Rio Algom Mining LLC

May 26, 2020

Mr. Thomas Lancaster United States Nuclear Regulatory Commission Mail Stop T5-A10 Washington, DC 20555-0001

SUA-1473, Docket No. 40-8905, Reporting of Monthly Sampling Results for Subject: First Quarter 2020, Rio Algom Mining LLC, Ambrosia Lake West Facility

Dear Mr. Lancaster:

This letter represents reporting of the first quarter (January through March) 2020 analytical results from monthly sampling for the following constituents and wells (Figure 1) in accordance with Condition 34.F of SUA-1473 (the License):

- Gross alpha. beryllium, and cadmium in Dakota Sandstone well 36-06 KD.
- Molybdenum and gross alpha in Dakota Sandstone well 32-45 KD-R.
- Gross alpha in Tres Hermanos B well 31-02 TRB-R.

The path forward for constituents exceeding their respective Groundwater Protection Standards (GPSs) has been described in detail in the following documents:

- Corrective Action Plan (CAP) submitted within the Semi-Annual Groundwater Stability Monitoring Report for the 1st Half of 2016 on July 29, 2016, ML16215A059.
- Rio Algom Mining LLC (RAML)'s letter to the United States Nuclear Regulatory Commission (NRC), Re: Status Update and Additional Alternate Concentration Limit Rationale, dated April 13, 2017, ML17108A332.
- The Data Collection Work Plan in Support of Additional Alternate Concentration Limits, submitted November 27, 2017, ML17340A826.
- Responses to NRC Comments Ambrosia Lake Work Plans 2017 and 2018. submitted May 4, 2018, ML18192C139.

RAML submitted the Editorial and Administrative Amendment to SUA-1473 (ML20054B747) and supplemented this document with a letter dated March 14, 2020 (ML20093B937), which included a request and justification to remove the gross alpha GPS from the License. The request is currently under technical review by NRC. Monitoring for gross alpha will be discontinued if the amendment is approved and the gross alpha requirement is removed from the License.

NMSSOI NMSS

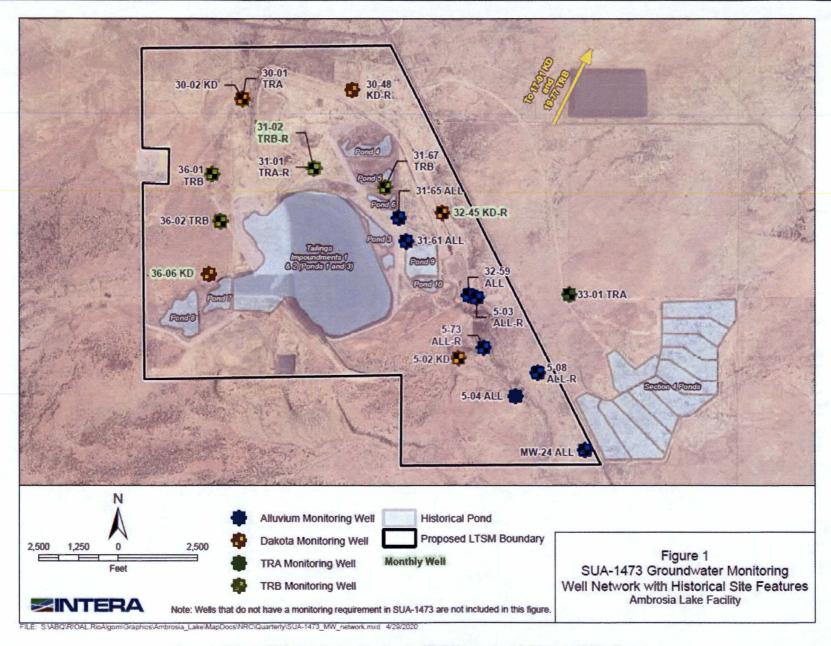


Figure 1. SUA-1473 Groundwater Monitoring Well Network with Historical Site Features.

The tables included in this report summarize the sampling results from the first quarter of 2020. Bolded results indicate exceedances of GPSs. Laboratory analytical reports¹ for the groundwater samples collected during the first quarter of 2020 are provided as **Attachment 1.** Note that uranium concentrations are measured monthly in all three wells for calculation of the gross alpha activity, but do not exceed alternate concentration limits (ACLs) and are not reported here.

Dakota Sandstone Well 36-06 KD

Monthly sampling results from well 36-06 KD during the first quarter of 2020 show that cadmium and beryllium concentrations were below the GPSs (**Table 1**). An outlier result from the January monthly monitoring exceeded the cadmium GPS, but re-analysis of the January sample indicated that the initial result was an analytical error. The laboratory report has been revised to include the result of the re-analysis, which has superseded the originally reported outlier. Both beryllium and cadmium concentrations show overall decreasing trends since 2007, and concentrations have been at or below the GPSs for more than two years (**Figure 2** and **Figure 3**).

Table 1. Beryllium, Cadmium, and Gross Alpha in 36-06 KD.

	Well 36-06 KD									
Date	Beryllium (mg/L)	Cadmium (mg/L)	Gross Alpha (pCi/L)							
GPS	0.01	0.01	56							
1/7/2020	0.00712	0.00479	40							
2/25/2020	0.0067	0.0052	54							
3/18/2020	NM	0.0057	100							

Notes:

Exceedances are bolded. mg/L = milligrams per liter pCi/L = picoCuries per liter NM = Not measured¹

¹ Laboratory reports in Attachment 1 include samples and analyses that are not discussed in this letter, but will be evaluated in the 2020 first half semi-annual groundwater monitoring report, which will be submitted by August 1, 2020.

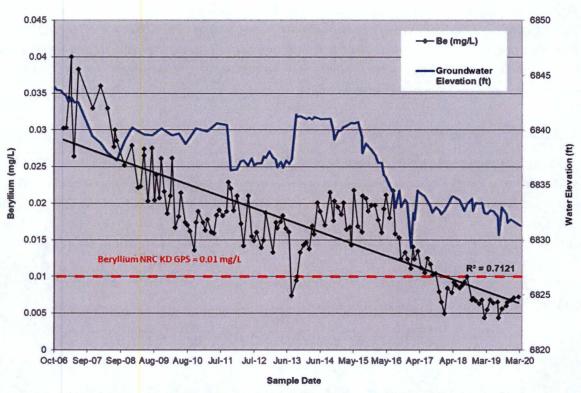


Figure 2. Beryllium Concentrations in Dakota Sandstone Monitoring Well 36-06 KD.

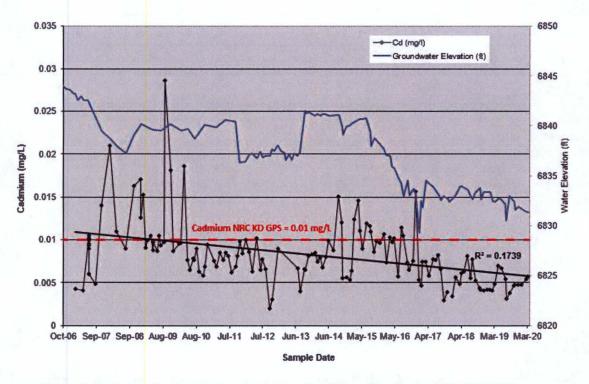


Figure 3. Cadmium Concentrations in Dakota Sandstone Monitoring Well 36-06 KD.

RAML stated in the *Groundwater Stability Monitoring Report, Second Half of 2019* (ML20045D953) that it would discontinue monthly monitoring of beryllium and cadmium at well 36-06 KD in the first quarter of 2020. The last monthly sample for beryllium was collected in January 2020, and the last monthly sample for cadmium was collected in March 2020.

Gross alpha activity exceeded the GPS of 56 picocuries per liter (pCi/L) in March of the first quarter of 2020 (**Table 1**). RAML will continue monthly monitoring for gross alpha at well 36-06 KD in accordance with monitoring requirements in SUA-1473.

Dakota Sandstone Well 32-45 KD-R

Results for molybdenum and gross alpha in first quarter 2020 samples from well 32-45 KD-R are displayed in **Table 2**. Concentrations of molybdenum in well 32-45 KD-R continue to exceed the GPS of 0.06 mg/L (**Figure 4**). Pursuant to Condition 34.F and Criterion 5D of 10 CFR Part 40, RAML proposed a CAP to address the exceedances of molybdenum in well 32-45 KD-R, as presented in the *Groundwater Stability Monitoring Report, First Half 2014* (ML14217A463). Gross alpha activity measured in well 32-45 KD-R exceeded the GPS of 56 pCi/L during the three monitoring events of the first quarter of 2020; however, concentrations of major alpha-emitting constituents remain below their respective ACLs. RAML will continue monthly monitoring for both constituents in well 32-45 KD-R in accordance with monitoring requirements in SUA-1473.

Table 2. Molybdenum and Gross Alpha in 32-45 KD-R.

	Well 32-45 KD-R									
Date	Molybdenum (mg/L)	Gross Alpha (pCi/L								
GPS	0.06									
1/13/20	0.152	90								
2/27/20	0.174	87								
3/18/20	0.115	92								

Notes:

Exceedances are bolded. mg/L= milligrams per liter. pCi/L=picoCuries per liter.

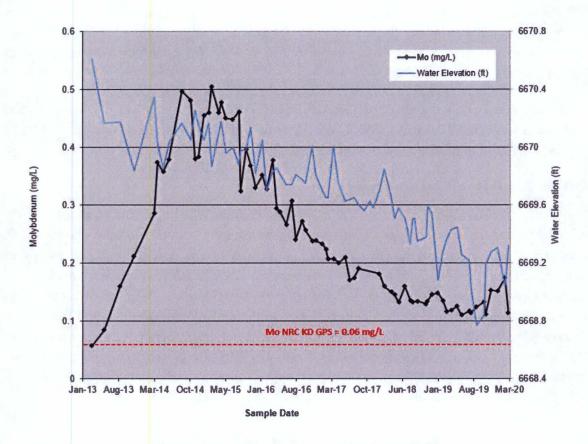


Figure 4. Molybdenum Concentrations in Dakota Sandstone Monitoring Well 32-45 KD-R.

Tres Hermanos B Well 31-02 TRB-R

Monitoring well 31-02 TRB-R is a replacement well that was installed in December 2012. Original well 31-02 TRB was sampled monthly for uranium and gross alpha. When the well was replaced, RAML continued to monitor for those constituents monthly.

Gross alpha activities in this well exceeded the GPS during the January monitoring event (**Table 3**). Uranium concentrations have remained below the ACL. Although uranium is well below the GPS, it is necessary to measure uranium concentrations in order to subtract the uranium activity from the gross alpha activity. RAML will continue monthly monitoring for gross alpha and uranium in well 31-02 TRB-R in accordance with monitoring requirements stated in SUA-1473.

Table 3. Gross Alpha in 31-02 TRB-R.

	Well 31-02 TRB-R
Date	Gross Alpha (pCi/L)
GPS/ACL	21 (GPS)
1/13/20	39
2/25/20	4.7
3/18/20	4.0

Notes:

Exceedances are bolded. mg/L= milligrams per liter pCi/L=picoCuries per liter

The NRC has granted RAML an exemption from April and May monthly monitoring due to the ongoing COVID-19 global pandemic. The exemption is documented in a letter to RAML dated April 21, 2020, Subject: Rio Algom Mining LLC, Ambrosia Lake West Facility, Request for Temporary Exemption of Monthly Groundwater Monitoring Due to COVID-19 Disease Global Pandemic, Source Material License SUA-1473, DOCKET 04008905 (ML20094F627).

RAML will resume monthly monitoring in June 2020 for the following constituents:

- Gross alpha in well 36-06 KD.
- Molybdenum and gross alpha in well 32-45 KD-R.
- Gross alpha in well 31-02 TRB-R.

Please contact me with any questions.

Sincerely,

Rio Algom Mining LLC

Sandra L. Ross, P.G.

Site Manager

cc. Document Control

Kurt Vollbrecht, NMED (email only) Bernadette Tsosie, DOE (email only)

Enclosure:

Attachment 1 – Laboratory Analytical Results for Monthly GW Monitoring During First Quarter 2020 (provided on accompanying compact disc)

Attachment 1

Laboratory Analytical Results for Monthly GW

Monitoring During First Quarter 2020

(provided on accompanying compact disc)



Analytical Report

January 28, 2020

Report to:

Kent Applegate

Rio Algom Mining Company

P.O. Box 218

Grants, NM 87020

cc: Clark Short, Angela Persico, Michaella Gorospe

Bill to:

Accounts Payable

Rio Algom Mining Company

P.O. Box 218

Grants, NM 87020

Project ID: 4508122295 ACZ Project ID: L56866

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on January 14, 2020. This project has been assigned to ACZ project number, L56866. Please reference this number in all future inquiries.

All analyses were performed according to ACZIS Quality Assurance Plan. The enclosed results relate only to the samples received under L56866. 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 ACZs 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 February 27, 2020. 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 ACZs stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Scott Habermehl has reviewed and approved this report.

S. Havermehl







Inorganic Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

31-02-TRB-R

Date Sampled: 01/13/20 15:17

Date Received: 01/14/20

Sample Matrix: Groundwater

Metals Analysis

Parameter 🙏 🗼 🚬	EPA Method	·s Dilution	Result	_ QualXQUnits	۰, MDL.	.PQL	Date A	nalyst
Uranium, dissolved	M200.8 ICP-MS	1	0.0035	mg/L	0.0001	0.0005	01/20/20 14:57	enb



Inorganic Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

32-45-KD-R

ACZ Sample ID: L56866-02

Date Sampled: 01/13/20 16:17

Date Received: 01/14/20

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	ΧQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dis	ssolved M200.8 ICP-MS	1	0.152			mg/L	0.0002	0.0005	01/20/20 15:00	enb
Uranium, dissolv	ed M200.8 ICP-MS	1	0.0444			mg/L	0.0001	0.0005	01/20/20 15:00	enb



Parior Handor Evaluations

Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493



	as militaritations.
Ratch	A distinct set of samples analyzed at a specific time

Found Value of the QC Type of interest Limit Upper limit for RPD, in %.

Lower Recovery Limit, in % (except for LCSS, mg/Kg) Lower

Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). MDL

Allows for instrument and annual fluctuations.

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer is certificate of analysis

PQL Practical Quantitation Limit. Synonymous with the EPA term "minimum level".

QC True Value of the Control Sample or the amount added to the Spike

Rec Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)

Relative Percent Difference, calculation used for Duplicate QC Types RPD

Upper Recovery Limit, in % (except for LCSS, mg/Kg) Upper

Value of the Sample of interest Sample

QC Sample T	ypes 🤲 🔐 🛴 🦠 🔭	201	A fine a contract of the second of the contract of the second
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
ICB	Initial Calibration Blank	MS	Matrix Spike
ICV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	PBS	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	PBW	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	PQV	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	SDI	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)

- Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity. В
- Н Analysis exceeded method hold time. pH is a field test with an immediate hold time.
- Target analyte response was below the laboratory defined negative threshold. L
- 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.

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. (2)
- (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.
- Standard Methods for the Examination of Water and Wastewater. (5)

- (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.

- Animal matrices for Inorganic analyses are reported on an "as received" basis. (3)
- An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier (4) associated with the result.
- If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit. (5)

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

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

REP001.03.15.02

L56866-2001280852 Page 4 of 15

Inorganic QC Summary

Rio Algom Mining Company

ACZ Project ID: L56866

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			
	Molyhdonum	discolund	ı

M200.8 ICP-MS

mory bacmann, a			1112001010	. 1410								
ACŽ ID	,Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit Q
NG490146												
WG490146ICV	ICV	01/20/20 13:31	MS200114-2	.0199		.01918	mg/L	96	90	110		
WG490146ICB	ICB	01/20/20 13:34				U	mg/L		-0.00044	0.00044		
VG490146LFB	LFB	01/20/20 13:37	MS200120-3	.0501		.04636	mg/L	93	85	115		
.56865-01AS	AS	01/20/20 14:38	MS200120-3	.0501	.0034	.05026	mg/L	94	70	130		
L56865-01ASD	ASD	01/20/20 14:41	MS200120-3	.0501	.0034	.04757	mg/L	88	70	130	5	20
Jranium, disso	lved		M200.8 IC	P-MS							The second se	
(CZ ID	Type		ret and a North Association	CONTRACTOR OF THE PARTY OF THE	and the second second second	STREET,	anne e dissense a side en				almana sa	
		Analyzed	PCN/SCN	GC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit Q
		Analyzed	PCNSCN	(66	Sample	Found	Units	Rec%	Lower	_ Upper	RPD	
NG490146	ICV	Analyzed 01/20/20 13:31	PGN/SGN MS200114-2	.05	Sample	Found .04922	Units mg/L	Rec% 98	Lower 90	⊔рдел 110	512D	Limit Qi
WG490146 WG490146ICV				W	Sample		+4 ***				(14D)	- Imit
WG490146 WG490146ICV WG490146ICB	ICV	01/20/20 13:31		W	Sample	.04922	mg/L		90	110	RPD	Limit Q
WG490146 WG490146ICV WG490146ICB WG490146LFB L56865-01AS	ICV ICB	01/20/20 13:31 01/20/20 13:34	MS200114-2	.05	.0037	.04922 U	mg/L mg/L	98	90 -0.00022	110 0.00022	RPD	Limit Q

L56866-2001280852 Page 5 of 15

Inorganic Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L56866

ACZID WORKNUM PARAMETĘR METHOD QUAL

No extended qualifiers associated with this analysis



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493



Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

31-02-TRB-R

Locator:

ACZ Sample ID: L56866-01

Date Sampled:

01/13/20 15:17

Date Received:

01/14/20

Sample Matrix: Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

calc

Parameter Measurolate (Republic Result Ency(F/4), 1410 Gross Alpha - Corrected

01/28/20 8:30

Unis pCi/L

Gross Alpha, dissolved

M900.0

Prep Method:

Paranger - Paranger		- Aleposie	Redi	Eug(p/A) (山)。	edide -	- XXQ	Analysis.
Gross Alpha, dissolved	01/22/20 0:04	,	41	32	96	pCi/L	*	isn



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadioChemistry Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

32-45-KD-R

Locator:

ACZ Sample ID: L56866-02

Date Sampled: 01/

01/13/20 16:17

Date Received:

01/14/20

Sample Matrix:

Groundwater

Gross Alpha - Corrected

Gross Alpha - Corrected

Calculation

Prep Method:

<u> වෙනගමන</u>

Measone Defe 01/28/20 8:30 Papeae

Result (\$100(\$16)) 90 ම්බ්රි pCi/L

calc

Gross Alpha, dissolved

M900.0

Prep Method:

දිනුනාමෙන	MeasueDate	. Pigodije	Redib		្រាក្	Conte	XQ.	Analysi
Gross Alpha, dissolved	01/22/20 0:05		120	17	14	pCi/L	*	isn



Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

* Radiochemistry
Reference

Report Header Explanations

Batch A distinct set of samples analyzed at a specific time

Error(+/-) Calculated sample specific uncertainty

Found Value of the QC Type of interest

Limit Upper limit for RPD, in %.

LCL Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD Calculated sample specific Lower Limit of Detection

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis

PQL Practical Quantitation Limit

QC True Value of the Control Sample or the amount added to the Spike

Rec Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)

RER Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.

RPD Relative Percent Difference, calculation used for Duplicate QC Types

UCL Upper Control Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QC Sample Types

DUP Sample Duplicate MS/MSD Matrix Spike/Matrix Spike Duplicate

 LCSS
 Laboratory Control Sample - Soil
 PBS
 Prep Blank - Soil

 LCSW
 Laboratory Control Sample - Water
 PBW
 Prep Blank - Water

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method.

Matrix Spikes Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

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 DÖE
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.

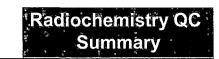
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

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

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

REP003.09.12.01

L56866-2001280852 Page 9 of 15



Rio Algom Mining Company

ACZ Project ID: L56866

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

Gross Alpha, dissolved

M900.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	*LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG490300																
WG490300PBW	PBW	01/22/20		-				4.2	2	11			22			
WG490300LCSWA	LCSW	01/22/20	PCN60283	100				110	9	12	110	67	144			
L56866-02DUP	DUP-RPD	01/22/20			120	17	14	110	17	26				9	20	
L56907-01DUP	DUP-RPD	01/22/20			9.8	4.3	13	8.8	4.1	9.2				11	20	
L56907-02MSA	MS	01/22/20	PCN60283	100	0.36	2.1	7.7	34	7.2	15	34	67	144			M2

L56866-2001280852 Page 10 of 15

(800) 334-5493

RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L56866

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L56866-01	WG490300	Gross Alpha, dissolved	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L56866-02	WG490300	Gross Alpha, dissolved	M900.0	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.



Rio Algom Mining Company

ACZ Project ID: L56866

No certification qualifiers associated with this analysis



Sample Receipt

Rio Alg	gom	Mining	Company
450812	2229	5	

ACZ Project ID:

L56866

Date Received: 01/14/2020 09:56

Received By:

Date Printed:

1/15/2020

Receipt Verification			
	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<u></u>		X
2) Is the Chain of Custody form or other directive shipping papers present?	X	<u> </u>	No. of the second
3) Does this project require special handling procedures such as CLP protocol?		Х	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	Х		Age was gar
6) Is the Chain of Custody form complete and accurate?	Х		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	#5 900
Samples/Containers			
	YES	NO	NA
8) Are all containers intact and with no leaks?	Χ		de ale ale
9) Are all labels on containers and are they intact and legible?	Х		z
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		ම හැ නි ද හා ල
11) For preserved bottle types, was the pH checked and within limits? 1	X		<u> </u>
12) Is there sufficient sample volume to perform all requested work?	Х		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	Х		the constant of
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		2
	NA indica	tes Not A	pplicable
Chain of Custody Related Remarks		* *	
Client Contact Remarks 🥴 🧎 🖟 👵 🦠 😘 😘			
Shipping Containers	1082 - 25a J	t the star	
Cooler Id Temp(°C) Temp Rad(μR/Hr) Custody Seal Criteria(°C) Intact?			
4556 2.7 NA 15 N/A			

REPAD LPII 2012-03

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 4508122295

ACZ Project ID:

L56866

Date Received: 01/14/2020 09:56

Received By:

Date Printed:

1/15/2020

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), HCI preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc.	15	10,			<u> </u>	LIAU	V of	CHÉ	TOF)V		
Laboratories, Inc.	رسا	986	6.		C	ПАП	4 01	UUS	IUL	7.1		
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334 Report to:	-5493											
Name: Kent Applegate		A el olym	D	O Bo	v 218							
Company: Rio Algom Mining LLC	Address: PO Box 218 Grants, NM 87020											
E-mail: Kent.KC.Applegate@bhpbilliton.com					5-287-	8851						
	ļ	Telep	none.									
Copy of Report to: Name: Michaella Gorospe/Clark Short E-mail: See remarks												
						200 24	207					
Company: INTERA, INC.		retep	none:	303- 2	46-16	OU X	201					
nvoice to:												
Name: Kent Applegate			ss: P									
Company: Rio Algom Mining LLC			ints, h									
E-mail: Kent.KC.Applegate@BHPBilliton.com Telephone: 1-505-287-8851												
If sample(s) received past holding time (HT), or if insufficient HT remains to complete Analysis before expiration, shall ACZ proceed with requested short HT analyses?												
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 capired, and data will be qualified												
Are samples for SDWA Compliance Monitoring?												
If yes, please include state forms. Results will be reported to						. 97	020		. A/	ST.		
Sampler's Name: C: SHORT Sampler's Site Informal *Sampler's Signature: CUM STORY *Tampering of the Company of t		State_		scaple. Ita	Zip co			Time Z				
	eith the sacq	ple in enym			ind punkhal QUESTE							
PROJECT INFORMATION			ANA	V	Q.	- Armaic	ist of tisa	dinoré un	456.7			
Quote#: PO#: 4502696253		of Containers	1	2	12							
		itai.		1	1,*							
Reporting state for compliance testing:		ខិ	3	V	N.					\		
Check box if samples include NRC licensed material? SAMPLE IDENTIFICATION DATE: TIME	Matrix	*	SAP.GW	-	2					"		
31-02-TEB-R113/20 1517		2	F	7	17	H	m	П	П	-		
27.45 47-2 113/22 11.12	SKY.	2	計		片	片	H	븕	븕	F		
32-43- FU 1 113/20 BIT	200	- <u>-</u> -	H	H	H	片	H	H	H	Ħ		
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Matrix SW (Surface Water) - GW (Ground Water) - WW (Waste W	/ater) - Di	W (Drink	ing Wate	r) - Sl. (Skrige) -	SO (Soil) - OL (O	ii) · Other	(Specify	,		
REMARKS												
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RAML COC#: $2\phi - \phi 1$. Note different COC's i	may h	ave d	liffere	nt PO	's. Sh	ipmer	nt of _	1	Cool	ers.		
,									•			
Please CC report to: cshort@intera.com, apers	ico@i	intera	.com,	Mich	aella.(Goros	pe@b		•			
RAML COC#: 20 - 1. Note different COC's replease CC report to: cshort@intera.com, apers Please refer to ACZ's terms & condesserved to the condess	ico@i litions lo	intera	.com, on the	Mich revers	aella.(Goros	pe@b	ohpbill	•	om		

L56866 Chain of Custo

FRMAD050,06,14,14

White - Return with sample.

Yellow - Retain for your records.





April 24, 2020

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: Clark Short, Angela Persico, Michaella Gorospe

Project ID: 4508122295 ACZ Project ID: L56786

Kent Applegate:

Enclosed are revised analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on January 09, 2020 and originally reported on April 24, 2020. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZs project number, L56786. Please reference this number in all future inquiries.

All analyses were performed according to ACZ® Quality Assurance Plan. The enclosed results relate only to the samples received under L56786. 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 ACZs 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 24, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZs stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Havenehl

Scott Habermehl has reviewed and approved this report.







Rio Algom Mining Company

April 24, 2020

Project ID: 4508122295 ACZ Project ID: L56786

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 groundwater sample from Rio Algom Mining Company on January 9, 2020. 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 ACZS computerized Laboratory Information Management System (LIMS). The sample was assigned ACZ LIMS project number L56786. 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. This project has been revised to include a re-analysis for Cadmium.



Inorganic Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

36-06 KD

ACZ Sample ID: L56786-01

Date Sampled: 01/07/20 11:35

Date Received: 01/09/20

Sample Matrix: Groundwater

Metals Analysis

Parameter , , , , , ,	"EPA Method: " 🐉	, Dilution	Result	, Qual XQ, Units	پر MDL بر	PQL.	.₅ Date , A	nalyst
Beryllium, dissolved	M200.8 ICP-MS	1	0.00712	mg/L	0.00008	0.0003	01/17/20 13:46	enb
Cadmium, dissolved	M200.8 ICP-MS	1 (0.00479	mg/L	0.00005	0.0003	04/23/20 13:31	bsu
Uranium, dissolved	M200.8 ICP-MS	1	0.477	mg/L	0.0001	0.0005	01/17/20 13:46	enb

Inorganic . Reference

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 Report Header Explanations Batch A distinct set of samples analyzed at a specific time Found Value of the QC Type of interest

Upper limit for RPD, in %. Limit

Lower Recovery Limit, in % (except for LCSS, mg/Kg) Lower

MDL Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5).

Allows for instrument and annual fluctuations.

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis

PQL Practical Quantitation Limit. Synonymous with the EPA term "minimum level".

OC True Value of the Control Sample or the amount added to the Spike

Rec Recovered amount of the true value or spike added, in % (except for LCSS, mg/kg)

RPD Relative Percent Difference, calculation used for Duplicate QC Types

Upper Recovery Limit, in % (except for LCSS, mg/Kg) Upper

Sample Value of the Sample of interest

QC Sample T	ypes .	And the same of	ر الله الله الله الله الله الله الله الل
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LF <u>B</u>	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
ICB	Initial Calibration Blank	MS	Matrix Spike
ľĊV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	PBS	Prep Blank - Sóil
LCSS	Laboratory Control Sample - Soil	P.BW	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	PQV	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method. Spikes/Fortified Matrix Determines sample matrix interferences, if any.

Standard Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

- В Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity,
- Н Analysis exceeded method hold time. pH is a field test with an immediate hold time.
- 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.

- EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. (1)
- EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. (2)
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
- EPA SW-846. Test Methods for Evaluating Solid Waste. (4)
- (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.
- Animal matrices for Inorganic analyses are reported on an "as received" basis. (3)
- An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier (4) associated with the result.
- If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

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

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

REP001.03.15.02

Page 4 of 14 L56786-2004241342

Inorganic QC Summary

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Rio Algom Mining Company

ACZ Project ID: L56786

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, alss	oivea		W200.6 IC	P-1VIO			
ACZ ID	Туре	Analyzed	PCN/SCN	'QC'	Sample	Found	Units
WG490111							
WG490111ICV	ICV	01/17/20 13:37	MS200114-2	.05		.04683	mg/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower *	Upper	ŔPD	"Limit"	Qual
WG490111													
WG490111ICV	ICV	01/17/20 13:37	MS200114-2	.05		.04683	mg/L	94	90	110			
WG490111ICB	ICB	01/17/20 13:40				.000163	mg/L		-0.000176	0.000176			
WG490111LFB	LFB	01/17/20 13:43	MS191119-5	.05005		.04952	mg/L	99	85	115			
L56815-02AS	AS	01/17/20 14:02	MS191119-5	.1001	υ	.09082	mg/L	91	70	130			
L56815-02ASD	ASD	01/17/20 14:05	MS191119-5	.1001	Ú	.09692	mg/L	97	70	130	6	20	

Cadmium, dissolved	M200.8 ICP-MS
--------------------	---------------

AGZ ID - · · ·		Analyzed	PGN/SGN	. ପତ	Sample	Found	'Units •	Rec%	Lower	Upper	RPD	Limit Qual
WG496022										=		
WG496022ICV	ICV	04/23/20 13:22	MS200331-1	.05		.051135	mg/L	102	90	110		
WG496022ICB	ICB	04/23/20 13:24				U	mg/L		-0.00011	0.00011		
WG496022LFB	LFB	04/23/20 13:25	MS200421-3	.05005		.04689	mg/L	94	85	115		
L58115-04AS	AS	04/23/20 13:36	MS200421-3	.05005	.00009	.048199	mg/L	96	70	130		
L58115-04ASD	ASD	04/23/20 13:38	MS200421-3	.05005	.00009	.050967	mg/L	102	70	130	6	20

Uranium, dissolved	M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	ОC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG490111													
WG490111ICV	ICV	01/17/20 13:37	MS200114-2	.05		.04566	mg/L	91	90	110			
W.G4901111CB	ICB	01/17/20 13:40				Ü	mg/L		-0.00022	0.00022			
W.G490111LFB	LFB	01/17/20 13:43	MS191119-5	.05		.04707	mg/L	94	85	115			
L56815-02AS	AS	01/17/20 14:02	MS191119-5	.1	U	.08884	mg/L	89	70	130			
L56815-02ASD	ASD	01/17/20 14:05	MS191119-5	.1	บ	.09282	mg/L	93	70	130	4	20	

L56786-2004241342 Page 5 of 14

Inorganic Extended
Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L56786

CZID WORKNUM PARAMETER

METHO

QUAL DESCRIPTION

No extended qualifiers associated with this analysis



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadioChemistry Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

36-06 KD

Locator:

ACZ Sample ID: L56786-01

Date Sampled: 01/07/20 11:35

Date Received: 01/09/20

Sample Matrix: Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter Measure/Date

Haden

one we

Units

e) Amelly

Gross Alpha - Corrected

01/21/20 8:53

40

pCi/L

calc

Gross Alpha, dissolved

M900.0

Prep Method:

Romater	Measure Date - Prepleate -	रिक्जीं।	3101(8/4	ितिक	Unife	XO Amilyed
Gross Alpha, dissolved	01/16/20 0:04	360	58	58	pCi/L	isn



Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Radiochemistry Reference

Report Header Explanations

Batch A distinct set of samples analyzed at a specific time

Error(+/-) Calculated sample specific uncertainty

Found Value of the QC Type of interest

Limit Upper limit for RPD, in %.

LCL Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD Calculated sample specific Lower Limit of Detection

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer® certificate of analysis

PQL Practical Quantitation Limit

QC True Value of the Control Sample or the amount added to the Spike

Rec Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)

RER Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.

RPD Relative Percent Difference, calculation used for Duplicate QC Types

UCL Upper Control Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QG Sämple Types

DUP Sample Duplicate MS/MSD Matrix Spike/Matrix Spike Duplicate

 LCSS
 Laboratory Control Sample - Soil
 PBS
 Prep Blank - Soil

 LCSW
 Laboratory Control Sample - Water
 PBW
 Prep Blank - Water

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method.

Matrix Spikes Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

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

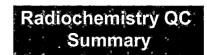
- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column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

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

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

REP003.09.12.01

L56786-2004241342 Page 8 of 14



Rio Algom Mining Company

ACZ Project ID: L56786

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

Gross Alpha, dissolved

M900.0

Units: pCi/L

ACZ ID .	Týpe	Analyzed	PCN/SCN	. GC	Sample	- Error	ĹĽĎ	Found	Error	ΓĽD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG489738																
WG489738PBW	PBW ⁻	01/16/20						32	0.53	0.93			1.86			
WG489738LCSWA	LCSW	01/16/20	PCN60283	100				110	9	1.6	110	67	144			
L56786-01DUP	DUP-RPD	01/16/20			360	58	58	400	62 ⁻	52 .				11	20	
L56787-01MSA	MS	01/16/20	PCN60283	100	-0.65	0.96	8.8	120	9.9	4.3	121	67	144			

L56786-2004241342

Page 9 of 14

RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L56786

ACZID WORKNUM PARAMETER

METHO

QUAL DESCRIPTION

No extended qualifiers associated with this analysis

Certification
Qualifiers

Rio Algom Mining Company

ACZ Project ID: L56786

No certification qualifiers associated with this analysis



Sample Receipt

Rio Algom Mining Company 4508122295

ACZ Project ID:

L56786

Date Received: 01/09/2020 11:55

Received By:

Date Printed:

1/10/2020

					Date	inted.	1/	10/2020
Receipt Verification	1.		a ne ga i ja ja ja ja ne ja ga neg ja neg ja ja nem en ja ne			YES	NO	NA
1) Is a foreign soil p	ermit inclu	ded for applic	cable samples?					X
2) Is the Chain of C	Х							
3) Does this project		X						
4) Are any samples			X					
5) If samples are re		Χ	*2 *** \$* \$\$					
6) Is the Chain of C	Х							
7) Were any chang		Χ						
Samples/Container	S	and the state of						
						YES	NO	NA
8) Are all container	s intact and	d with no leak	s?			X		³ д ² — ў
9) Are all labels on	9) Are all labels on containers and are they intact and legible?							
10) Do the sample	10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?							
11) For preserved bottle types, was the pH checked and within limits? 1								
12) Is there sufficient sample volume to perform all requested work?								Share e
13) Is the custody s	13) Is the custody seal intact on all containers?							
14) Are samples that require zero headspace acceptable?								X
15) Are all sample containers appropriate for analytical requirements?								Market 2 gr
16) Is there an Hg-1631 trip blank present?								Х
17) Is there a VOA trip blank present?								Х
18) Were all samples received within hold time?							anna ta taran an albana an aiga anna a	
						NA indica	tes Not A	pplicable
Chain of Custody F	Related Re	marks :	and the second s				a final state	
Client Contact Ren	narks .	e gir ge en war war.	The second in the second second				· No.	
Shipping Containe	rs.					Frank S. Frank		
	F vol.	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?			
NA	32126	3.9	NA	15	Yes			
Was ice present ir	the shipm	ent container	(s)?				•	

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

REPAD LPII 2012-03

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





Rio Algom Mining Company 4508122295

ACZ Project ID:

L56786

Date Received: 01/09/2020 11:55

Received By:

Date Printed:

1/10/2020

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).

L56786-2004241342 Page 13 of 14

Copy of Report to:										
Name: Michaella Goros	pe/Clark Short		E-mail: S	ee rem	arks					
Company: INTERA, INC			Telephone	: 505-2	246-16	00 x1	207			
Invoice to:										
Name: Kent Applegate			Address:	PO Bo	x 218					
Company: Rio Algom Mi	ning LLC		Grants							•
E-mail: Kent.KC.Appleg		n.com	Telephone			8851				
If sample(s) received past hole analysis before expiration, sh 11 710" than ACZ will contact cheet for further b	all ACZ proceed with	requested short	nains to co HT enalyse	mplete 8?			ci, and chair	YES NO		
Are samples for SDWA Compl			Yes [No	区				
If yes, please include state for										
Sampler's Name: B. W. Higgs		te Information	State_NM			de 870			one M	
*Sampler's Signature:	<u>lecursm</u>	tempering with the same	olo ku nesyeny, is es	relidered freed	and punished	de by State	Lawr.		-	
PROJECT INFORMATION			Į-	Malay-De R	Forcese) (rujigli :	, 9. 40. Apr.	episte inn	thre)	
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SAMPLE IDENTIFICATION										-
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	GW (Ground Water) - W	W (Waste Water) - D	W (Drinking W	nter) • SL (Sludge) -	SO (Soli) - OL (O	a) . One	(Specify	}
REMARKS							·			
RAML COC#: 19- 68	. Note different	COC's may h	ave diffe	rent PC	's. Sh	ipmer	nt of_	<u>}</u>	Cool	ers.
Please CC report to: cs	•		•					hpbill	iton.c	om
	refer to ACZ's tem	ns & conditions lo	cated on t				COC.			
RELINQUISHED		DATE:TIME			VED BY				ATE:TIM	
. Sullenan	i/	8/20200930	1	Ilm	boun		•	$\bot \underline{\lor}$	8/20	7

CHAIN of CUSTODY

Address: PO Box 218

Grants, NM 87020 Telephone: 1-505-287-8851

ALIZ Laboratories, Inc. L 56786 2773 Downhill Drive Steamboet Springs, CO 80487 (800) 334-5493

Report to:

Name: Kent Applegate

Company: Rio Algom Mining LLC

E-mail: Kent.KC.Applegate@bhpbilliton.com

_56786 Chain of Custod

FRMAD050,06.14.14

White - Return with sample.

Yellow - Retain for your records.





March 26, 2020

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: Clark Short, Angela Persico, Michaella Gorospe, jcarroll

Project ID: 4508122295 ACZ Project ID: L57691

Kent Applegate:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 29, 2020. This project has been assigned to ACZs project number, L57691. Please reference this number in all future inquiries.

All analyses were performed according to ACZ® Quality Assurance Plan. The enclosed results relate only to the samples received under L57691. 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 ACZs 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 25, 2020. 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 stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

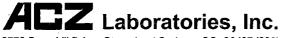
Scott Habermehl has reviewed and approved this report.

S. Havermehl





L57691-2003260809 Page 1 of 33



Inorganic Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

31-02 TRB

ACZ Sample ID: L57691-01

Date Sampled: 02/25/20 10:20

Date Received: 02/29/20

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual X	Q Units	MDL	PQL	Date A	nalyst
Calcium, dissolved	M200.7 ICP	5	673		mg/L	0.5	3	03/17/20 23:18	kja
Iron, dissolved	M200.7 ICP	5	6.4		mg/L	0.2	0.4	03/18/20 11:06	kja
Magnesium, dissolved	M200.7 ICP	5	769		mg/L	1	5	03/17/20 23:18	kja
Molybdenum, dissolved	M200.8 ICP-MS	5		U	mg/L	0.001	0.003	03/12/20 18:30	mfm
Nickel, dissolved	M200.8 ICP-MS	5		U	mg/L	0.002	0.005	03/12/20 18:30	mfm
Potassium, dissolved	M200.7 ICP	5	19		mg/L	1	5	03/17/20 23:18	kja
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	03/06/20 14:47	slm
Sodium, dissolved	M200.7 ICP	5	632		mg/L	1	5	03/17/20 23:18	kja
Uranium, dissolved	M200.8 ICP-MS	5	0.004		mg/L	0.0005	0.003	03/12/20 18:30	mfm

wet Chemistry									•	
Parameter	EPA Method E	lilution	Result	Qual	XQ	Units	MDL	POL	Date A	nalyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	1150			mg/L	2	20	03/04/20 0:00	nmc
Carbonate as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Hydroxide as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Total Alkalinity		1	1150			mg/L	2	20	03/04/20 0:00	nmc
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.0			%			03/26/20 0:00	calc
Sum of Anions			120			meq/L			03/26/20 0:00	calc
Sum of Cations			125			meq/L			03/26/20 0:00	calc
Chloride	SM4500CI-E	120	1030			mg/L	60	200	03/16/20 9:28	rbt
Conductivity @25C	SM2510B	1	8670			umhos/cm	1	10	03/06/20 20:41	eep
Cyanide, Total	D7511-09	1		U	*	mg/L	0.003	0.01	03/04/20 14:17	rbt
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.07	В	*	mg/L	0.02	0.1	03/19/20 0:04	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	7740			mg/L	100	200	03/02/20 18:57	jck
Sulfate	D516-02/-07/-11 - Turbidimetric	120	3230			mg/L	120	600	03/12/20 10:18	rbt
TDS (calculated)	Calculation		7060			mg/L			03/26/20 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.10						03/26/20 0:00	calc



Inorganic Analytical Results

Rio Algom Mining Company

Project ID: 4508122295

Sample ID: 13-20 TRB ACZ Sample ID: L57691-02

Date Sampled: 02/25/20 09:20

Date Received: 02/29/20

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual X	Q Units	MDL	PQL	Date A	nalyst
Calcium, dissolved	M200.7 ICP	5	667		mg/L	0.5	3	03/17/20 23:22	kja
Iron, dissolved	M200.7 ICP	5	6.2		mg/L	0.2	0.4	03/18/20 11:09	kja
Magnesium, dissolved	M200.7 ICP	5	763		mg/L	1	5	03/17/20 23:22	kja
Molybdenum, dissolved	M200.8 ICP-MS	5		U	mg/L	0.001	0.003	03/12/20 18:32	mfm
Nickel, dissolved	M200.8 ICP-MS	5		U	mg/L	0.002	0.005	03/12/20 18:32	mfm
Potassium, dissolved	M200.7 ICP	5	19		mg/L	1	5	03/17/20 23:22	kja
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	03/06/20 14:54	slm
Sodium, dissolved	M200.7 ICP	5	628		mg/L	1	5	03/17/20 23:22	kja
Uranium, dissolved	M200.8 ICP-MS	5	0.0039		mg/L	0.0005	0.003	03/12/20 18:32	mfm

wet Gremistry										
Parameter, ·	EPA Method D	ilution	Result	Qual	XQ	Units	MDL	POL	, Date A	nalyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as		1	1140			mg/L	2	20	03/04/20 0:00	nmc
CaCO3										
Carbonate as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Hydroxide as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Total Alkalinity		1	1140			mg/L	2	20	03/04/20 0:00	nmc
Cation-Anion Balance	Calculation									
Cation-Anion Balance			2.1			%			03/26/20 0:00	calc
Sum of Anions			119			meq/L			03/26/20 0:00	calc
Sum of Cations			124			meq/L			03/26/20 0:00	calc
Chloride	SM4500CI-E	120	1060		*	mg/L	60	200	03/16/20 9:28	rbt
Conductivity @25C	SM2510B	1	8670			umhos/cm	1	10	03/06/20 20:43	еер
Cyanide, Total	D7511-09	1		U	*	mg/L	0.003	0.01	03/04/20 14:19	rbt
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.07	В	*	mg/L	0.02	0.1	03/19/20 0:10	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	7700			mg/L	100	200	03/02/20 18:59	jck
Sulfate	D516-02/-07/-11 - Turbidimetric	120	3190			mg/L	120	600	03/12/20 10:18	rbt
TDS (calculated)	Calculation		7030			mg/L			03/26/20 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.10						03/26/20 0:00	calc

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

Inorganic Analytica Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

31-01 TRA

ACZ Sample ID: L57691-03

Date Sampled: 02/25/20 11:47

Date Received: 02/29/20

Sample Matrix: Groundwater

M	eta	s	Ana	ilvsis

Parameter , , , ,	EPA Method	Dilution	Result	(Qual), XC) Units	MDL	POL.	Date A	nalyst
Calcium, dissolved	M200.7 ICP	1	198		mg/L	0.1	0.5	03/17/20 23:25	kja
Iron, dissolved	M200.7 ICP	1		U	mg/L	0.03	80.0	03/18/20 11:12	kja
Magnesium, dissolved	M200.7 ICP	1	84.7		mg/L	0.2	1	03/17/20 23:25	kja
Molybdenum, dissolved	M200.8 ICP-MS	1	0.0072		mg/L	0.0002	0.0005	03/12/20 18:34	mfm
Nickel, dissolved	M200.8 ICP-MS	1	0.0052		mg/L	0.0004	0.001	03/12/20 18:34	mfm
Potassium, dissolved	M200.7 ICP	1	6.2		mg/L	0.2	1	03/17/20 23:25	kja
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	03/06/20 14:56	slm
Sodium, dissolved	M200,7 ICP	1	144		mg/L	0.2	1	03/17/20 23:25	kja
Uranium, dissolved	M200.8 ICP-MS	1	0.0005		mg/L	0.0001	0.0005	03/12/20 18:34	mfm

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Parameter	EPA Method D	ilution	*Result	Qual	XQ	Units	MDL	PQL	Date A	ınalyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as		1 .	150			mg/L	2	20	03/04/20 0:00	nmc
CaCO3										
Carbonate as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Hydroxide as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Total Alkalinity		1	150		*	mg/L	2	20	03/04/20 0:00	nmc
Cation-Anion Balance	Calculation									
Cation-Anion Balance			0.0			%			03/26/20 0:00	calc
Sum of Anions			23		•	meq/L			03/26/20 0:00	calc
Sum of Cations			23			meq/L			03/26/20 0:00	calc
Chloride	SM4500CI-E	1	17.6		*	mg/L	0.5	2	03/16/20 9:09	rbt
Conductivity @25C	SM2510B	1	1960			umhos/cm	1	10	03/06/20 20:46	eep
Cyanide, Total	D7511-09	1		υ		mg/L	0.003	0.01	03/04/20 14:21	rbt
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	03/19/20 0:11	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	1660			mg/L	20	40	03/02/20 19:02	jck
Sulfate	D516-02/-07/-11 - Turbidimetric	25	949		*	mg/L	25	125	03/12/20 10:07	rbt
TDS (calculated)	Calculation		1490			mg/L			03/26/20 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.11						03/26/20 0:00	calc

^{*} Please refer to Qualifier Reports for details.



Inorganic Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

36-06 KD

ACZ Sample ID: L57691-04

Date Sampled: 02/25/20 14:07

Date Received: 02/29/20

Sample Matrix: Groundwater

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Parameter	EPA Method	Dilution	Result	Oual XQ	Units	MDL	PQL	r Date A	Inalyst
Antimony, dissolved	M200.8 ICP-MS	5		U	mg/L	0.002	0.01	03/12/20 18:36	mfm
Arsenic, dissolved	M200.8 ICP-MS	5	0.012		mg/L	0.001	0.005	03/12/20 18:36	mfm
Barium, dissolved	M200.7 ICP	5		U	mg/L	0.04	0.2	03/17/20 23:28	kja
Beryllium, dissolved	M200.8 ICP-MS	5	0.0067		mg/L	0.0004	0.001	03/12/20 18:36	mfm
Cadmium, dissolved	M200.8 ICP-MS	5	0.0052		mg/L	0.0003	0.001	03/12/20 18:36	mfm
Calcium, dissolved	M200.7 ICP	5	532		mg/L	0.5	3	03/17/20 23:28	kja
Iron, dissolved	M200.7 ICP	5	1.4		mg/L	0.2	0.4	03/18/20 11:15	kja
Lead, dissolved	M200.8 ICP-MS	5	0.0142		mg/L	0.0005	0.003	03/12/20 18:36	mfm
Magnesium, dissolved	M200.7 ICP	5	342		mg/L	1	5	03/17/20 23:28	kja
Molybdenum, dissolved	M200.8 ICP-MS	5		U	mg/L	0.001	0.003	03/12/20 18:36	mfm
Nickel, dissolved	M200.8 ICP-MS	5	0.104		mg/L	0.002	0.005	03/12/20 18:36	mfm
Potassium, dissolved	M200.7 ICP	5	12		mg/L	1	5	03/17/20 23:28	kja
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0016	В	mg/L	0.001	0.005	03/06/20 14:58	slm
Sodium, dissolved	M200.7 ICP	5	504		mg/L	1	5	03/17/20 23:28	kja
Uranium, dissolved	M200.8 ICP-MS	5	0.441		mg/L	0.0005	0.003	03/12/20 18:36	mfm

Parameter	EPA Method	Dilution	Result	Qual	ЖQ	Units	MDL	PQL	Date A	nalyst
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as		1		U		mg/L	2	20	03/04/20 0:00	nmc
CaCO3 Carbonate as CaCO3		4		U		mall	2	20	03/04/20 0:00	nmo
		1				mg/L	_			nmc
Hydroxide as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Total Alkalinity		1		U	*	mg/L	2	20	03/04/20 0:00	nmc
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-5.5			%			03/26/20 0:00	calc
Sum of Anions			86			meq/L			03/26/20 0:00	calc
Sum of Cations			77			meq/L			03/26/20 0:00	calc
Chloride	SM4500CI-E	10	957		*	mg/L	5	20	03/16/20 9:30	rbt
Conductivity @25C	SM2510B	1	7030			umhos/cm	1	10	03/06/20 20:48	eep
Cyanide, Total	D7511-09	1		U		mg/L	0.003	0.01	03/04/20 14:23	rbt
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	03/19/20 0:12	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	6070			mg/L	100	200	03/02/20 19:04	jck
Sulfate	D516-02/-07/-11 - Turbidimetric	120	2800		*	mg/L	120	600	03/12/20 10:55	rbt
TDS (calculated)	Calculation		5150			mg/L			03/26/20 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.18						03/26/20 0:00	calc

^{*} Please refer to Qualifier Reports for details.

Project ID:

4508122295

Sample ID:

17-01 KD

ACZ Sample ID: L57691-05

Date Sampled: 02/27/20 09:21

Date Received: 02/29/20

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Sample Matrix: Groundwater

Meta	ls /	Ana	aivs	is:

Parameter • • •	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date - A	nalyst
Antimony, dissolved	M200.8 ICP-MS	1		U	mg/L	0.0004	0.002	03/12/20 18:38	mfm
Arsenic, dissolved	M200.8 ICP-MS	1		U	mg/L	0.0002	0.001	03/12/20 18:38	mfm
Barium, dissolved	M200.7 ICP	1	0.014	В	mg/L	0.007	0.04	03/17/20 23:31	kja
Beryllium, dissolved	M200.8 ICP-MS	1		U	mg/L	0.00008	0.0003	03/12/20 18:38	mfm
Cadmium, dissolved	M200.8 ICP-MS	1		U	mg/L	0.00005	0.0003	03/12/20 18:38	mfm
Calcium, dissolved	M200.7 ICP	1	77.8		mg/L	0.1	0.5	03/17/20 23:31	kja
Iron, dissolved	M200.7 ICP	1	0.03	В	mg/L	0.03	0.08	03/18/20 11:18	kja
Lead, dissolved	M200.8 ICP-MS	1		U	mg/L	0.0001	0.0005	03/12/20 18:38	mfm
Magnesium, dissolved	M200.7 ICP	1	41.7		mg/L	0.2	1	03/17/20 23:31	kja
Molybdenum, dissolved	M200.8 ICP-MS	1	0.0013		mg/L	0.0002	0.0005	03/12/20 18:38	mfm
Nickel, dissolved	M200.8 ICP-MS	1		U	mg/L	0.0004	0.001	03/12/20 18:38	mfm
Potassium, dissolved	M200.7 ICP	1	6.6		mg/L	0.2	1	03/17/20 23:31	kja
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	03/06/20 15:00	slm
Sodium, dissolved	M200.7 ICP	1	227		mg/L	0.2	1	03/17/20 23:31	kja
Uranium, dissolved	M200.8 ICP-MS	1		U	mg/L	0.0001	0.0005	03/12/20 18:38	mfm

Parameter	EPA Method D	ilution	Result	Qual	ΧQ	Units	MDL	PQL	Date A	nalyst
Alkalinity as CaCO3	SM2320B - Titration				-					
Bicarbonate as CaCO3		1	61.5			mg/L	2	20	03/04/20 0:00	nmc
Carbonate as CaCO3		1	5.9	В		mg/L	2	20	03/04/20 0:00	nmc
Hydroxide as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Total Alkalinity		1	67.4		*	mg/L	2	20	03/04/20 0:00	nmc
Cation-Anion Balance	Calculation									
Cation-Anion Balance			0.0			%			03/26/20 0:00	calc
Sum of Anions			18			meq/L			03/26/20 0:00	calc
Sum of Cations			18			meq/L			03/26/20 0:00	calc
Chloride	SM4500CI-E	1	11.9		*	mg/L	0.5	2	03/16/20 9:20	rbt
Conductivity @25C	SM2510B	1	1690			umhos/cm	1	10	03/06/20 20:50	eep
Cyanide, Total	D7511-09	1		U		mg/L	0.003	0.01	03/04/20 14:31	rbt
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	03/19/20 0:14	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	1220			mg/L	40	80	03/02/20 19:07	jck
Sulfate	D516-02/-07/-11 - Turbidimetric	25	753		*	mg/L	25	125	03/12/20 10:44	rbt
TDS (calculated)	Calculation		1160			mg/L			03/26/20 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.05						03/26/20 0:00	calc

Inorganic Analytical Results

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Rio Algom Mining Company

Project ID: 4508122295

Sample ID: 32-45 KD-R

ACZ Sample ID: L57691-06

Date Sampled: 02/27/20 11:11

Date Received: 02/29/20

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	POL	. Date A	Analyst
Antimony, dissolved	M200.8 ICP-MS	1	0.0007	В	mg/L	0.0004	0.002	03/12/20 18:39	mfm
Arsenic, dissolved	M200.8 ICP-MS	1	0.0003	В	mg/L	0.0002	0.001	03/12/20 18:39	mfm
Barium, dissolved	M200.7 ICP	1	0.027	В	mg/L	0.007	0.04	03/17/20 23:41	kja
Beryllium, dissolved	M200.8 ICP-MS	1		U	mg/L	80000.0	0.0003	03/12/20 18:39	mfm
Cadmium, dissolved	M200.8 ICP-MS	1	0.00007	В	mg/L	0.00005	0.0003	03/12/20 18:39	mfm
Calcium, dissolved	M200.7 ICP	1	215		mg/L	0.1	0.5	03/17/20 23:41	kja
Iron, dissolved	M200.7 ICP	1		U	mg/L	0.03	0.08	03/18/20 11:27	kja
Lead, dissolved	M200,8 ICP-MS	1		U	mg/L	0.0001	0.0005	03/12/20 18:39	mfm
Magnesium, dissolved	M200.7 ICP	1	54.1		mg/L	0.2	1	03/17/20 23:41	kja
Molybdenum, dissolved	M200.8 ICP-MS	1	0.174		mg/L	0.0002	0.0005	03/12/20 18:39	mfm
Nickel, dissolved	M200.8 ICP-MS	1	0.0015		mg/L	0.0004	0.001	03/12/20 18:39	mfm
Potassium, dissolved	M200.7 ICP	1	7.0		mg/L	0.2	· 1	03/17/20 23:41	kja
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	03/06/20 15:02	slm
Sodium, dissolved	M200.7 ICP	1	166		mg/L	0.2	1	03/17/20 23:41	kja
Uranium, dissolved	M200.8 ICP-MS	1	0.0493		mg/L	0.0001	0.0005	03/12/20 18:39	mfm

Parameter ^a	EPA Method D	lilution	Result	Qual	ΧQ	Units	MDL	PQL	† Däte A	malyst.
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as		1	359			mg/L	2	20	03/04/20 0:00	nmc
CaCO3										
Carbonate as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Hydroxide as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Total Alkalinity		1	359		*	mg/L	2	20	03/04/20 0:00	nmc
Cation-Anion Balance	Calculation									
Cation-Anion Balance			-2.1			%			03/26/20 0:00	calc
Sum of Anions			24			meq/L			03/26/20 0:00	calc
Sum of Cations			23			meq/L			03/26/20 0:00	calc
Chloride	SM4500CI-E	1	81.4		*	mg/L	0.5	2	03/16/20 9:20	rbt
Conductivity @25C	SM2510B	1	1950			umhos/cm	1	10	03/06/20 20:52	еер
Cyanide, Total	D7511-09	1		υ		mg/L	0.003	0.01	03/04/20 14:33	rbt
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.51		*	mg/L	0.02	0.1	03/19/20 0:15	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	1490			mg/L	20	40	03/03/20 18:17	jck
Sulfate	D516-02/-07/-11 - Turbidimetric	25	688		*	mg/L	25	125	03/12/20 10:46	rbt
TDS (calculated)	Calculation		1430			mg/L			03/26/20 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.04						03/26/20 0:00	calc

Inorganic Analytical Results

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

30-48 KD-R

ACZ Sample ID: L57691-07

Date Sampled: 02/27/20 12:16

Date Received: 02/29/20

Sample Matrix: Groundwater

Metals Analys	zic

Parameter .	EPA Method	Dilution	Result	Qual XQ	e dinici	MDL	PQL	Date A	nalyst
Antimony, dissolved	M200.8 ICP-MS	5		U	mg/L	0.002	0.01	03/12/20 18:41	mfm
Arsenic, dissolved	M200.8 ICP-MS	5		U	mg/L	0.001	0.005	03/12/20 18:41	mfm
Barium, dissolved	M200.7 ICP	5		U	mg/L	0.04	0.2	03/17/20 23:51	kja
Beryllium, dissolved	M200.8 ICP-MS	5		U	mg/L	0.0004	0.001	03/12/20 18:41	mfm
Cadmium, dissolved	M200.8 ICP-MS	5		U	mg/L	0.0003	0.001	03/12/20 18:41	mfm
Calcium, dissolved	M200.7 ICP	5	571		mg/L	0.5	3	03/17/20 23:51	kja
Iron, dissolved	M200.7 ICP	5	3.0		mg/L	0.2	0.4	03/18/20 11:37	kja
Lead, dissolved	M200.8 ICP-MS	5		U	mg/L	0.0005	0.003	03/12/20 18:41	mfm
Magnesium, dissolved	M200.7 ICP	5	219		mg/L	1	5	03/17/20 23:51	kja
Molybdenum, dissolved	M200.8 ICP-MS	5	0.022		mg/L	0.001	0.003	03/12/20 18:41	mfm
Nickel, dissolved	M200.8 ICP-MS	5		U	mg/L	0.002	0.005	03/12/20 18:41	mfm
Potassium, dissolved	M200.7 ICP	5	9		mg/L	1	5	03/17/20 23:51	kja
Selenium, dissolved	SM 3114 B, AA-Hydride	1		υ	mg/L	0.001	0.005	03/06/20 15:04	slm
Sodium, dissolved	M200.7 ICP	5	391		mg/L	1	5	03/17/20 23:51	kja
Uranium, dissolved	M200.8 ICP-MS	5		U	mg/L	0.0005	0.003	03/12/20 18:41	mfm

Parameter	EPA Method D	ilution	Result	Qual	ΧÓ	Units	MDL	e POL	Date A	nalyst:
Alkalinity as CaCO3	SM2320B - Titration									
Bicarbonate as CaCO3		1	292			mg/L	2	20	03/04/20 0:00	nmc
Carbonate as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Hydroxide as CaCO3		1		U		mg/L	2	20	03/04/20 0:00	nmc
Total Alkalinity		1	292		*	mg/L	2	20	03/04/20 0:00	nmc
Cation-Anion Balance	Calculation									
Cation-Anion Balance	•		2.4			%			03/26/20 0:00	calc
Sum of Anions			61			meq/L			03/26/20 0:00	calc
Sum of Cations			64			meq/L			03/26/20 0:00	caic
Chloride	SM4500CI-E	10	519		*	mg/L	5	20	03/16/20 9:30	r bt
Conductivity @25C	SM2510B	1	4870			umhos/cm	1	10	03/06/20 21:03	eep
Cyanide, Total	D7511-09	1		U		mg/L	0.003	0.01	03/04/20 14:35	rbt
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1		U	*	mg/L	0.02	0.1	03/19/20 0:18	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4320			mg/L	40	80	03/03/20 18:19	jck
Sulfate	D516-02/-07/-11 - Turbidimetric	120	1910		*	mg/L	120	600	03/12/20 10:55	rbt
TDS (calculated)	Calculation		3800			mg/L			03/26/20 0:00	calc
TDS (ratio - measured/calculated)	Calculation		1.14						03/26/20 0:00	calc

^{*} Please refer to Qualifier Reports for details.

Inorganic Reference

Report Header Explanations

Batch A distinct set of samples analyzed at a specific time

Found Value of the QC Type of interest
Limit Upper limit for RPD, in %.

Lower Lower Recovery Limit, in % (except for LCSS, mg/Kg)

MDL Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5).

Allows for instrument and annual fluctuations.

PCN/SCN A number assigned to reagents/standards to trace to the manufacturers certificate of analysis

PQL Practical Quantitation Limit. Synonymous with the EPA term "minimum level".

QC True Value of the Control Sample or the amount added to the Spike

Rec Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)

RPD Relative Percent Difference, calculation used for Duplicate QC Types

Upper Recovery Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QC Sample T	ypes	to the second	the second secon
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix
ccv	Continuing Calibration Verification standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
ICB	Initial Calibration Blank	MS	Matrix Spike
ICV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	PBS	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	PBW	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	PQV	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method. Spikes/Fortified Matrix Determines sample matrix interferences, if any.

Standard Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

- B Arialyte 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.

Commen

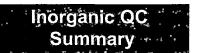
- QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

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

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

REP001.03.15.02

L57691-2003260809 Page 9 of 33



Rio Algom Mining Company

LFB

AS

ASD

03/17/20 23:12

03/17/20 23:35

03/17/20 23:38

WG493455LFB

L57691-05AS

L57691-05ASD

11200302-4

11200302-4

11200302-4

.5005

.5005

.5005

ACZ Project ID: L57691

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 CaC	О3		SM2320E	3 - Titration									
ACZ ID	Type	Analyzed	PCN/SCN	°QC	Sample	Found	Units	″Rec%	Lower	Upper	RPD	Limit .	Qual
WG492912													
WG492912PBW1	PBW	03/03/20 17:44				U	mg/L		-20	20			
WG492912LCSW3	LCSW	03/03/20 18:04	WC200221-10	820.0001		850	mg/L	104	90	110			
WG492912LCSW6	LCSW	03/03/20 21:29	WC200221-10	820.0001		852	mg/L	104	90	110			
WG492912PBW2	PBW	03/03/20 21:38				U	mg/L		-20	20			
WG492912LCSW9	LCSW	03/04/20 2:05	WC200221-10	820.0001		860	mg/L	105	90	110			
WG492912PBW3	PBW	03/04/20 2:13				U	mg/L		-20	20			
WG492912LCSW12	LCSW	03/04/20 6:39	WC200221-10	820.0001		870	mg/L	106	90	110			
WG492912PBW4	PBW	03/04/20 6:48				.U	mg/L		-20	20			
L57691-02DUP	DUP	03/04/20 8:39			1140	1160	mg/L."				2	20	
L57694-04DUP	DUP	03/04/20 10:10			U	Ű	mg/L				0	20	RA
WG492912LCSW15	LCSW	03/04/20 10:30	WC200221-10	820.0001		866	mg/L	106	90	110			
Antimony, dissol	ved		M200.8 I	CP-MS									
ACZ ID.	Type	Analyzed.	PCN/SCN	QC .	Sample	Found	Units	Rec%	Lower	Upper	RPD	.Limit	Qual
WG493477													
WG493477ICV	ICV	03/12/20 18:05	MS200210-2	.02004		.02006	mg/L	100	90	110			
WG493477ICB	ICB	03/12/20 18:07				.00043	mg/L		-0.00088	0.00088			
W.G493477LFB	LFB	03/12/20 18:09	MS200120-3	.01		.0089	mg/L	89	85	115			
L57781-01AS	AS	03/12/20 18:52	MS200120-3	.01	.0006	.00972	mg/L	91	70	130			
L57781-01ASD	ASD	03/12/20 18:54	MS200120-3	.01	.0006	.00989	mg/L	93	70	130	2	20	
Arsenic, dissolve	d		M200.8 I	CP-MS				a region a comparent	and the second s	alternatifier Hearigh Institution for desi		in production represents the free arrival	a veneral de la comercia
ACZID	Туре	Anályzed	PCN/SCN	.gc	Sample	Found	Units	Rec%	Lower .	Upper	RPD	*Limit	^c Qual _
WG493477													
WG493477ICV	ICV	03/12/20 18:05	MS200210-2	.05		.05	mg/L	100	90	110			
WG493477ICB	ICB	03/12/20 18:07				U	mg/L		-0.00044	0.00044			
WG493477LFB	LFB	03/12/20 18:09	MS200120-3	.05005		.05014	mg/L	100	85	115			
L57781-01AS	AS	03/12/20 18:52	MS200120-3	.05005	.0002	05482	mg/L	109	70	130			
L57781-01ASD	ASD	03/12/20 18:54	MS200120-3	.05005	.0002	05431	mg/L	108	70	130	1	20	
Barium, dissolve	d		M200.7 I	DP								Make a de Wang yang pang pang pang	
ACZID	*Type *	Analyzed	PCN/SCN	e QC	-Sample	*Found	Units	⊸Rec%	(∗-Lower:∗	🕡 Иррег 🧸	RPD	Limit	- Qual
WG493455													
WG493455ICV	ICV	03/17/20 22:53	II200317-1	2		1.929	mg/L	96	95	105			
WG493455ICB	ICB	03/17/20 22:59				U	mg/L		-0.021	0.021			

Beryllium, diss	olved		M200.8 I	CP-MS									
ACZ ID	Туре	Analyżed	PCN/SCN	, Q¢	Sample	Found	Units	. Rec%	Lower	Upper	RPD	Limit	Qual
WG493477	1												
WG493477ICV	ICV	03/12/20 18:05	MS200210-2	.05		.049514	mg/L	99	90	110			
WG493477ICB	ICB	03/12/20 18:07				U	mg/L		-0.000176	0.000176			
WG493477LFB	LFB	03/12/20 18:09	MS200120-3	.05005		047711	mg/L	95	85	115			
L57781-01AS	AS	03/12/20 18:52	MS200120-3	.05005	U	.046236	mg/L	92	70	130			
L57781-01ASD	ASD	03/12/20 18:54	MS200120-3	.05005	U	.045868	mg/L	92	70	130	-1	20	

.014

.014

.4927

.514

.5104

mg/L

mg/L

100

99

85

85

85

115

115

115

20

L57691-2003260809 Page 10 of 33



ACZ Project ID: L57691

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.

Cadmit	ım, e	disso	olved	
ACT ID			Tyene	Analyzad

L57682-04ASD

ASD

03/04/20 14:13 WI200301-6

M200.8 ICP-MS

Cadmium, dissol	ved		M200.8 I	CP-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	, QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG493477													
WG493477ICV	ICV	03/12/20 18:05	MS200210-2	.05		.050356	mg/L	101	90	110			
WG493477ICB	ICB	03/12/20 18:07				υ	mg/L		-0.00011	0.00011			
WG493477LFB	LFB	03/12/20 18:09	MS200120-3	.05005		.048004	mg/L	96	85	115			
L57781-01AS	AS	03/12/20 18:52	MS200120-3	.05005	U .	.049396	mg/L	99	70	130			
L57781-01ASD	ASD	03/12/20 18:54	MS200120-3	.05005	U	.049522	mg/L	99	70	130	0	20	
Calcium, dissolve	ed		M200.7 I	СР									***************************************
ACZ:ID	Type	Analyzed	PEN/SEN	oc.	Sample	Found	Units	Rec%	Lower	Upper 🐫	RPD.	Limit	.),Qiual "I-".
WG493455													,
WG493455ICV	ICV	03/17/20 22:53	II200317-1	100		95.54	mg/L	96	95	105	•		
WG493455ICB	ICB	03/17/20 22:59				U	mg/L		-0.3	0.3			
WG493455LFB	LFB	03/17/20 23:12	11200302-4	68.00334		69.33	mg/L	102	85	115			
L57691-05AS	AS	03/17/20 23:35	11200302-4	68.00334	77.8	144.1	mg/L	97	85	115			
L57691-05ASD	ASD	03/17/20 23:38	II200302-4	68.00334	77.8	143	mg/L	96	85	115	1	20	
Chloride			SM45000	CI-E									
ACZ ID	Type	Analyzed	PCN/SCN	ec :	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	` [₹] Qual '
WG493580													
WG493580ICB	ICB	03/16/20 8:32				U	mg/L		-1.5	1.5			
WG493580JCV	ICV	03/16/20 8:32	WI190501-1	54.835		56.16	mg/L	102	90	110			
WG493580LFB1	LFB	03/16/20 8:55	WI190812-3	30		32.28	mg/L	108	. 90	110			
L57664-01AS	AS	03/16/20 9:08	WI190812-3	30	17.7	49.08	mg/L	105	90	110			
L57664-02DUP	DUP	03/16/20 9:08			60	59.64	mg/L				1	20	
WG493580LFB2	LFB	03/16/20 9:09	WI190812-3	30	40.7	32.66	mg/L	109	90	110	•	áa.	
L57694-03DUP	DUP AS	03/16/20 9:20	10XCL	30	13.7 298	13.25	mg/L mg/L	80	90	110	3	20	MO
L57694-02AS	A0	03/16/20 9:30	10/10/2		250	321.9			90	110			M3
Conductivity @25	5C		SM2510										
ACZ ID	Type	Analyzed	PCN/SCN	ac	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	: Quại
WG493158													
WG493158LCSW2	LCSW	03/06/20 18:15	PCN60029	1410		1430	umhos/cm	101	90	110			
L57691-07DUP	DUP	03/06/20 21:14			4870	'4870	umhos/cm				0	20	
WG493158LCSW5	LCSW	03/06/20 21:21	PCN60029	1410		1420	umhos/cm	101	90	110			
WG493158LCSW8	LCSW	03/07/20 1:10	PCN60029	1410		1420	umhos/cm	101	90	110			
WG493158LCSW11		03/07/20 5:09	PCN60029	1410		1420	umhos/cm		90	110			
WG493158LCSW14	LCSW	03/07/20 8:37	PCN60029	1410	ante e trans de la little de littre prontecio	1410	umhos/cm	100	90	110			
Cyanide, Total			D7511-0										
ACZ ID	Type	Analyzed	PCN/SCN	. Q¢	Sample	Found	Units	Rec%	Lower	Upper 🔭	"RPD"	Limit '	Qual:
WG492958				•									• ′
WG492958ICV	ICV	03/04/20 13:59	WI200301-5	.3		.2784	mg/L	93	90	110			
WG492958ICB	ICB	03/04/20 14:01				Ų	mg/L		-0.003	0.003			
WG492958LFB	LFB	03/04/20 14:07	WI200301-6	.1		.0974	mg/L	97	84	116			
L57682-04AS	AS	03/04/20 14:11	WI200301-6	.1	U	.0973	mg/L	97	84	116	2		

L57691-2003260809 Page 11 of 33

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.0986

84

116

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Inorganic QC Summary

Rio Algom Mining Company

L57781-01ASD

ASD

03/12/20 18:54 MS200120-3

ACZ Project ID: L57691

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.

ron, dissolved			M200.7 I	CP								
ACZ ID 🤥 🤜 😽	. Type:	Analyzed · · · :	PCN/SCN .	QC	- Sample	Found	Units .	Rec%	Lower	Upper	RPD	Limit Q
NG493777	e e e e e e e e e e e e e e e e e e e	· · · · · · · · · · · · · · · · · · ·	**************************************				_		g sawty -		• , _	
WG493777ICV	ICV	03/18/20 10:41	11200318-2	2		1.903	mg/L	95	95	105		
NG493777ICB	İCB	03/18/20 10:47		_		U	mg/L		-0.09	0.09		
VG493777LFB	LFB	03/18/20 11:00	11200302-4	1.0018		.983	mg/L	98	85	115		
57691-05AS	AS	03/18/20 11:21	11200302-4	1.0018	.03	1.088	mg/L	106	85	115		
57691-05ASD	ASD	03/18/20.11:24	11200302-4	1.0018	.03	1.022	mg/L	99	85	115	6	20
ead, dissolved]		M200.8 I	CP-MS								-
CZID	Туре	*Analyzed	PCN/SCN	QC :	Sample	Found	Units	*Rec%	Lower	Upper	RPD	Limit Q
VG493477		=										
VG493477ICV	ICV	03/12/20 18:05	MS200210-2	.05		.05215	mg/L	104	90	110		
VG493477ICB	ICB	03/12/20 18:07			,	U	mg/L		-0.00022	0.00022		
VG493477LFB	LFB	03/12/20 18:09	MS200120-3	.05005		:04851	mg/L	97	85	115		
57781-01AS	AS	03/12/20 18:52	MS200120-3	.05005	.0004	.05111	mg/L	101	70	130		
57781-01ASD	ASD	03/12/20 18:54	MS200120-3	.05005	.0004	.05065	mg/L	100	70	130	1	20
lagnesium, dis	solved	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	M200.7 I	CP								
CZID	". Туре	Analyzed.	PCN/SCN	QC .	Sample	Found	Ųnits "	Rec%	Lower	Upper	ŖPŅ	Limit Q
VG493455												
/G493455ICV	ICV	03/17/20 22:53	II200317-1	100	•	95.82	mg/L	96	95	105		
/G493455ICB	ICB	03/17/20 22:59				U	mg/L		-0.6	0.6		
/G493455LFB	LFB	03/17/20 23:12	11200302-4	49.99771		50.29	mg/L	101	85	115		
57691-05AS	AS	03/17/20 23:35	11200302-4	49.99771	41.7	90.81	mg/L	98	85	115		
57691-05ASD	ASD	03/17/20 23:38	11200302-4	49.99771	41.7	90,2	mg/L	97	85	115	1	20
lolybdenum, d	issolved	i	M200.8 I	CP-MS								
CZ (Ď	Type	··· Analyzed · · · ·	PCN/SCN	ec o	Sample	* Found	Units :	∘ Rec%	Lower	Upper	· RPD	Limit - Q
VG493477									,			
/G493477ICV	ICV	03/12/20 18:05	MS200210-2	.0199		.02021	mg/L	102	90	110		
/G493477ICB	ICB	03/12/20 18:07				U	mg/L		-0.00044	0.00044		
VG493477LFB	LFB	03/12/20 18:09	MS200120-3	.0501		.04734	mg/L	94	85	115		
57683-03AS	AS	03/12/20 18:16	MS200120-3	.0501	.27	.32246	mg/L.	105	70	130		
57683-03ASD	ASD	03/12/20 18:18	MS200120-3	.0501	.27	.32108	mg/L	102	70	130	0	20
57781-01AS	AS	03/12/20 18:52	MS200120-3	.0501	.0032	.05303	mg/L	99	70	130		
57781-01ASD	ASD	03/12/20 18:54	MS200120-3	.0501	.0032	.05339	mg/L	100	70	130	-1	20
lickel, dissolve			M200.8 I	CP-MS							**	
CZID	Type"	Analyzed	PCN/SCN	QC.	*Sample	* Found	Units **	∗ Rec%	Lower	· Upper	⊼ ≉ŘPD	n ⊵imit ″Q
VG493477												
VG493477ICV	ICV	03/12/20 18:05	MS200210-2	:05		.05179	mg/L	104	90	110		
VG493477ICB	ICB	03/12/20 18:07				U	mg/L		-0.00088	0.00088		
VG493477LFB	LFB	03/12/20 18:09	MS200120-3	.05		.0501	mg/L	100	85	115		
.57683-03AS	AS	03/12/20 18:16	MS200120-3	.05	.0017	.04658	mg/L	90	70	130		,
.57683-03ASD	ASD	03/12/20 18:18	MS200120-3	.05	.0017	.04724	mg/L	91	70	130	1	20
57781-01AS	AS	03/12/20 18:52	MS200120-3	.05	.0035	.05038	mg/L	94	70	130		
										400		

L57691-2003260809 Page 12 of 33

.0035

.0501

70

130

20



ACZ Project ID: L57691

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.

B1744-	(B.124-74 -	81
Nitrate	/NITTITE	as N

M353.2 - H2SO4 preserved

Nitrate/Nitrite as	N		M353.2 -	- H2SO4 pre	served								
ACZ ID	Туре	Analyzed	PGN/SCN	QC	Sample	Found	Units	Rec%	Lower .	Upper	RPD	Limit	Qual
WG493853													
WG493853ICV	icv	03/18/20 22:13	WI200213-7	2.416		2.509	mg/L	104	90	110			•
WG493853ICB	ICB	03/18/20 22:14				U	mg/L		-0.02	0.02			
WG493856													
WG493856LFB1	LFB	03/18/20 23:36	WI191004-3	2		2.039	mg/L	102	90	110			
L57665-02AS	AS	03/18/20 23:58	WI191004-3	2	1.39	3.437	mg/L	102	90	110			
L57683-01DUP	DUP	03/19/20 0:01			U	U	mg/L				0	20	RA
WG493856LFB2	LFB	03/19/20 0:16	WI191004-3	2		2.031	mg/L	102	90	110			
L57691-07DUP	DUP	03/19/20 0:19			U	.021	mg/L				200	20	RA
L57691-07AS	AS	03/19/20 0:20	WI191004-3	2	U	2.174	mg/L	109	90	110			
Potassium, diss	olved		M200.7	ICP						,			
acz id	Туре	Analyzed	PCN/SCN	, QC,	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG493455													
WG493455ICV	ICV	03/17/20 22:53	11200317-1	20		19.2	mg/L	96	95	105			
WG493455ICB	ICB	03/17/20 22:59				Ü	mg/L		-0.6	0.6			
WG493455LFB	LFB	03/17/20 23:12	11200302-4	99.95798		101,1	mg/L	101	85	115			
L57691-05AS	AS	03/17/20 23:35	11200302-4	99.95798	6.6	108.6	mg/L	102	85	115			
L57691-05ASD	ASD	03/17/20 23:38	11200302-4	99.95798	6.6	108.3	mg/L	102	85	115	0	20	
Residue, Filteral	ole (TDS	i) @180C	SM2540	С									
ACZ ID	Type	Analyzed	PÇNİSCN :	QC .	* Såmple	Found	Units "	* Rec%	Lower	Upper	RPD	Limit	Qual
WG492816													
WG492816PBW	PBW	03/02/20 18:10				U	mg/L		-20	20			
WG492816LCSW	LCSŴ	03/02/20 18:12	PCN60398	1000		1000	mg/L	100	80	120			
L57691-05DUP	DUP	03/02/20 19:10			1220	1220	mg/L				0	10	
WG492914													
WG492914PBW	PBW	03/03/20 17:25				U	mg/L		-20	20			
WG492914LCSW	LCSW	03/03/20 17:27	PCN60398	1000		996	mg/L	100	80	120			
L57691-07DUP	DUP	03/03/20 18:22			4320	4310	mg/L				0	10	
Selenium, disso	lved		SM 3114	B, AA-Hyd	ride								
ACZ ID	. Туре	Analyzed	PCN/SCN .	, QC,	. Sample	Found	Units -	-Rec%	· Lower	. Upper	ŖPD	Limit	" Qual ;
WG493050		<u> </u>	d. 386 de.								-		
WG493050ICV	ICV	03/06/20 13:58	SE200103-2	.025025		.0265	mg/L	106	90	110			
WG493050ICB	ICB	03/06/20 14:00				Ū	mg/L		-0.003	0.003			
WG493050LRB	LRB	03/06/20 14:03				Ü	mg/L		-0.003	0.003			
WG493050LFB	LFB	03/06/20 14:05	SE200103-4	.02224		.0237	mg/L	107	85	115			
L57682-03LFM	LFM	03/06/20 14:38	SE200103-4	.02224	U	.022	mg/L	99	85	115			
L57682-03LFMD	LFMD	03/06/20 14:40	SE200103-4	.02224	U	.0225	mg/L	101	85	115	2	2 0	

L57691-2003260809 Page 13 of 33



L57683-03ASD

L57781-01AS

L57781-01ASD

ASD

AS

ASD

03/12/20 18:18

03/12/20 18:52

03/12/20 18:54

MS200120-3

MS200120-3

MS200120-3

.05

.05

.05

.0008

.0008

.05426

..05383

mg/L

107

106

ACZ Project ID: L57691

70

70

70

130

130

130

20

20

1

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.

mines are ni 70 i	160.												
Sodium, dissol	ved		M200.7 I	CP									
ACZ ID	· Type *	* Analyzed ** *	PCN/SCN *		Sample	Found	Units .	Rec%	- Lower	_ *Upper-	RPD	*Limit	≉ 'Qual'
WG493455													
NG493455ICV	icv	03/17/20 22:53	11200317-1	100		96.38	mg/L	96	95	105			
WG493455ICB	ICB	03/17/20 22:59				υ	mg/L		-0.6	0.6			
NG493455LFB	LFB	03/17/20 23:12	11200302-4	100.0046		100.2	mg/L	100	85	<u>1</u> 15			
.57691-05AS	AS	03/17/20 23:35	11200302-4	100.0046	227	319.3	mg/L	92	85	115			
.57691-05ASD	ASD	03/17/20 23:38	11200302-4	100.0046	227	316.7	mg/L	90	85	115	1	20	
Sulfate			D516-02	/-07/-11 - Tu	rbidimet	ric							
ACZ ID	Туре	Analyzed	PCN/SCN	, QC	Sample	Found	Units	Rec%	Lower.	Upper.	RPD	Limit	Qual
NG493429													
VG493429ICB	ICB	03/12/20 9:15				U	mg/Ļ		-3	3			
VG493429ICV	ICV	03/12/20 9:15	WI200305-2	20		19.2	mg/L	96	90	110			
NG493429LFB	LFB	03/12/20 9:57	WI190801-3	10.01		9	mg/L	90	90	110			
.52842-37AS	AS	03/12/20 9:57	WI190801-3	10.01	υ	9.6	mg/L	96	90	110			
.52843-37DUP	DUP	03/12/20 10:04			92.6	90.9	mg/L				2	20	
.57691-05DUP	DUP	03/12/20 10:44	•		753	749	mg/L				1	20	
.57691-04AS	AS	03/12/20 10:55	SO4TURB	10.0000008	2800	2870	mg/L	700	90	110			∙М3
Iranium, disso	ived		M200.8 I	CP-MS									
CZ ID	Туре.	Analyzed	PCN/SCN	QĈ	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
NG493477													
VG493477ICV	ICV	03/12/20 18:05	MS200210-2	.05		.05232	mg/L	105	90	110			
VG493477ICB	ICB	03/12/20 18:07				U	mg/L		-0.00022	0.00022			
VG493477LFB	LFB	03/12/20 18:09	MS200120-3	.05		.0487	mg/L	97	85	115			
.57683-03AS	AS	03/12/20 18:16	MS200120-3	.05	U	.05259	mg/L	105	70	130			

L57691-2003260809 Page 14 of 33

(800) 334-5493

Inorganic Extended Qualifier Report

ACZ Project ID: L57691

Rio Algom Mining Company

					
ACZ ID: L57691-01	WORKNUM WG492958	PARAMETER Cyanide, Total	METHOD D7511-09		DESCRIPTION Sample received with improper or inadequate chemical
	WG493856	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	preservation. 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).
L57691-02	WG493580	. Chloride	SM4500CI-E	МЗ	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.
	WG492958	Cyanide, Total	D7511-09	Q3	Sample received with improper or inadequate chemical preservation.
	WG493856	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).
L57691-03	WG493580	Chloride	SM4500CI-E	М3	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.
	WG493856	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).
	WG493429	Sulfate .	D516-02/-07/-11 - Turbidimetric	М3	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.
	WG492912	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).
L57691-04	WG493580	Chloride	SM4500CI-E	М3	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.
	WG493856	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).
	WG493429	Sulfate	D516-02/-07/-11 - Turbidimetric	МЗ	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.
	WG492912	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),
L57691-05	WG493580	Chloride	SM4500CI-E	МЗ	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.
	WG493856	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).
	WG493429	Sulfate	D516-02/-07/-11 - Turbidimetric	МЗ	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.
	WG492912	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).

Inorganic Extended
Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L57691

ACZ ID	WORKNUM	PARAMETER	METHOD .	QUAL	DESCRIPTION
L57691-06	WG493580	Chloride	SM4500CI-E	МЗ	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.
	WG493856	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).
	WG493429	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.
	WG492912	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).
L57691-07	WG493580	Chloride	SM4500CI-E	МЗ	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.
	WG493856	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).
	WG493429	Sulfate	D516-02/-07/-11 - Turbidimetric	М3	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.
	WG492912	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:

4508122295

Sample ID:

31-02 TRB

Locator:

ACZ Sample ID: L57691-01

Date Sampled:

02/25/20 10:20

Date Received:

02/29/20

Sample Matrix:

Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter

Gross Alpha - Corrected

03/26/20 7:38

4.7

pCi/L

calc

Gross Alpha, dissolved

M9310

Prep Method:

Param	eter:		
Gross	Alpha,	disso	lyed

Measure Date 03/12/20 0:04

Result Error(+/-)

LLD Units XQ pCi/L

Lead 210, dissolved

EICHROM, OTW01

Prep Method:

Parameter - -Lead 210, dissolved

Measure Date: Prep Date: 03/13/20 9:03

Result: Emor(96)

Jaio Units pCi/L

(Q - Ayalyat

jlg

Radium 226, dissolved

M903.1

Prep Method:

Radium 226, dissolved

Parameter.

Measure Date 03/16/20 0:27

Result Error(+/-)

0.06

Units pCi/L

Analyst

amk

Prep Method:

jlg

Radium 228, dissolved

Parameter

Radium 228, dissolved

M9320

Measure Date 03/12/20 18:01

13

1.4

2.3

pCi/L

Thorium 230, dissolved

ESM 4506

Prep Method:

Thorium 230, dissolved

Measure Date 03/25/20 7:55

Result Error(+/-) 0.362

0.27

0.36

pCi/L

Units





Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

13-20 TRB

Locator:

ACZ Sample ID: L57691-02

Date Sampled:

02/25/20 9:20

Date Received:

02/29/20

Sample Matrix:

Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter Gross Alpha - Corrected

03/26/20 7:38

-2.6

pCi/L

calc

Gross Alpha, dissolved

M9310

Prep Method:

Parameter	Measure Date: 1444 Prep Date	Result	≘u or(#/4	L LLD.	Units	XQ Analysi
Gross Alpha, dissolved	03/12/20 0:05	0.0	18	70	pCi/L	isn

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date ": Prep Date	Result E	TOT(#/) iLLD	Units	XQ	Analysi
Lead 210, dissolved	03/13/20 11:30	-1.5	1.4	3.3	pCi/L	*	jlg

Radium 226, dissolved

M903.1

Prep Method:

Parameter . . . Measure Date Result Error(+/-) Radium 226, dissolved 03/16/20 0:28 0.28 0.12 pCi/L jlg

Radium 228, dissolved

M9320

Prep Method:

Parameter	Measure Date;	Prep Date Resu	lt Error(+/	-) LLD	Units	ΧQ	Analyst
Radium 228, dissolved	03/12/20 18:01	13	1.3	1.9	pCi/L	*	amk

Thorium 230, dissolved

ESM 4506

Prep Method:

Parameter ·	Measure Date	Prep Date Result	Error(+/-	, LLD	Units	ΧQ	Analyst
Thorium 230, dissolved	03/19/20 7:13	0,396	. 0.28	0.37	pCi/L	*	djc



RadioChemistry
Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

31-01 TRA

Locator:

ACZ Sample ID: L57691-03

Date Sampled: 0

02/25/20 11:47

Date Received:

02/29/20

Sample Matrix:

Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter Gross Alpha - Corrected

03/26/20 7:38

4.3

pCi/L

calc

Gross Alpha, dissolved

M9310

Prep Method:

Parameter	. Measure Date	Prep Date . Res	ilt. Error(+	(-) LLD	Units	XQ Analyst
Gross Alpha, dissolved	03/12/20 0:07	4.6	4.9	25	pCi/L	isn

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date Prep Date	Result		LILD.	· Units	XQ ::	Analysis
Lead 210, dissolved	03/13/20 11:30	-0.35	2.8	6.7	pCi/L	* .	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date Prep Date	Result	Ξτιοτ(<i>÷l-</i>)	LLD, ;	Units	XQ Analyst
Radium 226, dissolved	03/16/20 0:30	0.26	0.1	0.16	pCi/L	jlg

Radium 228, dissolved

Prep Method:

M9320

Parameter (1971)	Measure Date Prep Date'	Result	Error(#/4)	INTER-	Units	XO Analyst
Radium 228, dissolved	03/15/20 13:41	1.3	0.98	2.2	pCi/L	isn

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter #	Measure Date Pr	ep Date "Result	Error(+/-) LLD	Units	ΧQ	Analyst
Thorium 230, dissolved	03/18/20 15:52	0.46	0.48	0.78	pCi/L	*	djc



RadioChemistry
Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

36-06 KD

Locator:

ACZ Sample ID: L57691-04

Date Sampled: 02/25

02/25/20 14:07

Date Received:

Sample Matrix:

Groundwater

02/29/20

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter
Gross Alpha - Corrected

03/26/20 7:38

pCi/L

calc

Gross Alpha, dissolved

M9310

Prep Method:

Parameter: Measure Date Prep Date Result Error(+/-) LLD Units XQ Analyst Gross Alpha, dissolved 03/12/20 0:08 350 57 46 pCi/L isn

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter Measure Date Prep Date Result Error(+/-) **LLD Units XQ Analyst Lead 210, dissolved 03/13/20 11:30 -1.3 2.9 7 pCi/L * jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter Measure Date Prep Date Result Error(+/-) LLD Units XQ Analyst Radium 226, dissolved 03/19/20 0:07 16 0.54 0.2 pCi/L jlg

Radium 228, dissolved

Prep Method:

M9320

Parameter Measure Date Prep Date Result Error(+/-) LLD Units XQ Analyst Radium 228, dissolved 03/15/20 13:41 8 1.1 1.9 pCi/L isn

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter Measure Date Prep Date Result Error(+/-) LLD Units XQ. Analyst
Thorium 230, dissolved 03/18/20 15:52 9.07 1.7 0.7 pCi/L * djc





Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

17-01 KD

Locator:

ACZ Sample ID: L57691-05

Date Sampled:

02/27/20 9:21

Date Received:

02/29/20

Sample Matrix: Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter Measure Date Gross Alpha - Corrected

03/26/20 7:38

Gross Alpha, dissolved

M9310

Prep Method:

Parameter.	Measure Date	Prep Date R	esult E	ror(+/-)	LLLD.	Units
Gross Alpha, dissolved	03/12/20 0:10		2.3	3.1	11	pCi/L

Lead 210, dissolved Prep Method:

EICHROM, OTW01

Parameier.	- Measure Date Prep Date	Result	=ποr(+/ <i>-</i>)	:ILUD	u Units	χο.	Analyst
Lead 210, dissolved	03/13/20 11:30	-2.2	1.2	3	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Raramérer	Measure Date Prep Date 1	Result I	=tror(+/A)	LLD	Units	XQ Analyst
Radium 226, dissolved	03/19/20 0:08	0.86	0.15	0.17	pCi/L	jĺg

Radium 228, dissolved

Prep Method:

M9320

Parameter : " '	Measure Date: Prep Date	Result	Error(+/-)	LLD	·Units	XQ. Analyst
Radium 228, dissolved	03/15/20 13:41	. 0.44	0.87	2.1	pCi/Ĺ	isn

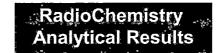
Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter .	Measure Date Prep Date	Result E	rror(+ <i>l-</i>	LLD.	Units.	XQ	Analyst
Thorium 230, dissolved	03/18/20 15:52	0,126	0.3	0.54	pCi/L	*	djc





Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

32-45 KD-R

Locator:

ACZ Sample ID: L57691-06

Date Sampled:

02/27/20 11:11

Date Received:

02/29/20

Sample Matrix: Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter Gross Alpha - Corrected

03/26/20 7:38

pCi/L

calc

Gross Alpha, dissolved

M9310

Prep Method:

Parameter	Measure Date Pr	ep Date Result	Error(+/-)		Units	XQ: Analyst.
Gross Alpha, dissolved	03/12/20 0:11	120	16	14	pCi/L	isn

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter : : : :	Measure Date Prêp	Date Result	≘ποr(+/ <i>-</i>)	LLD	Units	XQ	Analyst
Lead 210, dissolved	03/13/20 11:30	-2.1	1.1	2.9	pCi/L	*	jlg

Radium 226, dissolved

Prep Method:

M903.1

Parameter	Measure Date Prep Date	Result E	irioi(#A)	HEED'	Units	XQ Analyst
Radium 226, dissolved	03/19/20 0:10	0.96	0.12	0.05	pCi/L	jlg

Radium 228, dissolved

Prep Method:

M9320

Parameter	Measure Date Prep Date	e Resul	t Error(+/	a) - LLD	Units	.XQ Analyst
Radium 228, dissolved	03/15/20 13:41	1.6	0.91	2.1	pCi/L	isn

Thorium 230, dissolved

Prep Method:

ESM 4506

Parameter :	x Measure Date : Prép Date . 😯	Result I	Error(+/-)	LLD	Units	XQ	⊾ Aπalyst
Thorium 230, dissolved	03/18/20 15:52	0.786	0.33	0.09	pCi/L	*	djc





Rio Algom Mining Company

Project ID: 4508122295

30-48 KD-R

Sample ID: Locator:

ACZ Sample ID: L57691-07

Date Sampled: 02/27/20 12:16

Date Received: 02/29/20

Sample Matrix: Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Remainsfer
Gross Alpha - Corrected

Messurg Date: 03/26/20 7:38

ार(नहां) -2.1 a)va (មើល - បក្សន pCi/L 5<u>.0</u>0 /

calc

Gross Alpha, dissolved

M9310

Prep Method:

Parameter Measure-Date Prepidate Result Error(t/k) LLD Units XQ Analyst Gross Alpha, dissolved 03/12/20 0:12 -2.1 7.7 95 pCi/L isn

Lead 210, dissolved

Prep Method:

EICHROM, OTW01

Parameter	Measure Date : PrepiDate :	Result ((IRD)	Units	X0	Andys
Lead 210, dissolved	03/13/20 11:30	-0.56	1.2	2.9	pCi/L	*	jlg

Radium 226, dissolved

M903.1

Prep Method:

Parameter Infeasure Date Prepidate Result Error(2/4) (LLD) Units XC Analyst Radium 226, dissolved 03/19/20 0:11 2.1 0.16 0.07 pCi/L jig

Radium 228, dissolved

M9320

Prep Method:

Parameter Measure Date Prep Date Result Error(+/-) LLD Units XQ Analyst Radium 228, dissolved 03/15/20 13:41 7 1.1 2.2 pCi/L isn

Thorium 230, dissolved

Prep Method:

ESM 4506

Paraimeter Measure Date Prepidate Result Error(#/-) LLD Units XQ Analyst Thorium 230, dissolved 03/19/20 2:26 0.469 0.3 0.38 pCi/L * djc

Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493



Report Header Explanations

Batch A distinct set of samples analyzed at a specific time

Error(+/-) Calculated sample specific uncertainty

Found Value of the QC Type of interest

Limit Upper limit for RPD, in %.

LCL Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD Calculated sample specific Lower Limit of Detection

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis

PQL Practical Quantitation Limit

QC True Value of the Control Sample or the amount added to the Spike

Rec- Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)

RER Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.

RPD Relative Percent Difference, calculation used for Duplicate QC Types

UCL Upper Control Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QC Sample Types

DUP Sample Duplicate MS/MSD Matrix Spike/Matrix Spike Duplicate

t the contract of

 LCSS
 Laboratory Control Sample - Soil
 PBS
 Prep Blank - Soil

 LCSW
 Laboratory Control Sample - Water
 PBW
 Prep Blank - Water

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method.

Matrix Spikes Determines sample matrix interferences, if any.

wadin opines Determines sample madin niterierences, it all

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 ACZS Extended Qualifiers, please click:

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

REP003.09.12.01

L57691-2003260809 Page 24 of 33

ACZ Project ID: L57691

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

Gross Alpha, dissolved

M9310

Units: pCi/L

a ACZ ID	Туре	* Analyzed	PÇN/SEN	. QC	Sample	Error	LED .	Found	Error	"LLD	Rec%	Lower	Upper.	RPD/RER	Limit	Qual
WG493365																
WG493365PBW	PBW	03/12/20						3.2	1.8	11			22			
WG493365LCSWA	LCSW	03/12/20	PCN60283	100				100	8.6	12	100	67	144			
L57727-01DUP	DUP-RPD	03/12/20			5.9	2.7	5.2	7.2	3	10				20	20	
L57727-02DUP	DUP-RER	03/12/20			9.4	3.3	4.9	6.4	2.8	6.5				0.69	2	
L57727-02DUP	DUP-RPD	03/12/20			9.4	3.3	4.9	6.4	2.8	6.5				38	20	RG
L57727-03MSA	MS	03/12/20	PCN60283	100	9.7	3.4	6	92	9.6	15	82	67	144			

Lead 210, dissolved

EICHROM, OTW01

Units: pCi/L

ACZID	Type	Analyzed	PCN/SCN	ďc	Sample	. Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	. Limit	Qual
WG492938			•													
WG492938PBW	PBW	03/13/20				•		-1 <i>.</i> 5	1.3	3.2			6.4			•
L57682-05DUP	DUP-RER	03/13/20			-0.94	1.4	3.4	-1.2	·3	7.2				0.08	2	
L57682-05DUP	DUP-RPD	03/13/20			- 0.94	1.4	3.4	-1.2	3	7.2				24	20	RG
WG492938LCSW	LCSW	03/13/20	PCN59631	98.22				100	3.3	2.8	102	55	121			
L57691-07DUP	DUP-RPD	03/13/20			-0.56	1.2	2.9	-2.6	2.8	6.9				129	20	RG
L57691-05MS	MS	03/13/20	PCN59631	245.54	-2.2	1.2	3	230	8.2	8.4	95	55	121			
L57691-07DUP	DUP-RER	03/13/20			-0.56	1.2	2.9	-2.6	2.8	6.9				0.67	2	

L57691-2003260809 Page 25 of 33



ACZ Project ID: L57691

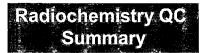
NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 226, dissolved

M903.1

Units: pCi/L

ACZ ID	Type	. Analyzed	PCN/SCN	. GC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	. Upper	RPD/RER	Limit ·	Qual
WG493067											.,					
WG493067PBW	PBW	03/16/20					•	.21	0.14	0.13			0.26			
WG493067LCSW	LCSW	03/16/20	PCN57864	20				23	0.71;	0.15	115	43	148			
L57636-01MS	MS	03/16/20	PCN57864	20	0.21	0.1	0.07	18	0.54	0.16	89.	43	148			
L57616-02DUP1	DUP-RPD	03/16/20			5.3	0.3	0.17	4.8	0.24	0.07				1,0	20	
L57683-01DUP2	DUP-RPD	03/16/20			0.7	0.13	0.12	.79	0.15	0.14				12	20	
WG493340																
WG493340PBW	PBW	03/19/20						.14	0.09	0.09			0.18			
WG493340LCSW	LCSW	03/19/20	PCN57864	20				20	0.7	0.17	100	43	148			
L57661-01DUP1	DUP-RPD	03/19/20			0.28	0.09	0.13	.34	0.09	0.13				19	20	
L57713-01DUP2	DUP-RPD	03/19/20			4.3	0.27	0.07	3.9	0.23	0.07				10	20	
L57694-04MS	MS	03/19/20	PCN57864	23.53	0.21	0.07	0.08	27	0.65	0.14	114	43	148			



Rio Algom Mining Company

ACZ Project ID: L57691

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	. پ Type. پ	Analyzed PCN/S	CON QC .	Sample.	Error	LLD.	Found	· Error-	LLD	Rec%	Lower	Upper .	RPD/RER	": Limit !	, Qual
WG493216										•					
WG493216PBW	PBW	03/12/20					.47	0.36	0.35			0.7			
WG493216LCSW	LCSW	03/12/20 PCN58076	8.68				9	1.2	0.86	104	47	123			
L57661-02MS	MS .	03/12/20 PCN58076	8.68	2	0.81	1.9	10	1.1	1.9	92	47	123			
L57636-01DUP	DUP-RER	03/12/20		0.57	0.63	1.6	.07	0.95	2.3				0.44	2	
L57636-01DUP	DUP-RPD	03/12/20		0.57	0.63	1.6	.07	0.95	2.3				156	20	RG
L57683-01DUP	DUP-RER	03/12/20		0.39	0.9	2.2	71	1.5	3.6				0.63	2	
L57683-01DUP	DUP-RPD	03/12/20		0.39	0.9	2.2	71	1.5	3.6				688	20	RG
WG493334															
L57694-04DUP	DUP-RPD	03/15/20		1.1	0.94	2	1	0.87	2				10	20	
WG493334LCSW	LCSW	03/15/20 PCN58076	8.67				8.2	1.2	0.92	95	47	123			
WG493334PBW	PBW	03/15/20					.72	0.43	0.41			0.82			
L57727-02DUP	DUP-RER	03/15/20		-0.43	0.78	2	0	0.79	2.1				0.39	2	
L57727-04MS	MS	03/15/20 PCN58076	8.67	0.48	0.75	1.8	10	1.2	2	110	47	123			
L57727-02DUP	DUP-RPD	03/15/20		-0.43	0.78	2	0	0.79	2.1				200	20	RG

Thorium 230, dissolved

ESM 4506

Units: pCi/L

AČZ ID	∛ Type	Analyzed -	PCN/SCN .	. ac	Sample	Error	LLD	Found	Errof-	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG494041																
WG494041PBW	PBW	03/18/20						.272	0.26	0.39			0.78			
WG494041LCSW	LCSW	03/18/20	PCN58726	200				249	35	0.45	125	91	126			
L57682-01DUP	DUP-RPD	03/19/20			0.239	0.18	80.0	.653	0.42	0.54				93	20	RG
L57682-01DUP	DUP-RER	03/19/20			0.239	0.18	80.0	.653	0.42	0.54				0.91	2	
L57682-03MS	MS	03/19/20	PCN58726	200	0.521	0.34	0.43	256	36	0.47	128	91	126			M1
L57691-07DUP	DUP-RPD	03/19/20			0.469	0.3	0.38	.218	0.18	0.09				73	20	RG
L57691-07DUP	DUP-RER	03/19/20			0.469	0.3	0.38	<i>.</i> 218	0.18	0.09				0.72	2	

(800) 334-5493

RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L57691

					
ACZ ID.	WORKNUM	PARAMETER	METHOD:	QUAL	- DESCRIPTION .
L57691-01	WG492938	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
	WG493216	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.
	WG494041	Thorium 230, dissolved	ESM 4506	М1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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.
L57691-02	WG492938	L'ead 210, dissolved	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.
	WG493067	Radium 226, dissolved	M903.1	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG493216	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.
	WG494041	Thorium 230, dissolved	ESM 4506	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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.
L57691-03	WG492938	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
	WG494041	Thorium 230, dissolved	ESM 4506	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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.
L57691-04	WG492938	Lead 210, dissolved	EICHROM, OTW01	D1	Sample required dilution due to matrix.
			EICHROM, OTW01	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
	WG494041	Thorium 230, dissolved	ESM 4506	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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.
L57691-05	WG492938	,	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.
	WG494041	Thorium 230, dissolved	ESM 4506		Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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.

(800) 334-5493

RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L57691

ACZ ID	WORKNUM	PARAMETER *	METHOD.	QUAL	DESCRIPTION
L57691-06	WG492938	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.
	WG494041	Thorium 230, dissolved	ESM 4506	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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.
L57691-07	WG492938	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.
	WG494041	Thorium 230, dissolved	ESM 4506	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	•		.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.



ACZ Project ID: L57691

Radiochemistry

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

Lead 210, dissolved

EICHROM, OTW01

Thorium 230, dissolved

ESM 4506



Sample Receipt

Rio Algom Mining Company 4508122295

ACZ Project ID:

L57691

Date Received: 02/29/2020 11:48

Received By:

	Printed:		3/3/2020
Receipt Verification	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	120	,	X
2) Is the Chain of Custody form or other directive shipping papers present?	X		2 2 2 2 2 2
3) Does this project require special handling procedures such as CLP protocol?		X	\$ a way
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	Х		***** * * * *
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		Х	
Samples/Containers	· g · g · . : * *	42.9	
	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	Х		
11) For preserved bottle types, was the pH checked and within limits? 1		Х	
L57691-02 Container B2245913 (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?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			Х
15) Are all sample containers appropriate for analytical requirements?	Х		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
16) Is there an Hg-1631 trip blank present?			Х
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	Х		a sign "gg = gstagt of
	NA indicat	tes Not A	pplicable
Chain of Custody Related Remarks	and the later		et et e
Client Contact Remarks-	Skin open at Secure	Sec. Sec. Management	" a produced to

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
				
5248	8.7	NA	14	Yes
4487	9.5	NA	15	Yes
5255	10.7	NA	15	Yes
6661	4.9	<=6.0	13	Yes
6324	5	<=6.0	15	Yes

Shipping Containers



Sample Receipt

Rio Algom Mining Company 4508122295

ACZ Project ID:

L57691

Date Received: 02/29/2020 11:48

Received By:

Date Printed:

3/3/2020

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.

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).

L57691-2003260809 Page 32 of 33

HLIZ Lab	oratories, Inc.	. LĈ	576	Pc	1	С	HAII	V of	CUS	TOE	PΥ
2773 Downhill Drive Steamboat S	•										
Report to:											
Name: Kent Applegate			Address: PO Box 218								
	Company: Rio Algom Mining LLC			Grants, NM 87020							
E-mail: Kent.KC.Applegate	e@bhpbilliton.com]	Telephone: 1-505-287-8851								
Copy of Report to:											
Name: See Remarks			E-mail: See Remarks								
Company: INTERA, INC.			Telephone: 505-246-1600 x1207								
Invoice to:									-		**
Name: Kent Applegate				ss: P	Э Вох	218					
Company: Rio Algom Minir	ng LLC	1	Gra	ints, N	M 87	020			,		
E-mail: Kent.KC.Applegate]	Telep	hone:	1-505	-287-	8851				_
If sample(s) received past holdin				_	lete				YES	Ø	
analysis before expiration, shall a nailysis before expiration shall a naily with the forther instru	•				sted make	aa, man if	HT is excin	ed, and dat	NO Will be que	Effect	!
Are samples for SDWA Complian			Yes			No		F			
If yes, please include state forms					-					-	
Sampler's Name: (3, W 111 10 M5)		ation the authent	State_				de 87			one_N	
*Sampler's Signature:		with the sam		zy, is conside	red fraud a	nd punishui	ole by State	Law,			on or
PROJECT INFORMATION				ANA	YSES RE	QUESTE	D lattect	list or Use	quete nu	mber)	
Quote #:	3 :		ers	0	4	0	0,0				/ .
PO#: 45026963	/· A		ig i	DB.	C-TR4	又	\$				
Reporting state for compliance testing: VV			of Containers	1	ડ	J	15				
Check box if samples include NRC SAMPLE IDENTIFICATION	DATE:TIME	Matrix		MRC-1	8	œ	1				
31-02-TR B	2.29.20 1920	64	6	82		F	4-		17		П
13-20TRB	2.25 20 M20	6W	6	区					H		片
31-91784	9-25-20 1147	GW	6	片	図	늄	H	一一	片	H	
36-96 KD	7-25 20 1403	6W	6	Ħ	Ħ	X	F	H	n		H
17-01 KD	2,27,20 0921	GW	12	Ħ	n	团	H	方	Ħ	一	Ħ
32-45 KO-R	227,20 1111	GW	6	H		X	一	后		H	Ħ
30-48 KD-R	227,20 1216	GW	6	一		R	一	一	一	F	
		Ħ				合	一一				
-		1					团				
							/口				
Matrix SW (Surface Water) · GW	(Ground Water) · WW (Waste)	Water) · D	W (Drink	ing Wate	r) - SL (S	itudge) -	SO (Soil) - OL (O	il) · Other	(Specify	y)
REMARKS											
									5	Coo	lers.
RAML COC#: 20-12-	Note different COC's	may h	nave c	liffere	nt PO	's. Sh	ipmei	UT OL _	<u> </u>		
RAML COC#: 20-12		•					-	_		-	
RAML COC#: 20-12 Please CC report to: csho		•					-	_		-	om,
RAML COC#: 20-12		•					-	_		-	com,
RAML COC#: 20-12 Please CC report to: csho jcarroll@intera.com	ort@intera.com, aper	sico@	intera	.com,	Micha	aella.	Goros	spe@	bhpbil	liton.c	·
RAML COC#: 20-12-, Please CC report to: csho jcarroll@intera.com Please re RELINQUISHED BY	ort@intera.com, aper	sico@	intera	on the	Micha	aella.	Goros	spe@	bhpbil	-	·
RAML COC#: 20-12 Please CC report to: csho jcarroll@intera.com	ort@intera.com, aper	sico@ ditions lo	intera	on the	Micha	aella.	Goros	spe@	bhpbil	liton.c	·
RAML COC#: 20-12-, i Please CC report to: csho jcarroll@intera.com Please re RELINQUISHED BY	ort@intera.com, aper fer to ACZ's terms & cond	sico@ ditions lo	intera	on the	Micha	aella.	Goros	spe@	bhpbil	liton.c	·





April 27, 2020

Report to:

Kent Applegate
Rio Algom Mining Company

P.O. Box 218

Grants, NM 87020

cc: Clark Short, Angela Persico, Michaella Gorospe

Project ID: 4508122295 ACZ Project ID: L58040

Kent Applegate:

Enclosed are revised analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 19, 2020 and originally reported on April 27, 2020. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZs project number, L58040. Please reference this number in all future inquiries.

Bill to:

Accounts Payable

Grants, NM 87020

P.O. Box 218

Rio Algom Mining Company

All analyses were performed according to ACZ® Quality Assurance Plan. The enclosed results relate only to the samples received under L58040. 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 ACZs 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 27, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZs stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Scott Habermehl has reviewed and approved this report.

S. Havermehl







Inorganic Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

31-02 TRB-R

ACZ Sample ID: L58040-01

Date Sampled: 03/18/20 11:38

Date Received:

03/19/20

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result	,Qual_XQ ,Units	MDL	PQL.	Date A	nalyst
Uranium, dissolved	M200.8 ICP-MS	1	0.0037	mg/L	0.0001	0.0005	03/24/20 13:10	bsu





Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

32-45 KD-R

ACZ Sample ID: L58040-02

Date Sampled: 03/18/20 12:28

Date Received: 03/19/20

Sample Matrix: Groundwater

Metals Analysis

Parameter EPA Method	Dilution	Result	Qual XQ Units	MDL	PQL	Date Á	nalyst
Molybdenum, dissolved M200.8 ICP-MS	1	0.115	mg/L	0.0002	0.0005	03/24/20 13:12	bsu
Uranium, dissolved M200.8 ICP-MS	1 .	0.0424	mg/L	0.0001	0.0005	03/24/20 13:12	bsu





Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

36-06 KD

ACZ Sample ID: L58040-03

Date Sampled: 03/18/20 10:48

Date Received: 03/19/20

Sample Matrix: Groundwater

Metals Analysis

Parameter	EPA Method	Dilution	Result Qual	XQ Units	MDL	PQL	Date A	nälyst
Cadmium, dissolved	M200.8 ICP-MS	1	0.0057	mg/L	0.00005	0.0003	04/24/20 9:02	mfm
Uranium, dissolved	M200.8 ICP-MS	1	0.426	mg/L	0.0001	0.0005	03/24/20 13:14	bsu



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report H	eader Ex	planations

Batch A distinct set of samples analyzed at a specific time

Found Value of the QC Type of interest Limit Upper limit for RPD, in %.

Lower Lower Recovery Limit, in % (except for LCSS, mg/Kg)

MDL Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5).

Allows for instrument and annual fluctuations.

PCN/SCN A number assigned to reagents/standards to trace to the manufacturers certificate of analysis

PQL Practical Quantitation Limit. Synonymous with the EPA term "minimum level".

QC True Value of the Control Sample or the amount added to the Spike

Rec Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)

RPD Relative Percent Difference, calculation used for Duplicate QC Types

Upper Upper Recovery Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QC Sample T	ypes'	and the second	သက္ခြည့် ၍ ရေးမှ ရေးရှိ ရေးမြင့် ကြွေးရေးပြီးခြံ့သည
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix
ÇCV	Continuing Calibration Verification standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
ICB	Initial Calibration Blank	MS	Matrix Spike
ICV	Initial Calibration Verification standard	MȘD	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	PBS	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	PBW	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Quplicate	PQV	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution

QC Sample Type Explanations

Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure.

Control Samples Verifies the accuracy of the method, including the prep procedure.

Duplicates Verifies the precision of the instrument and/or method.

Spikes/Fortified Matrix Determines sample matrix interferences, if any.

Standard Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

- B Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
- H Analysis exceeded method hold time. pH is a field test with an immediate hold time.
- L Target analyte response was below the laboratory defined negative threshold.
- U The material was analyzed for, but was not detected above the level of the associated value.

The associated value is either the sample quantitation limit or the sample detection limit.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

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

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

REP001.03.15.02

L58040-2004271134 Page 5 of 17

Inorganic QC Summary

Rio Algom Mining Company

ACZ Project ID: L58040

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, diss	olved		M200.8 ICI	P-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	ΘĊ	Sample	Found	Units .	Rec%	Lower	Upper	RPD	Limit	Qual
WG496078					•								
WG496078ICV	ICV	04/24/20 8:57	MS200331-1	.05		.048015	mg/L	96	90	110			
WG496078ICB	ICB	04/24/20 8:58				U	mg/L		-0.00011	0.00011			
WG496078LFB	LFB	04/24/20 9:00	MS200421-3	.05005		.045804	mg/L	92	85	115			
L58531-04AS	AS	04/24/20 9:09	MS200421-3	.05005	U	.041205	mg/L	82	70	130			
L58531-04ASD	ASD	04/24/20 9:11	MS200421-3	.05005	U	.039868	mg/L	80	70	130	3	,20	
Molybdenum, c	dissolved	j	M200.8 ICI	P-MS	***************************************	*							
ACZ ID	Туре	Analyzed	PCN/SCN	QC-	Sample -	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qua
WG494198										jb			
WG494198ICV	ICV	03/24/20 12:45	MS200210-2	.0199		.01977	mg/L	99	90	110			
WG494198ICB	ICB	03/24/20 12:46	•			U	mg/L		-0.00044	0.00044			
WG494198LFB	ĻFB	03/24/20 12:48	MS200120-3	.0501		.0513	mg/L	102	85	115			
L58019-02AS	AS	03/24/20 12:54	MS200120-3	.1002	.0005	.10394	mg/L	103	70	130			
L58019-02ASD	ASD	03/24/20 12:55	MS200120-3	.1002	.0005	.10154	mg/L	401	70	130	2	20	
Uranium, disso	lved		M200.8 IC	P-MS						*****			
ACZ:JD	Type	Analyzed .	PCN/SCN	QC 🐇	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qua
WG494198													
WG494198ICV	ICV	03/24/20 12:45	MS200210-2	.05		.0523	mg/L	105	90	110			
WG494198ICB	ICB	03/24/20 12:46				U	mg/L		-0.00022	0.00022			
WG494198LFB	LFB	03/24/20 12:48	MS200120-3	.05		.05182	mg/L	104	85	115			
L58019-02AS	AS	03/24/20 12:54	MS200120-3	.1	.0019	.10752	mg/L	106	70	130			
L58019-02ASD	ASD	03/24/20 12:55	MS200120-3	.1	.0019	.10536	mg/L	103	70	130	2	20	

L58040-2004271134 Page 6 of 17

Inorganic Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L58040

QUAL DESCRIPTION

No extended qualifiers associated with this analysis



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 RadioChemistry Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

31-02 TRB-R

Locator:

ACZ Sample ID: L58040-01

Date Sampled:

03/18/20 11:38

Date Received:

03/19/20

Sample Matrix:

Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter Measure Date Gross Alpha - Corrected

04/07/20 12:40

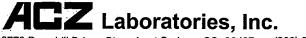
pCi/L

Gross Alpha, dissolved

M900.0

Prep Method:

Parameter	Measure Date P	rep Date Resu	li Emor(H	-) LLLD)	Units	ΧŒ	Analysti
Gross Alpha, dissolved	04/05/20 0:33	6.5	16	130	pCi/L	*	iśn



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadioChemistry
Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

32-45 KD-R

Locator:

ACZ Sample ID: L58040-02

Date Sampled: 03/18/20 12:28

Date Received: 03

03/19/20

Sample Matrix:

Groundwater

Gross Alpha - Corrected

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter

Measure Date 04/07/20 12:40

OF EMON(SA) LED

pCi/L

calc

Gross Alpha, dissolved

M900.0

Prep Method:

Parameter	Measme Date	Propiniti	Resu	le Buoi(9	A) <u>ILLE</u>	- Units	XQ.	Autivai
Gross Alpha, dissolved	04/05/20 0:34		120	16	12	nCi/l	*	iśn



(800) 334-5493 2773 Downhill Drive Steamboat Springs, CO 80487

RadioChemistry Analytical Results

Rio Algom Mining Company

Project ID:

4508122295

Sample ID:

36-06 KD

Locator:

ACZ Sample ID: L58040-03

Date Sampled:

03/18/20 10:48

Date Received:

03/19/20

Sample Matrix:

Groundwater

Gross Alpha - Corrected

Calculation

Prep Method:

Parameter MeasureDate Property Result Succ(17/2) LLD Units XO Analysis Gross Alpha - Corrected

04/07/20 12:40

100

pCi/L

calc

Gross Alpha, dissolved

M900.0

Prep Method:

Farmeter	Masuodad Repude	स्टियो ।	1001(C/A)	· IND	- EMD	X.	(Applys)
Gross Alpha, dissolved	04/05/20 0:36	390	58	56	pCi/L	*	isn

Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Radiochemistry Reference

Report Header Explanations

Batch A distinct set of samples analyzed at a specific time

Error(+/-) Calculated sample specific uncertainty

Found Value of the QC Type of interest

Limit Upper limit for RPD, in %.

LCL Lower Control Limit, in % (except for LCSS, mg/Kg)

LLD Calculated sample specific Lower Limit of Detection

PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis

PQL Practical Quantitation Limit

QC True Value of the Control Sample or the amount added to the Spike

Rèc Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)

RER Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.

RPD Relative Percent Difference, calculation used for Duplicate QC Types

UCL Upper Control Limit, in % (except for LCSS, mg/Kg)

Sample Value of the Sample of interest

QC Sample Types

DUP Sample Duplicate · MS/MSD Matrix Spike/Matrix Spike Duplicate

LCSSLaboratory Control Sample - SoilPBSPrep Blank - SoilLCSWLaboratory Control Sample - WaterPBWPrep 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.

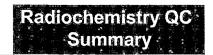
For a complete list of ACZ® Extended Qualifiers, please click:

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

REP003.09.12.01

L58040-2004271134 Page 11 of 17

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493



Rio Algom Mining Company

ACZ Project ID: L58040

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

Gross Alpha, dissolved

M900.0

Units: pCi/L

ĄCZ ID	. Type	Analyzed	PCN/SCN 1	. oc. ⊸ .	Sample	Error	LLD *	Found •	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG494568																
WG494568PBW	PBW	04/05/20						.66	0.73	0.76			1.52			
WG494568LCSWA	LCSW	04/05/20	PCN60283	100				120	9.1	1.1	120	67	144			
L57872-01DUP	DUP-RPD	04/05/20			2.9	1.8	4.5	2.7	1.8	5.9				7	20	
L57986-01DUP	DUP-RPD	04/05/20			1.5	1.7	7.3	.7	1.5	6.9				73	20	RG
L57986-01DUP	DUP-RER	04/05/20			1.5	1.7	7.3	.7	1.5	6.9				0.35	2	
L58001-01MSA	MS	04/05/20	PCN60283	100	11	3.6	16	100	11	18	89	67	144			

L58040-2004271134

(800) 334-5493

RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: L58040

ACZID	WORKNUM	PARAMETER TO THE STATE OF THE STATE OF	METHOD	(e)U/A/L	DESCRIPTION
L58040-01	WG494568	Gross Alpha, dissolved	M900.0	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.
L58040-02	WG494568	Gross Alpha, dissolved	M900.0	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.
L58040-03	WG494568	Gross Alpha, dissolved .	M900.0	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.



Certification
Qualifiers

Rio Algom Mining Company

ACZ Project ID: L58040

No certification qualifiers associated with this analysis

L58040-2004271134 Page 14 of 17



Sample Receipt

Rio Algom Mining Company 4508122295

ACZ Project ID:

L58040

Date Received: 03/19/2020 09:18

Received By:

Date Printed:

3/20/2020

Receipt Verification	rang Pangalan Mangalang Pangalan	1.89.47	and the second s	ក់មានក្រុង ត្រូវបាន សង		
·				YES	NO	NA
Is a foreign soil permit included for applicable sample		_			kykaningana pyranyhana yakaniyapp	X
Is the Chain of Custody form or other directive shipping				X	ı	
Does this project require special handling procedures	s such as C	LP protocol	?		X	и. "2"
4) Are any samples NRC licensable material?						X
5) If samples are received past hold time, proceed with	requested :	short hold tir	ne analyses?	Х		
6) Is the Chain of Custody form complete and accurate?	?			Х		S Sa
7) Were any changes made to the Chain of Custody for	m prior to A	ACZ receivin	g the samples?		Χ	the second second
Samples/Containers			and the second second			e particular particular
				YES	NO	NA
8) Are all containers intact and with no leaks?				X		
9) Are all labels on containers and are they intact and le	egible?			Х		- g 'w -
10) Do the sample labels and Chain of Custody form ma	atch for Sar	mple ID, Dat	e, and Time?	Х		on An W
11) For preserved bottle types, was the pH checked and	d within limi	ts? 1		Х		
12) Is there sufficient sample volume to perform all requ	iested work	?		Х		n n Taga Nga U nawan
13) Is the custody seal intact on all containers?						Х
14) Are samples that require zero headspace acceptabl	e?					X
15) Are all sample containers appropriate for analytical	requiremen	its?		Х		
16) Is there an Hg-1631 trip blank present?						X
17) Is there a VOA trip blank present?						. X
18) Were all samples received within hold time?				Х	PT - NAME OF STREET OF STREET OF STREET STREET	
				NA indicat	es Not Ap	plicable
Chain of Custody Related Remarks		* . Y *	to the second second second second second second second second second second second second second second second	i ne me izy, ne Jirota din dan d	over in the second	
Client Contact Remarks	The State		And the second s			16.4
Shipping Containers		en en en en en en en en en en en en en e	the way of the last of the las		age go k	
Cooler Id Temp(°C) Temp Criteria	Ra	d(μR/Hr)	Custody Seal Intact?			
4926 4.8 NA	14		Yes			
Was ice 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.

REPAD LPII 2012-03

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





Rio Algom Mining Company 4508122295

ACZ Project ID:

L58040

Date Received: 03/19/2020 09:18

Received By:

Date Printed:

3/20/2020

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).

L58040-2004271134 Page 16 of 17

Name: Kent Appl	egate			Addre	ess: F	O Bo	x 218		<u></u> .			
Company: Rio Alg	om Mining LLC]			IM 87						
E-mail: Kent.KC./	Applegate@bhpbill	liton.com]	Telep	hone:	1-505	-287-	8851				
Copy of Report to:												
Name: See Rema	arks			E-mai	i: Sec	Rem	arks					
Company: INTERA	A, INC.		1	Telep	hone:	505-2	46-16	00 x1	207			
invoice to:		*										
Name: Kent Apple	egate	•		Addre	ss: P	O Box	218		A STATE OF THE STA			
Company: Rio Alg			1	Grants, NM 87020								
	\pplegate@bhpbill	iton.com	1				-287-					
	post holding time (HT),		ı at HT rei							YES	凶	
	tion, shall ACZ proceed									NO		
	i te feite leterie. Neite 71 A Compliance Menitorin		M. M.Z.	Yes			Mo No	NZ-	4.000	raill be qu	Min.3	
-	state forms. Results wil	_	o PQL f		rado.	<u> </u>			1			
Sampler's Name: 13-1	mpler's Name: B. W. L. L. 1501 Sampler's Site Information							de <u>87</u> (one M	
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PROJECT INFORMA	ATION									d topes as	aziji etniš	
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Reporting state for com				5	٦	£	90-					
Check box if samples in	nclude NRC licensed mat	lerial?		ပ္	8	7	9-9					
SAMPLE IDENTIF	ICATION DAT	E:TIME	Matrix		32	e	100					
31-02 TRB	-R 3/18/2	0 1138	GW	27	X							
32-45 KD	R 7/18/129	12-28	GW/	2		凶						
36-06 KD	×18120	1048	0 W	2			NA NA					
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Matrix SW (Surface	Water) - GW (Ground Water	r) · WW (Wasto V	Vator) - Di	W (Drink	ing Wate	r) • SL (S	studge) ·	SO (Soii)	- Or (O	i) - Other	(Specify)
REMARKS												
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i								•		T		
	t to: cshort@intera	.com, aper	sico@	intera	.com,	Mich	aelia.	Goros	pe@i	ohpbil	liton.c	om,
jcarroll@intera.co)MI	٠.										
	Please refer to ACZ's	terms & cond	litions lo	cated	on the	revers	e side d	of this C	:OC			
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				₩.·	<i>1</i> 3				1	''		

Yellow - Retain for your records.

White - Return with sample.

ALIZ Laboratories, Inc. L 5 8 0 4 3 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

FRMAD050.06.14.14

CHAIN of CUSTODY