## **Rio Algom Mining LLC**

February 24, 2013

**CERTIFIED MAIL** 

Mr. David L. Mayerson New Mexico Environment Department 1190 St Francis Dr. P.O. Box 5469 Santa Fe, NM 87502

#### Re: Discharge Plan - 169 Semi-Annual Report, 2nd Half 2013

Dear Mr. Mayerson:

Attached is the Rio Algom Mining LLC's semi-annual groundwater monitoring report for the 2nd Half of 2013. This permit requires the monitoring and reporting of well data from the alluvium in the vicinity of the tailings area. An electronic copy of the report will follow by e-mail. If you have any questions or need additional information, please call me at 505-236-1821.

Sincerely,

Billy Ray Site Manager

Attachment: As stated cc: NRC (MD) – License SUA-1473, Docket No. 40-8905 K. Black D. Murray



RIO ALGOM MINING LLC – AMBROSIA LAKE FACILITY

#### DISCHARGE PLAN – 169 (DP-169) SEMI-ANNUAL REPORT, 2nd Half 2013

#### **Review of Discharge Plan - 169**

This report presents the activities and results of the monitoring and sampling requirements associated with DP-169 for the 2nd Half of 2013. New Mexico Environment Department's (NMED) Discharge Permit DP-169 was approved on November 15, 1995 and establishes monitoring requirements for the alluvium that has been affected as a result of byproduct material disposal at the Ambrosia Lake site.

The NRC program for the alluvium dated February 24, 2006 established Alternate Concentration Limits (ACLs) for the site. The ACLs addressed byproduct material seepage from the tailings disposal area and includes but not limited to chloride, nitrate, sulfate, and, total dissolved solids. The alluvial ACLs were established through review and consultation between NRC, NMED and RAML.

Table 1 provided below presents the DP-169 groundwater monitoring data for the 2nd Half 2013. Exhibit 1 provided the respective analytical reports from the contracted laboratory.

Table 1DP-169 Sampling Results – 2nd Half 2013

		T		· · · ·		1	1	r		T	
Monitor	Dette	Depth to	Total	Specific	Temp.			NO3 as N	SO4		
Well	Date	Water (ft)	Depth	Cond.	(°C)	рн	U (mg/1)	(mg/l)	(mg/l)	1DS (mg/l)	
20.03	3/10/2013		Removed, plugged, and abandoned 2012/2013 well replacement project								
30-04 R	8/27/2013	56.42	72 25	5370	14.2	6 98	630	7 64	2520	5510	
30-46	9/9/2013		38 57		17.2	0.50		7.04	2320	3310	
30-47	8/27/2013	53.16	77.6	4320	13.7	6.21	990	0.5	2100	5400	
30-48	9/3/2013	57.44	73.5	3750	14.2	6.42	750	0.07	1790	4520	
30-49	9/3/2013	65.49	67.43	6270	15.1	6 32	1000	0.07	2960	6950	
30-53	9/9/2013	DRY	50.05	0270		0.52	1000	U.LL	2300	- 0550	
30-68 R	9/9/2013	DRY	66.1								
31-05 R	9/9/2013	49.87	66.23	6060	14.6	6.87	610	2.91	3480	6360	
31-61	8/6/2013	15.32	29.32	10580	13.1	6.24	2440	2.78	6010	15100	
31-61	11/4/2013	15.11	29.33	12690	13.7	6.34	2400	2.64	5790	13700	
31-63	7/17/2007		Rem	oved from s	ervice whe	n the interc	eptor trenc	h was disco	ntinued	1 10/00	
31-65	8/6/2013	12.76	41.47	12820	15.4	6.28	2300	0.03	6240	16100	
31-65	11/4/2013	12.32	41.48	12700	13.7	6.35	2500	0.13	6200	14900	
31-70 R	9/9/2013	41.55	81.36	5600	14.4	6.23	1200	63	2270	6770	
31-71	9/3/2013	46.49	63.31	4490	14.5	7.17	570	0.08	2110	4790	
32-01 R	9/9/2013	20.33	60.97	12460	14.2	6.2	2490	< 0.2	7940	16200	
32-02 R	9/3/2013	50.98	70.41	3540	15.1	7.07	510	0.45	1890	3980	
32-41	9/3/2013	40.39	60.24	4160	14.6	6.75	970	0.07	972	3080	
32-42	9/3/2013	DRY	21.98								
32-43N	9/9/2013	25.17	76.35	8260	14.2	6.76	1650	3.83	3990	9450	
32-50 R	8/27/2013	51.12	88.63	4860	14.4	6.91	560	2.27	2570	5320	
32-51	8/27/2013	34.18	74.3	4960	14	7.38	370	7.84	2700	5080	
32-52	8/27/2013	33.21	66.1	3250	13.9	9.06	240	0.04	1540	2730	
32-56	8/27/2013	DRY	57.44								
32-57	8/27/2013	46.35	53.25	6040	13.8	6.67	231	4.49	3370	6280	
32-58	8/26/2013	17.91	34.48	10370	14	6.51	2900	14.8	3160	10900	
32-59	8/5/2013	20.29	28.26	5180	14.5	7.15	550	0.23	2280	4780	
32-59	11/4/2013	17.64	28.27	4830	13.3	7.2	640	2.11	2000	4460	
32-60	9/9/2013	14.38	27.73	6070	13.6	6.53	1420	11.9	3820	8970	
32-69	9/9/2013	53.57	78.41	7930	14.8	6.51	1800	2.69	2430	7910	
32-72	8/26/2013	20.91	40.03	5820	14.4	6.75	820	4.75	2480	2160	
5-01	8/26/2013	28.64	44.28	3770	15.6	8.2	200	0.26	2320	3820	
5-02	8/26/2013	27.41	38.34	5360	14.4	7.1	1620	0.72	881	3740	
5-03 R	8/5/2013	25.08	56.25	4750	14.2	6.83	550	0.37	2030	4300	
5-03 R	11/4/2013	22.47	56.25	4510	13.2	7.09	560	0.29	1970	4270	
5-04	8/5/2013	22.68	64.05	5260	14.9	7.2	790	0.29	2510	4870	
5-04	11/4/2013	21.4	64.02	4850	13.5	8.01	760	0.05	2160	5840	
5-08 R	8/5/2013	35.39	76.52	3890	14.4	7.28	220	10.9	1970	3800	
5-08 R	11/4/2013	34.89	76.51	3610	13.1	7.39	240	10.4	1990	3780	
5-73 R	8/5/2013	19.98	35.69	6850	13.8	6.79	1590	0.92	1830	5620	
5-73 R	11/4/2013	18.56	35.7	6290	12.9	7.08	1590	0.85	1750	3850	
AW-1	8/27/2013	55.25	81.34	6350	14.1	6.81	680	7.01	3280	7140	
AW-2	8/27/2013	35.07	86.03	5080	13.9	7.32	360	5.58	2610	5340	
C-3	6/13/1995		Remo	ed, plugged,	, and aban	doned to fa	cilitate site (	reclamation	activities		
D-4	2/27/2006		Remo	ved, plugged,	, and aban	doned to fa	cilitate site	reclamation	activities		
E-5	2/27/2006		Remo	ed, plugged,	, and aban	doned to fa	cilitate site	reclamation	activities		
S-12	9/9/2013	13.8	27.72	10170	13.7	6.62	2930	0.1	4600	12600	
S-9	8/26/2013	11.96	24.68	9460	16.1	8.49	2400	0.23	3820	9790	

## Exhibit 1

## **DP-169 Analytical Reports**

.



Analytical Report

September 17, 2013

Report to: Doug Murray 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

#### Project ID: 58507/BS01072229 ACZ Project ID: L14178

Doug Murray:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 30, 2013. This project has been assigned to ACZ's project number, L14178. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L14178. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after October 17, 2013. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

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

Lue well

Sue Webber has reviewed and approved this report.







 Project ID:
 58507/BS01072229

 Sample ID:
 5-01

ACZ Sample ID:	L14178-01
Date Sampled:	08/26/13 10:10
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	200		*	mg/L	10	50	09/11/13 12:13	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.26		*	mg/L	0.02	0.1	09/12/13 0:23	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	3820		*	mg/L	10	20	08/30/13 16:05	khw
Sulfate	D516-02 - Turbidimetric	100	2320		*	mg/L	100	500	09/12/13 15:09	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 5-02

ACZ Sample ID:	L14178-02
Date Sampled:	08/26/13 12:05
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	50	1620		*	mg/L	50	300	09/11/13 12:13	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.72		*	mg/L	0.02	0.1	09/12/13 0:24	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	3740	н	*	mg/L	20	40	09/04/13 14:24	khw
Sulfate	D516-02 - Turbidimetric	50	881		*	mg/L	50	250	09/12/13 14:44	jlf

<sup>\*</sup> Please refer to Qualifier Reports for details.



 Project ID:
 58507/BS01072229

 Sample ID:
 32-58

ACZ Sample ID:	L14178-03
Date Sampled:	08/26/13 12:46
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	100	2900		*	mg/L	100	500	09/11/13 12:39	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	10	14.8		*	mg/L	0.2	1	09/12/13 0:51	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	10900	н	*	mg/L	50	100	09/04/13 14:25	khw
Sulfate	D516-02 - Turbidimetric	200	3160		*	mg/L	200	1000	09/12/13 15:04	jlf

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

#### **Rio Algom Mining Company**

 Project ID:
 58507/BS01072229

 Sample ID:
 S-9

ACZ Sample ID:	L14178-04
Date Sampled:	08/26/13 13:09
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	100	2400		*	mg/L	100	500	09/11/13 12:39	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.23			mg/L	0.02	0.1	09/12/13 0:26	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	9790	н	*	mg/L	50	100	09/04/13 14:27	khw
Sulfate	D516-02 - Turbidimetric	200	3820		*	mg/L	200	1000	09/12/13 15:04	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 32-72

ACZ Sample ID:	L14178-05
Date Sampled:	08/26/13 13:35
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	820		*	mg/L	10	50	09/11/13 12:13	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	4.75			mg/L	0.06	0.3	09/12/13 0:52	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	2160	н	*	mg/L	20	40	09/04/13 14:29	khw
Sulfate	D516-02 - Turbidimetric	100	2480		*	mg/L	100	500	09/13/13 15:09	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 32-57

ACZ Sample ID:	L14178-06
Date Sampled:	08/27/13 08:35
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	5	231		*	mg/L	5	30	09/11/13 12:03	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	4.49			mg/L	0.06	0.3	09/12/13 0:54	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6280		*	mg/L	20	40	09/03/13 16:52	dcw
Sulfate	D516-02 - Turbidimetric	250	3370			mg/L	250	1250	09/13/13 15:44	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 AW-2

ACZ Sample ID:	L14178-07
Date Sampled:	08/27/13 09:16
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	360		*	mg/L	10	50	09/11/13 12:13	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	3	5.58			mg/L	0.06	0.3	09/12/13 0:55	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	5340	н	*	mg/L	50	100	09/05/13 14:54	mss3
Sulfate	D516-02 - Turbidimetric	200	2610			mg/L	200	1000	09/13/13 15:49	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 32-52

ACZ Sample ID:	L14178-08
Date Sampled:	08/27/13 09:37
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	240		*	mg/L	10	50	09/11/13 12:14	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.04	в		mg/L	0.02	0.1	09/12/13 0:33	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	2730		*	mg/L	10	20	09/03/13 16:54	dcw
Sulfate	D516-02 - Turbidimetric	50	1540			mg/L	50	250	09/13/13 15:52	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 32-51

ACZ Sample ID:	L14178-09
Date Sampled:	08/27/13 10:05
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	370		*	mg/L	10	50	09/11/13 12:16	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	4	7.84			mg/L	0.08	0.4	09/12/13 0:57	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	5080	н	٠	mg/L	50	100	09/05/13 14:55	mss3
Sulfate	D516-02 - Turbidimetric	200	2700			mg/L	200	1000	09/13/13 15:49	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 32-50R

ACZ Sample ID:	L14178-10
Date Sampled:	08/27/13 10:43
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	560		*	mg/L	10	50	09/11/13 12:16	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	2.27			mg/L	0.02	0.1	09/12/13 0:38	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	5320	н	*	mg/L	50	100	09/05/13 14:56	mss3
Sulfate	D516-02 - Turbidimetric	200	2570			mg/L	200	1000	09/13/13 15:49	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 30-47

ACZ Sample ID:	L14178-11
Date Sampled:	08/27/13 13:39
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	20	990		*	mg/L	20	100	09/11/13 12:57	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	10	0.5	В	*	mg/L	0.2	1	09/14/13 0:37	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	5400		*	mg/L	50	100	09/03/13 16:58	dcw
Sulfate	D516-02 - Turbidimetric	200	2100			mg/L	200	1000	09/13/13 15:51	jlf

<sup>\*</sup> Please refer to Qualifier Reports for details.



 Project ID:
 58507/BS01072229

 Sample ID:
 AW-1

ACZ Sample ID:	L14178-12
Date Sampled:	08/27/13 14:18
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	680		*	mg/L	10	50	09/11/13 12:51	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	4	7.01			mg/L	0.08	0.4	09/12/13 0:58	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	7140	н	*	mg/L	50	100	09/05/13 14:57	mss3
Sulfate	D516-02 - Turbidimetric	200	3280			mg/L	200	1000	09/13/13 15:51	jlf



 Project ID:
 58507/BS01072229

 Sample ID:
 30-04R

ACZ Sample ID:	L14178-13
Date Sampled:	08/27/13 14:33
Date Received:	08/30/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	630		*	mg/L	10	50	09/11/13 12:52	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	4	7.64			mg/L	0.08	0.4	09/12/13 0:59	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5510	н	*	mg/L	20	40	09/05/13 15:00	mss3
Sulfate	D516-02 - Turbidimetric	200	2520			mg/L	200	1000	09/13/13 15:51	jlf



Inorganic Reference

Report Header	r 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.	Allows for instrume	ent and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the man	ufacturer's certifica	ate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.		
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 % (exc	cept for LCSS, mg	/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC	C Types	
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)		
Sample	Value of the Sample of interest		
QC Sample Ty	rpes		
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank
ССВ	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 Ty	re Explanations		
Blanks	Verifies that there is no or minimal or	ontamination in the	prep method or calibration procedure.
Control Sa	mples Verifies the accuracy of the method,	including the prep	procedure.
Duplicates	Verifies the precision of the instrume	ent and/or method.	
Spikes/For	tified Matrix Determines sample matrix interferen	ices, if any.	
Standard	Verifies the validity of the calibration.		
ACZ Qualifiers	(Qual)		
в	Analyte concentration detected at a value between MDL and I	PUL. The associat	ied value is an estimated quantity.
н	Analysis exceeded method hold time. pH is a field test with all	n immediate noid t	ime.
L	The metarial was analyzed for but was not detected above the	gative threshold.	and unlike
U	The material was analyzed for, but was not detected above th	the comple detect	
	The associated value is either the sample quantitation limit or	the sample detect	ION AITHL
Method Refere	ences		
(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water	and Wastes, Marc	h 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorgan	nic Substances in I	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 Wastewa	ater.	
Comments			
(1)	OC results calculated from raw data. Results may vary slight	v if the rounded va	lues are used in the calculations.
(2)	Soil. Sludge, and Plant matrices for Inorganic analyses are re-	ported on a drv we	ight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as	s received" basis.	• • • • • • • • • • • • • • • • • • •
(4)	An asterisk in the "XQ" column indicates there is an extended	qualifier and/or ce	rtification qualifier
	associated with the result.	,	
(5)	If the MDL equals the PQL or the MDL column is omitted, the	PQL is the reporting	ng limit.
\- <i>\</i>			•
For a comp	plete list of ACZ's Extended Qualifiers, please click:	http://ww	w.acz.com/public/extquallist.pdf
	-		

REP001.09.12.01

Inorganic QC Summary

#### 2773 Downhill Drive (800) 334-5493

#### **Rio Algom Mining Company**

#### ACZ Project ID: L14178

Chloride			SM4500C	I-E									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG350947													
WG350947ICB	ICB	09/11/13 8:22				U	mg/L		-3	3			
WG350947ICV	ICV	09/11/13 8:22	WI130722-5	54.945		58.2	mg/L	105.9	90	110			
WG350947LFB1	LFB	09/11/13 11:52	WI130201-8	30		32.5	mg/L	108.3	90	110			
WG350947LFB2	LFB	09/11/13 12:04	WI130201-8	30		32.4	mg/L	108	90	110			
L14178-01AS	AS	09/11/13 12:13	10XCL	30	200	226	mg/L	86.7	90	110			MЗ
L14178-02DUP	DUP	09/11/13 12:13			1620	1641	mg/L				1.3	20	
L14178-10AS	AS	09/11/13 12:16	10XCL	30	560	571	mg/L	36.7	90	110			M3
L14178-11DUP	DUP	09/11/13 12:57			990	984	mg/L				0,6	20	
Nitrate/Nitrite as	N		M353.2 -	H2SO4 pr	reserved								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG350976													
WG350976ICV	ICV	09/11/13 20:40	WI130712-3	2.416		2.373	mg/L	98.2	90	110			
WG350976ICB	ICB	09/11/13 20:42				U	mg/L		-0.06	0.06			
WG350981													
WG350981LFB1	LFB	09/12/13 0:08	WI130816-3	2		1.964	mg/L	98.2	90	110			
L14082-01AS	AS	09/12/13 0:11	WI130816-3	2	U	1.502	mg/L	75.1	90	110			M2
L14082-02DUP	DUP	09/12/13 0:13			1.07	1.097	mg/L				2.5	20	
L14178-04AS	AS	09/12/13 0:27	WI130816-3	2	.23	2.142	mg/L	95.6	90	110			
WG350981LFB2	LFB	09/12/13 0:43	WI130816-3	2		1.945	mg/L	97.3	90	110			
L14178-05DUP	DUP	09/12/13 0:53			4.75	4.787	mg/L				0.8	20	
WG351127													
WG351127ICV	ICV	09/13/13 20:28	WI130712-3	2.416		2.361	mg/L	97.7	90	110			
WG351127ICB	ICB	09/13/13 20:2 <del>9</del>				U	mg/L		-0.06	0.06			
WG351135													
WG351135LFB1	LFB	09/13/13 23:44	WI130816-3	2		2.009	mg/L	100.5	90	110			
WG351135LFB2	LFB	09/14/13 0:19	W1130816-3	2		1.993	mg/L	99.7	90	110			
L14277-01AS	AS	09/14/13 0:41	WI130816-3	10	4.9	15.38	mg/L	104.8	90	110			
L14277-02DUP	DUP	09/14/13 0:44			12.9	12.82	mg/L				0.6	20	

#### ACZ Project ID: L14178

Residue, Filtera	ble (TDS	) @180C	SM2540C										
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG350403													
WG350403PBW	PBW	08/30/13 15:30				U	mg/L		-20	20			
WG350403LCSW	LCSW	08/30/13 15:31	PCN43409	260		264	mg/L	101.5	80	120			
L14135-02DUP	DUP	08/30/13 15:53			3660	3720	mg/L				1.6	10	
WG350495													
WG350495PBW	PBW	09/03/13 16:30				U	mg/L		-20	20			
WG350495LCSW	LCSW	09/03/13 16:31	PCN43409	260		268	mg/L	103.1	80	120			
L14178-11DUP	DUP	09/03/13 16:59			5400	5310	mg/L				1.7	10	
WG350553													
WG350553PBW	PBW	09/04/13 13:45				U	mg/L		-20	20			
WG350553LCSW	LCSW	09/04/13 13:46	PCN43416	260		254	mg/L	97.7	80	120			
L14165-02DUP	DUP	09/04/13 14:16			4180	4220	mg/L				1	10	
WG350660													
WG350660PBW	PBW	09/05/13 14:45				U	mg/L		-20	20			
WG350660LCSW	LCSW	09/05/13 14:46	PCN43416	260		256	mg/L	98.5	80	120			
L14178-12DUP	DUP	09/05/13 14:59			7140	7390	mg/L				3.4	10	
L14275-06DUP	DUP	09/05/13 15:11			822	812	mg/L				1.2	10	
Sulfate			D516-02 -	Turbidim	netric					<b></b>			
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG351032													
WG351032ICB	ICB	09/12/13 10:40				U	mg/L		-3	3			
WG351032ICV	ICV	09/12/13 10:40	WI130909-2	20		20.9	mg/L	104.5	90	110			
WG351032LFB	LFB	09/12/13 14:32	WI130416-3	9.99		10.3	mg/L	103.1	90	110			
L14177-03DUP	DUP	09/12/13 14:38			5.6	5.4	mg/L				3.6	20	RA
L14177-04AS	AS	09/12/13 14:47	SO4TURB5	10	55.3	63.1	mg/L	78	90	110			M3
WG351117													
WG351117ICB	ICB	09/13/13 14:08				U	mg/L		-3	3			
WG351117ICV	ICV	09/13/13 14:08	WI130909-2	20		21.2	mg/L	106	90	110			
WG351117LFB	LFB	09/13/13 14:37	WI130416-3	9.99		10.1	mg/L	101.1	90	110			
L14178-05DUP	DUP	09/13/13 15:09			2480	2510	mg/L				1.2	20	
L14179-01AS	AS	09/13/13 15:09	SO4TURB10	10	2430	2450	mg/L	200	90	110			MЗ
WG351118													
WG351118ICB	ICB	09/13/13 14:08				U	mg/L		-3	3			
WG351118ICV	ICV	09/13/13 14:08	WI130909-2	20		21.2	mg/L	106	90	110			
WG351118LFB	LFB	09/13/13 15:33	Wi130416-3	9.99		10.2	mg/L	102.1	90	110			
L14136-01DUP	DUP	09/13/13 15:41			1810	1850	mg/L				2.2	20	
WG351118ICB1	ICB	09/16/13 9:17				U	mg/L		-3	3			
WG351118ICV1	ICV	09/16/13 9:17	WI130909-2	20		20.7	mg/L	103.5	90	110			
144400 0040	45	00/16/13 10.10	W/1130/16-3	000	2080	2000	ma/l	100.1	00	110			

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

(800) 334-5493

## Inorganic Extended **Qualifier Report**

ACZ Project ID: L14178

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L14178-01	WG350947	Chloride	SM4500CHE	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.
	WG350981	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG350403	Residue, Filterable (TDS) @180C	SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351032	Sulfate	D516-02 - Turbidimetric	MЗ	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.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L14178-02	WG350947	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.
	WG350981	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG350553	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351032	Sulfate	D516-02 - 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.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L14178-03	WG350947	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.
	WG350981	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG350553	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351032	Sulfate	D516-02 - 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.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

#### **Rio Algom Mining Company**

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#### **Rio Algom Mining Company**

Inorganic Extended Qualifier Report

ACZ Project ID: L14178

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L14178-04	WG350947	Chloride	SM4500CLE	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.
	WG350553	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351032	Sulfate	D516-02 - Turbidimetric	MЗ	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.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L14178-05	WG350947	Chloride	SM4500CI-E	MЗ	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.
	WG350553	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351117	Sulfate	D516-02 - 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.
L14178-06	WG350947	Chloride	SM4500CHE	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.
	WG350495	Residue, Filterable (TDS) @180C	SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14178-07	WG350947	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.
	WG350660	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14178-08	WG350947	Chloride	SM4500CFE	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.
	WG350495	Residue, Filterable (TDS) @180C	SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14178-09	WG350947	Chloride	SM4500CFE	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.
	WG350660	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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

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## Inorganic Extended Qualifier Report

ACZ Project ID: L14178

container was used,

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L14178-10	WG350947	Chloride	SM4500CHE	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.
	WG350660	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14178-11	WG350947	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.
	WG351135	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	D1	Sample required dilution due to matrix.
	WG350495	Residue, Filterable (TDS) @180C	SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14178-12	WG350947	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.
	WG350660	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14178-13	WG350947	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.
	WG350660	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample

#### **Rio Algom Mining Company**



(800) 334-5493



**Rio Algom Mining Company** 

ACZ Project ID: L14178

No certification qualifiers associated with this analysis

ACZ Laborat 2773 Downhill Drive Steamboat Spri	tories, Inc ings, CO 80487 (80	0) 334-5493		Sa Re	imple eceip	
<b>Rio Algom Mining Company</b> 58507/BS01072229			ACZ Proj Date Rec Receiv Date P	ect ID: ceived: 08 red By: rrinted:	8/30/20 8/	L14178 13 09:59 mtb 30/2013
Receipt Verification				YES	NO	NA
1) Is a foreign soil permit include	ed for applicable sa	amples?				X
2) Is the Chain of Custody or oth	ner directive shippi	ng papers present?		X		
3) Does this project require spec	cial handling proce	dures such as CLP pr	otocol?			X
4) Are any samples NRC license	able material?					X
5) If samples are received past	hold time, proceed	with requested short	hold time analyses?	X		
6) Is the Chain of Custody comp	plete and accurate?	?		X		
7) Were any changes made to t	he Chain of Custo	by prior to ACZ receivi	ng the samples?		Х	
Samples/Containers						
				YES	NO	NA
8) Are all containers intact and v	with no leaks?			X		
9) Are all labels on containers a	nd are they intact a	and legible?		X		
10) Do the sample labels and C	hain of Custody ma	atch for Sample ID, Da	ate, and Time?	X		
11) For preserved bottle types, v	was the pH checke	d and within limits?		X		
12) Is there sufficient sample vo	lume to perform at	requested work?		X		
13) Is the custody seal intact on	all containers?					Х
14) Are samples that require zer	ro headspace acce	ptable?				X
15) Are all sample containers ap	opropriate for analy	tical requirements?		X		
16) Is there an Hg-1631 trip blar	nk present?					Х
17) Is there a VOA trip blank pre	esent?					Х
18) Were all samples received v	within hold time?			X	-	
Chain of Custody Related Rem	arks					
Client Contact Remarks						
			· · · · · · · · · · · · · · · · · · ·			
Snipping Containers				heat 2		
cooler 1d	Temp (°C)	kad (µk/Hr)	Custody Seal In	cact?		
3440	5.5	14	Yes			
Yes - Wet ice was pre-	nt container(s)? esent in the st	nipment container	(s).			

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

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in sample(s) receive analysis before exp	d past holding	ume (HT CZ proce	), or it insuffic ed with reque	sted shor	emains t HT ai	to com nalyses	piete ?				NO		
If "NO" then ACZ will contact cl Are samples for SD	lient for further instruct	ion. If neither '	"YES" nor "NO" is ind ring?	licated, ACZ will	Yes	with the requ	lested analy	No	f HT is exp	ired, and dat	a will be qu	lalified	
If yes, please includ	le state forms.	Results v	will be reporte	d to PQL	for Col	lorado.	J		L	J			
Sampler's Name	toyold SII	Sampl	er's site Infor	mation	State:		· · ·	Zip co	de		Time Z	Zone	
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37-57	8-27	-13:	6937	GW	2	X							
32-51	8-27	-13:	1005	Gul	a	X		ļ		ļ		<u> </u>	
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NO" then ACZ will contact clien	t for further instruct	don. If neither "	YES" nor "NO" is indi	icated, ACZ wi	ill proceed w	ith the requ	ested analy	ses, even i	if HT is exp	pired, and d	ata will be qu	alified	
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Matrix SW (Surface	• Water) · GW (	(Ground Wa	iter) · WW (Wast	e Water) · I	DW (Drin	king Wate	er) · SL (S	Sludge)	· SO (S	oil) · OL (	Ol) · Oth	er (Speci	fy)
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September 23, 2013

Report to: Doug Murray 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

Project ID: 58507/BS01072229 ACZ Project ID: L14294

Doug Murray:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 06, 2013. This project has been assigned to ACZ's project number, L14294. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L14294. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after October 23, 2013. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

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

S. Habermehl

Scott Habermehl has reviewed and approved this report.







 Project ID:
 58507/BS01072229

 Sample ID:
 30-48

ACZ Sample ID:	L14294-01
Date Sampled:	09/03/13 09:52
Date Received:	09/06/13
Sample Matrix:	Ground Water

Wet Chemistry											
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst	
Chloride	SM4500CI-E	10	750		*	mg/L	10	50	09/21/13 10:40	bsu	
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.07	В	*	mg/L	0.02	0.1	09/18/13 22:29	pjb	
Residue, Filterable (TDS) @180C	SM2540C	2	4520		*	mg/L	20	40	09/09/13 17:05	mss3	
Sulfate	D516-02 - Turbidimetric	100	1790		*	mg/L	100	500	09/16/13 18:09	bsu	



Project ID:	58507/BS01072229
Sample ID:	30-49

ACZ Sample ID:	L14294-02
Date Sampled:	09/03/13 11:14
Date Received:	09/06/13
Sample Matrix:	Ground Water

Wet Chemistry											
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst	
Chloride	SM4500CI-E	100	1000		*	mg/L	100	500	09/21/13 10:40	bsu	
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.22		*	mg/L	0.02	0.1	09/18/13 22:30	pjb	
Residue, Filterable (TDS) @180C	SM2540C	5	6950		*	mg/L	50	100	09/09/13 17:06	mss3	
Sulfate	D516-02 - Turbidimetric	200	2960		*	mg/L	200	1000	09/16/13 18:19	bsu	



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#### **Rio Algom Mining Company**

 Project ID:
 58507/BS01072229

 Sample ID:
 32-02 R

ACZ Sample ID:	L14294-03
Date Sampled:	09/03/13 12:41
Date Received:	09/06/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	510		*	mg/L	10	50	09/21/13 10:40	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.45		*	mg/L	0.02	0.1	09/18/13 22:31	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	3980		*	mg/L	10	20	09/07/13 12:50	khw
Sulfate	D516-02 - Turbidimetric	100	1890		*	mg/L	100	500	09/16/13 18:09	bsu

<sup>\*</sup> Please refer to Qualifier Reports for details.



 Project ID:
 58507/BS01072229

 Sample ID:
 32-41

ACZ Sample ID:	L14294-04
Date Sampled:	09/03/13 13:14
Date Received:	09/06/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	50	970		*	mg/L	50	300	09/21/13 10:43	bsu
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.07	В	*	mg/L	0.02	0.1	09/18/13 22:32	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	3080		*	mg/L	10	20	09/07/13 12:52	khw
Sulfate	D516-02 - Turbidimetric	25	972		*	mg/L	25	125	09/16/13 18:06	bsu



 Project ID:
 58507/BS01072229

 Sample ID:
 31-71

ACZ Sample ID:	L14294-05
Date Sampled:	09/03/13 13:48
Date Received:	09/06/13
Sample Matrix:	Ground Water

Wet Chemistry											
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst	
Chloride	SM4500CI-E	10	570		*	mg/L	10	50	09/21/13 10:40	bsu	
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.08	в	*	mg/L	0.02	0.1	09/18/13 22:36	pjb	
Residue, Filterable (TDS) @180C	SM2540C	2	4790		*	mg/L	20	40	09/09/13 17:07	mss3	
Sulfate	D516-02 - Turbidimetric	100	2110		*	mg/L	100	500	09/16/13 18:09	bsu	



#### Inorganic Reference

Report Header	r Explanations		· · · · · · · · · · · · · · · · · · ·							
Batch	A distinct set of same	les analyzed at a specific time								
Found	Value of the QC Type of interest									
Limit	Upper limit for RPD, i	n %.								
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)									
MDL	Method Detection Limit. Same as Minimum Reporting Limit. 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, typically 5 times the MDL.									
QC	True Value of the Control Sample or the amount added to the Spike									
Rec	Recovered amount o	f the true value or spike added, in % (ex	cept for LCSS, mg	/Kg)						
RPD	Relative Percent Diffe	erence, calculation used for Duplicate QC	C Types							
Upper	Upper Recovery Limi	t, in % (except for LCSS, mg/Kg)								
Sample	Value of the Sample	of interest								
QC Sample Ty	pes									
AS	Analytical Spike (Pos	t Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate						
ASD	Analytical Spike (Pos	t Digestion) Duplicate	LFB	Laboratory Fortified Blank						
ССВ	Continuing Calibratio	n Blank	LFM	Laboratory Fortified Matrix						
CCV	Continuing Calibration	n Verification standard	LFMD	Laboratory Fortified Matrix Duplicate						
DUP	Sample Duplicate		LRB	Laboratory Reagent Blank						
ICB	Initial Calibration Blar	ık	MS	Matrix Spike						
ICV	Initial Calibration Veri	fication standard	MSD	Matrix Spike Duplicate						
ICSAB	Inter-element Correct	tion Standard - A plus B solutions	PBS	Prep Blank - Soil						
LCSS	Laboratory Control S	ample - Soil	PBW	Prep Blank - Water						
LCSSD	Laboratory Control S	ample - Soil Duplicate	PQV	Practical Quantitation Verification standard						
LCSW	Laboratory Control S	ample - Water	SDL	Serial Dilution						
Duplicates Spikes/For	tified Matrix	Verifies the precision of the instrume Determines sample matrix interferer	ent and/or method. nces, if any.							
Standard		Verifies the validity of the calibration								
ACZ Qualifiers	(Qual)			1						
В	Analyte concentration	detected at a value between MDL and	PQL. The associat	ed value is an estimated quantity.						
н	Analysis exceeded m	ethod hold time. pH is a field test with a	n immediate hold t	ime.						
L	Target analyte respon	nse was below the laboratory defined ne	gative threshold.							
U	The material was ana	lyzed for, but was not detected above th	e level of the asso	ciated value.						
	The associated value	is either the sample quantitation limit or	the sample detect	ion limit.						
Inthe of Defense										
Method Refere				L 1000						
(1)	EPA 000/4-83-020. 1	Methods for Chemical Analysis of Water	and wastes, Marc	n 1963. Sevérementel Complex, A., 14 1992						
(2)	EPA 600/R-93-100.	Methods for the Determination of Inorgai	nic Substances in I	Environmental Samples, August 1993.						
(3)	EPA 600/R-94-111.	Methods for the Determination of Metals	in Environmental S	Samples - Supplement I, May 1994.						
(4) (5)	EPA SW-846. Test P	Methods for Evaluating Solid Waste.	-4							
(5)	Standard Methods to		ater.							
Comments										
(1)	QC results calculated	I from raw data. Results may vary slight	ly if the rounded va	lues are used in the calculations.						
(2)	Soil, Sludge, and Pla	nt matrices for Inorganic analyses are re	ported on a dry we	ight basis.						
(3)	Animal matrices for li	norganic analyses are reported on an "as	s received" basis.							
(4)	An asterisk in the "X0	Q" column indicates there is an extended	qualifier and/or ce	rtification qualifier						
(5)	associated with the re			r 4						
(5)	IT the MDL equals the	PQL or the MDL column is omitted, the	PQL is the reporting	ng limit.						
For a come	nloto list of AC7's Exton	ded Qualifiers, please click:	http://www	w acz com/public/extguallist pdf						
For a comp	VIELE NOL ULAUZ S EXTERI	ueu Quaimers, piease Click.	nup.//ww	w.acz.com/public/cxiqualiisi.pai						

REP001.09.12.01
Chloride			SM4500C	I-E									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG351555													
WG351555ICB	ICB	09/21/13 10:12				U	mg/L		-3	3			
WG351555ICV	ICV	09/21/13 10:12	WI130722-5	54.945		57.7	mg/L	105	90	110			
WG351555LFB1	LFB	09/21/13 10:30	WI130201-8	30		31.8	mg/L	106	90	110			
L14275-09AS	AS	09/21/13 10:40	10XCL	30	110	146	mg/L	120	90	110			M1
L14294-01DUP	DUP	09/21/13 10:40			750	756	mg/L				0.8	20	
WG351555LFB2	LFB	09/21/13 10:52	WI130201-8	30		32.1	mg/L	107	90	110			
Nitrate/Nitrite as	N N		M353.2 - I	H2SO4 pr	reserved								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limít	Qual
WG351392													
WG351392ICV	ICV	09/18/13 20:59	WI130712-3	2.416		2.427	mg/L	100.5	90	110			
WG351392ICB	ICB	09/18/13 21:00				U	mg/L		-0.06	0.06			
WG351394													
WG351394LFB1	LFB	09/18/13 22:21	WI130816-3	2		2.033	mg/L	101.7	90	110			
L14189-01AS	AS	09/18/13 22:24	WI130816-3	2	.03	2.065	mg/L	101.8	90	110			
L14189-02DUP	DUP	09/18/13 22:26			.04	.042	mg/L				4.9	20	RA
WG351394LFB2	LFB	09/18/13 22:56	WI130816-3	2		2.062	mg/L	103.1	90	110			
Residue, Filtera	ble (TDS	i) @180C	SM2540C	;	· ·								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG350758													
WG350758PBW	PBW	09/07/13 12:15				U	mg/L		-20	20			
WG350758LCSW	LCSW	09/07/13 12:16	PCN43412	260		270	mg/L	103.8	80	120			
L14298-02DUP	DUP	09/07/13 12:59			U	U	mg/L				0	10	RA
WG350811													
WG350811PBW	PBW	09/09/13 17:00				U	mg/L		-20	20			
WG350811LCSW	LCSW	09/09/13 17:01	PCN43412	260		264	mg/L	101.5	80	120			
L14262-05DUP	DUP	09/09/13 17:15			1030	1010	mg/L				2	10	
L14294-05DUP	DUP	09/09/13 17:29			4790	4710	mg/L				1.7	10	
Sulfate			D516-02 -	Turbidim	etric								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG351224													
WG351224ICB	ICB	09/16/13 9:17				U	mg/L		-3	3			
WG351224ICV	ICV	09/16/13 9:17	WI130909-2	20		20.7	mg/L	103.5	90	110			
WG351224LFB	LFB	09/16/13 17:40	WI130416-3	9.99		10.6	mg/L	106.1	90	110			
L14298-02DUP	DUP	09/16/13 18:00			1.9	U	mg/L				200	20	RA
L14442-01AS	AS	09/16/13 18:19	SO4TURB20	10	222	233	mg/L	110	90	110			

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

(800) 334-5493

# Inorganic Extended **Qualifier Report**

### **Rio Algom Mining Company**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L14294-01	WG351555	Chloride	SM4500CHE	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500CHE	Q6	Sample was received above recommended temperature.
	WG351394	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	Q6	Sample was received above recommended temperature.
			M353,2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG350811	Residue, Filterable (TDS) @180C	SM2540C	Q6	Sample was received above recommended temperature.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351224	Sulfate	D516-02 - Turbidimetric	Q6	Sample was received above recommended temperature.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L14294-02	WG351555	Chloride	SM4500CHE	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500CHE	Q6	Sample was received above recommended temperature.
	WG351394	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	Q6	Sample was received above recommended temperature.
			M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG350811	Residue, Filterable (TDS) @180C	SM2540C	Q6	Sample was received above recommended temperature.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351224	Sulfate	D516-02 - Turbidimetric	Q6	Sample was received above recommended temperature.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L14294-03	WG351555	Chloride	SM4500CI-E	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500CHE	Q6	Sample was received above recommended temperature.
	WG351394	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	Q6	Sample was received above recommended temperature.
			M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG350758	Residue, Filterable (TDS) @180C	SM2540C	Q6	Sample was received above recommended temperature.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
			SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351224	Sulfate	D516-02 - Turbidimetric	Q6	Sample was received above recommended temperature.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

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

(800) 334-5493

# Inorganic Extended **Qualifier Report**

### **Rio Algom Mining Company**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L14294-04	WG351555	Chloride	SM4500CFE	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500CHE	Q6	Sample was received above recommended temperature.
	WG351394	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	Q6	Sample was received above recommended temperature.
			M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG350758	Residue, Filterable (TDS) @180C	SM2540C	Q6	Sample was received above recommended temperature.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
			SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351224	Sulfate	D516-02 - Turbidimetric	Q6	Sample was received above recommended temperature.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L14294-05	WG351555	Chloride	SM4500CHE	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500CHE	Q6	Sample was received above recommended temperature.
	WG351394	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	Q6	Sample was received above recommended temperature.
			M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG350811	Residue, Filterable (TDS) @180C	SM2540C	Q6	Sample was received above recommended temperature.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351224	Sulfate	D516-02 - Turbidimetric	Q6	Sample was received above recommended temperature.
			D516-02 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).



(800) 334-5493



**Rio Algom Mining Company** 

ACZ Project ID: L14294

No certification qualifiers associated with this analysis

ACZ Laborato	Sample Receipt					
Rio Algom Mining Company 58507/BS01072229			ACZ Proj Date Rec Receiv Date P	ect ID: ceived: 09 red By: crinted:	9/06/201 9	L14294 3 10:25 mtb )/6/2013
Receipt vernication			i	YES	NO	NA
1) Is a foreign soil permit included	for applicable sa	amples?				X
2) Is the Chain of Custody or other	X					
3) Does this project require special	handling proce	dures such as CLP p	rotocol?			X
4) Are any samples NRC licensable	e material?					Х
5) If samples are received past hole	X					
6) Is the Chain of Custody complet	e and accurate?	?		X		
7) Were any changes made to the A change was made in ACZ custody.	Chain of Custoc n the Projec	dy prior to ACZ receivet Information set	ving the samples? ection prior to	X		
Samples/Containers						
<b>.</b>				YES	NO	NA
8) Are all containers intact and with	i no leaks?			X		
9) Are all labels on containers and	are they intact a	and legible?		X		<u> </u>
10) Do the sample labels and Chai	n of Custody ma	atch for Sample ID, D	ate, and Time?	X		
11) For preserved bottle types, was	s the pH checke	d and within limits?		X		
12) Is there sufficient sample volun	ne to perform all	l requested work?		X		
13) Is the custody seal intact on all	containers?					X
14) Are samples that require zero h	leadspace acce	eptable?				X
15) Are all sample containers appro	opriate for analy	rtical requirements?		X		
16) Is there an Hg-1631 trip blank p	present?					X
17) Is there a VOA trip blank prese	nt?					X
18) Were all samples received with	iin hold time?			X		
Chain of Custody Related Remark	(S					
Client Contact Remarks						
Shinning Containers						
Cooler Id	Temp (°C)	Rad (uR/Hr)	Custody Seal Ir	tact?		
3890	9.6	13	Yes			
Was ice present in the shipment of	ontainer(s)?	10	100			
Yes - Wet ice was prese	nt in the sh	nipment containe	r(s) but was thawe	d by rec	eipt at	ACZ.

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

ALIA L 2773 Downhill Drive Steam Report to: Name: Doug Company: Riv H E-mail: Copy of Report to: Name: Company:	aborato	9 80487 (800) 3 9 80487 (800) 3 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	<b>2.</b> () 334-5493	Addre	294 ss:	P0. 2	CHAII	N of	CUS
2773 Downhill Drive Steam Report to: Name: Doug Company: Rive H E-mail: Copy of Report to: Name: Company:	nboat Springs, CC Murray Hgum Mi	) 80487 (800) 3 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	334-5493' 24	Addre	ss:	P0. 1	SIR	21	t.
Report to: Name: Doug Company: Riv H E-mail: Copy of Report to: Name:	Murray Hgun Mi	ning LL		Addre	SS:	PO. 1	SIL	71	<u></u>
Name: <u>Doug</u> Company: <i>Riv H</i> E-mail: Copy of Report to: Name:	Murray Hgum Mi	ining LL	ie i	Addre	ss:	PO. L	SIK	21	Æ.
Company: <i>Iliu H</i> E-mail: Copy of Report to: Name:	Hgom Mi	ining 20					/	a10	Ψ
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Copy of Report to: Name:				Telepl	hone:	505	-28	-1-8	185
Name:									
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Company.				Telepl	hone:				
Invoice to:									
Name <sup>.</sup>				Addre	SS.				
Company:			-						+
E-mail:			-1	Telen	hone:				+
If sample(s) received past	t holding time (H	T), or if insuffic	 ient HT re	mains	to com	 plete			YES
analysis before expiration	n, shall ACZ proc	ceed with reque	sted shor	t HT an	alyses?	•			NO
If "NO" then ACZ will contact client for fu	ompliance Merit	er "YES" nor "NO" is ind	icated, ACZ will	proceed wi	ith the reque	sted analyses, eve	n if HT is expl	ired, and dat	a will be qu
If yes, please include state	e forms. Results	will be reporte	d to PQL	for Cold	irado.	NO	L	L	
Sampler's Name:	de Sim Same	oler's site Infor	mation	State:	<u> </u>	Zip c	ode		Time 2
Check box if observe Day	light Savings Tir	me		-					
PROJECT INFORMATIC	ON				ANAL	YSES REQUEST	ED (attach	list or use	auote nu
Quote #: Doc.	# 8557	1 5851	/	s					
PO#: BS 0107	2229			aine	8				
Reporting state for complian	nce testing:			out	12	1			1
Check box if samples includ	de NRC licensed i	material?		of C	R				
SAMPLE IDENTIFICA	TION D	ATE:TIME	Matrix	#	N				
30-4B 9	9-03-13:	0952	GU	2	X				
30-49 9	7-03-13:	1114	ew	2	X		1		
32-02R 9	7-03-13:	1241	<i>GW</i>	2	X		<u> </u>		
32-41	1-03-13:	1314	<u>eu</u>	2	X		<u> </u>		
31-71 9	-03-13:	1348	SU	ュ	y		<b>_</b>		<u> </u>
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		(ata-) 14011 (141	- Michael - 2						
Maurix SW (Surface Wat	ier) · Gvv (Ground V	valer) · vvvv (vvast	e water) - D	ww.(Drink	ung wate	I) SL (Sludge	9 · SU (SO	ii) · OL (O	n) · Oth

FRMAD050.12.12.12

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White - Return with sample. Yellow - Retain for your records.



September 26, 2013

Report to: Doug Murray 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

Project ID: 58512/BS01072229 ACZ Project ID: L14368

Doug Murray:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 12, 2013. This project has been assigned to ACZ's project number, L14368. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L14368. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after October 26, 2013. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

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

S. Habermehl

Scott Habermehl has reviewed and approved this report.







 Project ID:
 58512/BS01072229

 Sample ID:
 32-60

ACZ Sample ID:	L14368-01
Date Sampled:	09/09/13 08:56
Date Received:	09/12/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	50	1420			mg/L	50	300	09/17/13 16:40	tcd
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	10	11.9		*	mg/L	0.2	1	09/21/13 18:10	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	8970	н	*	mg/L	50	100	09/17/13 11:31	mss3
Sulfate	D516-02 - Turbidimetric	200	3820			mg/L	200	1000	09/18/13 9:29	mpb



 Project ID:
 58512/BS01072229

 Sample ID:
 S-12

ACZ Sample ID:	L14368-02
Date Sampled:	09/09/13 09:16
Date Received:	09/12/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	50	2930			mg/L	50	300	09/17/13 16:40	tcd
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.10		*	mg/L	0.02	0.1	09/21/13 18:11	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	12600	н	*	mg/L	50	100	09/17/13 11:32	mss3
Sulfate	D516-02 - Turbidimetric	200	4600			mg/L	200	1000	09/18/13 9:29	mpb



 Project ID:
 58512/BS01072229

 Sample ID:
 32-01R

ACZ Sample ID:	L14368-03
Date Sampled:	09/09/13 09:46
Date Received:	09/12/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	50	2490			mg/L	50	300	09/17/13 16:40	tcd
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	10		U	*	mg/L	0.2	1	09/25/13 0:27	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	16200		*	mg/L	50	100	09/13/13 14:12	mss3
Sulfate	D516-02 - Turbidimetric	500	7940			mg/L	500	2500	09/18/13 9:45	mpb



 Project ID:
 58512/BS01072229

 Sample ID:
 32-43N

ACZ Sample ID:	L14368-04
Date Sampled:	09/09/13 10:12
Date Received:	09/12/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	50	1650			mg/L	50	300	09/17/13 16:40	tcd
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	3.83		*	mg/L	0.02	0.1	09/21/13 17:01	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	9450	н	*	mg/L	50	100	09/17/13 11:34	mss3
Sulfate	D516-02 - Turbidimetric	200	3990		*	mg/L	200	1000	09/18/13 9:31	mpb



 Project ID:
 58512/BS01072229

 Sample ID:
 31-05R

ACZ Sample ID:	L14368-05
Date Sampled:	09/09/13 10:43
Date Received:	09/12/13
Sample Matrix:	Ground Water

Wet Chemistry												
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst		
Chloride	SM4500CI-E	10	610		-	mg/L	10	50	09/17/13 16:30	tcd		
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	2.91		*	mg/L	0.02	0.1	09/21/13 17:02	pjb		
Residue, Filterable (TDS) @180C	SM2540C	2	6360	Н	*	mg/L	20	40	09/17/13 11:35	mss3		
Sulfate	D516-02 - Turbidimetric	200	3480		*	mg/L	200	1000	09/18/13 9:33	mpb		



 Project ID:
 58512/BS01072229

 Sample ID:
 31-70R

ACZ Sample ID:	L14368-06
Date Sampled:	09/09/13 12:43
Date Received:	09/12/13
Sample Matrix:	Ground Water

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	100	1200			mg/L	100	500	09/23/13 11:07	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	50	63		*	mg/L	1	5	09/21/13 18:12	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6770	н	*	mg/L	20	40	09/17/13 11:37	mss3
Sulfate	D516-02 - Turbidimetric	200	2270		*	mg/L	200	1000	09/18/13 9:44	mpb



 Project ID:
 58512/BS01072229

 Sample ID:
 3269

ACZ Sample ID:	L14368-07
Date Sampled:	09/09/13 13:15
Date Received:	09/12/13
Sample Matrix:	Ground Water

Wet Chemistry											
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst	
Chloride	SM4500CI-E	100	1800			mg/L	100	500	09/23/13 11:07	mpb	
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	2.69		*	mg/L	0.02	0.1	09/21/13 18:13	pjb	
Residue, Filterable (TDS) @180C	SM2540C	5	7910	н	*	mg/L	50	100	09/17/13 11:38	mss3	
Sulfate	D516-02 - Turbidimetric	200	2430		*	mg/L	200	1000	09/18/13 9:44	mpb	



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Inorganic
Reference
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	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)		
MDI	Method Detection Limit Same as Minimum Reporting Limit	Allows for instrum	ent and annual fluctuations
PCN/SCN	A number assigned to reagents/standards to trace to the man	ufacturer's certific	ate of analysis
POI	Practical Quantitation Limit typically 5 times the MDI		
00	True Value of the Control Sample or the amount added to the	Spike	
Rec	Recovered amount of the true value or spike added, in % (exc	ept for LCSS, ma	/Ka)
RPD	Relative Percent Difference, calculation used for Duplicate QC	Types	5,
Upper	Upper Recovery Limit in % (except for LCSS, mg/Kg)	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Sample	Value of the Sample of interest		
	•		
QC Sample Ty	Des		
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 Ty	pe Explanations		
Blanks	Verifies that there is no or minimal co	ntamination in the	prep method or calibration procedure.
Control Sar	nples Verifies the accuracy of the method,	including the prep	procedure.
Duplicates	Verifies the precision of the instrume	nt and/or method.	
Spikes/Fort	ified Matrix Determines sample matrix interference	ces, if any.	
· · · ·		•	
Standard	vertries the validity of the calibration.		
Standard	Vermes the validity of the calibration.		
Standard	(Qual)		
Standard ACZ Qualifiers B	(Qual) Analyte concentration detected at a value between MDL and F	PQL. The associal	ted value is an estimated quantity.
Standard ACZ Qualifiers B H	(Qual) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an	PQL. The associal i immediate hold t	ted value is an estimated quantity. ime.
Standard ACZ Qualifiers B H L	(Qual) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg	PQL. The associal immediate hold t pative threshold.	ted value is an estimated quantity. ime.
Standard ACZ Qualifiers B H L U	(Qual) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the	PQL. The associal i immediate hold t jative threshold. e level of the asso	ted value is an estimated quantity. ime. iciated value.
Standard ACZ Qualifiers B H L U	(Qual) Analyte concentration detected at a value between MDL, and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t	PQL. The associal immediate hold t jative threshold. a level of the associ he sample detect	ted value is an estimated quantity. ime. iciated value. ion limit.
ACZ Qualifiers B H L U	(Qual) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t	PQL. The associal immediate hold t jative threshold. e level of the assoc the sample detect	ted value is an estimated quantity. ime. iciated value. ion limit.
ACZ Qualifiers B H L U Method Refere (1)	(Quel) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t nces EPA 600/4-83-020. Methods for Chemical Analysis of Water a	PQL. The associal immediate hold t jative threshold. e level of the associate the sample detect	ted value is an estimated quantity. ime. iciated value. ion limit. h 1983.
ACZ Qualifiers B H L U Method Refere (1) (2)	(Quel) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t nces EPA 600/4-83-020. Methods for Chemical Analysis of Water a EPA 600/R-93-100. Methods for the Determination of Inorman	PQL. The associal immediate hold t jative threshold. e level of the associate the sample detect and Wastes, Marc is Substances in l	ted value is an estimated quantity. ime. iciated value. ion limit. in 1983. Environmental Samples. August 1993
Standard ACZ Qualifiers B H L U Wethod Refere (1) (2) (3)	(Quel) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t nces EPA 600/4-83-020. Methods for Chemical Analysis of Water a EPA 600/R-93-100. Methods for the Determination of Inorgan EPA 600/R-94-111. Methods for the Determination of Matals i	PQL. The associal i immediate hold t jative threshold. e level of the associate the sample detect and Wastes, Marc ic Substances in I n Environmental	ted value is an estimated quantity. ime. iciated value. ion limit. in 1983. Environmental Samples, August 1993. Samples - Supplement I, May 1994.
ACZ Qualifiers B H L U Method Refere (1) (2) (3) (4)	(Quel) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t nces EPA 600/4-83-020. Methods for Chemical Analysis of Water a EPA 600/R-93-100. Methods for the Determination of Inorgan EPA 600/R-94-111. Methods for the Determination of Metals i EPA 600/R-94-111. Methods for the Determination of Metals i	PQL. The associal i immediate hold t jative threshold. e level of the associate the sample detect and Wastes, Marc ic Substances in in Environmental	ted value is an estimated quantity. ime. iciated value. ion limit. in 1983. Environmental Samples, August 1993. Samples - Supplement I, May 1994.
ACZ Qualifiers B H L U Method Refere (1) (2) (3) (4) (5)	(Quel) Analyte concentration detected at a value between MDL and P Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t nces EPA 600/4-83-020. Methods for Chemical Analysis of Water as EPA 600/R-93-100. Methods for the Determination of Inorgan EPA 600/R-94-111. Methods for the Determination of Metals is EPA SW-846. Test Methods for Evaluating Solid Waste. Standard Methods for the Examination of Water and Wastewa	PQL. The associal i immediate hold t jative threshold. e level of the associate the sample detect and Wastes, Marc ic Substances in i n Environmental s ter.	ted value is an estimated quantity. ime. iciated value. ion limit. h 1983. Environmental Samples, August 1993. Samples - Supplement I, May 1994.
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ACZ Qualifiers B H L U Method Refere (1) (2) (3) (4) (5) Comments	(Quel) Analyte concentration detected at a value between MDL and F Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t nees EPA 600/4-83-020. Methods for Chemical Analysis of Water a EPA 600/R-93-100. Methods for the Determination of Inorgan EPA 600/R-94-111. Methods for the Determination of Metals i EPA SW-846. Test Methods for Evaluating Solid Waste. Standard Methods for the Examination of Water and Wastewa	PQL. The associal i immediate hold t lative threshold. e level of the associate the sample detect and Wastes, Marc ic Substances in l in Environmental ter.	ted value is an estimated quantity. ime. iciated value. ion limit. in 1983. Environmental Samples, August 1993. Samples - Supplement I, May 1994.
ACZ Qualifiers B H L U Method Refere (1) (2) (3) (4) (5) Comments (1)	(Quel) Analyte concentration detected at a value between MDL and F Analysis exceeded method hold time. pH is a field test with an Target analyte response was below the laboratory defined neg The material was analyzed for, but was not detected above the The associated value is either the sample quantitation limit or t nees EPA 600/4-83-020. Methods for Chemical Analysis of Water a EPA 600/R-93-100. Methods for the Determination of Inorgan EPA 600/R-94-111. Methods for the Determination of Metals i EPA SW-846. Test Methods for Evaluating Solid Waste. Standard Methods for the Examination of Water and Wastewa	PQL. The associal i immediate hold t lative threshold. e level of the associate the sample detect and Wastes, Marc ic Substances in I in Environmental ter.	ted value is an estimated quantity. ime. inciated value. ion limit. in 1983. Environmental Samples, August 1993. Samples - Supplement I, May 1994.
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REP001.09.12.01

Chloride			SM4500CI	-E									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG351292													
WG351292ICB	ICB	09/17/13 11:40				U	mg/L		-3	3			
WG351292ICV	ICV	09/17/13 11:40	WI130722-5	54,945		58.2	mg/L	105.9	90	110			
WG351292LFB1	LFB	09/17/13 16:06	WI130201-8	30		31.4	mg/L	104.7	90	110			
WG351292LFB2	LFB	09/17/13 16:14	WI130201-8	30		31.8	mg/L	106	90	110			
L14360-02AS	AS	09/17/13 16:14	WI130201-8	30	1	33.7	mg/L	109	90	110			
L14360-03DUP	DUP	09/17/13 16:22			11	11.9	mg/L				7.9	20	
WG351598													
WG351598ICB	ICB	09/23/13 10:23				U	mg/L		-3	3			
WG351598ICV	ICV	09/23/13 10:23	WI130722-5	54.945		57.6	mg/L	104.8	90	110			
WG351598LFB1	LFB	09/23/13 10:56	WI130201-8	30		31.9	mg/L	106.3	90	110			
WG351598LFB2	LFB	09/23/13 11:00	WI130201-8	30		32.4	mg/L	108	90	110			
L14368-06AS	AS	09/23/13 11:07	10XCL	300	1200	1490	mg/L	96.7	90	110			
L14368-07DUP	DUP	09/23/13 11:07			1800	1760	mg/L				2.2	20	
Nitrate/Nitrite as	N		M353.2 - H	l2SO4 pr	eserved								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG351559													
WG351559ICV	ICV	09/21/13 16:43	WI130712-3	2.416		2.426	mg/L	100.4	90	110			
WG351559ICB	ICB	09/21/13 16:44				U	mg/L		-0.06	0.06			
WG351559LFB1	LFB	09/21/13 16:48	WI130816-3	2		2.055	mg/L	102.8	90	110			
L14259-01AS	AS	09/21/13 16:50	WI130816-3	2	U	2.099	mg/L	105	90	110			
L14260-01DUP	DUP	09/21/13 16:52			.02	.024	mg/L				18.2	20	RA
WG351559LFB2	LFB	09/21/13 17:22	WI130816-3	2		2.034	mg/L	101.7	90	110			
WG351731													
WG351731ICV	ICV	09/24/13 19:54	WI130712-3	2.416		2.434	mg/L	100.7	90	110			
WG351731ICB	ICB	09/24/13 19:55				U	mg/L		-0.06	0.06			
WG351738													
WG351738LFB1	LFB	09/24/13 23:34	WI130816-3	2		2.128	mg/L	106.4	90	110			
L14383-02AS	AS	09/24/13 23:38	WI130816-3	2	.14	2.128	mg/L	99.4	90	110			
L14383-03DUP	DUP	09/24/13 23:40			U	U	mg/L				0	20	RA
WG351738LFB2	LFB	09/25/13 0:09	WI130816-3	2		2.103	mg/L	105.2	90	110			
Residue, Filteral	ble (TDS	i) @180C	SM2540C										
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG351098													
WG351098PBW	PBW	09/13/13 14:10				U	mg/L		-20	20			
WG351098LCSW	LCSW	09/13/13 14:11	PCN43413	260		258	mg/L	99,2	80	120			
L14388-02DUP	DUP	09/13/13 14:23			410	430	mg/L				4.8	10	
WG351260													
WG351260PBW	PBW	09/17/13 11:10				U	mg/L		-20	20			
WG351260LCSW	LCSW	09/17/13 11:11	PCN43414	260		256	mg/L	98.5	80	120			
L14471-01DUP	DUP	09/17/13 11:44			394	382	mg/L				3.1	10	

Sulfate			D516-02 -	Turbidim	netric								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG351337													
WG351337ICB	ICB	09/18/13 8:25				U	mg/L		-3	3			
WG351337ICV	ICV	09/18/13 8:25	WI130909-2	20		21.3	mg/L	106.5	90	110			
WG351337LFB	LFB	09/18/13 9:13	WI130416-3	9.99		9.4	mg/L	94.1	90	110			
L14349-01DUP	DUP	09/18/13 9:25			385	394	mg/L				2.3	20	
L14349-02AS	AS	09/18/13 9:25	SO4TURB20	10	497	507	mg/L	100	90	110			
L14368-04DUP	DUP	09/18/13 9:33			3990	3880	mg/L				2.8	20	
L14368-05AS	AS	09/18/13 9:33	SO4TURB20	100	3480	3280	mg/L	-200	90	110			MЗ

# AGZZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487

(800) 334-5493

# Inorganic Extended Qualifier Report

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L14368-01	WG351559	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351260	Residue, Filterable (TDS) @180C	SM2540C	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14368-02	WG351559	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351260	Residue, Filterable (TDS) @180C	SM2540C	нс	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14368-03	WG351738	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	DB	Sample required dilution due to low bias result.
			M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351098	Residue, Filterable (TDS) @180C	SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L14368-04	WG351559	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351260	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351337	Sulfate	D516-02 - Turbidimetric	MЗ	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.
L14368-05	WG351559	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351260	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351337	Sulfate	D516-02 - 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.
L14368-06	WG351559	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351260	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351337	Sulfate	D516-02 - 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.

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

(800) 334-5493

Inorganic Extended Qualifier Report

### **Rio Algom Mining Company**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L14368-07	WG351559	Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG351260	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG351337	Sulfate	D516-02 - 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.





ACZ Project ID: L14368

No certification qualifiers associated with this analysis

ACZ Laborat 2773 Downhill Drive Steamboat Spr	Sample Receipt					
Rio Algom Mining Company 58512/BS01072229	ect ID: eived: 09 ed By: rinted:	9/12/201 9/	L14368 3 08:20 mtb 12/2013			
Receipt Verification				YES	NO	NA
1) Is a foreign soil permit include	ed for applicable sa	amples?				X
2) Is the Chain of Custody or oth	X					
3) Does this project require spece			X			
4) Are any samples NRC license	able material?					X
5) If samples are received past	hold time, proceed	with requested short I	hold time analyses?	X		
6) Is the Chain of Custody comp	X					
7) Were any changes made to t	he Chain of Custo	dy prior to ACZ receivi	ng the samples?		Х	
Samples/Containers						
				YES	NO	NA
8) Are all containers intact and v	with no leaks?			X		
9) Are all labels on containers a	X					
10) Do the sample labels and C	hain of Custody ma	atch for Sample ID, Da	ate, and Time?	X		
11) For preserved bottle types,	was the pH checke	ed and within limits?		X		
12) Is there sufficient sample vo	lume to perform al	I requested work?		X		
13) Is the custody seal intact on	all containers?					Х
14) Are samples that require ze	ro headspace acce	eptable?				Х
15) Are all sample containers ap	opropriate for analy	rtical requirements?		X		
16) Is there an Hg-1631 trip blar	nk present?					Х
17) Is there a VOA trip blank pre	esent?					Х
18) Were all samples received v	within hold time?			X		
Chain of Custody Related Rem	arks					
Client Contact Remarks						
Shipping Containers						
Cooler Id	Temp (°C)	Rad (µR/Hr)	Custody Seal In	tact?		
2446	2.8	13	Yes			
Was ice present in the shipmer	nt container(s)?					
Yes - Wet ice was pre	esent in the sl	nipment container	:(s).			

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

AC2	Drive Steam	_abo	ratori	i <b>es, Inc</b> 80487 (800) 3	34-5493	42	6	8	CI	IAII	N of	ເບຣ	то	DY
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If sample(s) red	ceived pas	t holding	j time (HT),	or if insuffic		mains	to com	plete				YES		
analysis before	expiration	n, shall A	CZ procee	d with reque	sted shor	t HT an	alyses	?				NO		]
Are samples fo	r SDWA C	omplian	tion. If neither "Y	'ES" nor "NO" is ind	icated, ACZ will	Proceed w	ith the requ	ested analyse	s, even if	HT is exp	red, and dat	a will be qu	Jalified	
lf yes, please i	nclude/stat	te forms.	Results w	ill be reporte	d to PQL	for Cole	brado.	1			1	1		
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32-01	'R	9-09	-13:0	0946	GW	2	X							
32-43	<u>ZN</u>	9-09	213:	1912	GW	12	X							
31-05	5R	9-0	23:	1043	GW	2(	X							
31-70	R	9-09	3-13:	1243	GW	2	X	·						<b> </b>
32-6	9	9-09	3-13:	1315	GW	2	X							
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Matrix SW	(Surface Wa	ter) GW	(Ground Wate	er) · WW (Wast	e Water) · D	W (Drink	ing Wate	∋r) · SL (Slu	udge) ·	SO (So	il) · OL (C	)i) · Oth	er (Spec	ify)
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FRMAD050.12.12.12

White - Return with sample. Yellow - Retain for your records.

December 09, 2013

Report to: Doug Murray 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

Project ID: 4501354707 ACZ Project ID: L15444

Doug Murray:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 08, 2013. This project has been assigned to ACZ's project number, L15444. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L15444. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after January 08, 2014. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

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





# **Rio Algom Mining Company**

Rio Algom Mining Company		ACZ Sample ID:	L15444-01	
Project ID: 4501354707		Date Sampled:	11/04/13 08:38	
Sample ID:	5-08R ALL	Date Received:	: 11/08/13	
		Sample Matrix:	Ground Water	

letals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolved	M200.8 ICP-MS	2	0.004	В	mg/L	0.001	0.005	11/27/13 21:06	msh
Nickel, dissolved	M200.8 ICP-MS	2	0.002	В	mg/L	0.001	0.006	11/27/13 21:06	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	11/12/13 10:06	mfm
Uranium, dissolved	M200.8 ICP-MS	2	0.0181		mg/L	0.0002	0.001	11/27/13 21:06	msh

Wet Chemistry									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	240		mg/L	10	50	11/21/13 13:59	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	10	10.4		mg/L	0.2	1	11/23/13 15:11	pjb
Residue, Filterable (TDS) @180C	SM2540C	1	3780		mg/L	10	20	11/09/13 12:44	khw
Sulfate	D516-02 - Turbidimetric	100	1990	*	mg/L	100	500	11/23/13 10:50	mpb

## **Rio Algom Mining Company**

Project ID:	4501354707
Sample ID:	5-73R ALL

# Inorganic Analytical Results

ACZ Sample ID:	L15444-02
Date Sampled:	11/04/13 09:12
Date Received:	11/08/13
Sample Matrix:	Ground Water

Metals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolve	d M200.8 ICP-MS	2	0.003	В	mg/L	0.001	0.005	11/27/13 21:09	msh
Nickel, dissolved	M200.8 ICP-MS	2	0.005	В	mg/L	0.001	0.006	11/27/13 21:09	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0027	В	mg/L	0.001	0.005	11/12/13 10:08	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.6825		mg/L	0.0005	0.003	12/02/13 23:53	msh
Wet Chemistry									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	50	1590		mg/L	50	300	11/21/13 14:06	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.85		mg/L	0.02	0.1	11/23/13 14:44	pjb

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mg/L

mg/L

20

50

40

250

11/12/13 14:51

11/23/13 10:43

iđ

mpb

3850

1750

2

50

Arizona license number: AZ0102

SM2540C

D516-02 - Turbidimetric

Residue, Filterable

(TDS) @180C Sulfate

## **Rio Algom Mining Company**

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Project ID:	4501354707
Sample ID:	5-04 ALL

# Inorganic Analytical Results

ACZ Sample ID:	L15444-03
Date Sampled:	11/04/13 10:02
Date Received:	11/08/13
Sample Matrix:	Ground Water

Metals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolved	M200.8 ICP-MS	5		U	mg/L	0.003	0.01	11/27/13 21:13	msh
Nickel, dissolved	M200.8 ICP-MS	5		U	mg/L	0.003	0.02	11/27/13 21:13	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/ኒ	0.001	0.005	11/12/13 10:09	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.0057		mg/L	0.0005	0.003	11/27/13 21:13	msh
Wet Chemistry									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst

arameter	El A metroa	Bildion	Regult		onnto			Dute	maryst
Chloride	SM4500CI-E	50	760		mg/L	50	300	11/21/13 13:59	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.05	В	mg/L	0.02	0.1	11/23/13 14:46	i pjb
Residue, Filterable (TDS) @180C	SM2540C	2	5840	H *	mg/L	20	40	11/12/13 14:54	id
Sulfate	D516-02 - Turbidimetric	200	2160	*	mg/L	200	1000	11/23/13 10:52	mpb



Project ID:	4501354707
Sample ID:	5-03R ALL

# Inorganic Analytical Results

ACZ Sample ID:	L15444-04
Date Sampled:	11/04/13 10:36
Date Received:	11/08/13
Sample Matrix:	Ground Water

Metals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolve	d M200.8 ICP-MS	5		U	mg/L	0.003	0.01	11/27/13 21:16	msh
Nickel, dissolved	M200.8 ICP-MS	5		U	mg/L	0.003	0.02	11/27/13 21:16	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	11/12/13 10:13	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.0915		mg/L	0.0005	0.003	11/27/13 21:16	msh
Wet Chemistry									

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	560			mg/L	10	50	11/21/13 13:59	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.29			mg/L	0.02	0.1	11/23/13 14:47	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4270	н	*	mg/L	20	40	11/12/13 14:56	id
Sulfate	D516-02 - Turbidimetric	50	1970		*	mg/L	50	250	11/23/13 10:43	mpb



Project ID:	4501354707
Sample ID:	32-59 ALL

# Inorganic Analytical Results

ACZ Sample ID:	L15444-05
Date Sampled:	11/04/13 12:29
Date Received:	11/08/13
Sample Matrix:	Ground Water

Metals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolve	d M200.8 ICP-MS	5	0.005	В	mg/L	0.003	0.01	11/27/13 21:20	msh
Nickel, dissolved	M200.8 ICP-MS	5		U	mg/L	0.003	0.02	11/27/13 21:20	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	11/12/13 10:14	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.1914		mg/L	0.0005	0.003	11/27/13 21:20	msh
Wet Chemistry									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	640		mg/L	10	50	11/21/13 14:00	mpb

Chloride	SM4500CI-E	10	640			mg/L	10	50	11/21/13 14:00	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	2.11			mg/L	0.02	0.1	11/23/13 14:48	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	4460	н	*	mg/L	20	40	11/12/13 14:59	id
Sulfate	D516-02 - Turbidimetric	100	2000		*	mg/L	100	500	11/23/13 10:52	mpb

## **Rio Algom Mining Company**

Project ID:	4501354707
Sample ID:	31-61 ALL

# Inorganic Analytical Results

ACZ Sample ID:	L15444-06
Date Sampled:	11/04/13 12:58
Date Received:	11/08/13
Sample Matrix:	Ground Water

Metals Analysis										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolve	d M200.8 ICP-MS	10		U		mg/L	0.005	0.03	11/27/13 21:23	msh
Nickel, dissolved	M200.8 ICP-MS	10	0.049			mg/L	0.006	0.03	11/27/13 21:23	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0051			mg/L	0.001	0.005	11/12/13 10:15	mfm
Uranium, dissolved	M200.8 ICP-MS	10	0.569			mg/L	0.001	0.005	11/27/13 21:23	msh
Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	100	2400	•		mg/L	100	500	11/21/13 14:00	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	2.64			mg/L	0.02	0.1	11/23/13 14:49	pjb
Residue, Filterable (TDS) @180C	SM2540C	10	13700	н	*	mg/L	100	200	11/12/13 15:02	id
Sulfate	D516-02 - Turbidimetric	400	5790		*	mg/L	400	2000	11/23/13 10:53	mpb

# **Rio Algom Mining Company**

Project ID:	4501354707
Sample ID:	31-65 ALL

# Inorganic Analytical Results

ACZ Sample ID:	L15444-07
Date Sampled:	11/04/13 13:41
Date Received:	11/08/13
Sample Matrix:	Ground Water

Metals Analysis										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolved	M200.8 ICP-MS	10		U		mg/L	0.005	0.03	11/27/13 21:26	msh
Nickel, dissolved	M200.8 ICP-MS	10	0.093			mg/L	0.006	0.03	11/27/13 21:26	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1	0.0017	В		mg/L	0.001	0.005	11/12/13 10:19	mfm
Uranium, dissolved	M200.8 ICP-MS	10	0.095			mg/L	0.001	0.005	11/27/13 21:26	msh
Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	200	2500			mg/L	200	1000	11/21/13 14:00	mpb
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.13			mg/L	0.02	0.1	11/23/13 14:51	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	14900	Н	*	mg/L	50	100	11/12/13 15:04	id
Sulfate	D516-02 - Turbidimetric	400	6200		*	mg/L	400	2000	11/23/13 10:53	mpb

## **Rio Algom Mining Company**

 Project ID:
 4501354707

 Sample ID:
 31-67 TRB

# Inorganic Analytical Results

ACZ Sample ID:	L15444-08
Date Sampled:	11/05/13 10:33
Date Received:	11/08/13
Sample Matrix:	Ground Water

Inorganic Prep										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Cyanide, total	M335.4 - Manual Distillation								11/13/13 20:22	mla
Metals Analysis										
Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolved	M200.8 ICP-MS	5		U		mg/L.	0.003	0.01	11/27/13 21:30	msh
Nickel, dissolved	M200.8 ICP-MS	5	0.005	В		mg/L	0.003	0.02	11/27/13 21:30	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U		mg/L	0.001	0.005	11/12/13 10:20	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.0183			mg/L	0.0005	0.003	11/27/13 21:30	msh

Wet Chemistry										
Parameter	EPA Method	Dilution	Result	Quat	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	10	980			mg/L	10	50	11/21/13 13:49	mpb
Cyanide, total	M335.4 - Colorimetric w/ distillation	0.5		U	*	mg/L	0.003	0.01	11/15/13 14:19	tcd
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.14			mg/L	0.02	0.1	11/23/13 14:54	pjb
Residue, Filterable (TDS) @180C	SM2540C	2	6420	н	*	mg/L	20	40	11/13/13 14:03	id
Sulfate	D516-02 - Turbidimetric	200	2730		*	mg/L	200	1000	11/23/13 10:59	mpb

## **Rio Algom Mining Company**

 Project ID:
 4501354707

 Sample ID:
 36-02 TRB

# Inorganic Analytical Results

ACZ Sample ID:	L15444-09
Date Sampled:	11/05/13 13:05
Date Received:	11/08/13
Sample Matrix:	Ground Water

Inorganic Prep									
Parameter	EPA Method	Dilution	Result	Qual XC	Units	MDL	PQL	Date	Analyst
Cyanide, total	M335.4 - Manual Distillation			*				11/13/13 21:13	mla
Metals Analysis									
Parameter	EPA Method	Dilution	Result	Qual XQ	Units	MDL	PQL	Date	Analyst
Molybdenum, dissolve	d M200.8 ICP-MS	5		U	mg/L	0.003	0.01	11/27/13 21:40	msh
Nickeł, dissolved	M200.8 ICP-MS	5	0.004	В	mg/L	0.003	0.02	11/27/13 21:40	msh
Selenium, dissolved	SM 3114 B, AA-Hydride	1		U	mg/L	0.001	0.005	11/12/13 10:22	mfm
Uranium, dissolved	M200.8 ICP-MS	5	0.0364		mg/L	0.0005	0.003	11/27/13 21:40	msh
Wet Chemistry									
			-	<u> </u>					

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	SM4500CI-E	200	2000			mg/L	200	1000	11/21/13 14:06	mpb
Cyanide, total	M335.4 - Colorimetric w/ distillation	0.5	0.003	В	*	mg/L	0.003	0.01	11/15/13 14:20	tcd
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	1	0.23			mg/L	0.02	0.1	11/23/13 14:55	pjb
Residue, Filterable (TDS) @180C	SM2540C	5	8880	н	*	mg/L	50	100	11/15/13 14:36	khw
Sulfate	D516-02 - Turbidimetric	100	2890		*	mg/L	100	500	11/23/13 10:46	mpb



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Inorganic
Reference
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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 L	imit. Allows for instrume	ent and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the	e manufacturer's certifica	ate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.		
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	ſKg)
RPD	Relative Percent Difference, calculation used for Duplica	ate QC Types	
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)		
Sample	Value of the Sample of interest		
QC Sample Typ	Des		
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank
ССВ	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 Snike
ICV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	PBS	Pren Blank - Soil
I CSS	Laboratory Control Sample - Soil	PBW	Pren Blank - Water
LCSSD	Laboratory Control Sample - Soil Dunlicate	POV	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution
	<i>,</i> .		
QC Sample Typ	be Explanations		
Blanks	Verifies that there is no or mini	mal contamination in the	prep method or calibration procedure.
Control San	nples Venties the accuracy of the me	ethod, including the prep	procedure.
Duplicates	Verifies the precision of the ins	trument and/or method.	
Spikes/Fort	thed Matrix Determines sample matrix inte	rferences, if any.	
Standard	Verifies the validity of the calib	ration.	
ACZ Qualifiers	(Qual)		
В	Analyte concentration detected at a value between MDL	and PQL. The associat	ed value is an estimated quantity.
н	Analysis exceeded method hold time. pH is a field test w	with an immediate hold ti	me.
L	Target analyte response was below the laboratory define	ed negative threshold.	
υ	The material was analyzed for, but was not detected abo	ove the level of the asso	ciated value.
	The associated value is either the sample quantitation li	mit or the sample detecti	ion limit.
Method Defere			
			4000
(1)	EPA 600/4-83-020. Methods for Chemical Analysis of V	vater and wastes, marc	n 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of in	norganic Substances in E	Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of N	tetais in Environmental a	Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste	).	
(5)	Standard Methods for the Examination of Water and Wa	astewater.	
Comments			
(1)	QC results calculated from raw data. Results may vary	slightly if the rounded va	lues are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses a	are reported on a dry we	ight 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 exte	ended qualifier and/or ce	rtification qualifier
	associated with the result.		
(5)	If the MDL equals the PQL or the MDL column is omittee	d, the PQL is the reportir	ng limit.
For a comp	lete list of ACZ's Extended Qualifiers, please click:	http://www	v.acz.com/public/extguallist.pdf

REP001.09.12.01

Chloride			SM4500C	1-E									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG355245													
WG355245ICB	ICB	11/21/13 11:24				U	mg/L		-3	3			
WG355245ICV	ICV	11/21/13 11:24	WI130722-5	54.945		58,4	mg/L	106.3	90	110			
WG355245LFB1	LFB	11/21/13 13:47	WI131010-1	30		32.2	mg/L	107.3	90	110			
WG355245LFB2	LFB	11/21/13 13:51	WI131010-1	30		32.3	mg/L	107.7	90	110			
L15444-01AS	AS	11/21/13 13:59	10XCL	30	240	268	mg/L	93.3	90	110			
L15444-02DUP	DUP	11/21/13 14:06			1590	1609	mg/L				1.2	20	
Cyanide, total			M335.4 - (	Colorimet	ric w/ distil	llation							
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG354971													
WG354971ICV1	ICV	11/15/13 14:46	WI131115-6	.3		.301	ma/L	100.3	90	110			
WG354971ICB1	ICB	11/15/13 14:47				U	mg/L		-0.003	0.003			
WG354962													
WG354806LRB	LRB	11/15/13 14:13				U	mg/L		-0.003	0.003			
WG354806LFB	LFB	11/15/13 14:14	WI131031-2	.2		.1878	mg/L	93.9	90	110			
L15426-01DUP	DUP	11/15/13 14:16			U	U	mg/L				0	20	RA
L15426-02LFM	LFM	11/15/13 14:39	WI131031-2	.2	U	.2007	mg/L	100.4	90	110			
Molybdenum, d	issolved		M200.8 K	P-MS		•	·						
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG355621											-		
WG355621ICV	ICV	11/27/13 20:56	MS131018-2	02006		01878	ma/i	93.6	90	110			
WG355621ICB	ICB	11/27/13 20:59		.02000		.01010	ma/l	00.0	-0.0015	0.0015			
WG355621LFB	LFB	11/27/13 21:03	MS131118-2	.05		05121	ma/L	102.4	85	115			
L15576-01AS	AS	11/27/13 21:47	MS131118-2	.05	U	.05313	ma/L	106.3	70	130			
L15576-01ASD	ASD	11/27/13 21:50	MS131118-2	.05	U	.0539	mg/L	107.8	70	130	1.44	20	
Nickel, dissolve	ed	· · · · · ·	M200.8 IC	P-MS	• • • •								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG355621													
WC2556211CV		11/07/12 20:56	MS121018 2	05		04793	ma/l	05.7	00	110			
WG3556211CP	ICP	11/27/13 20:50	W3131010-2	.05		.04703	mg/∟	95.7	0.0019	0.0019			
WG355621LEB	I FR	11/27/13 21:03	MS131118-2	05005		04577	mg/∟	01 /	-0.0010	115			
15576-0145	45	11/27/13 21:47	MS131118-2	05005	п	04426	mg/L	88.4	70	130			
L15576-01ASD	ASD	11/27/13 21:50	MS131118-2	.05005	U	.04572	mg/L	91,3	70	130	3.25	20	
Nitrate/Nitrite as	s N		M353.2 - I	H2SO4 pr	eserved								
ACZ ID	Туре	Analyzed	PCN/SCN	QC .	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG355393													
WC255202ICV		11/00/10 10:51	\A//121015 1	2 416		2 21	mall	05.6	00	110			
WG355595ICV		11/23/13 13:51	VVI131015-1	2.410		2.31	mg/L	95.0	0.00	0.06			
WC2EE20E		11/20/10 10:02				U	тул		-0.00	0.00			
*******				_			_						
WG355396LFB	LFB	11/23/13 14:40	WI130816-3	2		2.036	mg/L	101.8	90	110			
L15444-02DUP	DUP	11/23/13 14:45			.85	.863	mg/L		<i>c</i> -	4	1.5	20	
L15444-01AS	AS	11/23/13 15:12	vvi130816-3	20	10.4	31.56	mg/L	105.8	90	110			

Residue, Filtera	ble (TDS	) @180C	SM2540C										
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG354613													
WG354613PBW WG354613LCSW L15428-04DUP	PBW LCSW DUP	11/09/13 12:20 11/09/13 12:21 11/09/13 12:40	PCN44251	260	920	U 258 954	mg/L mg/L mg/L	99.2	-20 80	20 120	3.6	10	
WG354731													
WG354731PBW WG354731LCSW L15494-01DUP	PBW LCSW DUP	11/12/13 14:15 11/12/13 14:17 11/12/13 15:15	PCN44251	260	2480	20 280 2532	mg/L mg/L mg/L	107.7	-20 80	20 120	2,1	10	
WG354802													
WG354802PBW WG354802LCSW L15493-02DUP	PBW LCSW DUP	11/13/13	PCN44251	260	2350	12 262 2338	mg/L mg/L mg/L	100.8	-20 80	20 120	0.5	10	
WG354965													
WG354965PBW WG354965LCSW L15590-06DUP	PBW LCSW DUP	11/15/13 14:30 11/15/13 14:31 11/15/13 14:45	PCN44252	260	150	U 252 164	mg/L mg/L mg/L	96.9	-20 80	20 120	8.9	10	
Selenium, disso	lved	<u></u>	SM 3114 E	3, AA-Hy	dride								
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG354639													
WG354639ICV WG354639ICB	ICV ICB	11/12/13 9:29 11/12/13 9:31	II130821-8	.025		.0253 U	mg/L mg/L	101.2	90 -0.003	110 0.003			
WG354659													
WG354659LRB WG354659LFB L15444-03LFM L15444-03LFMD	LRB LFB LFM LFMD	11/12/13 10:04 11/12/13 10:05 11/12/13 10:10 11/12/13 10:12	130927-2   130927-2   130927-2	.0207 .0207 .0207	U U	U .0186 .0192 .0191	mg/L mg/L mg/L mg/L	89.9 92.8 92.3	-0.003 85 85 85	0.003 115 115 115	0.52	20	
Sulfate			D516-02 -	Turbidim	etric								<u></u>
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG355364													
WG3553641CB WG3553641CV WG355364LFB L15444-02AS	ICB ICV LFB AS	11/23/13 10:29 11/23/13 10:29 11/23/13 10:36 11/23/13 10:43	WI131111-2 WI131010-2 SO4TURB5	20 9.99 100	1750	U 19.4 9.5 1870	mg/L mg/L mg/L mg/L	97 95.1 120	-3 90 90 90	3 110 110 110			МЗ
L15444-01DUP	DUP	11/23/13 10:51			1990	1960	mg/L				1.5	20	

Inorganic QC Summary

#### (800) 334-5493

## **Rio Algom Mining Company**

Uranium, disso	olved		M200.8 IC	P-MS									
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG355621													
WG355621ICV	ICV	11/27/13 20:56	MS131018-2	.05		.05163	mg/L	103.3	90	110			
WG355621ICB	ICB	11/27/13 20:59				U	mg/L		-0.0003	0.0003			
WG355621LFB	LFB	11/27/13 21:03	MS131118-2	.05		.05054	mg/L	101.1	85	115			
L15576-01AS	AS	11/27/13 21:47	MS131118-2	.05	U	.05067	mg/L	101.3	70	130			
L15576-01ASD	ASD	11/27/13 21:50	MS131118-2	.05	υ	.05067	mg/L	101.3	70	130	0	20	
WG355659													
WG355659ICV	ICV	12/02/13 23:43	MS131018-2	.05		.05184	mg/L	103.7	90	110			
WG355659ICB	ICB	12/02/13 23:46				U	mg/L		-0.0003	0.0003			
WG355659LFB	LFB	12/02/13 23:49	MS131118-2	.05		.05019	mg/L	100.4	85	115			
L15602-01AS	AS	12/03/13 0:17	MS131118-2	25	U	24.765	mg/L	99.1	70	130			
L15602-01ASD	ASD	12/03/13 0:26	MS131118-2	25	U	24.94	mg/L	99.8	70	130	0.7	20	
ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487

**Rio Algom Mining Company** 

(800) 334-5493

# Inorganic Extended **Qualifier Report**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L15444-01	WG355364	Sulfate	D516-02 - 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.
L15444-02	WG354731	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
	WG355364	Sulfate	D516-02 - Turbidimetric	MЗ	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.
L15444-03	WG354731	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
	WG355364	Sulfate	D516-02 - 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.
L15444-04	WG354731	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
	WG355364	Sulfate	D516-02 - 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.
L15444-05	WG354731	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
	WG355364	Sulfate	D516-02 - 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.
L15444-06	WG354731	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
	WG355364	Sulfate	D516-02 - 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.
L15444-07	WG354731	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
	WG355364	Sulfate	D516-02 - 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.
L15444-08	WG354962	Cyanide, total	M335.4 - Colorimetric w/ distillation	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG354802	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
	WG355364	Sulfate	D516-02 - 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.



(800) 334-5493

# Inorganic Extended Qualifier Report

#### **Rio Algom Mining Company**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L15444-09	WG354806	Cyanide, total	M335.4 - Manual Distillation	Q3	Sample received with improper chemical preservation.
	WG354962		M335.4 - Colorimetric w/ distillation	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG354965	Residue, Filterable (TDS) @180C	SM2540C	H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
			SM2540C	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG355364	Sulfate	D516-02 - 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.

Alight Laboratories, Inc.   2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493					Analytical Res					
Rio Algom Mining Project ID: 4	<b>Company</b> 501354707			ACZ Sar Date S	nple ID ampled	: <b>L154</b> 4 : 11/04	<b>44-01</b> /13 8:3	8		
Sample ID: 5 Locator:	-08R ALL		<u></u>	Date Re Sample	eceived Matrix	: 11/08 : Groui	/13 nd Wate	ər		
Gross Alpha, dissolved M9310							Pre	o Method:		
Parameter Gross Alpha, dissolved	Measure Date 11/21/13 10:45	Prep Date	Result 27	Error(+/-) 15	LLD 9.9	Units pCi/L	XQ *	Analyst mss3		
Lead 210, dissolved EICHROM, OTW01							Prej	o Method:		
Parameter Lead 210, dissolved	Measure Date 11/20/13 12:15	Prep Date	Result 4.3	Error(+/-) 1.8	니니D 5.1	Units pCi/L	XQ *	Analyst jrd		
Radium 226 + Alpha Em M9315	itting Radium Isotopes, o	dissolved					Prej	p Method:		
Parameter Radium 226 + Alpha	Measure Date 11/15/13 12:02	Prep Date	Result 3.3	Error(+/-) 0.63	ЦЦD 0.95	Units pCi/L	XQ	Analyst nco		
Radium 228, dissolved M9320							Pre	o Method:		
Parameter Radium 228, dissolved	Measure Date 12/05/13 11:30	Prep Date	Result 1.2	Error(+/-) 0.62	LLD 1.3	Units pCi/L	XQ	Analyst gdr		
Thorium 230, dissolved ESM 4506							Prej	o Method:		
Parameter Thorium 230, dissolved	Measure Date 11/19/13 0:02	Prep Date	Result 0.14	Error(+/-) 0.38	LLD 0.69	Units pCi/L	XQ *	Analyst thf		

ACZ L	aboratories	<b>, Inc.</b> 0487 (800) 334-5493			R Ar	adioC nalytic	hemi al Re	istry esults
Rio Algom Mining	g Company			ACZ Sa	mple IC	: <b>L154</b>	44-02	
Project ID:	4501354707			Date S	amplec	: <i>11/04</i>	/13 9:1	2
Sample ID:	5-73R ALL			Date R	eceived	l: <i>11/08</i>	/13	
Locator:		· · · · · · · · ·		Sample	e Matrix	:: Groui	nd Wat	er
Gross Alpha, dissolved M9310	I						Pre	p Method:
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LĻD	Units	XQ	Analyst
Gross Alpha, dissolved	11/21/13 10:47		270	62	24	pCi/L	*	mss3
Lead 210, dissolved							Pre	p Method:
EICHROM, OTW01								
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LĻD	Units	XQ	Analyst
Lead 210, dissolved	11/20/13 12:15		6.2	1.7	4.4	pCi/L	*	jrđ
Radium 226 + Alpha En M9315	mitting Radium Isotopes,	dissolved					Pre	p Method:
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	11/15/13 12:04		2.1	0.49	0.91	pCi/L		nco
Radium 228, dissolved M9320							Pre	p Method:
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	12/05/13 11:30		1.5	0.96	1.1	pCi/L		gdr
Thorium 230, dissolved	i						Pre	p Method:
ESM 4506								
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Thorium 230, dissolved	11/19/13 0:04		0.54	0.45	0.74	pCi/L	*	thf

### Arizona license number: AZ0102

ACZ La	aboratories amboat Springs, CO 8	<b>, Inc.</b> 0487 (800) 334-5493			Ra Ana	idioC alytic	hemi al Re	stry sults
<b>Rio Algom Mining</b> Project ID: 4 Sample ID: 5 Locator:	Company 501354707 -04 ALL			ACZ Sa Date S Date R Sample	mple ID: Sampled: eceived: e Matrix:	<b>L154</b> - 11/04 11/08 Groui	<b>44-03</b> /13 10: /13 nd Wate	02 er
Gross Alpha, dissolved M9310					<u> </u>		Pre	p Method:
Parameter Gross Alpha, dissolved	Measure Date 11/21/13 10:48	Prep Date	Result 1	Error(+/-) 16	LLD 16	Units pCi/L	ΧQ *	Analyst mss3
Lead 210, dissolved EICHROM, OTW01							Pre	p Method:
Parameter Lead 210, dissolved	Measure Date 11/20/13 12:15	Prep Date	Result 7.5	Error(+/-) 1.9	LLD 4.9	Units pCi/L	XQ *	Analyst jrd
Radium 226 + Alpha Emi M9315	tting Radium Isotopes,	dissolved					Pre	p Method:
Parameter Radium 226 + Alpha	Measure Date 11/15/13 12:05	Prep Date	Result 1.6	Error(+/-) 0.5	LLD 1.2	Units pCi/L	XQ	Analyst nco
Radium 228, dissolved M9320							Pre	p Method:
Parameter Radium 228, dissolved	Measure Date 12/05/13 11:30	Prep Date	Result 1.4	Error(+/-) 0.88	LĻD 2	Units pCi/L	XQ	Analyst gdr
Thorium 230, dissolved ESM 4506							Pre	p Method:
Parameter Thorium 230, dissolved	Measure Date 11/19/13 0:05	Prep Date	Result 0.56	Error(+/-) 0.4	LLD 0.62	Units pCi/L	XQ *	Analyst thf

ACZ La	boratories	, <b>Inc.</b> )487 (800) 334-5493			R Ar	adioC ialytic	hemistry al Results
Rio Algom Mining CProject ID:45Sample ID:5-4Locator:	<b>Company</b> 501354707 03R ALL			ACZ Sa Date S Date R Sample	mple ID ampleo eceiveo e Matrix	2: <b>L154</b> 2: 11/04 2: 11/08 2: Grou	<b>44-04</b> /13 10:36 /13 nd Water
Gross Alpha, dissolved M9310							Prep Method:
Parameter Gross Alpha, dissolved	Measure Date 11/21/13 10:50	Prep Date	Result 38	Error(+/-) 21	<b>LLD</b> 13	Units pCi/L	XQ Analyst * mss3
Lead 210, dissolved EICHROM, OTW01							Prep Method:
Parameter Lead 210, dissolved	Measure Date 11/20/13 12:15	Prep Date	Result 6.7	Error(+/-) 1.8	LĻD 4.8	Units pCi/L	XQ Analyst * jrd
Radium 226 + Alpha Emiti M9315	ting Radium Isotopes, o	dissolved					Prep Method:
Parameter Radium 226 + Alpha	Measure Date 11/15/13 12:07	Prep Date	Result 2.1	Error(+/-) 0.5	LLD 0.93	Units pCi/L	XQ Analyst nco
Radium 228, dissolved M9320							Prep Method:
Parameter Radium 228, dissolved	Measure Date 12/05/13 11:30	Prep Date	Result 1.5	Error(+/-) 0.76	LĻD 1.4	Units pCi/L	XQ Analyst gdr
Thorium 230, dissolved ESM 4506							Prep Method:
Parameter Thorium 230, dissolved	Measure Date 11/19/13 0:07	Prep Date	Result -0.38	Error(+/-) 0.6	LĻD 0.61	Units pCi/L	XQ Analyst * thf

ACZ 2773 Downhill Drive Ste	aboratories amboat Springs, CO 8	<b>, Inc.</b> )487 (800) 334-5493			R Ar	adioC nalytic	hemi al Re	stry sults	
Rio Algom Mining Project ID: 4 Sample ID: 3 Locator:		ACZ Sample ID: L15444-05 Date Sampled: 11/04/13 12:29 Date Received: 11/08/13 Sample Matrix: Ground Water							
Gross Alpha, dissolved M9310							Pre	o Method:	
Parameter Gross Alpha, dissolved	Measure Date 11/21/13 10:51	Prep Date	Result 130	Error(+/-) 35	LLD 15	Units pCi/L	XQ *	Analyst mss3	
Lead 210, dissolved EICHROM, OTW01							Pre	o Method:	
Parameter Lead 210, dissolved	Measure Date 11/20/13 12:15	Prep Date	Result 6.8	Error(+/-) 1.7	<b>LLD</b> 4.5	Units pCi/L	XQ *	Analyst jrd	
Radium 226 + Alpha Em M9315	itting Radium Isotopes, (	dissolved					Prej	o Method:	
Parameter Radium 226 + Alpha	Measure Date 11/15/13 12:08	Prep Date	Result 0.89	Error(+/-) 0.34	<b>LLD</b> 0.89	Units pCi/L	XQ	Analyst nco	
Radium 228, dissolved M9320							Prej	o Method:	
Parameter Radium 228, dissolved	Measure Date 12/05/13 11:30	Prep Date	Result 1.5	Error(+/-) 0.81	니니D 1.3	Units pCi/L	XQ	Analyst gdr	
Thorium 230, dissolved ESM 4506							Prej	o Method:	
Parameter Thorium 230, dissolved	Measure Date 11/19/13 0:08	Prep Date	Result 0.06	Error(+/-) 0.4	LLD 0.71	Units pCi/L	XQ *	Analyst thf	

ACZ La			Ra An	adioC alytic	hemi al Re	istry sults		
Rio Algom Mining C	Company			ACZ Sa	nple ID:	L154	44-06	
Project ID: 45	501354707			Date S	ampled:	11/04	/13 12:	58
Sample ID: 31	-61 ALL			Date R	eceived:	11/08	/13	
Locator:				Sample	e Matrix:	Grou	nd Wate	er
Gross Alpha, dissolved M9310							Pre	p Method:
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LĻD	Units	XQ	Analyst
Gross Alpha, dissolved	11/21/13 10:52	· ,	290	91	44	pCi/L	*	mss3
Lead 210, dissolved EICHROM, OTW01							Pre	p Method:
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LĻD	Units	XQ	Analyst
Lead 210, dissolved	11/20/13 12:15		2.7	3.5	10	pCi/L	*	jrd
Radium 226 + Alpha Emit M9315	ting Radium Isotopes,	dissolved					Pre	p Method:
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	11/15/13 12:10		2.6	0.61	1.2	pCi/L		nco
Radium 228, dissolved M9320							Pre	p Method:
Parameter	Measure Date	Pron Date	Result	Error(+/-)	tuin	Unite	XO	Analyst
Radium 228, dissolved	12/05/13 13:36		2.6	0.87	1.3	pCi/L		gdr
Thorium 230, dissolved ESM 4506							Pre	p Method:
Parameter	Measure Date	Prep Date	Result	Error(+/-)	LĻD	Units	XQ	Analyst
Thorium 230, dissolved	11/19/13 0:10		0.02	0.32	0.69	pCi/L	*	thf

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Zitzen Construction Constructing Construction Constr					Analytical Results					
Rio Algom Mining Project ID: 4	<b>Company</b> 501354707			ACZ Sa	mple ID Sampled	: <b>L154</b> : 11/04	<b>44-07</b> /13 13:4	41		
Sample ID: 3 Locator:	91-65 ALL	·····		Date R Sampl	eceived e Matrix	: 11/08 : G <b>r</b> oui	/13 nd Wate	er		
Gross Alpha, dissolved M9310							Prep	Method:		
Parameter Gross Alpha, dissolved	Measure Date 11/21/13 10:54	Prep Date	Result 84	Error(+/-) 63	<b>니니D</b> 50	Units pCi/L	XQ *	Analyst mss3		
Lead 210, dissolved EICHROM, OTW01							Pre	o Method:		
Parameter Lead 210, dissolved	Measure Date 11/20/13 12:15	Prep Date	Result 64	Error(+/-) 5.5	<b>ЦЦ́D</b> 11	Units pCi/L	XQ *	Analyst jrd		
Radium 226 + Alpha Em M9315	itting Radium Isotopes,	dissolved					Pre	o Method:		
Parameter Radium 226 + Alpha	Measure Date 11/15/13 12:11	Prep Date	Result 0.47	Error(+/-) 0.33	Լվը 1.1	Units pCi/L	XQ	Analyst nco		
Radium 228, dissolved M9320							Pre	o Method:		
Parameter Radium 228, dissolved	Measure Date 12/05/13 13:36	Prep Date	Result 1.1	Error(+/-) 0.86	니 <b>니</b> 2.1	Units pCi/L	XQ	Analyst gdr		
Thorium 230, dissolved ESM 4506							Pre	o Method:		
Parameter Thorium 230, dissolved	Measure Date 11/19/13 0:11	Prep Date	Result -0.03	Error(+/-) 0.76	LLD 0.64	Units pCi/L	XQ *	Analyst thf		

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ACZ La	boratories	, <b>Inc.</b> 0487 (800) 334-5493			Ra An	adioC alytic	hemi al Re	stry sults
Rio Algom Mining C Project ID: 45 Sample ID: 31 Locator:	<b>ompany</b> 01354707 -67 TRB			ACZ Sat Date S Date R Sample	mple ID: ampled: eceived: e Matrix	<b>L154</b> 11/05 11/08 Groui	<b>44-08</b> /13 10:: /13 nd Wate	33 er
Gross Alpha - Corrected Calculation							Prep	) Method:
Parameter Gross Alpha - Corrected	Measure Date 12/06/13 14:57	Prep Date	Result -8.26	Error(+/-)	LLD	Units pCi/L	XQ	Analyst calc
Gross Alpha, dissolved M9310							Prep	o Method:
Parameter Gross Alpha, dissolved	Measure Date 11/21/13 10:55	Prep Date	Result 4	Error(+/-) 22	<b>LLD</b> 23	Units pCi/L	XQ *	Analyst mss3
Lead 210, dissolved EICHROM, OTW01							Pre	o Method:
Parameter Lead 210, dissolved	Measure Date 11/20/13 12:15	Prep Date	Result 8.5	Error(+/-) 2.7	LLD 7.4	Units pCi/L	XQ *	Analyst jrd
Radium 226, dissolved M903.1							Prej	o Method:
Parameter Radium 226, dissolved	Measure Date 11/22/13 0:18	Prep Date	Result 2.8	Error(+/-) 0.21	LLD 0.12	Units pCi/L	XQ	Analyst jrd
Radium 228, dissolved M9320							Pre	o Method:
Parameter Radium 228, dissolved	Measure Date 12/05/13 13:36	Prep Date	Result 8.4	Error(+/-) 1.3	LLD 2	Units pCi/L	XQ	Analyst gdr
Thorium 230, dissolved ESM 4506							Prej	o Method:
Parameter Thorium 230, dissolved	Measure Date 11/19/13 0:12	Prep Date	Result 1	Error(+/-) 1.3	LLD 0.71	Units pCi/L	XQ *	Analyst thf

ACZ La	aboratories amboat Springs, CO 8	, <b>Inc.</b> 0487 (800) 334-5493			Ra	adioC alytic	hemi al Re	stry sults
Rio Algom Mining Project ID: 4 Sample ID: 3 Locator:	<b>Company</b> 501354707 6-02 TRB			ACZ Sau Date S Date R Sample	mple ID ampled eceived e Matrix	L154 11/05 11/08 Groui	<b>44-09</b> 7/13 13:0 7/13 nd Wate	05 er
Gross Alpha - Corrected Calculation							Prej	o Method:
Parameter Gross Alpha - Corrected	Measure Date 12/06/13 14:57	Prep Date	Result -9.39	Error(+/-)	LĻD	Units pCi/L	XQ	Analyst calc
Gross Alpha, dissolved M9310							Pre	o Method:
Parameter Gross Alpha, dissolved	Measure Date 11/21/13 10:57	Prep Date	Result 15	Error(+/-) 31	LL <mark>D</mark> 31	Units pCi/L	XQ	Analyst mss3
Lead 210, dissolved EICHROM, OTW01							Prej	o Method:
Parameter Lead 210, dissolved	Measure Date 11/20/13 13:54	Prep Date	Result 50	Error(+/-) 5.5	<b>LL D</b> 12	Units pCi/L	XQ *	Analyst jrd
Radium 226, dissolved M903.1							Pre	o Method:
Parameter Radium 226, dissolved	Measure Date 11/22/13 0:20	Prep Date	Result 0.8	Error(+/-) 0.15	LL <mark>D</mark> 0.14	Units pCi/L	XQ	Analyst jrd
Radium 228, dissolved M9320							Pre	o Method:
Parameter Radium 228, dissolved	Measure Date 12/05/13 13:36	Prep Date	Result 2.4	Error(+/-) 0.85	<b>LLD</b> 1.7	Units pCi/L	XQ	Analyst gdr
Thorium 230, dissolved ESM 4506							Pre	o Method:
Parameter Thorium 230, dissolved	Measure Date 11/19/13 0:14	Prep Date	Result -0.03	Error(+/-) 0.82	LLD 0.64	Units pCi/L	XQ *	Analyst thf



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

## Radiochemistry Reference

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

#### QC Sample Types

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

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

#### ACZ Qualifiers (Qual)

H Analysis exceeded method hold time.

#### Method Prefix Reference

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

#### Comments

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

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

http://www.acz.com/public/extguallist.pdf

#### **Rio Algom Mining Company**

Gross Alpha, d	issolved		M9310										Units	s: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG355320																
WG354856PBW	PBW	11/21/13						.38	1.1	1			2			
WG354856LCSW	LCSW	11/21/13	RC130807-3	81.06				91	8.4	1.5	112.3	83	133			
L15438-03DUP	DUP-RER	11/21/13			5	3	2.1	5.5	3.3	2.2				0.11	2	
L15465-01DUP	DUP-RER	11/21/13			0.25	1.6	1.6	.61	1.7	1.7				0.15	2	
L15438-03MS	MS	11/21/13	RC130807-3	73.69	5	3	2.1	53	7.9	2.2	65.1	83	133			M2
Lead 210, disso	olved		EICHROM, C	OTW01									Unit	s: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG355217																
WG354816LCSW	LCSW	11/20/13	RC131011-1	69.64				68	3.2	5.1	97.6	55	121			
WG354816PBW	PBW	11/20/13						1.7	1.7	4.9			9,8			
L15444-01DUP	DUP-RER	11/20/13			4.3	1.8	5.1	4.1	1.7	4.8				0.08	2	
L15444-03MS	MS	11/20/13	RC131011-1	69.64	7.5	1.9	4.9	56	6.1	14	69.6	55	121			
Radium 226 + A	Alpha Emitti	ng Radiun	n M9315										Unit	s: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG354974																
WG354866PBW	PBW	11/15/13						1.7	0.45	0.96			1.92			
WG354866LCSW	LCSW	11/15/13	PCN43747	20				22	1.5	0.94	110	66	132			
L15465-01DUP	DUP-RER	11/15/13			0.16	0.29	1.2	.6	0.36	1.3				0.95	2	
L15465-02MS	MS	11/15/13	PCN43747	20	0.08	0.25	1.3	24	2	1.4	119.6	66	132			

#### **Rio Algom Mining Company**

Radium 226, di	ssolved		M903.1										Unit	s: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG355398																
WG354721PBW	PBW	11/22/13						.04	0.08	0.21			0.42			
WG354721LCSW	LCSW	11/22/13	PCN43747	20				18	0.5	0.07	90	43	148			
L15369-19DUP	DUP-RER	11/22/13			1.8	0.15	0.13	1.6	0.15	0.13				0.94	2	
L15369-11MS	MS	11/22/13	PCN43747	20	2.7	0.22	0.17	28	0.67	0.17	126.5	43	148			
Radium 228, di	ssolved		M9320										Unit	s: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG355986																
WG354904LCSW	LCSW	12/04/13	PCN44288	19.8				13	1.4	1.6	65.7	47	123			
WG354904PBW	PBW	12/04/13						.52	0.69	1.2			2.4			
L15438-05DUP	DUP-RER	12/05/13			0.8	0.5	1.2	1.8	0.83	1.8				1.03	2	
L15444-02DUP	DUP-RER	12/05/13			1.5	0.96	1.1	1.3	1	2				0.14	2	
L15444-08MS	MS	12/05/13	PCN44288	19.79	8.4	1.3	2	26	2.4	2.2	88.9	47	123			
Thorium 230, d	issolved		ESM 4506			_				<u> </u>			Unit	s: pCi/L		
ACZ ID	Туре	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG355157																
WG355013PBW	PBW	11/19/13						01	0.24	0.59			1.18			
WG355013LCSW	LCSW	11/19/13	RC130807-2	162.12				180	4.8	0.65	111	91	126			
L15444-04DUP	DUP-RER	11/19/13			-0.38	0.6	0.61	19	0.51	0.67				0.24	2	
L15444-05MS	MS	11/19/13	RC130807-2	162.12	0.06	0.4	0.71	170	4.8	0.7	104.8	91	126			

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

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#### **Rio Algom Mining Company**

# RadChem Extended **Qualifier Report**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L15444-01	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L15444-02	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG355157	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
L15444-03	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L15444-04	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L15444-05	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L15444-06	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L15444-07	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L15444-08	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG355157	Thorium 230, dissolved	ESM 4506	DJ	Sample dilution required due to insufficient sample.
L15444-09	WG355320	Gross Alpha, dissolved	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable,



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## Certification Qualifiers

#### **Rio Algom Mining Company**

## ACZ Project ID: L15444

ne following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.								
Lead 210, dissolved	EICHROM, OTW01							
Thorium 230, dissolved	ESM 4506							
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							

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493		Sa Re	imple eceipt	
Rio Algom Mining Company ACZ	Z Proje	ct ID:		L15444
4501354707 Dat	e Rece	eived: 1	1/08/201	3 08:57
R -	eceive	d By:		mtb
	ate Pri	nted:	11/	11/2013
		YES	NO	NA
1) Is a foreign soil permit included for applicable samples?				X
2) Is the Chain of Custody or other directive shipping papers present?		Х		
3) Does this project require special handling procedures such as CLP protocol?				Х
4) Are any samples NRC licensable material?	:			Х
5) If samples are received past hold time, proceed with requested short hold time analyse	s?	Х		
6) Is the Chain of Custody complete and accurate?	:	Х		
7) Were any changes made to the Chain of Custody prior to ACZ receiving the samples?		Х		
A change was made in the Project Information section prior t ACZ custody.	0			
Samples/Containers				
		YES	NO	NA
8) Are all containers intact and with no leaks?	ļ	Х		
9) Are all labels on containers and are they intact and legible?		Х		
10) Do the sample labels and Chain of Custody match for Sample ID, Date, and Time?		Х		
11) For preserved bottle types, was the pH checked and within limits?	İ	Х		
12) Is there sufficient sample volume to perform all requested work?		Х		
13) Is the custody seal intact on all containers?				Х
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?		·		Х
18) Were all samples received within hold time?		Х		
Chain of Custody Related Remarks	1			

Cooler 4106 had wet frozen ice, Cooler 3689 and NA18692 had no ice Wet or Gel.

## **Client Contact Remarks**

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/Hr)
3689	7.5	13
4106	3.7	13
NA18692	7.9	12

Custody Seal Intact? -----Yes Yes Yes

Was ice present in the shipment container(s)?

Please reference the information in the 'Chain of Custody Related Remarks' section.

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493		Sample Receipt
Rio Algom Mining Company	ACZ Project ID:	L15444
4501354707	Date Received:	11/08/2013 08:57
	Received By:	mtb
	Date Printed:	11/11/2013
Client must contact an ACZ Project Manager if analysi outside of their thermal preservati	is should not proceed for samples received on acceptance criteria.	1

ACZ Laboratories, Inc.	-5493	54	NY	/	С	HAI	N of	CUS	۲OD۱
Report to:	2.00	•							
Name: Doug Murray		Addre	SS:	P.1	Ē	R	218	2	
Company: Rio Algom Mining LLC	-		BV	ant	5	N.I	<u> </u>	8700	20
E-mail:		Telepl	hone:	(50	15)	28	-7-0	585	7
Copy of Report to:		•							
Name:		E-mai	1:		. <u> </u>				
Company:		Telepi	hone:						
Invoice to:									
Name:		Addre	SS:		1				
Company:									
E-mail:		Telep	hone:						-
If sample(s) received past holding time (HT), or if insufficien	nt HT re	mains	to com	plete				YES	
analysis before expiration, shall ACZ proceed with requester	ed shor	t HT an	alyses'	? esteri analv	ses even i	f HT is evol	reni anri dati		fied
Are samples for SDWA Compliance Monitoring?	<u>u, ruz un</u>	Yes			No			s was be qua	
If yes, please include state forms. Results will be reported to	o PQL	for Cole	orado.						
Sampler's Name for du Sampler's site informat	tion	State:		······	Zip co	de		Time Zo	ne
Check box if observe Daylight Savings Time					OUESTE	D /attack	lint or upo	~	(h)
DAGE SPC28	·····	ທີ			QUESTE		list of use		iber)
$\frac{1}{1000}$		ner	3	3	ļ	ł			
Power and the for compliance testing:	·····	ntai	A	R					
Check box if samples include NRC licensed material?		ပိ	2	1					
SAMPLE IDENTIFICATION DATE: TIME	Matrix	0 #	R	Æ	1	1			
5-08 R ALL 11-04-13:0838	GW	4	X						
5-73 R ALL 11-04-B: 0912	6W	4	Х						
5-04 ALL 1A04-13: 1002	BW	4	X						
5-03R ALL 14-04-13: 1036	<u>6</u> W	4	x						
32-59 ALL N-04-13:1229	<u>GW</u>	4	X			ļ			
31-61 ALL 18-04-13: 128	<u>EW</u>	4	X_			<b> </b>			
31-05 ALL 11-04-13, 1341 31-17 TRR 11 AC 12: 1022	<u>en</u> Aut	7	X						
31-61 1 KB 1-05-13, 1053	<u>ew</u> Cul	5				<u> </u>			
36-VA 128 10-03 13. 1303	on	5		<u> </u>					
Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste W	later) · D	L W (Drink	ing Wate	er) · SL (	l Sludae)	SO (Soi		ii) · Other	(Specify)
REMARKS		,	- J - Fak	, 22(		(00	,	,	(-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,
D AMA CAC# 13-43				$\sim$	his	mar	N	of	3)
Please refer to ACZ's terms & condi RELINQUISHED BY: DATE:TIM	itions k	ocated	on the		e side /ED B	of this Y:	coc	д. / DA	<i>u f.  </i> ге:тімі
Hardle Slim 1A06-13:09	30								
		1	2	1/ A	10	<b>.</b>			
		M		-81	58	7.58	3		

White - Return with sample. Yel

Yellow - Retain for your records.