Rio Algom Mining LLC

July 21, 2010

Certified Mail
Return Receipt (7009 0960 0000 8422 9192)

Mr. Jerry Schoeppner
Groundwater Quality Section
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Re: **Discharge Plan - 71**
Analytical Results – 2nd Quarter 2010

Dear Mr. Schoeppner,

Please find attached the 2nd quarter groundwater monitoring report for the Section 4 lined evaporation ponds at the Ambrosia Lake mill facility. This report includes the quarterly reporting requirements for discharge permit DP-71.

If you have any questions or need additional information, please call me at 505-287-8851, ext 15.

Regards,

Chuck Wentz
Environmental Department Supervisor
Radiation Safety Officer

Attachment: As stated

xc: NRC (Mr. Tom McLaughlin)
NRC (document control)
file

NM5501
NM55

RIO ALGOM MINING LLC
AMBROSIA LAKE
FACILITY

Discharge Permit
DP-71

2nd Quarter 2010

July 21, 2010

Discharge Permit DP-71

Summary of Activities

This report presents the results of the monitoring and sampling requirements associated with discharge permit DP-71 for the period encompassing the 2nd quarter of 2010. DP-71 permit renewal was approved on December 1, 2003 and monitoring requirements were expanded from previous monitoring commitments listed in the permit. This has resulted in acquiring data that was not obtained in past monitoring programs.

Activities associated with the Section 4 lined evaporation ponds consisted of sampling Monitor Wells 22 and 32.

All wells associated with the permit were dry or contained insufficient water for sample collection except for two wells. These wells were MW-22 and MW-32. Laboratory/analytical results for the quarterly sample events were provided by ACZ Laboratories. A table summarizing the data is attached and copies of the laboratory reports are included with this submittal.

Hydrographs and time versus concentration plots for the chemical constituents chloride, sulfate, and TDS are attached for MW-22, MW-26, and MW-32. Since all other wells continue to be dry, Rio Algom wishes to incorporate the hydrographs for the other wells associated with DP-71 that were included within the April 3, 2006 submittal.

Due to the lack of any water in the alluvium in the Section 4 Pond area, development of a potentiometric map for the alluvium was not undertaken. Since mine dewatering from mines northeast of the Section 4 Ponds ceased in 1985, the alluvium in the vicinity of the Section 4 Ponds has drained, which is reflected in the historical water level data obtained from the monitoring wells associated with the Section 4 Ponds.

Analytical Data

DP-71

RIO ALGOM MINING LLC
DISCHARGE PERMIT - DP-71
MONITORING RESULTS - 2nd QUARTER 2010

Date	Location	Depth to Water (ft)	Total Depth (ft)	WELL STATUS	pH (s.u.)	Temp. (C)	Spec. Cond. (uS)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Nitrate (mg/L)	Arsenic (mg/L)	Selenium (mg/L)	Uranium (mg/L)
4/12/2010	MW-12		13.00	NS										
4/12/2010	MW-13		29.27	NS										
4/12/2010	MW-22	35.42	36.87		7.27	15.5	5190	140	2700	4380	19	0.008	0.1300	0.0358
4/12/2010	MW-23		41.73	NS										
4/12/2010	MW-24		50.13	NS										
4/12/2010	MW-25		29.62	NS										
4/12/2010	MW-26		35.25	NS										
4/12/2010	MW-27		27.87	NS										
4/12/2010	MW-28		32.48	NS										
4/12/2010	MW-29		29.29	NS										
4/12/2010	MW-30		40.99	NS										
4/12/2010	MW-31		50.51	NS										
4/12/2010	MW-32	68.25	71.62		7.29	14.7	5250	120	2800	4470	60	0.012	0.2250	0.0170
4/12/2010	MW-33		59.31	NS										

Notes

1 - Well status listed as "NS" indicates the well was either dry or contained insufficient water for sample collection.

2 - Monitor wells MW-1 through MW-11, MW-14 through MW-21 plugged and abandoned for the lined pond relocation project.

RIO ALGOM MINING LLC
DISCHARGE PERMIT - DP-71
MONITORING RESULTS - 2nd QUARTER 2010
SEMI-ANNUAL REPORT

Date	Location	WELL STATUS	HCO3 (mg/L)	CO3 (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	F (mg/L)	Al (mg/L)	Cd (mg/L)	Cr (mg/L)	Co (mg/L)
4/12/2009	MW-12	NS											
4/12/2009	MW-13	NS											
4/12/2009	MW-22		231	<2	437	257	677	5	0.7	< 0.2	< 0.03	< 0.05	< 0.05
4/12/2009	MW-23	NS											
4/12/2009	MW-24	NS											
4/12/2009	MW-25	NS											
4/12/2009	MW-26	NS											
4/12/2009	MW-27	NS											
4/12/2009	MW-28	NS											
4/12/2009	MW-29	NS											
4/12/2009	MW-30	NS											
4/12/2009	MW-31	NS											
4/12/2009	MW-32		306	<2	542	365	455	6	1.0	< 0.2	< 0.03	< 0.05	< 0.05
4/12/2009	MW-33	NS											

Notes

1 - Well status listed as "NS" indicates the well was either dry or contained insufficient water for sample collection.

2 - Groundwater standards not established. Standard will be existing concentration or numeric standard, whichever is greater.

3 - Monitor wells MW-1 through MW-11, MW-14 through MW-21 plugged and abandoned for the lined pond relocation project.

RIO ALGOM MINING LLC
DISCHARGE PERMIT - DP-71
MONITORING RESULTS - 2nd QUARTER 2010
SEMI-ANNUAL REPORT

Date	Location	Cu (mg/L)	Fe (mg/L)	Pb (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	TKN (mg/L)	Ag (mg/L)	Zn (mg/L)	Ra-226 & Ra-228 (pCi/L)
4/12/2009	MW-12										
4/12/2009	MW-13										
4/12/2009	MW-22	< 0.05	0.3	<0.0005	0.84	<0.05	<0.05	1.2	< 0.05	< 0.05	0.42 & 0.3
4/12/2009	MW-23										
4/12/2009	MW-24										
4/12/2009	MW-25										
4/12/2009	MW-26										
4/12/2009	MW-27										
4/12/2009	MW-28										
4/12/2009	MW-29										
4/12/2009	MW-30										
4/12/2009	MW-31										
4/12/2009	MW-32	< 0.05	< 0.1	0.0005	0.51	< 0.05	< 0.05	0.4	< 0.05	< 0.05	0.26 & 0.62
4/12/2009	MW-33										

Notes

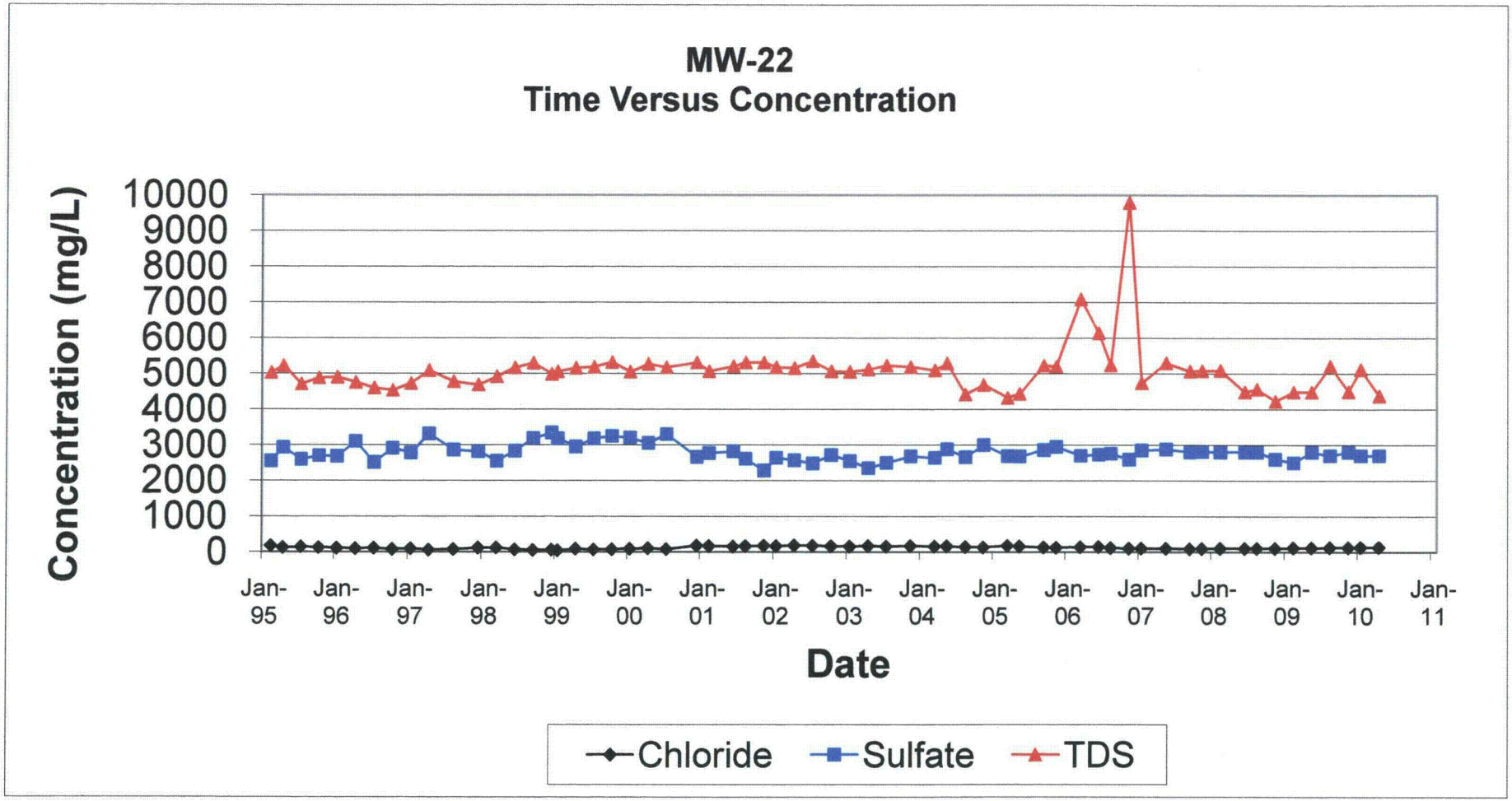
1 - Well status listed as "NS" indicates the well was either dry or contained insufficient water for sample collection.

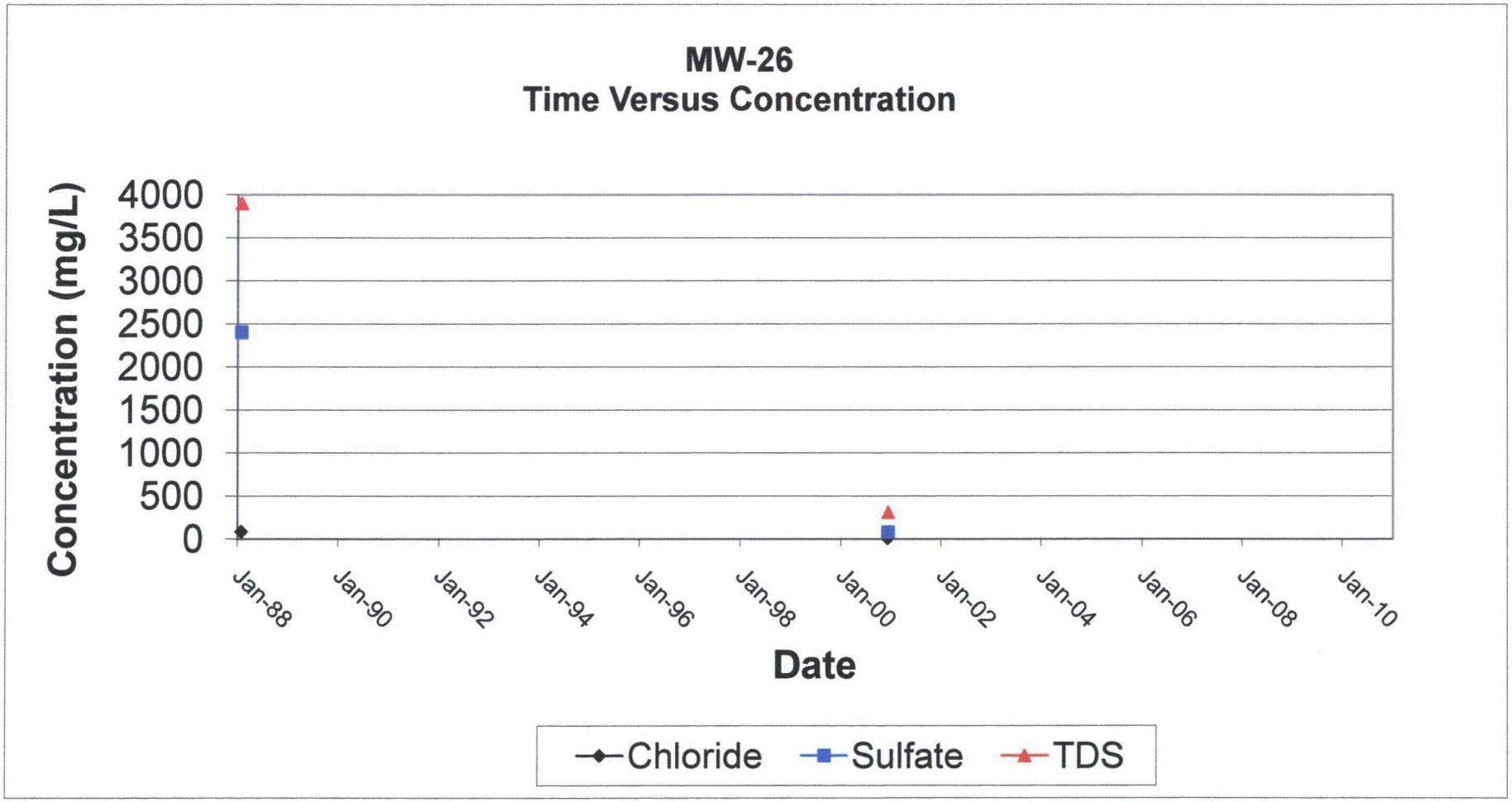
2 - Groundwater standards not established. Standard will be existing concentration or numeric standard, whichever is greater.

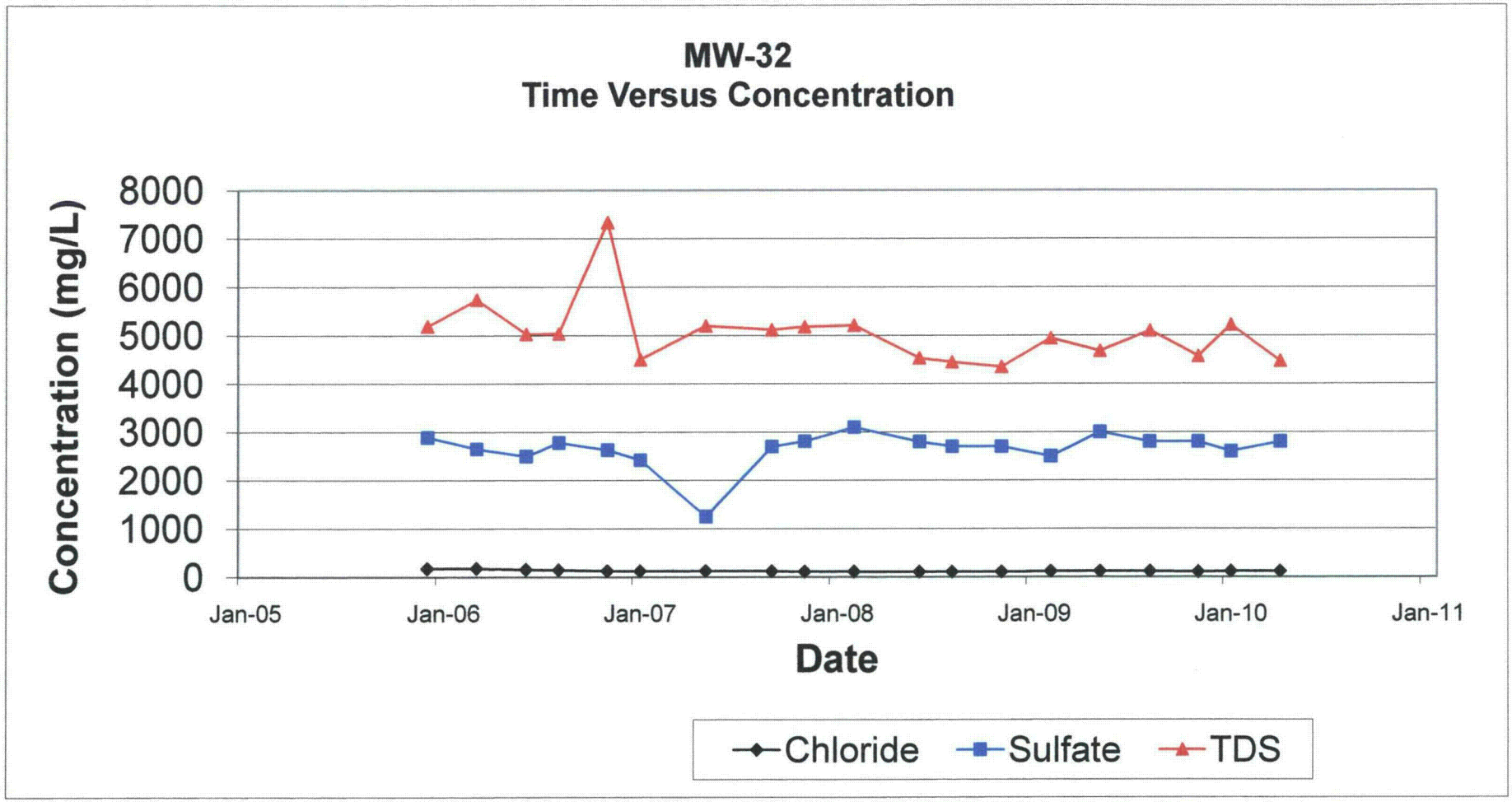
3 - Monitor wells MW-1 through MW-11, MW-14 through MW-21 plugged and abandoned for the lined pond relocation project.

Time versus Concentration Plots

MW-22, MW-26, and MW-32


MW-22
Time Versus Concentration
Concentration (mg/L)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Date
Chloride
Sulfate
TDS


MW-26
Time Versus Concentration
Concentration (mg/L)
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Date
Chloride
Sulfate
TDS

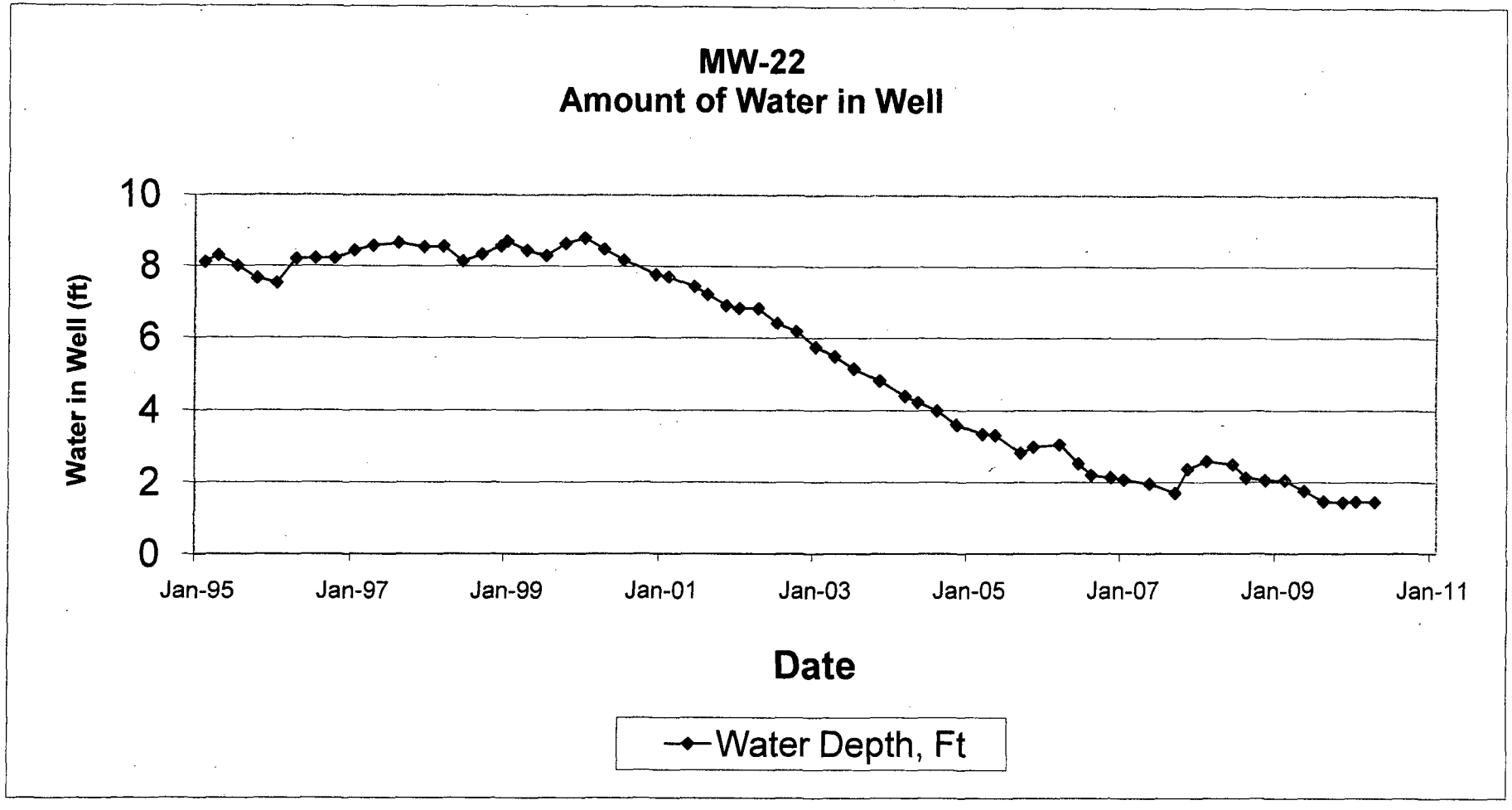

MW-32
Time Versus Concentration
Concentration (mg/L)
8000
7000
6000
5000
4000
3000
2000
1000
0
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Date
Chloride
Sulfate
TDS

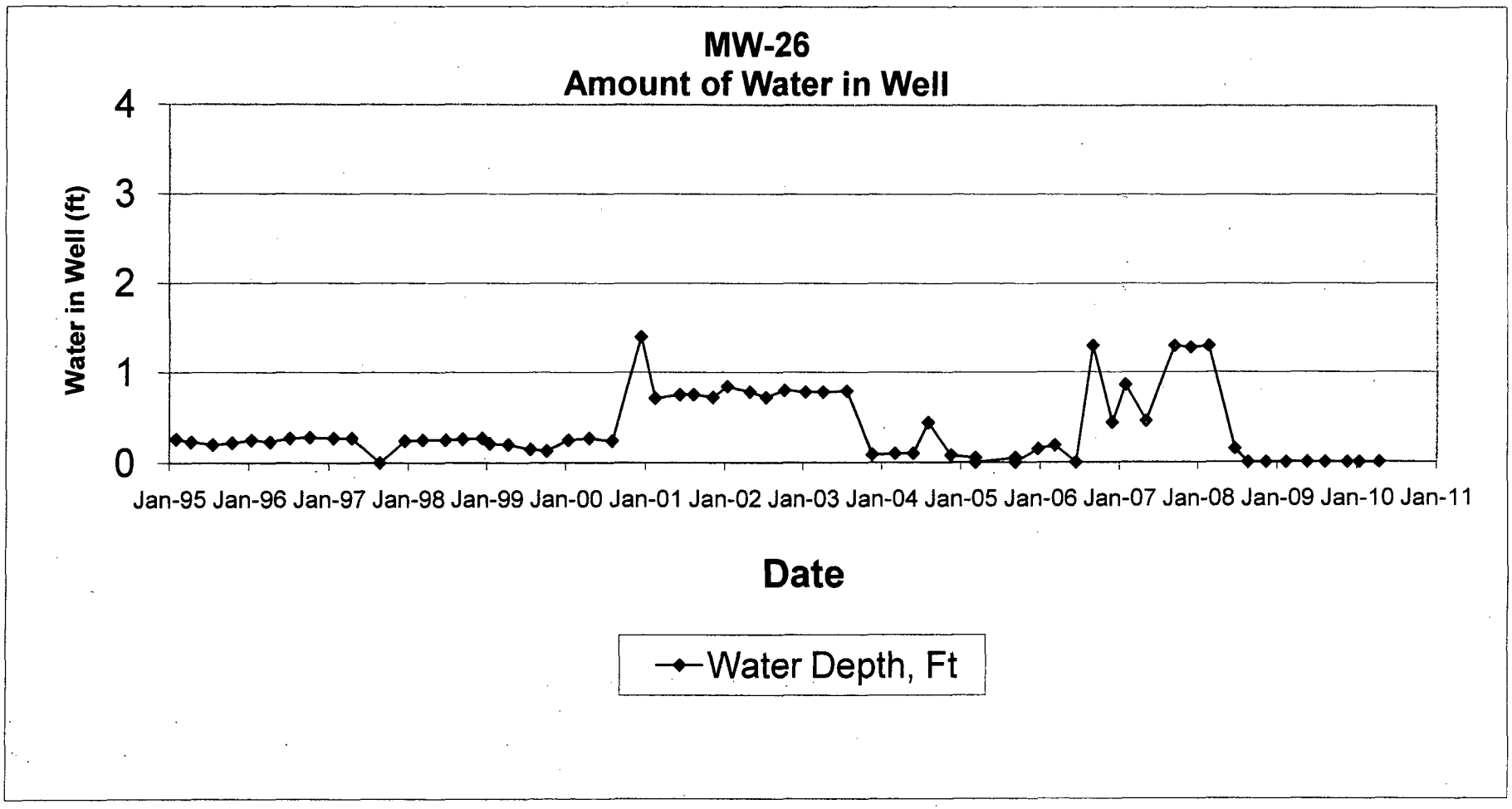
Hydrographs

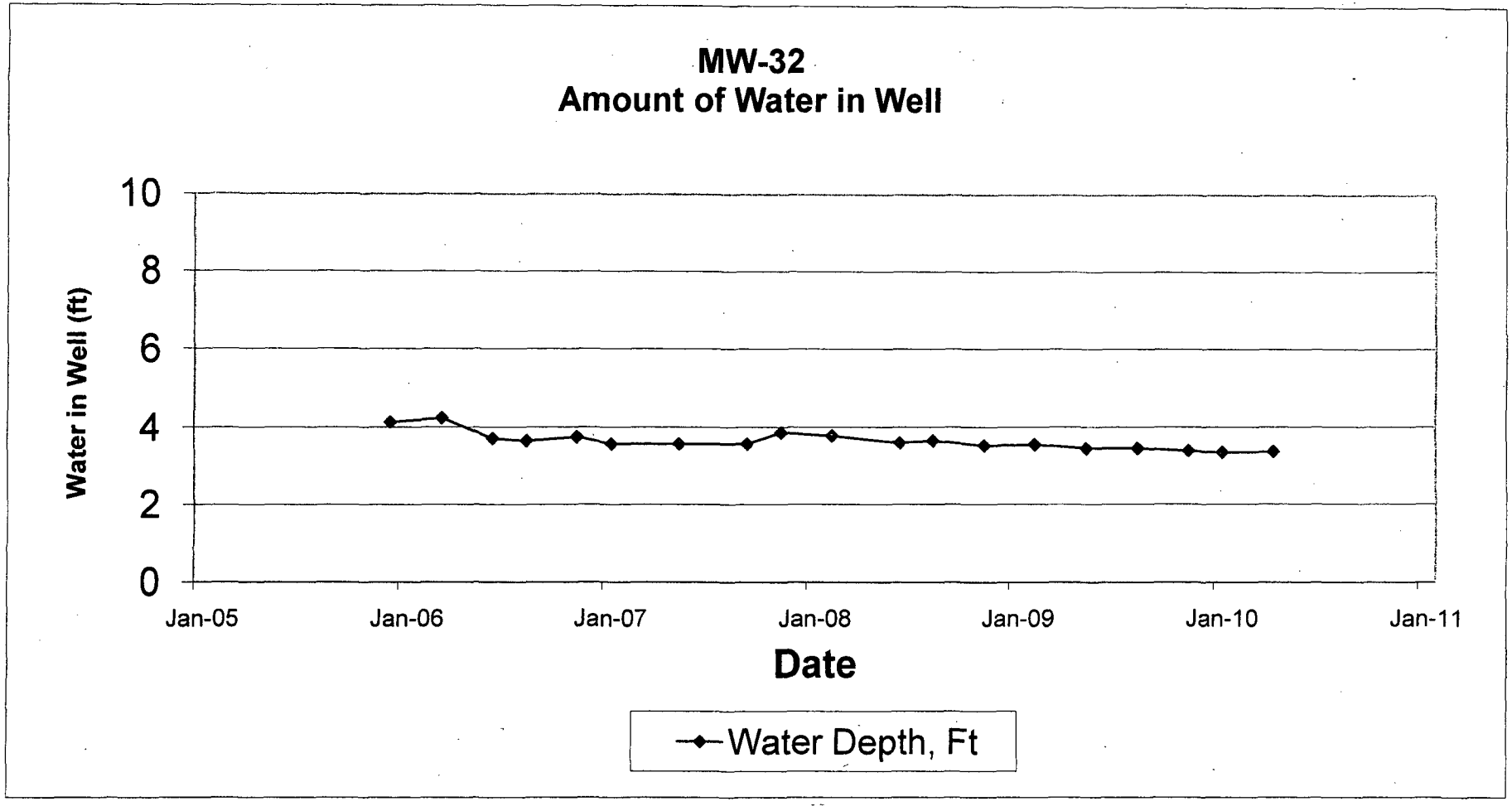
DP-71 Well Network

MW-22, MW-26, and MW-32

Since all other wells continue to be dry, Rio Algom wishes to incorporate the hydrographs for the other wells associated with DP-71 that were included within the April 3, 2006 submittal as part of this submittal.


MW-22
Amount of Water in Well
Water in Well (ft)
10
8
6
4
2
0
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Date
Water Depth, Ft


MW-26
Amount of Water in Well
Water in Well (ft)
4
3
2
1
0
Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11
Date
Water Depth, Ft


MW-32
Amount of Water in Well
Water in Well (ft)
10
8
6
4
2
0
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Date
Water Depth, Ft

Laboratory Reports

DP-71

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

Analytical Report

May 06, 2010

Report to:
Chuck Wentz
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: 58151
ACZ Project ID: L81591

Chuck Wentz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 15, 2010. This project has been assigned to ACZ's project number, L81591. 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 L81591. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

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

All samples and sub-samples associated with this project will be disposed of after June 06, 2010. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than 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 reports for five years.

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

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

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

Inorganic Analytical Results

Rio Algom Mining Company
Project ID: 58151
Sample ID: MW-32

ACZ Sample ID: ***L81591-01***
Date Sampled: *04/12/10 09:51*
Date Received: *04/15/10*
Sample Matrix: *Ground Water*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							05/03/10 11:26	skg

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP		U		mg/L	0.2	0.8	04/21/10 21:22	aeh
Arsenic, dissolved	M200.8 ICP-MS	0.012			mg/L	0.003	0.01	04/26/10 12:16	msh
Cadmium, dissolved	M200.7 ICP		U		mg/L	0.03	0.08	04/22/10 11:51	aeh
Calcium, dissolved	M200.7 ICP	542			mg/L	1	5	04/21/10 21:22	aeh
Chromium, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/22/10 11:51	aeh
Cobalt, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/21/10 21:22	aeh
Copper, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/21/10 21:22	aeh
Iron, dissolved	M200.7 ICP		U		mg/L	0.1	0.3	04/21/10 21:22	aeh
Lead, dissolved	M200.8 ICP-MS	0.0005	B		mg/L	0.0005	0.003	04/26/10 12:16	msh
Magnesium, dissolved	M200.7 ICP	365			mg/L	1	5	04/21/10 21:22	aeh
Manganese, dissolved	M200.7 ICP	0.51			mg/L	0.03	0.1	04/21/10 21:22	aeh
Molybdenum, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/22/10 11:51	aeh
Nickel, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/21/10 21:22	aeh
Potassium, dissolved	M200.7 ICP	6	B		mg/L	2	8	04/22/10 11:51	aeh
Selenium, dissolved	M200.8 ICP-MS	0.2250			mg/L	0.0005	0.003	04/26/10 12:16	msh
Silver, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.1	04/21/10 21:22	aeh
Sodium, dissolved	M200.7 ICP	455		*	mg/L	2	8	04/21/10 21:22	aeh
Uranium, dissolved	M200.8 ICP-MS	0.0710			mg/L	0.0005	0.003	04/26/10 12:16	msh
Zinc, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/21/10 21:22	aeh

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

Inorganic Analytical Results

Rio Algom Mining Company
Project ID: 58151
Sample ID: MW-32

ACZ Sample ID: ***L81591-01***
Date Sampled: *04/12/10 09:51*
Date Received: *04/15/10*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		306			mg/L	2	20	04/21/10 0:00	jjc
Carbonate as CaCO3			U		mg/L	2	20	04/21/10 0:00	jjc
Hydroxide as CaCO3			U		mg/L	2	20	04/21/10 0:00	jjc
Total Alkalinity		306		*	mg/L	2	20	04/21/10 0:00	jjc
Cation-Anion Balance	Calculation								
Cation-Anion Balance		6.1			%			05/06/10 0:00	calc
Sum of Anions		68.3			meq/L	0.1	0.5	05/06/10 0:00	calc
Sum of Cations		77.2			meq/L	0.1	0.5	05/06/10 0:00	calc
Chloride	SM4500Cl-E	120		*	mg/L	10	50	04/30/10 15:33	aml
Fluoride	SM4500F-C	1.0		*	mg/L	0.1	0.5	04/28/10 9:54	jlf
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	60			mg/L	1	5	04/29/10 15:32	itk
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.4	B	*	mg/L	0.1	0.5	05/04/10 19:56	pjb
Residue, Filterable (TDS) @180C	SM2540C	5280		*	mg/L	10	20	04/15/10 11:58	jjc
Sulfate	375.4 - Turbidimetric	2800		*	mg/L	100	500	04/30/10 14:14	aml
TDS (calculated)	Calculation	4470			mg/L	10	50	05/06/10 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.18						05/06/10 0:00	calc

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

Inorganic Analytical Results

Rio Algom Mining Company
Project ID: 58151
Sample ID: MW-22

ACZ Sample ID: ***L81591-02***
Date Sampled: *04/12/10 12:28*
Date Received: *04/15/10*
Sample Matrix: *Ground Water*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							05/03/10 11:41	skg

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP		U		mg/L	0.2	0.8	04/21/10 21:25	aeh
Arsenic, dissolved	M200.8 ICP-MS	0.008	B		mg/L	0.003	0.01	04/26/10 12:19	msh
Cadmium, dissolved	M200.7 ICP		U		mg/L	0.03	0.08	04/22/10 11:55	aeh
Calcium, dissolved	M200.7 ICP	473			mg/L	1	5	04/21/10 21:25	aeh
Chromium, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/22/10 11:55	aeh
Cobalt, dissolved	M200.7 ICP	0.05	B		mg/L	0.05	0.3	04/21/10 21:25	aeh
Copper, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/21/10 21:25	aeh
Iron, dissolved	M200.7 ICP	0.3	B		mg/L	0.1	0.3	04/21/10 21:25	aeh
Lead, dissolved	M200.8 ICP-MS		U		mg/L	0.0005	0.003	04/26/10 12:19	msh
Magnesium, dissolved	M200.7 ICP	257			mg/L	1	5	04/21/10 21:25	aeh
Manganese, dissolved	M200.7 ICP	0.84			mg/L	0.03	0.1	04/21/10 21:25	aeh
Molybdenum, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/22/10 11:55	aeh
Nickel, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/21/10 21:25	aeh
Potassium, dissolved	M200.7 ICP	5	B		mg/L	2	8	04/22/10 11:55	aeh
Selenium, dissolved	M200.8 ICP-MS	0.1300			mg/L	0.0005	0.003	04/26/10 12:19	msh
Silver, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.1	04/21/10 21:25	aeh
Sodium, dissolved	M200.7 ICP	667		*	mg/L	2	8	04/21/10 21:25	aeh
Uranium, dissolved	M200.8 ICP-MS	0.0358			mg/L	0.0005	0.003	04/26/10 12:19	msh
Zinc, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	04/21/10 21:25	aeh

** Please refer to Qualifier Reports for details.*

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

Inorganic Analytical Results

Rio Algom Mining Company
Project ID: 58151
Sample ID: MW-22

ACZ Sample ID: ***L81591-02***
Date Sampled: *04/12/10 12:28*
Date Received: *04/15/10*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		231			mg/L	2	20	04/21/10 0:00	jjc
Carbonate as CaCO3			U		mg/L	2	20	04/21/10 0:00	jjc
Hydroxide as CaCO3			U		mg/L	2	20	04/21/10 0:00	jjc
Total Alkalinity		231		*	mg/L	2	20	04/21/10 0:00	jjc
Cation-Anion Balance	Calculation								
Cation-Anion Balance		6.4			%			05/06/10 0:00	calc
Sum of Anions		65.3			meq/L	0.1	0.5	05/06/10 0:00	calc
Sum of Cations		74.3			meq/L	0.1	0.5	05/06/10 0:00	calc
Chloride	SM4500Cl-E	140		*	mg/L	10	50	04/30/10 15:33	aml
Fluoride	SM4500F-C	0.7		*	mg/L	0.1	0.5	04/28/10 9:58	jlf
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	19			mg/L	1	5	04/29/10 15:35	itk
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	1.2		*	mg/L	0.1	0.5	05/04/10 19:59	pjb
Residue, Filterable (TDS) @180C	SM2540C	5170		*	mg/L	10	20	04/15/10 11:59	jjc
Sulfate	375.4 - Turbidimetric	2700		*	mg/L	100	500	04/30/10 14:24	aml
TDS (calculated)	Calculation	4380			mg/L	10	50	05/06/10 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.18						05/06/10 0:00	calc

** Please refer to Qualifier Reports for details.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. 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	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995 & 20th edition (1998).

Comments

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

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Rio Algom Mining Company
Project ID: 58151

ACZ Project ID: ***L81591***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281052													
WG281052PBW1	PBW	04/21/10 13:35				3.3	mg/L		-20	20			
WG281052LCSW2	LCSW	04/21/10 13:48	WC100329-1	820.0001		824	mg/L	100.5	98	110			
L81600-01DUP	DUP	04/21/10 15:15			101	103.2	mg/L				2.2	20	
WG281052PBW2	PBW	04/21/10 16:57				U	mg/L		-20	20			
WG281052LCSW5	LCSW	04/21/10 17:11	WC100329-1	820.0001		813.6	mg/L	99.2	98	110			
WG281052PBW3	PBW	04/21/10 20:38				U	mg/L		-20	20			
WG281052LCSW8	LCSW	04/21/10 20:52	WC100329-1	820.0001		816.5	mg/L	99.6	98	110			
WG281052PBW4	PBW	04/22/10 0:19				U	mg/L		-20	20			
WG281052LCSW11	LCSW	04/22/10 0:34	WC100329-1	820.0001		821.2	mg/L	100.1	98	110			
WG281052LCSW14	LCSW	04/22/10 4:06	WC100329-1	820.0001		822.7	mg/L	100.3	98	110			

Aluminum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	2		1.995	mg/L	99.8	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.09	0.09			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	1		1.001	mg/L	100.1	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	1	.05	1.057	mg/L	100.7	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	1	.05	1.068	mg/L	101.8	85	115	1.04	20	

Arsenic, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281224													
WG281224ICV	ICV	04/26/10 12:05	MS100329-2	.05		.05167	mg/L	103.3	90	110			
WG281224ICB	ICB	04/26/10 12:08				U	mg/L		-0.0011	0.0011			
WG281224LFB	LFB	04/26/10 12:13	MS100416-3	.05005		.05452	mg/L	108.9	85	115			
L81595-02AS	AS	04/26/10 12:28	MS100416-3	.05005	.0061	.06257	mg/L	112.8	70	130			
L81595-02ASD	ASD	04/26/10 12:31	MS100416-3	.05005	.0061	.06252	mg/L	112.7	70	130	0.08	20	

Cadmium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281102													
WG281102ICV	ICV	04/22/10 11:32	II100311-1	2		1.8991	mg/L	95	95	105			
WG281102ICB	ICB	04/22/10 11:35				U	mg/L		-0.015	0.015			
WG281102LFB	LFB	04/22/10 11:48	II100409-2	.5		.49	mg/L	98	85	115			
L81595-01AS	AS	04/22/10 12:01	II100409-2	.5	U	.4989	mg/L	99.8	85	115			
L81595-01ASD	ASD	04/22/10 12:04	II100409-2	.5	U	.4948	mg/L	99	85	115	0.83	20	

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	100		100.85	mg/L	100.9	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.6	0.6			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	67.99734		69.52	mg/L	102.2	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	67.99734	37.2	109.02	mg/L	105.6	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	67.99734	37.2	108.98	mg/L	105.6	85	115	0.04	20	

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Chloride SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281636													
WG281636ICB	ICB	04/30/10 13:46				U	mg/L		-3	3			
WG281636ICV	ICV	04/30/10 13:46	WI091019-2	54.835		58.6	mg/L	106.9	90	110			
WG281636LFB1	LFB	04/30/10 15:22	WI100217-3	30		32.2	mg/L	107.3	90	110			
WG281636LFB2	LFB	04/30/10 15:25	WI100217-3	30		31.2	mg/L	104	90	110			
L81591-01AS	AS	04/30/10 15:33	10XCL	30	120	119	mg/L	-3.3	90	110			M3
L81591-02DUP	DUP	04/30/10 15:33			140	138	mg/L				1.4	20	

Chromium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281102													
WG281102ICV	ICV	04/22/10 11:32	II100311-1	2		1.894	mg/L	94.7	95	105			
WG281102ICB	ICB	04/22/10 11:35				U	mg/L		-0.03	0.03			
WG281102LFB	LFB	04/22/10 11:48	II100409-2	.5		.489	mg/L	97.8	85	115			
L81595-01AS	AS	04/22/10 12:01	II100409-2	.5	U	.51	mg/L	102	85	115			
L81595-01ASD	ASD	04/22/10 12:04	II100409-2	.5	U	.493	mg/L	98.6	85	115	3.39	20	

Cobalt, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	2.002		2.093	mg/L	104.5	95	105			
WG281050ICB	ICB	04/21/10 21:06				.01	mg/L		-0.03	0.03			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	.5		.52	mg/L	104	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	.5	.01	.553	mg/L	108.6	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	.5	.01	.556	mg/L	109.2	85	115	0.54	20	

Copper, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	2		1.975	mg/L	98.8	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.03	0.03			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	.5		.5	mg/L	100	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	.5	U	.524	mg/L	104.8	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	.5	U	.52	mg/L	104	85	115	0.77	20	

Fluoride SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281411													
WG281411ICV	ICV	04/28/10 9:11	WC100420-1	2		2.09	mg/L	104.5	95	105			
WG281411ICB	ICB	04/28/10 9:19				U	mg/L		-0.3	0.3			
WG281411LFB1	LFB	04/28/10 9:34	WC100112-3	5		5.07	mg/L	101.4	90	110			
L81565-01DUP	DUP	04/28/10 9:46			64	62.7	mg/L				2.1	20	RA
L81591-02AS	AS	04/28/10 10:02	WC100112-3	5	.7	5.52	mg/L	96.4	90	110			
WG281411LFB2	LFB	04/28/10 12:51	WC100112-3	5		4.98	mg/L	99.6	90	110			

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Iron, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	2		2.03	mg/L	101.5	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.06	0.06			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	1		1.037	mg/L	103.7	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	1	U	1.067	mg/L	106.7	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	1	U	1.056	mg/L	105.6	85	115	1.04	20	

Lead, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281224													
WG281224ICV	ICV	04/26/10 12:05	MS100329-2	.05		.04608	mg/L	92.2	90	110			
WG281224ICB	ICB	04/26/10 12:08				U	mg/L		-0.00022	0.00022			
WG281224LFB	LFB	04/26/10 12:13	MS100416-3	.05005		.04966	mg/L	99.2	85	115			
L81595-02AS	AS	04/26/10 12:28	MS100416-3	.05005	.0005	.05377	mg/L	106.4	70	130			
L81595-02ASD	ASD	04/26/10 12:31	MS100416-3	.05005	.0005	.05401	mg/L	106.9	70	130	0.45	20	

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	100		101.34	mg/L	101.3	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.6	0.6			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	49.99941		50.17	mg/L	100.3	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	49.99941	9.1	62.57	mg/L	106.9	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	49.99941	9.1	62.36	mg/L	106.5	85	115	0.34	20	

Manganese, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	2		1.9814	mg/L	99.1	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.015	0.015			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	.5		.5335	mg/L	106.7	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	.5	U	.5472	mg/L	109.4	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	.5	U	.5417	mg/L	108.3	85	115	1.01	20	

Molybdenum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281102													
WG281102ICV	ICV	04/22/10 11:32	II100311-1	2		1.938	mg/L	96.9	95	105			
WG281102ICB	ICB	04/22/10 11:35				U	mg/L		-0.03	0.03			
WG281102LFB	LFB	04/22/10 11:48	II100409-2	.5		.504	mg/L	100.8	85	115			
L81595-01AS	AS	04/22/10 12:01	II100409-2	.5	.48	.97	mg/L	98	85	115			
L81595-01ASD	ASD	04/22/10 12:04	II100409-2	.5	.48	.952	mg/L	94.4	85	115	1.87	20	

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Nickel, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	2.002		1.95	mg/L	97.4	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.03	0.03			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	.5		.504	mg/L	100.8	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	.5	U	.538	mg/L	107.6	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	.5	U	.536	mg/L	107.2	85	115	0.37	20	

Nitrate/Nitrite as N M353.2 - H2SO4 preserved

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281498													
WG281498ICV	ICV	04/29/10 11:08	WI100323-9	2.416		2.514	mg/L	104.1	90	110			
WG281498ICB	ICB	04/29/10 11:09				U	mg/L		-0.06	0.06			
WG281537													
WG281537LFB1	LFB	04/29/10 14:27	WI100319-1	2		2.132	mg/L	106.6	90	110			
L81565-03AS	AS	04/29/10 14:29	WI100319-1	2	U	2.079	mg/L	104	90	110			
WG281537LFB2	LFB	04/29/10 15:03	WI100319-1	2		2.101	mg/L	105.1	90	110			
L81591-01DUP	DUP	04/29/10 15:34			60	60.3	mg/L				0.5	20	

Nitrogen, total Kjeldahl M351.2 - TKN by Block Digester

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281822													
WG281822ICV	ICV	05/04/10 19:43	WI100426-9	4		3.86	mg/L	96.5	90	110			
WG281822ICB	ICB	05/04/10 19:45				U	mg/L		-0.3	0.3			
WG281679LRB	LRB	05/04/10 19:46				U	mg/L		-0.3	0.3			
WG281679LFB	LFB	05/04/10 19:47	WI100426-2	2.5		2.37	mg/L	94.8	90	110			
L81536-03LFM	LFM	05/04/10 19:51	WI100426-2	2.5	3.6	5.46	mg/L	74.4	90	110			M2
L81536-04DUP	DUP	05/04/10 19:53			1.2	1.14	mg/L				5.1	20	

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281102													
WG281102ICV	ICV	04/22/10 11:32	II100311-1	20		20.41	mg/L	102.1	95	105			
WG281102ICB	ICB	04/22/10 11:35				U	mg/L		-0.9	0.9			
WG281102LFB	LFB	04/22/10 11:48	II100409-2	99.97161		104.89	mg/L	104.9	85	115			
L81595-01AS	AS	04/22/10 12:01	II100409-2	99.97161	21.3	132.31	mg/L	111	85	115			
L81595-01ASD	ASD	04/22/10 12:04	II100409-2	99.97161	21.3	128.98	mg/L	107.7	85	115	2.55	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG280779													
WG280779PBW	PBW	04/15/10 11:45				U	mg/L		-20	20			
WG280779LCSW	LCSW	04/15/10 11:45	PCN33553	260		264	mg/L	101.5	80	120			
L81591-02DUP	DUP	04/15/10 11:59			5170	5218	mg/L				0.9	20	

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Selenium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281224													
WG281224ICV	ICV	04/26/10 12:05	MS100329-2	.05		.05007	mg/L	100.1	90	110			
WG281224ICB	ICB	04/26/10 12:08				U	mg/L		-0.00022	0.00022			
WG281224LFB	LFB	04/26/10 12:13	MS100416-3	.05005		.05223	mg/L	104.4	85	115			
L81595-02AS	AS	04/26/10 12:28	MS100416-3	.05005	.0272	.08272	mg/L	110.9	70	130			
L81595-02ASD	ASD	04/26/10 12:31	MS100416-3	.05005	.0272	.08129	mg/L	108.1	70	130	1.74	20	

Silver, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	1.001		1.018	mg/L	101.7	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.03	0.03			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	.5		.498	mg/L	99.6	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	.5	U	.417	mg/L	83.4	85	115			M2 ZA
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	.5	U	.417	mg/L	83.4	85	115	0	20	M2 ZA

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	100		100.41	mg/L	100.4	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.9	0.9			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	100.018		100.98	mg/L	101	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	100.018	222	306.09	mg/L	84.1	85	115			M2
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	100.018	222	301.21	mg/L	79.2	85	115	1.61	20	M2

Sulfate 375.4 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281620													
WG281620ICB	ICB	04/30/10 13:24				U	mg/L		-3	3			
WG281620ICV	ICV	04/30/10 13:24	WI100428-1	20.08		18.3	mg/L	91.1	90	110			
WG281620LFB	LFB	04/30/10 13:52	WI091020-3	10		9.8	mg/L	98	90	110			
L81591-01DUP	DUP	04/30/10 14:14			2800	2640	mg/L				5.9	20	
L81591-02AS	AS	04/30/10 14:24	SO4TURB10	10	2700	3550	mg/L	8500	90	110			M3

Uranium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281224													
WG281224ICV	ICV	04/26/10 12:05	MS100329-2	.05		.05146	mg/L	102.9	90	110			
WG281224ICB	ICB	04/26/10 12:08				U	mg/L		-0.00022	0.00022			
WG281224LFB	LFB	04/26/10 12:13	MS100416-3	.05		.05378	mg/L	107.6	85	115			
L81595-02AS	AS	04/26/10 12:28	MS100416-3	.05	.0061	.06734	mg/L	122.5	70	130			
L81595-02ASD	ASD	04/26/10 12:31	MS100416-3	.05	.0061	.0672	mg/L	122.2	70	130	0.21	20	

Rio Algom Mining Company
Project ID: 58151

ACZ Project ID: ***L81591***

Zinc, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG281050													
WG281050ICV	ICV	04/21/10 21:02	II100311-1	2		1.988	mg/L	99.4	95	105			
WG281050ICB	ICB	04/21/10 21:06				U	mg/L		-0.03	0.03			
WG281050LFB	LFB	04/21/10 21:19	II100409-2	.5		.52	mg/L	104	85	115			
L81595-01AS	AS	04/21/10 21:31	II100409-2	.5	U	.546	mg/L	109.2	85	115			
L81595-01ASD	ASD	04/21/10 21:34	II100409-2	.5	U	.545	mg/L	109	85	115	0.18	20	

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Inorganic Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: ***L81591***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L81591-01	WG281050	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
		Sodium, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG281636	Chloride	SM4500Cl-E	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG281411	Fluoride	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG281822	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG280779	Residue, Filterable (TDS) @180C	SM2540C	ZO	Concentration is based on a final residue greater than 200 mg.
	WG281620	Sulfate	375.4 - 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.
	WG281052	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L81591-02	WG281050	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
		Sodium, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG281636	Chloride	SM4500Cl-E	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG281411	Fluoride	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG281822	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG280779	Residue, Filterable (TDS) @180C	SM2540C	ZO	Concentration is based on a final residue greater than 200 mg.
	WG281620	Sulfate	375.4 - 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.
	WG281052	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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RadioChemistry Analytical Results

Rio Algom Mining Company
Project ID: 58151
Sample ID: MW-32
Locator:

ACZ Sample ID: ***L81591-01***
Date Sampled: *04/12/10 9:51*
Date Received: *04/15/10*
Sample Matrix: *Ground Water*

Radium 226, dissolved
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	04/26/10 21:05		0.26	0.15	0.39	pCi/L	*	mwm

Radium 228, dissolved
M9320

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	04/28/10 15:54		0.62	0.48	1.4	pCi/L		mwm

** Please refer to Qualifier Reports for details.*

Rio Algom Mining Company
Project ID: 58151
Sample ID: MW-22
Locator:

ACZ Sample ID: ***L81591-02***
Date Sampled: *04/12/10 12:28*
Date Received: *04/15/10*
Sample Matrix: *Ground Water*

Radium 226, dissolved — Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, dissolved	04/26/10 21:07		0.42	0.14	0.28	pCi/L	*	mwm

Radium 228, dissolved — Prep Method:
M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	04/28/10 15:54		0.3	0.47	1.4	pCi/L		mwm

** Please refer to Qualifier Reports for details.*

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Error(+/-)	Calculated sample specific uncertainty
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
LCL	Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD	Calculated sample specific Lower Limit of Detection
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RER	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
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.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Replicate Error Ratio (RER) accepted because sample concentrations are less than 10x the MDL.
U	No nuclides detected above the Lower Limit of Detection (LLD)
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
X	QC is out of control. See Case Narrative.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater, 19th edition (1995) & 20th edition (1998).
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/extquallist.pdf

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Radiochemistry QC Summary

Rio Algom Mining Company
Project ID: 58151

ACZ Project ID: ***L81591***

Radium 226, dissolved M903.1 pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG281408																
WG281028PBW	PBW	04/26/10						-.03	0.07	0.2			0.4			
WG281028LCSW	LCSW	04/26/10	RC100111-3	23.92				18	0.55	0.23	75.3	44	128			
L81616-01DUP	DUP-RER	04/26/10			6.6	0.3	0.18	7.6	0.37	0.23				2.1	2	RN
L81616-01DUP	DUP-RPD	04/26/10			6.6	0.3	0.18	7.6	0.37	0.23				14.1	20	RN
L81508-02MS	MS	04/26/10	RC100111-3	23.92	440	2.9	0.26	410	2.7	0.24	-125.4	44	128			M3

Radium 228, dissolved M9320 pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG281600																
WG281262PBW	PBW	04/28/10						.08	0.22	0.65			1.3			
WG281262LCSW	LCSW	04/28/10	RC100325-1	12.78				10	0.95	1.4	78.2	49	132			
L81684-01DUP	DUP-RER	04/29/10			0.32	0.41	1.2	.5	0.43	1.3				0.3	2	
L81591-02MS	MS	04/29/10	RC100325-1	12.78	0.3	0.47	1.4	9.6	0.92	1.2	72.8	49	132			
L81591-01DUP	DUP-RER	04/29/10			0.62	0.48	1.4	.89	0.47	1.3				0.4	2	

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RadChem Extended Qualifier Report

Rio Algom Mining Company

ACZ Project ID: ***L81591***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L81591-01	WG281408	Radium 226, dissolved	M903.1	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.
			M903.1	RN	Sample concentration is greater than 5x LLD; RPD was used for data validation. Replicate Error Ratio (RER) is greater than 2. Precision judged to be in control.
L81591-02	WG281408	Radium 226, dissolved	M903.1	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.
			M903.1	RN	Sample concentration is greater than 5x LLD; RPD was used for data validation. Replicate Error Ratio (RER) is greater than 2. Precision judged to be in control.

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Certification Qualifiers

Rio Algom Mining Company

ACZ Project ID: ***L81591***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Rio Algom Mining Company
58151

ACZ Project ID: L81591
Date Received: 04/15/2010 10:37
Received By: gac
Date Printed: 4/15/2010

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
2364		3.8	15

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

Notes

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

Sample Receipt

Rio Algom Mining Company
58151

ACZ Project ID: L81591
Date Received: 04/15/2010 10:37
Received By: gac
Date Printed: 4/15/2010

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L81591-01	MW-32		Y									☐
L81591-02	MW-22		Y									☐

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: gac

ACZ Laboratories, Inc. C81591

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

CHAIN of CUSTODY

Report to:

Name: CHUCK WENTZ	Address: P.O. Box 218
Company: Rio Algom Mining LLC	Grants, N.M. 87020
E-mail:	Telephone: 505-287-8851

Copy of Report to:

Name:	E-mail:
Company:	Telephone:

Invoice to:

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

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☐ NO ☐

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

PROJECT INFORMATION

Quote #:

~~Project/PO~~ Doc #: 58151

Reporting state for compliance testing:

Sampler's Name: Harold Slim

Are any samples NRC licensable material?

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	DP-715 (*)							
MW-32	4-12-10: 0951	GW	4	X							
MW-22	4-12-10: 1228	GW	4	X							

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

REMARKS/ SAMPLE DISCLOSURES

RAM COC #10-28

SHIPMENT OF (1.)

PAGE 1 of 1

NOTE: SEE ATTACHED SHEET (*)

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

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Harold Slim	4-13-10: 0830	KBJ	4/15/10 10:37

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

RIO ALGOM MINING LLC - PROJECT CODES

ACL-ALL	ACL-TRB	ACL-TRA	ACL-KD	DP-71-Q	SEC 4 PONDS[see note]	DP-71-S
50/year	30/year	15/year	35/year	10/year	20/year	10/year
Chloride	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Sulfate	Sulfate	Sulfate	Sulfate	Sulfate	Sulfate	Sulfate
TDS	TDS	TDS	TDS	TDS	TDS	TDS
Nitrate + Nitrite	Nitrate + Nitrite	Nitrate + Nitrite	Nitrate + Nitrite	Nitrate + Nitrite	Nitrate + Nitrite	Nitrate + Nitrite
Molybdenum	Cyanide	Cyanide	***Antimony***	***Arsenic***	Arsenic	***Arsenic***
Nickel	***Molybdenum***	***Molybdenum***	***Arsenic***	***Selenium***	Selenium	***Selenium***
Selenium	***Nickel***	***Nickel***	***Beryllium***	***Uranium***	Uranium	***Uranium***
Gross Alpha	***Selenium***	***Selenium***	***Cadmium***		Carbonate (CO_3)	Carbonate (CO_3)
Radium-226	***Gross Alpha***	***Gross Alpha***	***Cyanide***		Bicarbonate (HCO_3)	Bicarbonate (HCO_3)
Radium-228	***Radium-226***	***Radium-226***	***Lead***		Calcium	***Calcium***
Thorium-230	***Radium-228***	***Radium-228***	***Molybdenum***		Potassium	***Potassium***
Lead-210	***Thorium-230***	***Thorium-230***	***Nickel***		Magnesium	***Magnesium***
Uranium	***Lead-210***	***Lead-210***	***Selenium***		Sodium	***Sodium***
	Uranium	***Uranium***	***Gross Alpha***		Lead	***Lead***
			Radium-226		Nickel	***Nickel***
			Radium-228		Silver	***Silver***
			Thorium-230		Iron	***Iron***
			Lead-210		Molybdenum	***Molybdenum***
			Uranium		Zinc	***Zinc***
					Manganese	***Manganese***
					Copper	***Copper***
					Cobalt	***Cobalt***
					Chromium	***Chromium***
					Cadmium	***Cadmium***
					Aluminum	***Aluminum***
					Fluoride	***Fluoride***
					Radium-226	***Radium-226***
					Radium-228	***Radium-228***
					Total Kjeldal nitrogen	Total Kjeldal nitrogen

Wednesday, August 08, 2007 versions.

The Wednesday, August 08, 2007 product code replaces all previous