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Fulcrum Environmental Ryan Mathews 406 N. 2nd Street Yakima, WA 98901

RE: Kennewick SD Drinking Water - Desert Hills MS

Work Order Number: 1703208

March 21, 2017

## **Attention Ryan Mathews:**

Fremont Analytical, Inc. received 6 sample(s) on 3/20/2017 for the analyses presented in the following report.

## Drinking Water Metals by EPA Method 200.8

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

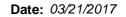
All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward Project Manager

DoD/ELAP Certification #L2371, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)





CLIENT: Fulcrum Environmental Work Order Sample Summary

Project: Kennewick SD Drinking Water - Desert Hills

Work Order: 1703208

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1703208-001	DHM31817-P-CF-37	03/18/2017 7:45 AM	03/20/2017 9:00 AM
1703208-002	DHM31817-S-CF-37	03/18/2017 7:45 AM	03/20/2017 9:00 AM
1703208-003	DHM31817-T-CF-37	03/18/2017 7:45 AM	03/20/2017 9:00 AM
1703208-004	DHM31817-P-CF-38	03/18/2017 7:45 AM	03/20/2017 9:00 AM
1703208-005	DHM31817-P-CF-43	03/18/2017 7:45 AM	03/20/2017 9:00 AM
1703208-006	DHM31817-P-CF-44	03/18/2017 7:45 AM	03/20/2017 9:00 AM



## Case Narrative

WO#: **1703208**Date: **3/21/2017** 

**CLIENT:** Fulcrum Environmental

Project: Kennewick SD Drinking Water - Desert Hills MS

#### WorkOrder Narrative:

### I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

## II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

#### III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

## **Prep Sample Comments:**

1703208-001A 211540: Prep Comments for EPA200.8, Sample 1703208-001A: 0.00 NTU 1703208-004A 211541: Prep Comments for EPA200.8, Sample 1703208-004A: 0.01 NTU 1703208-005A 211542: Prep Comments for EPA200.8, Sample 1703208-005A: 0.01 NTU 1703208-006A 211543: Prep Comments for EPA200.8, Sample 1703208-006A: 0.00 NTU



## **Qualifiers & Acronyms**

WO#: **1703208** 

Date Reported: 3/21/2017

## Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

## Acronyms:

%Rec - Percent Recovery

**CCB - Continued Calibration Blank** 

**CCV - Continued Calibration Verification** 

DF - Dilution Factor

**HEM - Hexane Extractable Material** 

ICV - Initial Calibration Verification

LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate

MB or MBLANK - Method Blank

MDL - Method Detection Limit

MS/MSD - Matrix Spike / Matrix Spike Duplicate

PDS - Post Digestion Spike

Ref Val - Reference Value

RL - Reporting Limit

RPD - Relative Percent Difference

SD - Serial Dilution

SGT - Silica Gel Treatment

SPK - Spike

Surr - Surrogate



## **Analytical Report**

Work Order: 1703208

Date Reported: 3/21/2017

**CLIENT:** Fulcrum Environmental

Project: Kennewick SD Drinking Water - Desert Hills MS

**Lab ID:** 1703208-001 **Collection Date:** 3/18/2017 7:45:00 AM

Client Sample ID: DHM31817-P-CF-37 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

<u>Drinking Water Metals by EPA Method 200.8</u>

Batch ID: 16538

Analyst: MW

Copper 1,360 0.500 µg/L 1 3/20/2017 4:05:12 PM

**Lab ID:** 1703208-004 **Collection Date:** 3/18/2017 7:45:00 AM

Client Sample ID: DHM31817-P-CF-38 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

<u>Drinking Water Metals by EPA Method 200.8</u>

Batch ID: 16538

Analyst: MW

Copper 1,720 0.500 µg/L 1 3/20/2017 4:09:14 PM

**Lab ID:** 1703208-005 **Collection Date:** 3/18/2017 7:45:00 AM

Client Sample ID: DHM31817-P-CF-43 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

<u>Drinking Water Metals by EPA Method 200.8</u>
Batch ID: 16538 Analyst: MW

Copper ND 0.500 μg/L 1 3/20/2017 4:13:15 PM



# **Analytical Report**

Work Order: 1703208

Date Reported: 3/21/2017

**CLIENT:** Fulcrum Environmental

Project: Kennewick SD Drinking Water - Desert Hills MS

**Lab ID:** 1703208-006 **Collection Date:** 3/18/2017 7:45:00 AM

Client Sample ID: DHM31817-P-CF-44 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

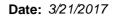
<u>Drinking Water Metals by EPA Method 200.8</u>

Batch ID: 16538

Analyst: MW

Copper 1,340 0.500 µg/L 1 3/20/2017 4:17:16 PM

Original





Work Order: 1703208

## **QC SUMMARY REPORT**

CLIENT: Fulcrum Environmental

Project:		SD Drinking Water - I	Desert Hi	lls		Drinking Water Metals by EPA Method 200
Sample ID	MB-16538 MBLKW	SampType: MBLK Batch ID: 16538			Units: µg/L	Prep Date: 3/20/2017 RunNo: 35047  Analysis Date: 3/20/2017 SeqNo: 669901
Analyte	MDERW	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper		ND	0.500			
Sample ID	LCS-16538	SampType: <b>LCS</b>			Units: µg/L	Prep Date: 3/20/2017 RunNo: 35047
Client ID:	LCSW	Batch ID: 16538				Analysis Date: <b>3/20/2017</b> SeqNo: <b>669902</b>
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper		201	0.500	200.0	0	100 85 115
Sample ID	1703147-001ADUP	SampType: <b>DUP</b>			Units: µg/L	Prep Date: 3/20/2017 RunNo: 35047
Client ID:	BATCH	Batch ID: 16538				Analysis Date: 3/20/2017 SeqNo: 669904
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper		8.90	0.500			9.003 1.17 30
Sample ID	1703147-001AMS	SampType: <b>MS</b>			Units: µg/L	Prep Date: 3/20/2017 RunNo: 35047
Client ID:	BATCH	Batch ID: 16538				Analysis Date: 3/20/2017 SeqNo: 669905
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper		215	0.500	200.0	9.003	103 70 130
Sample ID	1703147-001AMSD	SampType: <b>MSD</b>			Units: µg/L	Prep Date: 3/20/2017 RunNo: 35047
Client ID:	BATCH	Batch ID: 16538				Analysis Date: 3/20/2017 SeqNo: 669906
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper		199	0.500	200.0	9.003	95.2 70 130 214.7 7.38 30

Page 7 of 9 Original



# Sample Log-In Check List

CI	ient Name:	FE			Work Or	der Number:	1703208	3	
Lo	gged by:	Erica Silva	ı		Date Red	eived:	3/20/201	7 9:00:00 AM	
Cha	in of Custo	ody							
	Is Chain of C	-	olete?		Yes	<b>✓</b>	No 🗌	Not Present	
2.	How was the	sample deliv	vered?		FedE:	<u>K</u>			
Log	In								
_		rocont?			Yes	<b>√</b>	No 🗌	NA 🗆	
3.	Coolers are p	nesent!			165	•	NO 🗀	NA 🗀	
4.	Shipping con	tainer/cooler	in good condition?		Yes	<b>✓</b>	No $\square$		
5.			n shipping container/cooler? ustody Seals not intact)		Yes		No 🗸	Not Required	
6.	Was an atten	npt made to	cool the samples?		Yes	<b>✓</b>	No $\square$	NA 🗆	
7.	Were all item	s received a	t a temperature of >0°C to 10.	0°C*	Yes	<b>✓</b>	No $\square$	NA $\square$	
8.	Sample(s) in	proper conta	ainer(s)?		Yes	✓	No 🗌		
9.	Sufficient sar	nple volume	for indicated test(s)?		Yes	<b>✓</b>	No $\square$		
10.	Are samples	properly pre	served?		Yes	✓	No $\square$		
11.	Was preserva	ative added	to bottles?		Yes	<b>✓</b>	No $\square$	NA $\square$	
							_ ⊦	HNO3 to 002A - 003A	
	Is there head				Yes		No 📙	NA 🗸	
13.	Did all sample	es container	s arrive in good condition(unbro	oken)?		<b>✓</b>	No 📙		
14.	Does paperw	ork match b	ottle labels?		Yes	✓	No 🗀		
15.	Are matrices	correctly ide	entified on Chain of Custody?		Yes	<b>✓</b>	No $\square$		
16.	Is it clear wha	at analyses v	vere requested?		Yes	✓	No $\square$		
17.	Were all hold	ling times ab	le to be met?		Yes	✓	No $\square$		
Sne	<u>cial Handlı</u>	ina (if anı	nlicable)						
-			discrepancies with this order?		Yes		No $\square$	NA 🗹	
10.				D-1-					
		Notified:		Date	,				
	By Who			Via:	eMai	Phone	e 🗌 Fax	☐ In Person	
	Regardi	-							
40		nstructions:							
	Additional rer	naiks.							
<u>ltem l</u>	Information	l4 ''	T 00						
		Item #	Temp °C						

2.9

1.9

Original

Cooler

Sample

<sup>\*</sup> Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

THE PERSON NAMED IN COLUMN 1			111000	C. C
	Analytical	Date:	Date: 3/18/2017	3/18/2017 Laboratory Project No (internal): 170,3208
3600 Fremont Ave N. Seattle, WA 98103	Tel: 206-352-3790 Fax: 206-352-7178	Project Name:	Knownick SD Drinking	Page: 1 of: 1 Page Page
Client: Ful	Fulcrum Environmental Consulting	Project No:	30-410691	Collected by: Amanda Enbysk
ss:	406 North Second Street	Location:	MS, Kennewic	r, W.
e, Zip:	Yakima, WA, 98901	Report To (PM):	1 8	The state of the s
	509.574.0839 Fax: 509.575.8453	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ı	@efulcrum.net
*Matrix Codes: A = Air, AQ = Aqueous,	B = Bulk, O = Other,	P = Product, $S = Soil$ , $SD = Sediment$ , $SL = Solid$ , $W = Water$ , $DV$	ng Water,	GW = Ground Water, SW = Storm Water, WW = Waste Water
Sample Name	Sample Date Time (M	Sample Section of the Control of the	C. T. R. C. R. C. R. C. R. C. R. C. C. R. C. C. R. R. C.	Comments
1 O+M31817-10-CF-37	3/18/2017 0745		<b>⊗</b> )	thos preserved
2 NHM31817-5-CF-37	37		The configuration of the confi	How, impresented
3 DHM31817-T-CF-37	-37			+
4 2HM31817-P-CF-38	-38		8	this wisered
5 DAM31817-8-CF	CF-43		8	
0+M31817-P-CF	T + + + -50-	*	⊗	
8				
9				
**Metals Analysis (Circle): MT	MTCA-5 RCRA-8 Priority Pollutants	TAL Individual: Ag Al As B Ba Be Ca	Cd Co Cr (Cu Fe Hg K Mg Mn Mo Na Ni Pb	i Pb Sb Se Sr Sn Ti Tl U V Zn
	Nitrite Chloride Sulfate  Return to Client Disposal by Lab	Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if camples are retained after 30 days.)	Nitrate+Nitrite Turn-around times for samples received after 4:00pm will begin on the following business day.	s Special Remarks: gin Ploater Serve all umpr. Samples
I represent that I am authoriz	I represent that I am authorized to enter into this Agreement with Fremont surrement to each of the terms on the front and backside of this Agreement.	I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's sorrement to each of the terms on the front and backside of this Agreement.	ned above, that I have verified Client's	174.20
Relinquished MC	3/18/17; 1300	Received	3120/2017 0900	HI - 754
Relinquished V	= 1	Received ×	Date/Time	TAT → SameDay^ NextDay^ 2 Day 3 Day STD  Aplease coordinate with the lab in advance