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

RE: Kennewick SD Drinking Water-Highlands MS

Work Order Number: 1704069

April 07, 2017

Attention Ryan Mathews:

Fremont Analytical, Inc. received 9 sample(s) on 4/6/2017 for the analyses presented in the following report.

Drinking Water Metals by EPA Method 200.8

This report consists of the following:

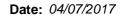
- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

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





CLIENT: Fulcrum Environmental Work Order Sample Summary

Project: Kennewick SD Drinking Water-Highlands M

Work Order: 1704069

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1704069-001	HMS4517-P-DF-04	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-002	HMS4517-P-CDF-08	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-003	HMS4517-S-CDF-08	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-004	HMS4517-T-CDF-08	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-005	HMS4517-P-CDF-27	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-006	HMS4517-S-CDF-27	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-007	HMS4517-T-CDF-27	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-008	HMS4517-P-CDF-35	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-009	HMS4517-P-OF-36	04/05/2017 10:00 AM	04/06/2017 10:31 AM



Case Narrative

WO#: **1704069**Date: **4/7/2017**

CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water-Highlands 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:

1704069-001A 214540: Prep Comments for EPA200.8, Sample 1704069-001A: Turbidity: 0.01 NTU 1704069-002A 214541: Prep Comments for EPA200.8, Sample 1704069-002A: Turbidity: 0.02 NTU 1704069-005A 214542: Prep Comments for EPA200.8, Sample 1704069-005A: Turbidity: 0.01 NTU 1704069-008A 214543: Prep Comments for EPA200.8, Sample 1704069-008A: Turbidity: 0.01 NTU 1704069-009A 214546: Prep Comments for EPA200.8, Sample 1704069-009A: Turbidity: 0.01 NTU



Qualifiers & Acronyms

WO#: 1704069

Date Reported: 4/7/2017

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: 1704069

Date Reported: 4/7/2017

CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water-Highlands MS

Lab ID: 1704069-001 **Collection Date:** 4/5/2017 10:00:00 AM

Client Sample ID: HMS4517-P-DF-04 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

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

Batch ID: 16722 Analyst: TN

Copper 306 0.500 µg/L 1 4/7/2017 2:41:25 PM

Lab ID: 1704069-002 **Collection Date:** 4/5/2017 10:00:00 AM

Client Sample ID: HMS4517-P-CDF-08 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

<u>Drinking Water Metals by EPA Method 200.8</u>
Batch ID: 16722 Analyst: TN

Copper 1,030 0.500 $\mu g/L$ 1 4/7/2017 2:45:27 PM

Lab ID: 1704069-005 **Collection Date:** 4/5/2017 10:00:00 AM

Client Sample ID: HMS4517-P-CDF-27 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

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

Batch ID: 16722

Analyst: TN

Copper 1,090 0.500 µg/L 1 4/7/2017 2:49:28 PM



Analytical Report

Work Order: 1704069

Date Reported: 4/7/2017

CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water-Highlands MS

Client Sample ID: HMS4517-P-CDF-35 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

<u>Drinking Water Metals by EPA Method 200.8</u>
Batch ID: 16722 Analyst: TN

Copper 1,300 0.500 µg/L 1 4/7/2017 2:53:30 PM

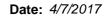
Client Sample ID: HMS4517-P-OF-36 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

<u>Drinking Water Metals by EPA Method 200.8</u>
Batch ID: 16723
Analyst: TN

Copper ND 0.500 $\mu g/L$ 1 4/7/2017 3:17:41 PM

Original





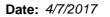
Work Order: 1704069

QC SUMMARY REPORT

CLIENT: Fulcrum Environmental

	SD Drinking Water-H	lighlands	М		Drinking Water Metals by EPA Method 200.8
Sample ID MB-16723	SampType: MBLK			Units: µg/L	Prep Date: 4/7/2017 RunNo: 35429
Client ID: MBLKW	Batch ID: 16723				Analysis Date: 4/7/2017 SeqNo: 678502
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper	ND	0.500			
Sample ID LCS-16723	SampType: LCS			Units: µg/L	Prep Date: 4/7/2017 RunNo: 35429
Client ID: LCSW	Batch ID: 16723				Analysis Date: 4/7/2017 SeqNo: 678505
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper	96.5	0.500	100.0	0	96.5 85 115
Sample ID 1704069-009ADUP	SampType: DUP			Units: µg/L	Prep Date: 4/7/2017 RunNo: 35429
Client ID: HMS4517-P-OF-36	Batch ID: 16723				Analysis Date: 4/7/2017 SeqNo: 678507
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper	ND	0.500			0 30
Sample ID 1704069-009AMS	SampType: MS			Units: µg/L	Prep Date: 4/7/2017 RunNo: 35429
Client ID: HMS4517-P-OF-36	Batch ID: 16723				Analysis Date: 4/7/2017 SeqNo: 678508
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper	188	0.500	200.0	0.4218	93.9 70 130
Sample ID 1704069-009AMSD	SampType: MSD			Units: µg/L	Prep Date: 4/7/2017 RunNo: 35429
Client ID: HMS4517-P-OF-36	Batch ID: 16723				Analysis Date: 4/7/2017 SeqNo: 678509
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Copper	194	0.500	200.0	0.4218	97.0 70 130 188.3 3.16 30

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1704069 Work Order:

Copper

1,140

0.500

200.0

QC SUMMARY REPORT

30

4.82

CLIENT: Fulcrum Environmental

Project:		SD Drinking Water-Hi	ghlands l	M			Drinking Water M	etals by EPA Metho	od 200.8
Sample ID Client ID:	MB-16722 MBLKW	SampType: MBLK Batch ID: 16722			Units: µg/L	·	ate: 4/7/2017 ate: 4/7/2017	RunNo: 35427 SeqNo: 678405	
Analyte		Result	RL	SPK value	SPK Ref Val	-	HighLimit RPD Ref Val	•	Qual
Copper		ND	0.500						
Sample ID	LCS-16722	SampType: LCS			Units: µg/L	Prep D	ate: 4/7/2017	RunNo: 35427	
Client ID:	LCSW	Batch ID: 16722				Analysis D	ate: 4/7/2017	SeqNo: 678406	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		98.2	0.500	100.0	0	98.2 85	115		
Sample ID	1704067-001ADUP	SampType: DUP			Units: µg/L	Prep D	ate: 4/7/2017	RunNo: 35427	
Client ID:	BATCH	Batch ID: 16722				Analysis D	ate: 4/7/2017	SeqNo: 678408	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		963	0.500				932.8	3.19 30	
Sample ID	1704067-001AMS	SampType: MS			Units: µg/L	Prep D	ate: 4/7/2017	RunNo: 35427	
Client ID:	BATCH	Batch ID: 16722				Analysis D	ate: 4/7/2017	SeqNo: 678409	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper NOTES:		1,190	0.500	200.0	932.8	131 70	130		S
		observed. A duplicate analy	ysis was pe	rformed and r	ecovered within ran	ge.			
Sample ID	1704067-001AMSD	SampType: MSD			Units: µg/L	Prep D	ate: 4/7/2017	RunNo: 35427	
Client ID:	BATCH	Batch ID: 16722				Analysis D	ate: 4/7/2017	SeqNo: 678410	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual

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932.8

103

70

130

1,195



Sample Log-In Check List

С	lient Name:	FE	Work Order Num	ber: 1704069		
Lo	ogged by:	Erica Silva	Date Received:	4/6/2017 1	10:31:00 AM	
Cha	nin of Custo	ody				
		ustody complete?	Yes 🗹	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>FedEx</u>			
Log	ı İn					
_	Coolers are p	present?	Yes 🗸	No 🗌	NA 🗌	
4.	Shipping con	tainer/cooler in good condition?	Yes 🗸	No 🗆		
5.		ls present on shipping container/cooler? nments for Custody Seals not intact)	Yes	No 🗌	Not Required 🗹	
6.	Was an atten	npt made to cool the samples?	Yes 🗸	No 🗌	NA \square	
7.	Were all item	s received at a temperature of >0°C to 10.0°C*	Yes 🗸	No 🗆	na 🗆	
8.	Sample(s) in	proper container(s)?	Yes 🗸	No 🗆		
9.	Sufficient san	nple volume for indicated test(s)?	Yes 🗸	No 🗌		
10.	Are samples	properly preserved?	Yes 🗸	No 🗌		
11.	Was preserva	ative added to bottles?	Yes 🗸	No 🗌	NA \square	
					, 004A, 006A, 007A	
12.	Is there head	space in the VOA vials?	Yes 🗌	No 🗌	NA 🗸	
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌		
14.	Does paperw	rork match bottle labels?	Yes 🗸	No 🗀		
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🗹	No \square		
16.	Is it clear wha	at analyses were requested?	Yes 🗸	No 🗌		
17.	Were all hold	ling times able to be met?	Yes 🗹	No \square		
<u>Spe</u>	cial Handli	ing (if applicable)				
18.	Was client no	otified of all discrepancies with this order?	Yes	No \square	NA 🗹	
	Person	Notified: Date				
	By Who	m: Via:	eMail Ph	none Fax [In Person	
	Regardi	ng:				
	Client In	nstructions:				
19.	Additional rer	marks:				

Item Information

Item #	Temp ºC
Cooler 1	2.2
Cooler 2	0.9
Sample 1	2.9
Sample 2	1.1

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

Original

TAT → SameDay^ NextDay^ 2 Day 3 Day STD		Date/Time	Received		ime	Date/Time	Refinquished
141.43.43	7 1031	4/6/201	×		t; (500	Date/Time /5/2017;	Reinquished MIG
- - - - - - - - - - - - - - - - - - -	t I have verified Client's	I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have vertified Client's agreement to each of the terms on the front and backside of this Agreement.	alytical on behalf of the	this Agreement.	and backside of	authorized to enter i	I represent that I am authorized to enter into this Agreement with Fremont agreement to each of the terms on the front and backside of this Agreement.
Acase preserve all on y	on the following business day.	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A ree may be assessed if samples are retained after 30 days.)	be held for 30 days unless o	Disposal by Lab (Samples will be held for 30 days. assessed if samples are retained after 30 days.	Dispos	Return to Client	Sample Disposal:
10	Turn-around times for samples received after 4:00pm will begin	Fluoride Nitrate+Nitrite	O-Phosphate Fluc	Sulfate Bromide	Chloride Su	Nitrate Nitrite	***Anions (Circle):
ob Sb Se Sr Sn Ti Tl U V Zn	Cu) Fe Hg K Mg Mn Mo Na Ni Pb	Ba Be Ca Cd Co Cr (Cu)	Individual: Ag Al As B I	TAL	A-8 Priority Pollutants	le): MTCA-5 RCRA-8	**Metals Analysis (Circle):
)		A Commence of the Commence of			10
		8		4	4	0F-36	-0-+134 swt16
ttNO3 preserved		 ⊗				-COF-35	-9-4154 swtt8
~	X)					7-008-27	7 HMS4517 - T
HOLD; ungo						2-00-27	5-41848MB
thill, preserved		8				-COF-27	5 HMS4617-P-COF-27
•						80-Ja	4 HUSTSIT-T-COF-08
HOLD impr.						COF-08	80-700-5-4(345M48
•		8				OF-08	2 HMS46)7-P- COF-08
HNO3 preserved		\otimes		De la	1/6/17 1000		1 HM54517-P-DF-04
GOOD TO SOUTH WARE, WW - WASHE WARE, WASHE WARE, WW - WASHE WARE, WASHE WARE, WASHE WARE, WASHE WARE, WASHE WARE, WASHE WARE, WW - WASHE WARE,	18/10/10	Att Control of Control	SD = sediment, SL = Solid, W = Water, DW SO S (EQ 4 St. EQ) SO S (EQ	Sample Type e (Matrix)*	ulk, O = Other, P = Pro Sample Date Time	AQ = Aqueous, B = Bul	*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, *Sample Name Sample Date
efulcrum.net	9	PM Email: rmathey	PM	Fax: 509.575.8453		509.574.0839	Telephone:
	athews	Report To (PM): Ryan Mathews	Rep		8901	Yakima, WA, 98901	City, State, Zip:
unity WA	Highlands middle School, lannuvick, WA	Location: High law	Loc		ond Street	406 North Second Street	Address:
Collected by: Amanda Enbysk		Project No: 620 7.06	Pro	ora .	Fulcrum Environmental Consulting	Fulcrum Enviror	Client:
- Highlands MS	, ut so Brain water -	Project Name: Lennew L	Pro		Tel: 206-352-3790 Fax: 206-352-7178	,	3600 Fremont Ave N. Seattle, WA 98103
atory Projec	1/5/17	Date:			nalytical	Analy	
Cildili di castonà vecola alla capolatolà selaices eglecille	צפרטות פוות בפ	ו טו כעזנטעץ	Chair		3		