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info@fremontanalytical.com

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

RE: Kennewick SD Drinking Water - Horse Heaven Hills MS

Work Order Number: 1704001

April 03, 2017

Attention Ryan Mathews:

Fremont Analytical, Inc. received 8 sample(s) on 4/3/2017 for the analyses presented in the following report.

Drinking Water Metals by EPA Method 200.8

This report consists of the following:

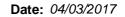
- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

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 - Horse Heav

Work Order: 1704001

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1704001-001	HHH33117-P-CF-06	03/31/2017 6:00 AM	04/03/2017 9:22 AM
1704001-002	HHH33117-S-CF-06	03/31/2017 6:00 AM	04/03/2017 9:22 AM
1704001-003	HHH33117-T-CF-06	03/31/2017 6:00 AM	04/03/2017 9:22 AM
1704001-004	HHH33117-P-CDF-26	03/31/2017 6:00 AM	04/03/2017 9:22 AM
1704001-005	HHH33117-S-CDF-26	03/31/2017 6:00 AM	04/03/2017 9:22 AM
1704001-006	HHH33117-T-CDF-26	03/31/2017 6:00 AM	04/03/2017 9:22 AM
1704001-007	HHH33117-P-CF-33	03/31/2017 6:00 AM	04/03/2017 9:22 AM
1704001-008	HHH33117-P-CF-34	03/31/2017 6:00 AM	04/03/2017 9:22 AM



Case Narrative

WO#: **1704001**Date: **4/3/2017**

CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Horse Heaven 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:

1704001-001A 213702: Prep Comments for EPA200.8, Sample 1704001-001A: Turbidity: 0.01 NTU 1704001-004A 213706: Prep Comments for EPA200.8, Sample 1704001-004A: Turbidity: 0.00 NTU 1704001-007A 213707: Prep Comments for EPA200.8, Sample 1704001-007A: Turbidity: 0.04 NTU 1704001-008A 213708: Prep Comments for EPA200.8, Sample 1704001-008A: Turbidity: 0.05 NTU

Original



Qualifiers & Acronyms

WO#: 1704001

Date Reported: 4/3/2017

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: 1704001

Date Reported: 4/3/2017

CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Horse Heaven Hills MS

Lab ID: 1704001-001 **Collection Date:** 3/31/2017 6:00:00 AM

Client Sample ID: HHH33117-P-CF-06 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

Drinking Water Metals by EPA Method 200.8 Batch ID: 16676 Analyst: TN

Lead 2.04 1.00 µg/L 1 4/3/2017 1:11:26 PM

Lab ID: 1704001-004 **Collection Date:** 3/31/2017 6:00:00 AM

Client Sample ID: HHH33117-P-CDF-26 Matrix: Drinking Water

Analyses Result RL Qual Units DF Date Analyzed

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

Batch ID: 16676

Analyst: TN

Copper 460 0.500 µg/L 1 4/3/2017 1:35:38 PM

Lab ID: 1704001-007 **Collection Date:** 3/31/2017 6:00:00 AM

Client Sample ID: HHH33117-P-CF-33 Matrix: Drinking Water

Result **RL Qual Units** DF **Date Analyzed Analyses Drinking Water Metals by EPA Method 200.8** Batch ID: 16676 Analyst: TN Copper ND 0.500 μg/L 4/3/2017 1:39:39 PM Lead ND 1.00 μg/L 1 4/3/2017 1:39:39 PM

Original



Analytical Report

Work Order: 1704001

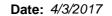
Date Reported: 4/3/2017

CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Horse Heaven Hills MS

Client Sample ID: HHH33117-P-CF-34 Matrix: Drinking Water

Units Analyses Result **RL Qual** DF **Date Analyzed** Batch ID: 16676 Analyst: TN **Drinking Water Metals by EPA Method 200.8** Copper 1,290 0.500 μg/L 4/3/2017 1:43:41 PM Lead 16.4 1.00 4/3/2017 1:43:41 PM μg/L





Work Order: 1704001

QC SUMMARY REPORT

CLIENT: Fulcrum Environmental

Drinking Water Metals by EPA Method 200.8

Project: Kennewick SD Drinking Water - Horse Heav

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Sample ID	MB-16676	SampType: MBLK			Units: µg/L		Prep Dat	e: 4/3/20 1	17	RunNo: 35	295	
Client ID:	MBLKW	Batch ID: 16676					Analysis Dat	e: 4/3/20 1	17	SeqNo: 67	5377	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		ND	0.500									
Lead		ND	1.00									
Sample ID	LCS-16676	SampType: LCS			Units: µg/L		Prep Dat	e: 4/3/20 1	17	RunNo: 35	295	
Client ID:	LCSW	Batch ID: 16676					Analysis Dat	e: 4/3/20 1	17	SeqNo: 67	5378	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		98.8	0.500	100.0	0	98.8	85	115				
Lead		55.6	1.00	50.00	0	111	85	115				
Sample ID	1704001-001ADUP	SampType: DUP			Units: µg/L		Prep Dat	e: 4/3/20 1	17	RunNo: 35	295	
Client ID:	HHH33117-P-CF-06	Batch ID: 16676					Analysis Dat	e: 4/3/20 1	17	SeqNo: 67	5380	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		347	0.500						366.4	5.37	30	
Lead		1.90	1.00						2.037	7.05	30	
Sample ID	1704001-001AMS	SampType: MS			Units: µg/L		Prep Dat	e: 4/3/20 1	17	RunNo: 35	295	
Client ID:	HHH33117-P-CF-06	Batch ID: 16676					Analysis Dat	e: 4/3/20 1	17	SeqNo: 67	5381	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		544	0.500	200.0	366.4	88.8	70	130				
Lead		103	1.00	100.0	2.037	101	70	130				
Sample ID	1704001-001AMSD	SampType: MSD			Units: µg/L		Prep Dat	e: 4/3/20 1	17	RunNo: 35	295	
Client ID:	HHH33117-P-CF-06	Batch ID: 16676					Analysis Dat	e: 4/3/20 1	17	SeqNo: 67	5384	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		551	0.500	200.0	366.4	92.5	70	130	544.0	1.35	30	

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Date: 4/3/2017



Work Order: 1704001

Project:

QC SUMMARY REPORT

Qual

CLIENT: Fulcrum Environmental

Kennewick SD Drinking Water - Horse Heav

Drinking Water Metals by EPA Method 200.8

Sample ID 1704001-001AMSD	SampType: MSD			Units: µg/L		Prep Date	e: 4/3/201	17	RunNo: 352	295
Client ID: HHH33117-P-CF-06	Batch ID: 16676					Analysis Date	e: 4/3/201	17	SeqNo: 675	384
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit

Lead 104 1.00 100.0 2.037 102 70 130 102.8 1.24 30

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Sample Log-In Check List

CI	ient Name:	FE		\	Work Or	der Nur	mber: 170	4001		
Lo	gged by:	Erica Silva	ı	[Date Re	ceived:	4/3	/2017	9:22:00 AM	
Cha	in of Custo	ody								
	Is Chain of C	-	olete?		Yes	✓	No		Not Present	
2.	How was the	sample deliv	vered?		<u>UPS</u>					
<u>Log</u>	In									
_	Coolers are p	rocont?			Yes	•	No		na 🗆	
3.	Coolers are p	nesent!			165	•	NO		INA L	
4.	Shipping con	tainer/cooler	in good condition?		Yes	✓	No			
5.			shipping container/cooler? ustody Seals not intact)		Yes		No	✓	Not Required	
6.	Was an atten	npt made to	cool the samples?		Yes	✓	No		NA 🗌	
7.	Were all item	s received a	t a temperature of >0°C to 10.0°C	C*	Yes	✓	No		NA \square	
8.	Sample(s) in	proper conta	ainer(s)?		Yes	✓	No			
9.	Sufficient sar	nple volume	for indicated test(s)?		Yes	✓	No			
10.	Are samples	properly pre	served?		Yes	✓	No			
11.	Was preserva	ative added	to bottles?		Yes	✓	No		NA \square	
									a, 003A, 005A, 006A	
12.	Is there head	space in the	VOA vials?		Yes		No		NA 🗸	
13.	Did all sample	es container	s arrive in good condition(unbroke	en)?	Yes	✓	No			
14.	Does paperw	ork match b	ottle labels?		Yes	✓	No			
15.	Are matrices	correctly ide	ntified on Chain of Custody?		Yes	✓	No			
16.	Is it clear wha	at analyses v	vere requested?		Yes	✓	No			
17.	Were all hold	ling times ab	le to be met?		Yes	✓	No			
Spe	cial Handlı	ing (if apı	olicable)							
-		•	liscrepancies with this order?		Yes		No		NA 🗸	
	Person	Notified:		Date						
	By Who	m:		Via:	eMa	il 🗆 F	Phone	Fax	In Person	
	Regardi			[<u> </u>				
	_	structions:								
19.	Additional rer	marks:								
ltem !	nformation									
		Item #	Temp °C							

5.4

1.1

Original

Cooler

Sample

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

NA NA		Chain of C	Custody Record and Lal	ecord and Laboratory Services Agreement
	Analytical		Date: 3/31/2017	Laboratory Project No (internal): 1704001
3600 Fremont Ave N.	N. Tel: 206-352-3790		gode for the participation (3.6) gode to what the published as	Page: of:
Client:	Fulcrum Environmental Consulting	Project No:	CR LIPED	Collected by: Amanda Enbysk
Address:	406 North Second Street	Location:	4 Hills 105. Ker	knownick, water
City, State, Zip:	Yakima, WA, 98901	Report To (PM):	Ryan Mathews	
Telephone:	509.574.0839 Fax: 509.575.8453	575.8453 PM Email:	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	efulcrum.net
*Matrix Codes: A = Air,	AQ = Aqueous, $B = Bulk$, $O = Other$, $P = Product$,	Product, S = Soil, SD = Sediment, SL = Solid, W = Water, D	ng Water,	GW = Ground Water, SW = Storm Water, WW = Waste Water
	Sample	Type (S. C. C. A. C. C. C. A. C. C. C. C. A. C.		
1 HHH23117-P- 000-06	3/31/17 0600		8	this presund; Phanly
2 HHH33/17-8-CF 06	CF 06 1			How Dimpr.
20-20-1-4/1284HHE	-CF-O6			<u></u>
4 HAH33117-8-COF-26	-CDF-36		8	HNO3 preserved; Cuarty
5444433117-S-COF-26	-cost-alo			460; mp.
JE-307-1-4118844449	r-cpf-ale			
7-411884444 7	-CF-33		⊗	thos permed; Pb+Cm
8 HHH33117-P-CF-34	0-CF-34 N N		(S)	+
10	A SECTION OF THE SECTION OF A SECTION OF THE SECTIO			
***Metals Analysis (Circle):	cle): MTCA-5 RCRA-8 Priority Pollutants Nitrate Nitrite Chloride Sulfate	TAL <i>Individual:</i> Ag Al As B Ba Be Ca Bromide O-Phosphate Fluoride	Nitrate+Nitrite Turn-around times for samples	Special Remarks:
- 8	Return to Client	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)	on the following business day.	Please perent allimps. Samples
I represent that I am agreement to each of	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 agreement to each of the terms on the front and backside of this Agreement.	Fremont Analytical on behalf of the Client na	med above, that I have verified Client's	
Reinquished M	Date/Trime 3/31/10/7; 1600	Received X	Hatefline OGR	
Relinquished ×	Date/Time	Received x	Date/Time	TAT → SameDay [^] NextDay [^] 2 Day 3 Day STD ^Please coordinate with the lab in advance