

3600 Fremont Ave. N. Seattle, WA 98103 T: (206) 352-3790 F: (206) 352-7178 info@fremontanalytical.com

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

RE: Kennewick SD Drinking Water - Sage Crest Elementary Work Order Number: 1703025

March 10, 2017

Attention Ryan Mathews:

Fremont Analytical, Inc. received 5 sample(s) on 3/3/2017 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

CC: Amanda Enbysk

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



CLIENT: Project: Work Order:	Fulcrum Environmental Kennewick SD Drinking Water - Sage Crest 1703025		Sample Summary				
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received				
1703025-001	SCE3217-P-CDF-08	03/02/2017 6:30 AM	03/03/2017 9:30 AM				

1703025-001	SCE3217-P-CDF-08
1703025-002	SCE3217-S-CDF-08
1703025-003	SCE3217-T-CDF-08
1703025-004	SCE3217-P-CF-31
1703025-005	SCE3217-P-CDF-32

Date/Time Collected	Date/Time Received
03/02/2017 6:30 AM	03/03/2017 9:30 AM
03/02/2017 6:30 AM	03/03/2017 9:30 AM
03/02/2017 6:30 AM	03/03/2017 9:30 AM
03/02/2017 6:30 AM	03/03/2017 9:30 AM
03/02/2017 6:30 AM	03/03/2017 9:30 AM



Case Narrative

WO#: **1703025** Date: **3/10/2017**

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking Water - Sage Crest Elementary

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:

1703025-001A 209605: Prep Comments for EPA200.8, Sample 1703025-001A: Turbidity: 0.01 NTU 1703025-004A 209606: Prep Comments for EPA200.8, Sample 1703025-004A: Turbidity: 0.00 NTU 1703025-005A 209607: Prep Comments for EPA200.8, Sample 1703025-005A: Turbidity: 0.00 NTU

Qualifiers & Acronyms



WO#: **1703025** Date Reported: **3/10/2017**

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:
 1703025

 Date Reported:
 3/10/2017

CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Sage Crest Elementary

Lab ID: 1703025-001 Client Sample ID: SCE3217-P-CD	F-08		Collection Date: 3/2/2017 6:30:00 A Matrix: Drinking Water							
Analyses	Result	RL Qual	Units	DF	Date Analyzed					
Drinking Water Metals by EPA Meth	<u>10d 200.8</u>		Batch	n ID: 16	420 Analyst: TN					
Copper	1,390	0.500	µg/L	1	3/10/2017 1:18:51 PM					

Lab ID: 1703025-004 Client Sample ID: SCE3217-P-CF-3	31		Collectior Matrix: D		3/2/2017 6:30:00 AM Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed			
Drinking Water Metals by EPA Meth	<u>od 200.8</u>		Batch	n ID: 164	20 Analyst: TN			
Copper	ND	0.500	µg/L	1	3/10/2017 1:22:53 PM			
Lab ID: 1703025-005			Collectior	Date:	3/2/2017 6:30:00 AM			
Client Sample ID: SCE3217-P-CDF	-32		Matrix: Drinking Water					
Analyses	Result	RL Qual	Units	DF	Date Analyzed			
Drinking Water Metals by EPA Meth	<u>od 200.8</u>		Batch	n ID: 164	20 Analyst: TN			

0.500

µg/L

1

1,240

Copper

3/10/2017 1:26:54 PM



Work Order:	1703025							2.00	SUMMARY I	REPORT
CLIENT:	Fulcrum En	vironmental					_			
Project:	Kennewick	tals by EPA M	ethod 200.8							
Sample ID MB-16	420	SampType: MBLK			Units: µg/L		Prep Date:	3/6/2017	RunNo: 34873	
Client ID: MBLK	w	Batch ID: 16420					Analysis Date:	3/10/2017	SeqNo: 665786	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit Hig	hLimit RPD Ref Val	%RPD RPD	Limit Qual
Copper		ND	0.500							
Sample ID LCS-10	6420	SampType: LCS			Units: µg/L		Prep Date:	3/6/2017	RunNo: 34873	
Client ID: LCSW		Batch ID: 16420					Analysis Date:	3/10/2017	SeqNo: 665787	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit Hig	hLimit RPD Ref Val	%RPD RPD	Limit Qual
Copper		89.3	0.500	100.0	0	89.3	85	115		
Sample ID 170302	21-001ADUP	SampType: DUP			Units: µg/L		Prep Date:	3/6/2017	RunNo: 34873	
Client ID: BATCH	4	Batch ID: 16420					Analysis Date:	3/10/2017	SeqNo: 665789	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit Hig	hLimit RPD Ref Val	%RPD RPD	Limit Qual
Copper		16.6	0.500					18.64	11.8	30
Sample ID 170302	21-001AMS	SampType: MS			Units: µg/L		Prep Date:	3/6/2017	RunNo: 34873	
Client ID: BATCH	4	Batch ID: 16420					Analysis Date:	3/10/2017	SeqNo: 665790	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit Hig	hLimit RPD Ref Val	%RPD RPD	Limit Qual
Copper		200	0.500	200.0	18.64	90.5	70	130		
Sample ID 170302	21-001AMSD	SampType: MSD			Units: µg/L		Prep Date:	3/6/2017	RunNo: 34873	
Client ID: BATCH	4	Batch ID: 16420					Analysis Date:	3/10/2017	SeqNo: 665791	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit Hig	hLimit RPD Ref Val	%RPD RPD	Limit Qual
Copper		202	0.500	200.0	18.64	91.8	70	130 199.6	1.32	30



Sample Log-In Check List

0	lient Name: FE	Work Order Numb	per: 1703025	
Lo	ogged by: Erica Silva	Date Received:	3/3/2017	9:30:00 AM
<u>Cha</u>	nin of Custody			
1.	Is Chain of Custody complete?	Yes 🖌	No 🗌	Not Present
2.	How was the sample delivered?	<u>UPS</u>		
<u>Log</u>	l In			
-	Coolers are present?	Yes 🗹	No 🗌	
-				
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 $>0^{\circ}C$ to $10.0^{\circ}C^{*}$	Yes 🖌	No 🗌	
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 🗌	NA 🗌
				HNO3
	Is there headspace in the VOA vials?	Yes	No 🗌	NA 🖌
-	Did all samples containers arrive in good condition(unbroken)?	Yes 🖌		
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 🗌	
<u>Spe</u>	ecial Handling (if applicable)			
18.	Was client notified of all discrepancies with this order?	Yes	No 🗌	NA 🖌
	Person Notified: Dat	e		
	By Whom: Via	P	one 🗌 Fax	In Person
	Regarding:			

Item Information

Item #	Temp ⁰C
Cooler	2.7
Sample	1.3

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

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of
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	x Date/Time	K	agreement to each of the terms on the front and backside of this Agreement.	Sample Disposal: Return to Client	***Anions (Circle): Nitrate Nitrite	(Circle): MTCA-5	10	9	00	,SCE3217 - P-COF - 32	563217-P-CR-31	5 SCE 3217 - T-CDP -08	-2- COF	3×E3217-P-COP-08	2 Saland An Andrew	1 Society of the state	Sample Name	*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk,	Telephone: 509.574.0839	City, State, Zip: Yakima, WA, 98901	Address: 406 North S	Client: Fulcrum Env		3600 Fremont Ave N. Tel: 2 Seattle. WA 98103 Fax: 3	Ana Ana	Fremo
>		Time 72/7 4:00 Received	 nto this Agreement with Fremont Analytical on nt and backside of this Agreement. 	nt 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.)	Chloride Sulfate Bromide O-Phosphate	RCRA-8 Priority Pollutants TAL Individual: J				< F E				Cull 0540 14-5			Sample Sample Sample Cover Date Time (Matrix)*	Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water,	39 Fax: 509.575.8453	A, 98901	406 North Second Street	Fulcrum Environmental Consulting		Tel: 206-352-3790	Amalytical h	ont
	Date/Time	Date/Time 3/3/17 0930	agreement to each of the terms on the front and backside of this Agreement.	days unless otherwise noted. A fee may be neceived arter 4:00pm will begin on the following business day.		Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb					*			x			5 5 5 5 5 5 5 5 5 5 5 5 5 5	DW = Drinking Water, GW = Ground Water,	PM Email: rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	Report To (PM): Ryan Mathews	Sage		Project Name: Kennewick SD Drinking Water - Sage Crest Elementary		Date: 3/2/2017	Chain of Custody Record and
^Please coordinate with the lab in advance	TAT → SameDay^ NextDay^ 2 Day 3 Day STD	TAT: ASAP	Color Static - in the state	5	les Special Remarks:	Ni Pb Sb Se Sr Sn Ti TI U V Zn				for	X Analyze for Gover	Ance on Hold	on H	B Analyze for Copper			Comments	SW = Storm Water, WW = Waste Water	rsk@efulcrum.net		WA	Amanda Enbvsk		Page: of:	Laboratory Project No (Internal): 1703025	Chain of Custody Record and Laboratory Services Agreement