kja
Uranium, dissolved	M200.8 ICP-MS	20	0.0221			mg/L	0.002	0.01	02/18/22 18:15	kja
Zinc, dissolved	M200.7 ICP	20	<0.4	U		mg/L	0.4	1	02/17/22 18:18	mtc/aeH

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 36-08 TRA-02072022

ACZ Sample ID: **L71352-04**

Date Sampled: 02/07/22 17:40

Date Received: 02/10/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	640			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	640			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.7			%			04/07/22 0:00	calc
Sum of Anions			445			meq/L			04/07/22 0:00	calc
Sum of Cations			470			meq/L			04/07/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	200	730			mg/L	80	400	02/20/22 3:08	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:52	md
Fluoride	M300.0 - Ion Chromatography	200	<10	U	*	mg/L	10	50	02/20/22 3:08	md
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	100	99.4		*	mg/L	2	10	02/19/22 23:07	pjb
Residue, Filterable (TDS) @180C	SM2540C	10	28600		*	mg/L	200	400	02/14/22 11:18	anc
Sulfate	M300.0 - Ion Chromatography	300	19600			mg/L	120	600	03/04/22 19:15	md
TDS (calculated)	Calculation		26900			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.06						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-01-02072022

ACZ Sample ID: **L71352-05**

Date Sampled: 02/07/22 00:00

Date Received: 02/10/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	2	<0.1	U		mg/L	0.1	0.5	02/17/22 18:27	mtc/aeH
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U	*	mg/L	0.002	0.01	02/18/22 18:17	kja
Arsenic, dissolved	M200.8 ICP-MS	5	0.00294	B	*	mg/L	0.001	0.005	02/18/22 18:17	kja
Barium, dissolved	M200.7 ICP	2	0.0200	B		mg/L	0.014	0.07	02/17/22 18:27	mtc/aeH
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U	*	mg/L	0.0004	0.00125	02/18/22 18:17	kja
Boron, dissolved	M200.7 ICP	2	0.431			mg/L	0.06	0.2	02/17/22 18:27	mtc/aeH
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U	*	mg/L	0.00025	0.00125	02/18/22 18:17	kja
Calcium, dissolved	M200.7 ICP	2	168			mg/L	0.2	1	02/18/22 23:23	mtc/aeH
Chromium, dissolved	M200.8 ICP-MS	2	<0.001	U		mg/L	0.001	0.004	02/15/22 21:14	kja
Cobalt, dissolved	M200.7 ICP	2	<0.04	U		mg/L	0.04	0.1	02/17/22 18:27	mtc/aeH
Copper, dissolved	M200.7 ICP	2	<0.02	U		mg/L	0.02	0.1	02/17/22 18:27	mtc/aeH
Iron, dissolved	M200.7 ICP	2	<0.12	U		mg/L	0.12	0.3	02/18/22 23:23	mtc/aeH
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U	*	mg/L	0.0005	0.0025	02/18/22 18:17	kja
Magnesium, dissolved	M200.7 ICP	2	67.3			mg/L	0.4	2	02/17/22 18:27	mtc/aeH
Manganese, dissolved	M200.7 ICP	2	0.157			mg/L	0.02	0.1	02/18/22 23:23	mtc/aeH
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/15/22 15:03	mlh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.0128			mg/L	0.001	0.0025	02/18/22 18:17	kja
Nickel, dissolved	M200.8 ICP-MS	2	0.00136	B		mg/L	0.0008	0.002	02/15/22 21:14	kja
Potassium, dissolved	M200.7 ICP	2	7.94			mg/L	0.4	2	02/17/22 18:27	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 12:14	mlh
Selenium, dissolved	M200.8 ICP-MS	5	<0.0005	U	*	mg/L	0.0005	0.00125	02/18/22 18:17	kja
Silver, dissolved	M200.7 ICP	2	<0.02	U	*	mg/L	0.02	0.05	02/18/22 23:23	mtc/aeH
Sodium, dissolved	M200.7 ICP	2	386			mg/L	0.4	2	02/21/22 20:21	jlw
Thallium, dissolved	M200.8 ICP-MS	5	<0.0005	U	*	mg/L	0.0005	0.0025	02/18/22 18:17	kja
Uranium, dissolved	M200.8 ICP-MS	5	0.00282			mg/L	0.0005	0.0025	02/18/22 18:17	kja
Zinc, dissolved	M200.7 ICP	2	<0.04	U		mg/L	0.04	0.1	02/17/22 18:27	mtc/aeH

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-01-02072022

ACZ Sample ID: **L71352-05**

Date Sampled: 02/07/22 00:00

Date Received: 02/10/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	162			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	162			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			1.6			%			04/07/22 0:00	calc
Sum of Anions			30			meq/L			04/07/22 0:00	calc
Sum of Cations			31			meq/L			04/07/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	20	44.8			mg/L	8	40	02/20/22 4:01	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:54	md
Fluoride	M300.0 - Ion Chromatography	20	<1	U	*	mg/L	1	5	02/20/22 4:01	md
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	<0.02	U	*	mg/L	0.02	0.1	02/19/22 23:12	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	2120			mg/L	20	40	02/10/22 12:28	eep
Sulfate	M300.0 - Ion Chromatography	20	1230			mg/L	8	40	03/03/22 20:43	md
TDS (calculated)	Calculation		2000			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.06						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-02-02072022

ACZ Sample ID: **L71352-06**

Date Sampled: 02/07/22 00:00

Date Received: 02/10/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	5	<0.25	U		mg/L	0.25	1.25	02/17/22 18:30	mtc/aeH
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	02/15/22 21:17	kja
Arsenic, dissolved	M200.8 ICP-MS	5	<0.001	U	*	mg/L	0.001	0.005	02/15/22 21:17	kja
Barium, dissolved	M200.7 ICP	5	<0.035	U		mg/L	0.035	0.175	02/17/22 18:30	mtc/aeH
Beryllium, dissolved	M200.8 ICP-MS	10	<0.0008	U	*	mg/L	0.0008	0.0025	02/18/22 18:19	kja
Boron, dissolved	M200.7 ICP	5	0.480	B		mg/L	0.15	0.5	02/17/22 18:30	mtc/aeH
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U	*	mg/L	0.00025	0.00125	02/15/22 21:17	kja
Calcium, dissolved	M200.7 ICP	5	623			mg/L	0.5	2.5	02/18/22 23:26	mtc/aeH
Chromium, dissolved	M200.8 ICP-MS	5	<0.0025	U		mg/L	0.0025	0.01	02/15/22 21:17	kja
Cobalt, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:30	mtc/aeH
Copper, dissolved	M200.7 ICP	5	<0.05	U		mg/L	0.05	0.25	02/17/22 18:30	mtc/aeH
Iron, dissolved	M200.7 ICP	5	<0.3	U		mg/L	0.3	0.75	02/18/22 23:26	mtc/aeH
Lead, dissolved	M200.8 ICP-MS	10	<0.001	U	*	mg/L	0.001	0.005	02/18/22 18:19	kja
Magnesium, dissolved	M200.7 ICP	5	509			mg/L	1	5	02/17/22 18:30	mtc/aeH
Manganese, dissolved	M200.7 ICP	5	0.377			mg/L	0.05	0.25	02/18/22 23:26	mtc/aeH
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/15/22 15:04	mlh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.00230	B		mg/L	0.001	0.0025	02/15/22 21:17	kja
Nickel, dissolved	M200.8 ICP-MS	5	0.00657			mg/L	0.002	0.005	02/15/22 21:17	kja
Potassium, dissolved	M200.7 ICP	5	14.8			mg/L	1	5	02/17/22 18:30	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	02/14/22 12:16	mlh
Selenium, dissolved	M200.8 ICP-MS	5	<0.0005	U	*	mg/L	0.0005	0.00125	02/15/22 21:17	kja
Silver, dissolved	M200.7 ICP	5	<0.05	U	*	mg/L	0.05	0.125	02/18/22 23:26	mtc/aeH
Sodium, dissolved	M200.7 ICP	5	542			mg/L	1	5	02/21/22 20:24	jlw
Thallium, dissolved	M200.8 ICP-MS	10	<0.001	U	*	mg/L	0.001	0.005	02/18/22 18:19	kja
Uranium, dissolved	M200.8 ICP-MS	10	0.0808			mg/L	0.001	0.005	02/18/22 18:19	kja
Zinc, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:30	mtc/aeH

Rio Algom Mining Company

Project ID: 4512060294
Sample ID: DUP-02-02072022

ACZ Sample ID: **L71352-06**

Date Sampled: 02/07/22 00:00

Date Received: 02/10/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	620			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	620			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			1.0			%			04/07/22 0:00	calc
Sum of Anions			95			meq/L			04/07/22 0:00	calc
Sum of Cations			97			meq/L			04/07/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	50	749			mg/L	20	100	02/20/22 4:19	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 15:18	md
Fluoride	M300.0 - Ion Chromatography	50	<2.5	U	*	mg/L	2.5	12.5	02/20/22 4:19	md
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	<0.02	U	*	mg/L	0.02	0.1	02/19/22 22:50	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6030			mg/L	40	80	02/10/22 12:34	eep
Sulfate	M300.0 - Ion Chromatography	50	2910			mg/L	20	100	03/03/22 21:37	md
TDS (calculated)	Calculation		5730			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.05						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: **L71352**

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			
L71353-03DUP	DUP	02/15/22 21:20			546	521.7	mg/L				5	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			

Aluminum, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.961	mg/L	98	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.15	0.15			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	1.0008		1.026	mg/L	103	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	1.0008	U	1.027	mg/L	103	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	1.0008	U	1.027	mg/L	103	85	115	0	20	

Antimony, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.0201		.01939	mg/L	96	90	110			
WG536733ICB	ICB	02/15/22 20:16				U	mg/L		-0.00088	0.00088			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.01		.00941	mg/L	94	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.01	U	.00845	mg/L	85	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.01	U	.00873	mg/L	87	70	130	3	20	E6
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.0201		.01921	mg/L	96	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00088	0.00088			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.01		.00977	mg/L	98	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.01	U	.01001	mg/L	100	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.01	U	.01009	mg/L	101	70	130	1	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.01	U	.00916	mg/L	92	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.01	U	.00957	mg/L	96	70	130	4	20	

QUIVIRA

ACZ Project ID: **L71352**

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.

Arsenic, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.05		.04912	mg/L	98	90	110			
WG536733ICB	ICB	02/15/22 20:16				U	mg/L		-0.00044	0.00044			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05005		.04911	mg/L	98	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.05005	.00065	.0408	mg/L	80	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.05005	.00065	.04396	mg/L	87	70	130	7	20	E6
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.05106	mg/L	102	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00044	0.00044			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05005		.05336	mg/L	107	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05005	.00049	.0527	mg/L	104	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05005	.00049	.05244	mg/L	104	70	130	0	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05005	U	.04947	mg/L	99	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05005	U	.05154	mg/L	103	70	130	4	20	

Barium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.985	mg/L	99	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.021	0.021			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5		.5039	mg/L	101	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5	.159	.6556	mg/L	99	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5	.159	.6529	mg/L	99	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
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.051299	mg/L	103	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.000176	0.000176			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05005		.052003	mg/L	104	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05005	U	.044615	mg/L	89	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05005	U	.045114	mg/L	90	70	130	1	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05005	U	.048153	mg/L	96	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05005	U	.050498	mg/L	101	70	130	5	20	

Boron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		2.035	mg/L	102	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.09	0.09			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5005		.542	mg/L	108	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5005	U	.564	mg/L	113	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5005	U	.564	mg/L	113	85	115	0	20	

QUIVIRA

ACZ Project ID: **L71352**

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
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.05		.050884	mg/L	102	90	110			
WG536733ICB	ICB	02/15/22 20:16				.000091	mg/L		-0.00011	0.00011			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05005		.048827	mg/L	98	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.05005	.00164	.039938	mg/L	77	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.05005	.00164	.039802	mg/L	76	70	130	0	20	E6

WG536974

WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.052987	mg/L	106	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00011	0.00011			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05005		.052652	mg/L	105	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05005	.000643	.054153	mg/L	107	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05005	.000643	.054563	mg/L	108	70	130	1	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05005	U	.049963	mg/L	100	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05005	U	.051965	mg/L	104	70	130	4	20	

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	100		99.86	mg/L	100	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.3	0.3			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	67.99026		66.06	mg/L	97	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	67.99026	77.5	138.7	mg/L	90	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	67.99026	77.5	138	mg/L	89	85	115	1	20	

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536963													
WG536963ICV	ICV	02/18/22 1:51	WI220224-3	39.92		39.86	mg/L	100	90	110			
WG536963ICB	ICB	02/18/22 2:09				U	mg/L		-0.4	0.4			
WG536963LFB1	LFB	02/19/22 21:09	WI211112-6	30		29.13	mg/L	97	90	110			
L71352-01DUP	DUP	02/20/22 1:56			799	800.85	mg/L				0	20	
L71352-02AS	AS	02/20/22 2:32	WI211112-6	600	41.8	603.34	mg/L	94	90	110			
WG536963LFB2	LFB	02/20/22 5:49	WI211112-6	30		29.53	mg/L	98	90	110			

QUIVIRA

ACZ Project ID: **L71352**

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.

Chromium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.05		.0498	mg/L	100	90	110			
WG536733ICB	ICB	02/15/22 20:16				U	mg/L		-0.0011	0.0011			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05		.04848	mg/L	97	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.05	U	.0385	mg/L	77	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.05	U	.04234	mg/L	85	70	130	10	20	E6
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.05229	mg/L	105	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.0011	0.0011			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05		.05326	mg/L	107	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05	U	.0499	mg/L	100	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05	U	.05024	mg/L	100	70	130	1	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05	.00074	.04709	mg/L	93	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05	.00074	.04929	mg/L	97	70	130	5	20	

Cobalt, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2.01		1.973	mg/L	98	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.06	0.06			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5005		.492	mg/L	98	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5005	U	.498	mg/L	100	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5005	U	.493	mg/L	99	85	115	1	20	

Copper, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.993	mg/L	100	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.03	0.03			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5		.497	mg/L	99	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5	U	.512	mg/L	102	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5	U	.504	mg/L	101	85	115	2	20	

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			
L71350-01AS	AS	03/04/22 13:32	WI220218-5	.1	U	.0973	mg/L	97	84	116			
L71350-01ASD	ASD	03/04/22 13:34	WI220218-5	.1	U	.1003	mg/L	100	84	116	3	20	
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: **L71352**

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.

Fluoride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536963													
WG536963ICV	ICV	02/18/22 1:51	WI220224-3	4.016		4.296	mg/L	107	90	110			
WG536963ICB	ICB	02/18/22 2:09				U	mg/L		-0.05	0.05			
WG536963LFB1	LFB	02/19/22 21:09	WI211112-6	1.5		1.46	mg/L	97	90	110			
L71352-01DUP	DUP	02/20/22 1:56			U	U	mg/L				0	20	RA
L71352-02AS	AS	02/20/22 2:32	WI211112-6	30	U	29.103	mg/L	97	90	110			
WG536963LFB2	LFB	02/20/22 5:49	WI211112-6	1.5		1.486	mg/L	99	90	110			

Iron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	2		1.971	mg/L	99	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.18	0.18			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	1.0001		1.059	mg/L	106	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	1.0001	U	1.048	mg/L	105	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	1.0001	U	1.035	mg/L	103	85	115	1	20	

Lead, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.05		.05135	mg/L	103	90	110			
WG536733ICB	ICB	02/15/22 20:16				.00021	mg/L		-0.00022	0.00022			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05005		.05027	mg/L	100	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.05005	U	.04466	mg/L	89	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.05005	U	.04516	mg/L	90	70	130	1	20	E6
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.05434	mg/L	109	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00022	0.00022			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05005		.05447	mg/L	109	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05005	U	.05971	mg/L	119	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05005	U	.05965	mg/L	119	70	130	0	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05005	U	.05523	mg/L	110	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05005	U	.0578	mg/L	115	70	130	5	20	

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	100		95.52	mg/L	96	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.6	0.6			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	49.99828		48.95	mg/L	98	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	49.99828	22.6	70.91	mg/L	97	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	49.99828	22.6	70.53	mg/L	96	85	115	1	20	

QUIVIRA

ACZ Project ID: **L71352**

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.

Manganese, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	2		1.928	mg/L	96	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.03	0.03			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	.499		.504	mg/L	101	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	.499	U	.497	mg/L	100	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	.499	U	.498	mg/L	100	85	115	0	20	

Mercury, total

M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536681													
WG536681ICV1	ICV	02/15/22 12:10	HG220214-3	.00501		.00514	mg/L	103	90	110			
WG536681ICB	ICB	02/15/22 12:11				U	mg/L		-0.0006	0.0006			
WG536684													
WG536684LRB	LRB	02/15/22 14:19				U	mg/L		-0.00044	0.00044			
WG536684LFB	LFB	02/15/22 14:20	HG220214-6	.002002		.00198	mg/L	99	85	115			
L71352-01LFM	LFM	02/15/22 14:30	HG220214-6	.002002	U	.00196	mg/L	98	85	115			
L71352-01LFMD	LFMD	02/15/22 14:31	HG220214-6	.002002	U	.00196	mg/L	98	85	115	0	20	
WG536685													
WG536685LRB	LRB	02/15/22 14:52				U	mg/L		-0.00044	0.00044			
WG536685LFB	LFB	02/15/22 14:53	HG220214-6	.002002		.002	mg/L	100	85	115			
L71353-07LFM	LFM	02/15/22 15:05	HG220214-6	.002002	U	.00176	mg/L	88	85	115			
L71353-07LFMD	LFMD	02/15/22 15:06	HG220214-6	.002002	U	.00178	mg/L	89	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
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.02		.01928	mg/L	96	90	110			
WG536733ICB	ICB	02/15/22 20:16				U	mg/L		-0.00044	0.00044			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05005		.04766	mg/L	95	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.05005	.00214	.05404	mg/L	104	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.05005	.00214	.05396	mg/L	104	70	130	0	20	E6
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.02		.02006	mg/L	100	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00044	0.00044			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05005		.0525	mg/L	105	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05005	.0102	.06776	mg/L	115	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05005	.0102	.0672	mg/L	114	70	130	1	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05005	.00067	.05295	mg/L	104	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05005	.00067	.05569	mg/L	110	70	130	5	20	

QUIVIRA

ACZ Project ID: **L71352**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.05		.05021	mg/L	100	90	110			
WG536733ICB	ICB	02/15/22 20:16				U	mg/L		-0.00088	0.00088			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05		.04897	mg/L	98	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.05	.0775	.11421	mg/L	73	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.05	.0775	.11736	mg/L	80	70	130	3	20	E6
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.05261	mg/L	105	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00088	0.00088			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05		.05304	mg/L	106	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05	.00155	.04654	mg/L	90	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05	.00155	.04666	mg/L	90	70	130	0	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05	.00478	.04743	mg/L	85	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05	.00478	.04911	mg/L	89	70	130	3	20	
WG537277													
WG537277ICV	ICV	02/23/22 19:26	MS220105-1	.05		.05065	mg/L	101	90	110			
WG537277ICB	ICB	02/23/22 19:28				U	mg/L		-0.00088	0.00088			
WG537277LFB	LFB	02/23/22 19:30	MS220126-3	.05		.0486	mg/L	97	85	115			
L71325-02AS	AS	02/23/22 19:34	MS220126-3	.05	.00111	.04444	mg/L	87	70	130			
L71325-02ASD	ASD	02/23/22 19:37	MS220126-3	.05	.00111	.04474	mg/L	87	70	130	1	20	

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537031													
WG537031ICV	ICV	02/19/22 21:31	WI211205-1	2.4161		2.263	mg/L	94	90	110			
WG537031ICB	ICB	02/19/22 21:32				U	mg/L		-0.02	0.02			
WG537033													
WG537033LFB	LFB	02/19/22 22:21	WI211001-5	2		2.117	mg/L	106	90	110			
L71239-02DUP	DUP	02/19/22 22:26			2.52	2.511	mg/L				0	20	
L71352-02AS	AS	02/19/22 22:43	WI211001-5	2	U	2.175	mg/L	109	90	110			
L71239-01AS	AS	02/19/22 23:02	WI211001-5	10	4.84	14.665	mg/L	98	90	110			
L71352-03DUP	DUP	02/19/22 23:05			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
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	20		19.7	mg/L	99	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.6	0.6			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	99.95169		100.1	mg/L	100	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	99.95169	1.87	103.6	mg/L	102	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	99.95169	1.87	102.8	mg/L	101	85	115	1	20	

QUIVIRA

ACZ Project ID: **L71352**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536488													
WG536488PBW	PBW	02/10/22 12:00				U	mg/L		-20	20			
WG536488LCSW	LCSW	02/10/22 12:02	PCN64130	1000		992	mg/L	99	80	120			
L71352-05DUP	DUP	02/10/22 12:31			2120	2162	mg/L				2	10	
L71354-09DUP	DUP	02/10/22 13:00			5370	5120	mg/L				5	10	
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

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.05		.04933	mg/L	99	90	110			
WG536733ICB	ICB	02/15/22 20:16				.00016	mg/L		-0.00022	0.00022			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05		.04758	mg/L	95	85	115			
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.05096	mg/L	102	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00022	0.00022			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05		.05239	mg/L	105	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05	.00042	.05857	mg/L	116	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05	.00042	.05847	mg/L	116	70	130	0	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05	.00061	.05483	mg/L	108	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05	.00061	.05883	mg/L	116	70	130	7	20	
WG537434													
WG537434ICV	ICV	02/27/22 13:33	MS220125-1	.05		.05112	mg/L	102	90	110			
WG537434ICB	ICB	02/27/22 13:35				U	mg/L		-0.00022	0.00022			
WG537434LFB	LFB	02/27/22 13:37	MS220126-3	.05		.05151	mg/L	103	85	115			
L71325-03AS	AS	02/27/22 13:48	MS220126-3	.05	.00069	.05212	mg/L	103	70	130			
L71325-03ASD	ASD	02/27/22 13:50	MS220126-3	.05	.00069	.05236	mg/L	103	70	130	0	20	

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	

QUIVIRA

ACZ Project ID: **L71352**

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.

Silver, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	1		1	mg/L	100	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.03	0.03			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	.5		.501	mg/L	100	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	.5	U	.211	mg/L	42	85	115			M2 ZA
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	.5	U	.209	mg/L	42	85	115	1	20	M2 ZA

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537075													
WG537075ICV	ICV	02/21/22 19:23	II220215-3	100		98.5	mg/L	99	95	105			
WG537075ICB	ICB	02/21/22 19:29				U	mg/L		-0.6	0.6			
WG537075LFB	LFB	02/21/22 19:42	II220215-2	100.0039		99.94	mg/L	100	85	115			
L71243-02AS	AS	02/21/22 19:52	II220215-2	100.0039	37.3	137.1	mg/L	100	85	115			
L71243-02ASD	ASD	02/21/22 19:55	II220215-2	100.0039	37.3	136.3	mg/L	99	85	115	1	20	

Sulfate

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536286													
WG536286ICV	ICV	02/04/22 22:11	WI220207-4	51.15		48.39	mg/L	95	90	110			
WG536286ICB	ICB	02/04/22 22:29				U	mg/L		-0.4	0.4			
WG537673													
WG537673LFB1	LFB	03/03/22 18:20	WI211112-6	30		29.38	mg/L	98	90	110			
L71285-01DUP	DUP	03/03/22 18:56			51.1	51.05	mg/L				0	20	
L71352-01AS	AS	03/03/22 19:32	WI211112-6	3000	2890	5915.61	mg/L	101	90	110			
WG537673LFB2	LFB	03/04/22 3:00	WI211112-6	30		27.96	mg/L	93	90	110			

Thallium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536733													
WG536733ICV	ICV	02/15/22 20:13	MS220105-1	.05		.05014	mg/L	100	90	110			
WG536733ICB	ICB	02/15/22 20:16				.0001	mg/L		-0.00022	0.00022			
WG536733LFB	LFB	02/15/22 20:18	MS220126-3	.05		.04732	mg/L	95	85	115			
L71352-04AS	AS	02/15/22 21:10	MS220126-3	.05	.00149	.06198	mg/L	121	70	130			E6
L71352-04ASD	ASD	02/15/22 21:12	MS220126-3	.05	.00149	.06182	mg/L	121	70	130	0	20	E6
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.05449	mg/L	109	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00022	0.00022			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05		.05255	mg/L	105	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05	U	.05888	mg/L	118	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05	U	.05909	mg/L	118	70	130	0	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05	.00022	.05493	mg/L	109	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05	.00022	.05792	mg/L	115	70	130	5	20	

QUIVIRA

ACZ Project ID: **L71352**

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
WG536974													
WG536974ICV	ICV	02/18/22 17:37	MS220105-1	.05		.05317	mg/L	106	90	110			
WG536974ICB	ICB	02/18/22 17:39				U	mg/L		-0.00022	0.00022			
WG536974LFB	LFB	02/18/22 17:41	MS220126-3	.05		.05284	mg/L	106	85	115			
L71242-02AS	AS	02/18/22 17:49	MS220126-3	.05	.0152	.07916	mg/L	128	70	130			
L71242-02ASD	ASD	02/18/22 17:52	MS220126-3	.05	.0152	.07944	mg/L	128	70	130	0	20	
L71405-01AS	AS	02/18/22 18:38	MS220126-3	.05	.00011	.05872	mg/L	117	70	130			
L71405-01ASD	ASD	02/18/22 18:40	MS220126-3	.05	.00011	.06124	mg/L	122	70	130	4	20	
WG537277													
WG537277ICV	ICV	02/23/22 19:26	MS220105-1	.05		.05036	mg/L	101	90	110			
WG537277ICB	ICB	02/23/22 19:28				U	mg/L		-0.00022	0.00022			
WG537277LFB	LFB	02/23/22 19:30	MS220126-3	.05		.04944	mg/L	99	85	115			
L71325-02AS	AS	02/23/22 19:34	MS220126-3	.05	.011	.06751	mg/L	113	70	130			
L71325-02ASD	ASD	02/23/22 19:37	MS220126-3	.05	.011	.06783	mg/L	114	70	130	0	20	

Zinc, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.934	mg/L	97	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.06	0.06			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.50045		.518	mg/L	104	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.50045	U	.531	mg/L	106	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.50045	U	.52	mg/L	104	85	115	2	20	

Rio Algom Mining Company

ACZ Project ID: **L71352**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71352-01	WG536733	Cadmium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
		Chromium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	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.
	WG536963	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation ($< 10\times$ MDL).
	WG536733	Selenium, dissolved	M200.8 ICP-MS	BE	Target analyte in continuing calibration blank (CCB) at or above the acceptance criteria. Target analyte was not detected in the sample [$<$ MDL].
			M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	WG536989	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG536733	Thallium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
L71352-02	WG536733	Cadmium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
		Chromium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	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.
	WG536963	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation ($< 10\times$ MDL).
	WG537033	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 ($< 10\times$ MDL).
	WG536733	Selenium, dissolved	M200.8 ICP-MS	BE	Target analyte in continuing calibration blank (CCB) at or above the acceptance criteria. Target analyte was not detected in the sample [$<$ MDL].
			M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	WG536989	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG536733	Thallium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].

Rio Algom Mining Company

ACZ Project ID: **L71352**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71352-03	WG536733	Cadmium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
		Chromium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	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.
	WG536963	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	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).
	WG537033	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	DB	Sample required dilution due to low bias result.
			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).
	WG536989	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG536733	Thallium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
L71352-04	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.
			D7511-09	Q3	Sample received with improper or inadequate chemical preservation.
	WG536963	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	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).
	WG537033	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).
	WG536974	Selenium, dissolved	M200.8 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was $>$ 10X the concentration in the calibration blank.
	WG536989	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.

Rio Algom Mining Company

ACZ Project ID: **L71352**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71352-05	WG536974	Antimony, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
		Arsenic, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
		Beryllium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
		Cadmium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	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.
	WG536963	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	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).
	WG536974	Lead, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG537033	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).
	WG536974	Selenium, dissolved	M200.8 ICP-MS	BE	Target analyte in continuing calibration blank (CCB) at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG536989	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG536974	Thallium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.

Rio Algom Mining Company

ACZ Project ID: **L71352**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71352-06	WG536733	Arsenic, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	WG536974	Beryllium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG536733	Cadmium, dissolved	M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	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.
	WG536963	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	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).
	WG536974	Lead, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
	WG537033	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).
	WG536733	Selenium, dissolved	M200.8 ICP-MS	BE	Target analyte in continuing calibration blank (CCB) at or above the acceptance criteria. Target analyte was not detected in the sample [$<$ MDL].
			M200.8 ICP-MS	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [$<$ MDL].
	WG536989	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
	WG536974	Thallium, dissolved	M200.8 ICP-MS	D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-06 TRB-02072022

Locator:

ACZ Sample ID: **L71352-01**

Date Sampled: 02/07/22 16:00

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		9.6	23	61	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	02/23/22 16:20		0.413	2.4	3.1	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 0:23		1.5	0.14	0.3	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:31		5.8	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	03/17/22 11:01		1.43	0.75	0.99	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-05 TRA-02072022

Locator:

ACZ Sample ID: **L71352-02**

Date Sampled: 02/07/22 14:34

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	03/22/22 13:18		0.17	1.4	3.6	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	02/23/22 16:20		0.4	3.4	4.2	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 0:24		0.42	0.07	0.23	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:31		1.6	0.84	2.2	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:01		1.56	0.71	0.84	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 36-07 KD-02072022

Locator:

ACZ Sample ID: **L71352-03**

Date Sampled: 02/07/22 15:45

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	03/22/22 13:18		1.2	1.4	3.8	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	02/23/22 16:20		0.0	28	3.8	pCi/L	*	slc

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/11/22 0:25		2.2	0.15	0.19	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:31		3.6	0.94	2.1	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:00		3.11	1.1	1.1	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 36-08 TRA-02072022

Locator:

ACZ Sample ID: **L71352-04**

Date Sampled: 02/07/22 17:40

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		13	25	66	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	02/24/22 8:32		0.0	27	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 0:27		1.2	0.12	0.08	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:32		7.2	1.2	2.2	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:00		0.68	0.67	1.1	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-01-02072022

Locator:

ACZ Sample ID: **L71352-05**

Date Sampled: 02/07/22 0:00

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	03/22/22 13:18		1.2	1.2	3	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	02/24/22 8:32		0.0449	2.7	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 0:28		0.39	0.07	0.23	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:32		1.3	0.72	1.6	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:01		1.88	0.85	1.1	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-02-02072022

Locator:

ACZ Sample ID: **L71352-06**

Date Sampled: 02/07/22 0:00

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		-0.12	21	58	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	02/24/22 8:32		0.65	1.9	2.2	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 0:30		1.7	0.16	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	03/09/22 17:32		4.4	0.92	1.8	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:01		1.13	1	1.7	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.
---	-------------------------------------

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: **L71352**

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-RPD	03/22/22			-3.9	4.7	13	3.1	4.1	11				1750	20	RG
L71215-04DUP	DUP-RER	03/22/22			-3.9	4.7	13	3.1	4.1	11				1.12	2	
L71353-08DUP	DUP-RPD	03/22/22			1.5	1.6	4.2	1.6	1.7	4.3				6	20	
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
WG537144																
WG537144PBW	PBW	02/23/22						0	29	4.1			8.2			
L71352-01MS	MS	02/23/22	PCN64364	500	0.413	2.4	3.1	545	120	4.3	109	51	128			
WG537144LCSW	LCSW	02/23/22	PCN64364	500				493	110	4.5	99	51	128			
L71353-02DUP	DUP-RPD	02/24/22			0.184	3.1	3.9	0	31	4.2				200	20	RG
L71353-02DUP	DUP-RER	02/24/22			0.184	3.1	3.9	0	31	4.2				0.01	2	

QUIVIRA

ACZ Project ID: **L71352**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 226, dissolved

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
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-RER	03/11/22			0.11	0.07	0.3	.15	0.1	0.35				0.33	2	
L71377-01DUP	DUP-RPD	03/11/22			0.11	0.07	0.3	.15	0.1	0.35				31	20	RG

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
WG537188																
WG537188LCSW	LCSW	03/09/22	PCN64684	9.52				7.5	1.1	2.1	79	47	123			
WG537188PBW	PBW	03/09/22						1.1	0.71	1.9				3.8		
L71212-02MS	MS	03/09/22	PCN64684	1904.93	1000	180	340	2800	270	390	94	47	123			
L71212-02DUP	DUP-RPD	03/09/22			1000	180	340	1600	230	430				46	20	RM
L71353-01DUP	DUP-RPD	03/09/22			2.3	3.3	8.1	3.2	3.9	9.4				33	20	RG
L71353-01DUP	DUP-RER	03/09/22			2.3	3.3	8.1	3.2	3.9	9.4				0.18	2	

Thorium 230, dissolved

ESM 4506

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG537467																
WG537467LCSW	LCSW	03/16/22	PCN63437	200				188	24	0.62	94	91	126			
WG537467PBW	PBW	03/16/22						.537	0.31	0.41				0.82		
L71215-04DUP	DUP-RER	03/16/22			28.6	11	13	53.1	17	17				1.21	2	
L71215-04DUP	DUP-RPD	03/16/22			28.6	11	13	53.1	17	17				60	20	RG
L71215-04MS	MS	03/16/22	PCN63437	5000	28.6	11	13	4990	620	12	99	91	126			

Rio Algom Mining Company

ACZ Project ID: **L71352**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71352-01	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
	WG537144	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.
	WG537188	Radium 228, dissolved	M9320	N1	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.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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.
L71352-02	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.
	WG537144	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.
	WG537188	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.
	WG537467	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
			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.
L71352-03	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.
	WG537144	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.
	WG537188	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.
	WG537467	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
			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.
L71352-04	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
	WG537144	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.
	WG537188	Radium 228, dissolved	M9320	D1	Sample required dilution due to matrix.
			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.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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.

REPAD.15.06.05.01

Rio Algom Mining CompanyACZ Project ID: **L71352**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71352-05	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.
	WG537144	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.
	WG537188	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.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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.
L71352-06	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
	WG537144	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.
	WG537188	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.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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 CompanyACZ Project ID: **L71352**

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: L71352

Date Received: 02/10/2022 09:31

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?
NA36940	-0.8	<=6.0	15	N/A
6204	0.9	<=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: L71352

Date Received: 02/10/2022 09:31

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).

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: Michaela 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: L71353

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, L71353. 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 L71353. 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: L71353

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 9 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 L71353. 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: (H1) Applies to: L71353-09 CYANIDE

Sample analysis performed past hold. Due to instrument troubleshooting and maintenance, sample was analyzed as soon as possible.

2. Qualifier: (N1) Applies to: L71353-07 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.

3. Qualifier: (DE) Applies to: L71353-05, L71353-06, L71353-07, L71353-08, L71353-09 RADIUM 228

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

4. Qualifier: (N1)
Applies to: L71353-07, L71353-09 THORIUM 230

PBW (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 LLD.

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 31-65 ALL-02042022

ACZ Sample ID: **L71353-01**

Date Sampled: 02/04/22 13:25

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	10	639			mg/L	1	5	02/18/22 23:29	mtc/aeH
Iron, dissolved	M200.7 ICP	10	215			mg/L	0.6	1.5	02/18/22 23:29	mtc/aeH
Magnesium, dissolved	M200.7 ICP	10	1490			mg/L	2	10	02/17/22 18:33	mtc/aeH
Molybdenum, dissolved	M200.8 ICP-MS	10	0.00227	B		mg/L	0.002	0.005	02/18/22 14:11	mfm
Nickel, dissolved	M200.8 ICP-MS	10	0.135			mg/L	0.004	0.01	02/18/22 14:11	mfm
Potassium, dissolved	M200.7 ICP	10	51.7			mg/L	2	10	02/17/22 18:33	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0051		*	mg/L	0.002	0.005	02/14/22 15:08	mlh
Sodium, dissolved	M200.7 ICP	10	1880			mg/L	2	10	02/21/22 20:27	jlw
Uranium, dissolved	M200.8 ICP-MS	10	0.0911			mg/L	0.001	0.005	02/18/22 14:11	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	1710			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	1710			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-4.8			%			04/07/22 0:00	calc
Sum of Anions			275			meq/L			04/07/22 0:00	calc
Sum of Cations			250			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	50	2680			mg/L	25	100	02/15/22 11:15	syw
Conductivity @25C	SM2510B	1	16800			umhos/cm	1	10	02/15/22 20:37	eep
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	20	<0.4	U	*	mg/L	0.4	2	02/19/22 23:14	pjb
Residue, Filterable (TDS) @180C	SM2540C	10	15700		*	mg/L	200	400	02/10/22 15:12	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	250	7890		*	mg/L	250	1250	02/17/22 20:34	mjj1
TDS (calculated)	Calculation		15900			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: 31-61 ALL-02042022

ACZ Sample ID: **L71353-02**

Date Sampled: 02/04/22 14:27

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	10	580			mg/L	1	5	02/18/22 23:33	mtc/aeH
Iron, dissolved	M200.7 ICP	10	<0.6	U		mg/L	0.6	1.5	02/18/22 23:33	mtc/aeH
Magnesium, dissolved	M200.7 ICP	10	1300			mg/L	2	10	02/17/22 18:37	mtc/aeH
Molybdenum, dissolved	M200.8 ICP-MS	10	<0.002	U		mg/L	0.002	0.005	02/18/22 14:13	mfm
Nickel, dissolved	M200.8 ICP-MS	10	0.0527			mg/L	0.004	0.01	02/18/22 14:13	mfm
Potassium, dissolved	M200.7 ICP	10	30.3			mg/L	2	10	02/17/22 18:37	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0055		*	mg/L	0.002	0.005	02/14/22 15:10	mlh
Sodium, dissolved	M200.7 ICP	10	1740			mg/L	2	10	02/21/22 20:30	jlw
Uranium, dissolved	M200.8 ICP-MS	10	0.743			mg/L	0.001	0.005	02/18/22 14:13	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	1830			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	1830			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-8.2			%			04/07/22 0:00	calc
Sum of Anions			251			meq/L			04/07/22 0:00	calc
Sum of Cations			213			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	50	2490			mg/L	25	100	02/15/22 11:15	syw
Conductivity @25C	SM2510B	1	15500			umhos/cm	1	10	02/15/22 20:58	eep
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	5	10.2		*	mg/L	0.1	0.5	02/19/22 2:08	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	13900		*	mg/L	100	200	02/10/22 15:14	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	250	6900		*	mg/L	250	1250	02/17/22 20:35	mjj1
TDS (calculated)	Calculation		14200			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.98						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294
Sample ID: 32-59 ALL-02072022

ACZ Sample ID: **L71353-03**

Date Sampled: 02/07/22 10:25

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	5	898			mg/L	0.5	2.5	02/18/22 23:36	mtc/aeH
Iron, dissolved	M200.7 ICP	5	<0.3	U		mg/L	0.3	0.75	02/18/22 23:36	mtc/aeH
Magnesium, dissolved	M200.7 ICP	5	325			mg/L	1	5	02/17/22 18:40	mtc/aeH
Molybdenum, dissolved	M200.8 ICP-MS	5	0.00233	B		mg/L	0.001	0.0025	02/18/22 14:15	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.00518			mg/L	0.002	0.005	02/18/22 14:15	mfm
Potassium, dissolved	M200.7 ICP	5	2.47	B		mg/L	1	5	02/17/22 18:40	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	10	0.0602		*	mg/L	0.02	0.05	02/14/22 15:12	mlh
Sodium, dissolved	M200.7 ICP	5	698			mg/L	1	5	02/21/22 20:34	jlw
Uranium, dissolved	M200.8 ICP-MS	5	0.585			mg/L	0.0005	0.0025	02/18/22 14:15	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	546			mg/L	2	20	02/15/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/15/22 0:00	eep
Total Alkalinity		1	546			mg/L	2	20	02/15/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-1.9			%			04/07/22 0:00	calc
Sum of Anions			106			meq/L			04/07/22 0:00	calc
Sum of Cations			102			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	20	1690			mg/L	10	40	02/15/22 12:11	syw
Conductivity @25C	SM2510B	1	6820			umhos/cm	1	10	02/15/22 21:10	eep
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	5	9.98		*	mg/L	0.1	0.5	02/19/22 2:09	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5560		*	mg/L	40	80	02/10/22 15:17	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	125	2290		*	mg/L	125	625	02/17/22 20:37	mjj1
TDS (calculated)	Calculation		6240			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.89						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 5-08 ALL-R-02082022

ACZ Sample ID: **L71353-04**

Date Sampled: 02/08/22 12:50

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	608			mg/L	0.2	1	02/18/22 23:39	mtc/aeH
Iron, dissolved	M200.7 ICP	2	<0.12	U		mg/L	0.12	0.3	02/18/22 23:39	mtc/aeH
Magnesium, dissolved	M200.7 ICP	2	209			mg/L	0.4	2	02/18/22 23:39	mtc/aeH
Molybdenum, dissolved	M200.8 ICP-MS	2	0.00487			mg/L	0.0004	0.001	02/18/22 14:17	mfm
Nickel, dissolved	M200.8 ICP-MS	2	0.00196	B		mg/L	0.0008	0.002	02/18/22 14:17	mfm
Potassium, dissolved	M200.7 ICP	2	4.29			mg/L	0.4	2	02/18/22 23:39	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0111		*	mg/L	0.002	0.005	02/14/22 15:19	mlh
Sodium, dissolved	M200.7 ICP	2	312			mg/L	0.4	2	02/21/22 20:37	jlw
Uranium, dissolved	M200.8 ICP-MS	2	0.0272			mg/L	0.0002	0.001	02/18/22 14:17	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	239			mg/L	2	20	02/17/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Total Alkalinity		1	239			mg/L	2	20	02/17/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-0.8			%			04/07/22 0:00	calc
Sum of Anions			62			meq/L			04/07/22 0:00	calc
Sum of Cations			61			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	1	97.6			mg/L	0.5	2	02/23/22 9:59	mjj1
Conductivity @25C	SM2510B	1	3960			umhos/cm	1	10	02/15/22 21:55	eep
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	10	26.5		*	mg/L	0.2	1	02/19/22 2:11	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	3860		*	mg/L	40	80	02/10/22 15:20	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	120	2570		*	mg/L	120	600	02/17/22 21:07	mjj1
TDS (calculated)	Calculation		3950			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.98						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 5-03 ALL-R-02082022

ACZ Sample ID: **L71353-05**

Date Sampled: 02/08/22 12:00

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	5	622			mg/L	0.5	2.5	02/18/22 23:43	mtc/aeH
Iron, dissolved	M200.7 ICP	5	<0.3	U		mg/L	0.3	0.75	02/18/22 23:43	mtc/aeH
Magnesium, dissolved	M200.7 ICP	5	300			mg/L	1	5	02/17/22 18:46	mtc/aeH
Molybdenum, dissolved	M200.8 ICP-MS	5	<0.001	U		mg/L	0.001	0.0025	02/18/22 14:19	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.00213	B		mg/L	0.002	0.005	02/18/22 14:19	mfm
Potassium, dissolved	M200.7 ICP	5	4.22	B		mg/L	1	5	02/17/22 18:46	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0077		*	mg/L	0.002	0.005	02/14/22 15:21	mlh
Sodium, dissolved	M200.7 ICP	5	485			mg/L	1	5	02/21/22 20:40	jlw
Uranium, dissolved	M200.8 ICP-MS	5	0.130			mg/L	0.0005	0.0025	02/18/22 14:19	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	350			mg/L	2	20	02/17/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Total Alkalinity		1	350			mg/L	2	20	02/17/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-3.8			%			04/07/22 0:00	calc
Sum of Anions			83			meq/L			04/07/22 0:00	calc
Sum of Cations			77			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	20	858			mg/L	10	40	02/15/22 12:11	syw
Conductivity @25C	SM2510B	1	5800			umhos/cm	1	10	02/15/22 22:04	eep
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	0.952		*	mg/L	0.02	0.1	02/19/22 2:12	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	4990		*	mg/L	100	200	02/10/22 15:22	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	125	2470		*	mg/L	125	625	02/17/22 20:37	mjj1
TDS (calculated)	Calculation		4950			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.01						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 5-73 ALL-R-02082022

ACZ Sample ID: **L71353-06**

Date Sampled: 02/08/22 09:43

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	5	749			mg/L	0.5	2.5	02/18/22 23:46	mtc/aeH
Iron, dissolved	M200.7 ICP	5	<0.3	U		mg/L	0.3	0.75	02/18/22 23:46	mtc/aeH
Magnesium, dissolved	M200.7 ICP	5	485			mg/L	1	5	02/17/22 18:49	mtc/aeH
Molybdenum, dissolved	M200.8 ICP-MS	5	0.00737			mg/L	0.001	0.0025	02/18/22 14:21	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.0111			mg/L	0.002	0.005	02/18/22 14:21	mfm
Potassium, dissolved	M200.7 ICP	5	2.82	B		mg/L	1	5	02/17/22 18:49	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	20	0.182		*	mg/L	0.04	0.1	02/14/22 15:23	mlh
Sodium, dissolved	M200.7 ICP	5	858			mg/L	1	5	02/21/22 20:43	jlw
Uranium, dissolved	M200.8 ICP-MS	5	1.99			mg/L	0.0005	0.0025	02/18/22 14:21	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	670			mg/L	2	20	02/17/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Total Alkalinity		1	670			mg/L	2	20	02/17/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-3.8			%			04/07/22 0:00	calc
Sum of Anions			124			meq/L			04/07/22 0:00	calc
Sum of Cations			115			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	20	1800		*	mg/L	10	40	02/15/22 12:11	syw
Conductivity @25C	SM2510B	1	8780			umhos/cm	1	10	02/15/22 22:17	eep
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	3	5.04		*	mg/L	0.06	0.3	02/19/22 2:13	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6900		*	mg/L	40	80	02/10/22 15:25	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	125	2860		*	mg/L	125	625	02/17/22 20:35	mjj1
TDS (calculated)	Calculation		7160			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: 31-03 KD-02082022

ACZ Sample ID: **L71353-07**

Date Sampled: 02/08/22 16:50

Date Received: 02/10/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	5	<0.25	U		mg/L	0.25	1.25	02/17/22 18:52	mtc/aeH
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	02/18/22 14:26	mfm
Arsenic, dissolved	M200.8 ICP-MS	5	0.00572			mg/L	0.001	0.005	02/18/22 14:26	mfm
Barium, dissolved	M200.7 ICP	5	<0.035	U		mg/L	0.035	0.175	02/17/22 18:52	mtc/aeH
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U		mg/L	0.0004	0.00125	02/22/22 18:22	mfm
Boron, dissolved	M200.7 ICP	5	0.194	B	*	mg/L	0.15	0.5	02/17/22 18:52	mtc/aeH
Cadmium, dissolved	M200.8 ICP-MS	5	0.000258	B		mg/L	0.00025	0.00125	02/18/22 14:26	mfm
Calcium, dissolved	M200.7 ICP	5	752			mg/L	0.5	2.5	02/18/22 23:49	mtc/aeH
Chromium, dissolved	M200.8 ICP-MS	5	<0.0025	U		mg/L	0.0025	0.01	02/18/22 14:26	mfm
Cobalt, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:52	mtc/aeH
Copper, dissolved	M200.7 ICP	5	<0.05	U		mg/L	0.05	0.25	02/17/22 18:52	mtc/aeH
Iron, dissolved	M200.7 ICP	5	0.871			mg/L	0.3	0.75	02/18/22 23:49	mtc/aeH
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/18/22 14:26	mfm
Magnesium, dissolved	M200.7 ICP	5	383			mg/L	1	5	02/17/22 18:52	mtc/aeH
Manganese, dissolved	M200.7 ICP	5	7.17			mg/L	0.05	0.25	02/18/22 23:49	mtc/aeH
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/15/22 15:05	mlh
Molybdenum, dissolved	M200.8 ICP-MS	5	1.29			mg/L	0.001	0.0025	02/18/22 14:26	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.00536			mg/L	0.002	0.005	02/18/22 14:26	mfm
Potassium, dissolved	M200.7 ICP	5	16.1			mg/L	1	5	02/17/22 18:52	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U	*	mg/L	0.002	0.005	02/14/22 15:29	mlh
Selenium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.00125	02/22/22 18:22	mfm
Silver, dissolved	M200.7 ICP	5	0.296			mg/L	0.05	0.125	02/18/22 23:49	mtc/aeH
Sodium, dissolved	M200.7 ICP	5	642			mg/L	1	5	02/21/22 20:47	jlw
Thallium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/18/22 14:26	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.0128			mg/L	0.0005	0.0025	02/18/22 14:26	mfm
Zinc, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/17/22 18:52	mtc/aeH

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 31-03 KD-02082022

ACZ Sample ID: **L71353-07**

Date Sampled: 02/08/22 16:50

Date Received: 02/10/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	275			mg/L	2	20	02/17/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Total Alkalinity		1	275			mg/L	2	20	02/17/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			0.5			%			04/07/22 0:00	calc
Sum of Anions			97			meq/L			04/07/22 0:00	calc
Sum of Cations			98			meq/L			04/07/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	50	1540			mg/L	20	100	02/20/22 4:37	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:56	md
Fluoride	M300.0 - Ion Chromatography	50	<2.5	U	*	mg/L	2.5	12.5	02/20/22 4:37	md
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	<0.02	U	*	mg/L	0.02	0.1	02/19/22 1:45	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5900		*	mg/L	40	80	02/10/22 15:27	anc
Sulfate	M300.0 - Ion Chromatography	50	2320			mg/L	20	100	03/03/22 21:55	md
TDS (calculated)	Calculation		5830			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.01						04/07/22 0:00	calc

Rio Algom Mining Company

Project ID: 4512060294
Sample ID: DUP-03-02082022

ACZ Sample ID: **L71353-08**

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
Calcium, dissolved	M200.7 ICP	5	625			mg/L	0.5	2.5	02/18/22 23:52	mtc/aeH
Iron, dissolved	M200.7 ICP	5	<0.3	U		mg/L	0.3	0.75	02/18/22 23:52	mtc/aeH
Magnesium, dissolved	M200.7 ICP	5	302			mg/L	1	5	02/17/22 18:55	mtc/aeH
Molybdenum, dissolved	M200.8 ICP-MS	5	0.00130	B		mg/L	0.001	0.0025	02/18/22 14:32	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.00240	B		mg/L	0.002	0.005	02/18/22 14:32	mfm
Potassium, dissolved	M200.7 ICP	5	4.15	B		mg/L	1	5	02/17/22 18:55	mtc/aeH
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0071		*	mg/L	0.002	0.005	02/14/22 15:31	mlh
Sodium, dissolved	M200.7 ICP	5	481			mg/L	1	5	02/21/22 20:50	jlw
Uranium, dissolved	M200.8 ICP-MS	5	0.126			mg/L	0.0005	0.0025	02/22/22 18:32	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	348			mg/L	2	20	02/17/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Total Alkalinity		1	348			mg/L	2	20	02/17/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-4.9			%			04/07/22 0:00	calc
Sum of Anions			85			meq/L			04/07/22 0:00	calc
Sum of Cations			77			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	20	848		*	mg/L	10	40	02/15/22 12:12	syw
Conductivity @25C	SM2510B	1	5790			umhos/cm	1	10	02/15/22 22:35	eep
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	0.934		*	mg/L	0.02	0.1	02/19/22 1:46	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5000		*	mg/L	40	80	02/10/22 15:30	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	125	2600		*	mg/L	125	625	02/17/22 20:37	mjj1
TDS (calculated)	Calculation		5070			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-05-02082022

ACZ Sample ID: **L71353-09**

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
Aluminum, dissolved	M200.7 ICP	5	<0.25	U		mg/L	0.25	1.25	02/22/22 16:13	aeh
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	02/22/22 18:34	mfm
Arsenic, dissolved	M200.8 ICP-MS	5	0.00548			mg/L	0.001	0.005	02/22/22 18:34	mfm
Barium, dissolved	M200.7 ICP	5	0.0420	B		mg/L	0.035	0.175	02/22/22 16:13	aeh
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U		mg/L	0.0004	0.00125	02/22/22 18:34	mfm
Boron, dissolved	M200.7 ICP	5	<0.15	U		mg/L	0.15	0.5	02/22/22 16:13	aeh
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U		mg/L	0.00025	0.00125	02/22/22 18:34	mfm
Calcium, dissolved	M200.7 ICP	5	749			mg/L	0.5	2.5	02/19/22 0:02	mtc/aeh
Chromium, dissolved	M200.8 ICP-MS	5	<0.0025	U		mg/L	0.0025	0.01	02/22/22 18:34	mfm
Cobalt, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/22/22 16:13	aeh
Copper, dissolved	M200.7 ICP	5	<0.05	U		mg/L	0.05	0.25	02/22/22 16:13	aeh
Iron, dissolved	M200.7 ICP	5	0.877			mg/L	0.3	0.75	02/19/22 0:02	mtc/aeh
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/22/22 18:34	mfm
Magnesium, dissolved	M200.7 ICP	5	380			mg/L	1	5	02/17/22 19:04	mtc/aeh
Manganese, dissolved	M200.7 ICP	5	7.07			mg/L	0.05	0.25	02/22/22 16:13	aeh
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	02/24/22 11:07	mlh
Molybdenum, dissolved	M200.8 ICP-MS	5	1.34			mg/L	0.001	0.0025	02/18/22 14:34	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.00576			mg/L	0.002	0.005	02/18/22 14:34	mfm
Potassium, dissolved	M200.7 ICP	5	16.1			mg/L	1	5	02/17/22 19:04	mtc/aeh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U	*	mg/L	0.002	0.005	02/14/22 15:33	mlh
Selenium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.00125	02/22/22 18:34	mfm
Silver, dissolved	M200.7 ICP	5	<0.05	U		mg/L	0.05	0.125	02/22/22 16:13	aeh
Sodium, dissolved	M200.7 ICP	5	649			mg/L	1	5	02/21/22 20:59	jlw
Thallium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	02/22/22 18:34	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.0113			mg/L	0.0005	0.0025	02/22/22 18:34	mfm
Zinc, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	02/22/22 16:13	aeh

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-05-02082022

ACZ Sample ID: **L71353-09**

Date Sampled: 02/08/22 00:00

Date Received: 02/10/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	275			mg/L	2	20	02/17/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	02/17/22 0:00	eep
Total Alkalinity		1	275			mg/L	2	20	02/17/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-34.7			%			04/07/22 0:00	calc
Sum of Anions			202			meq/L			04/07/22 0:00	calc
Sum of Cations			98			meq/L			04/07/22 0:00	calc
Chloride	SM4500Cl-E	20	1590		*	mg/L	10	40	02/15/22 10:48	syw
Chloride	M300.0 - Ion Chromatography	100	1560		*	mg/L	40	200	02/24/22 19:18	md
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	03/04/22 13:58	md
Fluoride	M300.0 - Ion Chromatography	50	<2.5	U	*	mg/L	2.5	12.5	02/25/22 20:50	md
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	<0.02	U		mg/L	0.02	0.1	02/19/22 1:47	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5960		*	mg/L	40	80	02/10/22 15:33	anc
Sulfate	D516-02/-07/-11 - TURBIDIMETRIC	125	2670		*	mg/L	125	625	02/17/22 20:37	mjj1
Sulfate	M300.0 - Ion Chromatography	100	2480		*	mg/L	40	200	02/24/22 19:18	md
TDS (calculated)	Calculation		10300			mg/L			04/07/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		0.58						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: **L71353**

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			
L71353-03DUP	DUP	02/15/22 21:20			546	521.7	mg/L				5	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			
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			
L71354-01DUP	DUP	02/17/22 23:16			489	507.8	mg/L				4	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			

Aluminum, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.961	mg/L	98	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.15	0.15			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	1.0008		1.026	mg/L	103	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	1.0008	U	1.027	mg/L	103	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	1.0008	U	1.027	mg/L	103	85	115	0	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	1.0008	U	1.042	mg/L	104	85	115			
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	1.0008	U	1.034	mg/L	103	85	115	1	20	
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		-0.15	0.15			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	1.0008		1.006	mg/L	101	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	5.004	U	5.05	mg/L	101	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	5.004	U	5.13	mg/L	103	85	115	2	20	

QUIVIRA

ACZ Project ID: **L71353**

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.

Antimony, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.0201		.02013	mg/L	100	90	110			
WG536969ICB	ICB	02/18/22 13:45				.00069	mg/L		-0.00088	0.00088			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.01		.00955	mg/L	96	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.01	U	.00829	mg/L	83	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.01	U	.00837	mg/L	84	70	130	1	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.05	U	.04785	mg/L	96	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.05	U	.04883	mg/L	98	70	130	2	20	
WG537194													
WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.0201		.02117	mg/L	105	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.00088	0.00088			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.01		.00877	mg/L	88	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.05	U	.04352	mg/L	87	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.05	U	.04471	mg/L	89	70	130	3	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.01	U	.00833	mg/L	83	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.01	U	.00833	mg/L	83	70	130	0	20	

Arsenic, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.05		.0491	mg/L	98	90	110			
WG536969ICB	ICB	02/18/22 13:45				U	mg/L		-0.00044	0.00044			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05005		.05172	mg/L	103	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05005	.00031	.05222	mg/L	104	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05005	.00031	.05074	mg/L	101	70	130	3	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25025	U	.24242	mg/L	97	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25025	U	.23696	mg/L	95	70	130	2	20	
WG537194													
WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.05257	mg/L	105	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.00044	0.00044			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05005		.05026	mg/L	100	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25025	.00527	.2394	mg/L	94	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25025	.00527	.24463	mg/L	96	70	130	2	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05005	.00075	.05478	mg/L	108	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05005	.00075	.05064	mg/L	100	70	130	8	20	

QUIVIRA

ACZ Project ID: **L71353**

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.

Barium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.985	mg/L	99	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.021	0.021			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5		.5039	mg/L	101	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5	.159	.6556	mg/L	99	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5	.159	.6529	mg/L	99	85	115	0	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	.5	U	.5035	mg/L	101	85	115			
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	.5	U	.4994	mg/L	100	85	115	1	20	
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
WG537194													
WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.053104	mg/L	106	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.000176	0.000176			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05005		.049524	mg/L	99	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25025	U	.233402	mg/L	93	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25025	U	.24195	mg/L	97	70	130	4	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05005	.00106	.050547	mg/L	99	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05005	.00106	.046256	mg/L	90	70	130	9	20	

Boron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		2.035	mg/L	102	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.09	0.09			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5005		.542	mg/L	108	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5005	U	.564	mg/L	113	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5005	U	.564	mg/L	113	85	115	0	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	.5005	U	.587	mg/L	117	85	115			M1
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	.5005	U	.58	mg/L	116	85	115	1	20	M1
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	2		2.012	mg/L	101	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.09	0.09			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	.5005		.513	mg/L	102	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	2.5025	.328	2.86	mg/L	101	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	2.5025	.328	2.877	mg/L	102	85	115	1	20	

QUIVIRA

ACZ Project ID: **L71353**

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
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.05		.051384	mg/L	103	90	110			
WG536969ICB	ICB	02/18/22 13:45				.000053	mg/L		-0.00011	0.00011			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05005		.051445	mg/L	103	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05005	U	.05176	mg/L	103	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05005	U	.050976	mg/L	102	70	130	2	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25025	U	.250499	mg/L	100	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25025	U	.244513	mg/L	98	70	130	2	20	

WG537194

WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.053416	mg/L	107	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.00011	0.00011			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05005		.049783	mg/L	99	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25025	U	.232289	mg/L	93	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25025	U	.243115	mg/L	97	70	130	5	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05005	.000892	.052488	mg/L	103	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05005	.000892	.048319	mg/L	95	70	130	8	20	

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	100		99.86	mg/L	100	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.3	0.3			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	67.99026		66.06	mg/L	97	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	67.99026	77.5	138.7	mg/L	90	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	67.99026	77.5	138	mg/L	89	85	115	1	20	
L71353-09AS	AS	02/19/22 0:06	II220215-2	339.9513	749	1097	mg/L	102	85	115			
L71353-09ASD	ASD	02/19/22 0:09	II220215-2	339.9513	749	1074.5	mg/L	96	85	115	2	20	

QUIVIRA

ACZ Project ID: **L71353**

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.

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536286													
WG536286ICV	ICV	02/04/22 22:11	WI220207-4	19.96		20.21	mg/L	101	90	110			
WG536286ICB	ICB	02/04/22 22:29				U	mg/L		-0.4	0.4			
WG536963													
WG536963ICV	ICV	02/18/22 1:51	WI220224-3	39.92		39.86	mg/L	100	90	110			
WG536963ICB	ICB	02/18/22 2:09				U	mg/L		-0.4	0.4			
WG536963LFB1	LFB	02/19/22 21:09	WI211112-6	30		29.13	mg/L	97	90	110			
L71352-01DUP	DUP	02/20/22 1:56			799	800.85	mg/L				0	20	
L71352-02AS	AS	02/20/22 2:32	WI211112-6	600	41.8	603.34	mg/L	94	90	110			
WG536963LFB2	LFB	02/20/22 5:49	WI211112-6	30		29.53	mg/L	98	90	110			
WG537321													
WG537321LFB1	LFB	02/24/22 18:06	WI211112-6	30		28.37	mg/L	95	90	110			
L71393-02AS	AS	02/24/22 20:30	WI211112-6	150	7	149.75	mg/L	95	90	110			
WG537321LFB2	LFB	02/25/22 2:46	WI211112-6	30		28.24	mg/L	94	90	110			
L71393-01DUP	DUP	02/25/22 23:49			U	U	mg/L				0	20	RA

Chloride

SM4500CI-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536673													
WG536673ICB	ICB	02/15/22 10:08				U	mg/L		-1.5	1.5			
WG536673ICV	ICV	02/15/22 10:08	WI210503-1	54.89		57.96	mg/L	106	90	110			
WG536673LFB1	LFB	02/15/22 10:22	WI210908-11	29.97		32.39	mg/L	108	90	110			
L71242-01AS	AS	02/15/22 10:22	WI210908-11	29.97	20.6	51.92	mg/L	105	90	110			
L71242-02DUP	DUP	02/15/22 10:23			25.5	25.42	mg/L				0	20	
L71353-09AS	AS	02/15/22 10:48	20XCL	30	1590	1561.77	mg/L	-94	90	110			M3
L71354-01DUP	DUP	02/15/22 10:50			950	939.61	mg/L				1	20	
WG536673LFB2	LFB	02/15/22 11:13	WI210908-11	29.97		32.62	mg/L	109	90	110			
WG537202													
WG537202ICB	ICB	02/23/22 9:00				U	mg/L		-1.5	1.5			
WG537202ICV	ICV	02/23/22 9:00	WI210503-1	54.89		57.36	mg/L	104	90	110			
WG537202LFB1	LFB	02/23/22 9:57	WI210908-11	29.97		31.38	mg/L	105	90	110			
L66187-38AS	AS	02/23/22 9:59	WI210908-11	29.97	U	32.33	mg/L	108	90	110			
L71353-04DUP	DUP	02/23/22 9:59			97.6	96.81	mg/L				1	20	
WG537202LFB2	LFB	02/23/22 10:01	WI210908-11	29.97		31.53	mg/L	105	90	110			

QUIVIRA

ACZ Project ID: **L71353**

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.

Chromium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.05		.05145	mg/L	103	90	110			
WG536969ICB	ICB	02/18/22 13:45				U	mg/L		-0.0011	0.0011			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05		.05197	mg/L	104	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05	U	.04998	mg/L	100	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05	U	.04848	mg/L	97	70	130	3	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25	U	.24008	mg/L	96	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25	U	.23568	mg/L	94	70	130	2	20	

WG537194

WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.05341	mg/L	107	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.0011	0.0011			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05		.0492	mg/L	98	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25	U	.2304	mg/L	92	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25	U	.23301	mg/L	93	70	130	1	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05	U	.04913	mg/L	98	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05	U	.04469	mg/L	89	70	130	9	20	

Cobalt, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2.01		1.973	mg/L	98	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.06	0.06			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5005		.492	mg/L	98	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5005	U	.498	mg/L	100	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5005	U	.493	mg/L	99	85	115	1	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	.5005	.031	.535	mg/L	101	85	115			
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	.5005	.031	.52	mg/L	98	85	115	3	20	

WG537165

WG537165ICV	ICV	02/22/22 15:15	II220215-3	2.01		1.996	mg/L	99	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.06	0.06			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	.5005		.476	mg/L	95	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	2.5025	U	2.331	mg/L	93	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	2.5025	U	2.335	mg/L	93	85	115	0	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			
L71353-03DUP	DUP	02/15/22 21:20			6820	6830	umhos/cm				0	20	
WG536739LCSW5	LCSW	02/15/22 21:26	PCN65017	1408		1396	umhos/cm	99	90	110			
L71354-04DUP	DUP	02/15/22 23:46			6510	6520	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			

QUIVIRA

ACZ Project ID: **L71353**

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.

Copper, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.993	mg/L	100	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.03	0.03			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.5		.497	mg/L	99	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.5	U	.512	mg/L	102	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.5	U	.504	mg/L	101	85	115	2	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	.5	U	.514	mg/L	103	85	115			
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	.5	U	.508	mg/L	102	85	115	1	20	
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	2		2.012	mg/L	101	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.03	0.03			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	.5		.495	mg/L	99	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	2.5	U	2.461	mg/L	98	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	2.5	U	2.481	mg/L	99	85	115	1	20	

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			
L71350-01AS	AS	03/04/22 13:32	WI220218-5	.1	U	.0973	mg/L	97	84	116			
L71350-01ASD	ASD	03/04/22 13:34	WI220218-5	.1	U	.1003	mg/L	100	84	116	3	20	

Fluoride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536286													
WG536286ICV	ICV	02/04/22 22:11	WI220207-4	4.016		4.05	mg/L	101	90	110			
WG536286ICB	ICB	02/04/22 22:29				U	mg/L		-0.05	0.05			
WG536963													
WG536963ICV	ICV	02/18/22 1:51	WI220224-3	4.016		4.296	mg/L	107	90	110			
WG536963ICB	ICB	02/18/22 2:09				U	mg/L		-0.05	0.05			
WG536963LFB1	LFB	02/19/22 21:09	WI211112-6	1.5		1.46	mg/L	97	90	110			
L71352-01DUP	DUP	02/20/22 1:56			U	U	mg/L				0	20	RA
L71352-02AS	AS	02/20/22 2:32	WI211112-6	30	U	29.103	mg/L	97	90	110			
WG536963LFB2	LFB	02/20/22 5:49	WI211112-6	1.5		1.486	mg/L	99	90	110			
WG537187													
WG537187LFB	LFB	02/24/22 0:39	WI211112-6	1.5		1.497	mg/L	100	90	110			
L71281-01DUP	DUP	02/24/22 1:14			U	U	mg/L				0	20	RA
L71353-09AS	AS	02/25/22 21:08	WI211112-6	75	U	71.757	mg/L	96	90	110			

QUIVIRA

ACZ Project ID: **L71353**

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
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	2		1.971	mg/L	99	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.18	0.18			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	1.0001		1.059	mg/L	106	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	1.0001	U	1.048	mg/L	105	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	1.0001	U	1.035	mg/L	103	85	115	1	20	
L71353-09AS	AS	02/19/22 0:06	II220215-2	5.0005	.877	6.115	mg/L	105	85	115			
L71353-09ASD	ASD	02/19/22 0:09	II220215-2	5.0005	.877	6.01	mg/L	103	85	115	2	20	

Lead, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.05		.05232	mg/L	105	90	110			
WG536969ICB	ICB	02/18/22 13:45				.00013	mg/L		-0.00022	0.00022			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05005		.05393	mg/L	108	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05005	U	.05195	mg/L	104	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05005	U	.05156	mg/L	103	70	130	1	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25025	U	.27978	mg/L	112	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25025	U	.27526	mg/L	110	70	130	2	20	
WG537194													
WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.05483	mg/L	110	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.00022	0.00022			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05005		.05172	mg/L	103	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25025	U	.25988	mg/L	104	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25025	U	.27312	mg/L	109	70	130	5	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05005	.00019	.05386	mg/L	107	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05005	.00019	.05	mg/L	100	70	130	7	20	

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	100		95.52	mg/L	96	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.6	0.6			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	49.99828		48.95	mg/L	98	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	49.99828	22.6	70.91	mg/L	97	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	49.99828	22.6	70.53	mg/L	96	85	115	1	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	49.99828	8.82	58.01	mg/L	98	85	115			
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	49.99828	8.82	57.64	mg/L	98	85	115	1	20	
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	100		96.21	mg/L	96	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.6	0.6			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	49.99828		50.19	mg/L	100	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	49.99828	23.1	72.02	mg/L	98	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	49.99828	23.1	71.71	mg/L	97	85	115	0	20	
L71353-09AS	AS	02/19/22 0:06	II220215-2	249.9914	395	663	mg/L	107	85	115			
L71353-09ASD	ASD	02/19/22 0:09	II220215-2	249.9914	395	647.5	mg/L	101	85	115	2	20	

QUIVIRA

ACZ Project ID: **L71353**

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.

Manganese, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	2		1.928	mg/L	96	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.03	0.03			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	.499		.504	mg/L	101	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	.499	U	.497	mg/L	100	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	.499	U	.498	mg/L	100	85	115	0	20	
L71353-09AS	AS	02/19/22 0:06	II220215-2	2.495	7.13	9.825	mg/L	108	85	115			
L71353-09ASD	ASD	02/19/22 0:09	II220215-2	2.495	7.13	9.64	mg/L	101	85	115	2	20	
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	2		1.96	mg/L	98	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.03	0.03			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	.499		.498	mg/L	100	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	2.495	1.78	4.247	mg/L	99	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	2.495	1.78	4.25	mg/L	99	85	115	0	20	

Mercury, total

M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536681													
WG536681ICV1	ICV	02/15/22 12:10	HG220214-3	.00501		.00514	mg/L	103	90	110			
WG536681ICB	ICB	02/15/22 12:11				U	mg/L		-0.0006	0.0006			
WG536685													
WG536685LRB	LRB	02/15/22 14:52				U	mg/L		-0.00044	0.00044			
WG536685LFB	LFB	02/15/22 14:53	HG220214-6	.002002		.002	mg/L	100	85	115			
L71353-07LFM	LFM	02/15/22 15:05	HG220214-6	.002002	U	.00176	mg/L	88	85	115			
L71353-07LFMD	LFMD	02/15/22 15:06	HG220214-6	.002002	U	.00178	mg/L	89	85	115	1	20	
WG537216													
WG537216ICV	ICV	02/24/22 10:29	HG220214-3	.00501		.0051	mg/L	102	95	105			
WG537216ICB	ICB	02/24/22 10:30				U	mg/L		-0.0002	0.0002			
WG537217													
WG537217LRB	LRB	02/24/22 11:05				U	mg/L		-0.00044	0.00044			
WG537217LFB	LFB	02/24/22 11:06	HG220214-6	.002002		.00206	mg/L	103	85	115			
L71353-09LFM	LFM	02/24/22 11:08	HG220214-6	.002002	U	.00202	mg/L	101	85	115			
L71353-09LFMD	LFMD	02/24/22 11:09	HG220214-6	.002002	U	.00203	mg/L	101	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
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.02		.02045	mg/L	102	90	110			
WG536969ICB	ICB	02/18/22 13:45				U	mg/L		-0.00044	0.00044			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05005		.05278	mg/L	105	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05005	.00053	.05126	mg/L	101	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05005	.00053	.05008	mg/L	99	70	130	2	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25025	.00737	.29059	mg/L	113	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25025	.00737	.28511	mg/L	111	70	130	2	20	

QUIVIRA

ACZ Project ID: **L71353**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.05		.05154	mg/L	103	90	110			
WG536969ICB	ICB	02/18/22 13:45				U	mg/L		-0.00088	0.00088			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05		.05158	mg/L	103	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05	U	.0493	mg/L	99	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05	U	.048	mg/L	96	70	130	3	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25	.0111	.23349	mg/L	89	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25	.0111	.22695	mg/L	86	70	130	3	20	

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537004													
WG537004ICV	ICV	02/18/22 23:15	WI211205-1	2.4161		2.252	mg/L	93	90	110			
WG537004ICB	ICB	02/18/22 23:17				U	mg/L		-0.02	0.02			
WG537008													
WG537008LFB	LFB	02/19/22 1:27	WI211001-5	2		2.001	mg/L	100	90	110			
L71262-01AS	AS	02/19/22 1:29	WI211001-5	2	U	2.129	mg/L	106	90	110			
L71262-02DUP	DUP	02/19/22 1:32			U	U	mg/L				0	20	RA
L71353-09AS	AS	02/19/22 1:49	WI211001-5	2	U	2.014	mg/L	101	90	110			
L71354-01DUP	DUP	02/19/22 2:20			33.3	33.189	mg/L				0	20	
WG537031													
WG537031ICV	ICV	02/19/22 21:31	WI211205-1	2.4161		2.263	mg/L	94	90	110			
WG537031ICB	ICB	02/19/22 21:32				U	mg/L		-0.02	0.02			
WG537033													
WG537033LFB	LFB	02/19/22 22:21	WI211001-5	2		2.117	mg/L	106	90	110			
L71352-02AS	AS	02/19/22 22:43	WI211001-5	2	U	2.175	mg/L	109	90	110			
L71352-03DUP	DUP	02/19/22 23:05			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
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	20		19.7	mg/L	99	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.6	0.6			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	99.95169		100.1	mg/L	100	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	99.95169	1.87	103.6	mg/L	102	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	99.95169	1.87	102.8	mg/L	101	85	115	1	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	99.95169	1.02	103.1	mg/L	102	85	115			
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	99.95169	1.02	102.2	mg/L	101	85	115	1	20	
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	20		19.82	mg/L	99	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.6	0.6			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	99.95169		102.7	mg/L	103	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	99.95169	1.76	105.7	mg/L	104	85	115			
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	99.95169	1.76	105.2	mg/L	103	85	115	0	20	
L71353-09AS	AS	02/19/22 0:06	II220215-2	499.75845	16.4	549	mg/L	107	85	115			
L71353-09ASD	ASD	02/19/22 0:09	II220215-2	499.75845	16.4	534	mg/L	104	85	115	3	20	

QUIVIRA

ACZ Project ID: **L71353**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Residue, Filterable (TDS) @180C

SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
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			
L71355-01DUP	DUP	02/10/22 15:38			142	142	mg/L				0	10	RA

Selenium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537194													
WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.05335	mg/L	107	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.00022	0.00022			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05		.05082	mg/L	102	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25	U	.24367	mg/L	97	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25	U	.25474	mg/L	102	70	130	4	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05	.00011	.05582	mg/L	111	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05	.00011	.05112	mg/L	102	70	130	9	20	

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			
WG536615													
WG536615LRB	LRB	02/14/22 15:04				U	mg/L		-0.006	0.006			
WG536615LFB	LFB	02/14/22 15:06	SE220124-4	.0225		.0211	mg/L	94	85	115			
L71353-03LFM	LFM	02/14/22 15:15	SE10XPREP	.2224	.0602	.248	mg/L	84	85	115			MA
L71353-03LFMD	LFMD	02/14/22 15:17	SE10XPREP	.2224	.0602	.2561	mg/L	88	85	115	3	20	

Silver, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536989													
WG536989ICV	ICV	02/18/22 22:24	II220215-3	1		1	mg/L	100	95	105			
WG536989ICB	ICB	02/18/22 22:30				U	mg/L		-0.03	0.03			
WG536989LFB	LFB	02/18/22 22:43	II220215-2	.5		.501	mg/L	100	85	115			
L71243-02AS	AS	02/18/22 22:53	II220215-2	.5	U	.211	mg/L	42	85	115			M2 ZA
L71243-02ASD	ASD	02/18/22 22:56	II220215-2	.5	U	.209	mg/L	42	85	115	1	20	M2 ZA
L71353-09AS	AS	02/19/22 0:06	II220215-2	2.5	U	2.576	mg/L	103	85	115			
L71353-09ASD	ASD	02/19/22 0:09	II220215-2	2.5	U	2.541	mg/L	102	85	115	1	20	
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	1		1.009	mg/L	101	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.03	0.03			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	.5		.477	mg/L	95	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	2.5	U	2.124	mg/L	85	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	2.5	U	2.247	mg/L	90	85	115	6	20	

QUIVIRA

ACZ Project ID: **L71353**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG537075													
WG537075ICV	ICV	02/21/22 19:23	II220215-3	100		98.5	mg/L	99	95	105			
WG537075ICB	ICB	02/21/22 19:29				U	mg/L		-0.6	0.6			
WG537075LFB	LFB	02/21/22 19:42	II220215-2	100.0039		99.94	mg/L	100	85	115			
L71243-02AS	AS	02/21/22 19:52	II220215-2	100.0039	37.3	137.1	mg/L	100	85	115			
L71243-02ASD	ASD	02/21/22 19:55	II220215-2	100.0039	37.3	136.3	mg/L	99	85	115	1	20	
L71353-09AS	AS	02/21/22 21:03	II220215-2	500.0195	649	1138	mg/L	98	85	115			
L71353-09ASD	ASD	02/21/22 21:06	II220215-2	500.0195	649	1158	mg/L	102	85	115	2	20	

Sulfate

D516-02/-07/-11 - TURBIDIMETRIC

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536815													
WG536815ICB	ICB	02/17/22 9:37				U	mg/L		-3	3			
WG536815ICV	ICV	02/17/22 9:37	WI220215-6	20.46		19.5	mg/L	95	90	110			
WG536815LFB	LFB	02/17/22 19:27	WI211230-5	9.95		10.3	mg/L	104	90	110			
L71243-03DUP	DUP	02/17/22 20:34			663	669.4	mg/L				1	20	
L71353-01AS	AS	02/17/22 20:35	SO4TURB25X	100	7890	8115.5	mg/L	226	90	110			M3

Sulfate

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536286													
WG536286ICV	ICV	02/04/22 22:11	WI220207-4	51.15		48.39	mg/L	95	90	110			
WG536286ICB	ICB	02/04/22 22:29				U	mg/L		-0.4	0.4			
WG537321													
WG537321LFB1	LFB	02/24/22 18:06	WI211112-6	30		27.77	mg/L	93	90	110			
L71393-02AS	AS	02/24/22 20:30	WI211112-6	150	248	388.02	mg/L	93	90	110			
WG537321LFB2	LFB	02/25/22 2:46	WI211112-6	30		27.13	mg/L	90	90	110			
L71393-01DUP	DUP	02/25/22 23:49			U	U	mg/L				0	20	RA
WG537673													
WG537673LFB1	LFB	03/03/22 18:20	WI211112-6	30		29.38	mg/L	98	90	110			
L71285-01DUP	DUP	03/03/22 18:56			51.1	51.05	mg/L				0	20	
L71352-01AS	AS	03/03/22 19:32	WI211112-6	3000	2890	5915.61	mg/L	101	90	110			
WG537673LFB2	LFB	03/04/22 3:00	WI211112-6	30		27.96	mg/L	93	90	110			

QUIVIRA

ACZ Project ID: **L71353**

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.

Thallium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.05		.05318	mg/L	106	90	110			
WG536969ICB	ICB	02/18/22 13:45				U	mg/L		-0.00022	0.00022			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05		.05206	mg/L	104	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05	U	.05075	mg/L	102	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05	U	.05015	mg/L	100	70	130	1	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25	U	.27756	mg/L	111	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25	U	.2725	mg/L	109	70	130	2	20	
WG537194													
WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.05523	mg/L	110	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.00022	0.00022			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05		.05069	mg/L	101	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25	U	.22188	mg/L	89	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25	U	.23203	mg/L	93	70	130	4	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05	U	.04726	mg/L	95	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05	U	.04381	mg/L	88	70	130	8	20	

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536969													
WG536969ICV	ICV	02/18/22 13:43	MS220125-1	.05		.05131	mg/L	103	90	110			
WG536969ICB	ICB	02/18/22 13:45				U	mg/L		-0.00022	0.00022			
WG536969LFB	LFB	02/18/22 13:46	MS220126-3	.05		.05229	mg/L	105	85	115			
L66183-38AS	AS	02/18/22 13:56	MS220126-3	.05	U	.04969	mg/L	99	70	130			
L66183-38ASD	ASD	02/18/22 13:58	MS220126-3	.05	U	.04924	mg/L	98	70	130	1	20	
L71353-06AS	AS	02/18/22 14:22	MS220126-3	.25	1.99	2.28628	mg/L	119	70	130			
L71353-06ASD	ASD	02/18/22 14:24	MS220126-3	.25	1.99	2.28373	mg/L	117	70	130	0	20	
WG537194													
WG537194ICV	ICV	02/22/22 18:02	MS220125-1	.05		.05372	mg/L	107	90	110			
WG537194ICB	ICB	02/22/22 18:04				U	mg/L		-0.00022	0.00022			
WG537194LFB	LFB	02/22/22 18:06	MS220126-3	.05		.0499	mg/L	100	85	115			
L71353-07AS	AS	02/22/22 18:28	MS220126-3	.25	.0112	.28655	mg/L	110	70	130			
L71353-07ASD	ASD	02/22/22 18:30	MS220126-3	.25	.0112	.30106	mg/L	116	70	130	5	20	
L71393-02AS	AS	02/22/22 18:45	MS220126-3	.05	.0184	.07283	mg/L	109	70	130			
L71393-02ASD	ASD	02/22/22 18:50	MS220126-3	.05	.0184	.06864	mg/L	100	70	130	6	20	

QUIVIRA

ACZ Project ID: **L71353**

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.

Zinc, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG536895													
WG536895ICV	ICV	02/17/22 17:32	II220215-3	2		1.934	mg/L	97	95	105			
WG536895ICB	ICB	02/17/22 17:38				U	mg/L		-0.06	0.06			
WG536895LFB	LFB	02/17/22 17:51	II220215-2	.50045		.518	mg/L	104	85	115			
L71243-02AS	AS	02/17/22 18:00	II220215-2	.50045	U	.531	mg/L	106	85	115			
L71243-02ASD	ASD	02/17/22 18:03	II220215-2	.50045	U	.52	mg/L	104	85	115	2	20	
L71355-02AS	AS	02/17/22 19:13	II220215-2	.50045	.096	.621	mg/L	105	85	115			
L71355-02ASD	ASD	02/17/22 19:16	II220215-2	.50045	.096	.608	mg/L	102	85	115	2	20	
WG537165													
WG537165ICV	ICV	02/22/22 15:15	II220215-3	2		1.988	mg/L	99	95	105			
WG537165ICB	ICB	02/22/22 15:21				U	mg/L		-0.06	0.06			
WG537165LFB	LFB	02/22/22 15:33	II220215-2	.50045		.504	mg/L	101	85	115			
L71349-01AS	AS	02/22/22 15:52	II220215-2	2.50225	U	2.481	mg/L	99	85	115			
L71349-01ASD	ASD	02/22/22 15:55	II220215-2	2.50225	U	2.508	mg/L	100	85	115	1	20	

Rio Algom Mining CompanyACZ Project ID: **L71353**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71353-01	WG537033	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	DB	Sample required dilution due to low bias result.
			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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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.
L71353-02	WG537008	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).
				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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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.
L71353-03	WG537008	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).
				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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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.
L71353-04	WG537008	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).
				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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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

ACZ Project ID: **L71353**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71353-05	WG537008	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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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.
L71353-06	WG536673	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.
	WG537008	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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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.
L71353-07	WG536895	Boron, dissolved	M200.7 ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	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.
	WG536963	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	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).
	WG537008	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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.

Rio Algom Mining Company

ACZ Project ID: **L71353**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71353-08	WG536673	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.
	WG537008	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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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.
L71353-09	WG536673	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.
	WG537321		M300.0 - Ion Chromatography	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).
	WG537610	Cyanide, Total	D7511-09	H1	Sample prep or analysis performed past holding time. See case narrative.
	WG537187	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	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).
	WG536516	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).
	WG536615	Selenium, dissolved	SM 3114 B, AA-Hydride	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG536815	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.
	WG537321		M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 31-65 ALL-02042022

Locator:

ACZ Sample ID: **L71353-01**

Date Sampled: 02/04/22 13:25

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	03/22/22 13:18		-0.26	5.9	16	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	02/24/22 8:32		0.0	310	13	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 0:11		0.15	0.14	0.75	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:32		2.3	3.3	8.1	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:00		3.68	4.1	6.7	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 31-61 ALL-02042022

Locator:

ACZ Sample ID: **L71353-02**

Date Sampled: 02/04/22 14:27

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		-26	23	67	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	02/24/22 8:32		0.184	3.1	3.9	pCi/L	*	slc

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/24/22 0:02		0.24	0.13	0.33	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:32		1.8	0.73	1.7	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:00		2.24	3.5	5.9	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 32-59 ALL-02072022

Locator:

ACZ Sample ID: **L71353-03**

Date Sampled: 02/07/22 10:25

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	03/22/22 13:18		0.49	1.4	3.7	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	03/07/22 14:41		0.0	34	4.6	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 0:12		0.08	0.06	0.15	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:32		-0.28	0.75	1.8	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 11:01		7.97	4.3	6	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 5-08 ALL-R-02082022

Locator:

ACZ Sample ID: **L71353-04**

Date Sampled: 02/08/22 12:50

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	03/22/22 13:18		1.2	1.5	4	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	03/07/22 14:41		0.0	40	5.9	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 0:14		0.13	0.06	0.23	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	03/09/22 17:32		0.4	0.83	2.1	pCi/L	*	ttg

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 16:12		1.4	0.77	1	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 5-03 ALL-R-02082022

Locator:

ACZ Sample ID: **L71353-05**

Date Sampled: 02/08/22 12:00

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	03/22/22 13:18		-0.05	1.9	5.1	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	03/08/22 9:28		0.551	3.1	3.9	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 0:15		0.13	0.05	0.31	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 16:35		0.81	0.68	1.7	pCi/L	*	slc

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 16:12		1.4	0.76	0.98	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 5-73 ALL-R-02082022

Locator:

ACZ Sample ID: **L71353-06**

Date Sampled: 02/08/22 9:43

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	03/22/22 13:18		-1.6	1.6	4.5	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	03/08/22 9:28		0.0	48	6.3	pCi/L	*	slc

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	03/24/22 0:04		0.01	0.08	0.29	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 16:35		3.6	5.5	13	pCi/L	*	slc

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 16:12		3.6	1.1	1.1	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 31-03 KD-02082022

Locator:

ACZ Sample ID: **L71353-07**

Date Sampled: 02/08/22 16:50

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	03/22/22 13:18		-2.7	1.9	5.3	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	03/08/22 9:28		0.0	27	3.8	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 0:17		8.5	0.28	0.16	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 16:35		8.9	1.4	2.4	pCi/L	*	slc

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/28/22 14:32		0.557	0.38	0.55	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-03-02082022

Locator:

ACZ Sample ID: **L71353-08**

Date Sampled: 02/08/22 0:00

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	03/22/22 16:39		1.5	1.6	4.2	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	03/08/22 9:28		0.0	39	4.9	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 0:18		0.14	0.05	0.23	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 16:35		1.7	1.9	4.7	pCi/L	*	slc

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	03/17/22 16:12		3.17	1	1	pCi/L	*	amk

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: DUP-05-02082022

Locator:

ACZ Sample ID: **L71353-09**

Date Sampled: 02/08/22 0:00

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	03/22/22 16:39		-0.19	2.6	6.9	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	03/08/22 9:28		1.01	3.3	3.8	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 0:20		8.4	0.28	0.19	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 16:35		10	1.5	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	03/28/22 14:32		0.341	0.33	0.53	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.
---	-------------------------------------

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://aczk.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

QUIVIRA

ACZ Project ID: **L71353**

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	
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	
L72132-02DUP	DUP-RPD	04/06/22			-34	25	70	7.7	16	43				317	20	RG
L72132-01MS	MS	04/06/22	PCN64364	983	4.8	14	37	830	34	43	84	55	121			
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
WG537144																
WG537144PBW	PBW	02/23/22						0	29	4.1			8.2			
L71352-01MS	MS	02/23/22	PCN64364	500	0.413	2.4	3.1	545	120	4.3	109	51	128			
WG537144LCSW	LCSW	02/23/22	PCN64364	500				493	110	4.5	99	51	128			
L71353-02DUP	DUP-RER	02/24/22			0.184	3.1	3.9	0	31	4.2				0.01	2	
L71353-02DUP	DUP-RPD	02/24/22			0.184	3.1	3.9	0	31	4.2				200	20	RG
WG537575																
WG537575LCSW	LCSW	03/07/22	PCN64364	500				500	110	4.5	100	51	128			
WG537575PBW	PBW	03/07/22						.18	1.9	2.5			5			
L71349-02DUP	DUP-RPD	03/07/22			0	24	3.2	0	20	2.8				0	20	
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			

QUIVIRA

ACZ Project ID: **L71353**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 226, dissolved

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
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
WG538067																
WG538067LCSW	LCSW	03/24/22	PCN64374	20				18	0.49	0.46	90	43	148			
WG538067PBW	PBW	03/24/22						.09	0.06	0.36			0.72			
L71457-01DUP	DUP-RPD	03/24/22			1.9	0.21	0.61	.19	0.11	0.66				164	20	RM
L71457-02MS	MS	03/24/22	PCN64374	20	0.05	0.09	0.99	19	0.44	0.29	95	43	148			
L71552-01DUP	DUP-RPD	03/24/22			1.7	0.21	0.71	1.6	0.22	0.62				6	20	

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
WG537188																
WG537188LCSW	LCSW	03/09/22	PCN64684	9.52				7.5	1.1	2.1	79	47	123			
WG537188PBW	PBW	03/09/22						1.1	0.71	1.9			3.8			
L71212-02MS	MS	03/09/22	PCN64684	1904.93	1000	180	340	2800	270	390	94	47	123			
L71212-02DUP	DUP-RPD	03/09/22			1000	180	340	1600	230	430				46	20	RM
L71353-01DUP	DUP-RPD	03/09/22			2.3	3.3	8.1	3.2	3.9	9.4				33	20	RG
L71353-01DUP	DUP-RER	03/09/22			2.3	3.3	8.1	3.2	3.9	9.4				0.18	2	
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	

QUIVIRA

ACZ Project ID: **L71353**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Thorium 230, dissolved

ESM 4506

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG537467																
WG537467LCSW	LCSW	03/16/22	PCN63437	200				188	24	0.62	94	91	126			
WG537467PBW	PBW	03/16/22						.537	0.31	0.41			0.82			
L71215-04DUP	DUP-RPD	03/16/22			28.6	11	13	53.1	17	17				60	20	RG
L71215-04DUP	DUP-RER	03/16/22			28.6	11	13	53.1	17	17				1.21	2	
L71215-04MS	MS	03/16/22	PCN63437	5000	28.6	11	13	4990	620	12	99	91	126			
WG538651																
WG538651LCSW	LCSW	03/25/22	PCN63437	200				205	26	0.31	103	91	126			
L71282-01DUP	DUP-RPD	03/25/22			0.081	0.43	0.79	.738	1	1.8				160	20	RG
L71282-01DUP	DUP-RER	03/25/22			0.081	0.43	0.79	.738	1	1.8				0.6	2	
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-RER	03/29/22			0.736	0.44	0.62	1.03	0.91	1.4				0.29	2	
L71943-06DUP	DUP-RPD	03/29/22			0.736	0.44	0.62	1.03	0.91	1.4				33	20	RG

Rio Algom Mining Company

ACZ Project ID: **L71353**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71353-01	WG537353	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	QB	Method-specified preservation criteria cannot be met due to sample matrix.
	WG537144	Polonium 210, dissolved	HASL Po-01-RC	D1	Sample required dilution due to matrix.
			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.
	WG537124	Radium 226, dissolved	M903.1	D1	Sample required dilution due to matrix.
			M903.1	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M903.1	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG537188	Radium 228, dissolved	M9320	D1	Sample required dilution due to matrix.
			M9320	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			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.
	WG537467	Thorium 230, dissolved	ESM 4506	D1	Sample required dilution due to matrix.
			ESM 4506	QB	Method-specified preservation criteria cannot be met due to sample matrix.
			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.
L71353-02	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG537144	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.
	WG538067	Radium 226, dissolved	M903.1	DJ	Sample dilution required due to insufficient sample.
			M903.1	QB	Method-specified preservation criteria cannot be met due to sample matrix.
			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.
	WG537188	Radium 228, dissolved	M9320	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			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.
	WG537467	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
			ESM 4506	QB	Method-specified preservation criteria cannot be met due to sample matrix.
			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.
L71353-03	WG537124	Radium 226, dissolved	M903.1	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG537188	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.
	WG537467	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
			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: **L71353**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L71353-04	WG537124	Radium 226, dissolved	M903.1	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG537188	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.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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.
L71353-05	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.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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.
L71353-06	WG538067	Radium 226, dissolved	M903.1 M903.1	DJ RM	Sample dilution required due to insufficient sample. 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.
	WG538074	Radium 228, dissolved	M9320	DE	Sample required dilution. See Case Narrative.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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.
L71353-07	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.
	WG538651	Thorium 230, dissolved	ESM 4506 ESM 4506	N1 RG	See Case Narrative. 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.
L71353-08	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.
	WG537467	Thorium 230, dissolved	ESM 4506 ESM 4506	DJ RG	Sample dilution required due to insufficient sample. 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.
L71353-09	WG537124	Radium 226, dissolved	M903.1 M903.1	M2 RM	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. 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.
	WG538074	Radium 228, dissolved	M9320	DE	Sample required dilution. See Case Narrative.
	WG538651	Thorium 230, dissolved	ESM 4506 ESM 4506	N1 RG	See Case Narrative. 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 CompanyACZ Project ID: **L71353**

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: L71353

Date Received: 02/10/2022 09:30

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

L71353-01 Container B2504447 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample. The pH is 4.

L71353-01 Container B2504447 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

L71353-02 Container B2504453 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample. The pH is 4.

L71353-02 Container B2504453 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Rio Algom Mining Company
 4512060294

ACZ Project ID: L71353

Date Received: 02/10/2022 09:30

Received By:

Date Printed: 2/11/2022

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
5283	0.3	<=6.0	15	N/A
6715	1.6	<=6.0	15	N/A
6505	0.4	<=6.0	15	N/A

Was ice present in the shipment container(s)?

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

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

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

Report to:

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

Copy of Report to:

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

Invoice to;

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

Copy of Invoice to:

Name: See Remarks	<div>Address:</div> <div></div> <div>Telephone:</div>
Company:	
E-mail: See Remarks	

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES	<input checked="" type="checkbox"/>
NO	<input type="checkbox"/>

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

Are samples for SDWA Compliance Monitoring?

Yes

No

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

ANALYSES REQUESTED (attach list or use plate number)

[illegible]

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

REMARKS

Please CC Report to email list. DUP-03-02082022 and DUP-05-02082022 have no collection times.

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE: TIME

JOE SEP10

2/9 1530

11

2/10/22 9:31

Qualtrax ID: 1984

Revision #: 2

White - Return with sample.

Yellow - Retain for your records.



May 06, 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: Michaela 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: L72106

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 22, 2022. This project has been assigned to ACZ's project number, L72106. 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 L72106. 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 June 05, 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

May 06, 2022

Project ID: 4512060294

ACZ Project ID: L72106

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 groundwater sample from Rio Algom Mining Company on March 22, 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 L72106. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

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. Throium-230 was subcontracted to ALS-Fort Collins and the report summary is attached.
2. Qualifier: (N1) Applies to: L72106-01 TOTAL DISSOLVED SOLIDS

On 3/28/22 the time and temperature of the 180°C oven was not recorded when the workgroup was removed from the oven. It is believed that the workgroup was in the oven for a minimum of one hour and removed when the oven was in range. Associated quality control within limits. Reanalyze at client request.

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-07 KD-03192022

ACZ Sample ID: **L72106-01**

Date Sampled: 03/19/22 15:00

Date Received: 03/22/22

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	5	<0.25	U		mg/L	0.25	1.25	04/05/22 13:52	wtc
Antimony, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.01	04/05/22 17:48	mfm
Arsenic, dissolved	M200.8 ICP-MS	5	0.00218	B		mg/L	0.001	0.005	04/05/22 17:48	mfm
Barium, dissolved	M200.7 ICP	5	<0.035	U		mg/L	0.035	0.175	04/05/22 13:52	wtc
Beryllium, dissolved	M200.8 ICP-MS	5	<0.0004	U		mg/L	0.0004	0.00125	04/05/22 17:48	mfm
Boron, dissolved	M200.7 ICP	5	0.171	B		mg/L	0.15	0.5	04/05/22 13:52	wtc
Cadmium, dissolved	M200.8 ICP-MS	5	<0.00025	U		mg/L	0.00025	0.00125	04/05/22 17:48	mfm
Calcium, dissolved	M200.7 ICP	5	583			mg/L	0.5	2.5	04/05/22 13:52	wtc
Chromium, dissolved	M200.8 ICP-MS	5	<0.0025	U		mg/L	0.0025	0.01	04/05/22 17:48	mfm
Cobalt, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	04/05/22 13:52	wtc
Copper, dissolved	M200.7 ICP	5	<0.05	U		mg/L	0.05	0.25	04/05/22 13:52	wtc
Iron, dissolved	M200.7 ICP	5	0.732	B		mg/L	0.3	0.75	04/05/22 13:52	wtc
Lead, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	04/05/22 17:48	mfm
Magnesium, dissolved	M200.7 ICP	5	135			mg/L	1	5	04/05/22 13:52	wtc
Manganese, dissolved	M200.7 ICP	5	2.10			mg/L	0.05	0.25	04/05/22 13:52	wtc
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	03/31/22 10:27	mlh
Molybdenum, dissolved	M200.8 ICP-MS	5	0.00675			mg/L	0.001	0.0025	04/05/22 17:48	mfm
Nickel, dissolved	M200.8 ICP-MS	5	<0.002	U		mg/L	0.002	0.005	04/05/22 17:48	mfm
Potassium, dissolved	M200.7 ICP	5	9.78			mg/L	1	5	04/05/22 13:52	wtc
Selenium, dissolved	SM 3114 B, AA-Hydride	1	<0.002	U		mg/L	0.002	0.005	03/29/22 11:45	mlh
Selenium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.00125	04/05/22 17:48	mfm
Silver, dissolved	M200.7 ICP	5	<0.05	U	*	mg/L	0.05	0.125	04/05/22 13:52	wtc
Sodium, dissolved	M200.7 ICP	5	324		*	mg/L	1	5	04/05/22 13:52	wtc
Thallium, dissolved	M200.8 ICP-MS	5	<0.0005	U		mg/L	0.0005	0.0025	04/05/22 17:48	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.00073	B		mg/L	0.0005	0.0025	04/05/22 17:48	mfm
Zinc, dissolved	M200.7 ICP	5	<0.1	U		mg/L	0.1	0.25	04/05/22 13:52	wtc

Subcontract

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Miscellaneous subcontract	Subcontracted Work									

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-07 KD-03192022

ACZ Sample ID: **L72106-01**

Date Sampled: 03/19/22 15:00

Date Received: 03/22/22

Sample Matrix: Groundwater

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration									
Bicarbonate as CaCO ₃		1	319			mg/L	2	20	03/26/22 0:00	eep
Carbonate as CaCO ₃		1	<2	U		mg/L	2	20	03/26/22 0:00	eep
Hydroxide as CaCO ₃		1	<2	U		mg/L	2	20	03/26/22 0:00	eep
Total Alkalinity		1	319		*	mg/L	2	20	03/26/22 0:00	eep
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-7.6			%			05/06/22 0:00	calc
Sum of Anions			64			meq/L			05/06/22 0:00	calc
Sum of Cations			55			meq/L			05/06/22 0:00	calc
Chloride	M300.0 - Ion Chromatography	50	413		*	mg/L	20	100	04/04/22 19:53	krh
Cyanide, Total	D7511-09	1	<0.003	UH	*	mg/L	0.003	0.01	04/04/22 16:27	mad
Fluoride	M300.0 - Ion Chromatography	50	<2.5	U	*	mg/L	2.5	12.5	04/04/22 19:53	krh
Nitrate/Nitrite as N	M353.2 - H ₂ SO ₄ preserved	1	0.052	B	*	mg/L	0.02	0.1	04/09/22 1:48	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4080		*	mg/L	40	80	03/24/22 13:21	scd
Sulfate	M300.0 - Ion Chromatography	50	2190			mg/L	20	100	04/04/22 19:53	krh
TDS (calculated)	Calculation		3850			mg/L			05/06/22 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.06						05/06/22 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: **L72106**

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
WG539061													
WG539061PBW1	PBW	03/26/22 13:03				3.3	mg/L		-20	20			
WG539061LCSW1	LCSW	03/26/22 13:17	WC220311-11	820.0001		830.1	mg/L	101	90	110			
WG539061LCSW2	LCSW	03/26/22 15:34	WC220311-11	820.0001		825.1	mg/L	101	90	110			
WG539061PBW2	PBW	03/26/22 15:40				4.7	mg/L		-20	20			
WG539061LCSW3	LCSW	03/26/22 17:50	WC220311-11	820.0001		825.2	mg/L	101	90	110			
WG539061PBW3	PBW	03/26/22 17:56				5	mg/L		-20	20			
WG539061LCSW4	LCSW	03/26/22 19:53	WC220311-11	820.0001		822.2	mg/L	100	90	110			
WG539061PBW4	PBW	03/26/22 19:59				5.7	mg/L		-20	20			
L72191-02DUP	DUP	03/26/22 22:17			U	U	mg/L				0	20	RA
WG539061LCSW5	LCSW	03/26/22 22:30	WC220311-11	820.0001		843.1	mg/L	103	90	110			

Aluminum, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2		1.959	mg/L	98	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.15	0.15			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	1.0008		.942	mg/L	94	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	1.0008	U	.924	mg/L	92	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	1.0008	U	.924	mg/L	92	85	115	0	20	

Antimony, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.0201		.02016	mg/L	100	90	110			
WG539715ICB	ICB	04/05/22 17:44				.00072	mg/L		-0.00088	0.00088			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.01		.00969	mg/L	97	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.01	U	.00922	mg/L	92	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.01	U	.00958	mg/L	96	70	130	4	20	

Arsenic, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.0494	mg/L	99	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00044	0.00044			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05005		.05004	mg/L	100	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05005	.0006	.05322	mg/L	105	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05005	.0006	.05309	mg/L	105	70	130	0	20	

Barium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2		1.9742	mg/L	99	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.021	0.021			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	.5		.4573	mg/L	91	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	.5	.0081	.4682	mg/L	92	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	.5	.0081	.4696	mg/L	92	85	115	0	20	

QUIVIRA

ACZ Project ID: **L72106**

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.

Beryllium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.050706	mg/L	101	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.000176	0.000176			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05005		.050542	mg/L	101	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05005	U	.050897	mg/L	102	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05005	U	.050985	mg/L	102	70	130	0	20	

Boron, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2		2	mg/L	100	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.09	0.09			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	.5005		.474	mg/L	95	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	.5005	.165	.634	mg/L	94	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	.5005	.165	.648	mg/L	97	85	115	2	20	

Cadmium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.053171	mg/L	106	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00011	0.00011			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05005		.050937	mg/L	102	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05005	U	.053854	mg/L	108	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05005	U	.054174	mg/L	108	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
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	100		98.92	mg/L	99	95	105			
WG539680ICB	ICB	04/05/22 13:34				.13	mg/L		-0.3	0.3			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	67.99026		58.52	mg/L	86	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	67.99026	2.43	60.86	mg/L	86	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	67.99026	2.43	60.83	mg/L	86	85	115	0	20	

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539431													
WG539431ICV	ICV	03/30/22 19:59	WI220328-5	19.96		19.92	mg/L	100	90	110			
WG539431ICB	ICB	03/30/22 20:17				U	mg/L		-0.4	0.4			
WG539547													
WG539547LFB1	LFB	04/04/22 16:36	WI211112-6	30		30.53	mg/L	102	90	110			
L72082-01DUP	DUP	04/04/22 17:12			1.29	1.27	mg/L				2	20	RA
L72085-01AS	AS	04/04/22 17:48	WI211112-6	30	.72	32.02	mg/L	104	90	110			
WG539547LFB2	LFB	04/05/22 1:16	WI211112-6	30		30.61	mg/L	102	90	110			

QUIVIRA

ACZ Project ID: **L72106**

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.

Chromium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.05055	mg/L	101	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.0011	0.0011			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05		.05064	mg/L	101	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05	U	.05033	mg/L	101	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05	U	.0502	mg/L	100	70	130	0	20	

Cobalt, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2.01		1.96	mg/L	98	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.06	0.06			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	.5005		.452	mg/L	90	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	.5005	U	.451	mg/L	90	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	.5005	U	.46	mg/L	92	85	115	2	20	

Copper, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2		1.993	mg/L	100	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.03	0.03			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	.5		.462	mg/L	92	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	.5	U	.469	mg/L	94	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	.5	U	.469	mg/L	94	85	115	0	20	

Cyanide, Total

D7511-09

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539610													
WG539610ICV	ICV	04/04/22 16:05	WI220323-10	.3003		.3026	mg/L	101	90	110			
WG539610ICB	ICB	04/04/22 16:07				U	mg/L		-0.003	0.003			
WG539610LFB	LFB	04/04/22 16:13	WI220323-7	.1		.1031	mg/L	103	84	116			
L72083-01AS	AS	04/04/22 16:17	WI220323-7	.1	.013	.1078	mg/L	95	84	116			
L72083-01ASD	ASD	04/04/22 16:19	WI220323-7	.1	.013	.115	mg/L	102	84	116	6	20	
WG539610ICV1	ICV	04/06/22 13:03	WI220323-10	.3003		.3089	mg/L	103	90	110			
WG539610ICB1	ICB	04/06/22 13:05				U	mg/L		-0.003	0.003			

Fluoride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539431													
WG539431ICV	ICV	03/30/22 19:59	WI220328-5	4.016		4.235	mg/L	105	90	110			
WG539431ICB	ICB	03/30/22 20:17				U	mg/L		-0.05	0.05			
WG539547													
WG539547LFB1	LFB	04/04/22 16:36	WI211112-6	1.5		1.541	mg/L	103	90	110			
L72082-01DUP	DUP	04/04/22 17:12			.308	.303	mg/L				2	20	RA
L72085-01AS	AS	04/04/22 17:48	WI211112-6	1.5	.088	1.561	mg/L	98	90	110			
WG539547LFB2	LFB	04/05/22 1:16	WI211112-6	1.5		1.487	mg/L	99	90	110			

QUIVIRA

ACZ Project ID: **L72106**

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
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2		1.923	mg/L	96	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.18	0.18			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	1.0001		.938	mg/L	94	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	1.0001	U	.916	mg/L	92	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	1.0001	U	.918	mg/L	92	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
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.05227	mg/L	105	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00022	0.00022			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.0501		.0519	mg/L	104	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.0501	.00016	.05429	mg/L	108	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.0501	.00016	.05356	mg/L	107	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
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	100		95.22	mg/L	95	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.6	0.6			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	49.99828		44.83	mg/L	90	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	49.99828	1.25	46.11	mg/L	90	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	49.99828	1.25	46.06	mg/L	90	85	115	0	20	

Manganese, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2		1.935	mg/L	97	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.03	0.03			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	.499		.471	mg/L	94	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	.499	U	.47	mg/L	94	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	.499	U	.468	mg/L	94	85	115	0	20	

Mercury, total

M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539297													
WG539297ICV1	ICV	03/31/22 10:13	HG220328-3	.005005		.00497	mg/L	99	95	105			
WG539297ICB	ICB	03/31/22 10:14				U	mg/L		-0.0002	0.0002			
WG539297LRB	LRB	03/31/22 10:16				U	mg/L		-0.00044	0.00044			
WG539297LFB	LFB	03/31/22 10:17	HG220328-6	.002002		.00194	mg/L	97	85	115			
L72071-03LFM	LFM	03/31/22 10:19	HG220328-6	.002002	U	.00191	mg/L	95	85	115			
L72071-03LFMD	LFMD	03/31/22 10:20	HG220328-6	.002002	U	.002	mg/L	100	85	115	5	20	

QUIVIRA

ACZ Project ID: **L72106**

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.

Molybdenum, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.02		.01999	mg/L	100	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00044	0.00044			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05005		.0492	mg/L	98	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05005	.00498	.05924	mg/L	108	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05005	.00498	.05976	mg/L	109	70	130	1	20	

Nickel, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.05043	mg/L	101	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00088	0.00088			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05		.051	mg/L	102	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05	.002	.04902	mg/L	94	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05	.002	.04929	mg/L	95	70	130	1	20	

Nitrate/Nitrite as N

M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539989													
WG539989ICV	ICV	04/08/22 23:28	WI220301-7	2.4161		2.313	mg/L	96	90	110			
WG539989ICB	ICB	04/08/22 23:29				U	mg/L		-0.02	0.02			
WG539993													
WG539993LFB	LFB	04/09/22 1:46	WI220401-10	2		2.022	mg/L	101	90	110			
L72106-01AS	AS	04/09/22 1:49	WI220401-10	2	.052	2.229	mg/L	109	90	110			
L72131-01DUP	DUP	04/09/22 1:51			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
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	20		19.55	mg/L	98	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.6	0.6			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	99.95169		91.35	mg/L	91	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	99.95169	1.44	92.64	mg/L	91	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	99.95169	1.44	92.84	mg/L	91	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
WG538912													
WG538912PBW	PBW	03/24/22 12:45				U	mg/L		-20	20			
WG538912LCSW	LCSW	03/24/22 12:47	PCN65060	1000		1000	mg/L	100	80	120			
L72137-03DUP	DUP	03/24/22 13:45			4900	4912	mg/L				0	10	

QUIVIRA

ACZ Project ID: **L72106**

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.

Selenium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.05071	mg/L	101	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00022	0.00022			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05		.05011	mg/L	100	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05	.00268	.05943	mg/L	114	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05	.00268	.05893	mg/L	113	70	130	1	20	

Selenium, dissolved

SM 3114 B, AA-Hydride

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539156													
WG539156ICV	ICV	03/29/22 11:01	SE220124-2	.025		.0252	mg/L	101	90	110			
WG539156ICB	ICB	03/29/22 11:04				U	mg/L		-0.006	0.006			
WG539157													
WG539157LRB	LRB	03/29/22 11:41				U	mg/L		-0.006	0.006			
WG539157LFB	LFB	03/29/22 11:43	SE220124-4	.0225		.0214	mg/L	95	85	115			
L72106-01LFM	LFM	03/29/22 11:47	SE220124-4	.0225	U	.0198	mg/L	88	85	115			
L72106-01LFMD	LFMD	03/29/22 11:49	SE220124-4	.0225	U	.0206	mg/L	92	85	115	4	20	

Silver, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	1		.992	mg/L	99	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.03	0.03			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	.5		.443	mg/L	89	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	.5	U	.383	mg/L	77	85	115			M2 ZA
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	.5	U	.358	mg/L	72	85	115	7	20	M2 ZA

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	100		98.55	mg/L	99	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.6	0.6			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	100.0039		91.48	mg/L	91	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	100.0039	156	236.9	mg/L	81	85	115			M2
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	100.0039	156	239.1	mg/L	83	85	115	1	20	M2

Sulfate

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539431													
WG539431ICV	ICV	03/30/22 19:59	WI220328-5	51.15		53.75	mg/L	105	90	110			
WG539431ICB	ICB	03/30/22 20:17				U	mg/L		-0.4	0.4			
WG539547													
WG539547LFB1	LFB	04/04/22 16:36	WI211112-6	30		32.73	mg/L	109	90	110			
L72082-01DUP	DUP	04/04/22 17:12			77	76.76	mg/L				0	20	
L72085-01AS	AS	04/04/22 17:48	WI211112-6	30	46.8	77.8	mg/L	103	90	110			
WG539547LFB2	LFB	04/05/22 1:16	WI211112-6	30		31.65	mg/L	106	90	110			

QUIVIRA

ACZ Project ID: **L72106**

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.

Thallium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.05271	mg/L	105	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00022	0.00022			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05		.05211	mg/L	104	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05	U	.05523	mg/L	110	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05	U	.05342	mg/L	107	70	130	3	20	

Uranium, dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539715													
WG539715ICV	ICV	04/05/22 17:42	MS220401-7	.05		.05191	mg/L	104	90	110			
WG539715ICB	ICB	04/05/22 17:44				U	mg/L		-0.00022	0.00022			
WG539715LFB	LFB	04/05/22 17:46	MS220401-2	.05		.05065	mg/L	101	85	115			
L72205-02AS	AS	04/05/22 17:57	MS220401-2	.05	.00362	.05968	mg/L	112	70	130			
L72205-02ASD	ASD	04/05/22 17:59	MS220401-2	.05	.00362	.05778	mg/L	108	70	130	3	20	

Zinc, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG539680													
WG539680ICV	ICV	04/05/22 13:28	II220401-2	2		1.896	mg/L	95	95	105			
WG539680ICB	ICB	04/05/22 13:34				U	mg/L		-0.06	0.06			
WG539680LFB	LFB	04/05/22 13:46	II220330-3	.50045		.475	mg/L	95	85	115			
L72131-01AS	AS	04/05/22 13:59	II220330-3	.50045	.121	.575	mg/L	91	85	115			
L72131-01ASD	ASD	04/05/22 14:02	II220330-3	.50045	.121	.585	mg/L	93	85	115	2	20	

Rio Algom Mining Company

ACZ Project ID: **L72106**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L72106-01	WG539547	Chloride	M300.0 - Ion Chromatography	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).
	WG539610	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.
	WG539547	Fluoride	M300.0 - Ion Chromatography	DC	Sample required dilution. Non-target analyte exceeded calibration range.
			M300.0 - Ion Chromatography	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).
	WG539993	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).
	WG538912	Residue, Filterable (TDS) @180C	SM2540C	N1	See Case Narrative.
	WG539680	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
			M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG539061	Total Alkalinity	SM2320B - Titration	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Rio Algom Mining Company

Project ID: 4512060294

Sample ID: 30-07 KD-03192022

Locator:

ACZ Sample ID: **L72106-01**

Date Sampled: 03/19/22 15:00

Date Received: 03/22/22

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 11:11		12	25	68	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	04/05/22 9:18		-0.605	2.7	3.7	pCi/L	*	slc

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	05/06/22 0:25		1.5	0.14	0.27	pCi/L	*	fdw

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	04/25/22 13:52		4.9	0.92	1.7	pCi/L	*	msm

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

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

Method Prefix Reference

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

Comments

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

For a complete list of ACZ's Extended Qualifiers, please click:

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

QUIVIRA

ACZ Project ID: **L72106**

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-RER	04/06/22			-34	25	70	7.7	16	43				1.4	2	
L72132-02DUP	DUP-RPD	04/06/22			-34	25	70	7.7	16	43				317	20	RG

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
WG539259																
WG539259PBW	PBW	04/04/22						.171	2.5	3.1			6.2			
L71515-01MS	MS	04/04/22	PCN64364	500	-0.459	2.2	3	519	120	3.7	104	51	128			
WG539259LCSW	LCSW	04/04/22	PCN64364	500				501	110	3.7	100	51	128			
L72132-01DUP	DUP-RPD	04/05/22			-0.167	2.5	3.3	-0.0729	4.2	5.3				78	20	RG
L72132-01DUP	DUP-RER	04/05/22			-0.167	2.5	3.3	-0.0729	4.2	5.3				0.02	2	

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
WG540657																
WG540657LCSW	LCSW	05/06/22	PCN64374	20				11	0.34	0.31	55	43	148			
WG540657PBW	PBW	05/06/22						-.02	0.08	0.26			0.52			
L71833-04DUP	DUP-RPD	05/06/22			0.35	0.12	0.39	.33	0.08	0.35				6	20	
L72012-02MS	MS	05/06/22	PCN64374	50	2.7	0.29	0.82	24	0.8	0.85	43	43	148			
L72169-01DUP	DUP-RPD	05/06/22			0.06	0.09	0.43	.09	0.06	0.34				40	20	RG
L72169-01DUP	DUP-RER	05/06/22			0.06	0.09	0.43	.09	0.06	0.34				0.28	2	

QUIVIRA

ACZ Project ID: **L72106**

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
WG540483																
WG540483LCSW	LCSW	04/25/22	PCN64684	9.38				9.5	1.1	1.9	101	47	123			
WG540483PBW	PBW	04/25/22						-.02	0.39	0.42			0.84			
L71928-02DUP	DUP-RER	04/25/22			0.69	0.76	1.9	.41	0.67	1.6				0.28	2	
L71928-02DUP	DUP-RPD	04/25/22			0.69	0.76	1.9	.41	0.67	1.6				51	20	RG
L72189-05DUP	DUP-RPD	04/25/22			0.68	0.79	1.9	.25	0.81	2				92	20	RG
L72168-01MS	MS	04/25/22	PCN64684	9.38	1.1	0.91	2.3	12	1.2	1.9	116	47	123			
L72189-05DUP	DUP-RER	04/25/22			0.68	0.79	1.9	.25	0.81	2				0.38	2	

Rio Algom Mining Company

ACZ Project ID: **L72106**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L72106-01	WG539097	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			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.
	WG539259	Polonium 210, dissolved	HASL Po-01-RC	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			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.
	WG540657	Radium 226, dissolved	M903.1	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
			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.
	WG540483	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.

Rio Algom Mining Company

ACZ Project ID: **L72106**

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

Rio Algom Mining Company
4512060294

ACZ Project ID: L72106

Date Received: 03/22/2022 10:49

Received By:

Date Printed: 3/23/2022

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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹ L72106-01 Container B2519144 (GREEN CUBE): Added 10 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.	<input type="checkbox"/>	<input checked="" 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?
4062	2.8	<=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.

Rio Algom Mining Company
4512060294

ACZ Project ID: L72106

Date Received: 03/22/2022 10:49

Received By:

Date Printed: 3/23/2022

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).



Thursday, April 28, 2022

Mark McNeal
ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487

Re: ALS Workorder: 2204020
Project Name:
Project Number:

Dear Mr. McNeal:

One water sample was received from ACZ Laboratories, Inc., on 4/1/2022. The sample was scheduled for the following analysis:

Isotopic Thorium

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Janice Winn-Shilling
Project Manager

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Arizona	AZ0828
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
Oklahoma	1301
PJLA (DoD ELAP/ISO 170250)	95377
PJLA (DOE-AP/ISO 17025)	95377
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280
Virginia	460305

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.



2204020

Isotopic Thorium:

The samples were analyzed for the presence of isotopic thorium according to the current revision of SOP 714.

All remaining acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2204020

Client Name: ACZ Laboratories, Inc.

Client Project Name:

Client Project Number:

Client PO Number: 26439

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
L72106-01	2204020-1		WATER	19-Mar-22	15:00

<div style="text-align: center; font-weight: bold;">ACZ LABORATORIES</div>		Accredited Environmental Testing	2773 Downhill Drive Steamboat Springs, CO 80487 (970) 879-6590	<div style="font-size: 1.2em; font-weight: bold;">CHAIN of CUSTODY</div>											
Report to:															
Name: Mark McNeal				Address:											
Company: ACZ Laboratories															
E-mail: markm@acz.com				Telephone:											
Copy of Report to:															
Name:				E-mail:											
Company:				Telephone:											
Invoice to:															
Name: Kelly Huemmer				Address:											
Company: ACZ Laboratories															
E-mail: accountspayable@acz.com				Telephone:											
Copy of Invoice to:															
Name:				Address:											
Company:															
E-mail:				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 <input checked="" type="checkbox"/>		NO <input type="checkbox"/>	
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and date will be qualified.															
Are samples for SDWA Compliance Monitoring?												Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	
If yes, please include state forms. Results will be reported to PQL for Colorado.															
Sampler's Name: _____ Sampler's Site Information State _____ Zip code _____ Time Zone _____															
*Sampler's Signature: _____ <small>*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.</small>															
PROJECT INFORMATION															
ANALYSES REQUESTED (attach list or use quote number)															
Quote #:				# of Containers	Thorium230										
PO#:															
Reporting state for compliance testing:															
Check box if samples include NRC licensed material? <input type="checkbox"/>															
SAMPLE IDENTIFICATION		DATE:TIME		Matrix	# of Containers	Thorium230									
L72106-01	3/19/2022 15:00	GW	1	<input checked="" type="checkbox"/>											
Matrix				SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)											
REMARKS															
Send to : Shiloh Summy Laboratory Director, ALS Environmental 225 Commerce Drive, Fort Collins CO 80524															
Please refer to ACZ's terms & conditions located on the reverse side of this COC.															
RELINQUISHED BY:				DATE:TIME		RECEIVED BY:				DATE:TIME					
[Signature]				3/22 8:30		[Signature]				4/1/22 11:21					



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ACZ Workorder No: 2204020
 Project Manager: JWS Initials: AXK Date: 04/01/2022

				N/A	YES	NO
1. Are airbills / shipping documents present and/or removable?					X	
Tracking number:						
2. Are custody seals on shipping containers intact?					X	
3. Are custody seals on sample containers intact?				X		
4. Is there a COC (chain-of-custody) present?					X	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)					X	
6. Are short-hold samples present?						X
7. Are all samples within holding times for the requested analyses?					X	
8. Were all sample containers received intact? (not broken or leaking)					X	
9. Is there sufficient sample for the requested analyses?					X	
10. Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)					X	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)					X	
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)				X		
13. Were the samples shipped on ice?				X		
14. Were cooler temperatures measured at 0.1-6.0°C?		IR gun used*:	#5		RAD ONLY	X
Cooler #: <u>1</u> Temperature (°C): <u>15.2</u> # of custody seals on cooler: <u>1</u> External µR/hr reading: <u>10</u> Background µR/hr reading: <u>11</u> Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES (If no, see Form 008.)						

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? NA All client bottle ID's vs ALS lab ID's double-checked by: AK

If applicable, was the client contacted? **YES / NO / NA** Contact: [Signature] Date/Time: 4/04/22

Project Manager Signature / Date: [Signature]

SHIP DATE: 29MAR22
ACTWGT: 2.40 LB
CAD: 101287483/INET4460
DIMMED: 8 X 8 X 8 IN

BILL SENDER

SAMPLE RECEIVING
(970) 879-6590
ACZ LABORATORIES
2773 DOWNHILL DRIVE
STEAMBOAT SPRINGS CO 80487

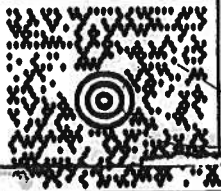
5 LBS

1 OF 1

SHIP TO:
SAMPLE RECEIVING
(970) 490-1511
ALS ANALYTICAL
225 COMMERCE DRIVE
FT COLLINS CO 80524

10-01
AMB
15.2°C

2204020



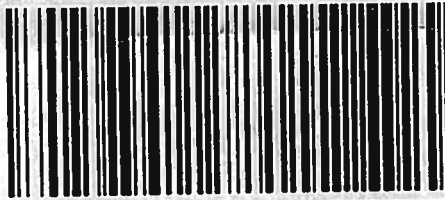
CO 805 0-01



TRK#

UPS GROUND

TRACKING #: 1Z 810 130 03 4622 4889



BILLING: P/P

WS 25.0.7 Zebra ZP 460 14.0A 09/2022



SEE NOTICE ON REVERSE regarding UPS Terms, and notice of limitation of liability. Where allowed by law, shipper authorizes UPS to act as forwarding agent for export control and customs purposes. If exported from the US, shipper certifies that the commodities, technology or software were exported from the US in accordance with the Export Administration Regulations. Diversion contrary to law is prohibited.
For information about UPS's privacy practices or to opt out from the sale of personal information, please see the UPS Privacy Notice at www.ups.com
©2019 UPS of America

No.

CUSTODY SEAL

ACZ Laboratories, Inc.

Date

Signature

3/3

Client: ACZ Laboratories, Inc.

Date: 28-Apr-22

Project:

Work Order: 2204020

Sample ID: L72106-01

Lab ID: 2204020-1

Legal Location:

Matrix: WATER

Collection Date: 3/19/2022 15:00

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Isotopic Thorium by Alpha Spectroscopy			SOP 714		Prep Date: 4/11/2022	PrepBy: ZAL
Tracer: Th-229	75.8		30-110	%REC	DL = NA	4/27/2022 07:51
Th-230	0.065 (+/- 0.066)	U	0.105	pCi/l	NA	4/27/2022 07:51

Client: ACZ Laboratories, Inc.

Date: 28-Apr-22

Project:

Work Order: 2204020

Sample ID: L72106-01

Lab ID: 2204020-1

Legal Location:

Matrix: WATER

Collection Date: 3/19/2022 15:00

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:

- gasoline

- JP-8

- diesel

- mineral spirits

- motor oil

- Stoddard solvent

- bunker C

ALS -- Fort Collins

Date: 4/28/2022 1:59:1

Client: ACZ Laboratories, Inc.

Work Order: 2204020

Project:

QC BATCH REPORT

Batch ID: AS220411-2-3

Instrument ID: AlphaSpec2

Method: Isotopic Thorium by Alpha Spec

LCS	Sample ID: AS220411-2				Units: pCi/l		Analysis Date: 4/27/2022 07:51				
Client ID:	Run ID: AS220411-2TH				Prep Date: 4/11/2022			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Th-230	2.45 (+/- 0.41)	0.05	2.464		99.6	85-121					P
Tracer: Th-229	2.06	0.02	2.422		84.9	30-110					

MB	Sample ID: AS220411-2				Units: pCi/l		Analysis Date: 4/27/2022 07:51				
Client ID:	Run ID: AS220411-2TH				Prep Date: 4/11/2022			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Th-230	0.009 (+/- 0.03)	0.052									U
Tracer: Th-229	1.84	0.01	2.422		76.1	30-110					

The following samples were analyzed in this batch:

2204020-1 2203532-1