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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,

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): B1205059

Project: GW Monitoring

Client: Colorado Division of Reclamation, Mining & Safety

Client Project Number: None

Report Section: Client Sample Report

Client Sample Name: CRMW-3c 124

Matrix: Ground Water

Collection Date: 5/9/2012 11:35:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B1205059-01A

Prep Date: 5/17/2012

Analytical Method ID: 200.7 - Metals by ICP - Dissolved Metals

Prep Method ID: 200.7

Prep Batch Number: T120517003

Report Basis: As Received

Sample prep wt./vol: 50.00 ml

Analysis Date: 5/17/2012 1:39:10PM

Instrument: ICP_2

File Name: 051712

Dilution Factor: 1

Analyst Initials: TE

Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	0.022		mg/L	0.0050	0.0010	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B1205059-01B

Prep Date: 5/21/2012

Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC2

Prep Method ID: 300.0

Prep Batch Number: T120522006

Report Basis: As Received

Sample prep wt./vol: 4.00 ml

Analysis Date: 5/21/2012 11:57:00AM

Instrument: IC_2

File Name: 18.0000.XLS

Dilution Factor: 10

Analyst Initials: TE

Prep Extract Vol: 4.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		851		mg/L	5.0	0.24	1

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B1205059

Project: GW Monitoring

Client: Colorado Division of Reclamation, Mining & Safety

Client Project Number: None

Report Section: Client Sample Report

Client Sample Name: CRMW-3B-63

Matrix: Ground Water

Collection Date: 5/9/2012 12:10:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B1205059-02A

Prep Date: 5/17/2012

Analytical Method ID: 200.7 - Metals by ICP - Dissolved Metals

Prep Method ID: 200.7

Prep Batch Number: T120517003

Report Basis: As Received

Sample prep wt./vol: 50.00 ml

Analysis Date: 5/17/2012 1:43:45PM

Instrument: ICP_2

File Name: 051712

Dilution Factor: 1

Analyst Initials: TE

Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	0.12		mg/L	0.0050	0.0010	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B1205059-02B

Prep Date: 5/21/2012

Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC2

Prep Method ID: 300.0

Prep Batch Number: T120522006

Report Basis: As Received

Sample prep wt./vol: 4.00 ml

Analysis Date: 5/21/2012 12:11:00PM

Instrument: IC_2

File Name: 19.0000.XLS

Dilution Factor: 10

Analyst Initials: TE

Prep Extract Vol: 4.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		1,010		mg/L	5.0	0.24	1

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B1205059

Project: GW Monitoring

Client: Colorado Division of Reclamation, Mining & Safety

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: T120517003-MB

Prep Batch ID: T120517003

Method: 200. 7 - Metals by ICP - Dissolved Metals

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B1205045-01D	Batch QC	051712	5/17/2012 12:39:30PM
B1205059-01A	CRMW-3c 124	051712	5/17/2012 1:39:10PM
B1205059-02A	CRMW-3B-63	051712	5/17/2012 1:43:45PM
T120517003-LCS	LCS	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

Prep Batch ID: T120522006

Method: Inorganic Anions by Ion Chromatography - Anions by IC2

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
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): B1205059

Project: GW Monitoring

Client: Colorado Division of Reclamation, Mining & Safety

Client 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:

B = Analyte 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>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
200.7/200.7 (Aqueous) - Dissolved Metals	As Received	2	Report to PQL
300.0/300.0 (Aqueous) - Anions by IC2	As Received	3	Report to PQL



Cooler Receipt Form

Client: Colorado Division of Reclamation Client Code: 501304
Project: GW Monitoring

Order #: B1205059

Cooler ID: 1

A. Preliminary Examination Phase:

Date cooler opened: 5/9/2012
Cooler opened by: GS

Signature: 

1. Was airbill Attached? N/A

Airbill #:

Carrier Name: Client

2. Custody Seals? N/A

How many? 0

Location:

Seal Name:

3. Seals intact? N/A

4. COC Attached? Yes

Properly Completed? Yes

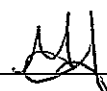
Signed by AEL employee? Yes

5. Project Identification from custody paper: CC&V Arequa Gluch MW

6. Preservative: WetIce

Temperature: 3.4 deg. C

Designated person initial here to acknowledge receipt:

 Date: 5/9/12

COMMENTS:

B. Log-In Phase: Samples Log-in Date: 5/9/2012 Log-in By: GS

1. Packing Type: Ice

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 status discussed? Yes

9. Was anyone called? Yes Who was called? _____ By whom? _____ Date: _____

COMMENTS: