Rio Algom Mining LLC

July 25, 2008

Mr. Kevin Myers
Groundwater Section
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Re: **Discharge Plan - 71**
Analytical Results – 2nd Quarter 2008

Dear Mr. Myers,

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

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

Regards,

Donald Sweeney
Radiation Safety Officer

Attachment: As stated

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

P.O. Box 218, Grants, NM USA 87020 - Tel: 505.287.8851 - Fax: 505.285.5550

NMS501

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 2008. 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 continued transporting of material to Pond 2 for final disposal. Hauling of sediments was initiated in December 2005 following construction of a highway overpass. As of November 30, 2007, 100% of the estimated pond sediments have been relocated to the disposal cell at the main mill facility. There were no spills or related problems with the lined ponds during the reporting period.

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.

Time versus concentration plots for constituents chloride, sulfate, TDS, and a hydrograph for MW-22, MW-26, and MW-32 are attached. 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 2008

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)
6/12/2008	MW-12		13.30	NS										
6/12/2008	MW-13		29.27	NS										
6/17/2008	MW-22	34.30	36.80		7.36	15.2	5620	99	2810	5080	0.78	0.0056	0.0427	0.0454
6/12/2008	MW-23		41.73	NS										
6/12/2008	MW-24		50.11	NS										
6/12/2008	MW-25		29.61	NS										
6/17/2008	MW-26	35.11	35.26	NS										
6/12/2008	MW-27		27.88	NS										
6/12/2008	MW-28		32.48	NS										
6/12/2008	MW-29		29.25	NS										
6/12/2008	MW-30		41.01	NS										
6/12/2008	MW-31		50.51	NS										
6/17/2008	MW-32	68.01	71.61		7.2	14.5	5280	117	2810	5180	16.9	0.004	0.0256	0.0326
6/12/2008	MW-33		59.33	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 2008
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)	Cu (mg/L)
6/12/2008	MW-12	NS												
6/12/2008	MW-13	NS												
6/17/2008	MW-22		242.00	< 2	465.00	249	705	10	0.5	0.40	< 0.03	< 0.05	< 0.05	< 0.05
6/12/2008	MW-23	NS												
6/12/2008	MW-24	NS												
6/12/2008	MW-25	NS												
6/17/2008	MW-26	NS												
6/12/2008	MW-27	NS												
6/12/2008	MW-28	NS												
6/12/2008	MW-29	NS												
6/12/2008	MW-30	NS												
6/12/2008	MW-31	NS												
6/17/2008	MW-32		400.00	< 2	518.00	348	502	11	1	0.50	< 0.03	< 0.05	< 0.05	< 0.05
6/12/2008	MW-33	NS												

Notes

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

RIO ALGOM MINING LLC
DISCHARGE PERMIT - DP-71
MONITORING RESULTS - 2ND QUARTER 2008
SEMI-ANNUAL REPORT

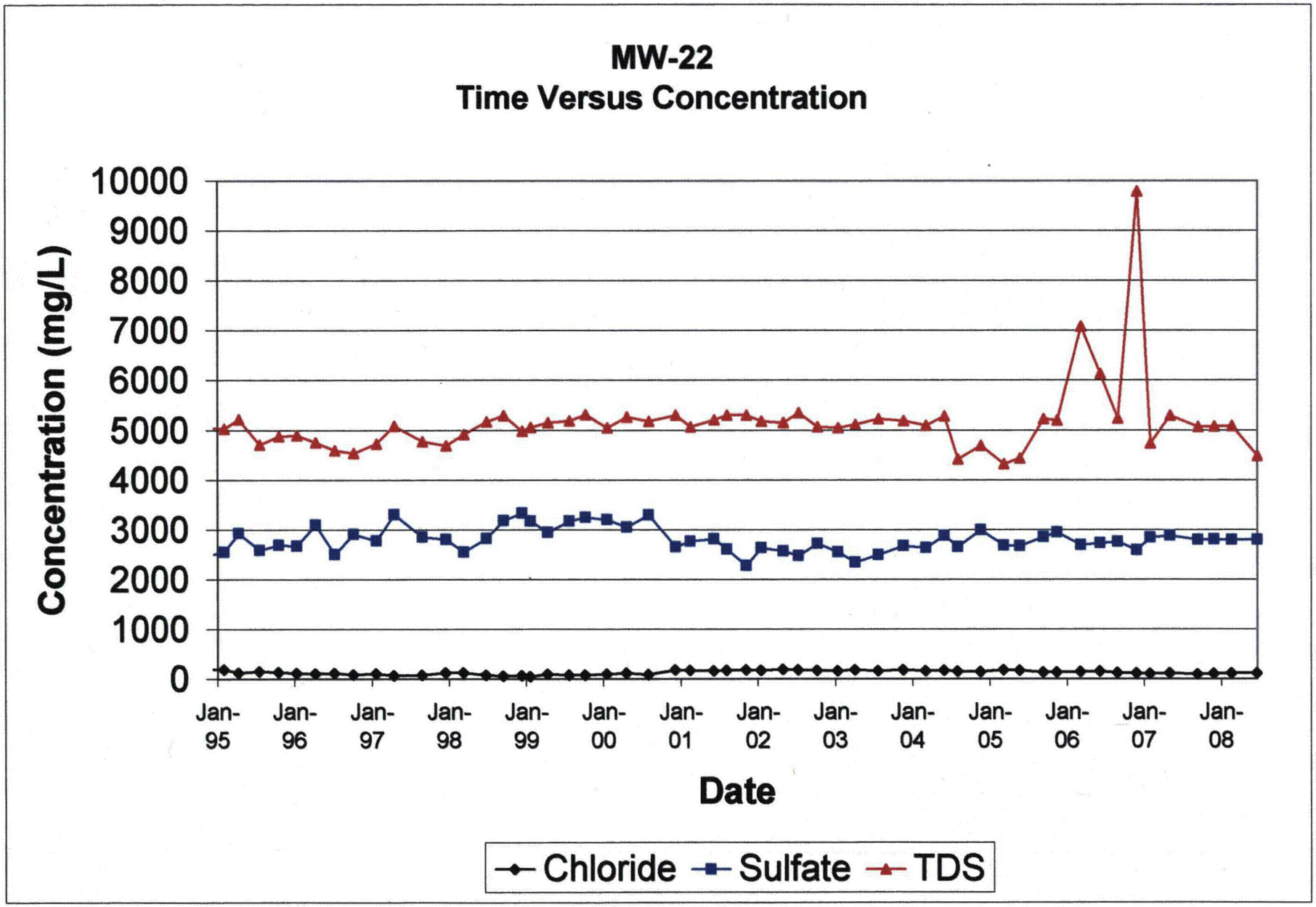
Date	Location	Fe (mg/L)	Pb (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	TKN (mg/L)	Ag (mg/L)	Zn (mg/L)	Ra-226 & Ra-228 (pCi/L)
6/12/2008	MW-12									
6/12/2008	MW-13									
6/17/2008	MW-22	< 0.1	< 0.0005	0.42	< 0.05	< 0.05	0.3	< 0.05	< 0.05	0.94 & 0.81
6/12/2008	MW-23									
6/12/2008	MW-24									
6/12/2008	MW-25									
6/17/2008	MW-26									
6/12/2008	MW-27									
6/12/2008	MW-28									
6/12/2008	MW-29									
6/12/2008	MW-30									
6/12/2008	MW-31									
6/17/2008	MW-32	2	< 0.0005	0.81	0.06	< 0.05	0.3	< 0.05	< 0.05	0.65 &1.6
6/12/2008	MW-33									

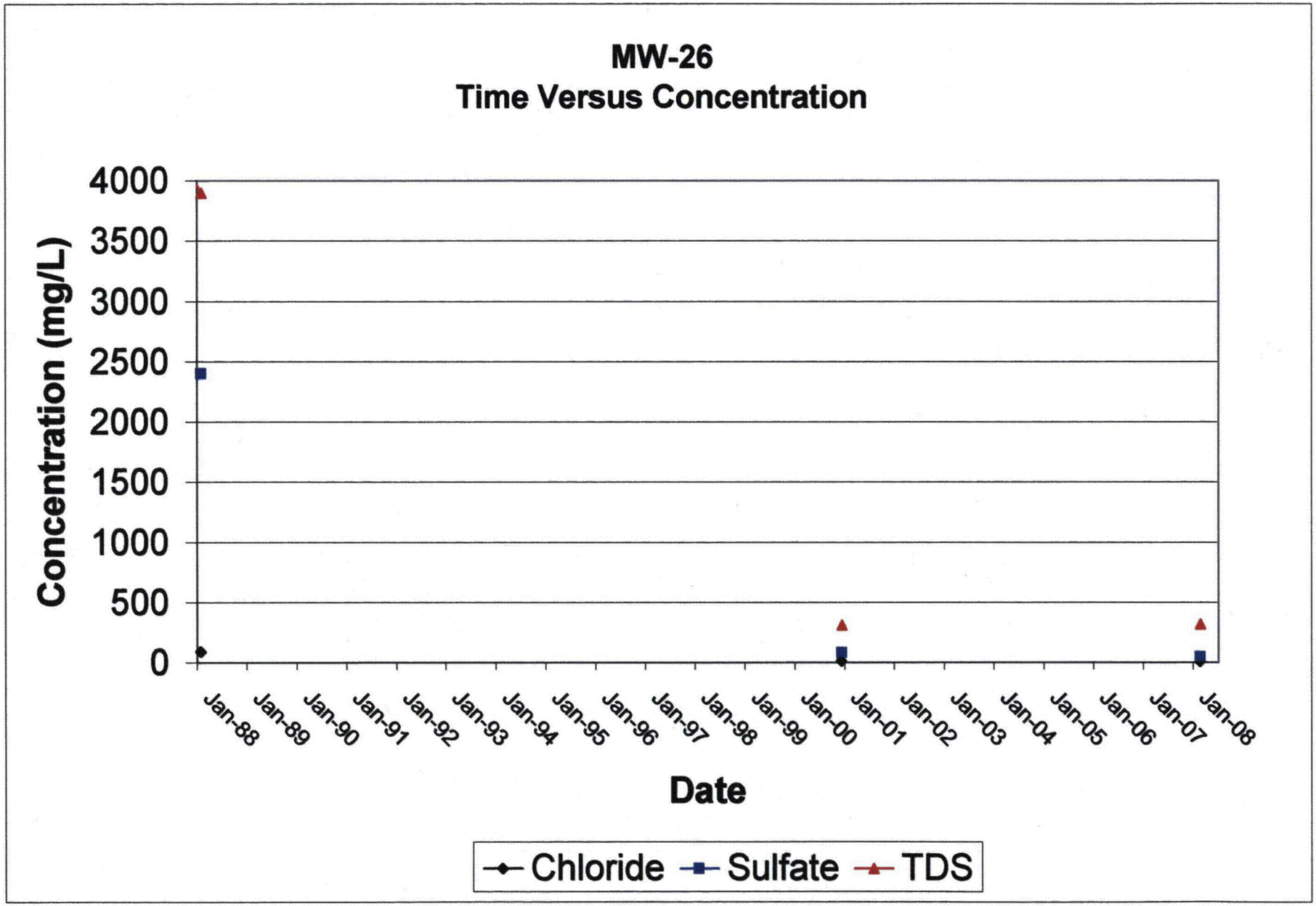
Notes

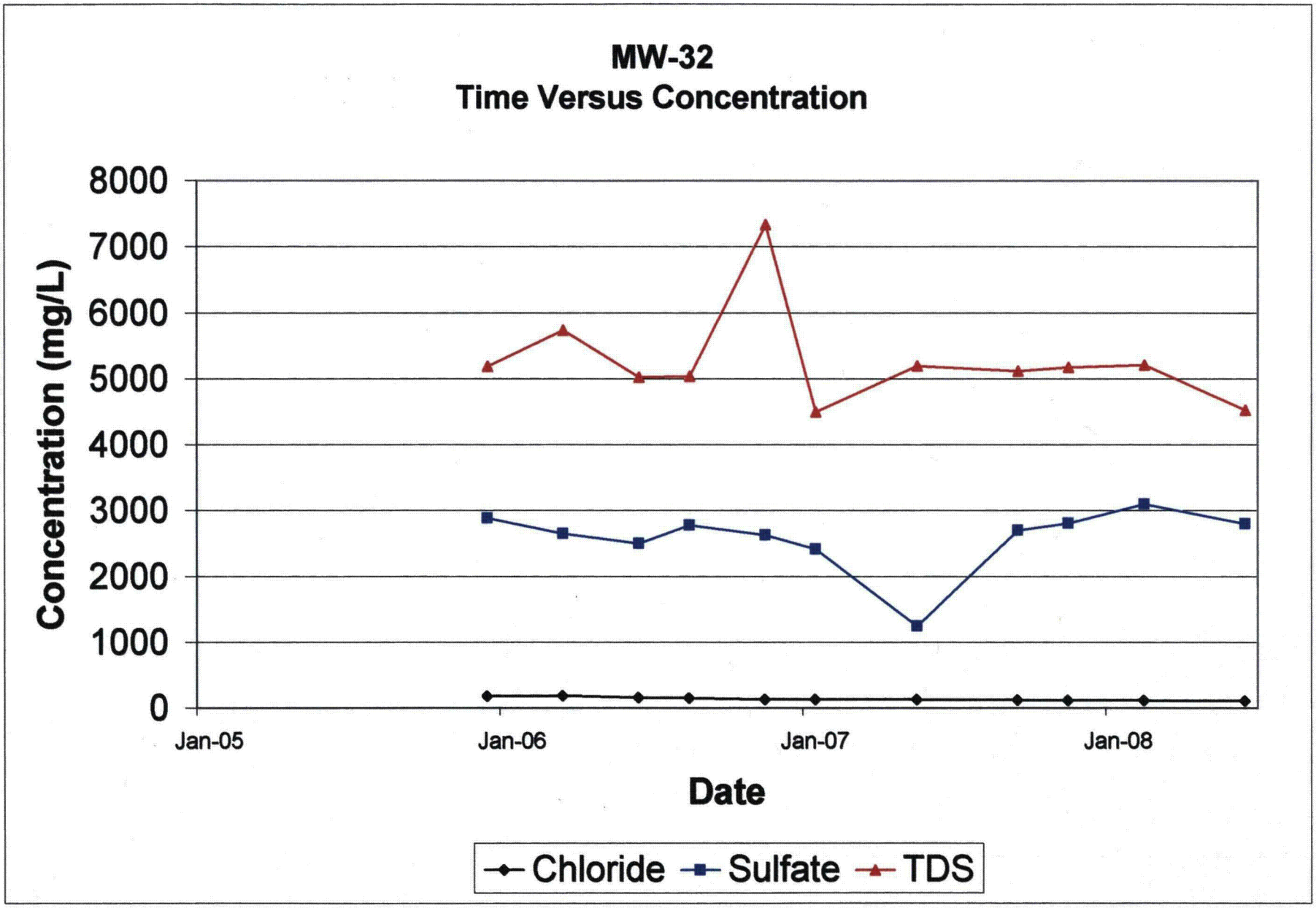
1 - Well status listed as "NS" indicates the well was either dry or contained insufficient water for sample collection.

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
Date
Chloride
Sulfate
TDS


MW-26
Time Versus Concentration
Concentration (mg/L)
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
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
Date
Chloride
Sulfate
TDS

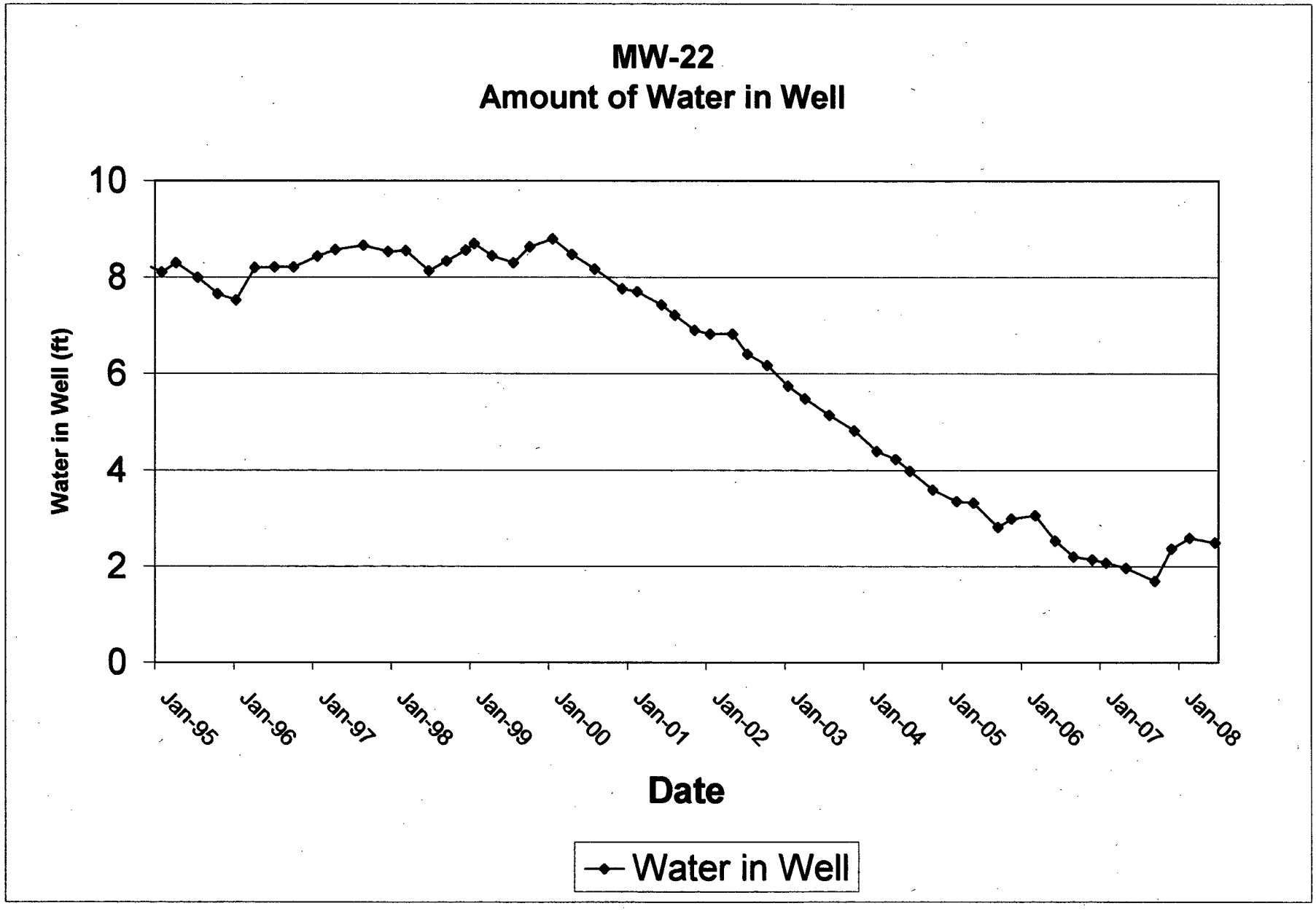

MW-32
Time Versus Concentration
Concentration (mg/L)
8000
7000
6000
5000
4000
3000
2000
1000
0
Jan-05
Jan-06
Jan-07
Jan-08
Date
Chloride
Sulfate
TDS

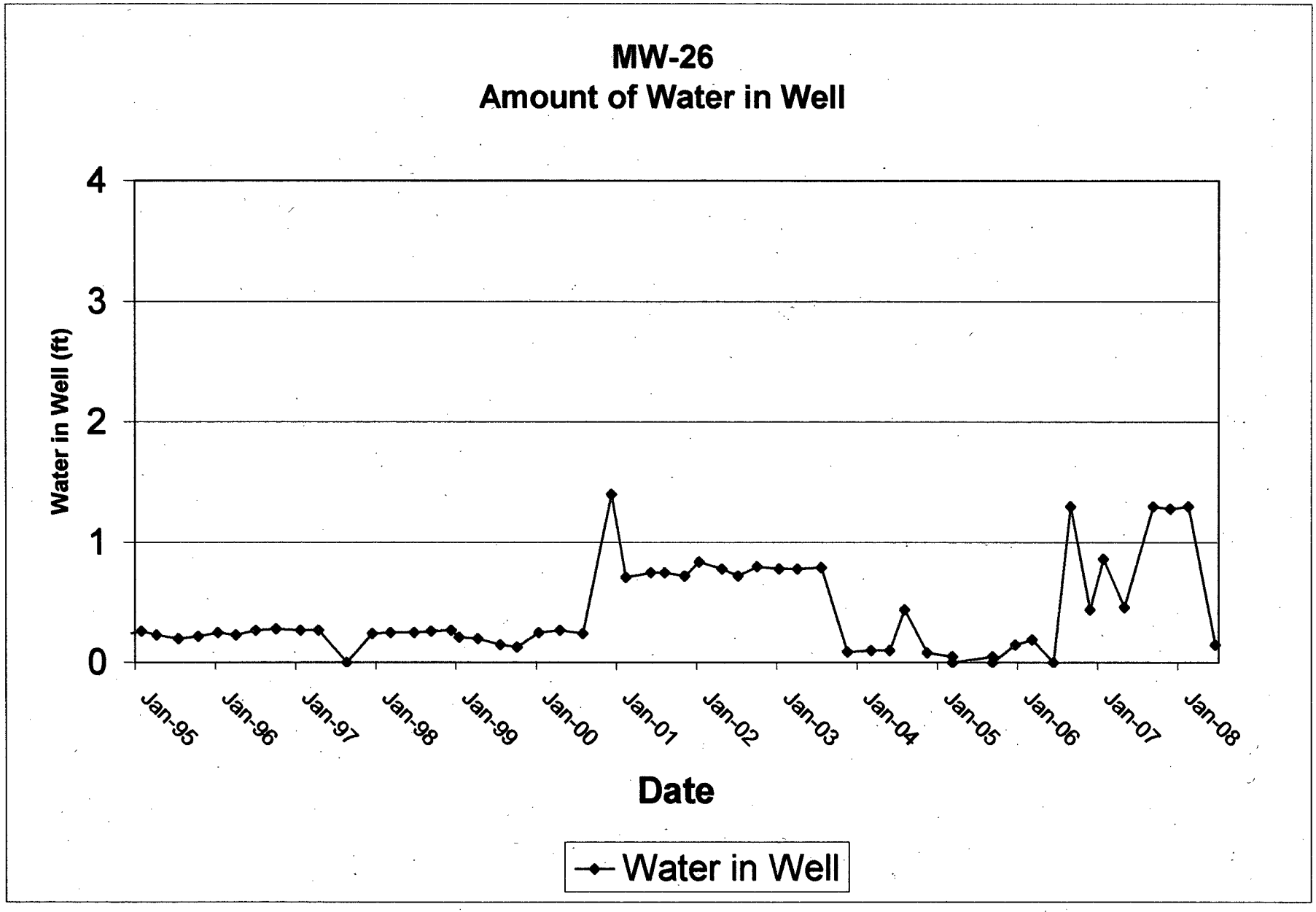
Hydrographs

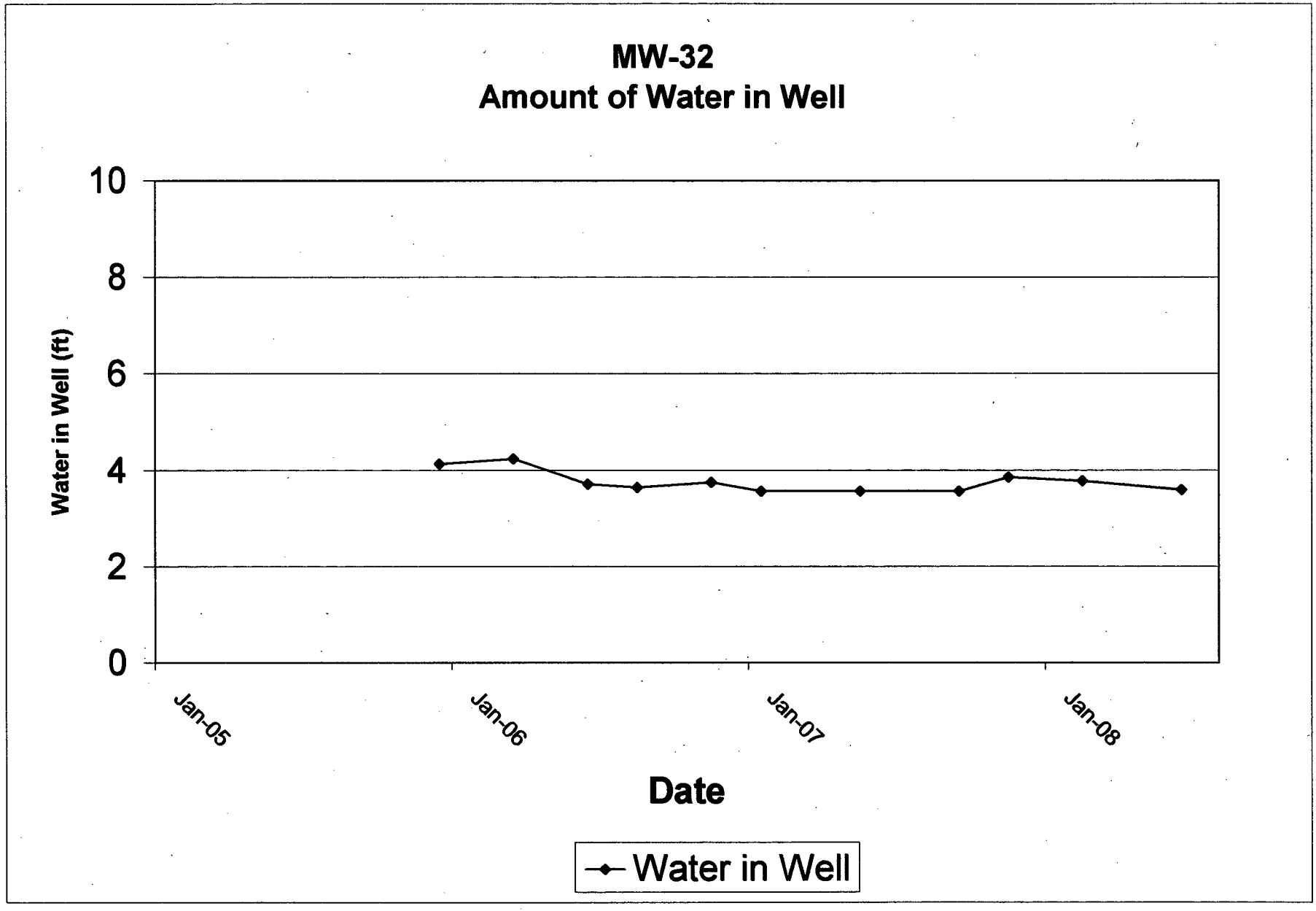
DP-71 Well Network

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-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
Date
Water in Well


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
Date
Water in Well


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
Date
Water in Well

Laboratory Reports

DP-71

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

Inorganic Analytical Results

Rio Algom Mining Company
Project ID: SD 57653
Sample ID: MW-32

ACZ Sample ID: ***L70024-01***
Date Sampled: *06/17/08 09:50*
Date Received: *06/20/08*
Sample Matrix: *Ground Water*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							07/15/08 23:00	kac

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	0.5	B		mg/L	0.2	0.8	07/03/08 21:31	nek/erf
Arsenic, dissolved	M200.8 ICP-MS	0.009			mg/L	0.003	0.005	07/02/08 0:23	rac
Cadmium, dissolved	M200.7 ICP		U	*	mg/L	0.03	0.08	07/03/08 21:31	nek/erf
Calcium, dissolved	M200.7 ICP	518		*	mg/L	1	5	07/07/08 16:18	erf
Chromium, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	07/03/08 21:31	nek/erf
Cobalt, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	07/03/08 21:31	nek/erf
Copper, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	07/03/08 21:31	nek/erf
Iron, dissolved	M200.7 ICP	2.0		*	mg/L	0.1	0.3	07/03/08 21:31	nek/erf
Lead, dissolved	M200.8 ICP-MS		U		mg/L	0.0005	0.003	07/02/08 0:23	rac
Magnesium, dissolved	M200.7 ICP	348			mg/L	1	5	07/07/08 16:18	erf
Manganese, dissolved	M200.7 ICP	0.81			mg/L	0.03	0.1	07/03/08 21:31	nek/erf
Molybdenum, dissolved	M200.7 ICP	0.06	B		mg/L	0.05	0.3	07/03/08 21:31	nek/erf
Nickel, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.3	07/03/08 21:31	nek/erf
Potassium, dissolved	M200.7 ICP	11			mg/L	2	8	07/03/08 21:31	nek/erf
Selenium, dissolved	M200.8 ICP-MS	0.1410			mg/L	0.0005	0.003	07/04/08 5:14	msh
Silver, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.1	07/07/08 16:18	erf
Sodium, dissolved	M200.7 ICP	502			mg/L	2	8	07/03/08 21:31	nek/erf
Uranium, dissolved	M200.8 ICP-MS	0.0646			mg/L	0.0005	0.003	07/02/08 0:23	rac
Zinc, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.3	07/03/08 21:31	nek/erf

** 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: SD 57653
Sample ID: MW-32

ACZ Sample ID: ***L70024-01***
Date Sampled: *06/17/08 09:50*
Date Received: *06/20/08*
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		400			mg/L	2	20	06/25/08 0:00	ear
Carbonate as CaCO3			U		mg/L	2	20	06/25/08 0:00	ear
Hydroxide as CaCO3			U		mg/L	2	20	06/25/08 0:00	ear
Total Alkalinity		400		*	mg/L	2	20	06/25/08 0:00	ear
Cation-Anion Balance	Calculation								
Cation-Anion Balance		4.8			%			07/17/08 0:00	calc
Sum of Anions		69.9			meq/L	0.1	0.5	07/17/08 0:00	calc
Sum of Cations		77.0			meq/L	0.1	0.5	07/17/08 0:00	calc
Chloride	SM4500Cl-E	110		*	mg/L	10	50	06/26/08 19:24	lbn
Fluoride	SM4500F-C	1.0		*	mg/L	0.1	0.5	06/27/08 13:37	ear
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	49.5		*	mg/L	0.5	3	07/03/08 22:21	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.3	BH	*	mg/L	0.1	0.5	07/17/08 13:09	aml
Residue, Filterable (TDS) @180C	SM2540C	5220		*	mg/L	10	20	06/24/08 15:10	gkj
Sulfate	375.4 - Turbidimetric	2800		*	mg/L	100	500	07/02/08 15:57	lbn
TDS (calculated)	Calculation	4530			mg/L	10	50	07/17/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.15						07/17/08 0:00	calc

** Please refer to Qualifier Reports for details.*

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

RadioChemistry Analytical Results

Rio Algom Mining Company
Project ID: SD 57653
Sample ID: MW-32
Locator:

ACZ Sample ID: ***L70024-01***
Date Sampled: *06/17/08 9:50*
Date Received: *06/20/08*
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	06/30/08 16:58		0.65	0.14	0.32	pCi/L		skg/mhm

Radium 228, dissolved — Prep Method:
M9320

Parameter	Measure Date	Prep Date	Result	Error (+/-)	LLD	Units	XQ	Analyst
Radium 228, dissolved	07/02/08 14:36		1.6	0.59	1.4	pCi/L		crl

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

Inorganic Analytical Results

Rio Algom Mining Company
Project ID: SD 57653
Sample ID: MW-22

ACZ Sample ID: *L70024-02*
Date Sampled: *06/17/08 12:20*
Date Received: *06/20/08*
Sample Matrix: *Ground Water*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Nitrogen, total Kjeldahl	M351.2 - Block Digestor							07/15/08 23:58	kac

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	0.4	B		mg/L	0.2	0.8	07/03/08 21:34	nek/erf
Arsenic, dissolved	M200.8 ICP-MS	0.011			mg/L	0.003	0.005	07/02/08 0:29	rac
Cadmium, dissolved	M200.7 ICP		U	*	mg/L	0.03	0.08	07/03/08 21:34	nek/erf
Calcium, dissolved	M200.7 ICP	465		*	mg/L	1	5	07/07/08 16:28	erf
Chromium, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	07/03/08 21:34	nek/erf
Cobalt, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	07/03/08 21:34	nek/erf
Copper, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	07/03/08 21:34	nek/erf
Iron, dissolved	M200.7 ICP		U	*	mg/L	0.1	0.3	07/03/08 21:34	nek/erf
Lead, dissolved	M200.8 ICP-MS		U		mg/L	0.0005	0.003	07/02/08 0:29	rac
Magnesium, dissolved	M200.7 ICP	249			mg/L	1	5	07/07/08 16:28	erf
Manganese, dissolved	M200.7 ICP	0.42			mg/L	0.03	0.1	07/03/08 21:34	nek/erf
Molybdenum, dissolved	M200.7 ICP		U		mg/L	0.05	0.3	07/03/08 21:34	nek/erf
Nickel, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.3	07/03/08 21:34	nek/erf
Potassium, dissolved	M200.7 ICP	10			mg/L	2	8	07/03/08 21:34	nek/erf
Selenium, dissolved	M200.8 ICP-MS	0.3090		*	mg/L	0.0005	0.003	07/03/08 4:30	msh
Silver, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.1	07/07/08 16:28	erf
Sodium, dissolved	M200.7 ICP	705			mg/L	2	8	07/03/08 21:34	nek/erf
Uranium, dissolved	M200.8 ICP-MS	0.0263			mg/L	0.0005	0.003	07/02/08 0:29	rac
Zinc, dissolved	M200.7 ICP		U	*	mg/L	0.05	0.3	07/03/08 21:34	nek/erf

** Please refer to Qualifier Reports for details.*

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

RadioChemistry Analytical Results

Rio Algom Mining Company
Project ID: SD 57653
Sample ID: MW-22
Locator:

ACZ Sample ID: ***L70024-02***
Date Sampled: *06/17/08 12:20*
Date Received: *06/20/08*
Sample Matrix: *Ground Water*

Radium 226, dissolved — Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error (+/-)	MDA	Units	KQ	Analyst
Radium 226, dissolved	06/30/08 17:00		0.94	0.22	0.46	pCi/L		skg/mhm

Radium 228, dissolved — Prep Method:
M9320

Parameter	Measure Date	Prep Date	Result	Error (+/-)	MDA	Units	KQ	Analyst
Radium 228, dissolved	07/08/08 10:50		0.81	1	2.7	pCi/L		crl

Rio Algom Mining Company
Project ID: SD 57653
Sample ID: MW-22

ACZ Sample ID: *L70024-02*
Date Sampled: *06/17/08 12:20*
Date Received: *06/20/08*
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		242			mg/L	2	20	06/25/08 0:00	ear
Carbonate as CaCO3			U		mg/L	2	20	06/25/08 0:00	ear
Hydroxide as CaCO3			U		mg/L	2	20	06/25/08 0:00	ear
Total Alkalinity		242		*	mg/L	2	20	06/25/08 0:00	ear
Cation-Anion Balance	Calculation								
Cation-Anion Balance		5.9			%			07/17/08 0:00	calc
Sum of Anions		66.7			meq/L	0.1	0.5	07/17/08 0:00	calc
Sum of Cations		75.0			meq/L	0.1	0.5	07/17/08 0:00	calc
Chloride	SM4500Cl-E	110		*	mg/L	10	50	06/26/08 19:25	lbn
Fluoride	SM4500F-C	0.5		*	mg/L	0.1	0.5	06/27/08 13:39	ear
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	67.0		*	mg/L	0.5	3	07/03/08 22:22	pjb
Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	0.3	BH	*	mg/L	0.1	0.5	07/17/08 13:10	aml
Residue, Filterable (TDS) @180C	SM2540C	5180		*	mg/L	10	20	06/24/08 15:12	gkj
Sulfate	375.4 - Turbidimetric	2800		*	mg/L	100	500	07/02/08 15:53	lbn
TDS (calculated)	Calculation	4490			mg/L	10	50	07/17/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.15						07/17/08 0:00	calc

** Please refer to Qualifier Reports for details.*

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

Analytical Report

July 18, 2008

Report to:
Don Sweeney
Rio Algom Mining Company
P.O. Box 218
Grants, NM 87020

Bill to:
Accounta Payable
Rio Algom Mining Company
P.O. Box 218
Grants, NM 87020

Project ID: SD 57653
ACZ Project ID: L70024

Don Sweeney:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 20, 2008. This project has been assigned to ACZ's project number, L70024. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L70024. 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 August 18, 2008. 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.

ACCREDITED IN ACCORDANCE WITH nelac

ACIL

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 Calivation 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.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

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.

Rio Algom Mining Company ACZ Project ID: ***L70024***

Project ID: SD 57653

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247008													
WG247008PBW1	PBW	06/25/08 16:01				15.5	mg/L		-20	20			
WG247008LCSW2	LCSW	06/25/08 16:12	WC080616-9	820.0001		772.4	mg/L	94.2	90	110			
WG247008PBW2	PBW	06/25/08 18:55				U	mg/L		-20	20			
WG247008LCSW5	LCSW	06/25/08 19:06	WC080616-9	820.0001		770.3	mg/L	93.9	90	110			
L70041-02DUP	DUP	06/25/08 22:02			64	64.6	mg/L				0.9	20	
WG247008PBW3	PBW	06/25/08 22:07				U	mg/L		-20	20			
WG247008LCSW8	LCSW	06/25/08 22:19	WC080616-9	820.0001		767.2	mg/L	93.6	90	110			
WG247008PBW4	PBW	06/26/08 1:31				U	mg/L		-20	20			
WG247008LCSW11	LCSW	06/26/08 1:43	WC080616-9	820.0001		771.6	mg/L	94.1	90	110			
WG247008LCSW14	LCSW	06/26/08 4:45	WC080616-9	820.0001		776.1	mg/L	94.6	90	110			

Aluminum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		2.036	mg/L	101.8	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.09	0.09			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	1		1.059	mg/L	105.9	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	1	.12	1.152	mg/L	103.2	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	1	.12	1.187	mg/L	106.7	85	115	2.99	20	

Arsenic, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247377													
WG247377ICV	ICV	07/01/08 21:29	MS080424-4	.05		.05042	mg/L	100.8	90	110			
WG247377ICB	ICB	07/01/08 21:34				.0005	mg/L		-0.0015	0.0015			
WG247377LFB	LFB	07/01/08 21:46	MS080620-3	.05		.05385	mg/L	107.7	85	115			
L69926-04AS	AS	07/01/08 23:19	MS080620-3	.05	.0009	.05116	mg/L	100.5	70	130			
L69926-04ASD	ASD	07/01/08 23:25	MS080620-3	.05	.0009	.05507	mg/L	108.3	70	130	7.36	20	

Cadmium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		1.969	mg/L	98.5	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.015	0.015			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.5258	mg/L	105.2	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	U	.5655	mg/L	113.1	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	U	.5624	mg/L	112.5	85	115	0.55	20	

Rio Algom Mining Company ACZ Project ID: *L70024*

Project ID: SD 57653

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247501													
WG247501ICV	ICV	07/07/08 9:37	II080115-3	100		95.31	mg/L	95.3	95	105			
WG247501ICB	ICB	07/07/08 9:40				U	mg/L		-0.6	0.6			
WG247640													
WG247640LFB	LFB	07/07/08 15:19	II080620-5	67.97008		67.52	mg/L	99.3	85	115			
L69946-03AS	AS	07/07/08 16:11	II080620-5	67.97008	235	281.86	mg/L	68.9	85	115			M3
L69946-03ASD	ASD	07/07/08 16:14	II080620-5	67.97008	235	287.67	mg/L	77.5	85	115	2.04	20	M3

Chloride SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247135													
WG247135ICB	ICB	06/26/08 16:58				U	mg/L		-3	3			
WG247135ICV	ICV	06/26/08 16:58	WI071212-1	54.945		58.2	mg/L	105.9	90	110			
WG247135LFB1	LFB	06/26/08 18:56	WI080620-3	30		31.9	mg/L	106.3	90	110			
WG247135LFB2	LFB	06/26/08 19:00	WI080620-3	30		31.8	mg/L	106	90	110			
WG247135LFB3	LFB	06/26/08 19:14	WI080620-3	30		31.6	mg/L	105.3	90	110			
L70023-02AS	AS	06/27/08 9:29	10XCL	30	770	699	mg/L	-236.7	90	110			M3
L70023-03DUP	DUP	06/27/08 9:31			1430	1406	mg/L				1.7	20	

Chromium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		2.03	mg/L	101.5	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.03	0.03			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.528	mg/L	105.6	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	U	.543	mg/L	108.6	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	U	.536	mg/L	107.2	85	115	1.3	20	

Cobalt, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		1.921	mg/L	96.1	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.03	0.03			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.516	mg/L	103.2	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	U	.536	mg/L	107.2	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	U	.529	mg/L	105.8	85	115	1.31	20	

Copper, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		1.956	mg/L	97.8	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.03	0.03			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.523	mg/L	104.6	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	U	.534	mg/L	106.8	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	U	.523	mg/L	104.6	85	115	2.08	20	

Rio Algom Mining Company ACZ Project ID: ***L70024***

Project ID: SD 57653

Fluoride SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247150													
WG247150ICV	ICV	06/27/08 11:19	WC080619-1	2		1.9	mg/L	95	90	110			
WG247150ICB	ICB	06/27/08 11:25				U	mg/L		-0.3	0.3			
WG247150LFB1	LFB	06/27/08 11:30	WC080515-3	5		5.1	mg/L	102	90	110			
WG247150LFB2	LFB	06/27/08 13:02	WC080515-3	5		4.69	mg/L	93.8	90	110			
L69926-07AS	AS	06/27/08 13:09	WC080515-3	5	U	3.79	mg/L	75.8	90	110			M2
L69926-07DUP	DUP	06/27/08 13:13			U	U	mg/L				0	20	RA

Iron, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		1.947	mg/L	97.4	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.06	0.06			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	1		1.083	mg/L	108.3	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	1	.03	1.164	mg/L	113.4	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	1	.03	1.188	mg/L	115.8	85	115	2.04	20	MA

Lead, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247377													
WG247377ICV	ICV	07/01/08 21:29	MS080424-4	.05		.04843	mg/L	96.9	90	110			
WG247377ICB	ICB	07/01/08 21:34				U	mg/L		-0.0003	0.0003			
WG247377LFB	LFB	07/01/08 21:46	MS080620-3	.05		.04763	mg/L	95.3	85	115			
L69926-04AS	AS	07/01/08 23:19	MS080620-3	.05	U	.0426	mg/L	85.2	70	130			
L69926-04ASD	ASD	07/01/08 23:25	MS080620-3	.05	U	.04839	mg/L	96.8	70	130	12.73	20	

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247501													
WG247501ICV	ICV	07/07/08 9:37	II080115-3	100		96.49	mg/L	96.5	95	105			
WG247501ICB	ICB	07/07/08 9:40				U	mg/L		-0.6	0.6			
WG247640													
WG247640LFB	LFB	07/07/08 15:19	II080620-5	49.96908		49.99	mg/L	100	85	115			
L69946-03AS	AS	07/07/08 16:11	II080620-5	49.96908	85.9	130.59	mg/L	89.4	85	115			
L69946-03ASD	ASD	07/07/08 16:14	II080620-5	49.96908	85.9	133.57	mg/L	95.4	85	115	2.26	20	

Manganese, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		1.9819	mg/L	99.1	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.015	0.015			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.5646	mg/L	112.9	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	U	.5721	mg/L	114.4	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	U	.5652	mg/L	113	85	115	1.21	20	

Rio Algom Mining Company ACZ Project ID: ***L70024***

Project ID: SD 57653

Molybdenum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		2.028	mg/L	101.4	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.03	0.03			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.516	mg/L	103.2	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	U	.533	mg/L	106.6	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	U	.547	mg/L	109.4	85	115	2.59	20	

Nickel, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		1.917	mg/L	95.9	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.03	0.03			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.533	mg/L	106.6	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	.07	.639	mg/L	113.8	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	.07	.643	mg/L	114.6	85	115	0.62	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
WG247561													
WG247561ICV	ICV	07/03/08 19:23	WI080613-1	2.416		2.456	mg/L	101.7	90	110			
WG247561ICB	ICB	07/03/08 19:25				U	mg/L		-0.06	0.06			
WG247564													
WG247564ICV	ICV	07/03/08 22:00	WI080613-1	2.416		2.46	mg/L	101.8	90	110			
WG247564ICB	ICB	07/03/08 22:02				U	mg/L		-0.06	0.06			
WG247564LFB1	LFB	07/03/08 22:03	WI080312-1	2		2.03	mg/L	101.5	90	110			
L69925-01AS	AS	07/03/08 22:06	WI080312-1	2	.03	2.169	mg/L	107	90	110			
L69926-01DUP	DUP	07/03/08 22:08			U	U	mg/L				0	20	RA
WG247564LFB2	LFB	07/03/08 22:42	WI080312-1	2		2.059	mg/L	103	90	110			

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
WG248261													
WG248261ICV	ICV	07/17/08 12:26	WI080715-6	4		4.05	mg/L	101.3	90	110			
WG248261ICB	ICB	07/17/08 12:27				U	mg/L		-0.3	0.3			
WG248261ICV1	ICV	07/17/08 12:38	WI080715-6	4		4.01	mg/L	100.3	90	110			
WG248261ICB1	ICB	07/17/08 12:39				U	mg/L		-0.3	0.3			
WG248260													
WG248260ICV	ICV	07/17/08 12:49	WI080715-6	4		3.94	mg/L	98.5	90	110			
WG248260ICB	ICB	07/17/08 12:50				.13	mg/L		-0.3	0.3			
WG248100LRB	LRB	07/17/08 12:51				U	mg/L		-0.3	0.3			
WG248100LFB	LFB	07/17/08 12:52	WI080522-2	2.5		2.49	mg/L	99.6	90	110			
L70051-04LFM	LFM	07/17/08 13:20	WI080522-2	2.5	.8	2.99	mg/L	87.6	90	110			M2
L70051-05DUP	DUP	07/17/08 13:22			.3	.17	mg/L				55.3	20	RA

Rio Algom Mining Company ACZ Project ID: ***L70024***

Project ID: SD 57653

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	20		20.55	mg/L	102.8	95	105			
WG247549ICB	ICB	07/03/08 20:18				.39	mg/L		-0.9	0.9			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	99.76186		101.11	mg/L	101.4	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	99.76186	16.2	121.85	mg/L	105.9	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	99.76186	16.2	123.4	mg/L	107.5	85	115	1.26	20	

Residue, Filterable (TDS) @180C SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG246925													
WG246925PBW	PBW	06/24/08 14:30				U	mg/L		-20	20			
WG246925LCSW	LCSW	06/24/08 14:31	PCN29982	260		248	mg/L	95.4	80	120			
L70024-02DUP	DUP	06/24/08 15:14			5180	5160	mg/L				0.4	20	

Selenium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247443													
WG247443ICV	ICV	07/03/08 2:04	MS080424-4	.05		.0547	mg/L	109.4	90	110			
WG247443ICB	ICB	07/03/08 2:10				U	mg/L		-0.0003	0.0003			
WG247443LFB	LFB	07/03/08 2:22	MS080620-3	.05		.04803	mg/L	96.1	85	115			
L69962-01AS	AS	07/03/08 3:55	MS080620-3	.05	.0014	.05092	mg/L	99	70	130			
L69962-01ASD	ASD	07/03/08 4:01	MS080620-3	.05	.0014	.05122	mg/L	99.6	70	130	0.59	20	
WG247537													
WG247537ICV	ICV	07/04/08 3:46	MS080424-4	.05		.0528	mg/L	105.6	90	110			
WG247537ICB	ICB	07/04/08 3:52				U	mg/L		-0.0003	0.0003			
WG247537LFB	LFB	07/04/08 4:04	MS080620-3	.05		.04723	mg/L	94.5	85	115			
L69962-01AS	AS	07/04/08 4:45	MS080620-3	.05	U	.04822	mg/L	96.4	70	130			
L69962-01ASD	ASD	07/04/08 5:02	MS080620-3	.05	U	.05029	mg/L	100.6	70	130	4.2	20	

Silver, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247501													
WG247501ICV	ICV	07/07/08 9:37	II080115-3	.999		.954	mg/L	95.5	95	105			
WG247501ICB	ICB	07/07/08 9:40				U	mg/L		-0.03	0.03			
WG247640													
WG247640LFB	LFB	07/07/08 15:19	II080620-5	.5		.5	mg/L	100	85	115			
L69946-03AS	AS	07/07/08 16:11	II080620-5	.5	U	.126	mg/L	25.2	85	115			M2 ZA
L69946-03ASD	ASD	07/07/08 16:14	II080620-5	.5	U	.132	mg/L	26.4	85	115	4.65	20	M2 ZA

Rio Algom Mining Company ACZ Project ID: ***L70024***

Project ID: SD 57653

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	100		98.2	mg/L	98.2	95	105			
WG247549ICV	ICV	07/03/08 20:14	II080115-3	100		99.8	mg/L	99.8	95	105			
WG247549ICB	ICB	07/03/08 20:18				.36	mg/L		-0.9	0.9			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-6	6			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	98.21624		100.65	mg/L	102.5	85	115			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	98.21624		99.3	mg/L	101.1	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	98.21624	93.1	187.71	mg/L	96.4	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	98.21624	93.1	186.3	mg/L	95	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	98.21624	93.1	189.94	mg/L	98.7	85	115	1.93	20	
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	98.21624	93.1	189.9	mg/L	98.7	85	115	1.93	20	

Sulfate 375.4 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247466													
WG247466ICB	ICB	07/02/08 10:36				U	mg/L		-3	3			
WG247466ICV	ICV	07/02/08 10:36	WI080602-2	20.04		20.8	mg/L	103.8	90	110			
WG247466LFB1	LFB	07/02/08 15:07	WI080211-1	10		9.6	mg/L	96	90	110			
WG247466LFB2	LFB	07/02/08 15:13	WI080211-1	10		10.4	mg/L	104	90	110			
L70024-01DUP	DUP	07/02/08 15:53			2410	2860	mg/L				17.1	20	
L70024-02AS	AS	07/02/08 15:55	SO4TURB10	10	2800	2920	mg/L	1200	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
WG247377													
WG247377ICV	ICV	07/01/08 21:29	MS080424-4	.05		.04693	mg/L	93.9	90	110			
WG247377ICB	ICB	07/01/08 21:34				U	mg/L		-0.0003	0.0003			
WG247377LFB	LFB	07/01/08 21:46	MS080620-3	.05		.04612	mg/L	92.2	85	115			
L69926-04AS	AS	07/01/08 23:19	MS080620-3	.05	U	.04569	mg/L	91.4	70	130			
L69926-04ASD	ASD	07/01/08 23:25	MS080620-3	.05	U	.05216	mg/L	104.3	70	130	13.22	20	

Zinc, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG247549													
WG247549ICV	ICV	07/03/08 20:14	II080115-3	2		1.955	mg/L	97.8	95	105			
WG247549ICB	ICB	07/03/08 20:18				U	mg/L		-0.03	0.03			
WG247549LFB	LFB	07/03/08 20:30	II080620-5	.5		.548	mg/L	109.6	85	115			
L69946-03AS	AS	07/03/08 21:24	II080620-5	.5	.03	.591	mg/L	112.2	85	115			
L69946-03ASD	ASD	07/03/08 21:28	II080620-5	.5	.03	.667	mg/L	127.4	85	115	12.08	20	MA

Rio Algom Mining Company

ACZ Project ID: *L70024*

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L70024-01	WG247549	Cadmium, dissolved	M200.7 ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
	WG247640	Calcium, dissolved	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG247549	Iron, dissolved	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
		Nickel, dissolved	M200.7 ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
	WG247640	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.
	WG247549	Zinc, dissolved	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
			M200.7 ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
	WG247135	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.
	WG247150	Fluoride	SM4500F-C	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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).
	WG247564	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).
	WG248260	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M351.2 - TKN by Block Digester	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG246925	Residue, Filterable (TDS) @180C	SM2540C	ZO	TDS concentration is based on a final residue greater than 200 mg.
	WG247466	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.
	WG247008	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

Rio Algom Mining Company

ACZ Project ID: *L70024*

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L70024-02	WG247549	Cadmium, dissolved	M200.7 ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
	WG247640	Calcium, dissolved	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG247549	Iron, dissolved	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
		Nickel, dissolved	M200.7 ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
	WG247443	Selenium, dissolved	M200.8 ICP-MS	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG247640	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.
	WG247549	Zinc, dissolved	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
			M200.7 ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
	WG247135	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.
	WG247150	Fluoride	SM4500F-C	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			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).
	WG247564	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).
	WG248260	Nitrogen, total Kjeldahl	M351.2 - TKN by Block Digester	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			M351.2 - TKN by Block Digester	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M351.2 - TKN by Block Digester	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG246925	Residue, Filterable (TDS) @180C	SM2540C	ZO	TDS concentration is based on a final residue greater than 200 mg.
	WG247466	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.
	WG247008	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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.
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.

Rio Algom Mining Company ACZ Project ID: ***L70024***

Project ID: SD 57653

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
WG247575																
WG246945PBW	PBW	06/30/08						.03	0.13	0.3			0.6			
WG246945LCSW	LCSW	06/30/08	RC080225-1	23.92				29	1.2	0.64	121.3	44	134			
L69888-02DUP	DUP-RER	06/30/08			1.9	0.24	0.35	2.4	0.25	0.31				1.44	2	
L70024-01DUP	DUP-RER	06/30/08			0.65	0.14	0.32	.39	0.13	0.21				1.36	2	
L69888-04MS	MS	06/30/08	RC080225-1	23.92	0.59	0.17	0.26	23	0.6	0.21	93.7	44	134			

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
WG247527																
WG247117PBW	PBW	07/02/08						.37	0.31	0.79			1.58			
WG247117LCSW	LCSW	07/02/08	RC080402-1	16.08				9.8	1.1	1.6	60.9	49	132			
L69888-01DUP	DUP-RER	07/02/08			0.7	0.28	0.75	1	0.31	0.71				0.72	2	
L69946-01DUP	DUP-RER	07/02/08			0.56	0.63	1.6	1.5	0.6	1.4				1.08	2	
L69888-02MS	MS	07/02/08	RC080402-1	8.04	1.1	0.32	0.75	7.7	0.46	0.7	82.1	49	132			
WG247763																
WG247266PBW	PBW	07/08/08						.71	0.31	0.73			1.46			
WG247266LCSW	LCSW	07/08/08	RC080402-1	16.05				13	1.1	1.4	81	49	132			
L70004-02DUP	DUP-RER	07/08/08			0.93	0.54	1.4	.51	0.62	1.6				0.51	2	
L70123-01DUP	DUP-RER	07/08/08			0.65	0.3	0.76	.19	0.28	0.8				1.12	2	
L70143-01MS	MS	07/08/08	RC080402-1	16.05	0.49	0.63	1.6	12	1.2	1.6	71.7	49	132			

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

RadChem Extended Qualifier Report

Rio Algom Mining Company ACZ Project ID: ***L70024***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION

No extended qualifiers associated with this analysis

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.

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

Sample Receipt

Rio Algom Mining Company
SD 57653

ACZ Project ID: L70024
Date Received: 6/20/2008
Received By:
Date Printed: 6/20/2008

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)
1996	4.7	14

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
SD 57653

ACZ Project ID: L70024
Date Received: 6/20/2008
Received By:

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
L70024-01	MW-32		Y		Y							
L70024-02	MW-22		Y		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: _____