GCC
Rio Grande
Pueblo Plant

January 30, 2013

VIA EMAIL

Mr. Tim Cazier
Division of Reclamation, Mining, and Safety
1313 Sherman Street
Room 215
Denver, CO 80203

Re: GCC Rio Grande, Inc. - DRMS Permit No. M-2002-004, Revision No. AM-1
Fourth Quarter 2012 Groundwater Monitoring Report

Dear Mr. Cazier:

This letter transmits to you, via email, a copy of GCC's Fourth Quarter 2012 Groundwater Monitoring Report. The groundwater sampling was conducted on December 12, 2012, and the report was received by GCC on January 29, 2012.

The following monitoring wells were sampled:

- MW-002
- MW-004

Samples were not collected at MW-003, as this well was dry, as was the Arkansas River.

The table below presents the numeric protection levels (NPLs) established in the DRMS's December 8, 2010 letter and the concentrations measured in all sampling events since April 2011.

	DRMS NPL	MW-002					
		April 2011	October 2011	March 2012	June 2012	September 2012	December 2012
Sulfate, mg/l	1950	862	930	1200	713	Not sampled	1090
TDS, mg/l	2630	1590	1760	2150	1480	1,870	1960
R-226, PiC/l	23.5	3.4	1.4	2.6	2	Not sampled	0.9
R-228, PiC/l	12.3	3.9	2.5	2.1	1.1	Not sampled	1.7

GCC Rio Grande, Inc. • Pueblo Plant
3372 Lime Road • Pueblo, CO 81004
(719) 647-6800 • Fax (719) 647-6899

GCC
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	DRMS NPL	MW-003					
		April 2011	October 2011	March 2012	June 2012	September 2012	December 2012
Sulfate, mg/l	1950	1160	1610	1860	2490*	Not sampled	Well dry
TDS, mg/l	2630	2190	3060*	3650*	4700*	Well dry	Well dry
R-226, PiC/l	23.5	2.3	1.3	3.5	1	Not sampled	Well dry
R-228, PiC/l	12.3	0.3	0.8	1	0.2	Not sampled	Well dry

*Exceeds DRMS NPL

	DRMS NPL	MW-004					
		April 2011	October 2011	March 2012	June 2012	September 2012	December 2012
Sulfate, mg/l	1950	990	1410	1640	1400	Not sampled	1650
TDS, mg/l	2630	1850	2640*	3040*	2480	2,690*	2990*
R-226, PiC/l	23.5	2.5	3.8	3	2	Not sampled	3.3
R-228, PiC/l	12.3	3.6	1.2	13.0**	2	Not sampled	7.7

*Exceeds DRMS NPL
**Outlier (confirmed by June 2012 measurements)

In a letter dated November 29, 2012, you requested that GCC provide a remedial action plan to address the increasing TDS in MW-003 and MW-004 or make a demonstration that these increases are not the result of contamination from the GCC facility. A report addressing the increases was prepared by Contour Engineering and transmitted to you on January 27, 2013. The report demonstrates that the increased TDS (and sulfate) cannot be the result of activities at the GCC facility. GCC requests that the current groundwater monitoring program be suspended until you have a chance to fully review the recently submitted report.

Please contact me if you have questions about this report.

Sincerely,

Barbara T. Hodgson
Environmental Manager
(719) 647-6829
bhodgson@gcc.com

CONTOUR
CONSULTING
ENGINEERING
Limited Liability Company

PO 984, Kittredge, CO 80457
303 918-9422 f 303 679-9180

Ms. Barbara Hodgson
Environmental Manager
Pueblo Cement Plant

GCC Rio Grande, Inc.
3372 Lime Road
Pueblo, Colorado 81004

January 28, 2013

LETTER OF TRANSMITTAL

Attached are four (4) copies of the report below:

Fourth Quarter, 2012
Groundwater Monitoring Report
GCC Rio Grande, Inc.
Pueblo Cement Plant
Pueblo County, Colorado

CONTOUR
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Fourth Quarter, 2012
Groundwater Monitoring Report
GCC Rio Grande, Inc.
Pueblo Cement Plant
Pueblo County, Colorado

Prepared for:

Ms. Barbara Hodgson
Environmental Manager
Pueblo Cement Plant

GCC Rio Grande, Inc.
3372 Lime Road
Pueblo, Colorado 81004

January 28, 2013

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Table 1 Results of Fourth Quarter, 2012, Groundwater Monitoring, GCC Rio Grande, Inc., Pueblo Cement Plant, Pueblo, Colorado. Sampling Conducted December 12, 2012.

Table 2 Results History for TDS, Groundwater Monitoring, GCC Rio Grande, Inc., Pueblo Cement Plant, Pueblo, Colorado.

Appendix A

Report # Content

D41824 General Chemistry analytical data for wells MW-002, MW-004, and FD-001

D41824x Radiochemistry results for wells MW-002, MW-004, and FD-001

INTRODUCTION

Contour Consulting Engineering, LLC, (Contour) collected groundwater samples at the GCC Rio Grande, Pueblo Cement Plant, on December 12, 2012. The samples were collected to satisfy monitoring permit requirements, as stipulated by the Colorado Division of Mining Reclamation and Safety (DRMS). Quarterly sampling was initiated in 2008. Beginning in 2009, sampling was set at a semi-annual monitoring frequency. Due to increasing trends for total dissolved solids (TDS) noted in the alluvial wells over the last two monitoring events, quarterly sampling has been re-initiated.

The compliance suite for the St. Charles River monitoring wells now includes sulfate, TDS, radium 226, and radium 228. Sampling events previous to October 2011 included a comprehensive list of dissolved metals, anions, cations, and additional radiochemistry parameters. As part of recent semi-annual monitoring reports submitted to the Division, GCC has recommended that the reduced sampling suite would be appropriate for the site. This recommendation was based on comprehensive analysis of the results from the larger sampling suite over the sampling history for the project. Unless conditions at the site change, the new suite of monitoring parameters will be used in all future monitoring events.

Previous sampling events, beginning in October 2011, have indicated that TDS concentrations exceeded the Numeric Protection Level (NPL) of 2,630 mg/L at wells MW-03 and/or MW-04, with possible increasing trends. Therefore, quarterly sampling for TDS was re-initiated, and additional sampling was performed for TDS only in September 2012. However, due to drought conditions, well MW-003 was dry during the September 2012 event, and was also dry during the December 2012 sampling. Continued evaluation of the TDS trend at well MW-003 has not been possible.

WORK PERFORMED

On behalf of GCC, Contour Consulting attempted to collect groundwater samples for analysis of TDS, sulfate, Radium 226, and Radium 228 from three shallow alluvial monitoring wells (MW-002, MW-003, and MW-004) on December 12, 2012. Depth-to-groundwater measurements were performed at each well prior to sampling. Wells were also sounded to determine total depth. Well MW-003 was bone dry, as was the St. Charles River adjacent to the well. No samples could be collected at MW-003.

For wells MW-02 and MW-04, the volume of standing water in each well was determined. Each of the alluvial wells were purged using a new disposable poly bailer. A minimum of three casing volumes was purged from each well prior to sampling. Field parameters pH, conductivity, and temperature were recorded as each well volume was removed. Groundwater was purged until these parameters were stabilized and reproducible (typically after three or five measurement sets).

All groundwater samples were submitted to Accutest Laboratory, located in Wheatridge Colorado, for analysis of TDS and sulfate. Accutest subcontracted analyses of Radium 226 and Radium 228 to Hazen Research Laboratory in Golden, Colorado.

RESULTS AND DISCUSSION

Results of the December 12, 2012 groundwater sampling are provided in Table 1. Historical results for the compliance suite for all wells are shown in Table 2. Table 2 also presents the average and standard deviation statistics for compliance suite constituents, based on the monitoring history for each well. Figure 2 presents time versus concentration plots for the four target constituents. Analytical results provided by the contract laboratories are presented in Appendix A.

General Chemistry (TDS)

General chemistry parameters do not have primary health based standards. TDS has a secondary drinking water standard of 500 mg/L and a Colorado State Numeric Protection Level of 2,630 mg/L. As shown in Table 2, TDS in concentrations have exceeded the 500 mg/L secondary domestic drinking water standard in each of the sampling events since 2003. High TDS waters are typically hard and have poor quality for drinking.

TDS in well MW-003 has exceeded the NPL in three consecutive events beginning in October 2011. Well MW-003 has been dry since June 2012, and additional TDS data from this well has not been available. TDS concentrations at MW-004 have exceeded the NPL in four of the last five monitoring events. Based on these exceedences, quarterly sampling for TDS was re-initiated at all wells

The DRMS sent a letter to Mr. Brian McGill of GCC dated December 8, 2009. The letter presented NPLs for groundwater monitoring for four parameters (TDS, Sulfate, Radium 226, and Radium 228). The letter presents an approach for evaluation of potential of exceedences, and subsequent actions, based on results from the groundwater monitoring program. The following approach was presented.

"Sampling for each well will be conducted semi annually and results to be submitted annually. If an upward trend above the set limits is noted, the frequency of sampling will increase to quarterly. If the upward trend still continues, the frequency of sampling will be conducted monthly. If two consecutive monthly samplings still show an upward trend, GCC will present a remedial action to the Division, which will indentify the source of the upward trend and submit the actions GCC proposes to take a receive written approval from the Division."

TDS concentrations at well MW-003 defined an upward trend beginning in October 2011, with three consecutive data points exceeding the NPLs. No data was obtained for TDS in the last two sampling events, as the well is dry. TDS concentrations at well MW-04 have fluctuated around the NPL, with the TDS concentrations exceeding the NPL in four of the

last five monitoring events. Given these conditions, GCC was advised by DRMS in a letter dated November 29, 2012, that GCC must either present (A): A Remedial Action Plan for the site, as described in the December 8, 2009 letter from DRMS, quoted above, or (B): A hydrogeologic explanation for the conditions noted showing that the elevated TDS and Sulfate concentrations noted are not the results of any potential contamination from plant activities.

GCC presented a report to DRMS on January 27, 2013 meeting the requirements of Option B, to demonstrate that elevated TDS and sulfate concentrations are not related to plant operations.

Field Parameters

Field parameters including temperature, pH, and conductivity were collected during the December 2012 sampling event. Results of the field parameter monitoring are provided in Table 1. The data collected indicate that pH at the site is very close to neutral. Conductivity results are similar to past events at the wells sampled. Elevated conductivity can be directly correlated to elevated TDS.
http://groundwater.ucdavis.edu/Publications/Harter_FWQFS_8084.pdf

Quality Control

One set of field duplicate samples was collected during the monitoring event. Sample FD-001 was submitted as a blind field duplicate of primary alluvial well sample MW-002. Field duplicate precision is measured as the Relative Percent Difference (RPD) between the primary and duplicate sample results. The RPD is defined as the "absolute value of the difference between the primary and duplicate results, divided by the average of the two results." Precision between the duplicate results for all parameters tested was very good for the duplicate pair.

One equipment rinsate blank was collected during the December 12, 2012 monitoring event. The blank was collected by pouring laboratory-supplied de-ionized water through a new bailer and into the appropriate sample bottles. No target constituents were detected in the equipment blank.

CONCLUSIONS

Results of the fourth quarter 2012 groundwater sampling performed at the GCC Rio Grande Cement Plant during December 2012 are presented herein. Samples were submitted for analysis of TDS, sulfate, radium 226, and radium 228.

Low water levels have been observed in all wells, as the St. Charles River has gone dry. Well MW-003 was dry for the second consecutive event, and no sample was collected. The TDS concentration at well MW-004 exceeded the NPL for the second consecutive event.

TDS concentrations at MW-004 have fluctuated around the NPL, but no trend is apparent. Sulfate concentrations at wells MW-002 and MW-004 remain below NPLs.

GCC believes that elevated TDS concentrations in the alluvial wells are likely related to falling water levels in the vicinity of the St Charles River, and subsequent concentration of dissolved constituents in the shallow aquifer. These dry conditions at the facility also minimize the potential for any groundwater to reach the compliance wells from the cement plant, as continuous saturated conditions between the plant and the compliance wells are unlikely to exist.

Based on results from the Third Quarter monitoring report submitted to the DRMS, the agency has concurred that additional quarterly sampling at the site is "not likely to produce any additional useful information." Results of the fourth quarterly sampling do not present data to change this assessment.

Therefore, GCC has proceeded to provide a hydrogeologic assessment of the site, as requested by DRMS, to demonstrate that the elevated TDS concentrations documented in the alluvial groundwater monitoring wells, are not related to cement plant operations.

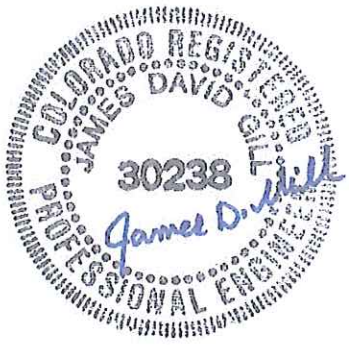
GENERAL CONDITIONS

The analyses and conclusions expressed in this report are based upon data obtained from groundwater samples collected at the indicated locations and from other information as discussed and referenced in this report. The conclusions do not reflect any variations in subsurface stratigraphy, geohydrology, or contaminant concentrations which may occur between boring sample locations and monitoring wells across the site. Actual subsurface conditions may vary and may not become evident without further exploration.

This report was prepared for the exclusive use of the client, for specific application to the subject property and has been prepared in accordance with generally accepted geo-environmental engineering practices. No warranties, either explicit or implied, are made or intended. In the event that any changes in the nature or location of suspected sources of soil or groundwater contamination as outlined in this report are observed, the conclusions and recommendations in this report shall not be valid unless these changes are reviewed and the opinions of this report are modified or verified in writing by Contour Consulting Engineering, LLC.

Please call our office if there are any questions regarding this report of if we may be of further assistance.

Sincerely,



Contour Consulting Engineering, LLC

James D. Gill, P.E., M.S., Member Geotechnical Engineer
William J. Huskie, M.S. Environmental Scientist

APPENDIX A

LABORATORY ANALYTICAL RESULTS

Reports #	Content
D41824	TDS and sulfate results for wells MW-002, MW-004, and FD-001
D41824x	Radium 226 and radium 228 results for wells MW-002, MW-004, and FD-001

Mountain States ACCUTEST LABORATORIES

12/26/12

Technical Report for

Contour Consulting Engineering

GCC

Accutest Job Number: D41824

Sampling Date: 12/12/12

Report to:

Contour Consulting Engineering
P.O. Box 984
Kittredge, CO 80457

ATTN: Jim Gill

Total number of pages in report: 17

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Sample Summary

Contour Consulting Engineering

GCC

Job No: D41824

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D41824-1	12/12/12	11:10	JG	12/13/12	AQ	Water	MW-002
D41824-2	12/12/12	13:00	JG	12/13/12	AQ	Water	MW-004
D41824-3	12/12/12	16:00	JG	12/13/12	AQ	Water	FD-001
D41824-4	12/12/12	13:30	JG	12/13/12	AQ	Water	EB-001

Summary of Hits

Job Number: D41824
Account: Contour Consulting Engineering
Project: GCC
Collected: 12/12/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D41824-1	MW-002					
Solids, Total Dissolved		1960	10		mg/l	SM 2540C-2011
Sulfate		1090	25		mg/l	EPA 300.0/SW846 9056
D41824-2	MW-004					
Solids, Total Dissolved		2990	10		mg/l	SM 2540C-2011
Sulfate		1650	50		mg/l	EPA 300.0/SW846 9056
D41824-3	FD-001					
Solids, Total Dissolved		1970	10		mg/l	SM 2540C-2011
Sulfate		1090	25		mg/l	EPA 300.0/SW846 9056
D41824-4	EB-001					

No hits reported in this sample.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-002		
Lab Sample ID:	D41824-1	Date Sampled:	12/12/12
Matrix:	AQ - Water	Date Received:	12/13/12
		Percent Solids:	n/a
Project:	GCC		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	1960	10	mg/l	1	12/18/12	CT	SM 2540C-2011
Sulfate	1090	25	mg/l	50	12/17/12 17:48	JML	EPA 300.0/SW846 9056

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-004		
Lab Sample ID:	D41824-2	Date Sampled:	12/12/12
Matrix:	AQ - Water	Date Received:	12/13/12
		Percent Solids:	n/a
Project:	GCC		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	2990	10	mg/l	1	12/18/12	CT	SM 2540C-2011
Sulfate	1650	50	mg/l	100	12/17/12 18:32	JML	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FD-001		
Lab Sample ID:	D41824-3	Date Sampled:	12/12/12
Matrix:	AQ - Water	Date Received:	12/13/12
		Percent Solids:	n/a
Project:	GCC		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	1970	10	mg/l	1	12/18/12	CT	SM 2540C-2011
Sulfate	1090	25	mg/l	50	12/17/12 16:03	JML	EPA 300.0/SW846 9056

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	EB-001		
Lab Sample ID:	D41824-4	Date Sampled:	12/12/12
Matrix:	AQ - Water	Date Received:	12/13/12
		Percent Solids:	n/a
Project:	GCC		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	< 10	10	mg/l	1	12/18/12	CT	SM 2540C-2011
Sulfate	< 0.50	0.50	mg/l	1	12/17/12 16:18	JML	EPA 300.0/SW846 9056

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST LABORATORIES
Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: D41824

Client / Reporting Information

Company Name: Contour
Street Address:
City: Littleton State: CO Zip:
Project Contact: Will Huskie E-mail:
Phone #: 720 490 0652 Fax #:
Sampler(s) Name(s): Phone #:

Project Information

Project Name: GCC
Street:
City: Pueblo
Project #:
Client PO#:
Project Manager: Jim Gill

Billing Information (If different from Report to)

Company Name: Contour
Street Address:
City: Littleton State: CO Zip:
Attention: Jim Gill PO#:

Requested Analysis (see TEST CODE sheet)

TDS, SULFATE, SW 226, SW 228

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB- Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vol #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	TDS	SULFATE	SW 226	SW 228	LAB USE ONLY
	MW-002		12/12/12	1110				X		X							1	1	2	2	01
	MW-004			1300				X		X							1	1	2	2	02
	~~MW-003~~							X													
	FD-001			1600				X		X							1	1	2	2	03
	EB-001			1330				X									1	1			04

Turnaround Time (Business days)

- ☐ Std. 10 Business Days
- ☐ Std. 5 Business Days (By Contract only)
- ☐ 5 Day RUSH
- ☐ 3 Day EMERGENCY
- ☐ 2 Day EMERGENCY
- ☐ 1 Day EMERGENCY

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Labtink

Data Deliverable Information

- ☐ Commercial "A" (Level 1)
- ☐ Commercial "B" (Level 2)
- ☐ Commercial "B" +Narrative
- ☐ FULLT1 (Level 3+4)
- ☐ State Forms
- ☐ EDD Format
- ☐ PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Comments / Special Instructions

Call Will Huskie @ 720 490 0652 w/ Questions

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		12-13-12 1040	1	2		2
3			3	4		4
5			5			

Custody Seal # UPS ☐ Intact ☐ Not Intact | Preserved where applicable ☒ | On Ice ☒ | Cooler Temp. 5.2

12/13/12

4.1 4

D41824: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D41824 **Client:** CONTOUR **Immediate Client Services Action Required:** No

Date / Time Received: 12/13/2012 11:00:00 A **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: GCC **Airbill #'s:** UPS

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Infared gun	
3. Cooler media:	Ice (bag)	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	
2. Trip Blank listed on COC:	☐	☐	
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume rec'd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

4.1 4

D41824: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41824
Account: CONCECOK - Contour Consulting Engineering
Project: GCC

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP8937/GN18128	0.50	0.28	mg/l	20	19.3	96.5	90-110%
Fluoride	GP8937/GN18128	0.10	0.0	mg/l	10	9.22	92.2	90-110%
Solids, Total Dissolved	GN18138	10	0.0	mg/l	400	398	99.5	90-110%
Sulfate	GP8937/GN18128	0.50	0.0	mg/l	30	28.5	95.0	90-110%

Associated Samples:
Batch GP8937: D41824-1, D41824-2, D41824-3, D41824-4
Batch GN18138: D41824-1, D41824-2, D41824-3, D41824-4
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41824
Account: CONCECOK - Contour Consulting Engineering
Project: GCC

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN18138	D41824-4	mg/l	0.0	0.0	0.0	0-25%

Associated Samples:
Batch GN18138: D41824-1, D41824-2, D41824-3, D41824-4
(*) Outside of QC limits

5.2

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41824
Account: CONCECOK - Contour Consulting Engineering
Project: GCC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP8937/GN18128	D41779-3	mg/l	0.71	10	10.0	92.9	80-120%
Fluoride	GP8937/GN18128	D41779-3	mg/l	0.26	2.5	2.7	97.6	80-120%
Sulfate	GP8937/GN18128	D41779-3	mg/l	8.0	10	17.7	97.0	80-120%

Associated Samples:
Batch GP8937: D41824-1, D41824-2, D41824-3, D41824-4
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D41824
Account: CONCECOK - Contour Consulting Engineering
Project: GCC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP8937/GN18128	D41779-3	mg/l	0.71	10	10.1	1.0	20%
Fluoride	GP8937/GN18128	D41779-3	mg/l	0.26	2.5	2.7	0.0	20%
Sulfate	GP8937/GN18128	D41779-3	mg/l	8.0	10	17.8	0.6	20%

Associated Samples:
Batch GP8937: D41824-1, D41824-2, D41824-3, D41824-4
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

5.4

5

Mountain States ACCUTEST LABORATORIES

01/23/13

Technical Report for

Contour Consulting Engineering

GCC

Accutest Job Number: D41824X

Sampling Date: 12/12/12

Report to:

Contour Consulting Engineering
P.O. Box 984
Kittredge, CO 80457

ATTN: Jim Gill

Total number of pages in report: **10**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Section 2: Summary of Hits 4
Section 3: Sample Results 5
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4.1: Chain of Custody 7

Sample Summary

Contour Consulting Engineering

GCC

Job No: D41824X

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D41824-1X	12/12/12	11:10	JG	12/13/12	AQ	Water	MW-002
D41824-2X	12/12/12	13:00	JG	12/13/12	AQ	Water	MW-004
D41824-3X	12/12/12	16:00	JG	12/13/12	AQ	Water	FD-001

Summary of Hits

Job Number: D41824X
Account: Contour Consulting Engineering
Project: GCC
Collected: 12/12/12

Lab Sample ID	Client Sample ID	Result/				
Analyte		Qual	RL	MDL	Units	Method

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D41824X
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information

Name: Accutest Mountain States (AMS)
Address: 4036 Youngfield St.
City: Wheat Ridge, State: CO Zip: 80033
Send Report to: Scott Heldeman
Any questions contact: Shea Greiner
Phone/Fax #: (303) 425-6021; (303)425-6854

Subcontract Laboratory Information

Name: Hazen (Radiological)
Address: 4601 Indiana Street
City: Golden State: CO Zip: 80403
Contact: Sample Management
Phone: (303) 279-4501

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2So4	None	Analytical Information: radium 226/228					Comments
D41824X -1	12/12/12	11:10 AM		AQ	4						X					
-2		1:00 PM		AQ	4						X					
-3		4:00 PM		AQ	4						X					

Turnaround Information

[X] 10 Business Day Standard — Approved By:
[ ] Other _____ (Days)

10 Day Turnaround Hardcopy, RUSH Is FAX Data unless previously approved.

Data Deliverable Information

[ ] Commercial "A" [ ] PDF
[ ] Commercial "B" [ ] Compact Disk Deliverable
[ ] Commercial "BN" [ ] Electronic Delivery:
[ ] Reduced Tier 1 [ ] State Forms
[ ] Full Tier 1 [ ] Other (Specify)

Comments / Remarks

Please use Colorado regulations and RLs.

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by:	Date & Time:	Received By:	Date & Time:
1	[signature]	12/14/12 1625	1 Diane Tipton	12-14-12
2			2	
3			3	

For Subcontract Laboratory Use Only

Seal #: Headspace: Yes [ ] No [ ] NA [ ]
Preserved where applicable: [ ]
Temperature °C _____ On Ice [ ]

4.1 4

D41824X: Chain of Custody
Page 1 of 4

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	January 16, 2013
HRI PROJECT	009-93
HRI SERIES NO	L261/12
DATE REC'D.	12/14/2012
CUST. P.O.#	D41824X

Accutest Mountain States
Ann Doerr
4036 Youngfield
Wheat Ridge, CO 80033

REPORT OF ANALYSIS

SAMPLE NO. L261/12-1

SAMPLE IDENTIFICATION: D41824X-1 - Aqueous - Sampled on 12/12/2012 @ 1110

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radium-226 (+-Precision*), pCi/l (T)	0.9(+-0.7)	0.3	SM 7500-Ra B	1/7/2013 @ 1503	AN/EH
Radium-228 (+-Precision*), pCi/l (T)	1.7(+-0.7)	0.6	EPA Ra-05	12/27/2012 @ 0555	EH

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LAO00284; TX T104704256-11-2; WI 998376610

Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory.

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

By: Robert Rostad
Laboratory Manager

D41824X: Chain of Custody
Page 2 of 4

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	January 16, 2013
HRI PROJECT	009-93
HRI SERIES NO	L261/12
DATE REC'D.	12/14/2012
CUST. P.O.#	D41824X

Accutest Mountain States
Ann Doerr
4036 Youngfield
Wheat Ridge, CO 80033

REPORT OF ANALYSIS

SAMPLE NO. L261/12-2

SAMPLE IDENTIFICATION: D41824X-2 - Aqueous - Sampled on 12/12/2012 @ 1300

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radium-226 (+-Precision*), pCi/l (T)	3.3(+-1.1)	0.2	SM 7500-Ra B	1/8/2013 @ 1249	AN/EH
Radium-228 (+-Precision*), pCi/l (T)	7.7(+-1.1)	0.7	EPA Ra-05	12/27/2012 @ 0556	EH

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LA000284; TX T104704256-11-2; WI 998376610

Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory.

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

By: Robert Rostad
Laboratory Manager

4.1 4

D41824X: Chain of Custody
Page 3 of 4

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	January 16, 2013
HRI PROJECT	009-93
HRI SERIES NO	L261/12
DATE REC'D.	12/14/2012
CUST. P.O.#	D41824X

Accutest Mountain States
Ann Doerr
4036 Youngfield
Wheat Ridge, CO 80033

REPORT OF ANALYSIS

SAMPLE NO. L261/12-3

SAMPLE IDENTIFICATION: D41824X-3 - Aqueous - Sampled on 12/12/2012 @ 1600

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radium-226 (+-Precision*), pCi/l (T)	0.9(+-0.7)	0.4	SM 7500-Ra B	1/8/2013 @ 1251	AN/EH
Radium-228 (+-Precision*), pCi/l (T)	2.4(+-0.8)	0.6	EPA Ra-05	12/27/2012 @ 1058	EH

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LAO00284; TX T104704256-11-2; WI 998376610

Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory.

By: Robert Rostad
Laboratory Manager

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

4.1 4

D41824X: Chain of Custody
Page 4 of 4

FIGURE 1. WELL and SAMPLING LOCATIONS

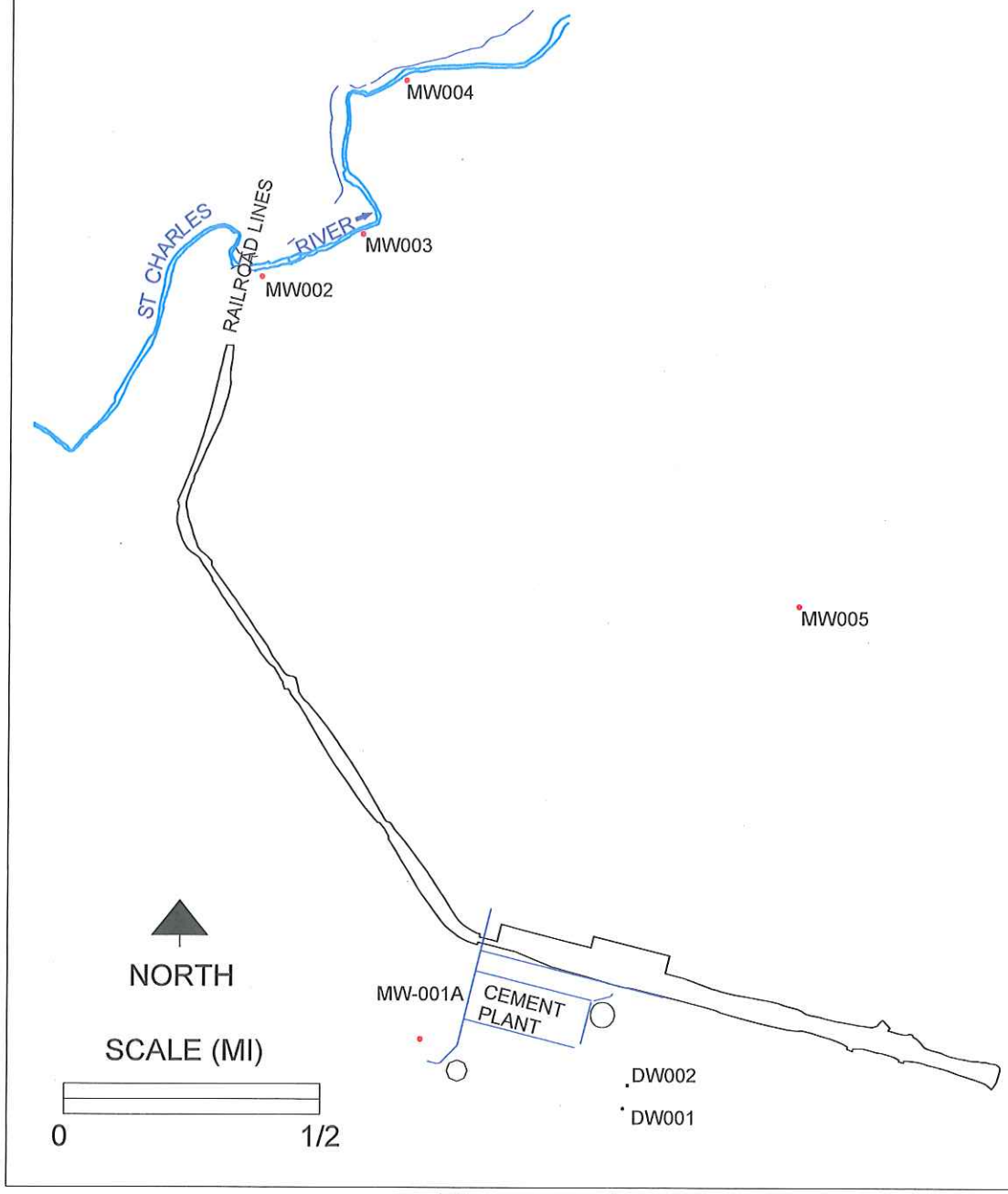


Table 1. Results of Fourth Quarter 2012 Monitoring, GCC Rio Grande, Inc., Pueblo Cement Plant. Sampling conducted December 12, 2012.

Analyte	Method	Units	MW-002	MW-003	MW-004	FD-001	EB-001
GENERAL CHEMISTRY							
Sulfate *	E300.0	mg/L	**1,090**	**Dry**	**1,650**	**1,090**	<0.50
Total Dissolved Solids (TDS) *	SM 2540C	mg/L	**1,960**	**Dry**	**2,990**	**1,970**	<10

* DRMS Numeric Protection Levels for Sulfate and TDS are 1,950 mg/L and 2,630 mg/L, respectively.

Notes – TDS has a secondary standard of 500 mg/L. Sulfate has a secondary standard of 250 mg/L. All TDS and sulfate results exceed the secondary standards. Shaded results for TDS indicate exceedence of DRMS Numeric Protection Level.

Analyte	Method	Units	MW-002	MW-003	MW-004	FD-001
RADIOCHEMISTRY						
Radium 226 **	SM 7500 Ra-B	pCi/L	0.9 +/- 0.7	Dry	3.3 +/- 1.1	0.9 +/- 0.7
Radium 228 **	EPA Ra-05	pCi/L	1.7 +/- 0.7	Dry	7.7 +/- 1.1	2.4 +/- 0.8
FIELD PARAMETERS						
pH	Probe	pH	7.32	Dry	7.12	--
Conductivity	Probe	*u*s/Cm	2,250	Dry	3,100	--
Temperature	Probe	°C	13.7	Dry	14.2	--

Notes – TDS and Sulfate analyses performed by Accutest Laboratory- Wheatridge, Colorado.

Radiochemistry sub-contracted to Hazen Research – Golden, Colorado.
pCi/L = picoCuries per liter, mg/L = milligrams per liter, *u*s/Cm = microsiemens per centimeter
** DRMS Numeric Protection Levels for Radium 226 and Radium 228 are 23.5 pCi/L and 12.3 pCi/L mg/L, respectively.
FD-001 = Blind duplicate of primary groundwater sample MW-002
EB-001 = Equipment blank

Table 2. Results History for Parameters of Concern, Groundwater Monitoring, GCC Rio Grande, Inc., Pueblo Cement Plant, Pueblo, Colorado.

Total Dissolved Solids

	State Numeric Protection Level = 2, 630 mg/L					
	Total Dissolved Solids - TDS (mg/L)					
Date	Sample		Sample		Sample	
Apr-03	MW-02	NA	MW-03	NA	MW-04	NA
Jun-03	MW-02	NA	MW-03	NA	MW-04	NA
Jul-03	MW-02	NA	MW-03	NA	MW-04	NA
Aug-03	MW-02	NA	MW-03	NA	MW-04	NA
Sep-03	MW-02	NA	MW-03	NA	MW-04	NA
Oct-03	MW-02	NA	MW-03	NA	MW-04	NA
Nov-03	MW-02	NA	MW-03	NA	MW-04	NA
Dec-03	MW-02	NA	MW-03	NA	MW-04	NA
Feb-04	MW-02	NA	MW-03	NA	MW-04	NA
Apr-04	MW-02	NA	MW-03	NA	MW-04	NA
Mar-08	MW-02	1,260	MW-03	1,830	MW-04	2,420
Jul-08	MW-02	1,040	MW-03	1,950	MW-04	2,020
Nov-08	MW-02	1,820	MW-03	2,440	MW-04	2,560
May-09	MW-02	1,420	MW-03	1,220	MW-04	2,630
Oct-09	MW-02	1,880	MW-03	2,980	MW-04	2,800
Apr-10	MW-02	1,630	MW-03	960	MW-04	2,440
Oct-10	MW-02	1,930	MW-03	2,590	MW-04	2,180
Apr-11	MW-02	1,590	MW-03	2,190	MW-04	1,850
Oct-11	MW-02	1,760	MW-03	3,060	MW-04	2,640
Mar-12	MW-02	2,150	MW-03	3,650	MW-04	3,040
Jun-12	MW-02	1,480	MW-03	4,700	MW-04	2,480
Sept-12	MW-02	1,870	MW-03	**Dry**	MW-04	2,690
Dec-12	MW-02	1,960	MW-03	**Dry**	MW-04	2,990
	Avg	1676	Avg	2506	Avg	2518
	Count	13	Count	11	Count	13
	Std	312	Std	1076	Std	349

Shaded results equal or exceed State Numeric Protection Level

Avg = Average Concentration
Std = Standard Deviation of Average Concentration
NA = Not Analyzed

Table 2. Results History for Parameters of Concern, Groundwater Monitoring, GCC Rio Grande, Inc., Pueblo Cement Plant, Pueblo, Colorado.

Sulfate

	State Numeric Protection Level = 1,950 mg/L					
	Sulfate (mg/L)					
Date	Sample		Sample		Sample	
Apr-03	MW-02	1,600	MW-03	1,950	MW-04	1,780
Jun-03	MW-02	1,250	MW-03	1,430	MW-04	1,700
Jul-03	MW-02	1,230	MW-03	NA	MW-04	1,820
Aug-03	MW-02	1,130	MW-03	NA	MW-04	1,720
Sep-03	MW-02	1,120	MW-03	NA	MW-04	1,790
Oct-03	MW-02	1,100	MW-03	NA	MW-04	1,820
Nov-03	MW-02	1,190	MW-03	NA	MW-04	1,720
Dec-03	MW-02	1,110	MW-03	NA	MW-04	1,900
Feb-04	MW-02	1,180	MW-03	1,780	MW-04	1,760
Apr-04	MW-02	1,030	MW-03	1,700	MW-04	1,540
Mar-08	MW-02	657	MW-03	995	MW-04	1,350
Jul-08	MW-02	514	MW-03	1,020	MW-04	1,130
Nov-08	MW-02	814	MW-03	1,210	MW-04	1,350
May-09	MW-02	775	MW-03	678	MW-04	1,460
Oct-09	MW-02	1,070	MW-03	1,700	MW-04	1510
Apr-10	MW-02	810	MW-03	407	MW-04	1,250
Oct-10	MW-02	950	MW-03	1,220	MW-04	1,050
Apr-11	MW-02	862	MW-03	1,160	MW-04	990
Oct-11	MW-02	930	MW-03	1,610	MW-04	1,410
Mar-12	MW-02	1,200	MW-03	1,860	MW-04	1,640
Jun-12	MW-02	713	MW-03	2,490	MW-04	1,400
Dec-12	MW-02	1,090	MW-03	**Dry**	MW-04	1,650
	Avg	1015	Avg	1414	Avg	1534
	Count	22	Count	15	Count	22
	Std	242	Std	535	Std	265

Shaded results equal or exceed State Numeric Protection Level

AVG = Average Concentration
STD = Standard Deviation of Average Concentration
NA = Not Analyzed

Table 2. Results History for Parameters of Concern, Groundwater Monitoring, GCC Rio Grande, Inc., Pueblo Cement Plant, Pueblo, Colorado.

Radium 226 and Radium 228

	State Numeric Protection Levels Radium 226 = 23.5 pCi/L and Radium 228 = 12.3 pCi/L								
		Ra 226	Ra 228		Ra 226	Ra 228		Ra 226	Ra 228
Date	Sample	pCi/L	pCi/L	Sample	pCi/L	pCi/L	Sample	pCi/L	pCi/L
Apr-03	MW-02	23.5	2.48	MW-03	23	0.3	MW-04	5.15	0.08
Jun-03	MW-02	2.6	2.89	MW-03	2.84	3.28	MW-04	2.99	3.54
Jul-03	MW-02	9.35	7.85	MW-03	NA	NA	MW-04	5.01	4.25
Aug-03	MW-02	2.4	1.84	MW-03	NA	NA	MW-04	1.6	2.51
Sep-03	MW-02	1.04	3.57	MW-03	NA	NA	MW-04	0.76	4.64
Oct-03	MW-02	0.68	1.39	MW-03	NA	NA	MW-04	1.43	3.06
Nov-03	MW-02	2.63	1.72	MW-03	NA	NA	MW-04	4.7	5.21
Dec-03	MW-02	1.58	1.14	MW-03	NA	NA	MW-04	1.33	2.66
Feb-04	MW-02	2.06	1.55	MW-03	1.6	0.68	MW-04	0.86	1.54
Apr-04	MW-02	NA	NA	MW-03	NA	NA	MW-04	NA	NA
Mar-08	MW-02	1.9	3.0	MW-03	1.1	0.2	MW-04	2.2	9.3
Jul-08	MW-02	0.8	2.2	MW-03	1.3	0.6	MW-04	1.3	3.1
Nov-08	MW-02	1.6	0.9	MW-03	2.3	0.7	MW-04	1.1	7.5
May-09	MW-02	2.0	0.9	MW-03	1.2	0.8	MW-04	3.8	5.9
Oct-09	MW-02	2.1	4.3	MW-03	1.0	0.3	MW-04	3.8	7.7
Apr-10	MW-02	4.1	1.9	MW-03	6.8	1.8	MW-04	6.8	1.8
Oct-10	MW-02	3.0	2.0	MW-03	1.5	1.9	MW-04	1.5	1.9
Apr-11	MW-02	3.4	3.9	MW-03	2.3	0.3	MW-04	2.5	3.6
Oct-11	MW-02	1.4	2.5	MW-03	1.3	0.8	MW-04	3.8	9.0
Mar-12	MW-02	2.6	2.1	MW-03	3.5	1.0	MW-04	3.0	13.0
Jun-12	MW-02	2.0	1.1	MW-03	1.0	0.2	MW-04	2.0	2.0
Dec-12	MW-02	0.9	1.7	MW-03	**Dry**	**Dry**	MW-04	3.3	7.7
	Avg	3.41	2.46	Avg	3.62	0.92	Avg	2.73	4.88
	Count	21	20	Count	14	14	Count	21	21
	Std	4.95	1.59	Std	5.79	0.87	Std	1.45	3.19

Shaded results equal or exceed State Numeric Protection Level

Avg = Average Concentration
Std = Standard Deviation of Average Concentration
NA = Not Analyzed

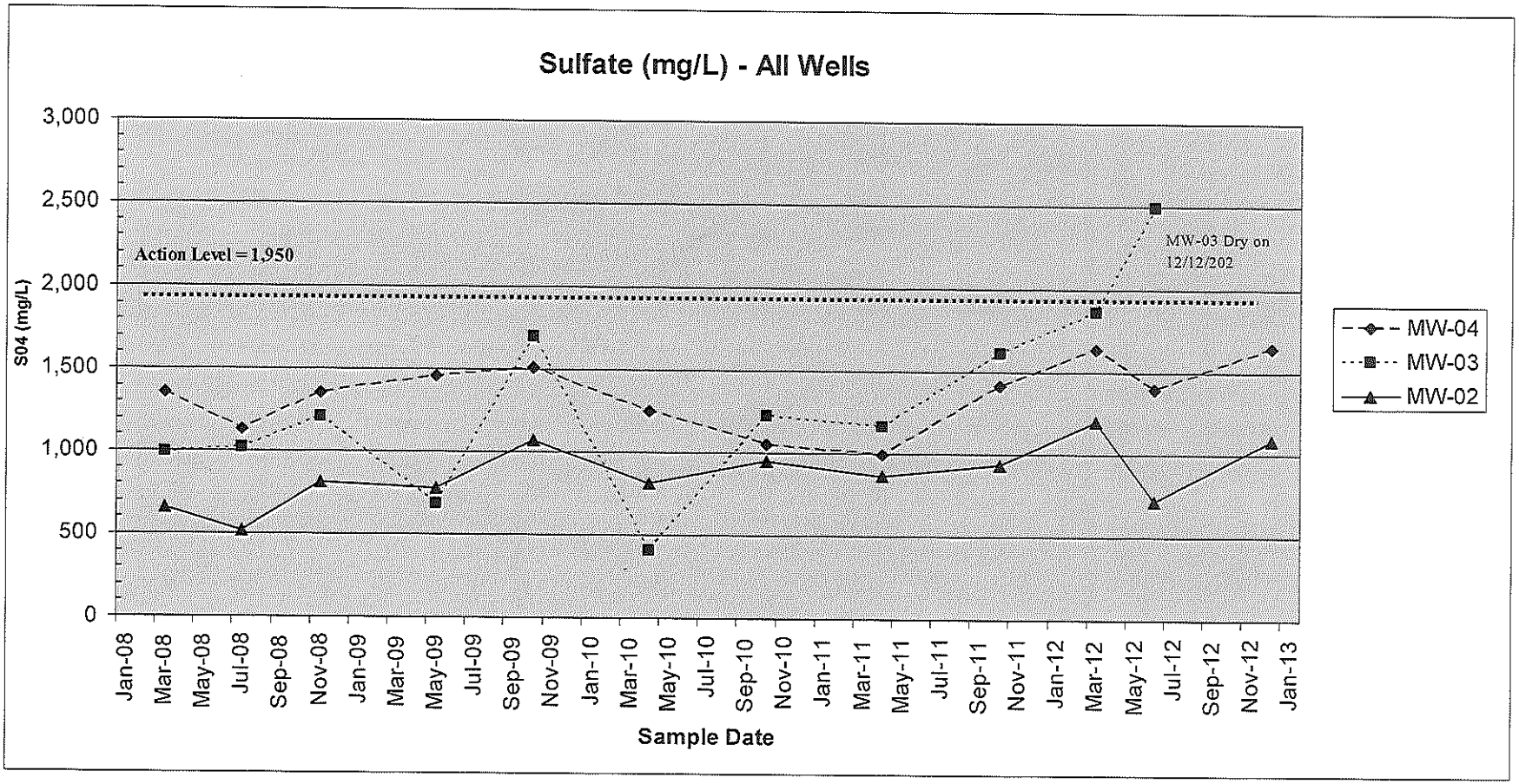

Sulfate (mg/L) - All Wells
3,000
2,500
2,000
1,500
1,000
500
0
SO4 (mg/L)
Action Level = 1,950
MW-03 Dry on 12/12/202
MW-04
MW-03
MW-02
Jan-08
Mar-08
May-08
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
May-09
Jul-09
Sep-09
Nov-09
Jan-10
Mar-10
May-10
Jul-10
Sep-10
Nov-10
Jan-11
Mar-11
May-11
Jul-11
Sep-11
Nov-11
Jan-12
Mar-12
May-12
Jul-12
Sep-12
Nov-12
Jan-13
Sample Date

Figure 2.

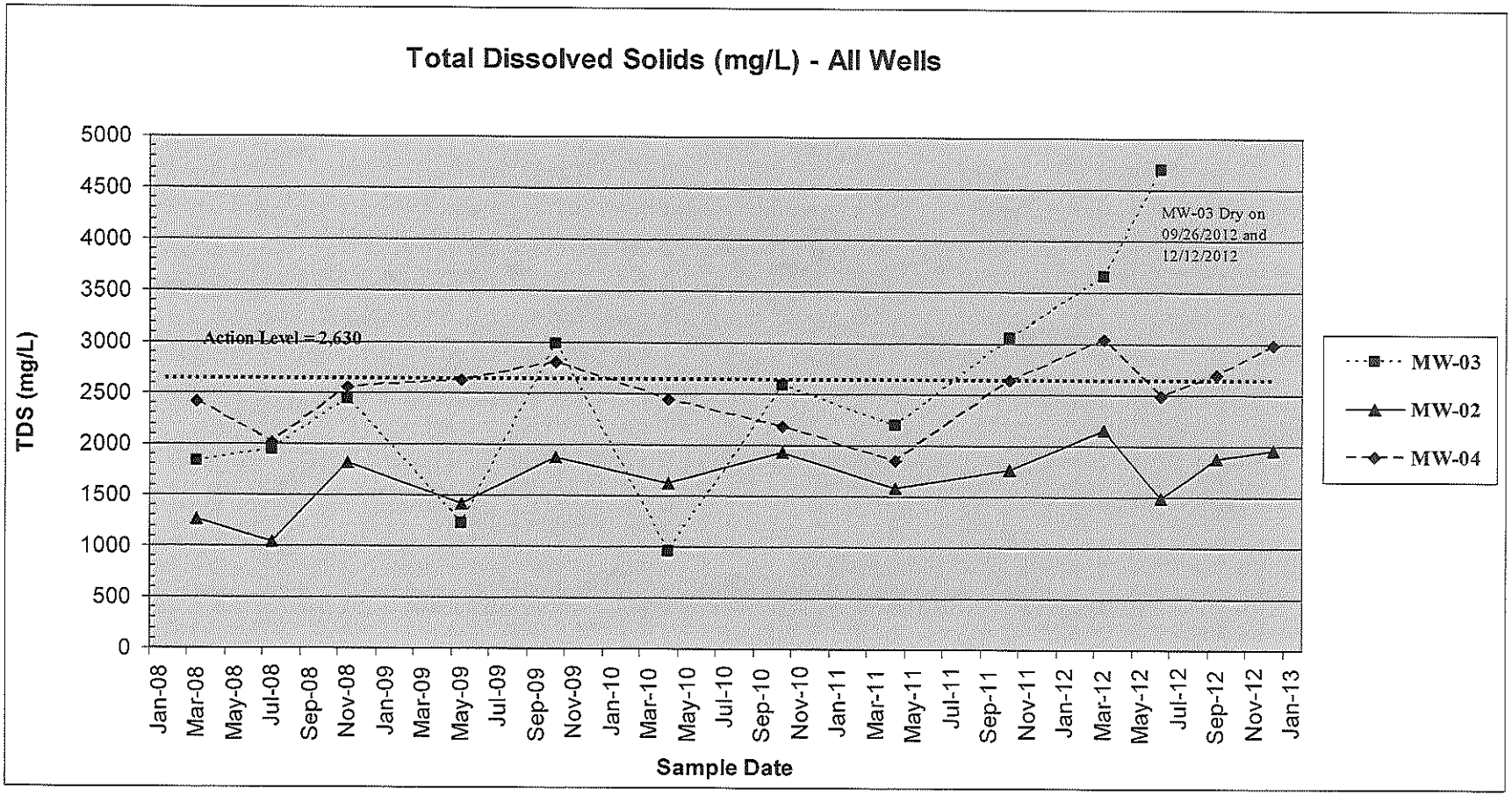
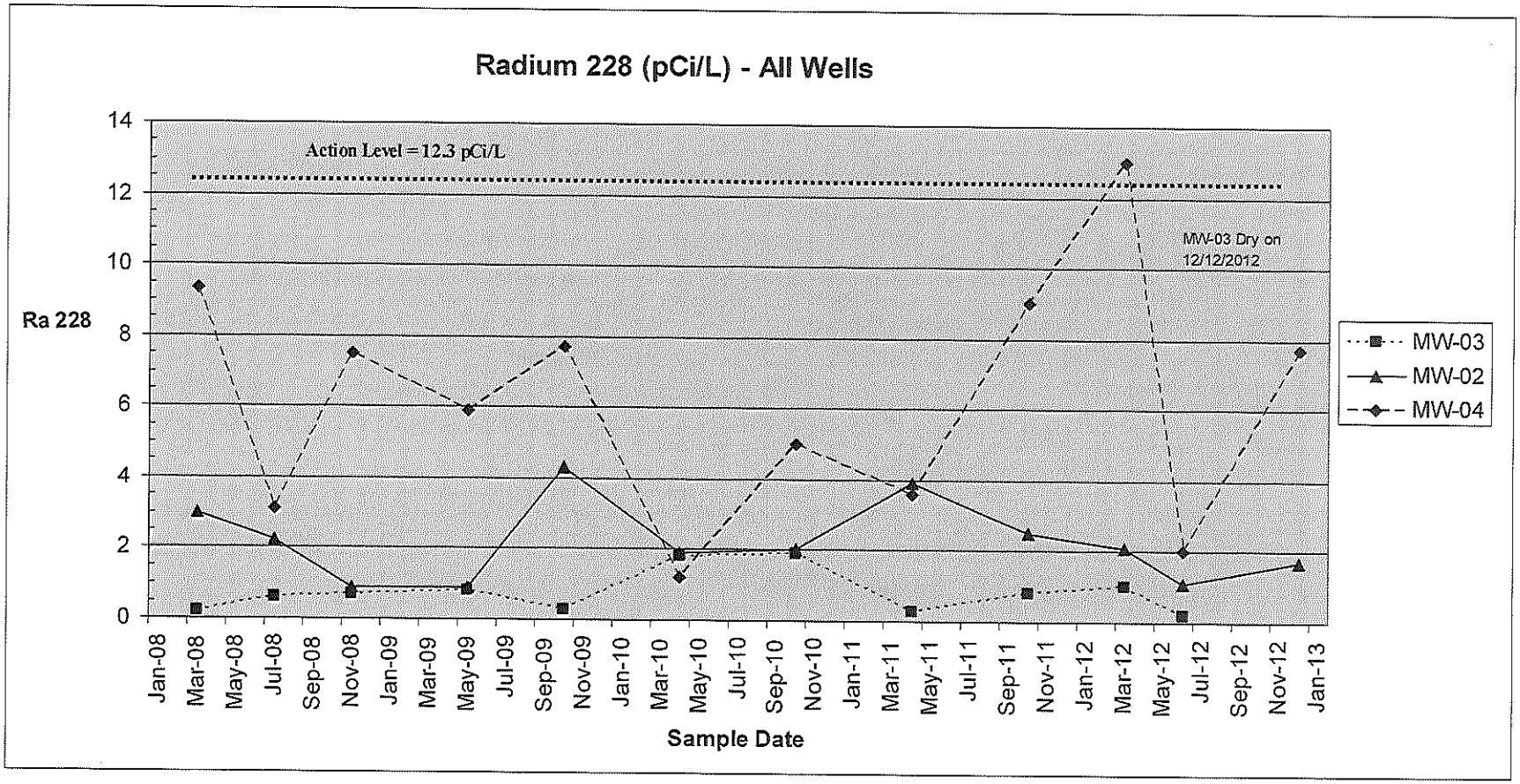


Figure 2 (cont)



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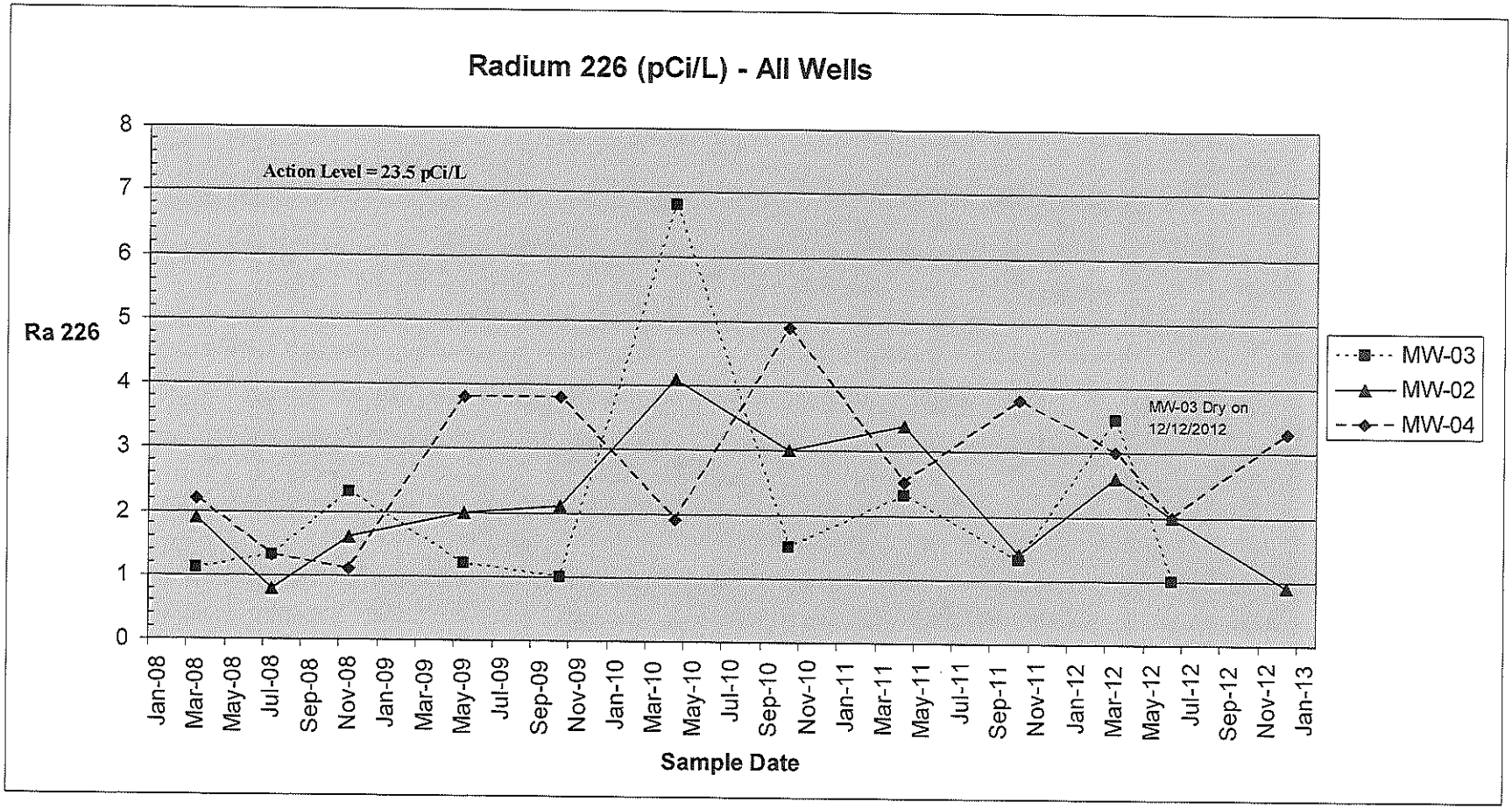

Figure 2 (cont)