

Analytica Thornton 12189 Pennsylvania Street Thornton, CO 80241 Phone: 303-469-8868 Fax: 303-469-5254

5/23/2012 Colorado Division of Reclamation,

Mining & Safety 1313 Sherman Street Suite 215 Denver, CO 80202 Attn: Michael Cunningham Work Order #: B1205059 Date: 5/23/2012 Work ID: GW Monitoring Date Received: 5/9/2012 Proj #: None

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description		
B1205059-01	CRMW-3c 124	B1205059-02	CRMW-3B-63		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Cansa Settacht

Carissa Seltrecht Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Environmental Laboratories, Inc. Work Order: B1205059

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

Pfaff, J. D., C. A. Brockhoff and J. W. O'Dell. 1994. The Determination of Inorganic Anions in Water by Ion Chromatography. Method 300.0A. U. S. Environmental Protection Agency. Environmental Monitoring Systems Lab.

SAMPLE RECEIPT: There were two (2) samples received on 5/9/2012 at 4:32:00 PM at a temperature of 3.4°C at Analytica-Thornton. The samples were received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries, is kept on file in our office and is available upon request.

All method specifications were met for the following tests, unless otherwise noted:

Test Method: 200.7 - Metals by ICP - Dissolved Metals - Ground Water

Test Method: Inorganic Anions by Ion Chromatography - Anions by IC2 - Ground Water

Detailed Analytical Report					Analytica Environmental Laboratories, Inc.						
Workorder (SDG):	B1205	059									
Project:	(GW Monitor	ring								
Client:	(Colorado Div	vision of Re	eclama	tion, Mi	ining &	Safet	y			
Client Project Number	:: I	None									
Report Section	:	Clien	t Sampl	e Re	port						
Client Sample Name:		CRMW	-3c 124								
Matrix:	Grou	and Water					(Collection Date:	5/9/2012 1	1:35:00AM	
The following test was	conducted	by: Analytica	- Thornton								
Lab Sample Number:	B120505	59-01A						Analysis Date:	5/17/201	2 1:39:10PM	
Prep Date:	5/17/201	2						Instrument:	ICP_2		
Analytical Method ID:	200. 7 - N	Ietals by ICP -	Dissolved M	letals				File Name:	051712		
Prep Method ID:	200.7							Dilution Factor:	1		
Prep Batch Number:	T120517	/003									
Report Basis:	As Receiv	ved						Analyst Initials:	TE		
Sample prep wt./vol:	50.00	ml						Prep Extract Vol:	50.00	ml	
Analyte Zinc	7	<u>CASNo</u> 440-66-6	<u>Result</u> 0.022	<u>Flags</u>	<u>Units</u> mg/L	<u>PQL</u> 0.0050	<u>MDL</u> 0.001	0		<u>run #:</u> 1	
The following test was	conducted	by: Analytica	- Thornton								
Lab Sample Number:	B120505	59-01B						Analysis Date:	5/21/201	2 11:57:00AM	
Prep Date:	5/21/201	2						Instrument:	IC_2		
Analytical Method ID:	Inorganic	Anions by Ion	Chromatogi	raphy - A	Anions by	y IC2		File Name:	18.0000	.XLS	
Prep Method ID:	300.0							Dilution Factor:	10		
Prep Batch Number:	T120522	2006									
Report Basis:	As Receiv	ved						Analyst Initials:	TE		
Sample prep wt./vol:	4.00	ml						Prep Extract Vol:	4.00	ml	
<u>Analyte</u> Sulfate	<u> </u>	<u>CASNo</u>	<u>Result</u> 851	<u>Flags</u>	<u>Units</u> mg/L	<u>PQL</u> 5.0	<u>MDL</u> 0.24			<u>run #:</u> 1	

Detailed Ana	Detailed Analytical Report				Analytica Environmental Laboratories, Inc.						
Workorder (SDG):	B1205059										
Project:	GW M	onitoring									
Client:	Colora	do Division of I	Reclama	tion, M	ining &	Safet	у				
Client Project Number	: None										
Report Section	: (Client Samp	le Re	port							
Client Sample Name:	CR	MW-3B-63		_							
Matrix:	Ground Wa	ter				(Collection Date:	5/9/2012 1	2:10:00PM		
The following test was	conducted by: An	alytica - Thornton									
Lab Sample Number:	B1205059-02A						Analysis Date:	5/17/201	2 1:43:45PM		
Prep Date:	5/17/2012						Instrument:	ICP_2			
Analytical Method ID:	200. 7 - Metals b	y ICP - Dissolved	Metals				File Name:	051712			
Prep Method ID:	200.7						Dilution Factor:	1			
Prep Batch Number:	T120517003										
Report Basis:	As Received						Analyst Initials:	TE			
Sample prep wt./vol:	50.00 ml						Prep Extract Vol:	50.00	ml		
Analyte Zinc	<u>CASNo</u> 7440-66-	6 0.12	<u>Flags</u>	<u>Units</u> mg/L	<u>PQL</u> 0.0050	<u>MDL</u> 0.001	0		<u>run #:</u> 1		
The following test was	conducted by: An	alytica - Thornton									
Lab Sample Number:	B1205059-02B						Analysis Date:	5/21/201	2 12:11:00PM		
Prep Date:	5/21/2012						Instrument:	IC_2			
Analytical Method ID:	Inorganic Anions	s by Ion Chromato	graphy - A	Anions b	y IC2		File Name:	19.0000	XLS		
Prep Method ID:	300.0						Dilution Factor:	10			
Prep Batch Number:	T120522006										
Report Basis:	As Received						Analyst Initials:	TE			
Sample prep wt./vol:	4.00 ml						Prep Extract Vol:	4.00	ml		
<u>Analyte</u> Sulfate	<u>CASNo</u>	<u>Result</u> 1,010	Flags	<u>Units</u> mg/L	<u>PQL</u> 5.0	<u>MDL</u> 0.24			<u>run #:</u> 1		

Detailed Analyti	ical Report	Analytica Envir	onmental Laboratori	.es, Inc.
Workorder (SDG): B	1205059			
Project:	GW Monitoring			
Client:	Colorado Divisio	n of Reclamation, Mining & S	afety	
Client Project Number:	None			
	QC	BATCH ASSOCIATIONS - BY	METHOD BLANK	
	-			
Lab Project ID:	137,727	Lab Project Number:	B1205059	
				Prep Date: 5/17/2012
Lab Method Blank Id: Pren Batch ID:	T120517003-MB			
M d d	112051/003 200 7 - Metals by	ICP - Dissolved Metals		
Method:	sample propertion batch	are associated with the following of	amples spilles and du	nlicatos
SampleNum	ClientSempleNemo	are associated with the following sa	imples, spikes, and du	AnalysisDate
	Ratch OC	<u>Datar ne</u> 051712		5/17/2012 12:30:30PM
B1205045-01D	CPMW 2a 124	051712		5/17/2012 12:59:50FM
B1205059-01A	CRMW 2D 62	051712		5/17/2012 1.39.10FM
B1205059-02A	CKMW-5B-05	051712		5/17/2012 1:43:43PM
112051/003-LCS	LUS	051712		5/17/2012 12:11:59PM
B1205045-01D-DUP	DUP	051712		5/17/2012 12:44:05PM
B1205045-01D-MS	MS	051712		5/17/2012 12:48:40PM
B1205045-01D-MSD	MSD	051712		5/17/2012 12:53:15PM
-				Prep Date: 5/21/2012
Lab Method Blank Id:	T120522006-MB			r
Prep Batch ID:	T120522006			
Method:	Inorganic Anions b	y Ion Chromatography - Anions	s by IC2	
This Method blank and	sample preparation batch	are associated with the following sa	amples, spikes, and du	plicates:
<u>SampleNum</u>	ClientSampleName	DataFile		AnalysisDate
T120522006-LCS	LCS	11.0000	.XLS	5/21/2012 10:16:00AM
F1205122-01E	Batch QC	14.0000	.XLS	5/21/2012 10:59:00AM
F1205122-01E-DUP	DUP	15.0000	.XLS	5/21/2012 11:14:00AM
F1205122-01E-MS	MS	16.0000	.XLS	5/21/2012 11:28:00AM
F1205122-01E-MSD	MSD	17.0000	XLS	5/21/2012 11:42:00AM
B1205059-01B	CRMW-3c 124	18.0000	.XLS	5/21/2012 11:57:00AM
B1205059-02B	CRMW-3B-63	19.0000	.XLS	5/21/2012 12:11:00PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG):B1205059Project:GW MonitoringClient:Colorado Division of Reclamation, Mining & SafetyClient Project Number:None

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

 $\mathbf{B} = \mathbf{A}$ nalyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG):	B1205059
Project:	GW Monitoring
Client:	Colorado Division of Reclamation, Mining & Safety
Client Project Number:	None

REPORTING CONVENTIONS FOR THIS REPORT B1205059

<u>TestPkgName</u> 200.7/200.7 (Aqueous) - Dissolved Metals 300.0/300.0 (Aqueous) - Anions by IC2

<u>Basis</u> As Received As Received <u># Sig Figs</u> 2 3 Reporting Limit Report to PQL

Report to PQL

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ANALYTICA group to		12 T	189 Pennsylvania S Thornton, CO 80241 (303) 469-8868 (303) 469-5254 fax	it. 4307 A Anchor (90 (907)	rctic Boulevar age, AK 9950 7) 258-2155 258-6634 fax	rd 13 K	475 Hall Faïrbanks, Al (907) 456-31 (907) 456-31	St. K 99701 - 3116 125 Fax	5438 Sh Juneau, (907) (907 <u>)</u> 78	aune Drive AK 99801 780-6668 0-6670 fax		Chair	n of Custoc	ly No: {	312	41	
Client Name & Address:			Public Water	r System (PW	/S) ID#:						Sec	tion To be	Complete	d by Analy	tica		
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Denver, CO 80	~~~~									Account #:			Cash	Crea	lit Card		
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special instructions/Comments:										P.O. or Co	ntract No	;					
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Kit Prep/Shipping Charge: \$ Client Sample Identific	ation / Location		Date Sampled	Time Sampled	Matrix (S-DW-WW-Other)	No. of Containers	EPA 200, 7 モアノ - 1)1510[L 101# Bres	ЕРА 700.0 5.19.42 1014	9102 Sec. 1	lot#The second second	Lot#	Lot#: 4: 55	Lot U Rices	Lot # vi tip	Field Preserved	Field Filtered	Ł dsw/sw
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Cooler Receipt Form

Client: Colorad Project: GW Mo	do Division of Reclamati onitoring	Client Code: 501304		Order #: B1205059			
Cooler ID: 1							
A. <u>Preliminary Exa</u>	amination Phase:	Date cooler opened: Cooler opened by:	5/9/2012 GS	Signature:			
1. Was airbill Att	ached? N/A	Airbill #:		Carrier Name: Client			
2. Custody Seals	s? N/A	How many? 0	Location:	Seal Name:			
3. Seals intact?	N/A						
4. COC Attached	l? Yes	Properly Completed?	Yes	Signed by AEL employee? Yes			
5. Project Identif	fication from custody pape	er: CC&V Arequa (Gluch MW				
6. Preservative:	WetIce	Tempera	ature: 3.4	deg. C			
esignated person initial here to acknowledge receipt: $\underline{3/9/12}$							

COMMENTS:

В.	Log-In Phase: Samples Log-in	Date: 5/9/2012	Log-in By: GS		
1.	Packing Type:	lce			
2	Were samples in separate bags?	N/A			
3.	Were containers intact?	Yes	Labels agree with COC?	Yes	
4	Number of bottles received:	4	Number of samples received:	2	
5	Correct containers used?	Yes	Correct preservatives added?	Yes	
6	Sufficient sample volume?	Yes			
7.	Bubbles in VOA samples?	N/A			
8	Was Project manager called and state	us discussed?	Yes		
9.	Was anyone called? Yes	Who was called?	By whom?		Date:
CC	MMENTS:				