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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

Date: *04/07/2017*

CLIENT: Fulcrum Environmental
Project: Kennewick SD Drinking Water-Highlands M
Work Order: 1704069

Work Order Sample Summary

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:

* - 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

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
Drinking Water Metals by EPA Method 200.8				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
Drinking Water Metals by EPA Method 200.8				Batch ID: 16722		Analyst: TN
Copper	1,030	0.500		µg/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
Drinking Water Metals by EPA Method 200.8				Batch ID: 16722		Analyst: TN
Copper	1,090	0.500		µg/L	1	4/7/2017 2:49:28 PM

CLIENT: Fulcrum Environmental
Project: Kennewick SD Drinking Water-Highlands MS

Lab ID: 1704069-008 **Collection Date:** 4/5/2017 10:00:00 AM
Client Sample ID: **HMS4517-P-CDF-35** **Matrix:** Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8				Batch ID: 16722		Analyst: TN
Copper	1,300	0.500		µg/L	1	4/7/2017 2:53:30 PM

Lab ID: 1704069-009 **Collection Date:** 4/5/2017 10:00:00 AM
Client Sample ID: **HMS4517-P-OF-36** **Matrix:** Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8				Batch ID: 16723		Analyst: TN
Copper	ND	0.500		µg/L	1	4/7/2017 3:17:41 PM

Work Order: 1704069
CLIENT: Fulcrum Environmental
Project: Kennewick SD Drinking Water-Highlands M

QC SUMMARY REPORT

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			

Work Order: 1704069
CLIENT: Fulcrum Environmental
Project: Kennewick SD Drinking Water-Highlands M

QC SUMMARY REPORT

Drinking Water Metals by EPA Method 200.8

Sample ID	**MB-16722**	SampType:	**MBLK**			Units:	**µg/L**	Prep Date:	**4/7/2017**	RunNo:	**35427**	
Client ID:	**MBLKW**	Batch ID:	**16722**					Analysis Date:	**4/7/2017**	SeqNo:	**678405**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Copper	ND	0.500										

Sample ID	**LCS-16722**	SampType:	**LCS**			Units:	**µg/L**	Prep Date:	**4/7/2017**	RunNo:	**35427**	
Client ID:	**LCSW**	Batch ID:	**16722**					Analysis Date:	**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 Date:	**4/7/2017**	RunNo:	**35427**	
Client ID:	**BATCH**	Batch ID:	**16722**					Analysis Date:	**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 Date:	**4/7/2017**	RunNo:	**35427**	
Client ID:	**BATCH**	Batch ID:	**16722**					Analysis Date:	**4/7/2017**	SeqNo:	**678409**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Copper	1,190	0.500	200.0	932.8	131	70	130				S	

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID	**1704067-001AMSD**	SampType:	**MSD**			Units:	**µg/L**	Prep Date:	**4/7/2017**	RunNo:	**35427**	
Client ID:	**BATCH**	Batch ID:	**16722**					Analysis Date:	**4/7/2017**	SeqNo:	**678410**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Copper	1,140	0.500	200.0	932.8	103	70	130	1,195	4.82	30		

Sample Log-In Check List

Client Name:	**FE**	Work Order Number:	**1704069**
Logged by:	**Erica Silva**	Date Received:	**4/6/2017 10:31:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items 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 sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐ HNO3 to 003A, 004A, 006A, 007A	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

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

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. Seattle, WA 98103
Tel: 206-352-3790 Fax: 206-352-7178

Date: 4/5/17 Laboratory Project No (internal): 17040469

Page: 1 of: 1

Client: Fulcrum Environmental Consulting
Address: 406 North Second Street
City, State, Zip: Yakima, WA, 98901
Telephone: 509.574.0839 Fax: 509.575.8453

Project Name: Kennewick SO Drinking Water - Highlands MS
Project No: 162017.06 Collected by: Amanda Enbysk
Location: Highlands Middle School, Kennewick, WA
Report To (PM): Ryan Mathews
PM Email: rmathews@efulcrum.net; cc: aenbysk@efulcrum.net

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	HMS4517-P-DF-04	4/5/17	1000	DW									⊗					HNO_3 preserved
2	HMS4517-P-COF-08												⊗					↓
3	HMS4517-S-COF-08																	HOLD; unpr.
4	HMS4517-T-COF-08																	↓
5	HMS4517-P-COF-27												⊗					HNO_3 preserved
6	HMS4517-S-COF-27																	HOLD; unpr
7	HMS4517-T-COF-27																	↓
8	HMS4517-P-COF-35												⊗					HNO_3 preserved
9	HMS4517-P-DF-36	↓	↓	↓									⊗					↓
10																		

**Metals Analysis (Circle): 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 Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ 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.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: Please preserve all unpreserved

TAT: ASAP

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.

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/5/2017; 1500	x [signature]	4/6/2017 1031
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance