

November 2, 2017

Kennewick School District No. 17 Attn: Keith Colee, Maintenance and Operations Manager 1000 West Fourth Avenue Kennewick, Washington, 99336

### RE: Winter 2016 Drinking Water Sampling Results Kamiakin High School, 600 North Arthur Street, Kennewick, Washington

Dear Keith:

On Wednesday, December 21, 2016, Fulcrum Environmental Consulting, Inc. (Fulcrum) collected 37 drinking water samples for lead and copper analysis from Kamiakin High School (School) located at 600 North Arthur Street in Kennewick, Washington. Initial sampling identified ten fixture locations with copper concentrations above guidance levels. Fulcrum returned to the School on January 21, and March 4, 2017 to collect samples after remediation of the fixtures and laboratory results found concentrations to be below guidance levels. Sampling was completed as part of a District-wide project and all analysis was completed by Washington State Department of Ecology (Ecology) accredited laboratories.

### Summary

The purpose of initial sampling was to evaluate current drinking water quality conditions with respect to lead and copper as a result of the increased national and local interest related to lead in drinking water. The intent of sampling was to meet the requirements of the pending regulations set forth in Washington Administrative Code (WAC) 246-366A-130 and 246-366A-135<sup>1</sup>. Consistent with the regulations, Fulcrum completed sampling at the rates of at least 50% of plumbing fixtures used regularly for drinking or cooking in elementary and preschools and at least 25% of drinking or cooking fixtures in middle schools, junior high schools, and high schools. In addition, Fulcrum sampled administrative facilities in the District at the same rate as elementary schools, of at least 50% of drinking and cooking fixtures.

Fulcrum completed initial sampling on December 21, 2016. Initial results identified ten samples with copper concentrations above the Environmental Protection Agency (EPA) action level of 1,300 micrograms per liter ( $\mu$ g/L). Upon receipt of results, the District removed the identified fixtures from service pending remediation and further testing.

Copper is not a significant component in fixtures, but is the primary material in the plumbing system. To remediate elevated copper, the District aggressively flushed the fixtures with cold water to clear the plumbing of copper construction debris and installed a filtered bottle filler fountain to replace two fixtures that did not respond to aggressive flushing. Fulcrum returned on January 21, and March 4, 2017 and

<sup>&</sup>lt;sup>1</sup> Washington State Department of Health, WAC 246-366A, *The Environmental Health and Safety Standards of Primary and Secondary Schools*, <u>http://apps.leg.wa.gov/WAC/default.aspx?cite=246-366A</u>, July 26, 2016



collected samples to evaluate the success of the remediation. Follow-up samples yielded results confirming the remediation was successful at reducing copper below the EPA action level. Following sampling and review of laboratory results, Fulcrum recommended, and the District elected, to return the fixtures to service.

As all samples now report concentrations below lead and copper action levels, at this time Fulcrum does not recommend any additional sampling. However, consistent with industry practice and the intent of WAC 246-366A, Fulcrum recommends that the District complete re-sampling of the building within the next five years (before December 2021). See Figure 1 in Attachment A for fixture locations and laboratory results.

### **Sampling Methodology**

As a portion of this project, Fulcrum prepared a Sampling and Analysis Plan (SAP) intended to satisfy future initial sampling requirements under pending regulations.

For initial evaluation purposes, Fulcrum collected "first draw" samples. This "first draw" water volume consists of 250 milliliters (mL) and is intended to represent the water quality in the fixture, tubing connecting the fixture to the building piping, and potentially a portion of the building piping. If lead and copper are present, this first-draw sample typically contains the highest lead levels and indicates high copper from the associated building piping.

For most post-remediation evaluation sampling, Fulcrum collected three-part samples consisting of the first draw, "second draw", and "third draw" water volumes. Second and third draw samples are intended to represent the water quality of building piping and plumbing components behind the fixture and the water entering the building from the water main.

As a quality control measure, Fulcrum also included a laboratory blank of distilled water and a laboratory "spike" sample with known concentrations of lead and copper at the selected action levels for the project during all sampling events. Blank and spike sample results are included in the results tables for reference.

Blank and spike samples were used to evaluate laboratory performance. The reported lead and copper concentrations of quality assurance samples provided a metric to determine accuracy of the analyses. If the reported concentration of the spike sample differed from the action level, then the spike sample concentration was used as the action level.

Field evaluation of pH and temperature of drinking water was completed during the cold water flush and immediately following sample collection on select fixtures during the initial sampling event as a general evaluation of water quality.

### **Sampling Activities**

Fulcrum's two-part sampling process consisted of an initial site visit the prior afternoon/evening to locate and flush each water sampling location (fixture). Sample collection occurred the following morning, after the fixture sat motionless for more than eight but no less than 18 hours, typically approximately 14 hours.



### Initial Sampling

On the initial visit, Fulcrum flushed cold water through each fixture selected for sampling for approximately one minute. Following the flush, each fixture was covered and secured within a plastic bag. The plastic bags were marked with signage indicating testing was in progress and the fixture should not be used. Fulcrum returned to the school eight to 18 hours later to collect the samples. Each sample consisted of the first draw collected into 250-mL unpreserved polyethylene bottles and was immediately placed on ice in a chilled cooler.

Samples collected from the initial sampling event were delivered under chain-of-custody to RJ Lee Group's Columbia Basin Analytical Laboratory (Ecology Lab ID: C859-16) in Pasco, Washington for analysis.

### Fixture Replacement and Flushing

Fixtures identified with elevated lead concentrations were replaced and preconditioned by running cold water continuously through the fixture for 24 hours, as outlined in WAC 246-366A-130. Following replacement and preconditioning, Fulcrum collected follow-up samples to confirm the success of fixture replacement.

Fixtures producing elevated copper concentrations were generally identified in newer District buildings and were not associated with specific fixture styles. The relationship between building construction age and fixture styles indicates elevated copper concentrations are principally associated with construction debris in the plumbing system.

All fixtures with elevated copper were flushed aggressively by running water through the fixture at high flow with the aerator removed for approximately 30 minutes to clear the plumbing of any debris potentially causing elevated copper concentrations. Following an aggressive flush, fixtures were resampled to evaluate the effectiveness at reducing copper concentrations. The District elected to install filters, install signage indicating the fixtures should be used only for handwashing, or permanently removed from service fixtures that did not respond to an aggressive flush. Filtered fixtures were resampled following filter installation to verify effectiveness of the filter.

### Remedial Sampling

Remedial sampling typically consisted of first, second, and third draw samples from the fixture location and plumbing system in question. First draw samples were collected into 250 mL polyethylene bottles preserved with nitric acid. The second draw water volume consists of water collected into a 250 mL unpreserved polyethylene container immediately following the first draw. No water was lost between collection of the first and second draw samples. The third draw water volume is a 1,000 mL sample collected into a one liter unpreserved polyethylene container after the fixture has been flushed for about three to five minutes.



Samples collected following remedial activities were shipped by common carrier under chain of custody to Fremont Analytical Laboratory (Ecology Lab ID: C910-16) in Seattle, Washington for analysis. Fremont was selected based on their availability to complete analysis on an expedited schedule.

### **Analytical Results**

Samples from both initial and remedial sampling events were analyzed for lead and copper in drinking water by EPA Method 200.8.

### Initial Sampling

Sample locations from the initial sampling event are presented in Figure 1-A and 1-B in Attachment A of this letter. A site-specific sampling and analysis plan (SSSAP) that provides a building specific summary of the location, number, and sampling frequency of water fixture locations is located in Attachment B. Initial analytical results are summarized in Table 1 located in Attachment C of this letter. Laboratory analytical results from the initial sampling event are located in Attachment D of this letter.

In addition, pH and temperature data from the initial sampling event is presented in Table 2 in Attachment C of this letter.

### Remedial Sampling

Sample locations from the remedial sampling event are presented in Figure 1 in Attachment A of this letter. The remedial analytical results from this project are summarized in Table 3 located in Attachment C of this letter. Laboratory analytical results from the remedial sampling event are located in Attachment E of this letter.

### Discussion

### Initial Sampling

Analytical results identified ten samples with a copper concentration above the EPA action level of 1,300 micrograms per liter ( $\mu$ g/L). No samples were identified with lead concentrations above the EPA action level of 15  $\mu$ g/L.

### <u>Remedial Sampling</u>

Immediately following receipt of initial sampling results, the District removed the identified fixtures from service pending remediation and further testing. To remediate elevated copper concentrations, the District completed aggressive flushes of the fixtures and installed a filtered bottle filler fountain to replace two fixtures that did not respond to aggressive flushing. Fulcrum returned on the morning following the aggressive flush, January 21, and March 4, 2017, to collect follow-up samples.



Analytical results from remedial sampling indicated the remediation was successful at reducing copper concentrations below the action level for the fixtures in question.

### Recommendations

No samples were found to contain lead concentrations above method reporting limits. A total of ten initial samples contained copper above the EPA action level of 1,300 µg/L. The District completed aggressive flushes and replaced two remaining drinking fountains with a filtered bottle filler to reduce the copper concentration of the fixtures. Follow-up sampling yielded results below the EPA action level confirming the replacement and remediation were successful. Following sampling and review of laboratory results, Fulcrum recommended, and the District elected, to return the fixtures to service.

As all samples now report concentrations below lead and copper action levels, Fulcrum does not recommend any additional sampling at this time. However, consistent with industry practice and the intent of WAC 246-366A, Fulcrum recommends that the District complete re-sampling of the building within the next five years (before December 2021).

If you have any questions, please feel free to contact me at (509) 574-0839.

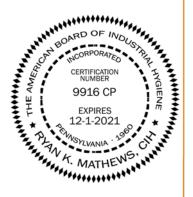
Sincerely,

manda Carbyth

Amanda Enbysk, GIT **Environmental Geologist** 

kyan KMathen

Ryan K. Mathews, CIH, CHMM Principal



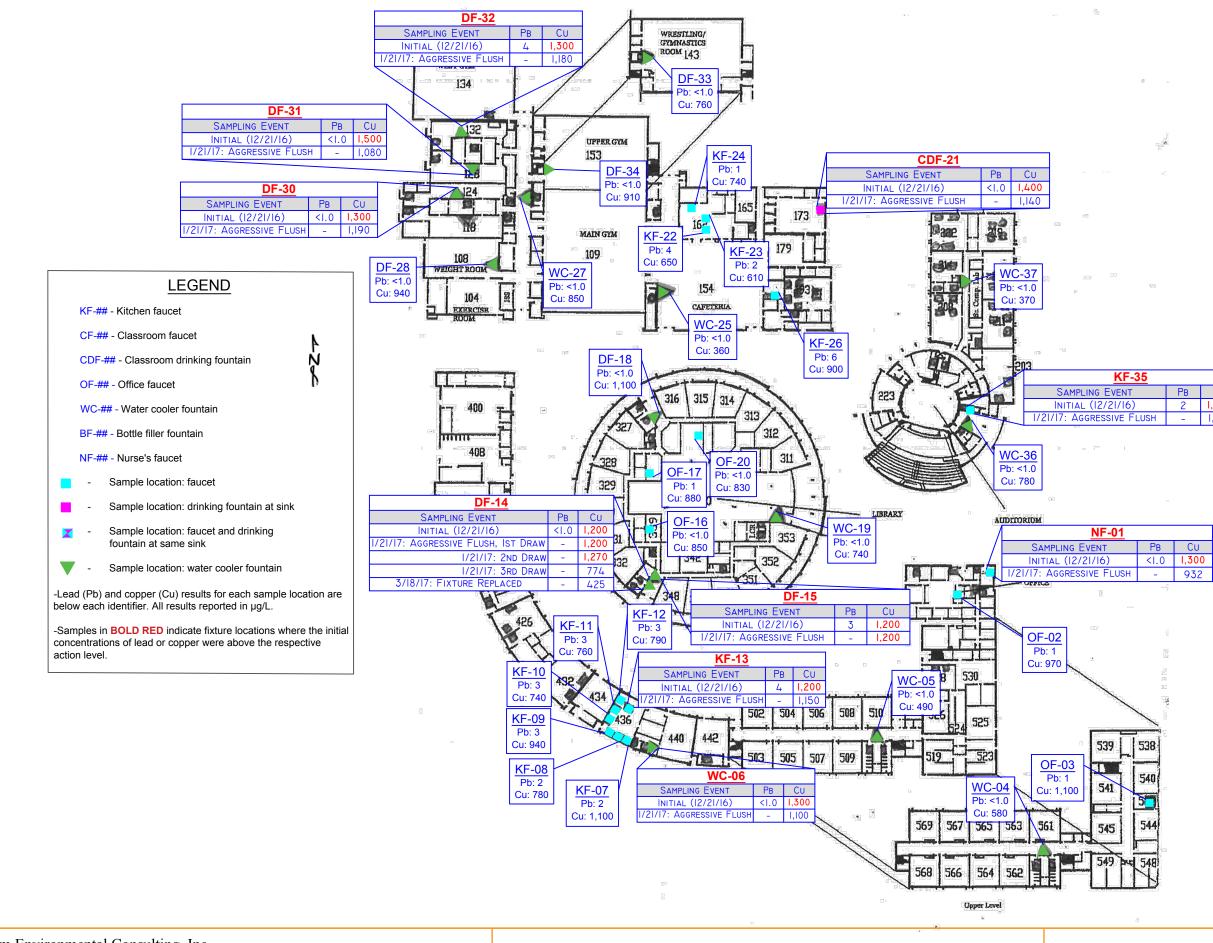




# **ATTACHMENT A**

Figure 1: Sample Location Map





Fulcrum Environmental Consulting, Inc. 406 North Second Street, Yakima, Washington 98901 p: 509.574.0839 f: 509.575.8453 efulcrum.net Kennewick SD Drinking Water Sampling. 162017.00. AME. 10242017 Kamiakin High School 600 North Arthur Street Kennewick, Washington

Sample Location Map



<u>5</u>							
	Рв	CU					
	2	1,300					
USH	-	1,130					





## **ATTACHMENT B**

Site-Specific Sampling and Analysis Plan



Winter 2016 – Drinking Water Sampling Results Kamiakin High School, Kennewick, Washington



# **Site-Specific Sampling and Analysis Plan**

Kennewick School District – Winter 2016 Drinking Water Sampling

Note: This SSSAP has been prepared as a supplement to the project SAP/QAPP and provide a building specific summary of the location, number, and sampling frequency of water fixture locations.

Campus/Building: <u>Kamiakin High Scho</u>	ol Address: <u>600 North Arthur Street, Kennewick, WA</u>					
Elementary Middle School	☑ High	School [	☐ Administratio	on		
Date of Construction: 1970	M	odernizations:	198	1, 2004		
Fixture Type	Locations	Fixture Styles <sup>1</sup>	Samples	Ratio		
Drinking fountain/water cooler (DF/WC)	22	7	17	77%		
Kitchen Fixture (KF)	5	3	5	100%		
Classroom faucet, including faucets in Food Labs and Life Sciences Classrooms (CF)	21	1	6	29%		
Classroom drinking fountain at sink (CDF)	1	1	1	100%		
Nurse's Office/Health Room (NF)	1	1	1	100%		
Teacher's Lounges/Work Rooms (OF)	6	3	5	83%		
TOTALS	56		37	66%		
1 Fixture styles are approximate based or	n sampler's obser	vations				
Lead Sampler: <u>Amanda Enbysk</u>		Ι	Date: <u>12/21/2</u>	.016		
Sample Prefix: <u>KMH</u> – <u>122116</u> – <i>School Code Date</i>	· · · · · · · · · · · · · · · · · · ·			er		
Laboratory: <u>R. J. Lee Group, Columbia</u>	Basin Analytic	al Delivery	Date: Decem	ber 21, 2016		
Comments:				A		



# **ATTACHMENT C**

Table 1: Initial Sampling Analytical Results Summary TableTable 2: pH and Temperature Data Summary TableTable 3: Remedial Sampling Analytical Results Summary Table





### Table 1: Initial Sampling Analytical Results

Table 1: Initial Sampling Analytical Results		Lead	Copper
Sample Identification and Location	Fixture Type	Results	Results
		(µg/L)	$(\mu g/L)$
KMH122116-P-NF-01: Nurse's Office	Nurse's Faucet	<1.0	1,300
KMH122116-P-OF-02: Main Office	Office Faucet	1	970
KMH122116-P-OF-03: Second floor, room 542	Office Faucet	1	1,100
KMH122116-P-WC-04: Second floor, outside room 561	Water Cooler Fountain	<1.0	580
KMH122116-P-WC-05: First floor, outside room 510	Water Cooler Fountain	<1.0	490
KMH122116-P-WC-06: First floor, outside room 436	Water Cooler Fountain	<1.0	1,300
KMH122116-P-KF-07: Room 436, S. wall, E. fixture	Kitchen Faucet	2	1,100
KMH122116-P-KF-08: Room 436, S. wall, middle fixture	Kitchen Faucet	2	780
KMH122116-P-KF-09: Room 436, S. wall, W. fixture	Kitchen Faucet	3	940
KMH122116-P-KF-10: Room 436, W. wall, S. fixture	Kitchen Faucet	3	740
KMH122116-P-KF-11: Room 436, W. wall, middle fixture	Kitchen Faucet	3	760
KMH122116-P-KF-12: Room 436, W. wall, N. fixture	Kitchen Faucet	3	790
KMH122116-P-KF-13: Room 436, middle island fixture	Kitchen Faucet	4	1,300
KMH122116-P-DF-14: Library, outside room 348, S. fixture	Drinking Fountain	<1.0	1,200
KMH122116-P-DF-15: Library, outside room 348, N. fixture	Drinking Fountain	3	1,200
KMH122116-P-OF-16: Library room 339	Office Faucet	<1.0	850
KMH122116-P-OF-17: Library, W. office	Office Faucet	1	880
KMH122116-P-DF-18: Library, outside room 316	Drinking Fountain	<1.0	1,100
KMH122116-P-WC-19: Library, near entrance	Drinking Fountain	<1.0	740
KMH122116-P-OF-20: Library, N. office	Office Faucet	<1.0	830
KMH122116-P-CDF-21: Room 173	Classroom Drinking Fountain	<1.0	1,400
KMH122116-P-KF-22: Room 163, S. fixture	Kitchen Faucet	4	650
KMH122116-P-KF-23: Room 163, middle fixture	Kitchen Faucet	2	610
KMH122116-P-KF-24: Room 163, N. fixture	Kitchen Faucet	1	740
KMH122116-P-WC-25: Cafeteria, W. wall	Water Cooler Fountain	<1.0	360
KMH122116-P-KF-26: West of cafeteria	Kitchen Faucet	6	900
KMH122116-P-WC-27: Corridor near main gym	Water Cooler Fountain	<1.0	850
KMH122116-P-DF-28: Room 108	Drinking Fountain	<1.0	940
KMH122116-P-DF-30: Room 124	Drinking Fountain	<1.0	1,300
KMH122116-P-DF-31: Room 128	Drinking Fountain	<1.0	1,500
KMH122116-P-DF-32: Room 132	Drinking Fountain	4	1,300
KMH122116-P-DF-33: Downstairs room 143	Drinking Fountain	<1.0	760
KMH122116-P-DF-34: Upper gym, room 153	Drinking Fountain	<1.0	910
KMH122116-P-KF-35: Concessions in auditorium	Kitchen Faucet	2	1,300
KMH122116-P-WC-36: Auditorium	Water Cooler Fountain	<1.0	780
KMH122116-P-WC-37: Outside computer lab	Water Cooler Fountain	<1.0	270
KMH122116-P-DF-38: Laboratory Spike	Lead and Copper Spike	13	1,200



		Lead Results (μg/L) <1.0	Copper
Sample Identification and Location	Fixture Type	Results	Results
		$(\mu g/L)$	(µg/L)
KMH122116-P-CF-39: Laboratory Blank	Distilled Water Blank	<1.0	<1.0
EPA Action Level		15	1,300

1  $\mu$ g/L means microgram per liter or parts per billion (ppb).

2 Action levels based on the U.S. EPA's Lead and Copper Rule.

Results indicated in **bold** indicate concentrations above the action levels of 15  $\mu$ g/L for lead and 1,300  $\mu$ g/L for copper Results indicated in *italics* are quality assurance spike and blank samples

### Table 2: pH and Temperature Data Summary

Sample Number	Fixture Type	pH Flush	pH Sample	Temp(°C) flush	Temp(°C) sample
KMH122116-P-WC-04: Second floor, outside room 561	Water Cooler Fountain	7.72	7.91	14.6	14.2
KMH122116-P-KF-08: Room 436, S. wall, middle fixture	Kitchen Faucet	7.71	8.02	17.0	15.1
KMH122116-P-KF-12: Room 436, W. wall, N. fixture	Kitchen Faucet	7.74	7.83	17.2	18.8
KMH122116-P-OF-16: Library room 339	Office Faucet	7.62	7.78	17.2	20.5
KMH122116-P-OF-20: Library, N. office	Office Faucet	7.70	7.71	19.9	20.8
KMH122116-P-KF-24: Room 163, N. fixture	Kitchen Faucet	7.77	7.81	14.7	18.6
KMH122116-P-DF-28: Room 108	Drinking Fountain	7.62	7.80	17.2	19.8
KMH122116-P-DF-32: Room 132	Drinking Fountain	7.72	7.80	17.6	19.0
KMH122116-P-WC-36: Auditorium	Water Cooler Fountain	7.74	8.09	16.1	11.5



### **Table 3: Remedial Sampling Analytical Results**

					<b>S</b> -	manla Id	ant:fiaat	<b>1</b>				
	Sample Identification											
Sampling Event	NF-01	WC-06	KF-13	DF-14	DF-15	CDF-21	DF-30	DF-31	DF-32	KF-35	Laboratory Spike (-38)	Laboratory Blank (-39)
Initial 12/21/16	1,300	1,300	1,300	1,200	1,200	1,400	1,300	1,500	1,300	1,300	1,200	<10
Aggressive Flush; First Draw (1/21/17)	932	1,100	1,150	1,200	1,200	1,140	1,190	1,080	1,180	1,130	-	<0.5
Second Draw (1/21/17)	-	-	-	1,270	-	-	-	-	-	-	-	-
Third Draw (1/21/17)	-	-	-	774	-	-	-	-	-	-	-	-
Fixture Replaced (3/18/17)	-	-	-	425	-	-	-	-	-	-	-	-
EPA Action Level	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300

1  $\mu$ g/L means microgram per liter or parts per billion (ppb).

2 Action levels based on the U.S. EPA's Lead and Copper Rule. Results indicated in **bold** indicate concentrations above the action levels of 15 μg/L for lead and 1,300 μg/L for copper Results indicated in *italics* are quality assurance spike and blank samples



# **ATTACHMENT D**

Initial Analytical Results



Winter 2016 – Drinking Water Sampling Results Kamiakin High School, Kennewick, Washington



RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratories 2710 North 20th Avenue, Pasco WA 99301 Tel: (509) 545-4989 | Fax: (509) 544-6010

Fulcrum Environmental 406 N. 2nd St. Yakima, WA 98901

#### Subject: Chemical Analysis Report

Columbia Basin Analytical Laboratories received 38 sample(s) on 12/21/16 for analysis. These sample(s) have been assigned a login order number of W612103. Enclosed is the final report that consists of a summary report of the sample(s), and a copy of the chain of custody.

#### **General Lab Comments**

The results provided in this report relate only to the items tested. Sample(s) were received in acceptable conditions unless otherwise noted in the comments above. Sample(s) have not been field blank corrected unless otherwise noted in the general set comments above. The sample(s) were prepared in accordance with EPA 200.8 and analyzed in compliance with EPA 200.8. This test report shall not be reproduced, except in full, without written approval of Columbia Basin Analytical Laboratories. Any questions, please contact our office.

#### All samples were diluted 1:10.

X - Samples that exceeded the instrument calibration range were rerun at a 1:100 dilution, necessitating a 10-fold increase in the PQL.

Release of the data contained in the hard copy report has been authorized by the Laboratory Director or a designee as verified by the following signature. This report has been administratively reviewed by the following individual:



01/12/17

Date

Project Coordinator II, M. Fernanda Pincheira

If you have any questions please feel free to contact Fernanda Pincheira at MPincheira@rjleegroup.com.

RJ Lee Group No.:W612103

Samples Received: 12/21/16

Analysis/Prep Date: 01/11/17

Report Date: 01/12/17

COC No.: Kennewick



# **Laboratory Report**

Amanda Enbysk

Fulcrum Environmental 406 N. 2nd St. Yakima, WA 98901

Client Project:

Fulcrum Kennewick

Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-NF-01 <b>Matrix:</b> Potable	Water	Date Receive Date Analyze	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.3	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-OF-02 Matrix: Potable	Water	Date Receive Date Analyze	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.97	0.01	-
Lead		EPA 200.8	0.001	0.001	
ample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-OF-03 Matrix: Potable	Water	Date Receive Date Analyze	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.1	0.1	Х
Lead		EPA 200.8	0.001	0.001	
ample Name: 8J Lee Grp. ID:	KMH1221 W612103-	16-P-WC-04 <b>Matrix:</b> Potable	Water	Date Receive Date Analyze	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.58	0.01	
Lead		EPA 200.8	< 0.001	0.001	
ample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-WC-05 Matrix: Potable	Water	Date Receive Date Analyze	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.49	0.01	
**					

Sample Name:	KMH1221	16-P-WC-06 Matrix: Potable Wat	ter	Date Received	
RJ Lee Grp. ID:	W612103-	06		Date Analyzed	<b>:</b> 01/11/17
Analyt	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	1.3	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name:	KMH1221	16-P-KF-07 Matrix: Potable Wat	tor	Date Received	<b>:</b> 12/21/16
RJ Lee Grp. ID:	W612103-	07		Date Analyzed	l: 01/11/17
Analyt	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	1.1	0.1	Х
Lead		EPA 200.8	0.002	0.001	
Sample Name:	кмн1221	16-P-KF-08 Matrix, Potable Wat		Date Received	: 12/21/16
RJ Lee Grp. ID:	W612103-		ter	Date Analyzed	-
Analyt	te	Method	Result	PQL	Qualifiers
, interior de la construction de la constru		, include	(mg/L)	(mg/L)	Quanners
Copper		EPA 200.8	0.78	0.01	
Lead		EPA 200.8	0.002	0.001	
Samula Nama	VMI11221			Date Received	<b>:</b> 12/21/16
Sample Name: RJ Lee Grp. ID:	W612103-	16-P-KF-09 <b>Matrix:</b> Potable Wat	ter	Date Analyzed	-
Analyt		Method	Result	PQL	Qualifiers
Anary		Wiethou	(mg/L)	(mg/L)	Quanners
<u></u>		EDA 200.0			_
Copper Lead		EPA 200.8 EPA 200.8	0.94 0.003	0.01	
			0.003		
Sample Name:		16-P-KF-10 Matrix: Potable Wat	ter	Date Received	
RJ Lee Grp. ID:	W612103-			Date Analyzed	
Analyt	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.74	0.01	
Lead		EPA 200.8	0.003	0.001	
	KMH1221	EPA 200.8	0.003	0.001 Date Received	: 12/21/16
Lead Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	EPA 200.8 16-P-KF-11 Matrix: Potable Wat	0.003		
Sample Name:	W612103-	EPA 200.8 16-P-KF-11 Matrix: Potable Wat	0.003	Date Received	
Sample Name: RJ Lee Grp. ID:	W612103-	EPA 200.8 16-P-KF-11 Matrix: Potable Wat 11	0.003 ter	Date Received Date Analyzed	: 01/10/17
Sample Name: RJ Lee Grp. ID:	W612103-	EPA 200.8 16-P-KF-11 Matrix: Potable Wat 11	0.003 ter Result	Date Received Date Analyzed PQL	: 01/10/17

Columbia Basin Analytical Laboratories | 2710 North 20th Avenue, Pasco WA 93301 | 509.545.4989

Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-KF-12 <b>Matrix:</b> Potable W	ater	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.79 0.003	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-KF-13 <b>Matrix:</b> Potable W		Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.3 0.004	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-DF-14 <b>Matrix:</b> Potable W	ater	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.2 < 0.001	0.1	Х
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-1	16-P-DF-15 <b>Matrix:</b> Potable W	ater	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.2 0.003	0.1	Х
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-2	16-P-OF-16 <b>Matrix:</b> Potable W	ater	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.85 < 0.001	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-OF-17 <b>Matrix:</b> Potable W	ater	Date Received Date Analyzed	
			Result	PQL	Qualifiers
Analyt	te	Method	(mg/L)	(mg/L)	Quanners

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Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-DF-18 <b>Matrix:</b> Potable Wa	ater	Date Received Date Analyzed	
Analyt		Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.1	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-WC-19 <b>Matrix:</b> Potable Wa	ater	Date Received Date Analyzed	
Analyt	æ	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.74 < 0.001	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-2	16-P-OF-20 <b>Matrix:</b> Potable Wa	ater	Date Received Date Analyzed	
Analyt	æ	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.83 < 0.001	0.01	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-2	16-P-CDF-21 <b>Matrix:</b> Potable Wa	nter	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.4	0.1	Х
Lead Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-2	EPA 200.8 16-P-KF-22 <b>Matrix:</b> Potable Wa 22	< 0.001	0.001 Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.65	0.01	
Lead		EPA 200.8	0.004	0.001	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-2	16-P-KF-23 <b>Matrix:</b> Potable Wa	ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.61	0.01	

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Sample Name: RJ Lee Grp. ID:	KMH12211 W612103-2		Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.74	0.01	
Lead		EPA 200.8	0.001	0.001	
ample Name: IJ Lee Grp. ID:	KMH12211 W612103-2	6-P-WC-25 Matrix: Potable	Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.36	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	KMH12211 W612103-2		Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.90	0.01	
Lead		EPA 200.8	0.006	0.001	
ample Name: IJ Lee Grp. ID:	KMH12211 W612103-2	6-P-WC-27 Matrix: Potable	Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.85	0.01	
Lead		EPA 200.8	< 0.001	0.001	
ample Name: RJ Lee Grp. ID:	KMH12211 W612103-2		Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.94	0.01	
Lead		EPA 200.8	< 0.001	0.001	
ample Name: RJ Lee Grp. ID:	KMH12211 W612103-2		Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
	and the second		and the second		
Copper		EPA 200.8	1.3	0.1	Х

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Sample Name: RJ Lee Grp. ID:	KMH12211 W612103-3		Vater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.5 < 0.001	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	KMH12211 W612103-3		Vater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.3 0.004	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	KMH12211 W612103-3		Vater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.76 < 0.001	0.01	
Sample Name: RJ Lee Grp. ID:	KMH12211 W612103-3	16-P-DF-34 Matrix: Potable W	Vater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.91 < 0.001	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	KHM12211 W612103-3		Vater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.3 0.002	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	KHM12211 W612103-3	16-P-WC-36 <b>Matrix:</b> Potable W 35	Vater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.78	0.01	

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Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-WC-37 <b>Matrix:</b> Potable Water 36		Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.27	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	KMH1221 W612103-	16-P-DF-38 <b>Matrix:</b> Potable Water 37		Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.2	0.1	Х
Lead		EPA 200.8	0.013	0.001	
ample Name: 8J Lee Grp. ID:	KMH1221 W612103-	16-P-CF-39 Matrix: Potable Water 38		Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
		EPA 200.8	< 0.010	0.01	
Copper					

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

P = Library spectrum match, rsd >90% w RT match

 $Q = Result \ out \ of \ method \ specific \ acceptance \ QC \ criteria$ 

*S* = *Spike Recovery outside accepted recovery limits* 

Z = Not ELAP accredited analyte

ND = Not Detected



d = Data that exceeds the RSD criteria set by the SOP

H = Holding times for preparation or analysis exceeded

L = Sample condition at receipt out of compliance with method defined conditions

R = RPD (relative percent difference) outside accepted recovery limits

U = Analyte analyzed for but not detected

*N/A* = *Not Applicable* 

#### QA Officer/Organic Analytical SME John Coddington

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under ORELAP Lab Code 4061 AIHA-LAP, LLC Lab ID 178656 EPA ID WA01195 and WA DOE Lab ID C859. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or to the sample(s) as received by the laboratory. Any reproduction of this document must be in full for the report to be valid. Quality control data is available upon request.

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724.325.1776 Phone 724.733.1799 Fax Columbia Basin Analytical Laboratories 2710 North 20th Avenue

Pennsylvania - HQ 350 Hochberg Road Monroeville, PA 15146

Washington

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Request for Environmental and IH Laboratory Analytical Services いしんにという

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**Request for Environmental and IH Laboratory Analytical Services** W612403

W612103, Page 10 of 12

ATTENTION TO:

**RYAN MATHEWS** 

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Washington

Pennsylvania - HQ 350 Hochberg Road Monroeville, PA 15146

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То	09) 574	4-0839 Fax:	(509) 575-8453	8453				Sample Purpose: A	B					
i	Call with Verbal Results:							Preservation:	M			Container:		
	Email Results To:	aenbysk@efulcrum.net, CC: rmathews@efulcrum.net	s@efulcrum	ı.net			Chomictay	res	WW=Wastewater	SW=Surface Water	ater	P=Plastic		
	Fax Results To:						Applying Kow	4 C	GW=Groudwater	DW=Drinking Water	/ater	W=Wine		_
2	Name: Lorrie Boutillier						Analysis Key	HNO <sub>3</sub>	5–3011/3100ge E=Extract	X=Other		A=Air (filter or tube)	r or tube	
Cond Invite	Company:	Fulcrum Environmental Email: Iboutillier@efulcrum.net	illier@efulcı	rum.net										
Jend Invoice	Address:							Analysis Requested	equested	'N)	_			
ō	City, State, Zip:	Yakima, WA, 98901								(Y/		e		s
	09) 574	4-0839 Fax:	(509) 575-8453	8453						eipt	_			ner
Special							EPA			Reco	rvat atrix	ner	н	ntai
Instructions							200.8:			on	-		F	Co
Cli	Client Sample ID	Sample Description	Sample Date	Start	t Stop	Wipe Area / Air Volume				Pres. U	Р	Co		No
KM HOS	KM H02116-07-34	hopen gum	71/10/1C				4				UNPR.	DW P		11
1-945clas	SP 205 11 - 11 - 2110-14	First of an one stores	SHARE S								~			15
KINALS	310	200 hldg, anoth 210												14
KM412	7	4	9								-			3
KANHIDO		Auditarium anassens	NEPEI											
PLIAWY.	KMAIDAINE-P-W2-36	andternmentioner												
Kmtia	KmH122116-P-WL-37	Computer lablall, 990. 213												
KWHIJJI	8810 - 2-911CCIHWA	Roam 400					-							iz
Knahaan	Km2+122116-5-CF-29	Room 525	4				R				R 4	R		2
		)	1					5	0	2	2	<b>i</b>		
Chain of	Relinquished By (Signature)	Indury	Date: )2/	2/1/16/21	Time: 14	027	Chain of	Received By (Signature)	tage of	Date:	0107 1 7	Time:	142	30
Custody	Relinquished By (Print Name):	0 .	Relinquished To:	ed To:			Custody	Received By (Print Name)	1 m a V ) (a wear	Relinqu	Relinquished To:			
	Company Name:		Method of Shipment:	Shipment:				Company Name:	la ui	Metho	Method of Shipment:	nent:		
Chain of	Relinquished By (Signature):	ature):	Date:		Time:		Chain of	Received By (Signature):	ture):	Date:		Time:		
Custody	Relinquished By (Print Name):	Name):	Relinquished To:	ed To:			Custody	Received By (Print Name):	Name):	Relinqu	Relinquished To:			
	Company Name:		Method of Shipment:	Shipment:				Company Name:		Metho	Method of Shipment:	nent:		

6 F

Request for Environmental and IH Laboratory Analytical Services

Page 4 of 4



# **ATTACHMENT E**

Remedial Analytical Results



Winter 2016 – Drinking Water Sampling Results Kamiakin High School, Kennewick, Washington



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 - Kamiakin Elementary Work Order Number: 1701237

February 03, 2017

#### **Attention Ryan Mathews:**

Fremont Analytical, Inc. received 17 sample(s) on 1/23/2017 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: Project: Work Order:	Fulcrum Environmental Kennewick SD Drinking Water - Kamiakin El 1701237		Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701237-001	KMH12117-P-NF-01	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-002	KMH12117-S-NF-01	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-003	KMH12117-T-NF-01	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-004	KMH12117-P-WC-06	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-005	KMH12117-P-KF-13	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-006	KMH12117-P-DF-14	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-007	KMH12117-S-DF-14	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-008	KMH12117-T-DF-14	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-009	KMH12117-P-DF-15	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-010	KMH12117-P-CDF-21	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-011	KMH12117-P-DF-30	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-012	KMH12117-P-DF-31	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-013	KMH12117-P-DF-32	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-014	KMH12117-P-KF-35	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-015	KMH12117-S-KF-35	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-016	KMH12117-T-KF-35	01/21/2017 10:00 AM	01/23/2017 12:25 PM
1701237-017	KMH12117-P-CF-39	01/21/2017 10:00 AM	01/23/2017 12:25 PM



**Case Narrative** 

WO#: **1701237** Date: **2/3/2017** 

CLIENT: Fulcrum Environmental Project: Kennewick SD Drinking Water - Kamiakin 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:

1701237-001A 202837: Prep Comments for EPA200.8, Sample 1701237-001A: Turbidity: 0.01 NTU 1701237-004A 202838: Prep Comments for EPA200.8, Sample 1701237-004A: Turbidity: 0.01 NTU 1701237-005A 202839: Prep Comments for EPA200.8, Sample 1701237-005A: Turbidity: 0.08 NTU 1701237-006A 202840: Prep Comments for EPA200.8, Sample 1701237-006A: Turbidity: 0.03 NTU 1701237-009A 202841: Prep Comments for EPA200.8, Sample 1701237-009A: Turbidity: 0.01 NTU 1701237-010A 202842: Prep Comments for EPA200.8, Sample 1701237-010A: Turbidity: 0.01 NTU 1701237-011A 202843: Prep Comments for EPA200.8, Sample 1701237-010A: Turbidity: 0.01 NTU 1701237-012A 202844: Prep Comments for EPA200.8, Sample 1701237-011A: Turbidity: 0.08 NTU 1701237-012A 202844: Prep Comments for EPA200.8, Sample 1701237-012A: Turbidity: 0.19 NTU 1701237-013A 202845: Prep Comments for EPA200.8, Sample 1701237-013A: Turbidity: 0.05 NTU 1701237-014A 202846: Prep Comments for EPA200.8, Sample 1701237-014A: Turbidity: 0.05 NTU 1701237-014A 202846: Prep Comments for EPA200.8, Sample 1701237-014A: Turbidity: 0.05 NTU 1701237-014A 202846: Prep Comments for EPA200.8, Sample 1701237-014A: Turbidity: 0.00 NTU

# **Qualifiers & Acronyms**



 WO#:
 1701237

 Date Reported:
 2/3/2017

### 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



 Work Order:
 1701237

 Date Reported:
 2/3/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kamiakin Elementary

Lab ID: 1701237-001 Client Sample ID: KMH12117	-P-NF-01		Collection Matrix: D		1/21/2017 10:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA	<u>Method 200.8</u>		Batc	h ID: 15	999 Analyst: TN
Copper	932	0.500	µg/L	1	1/23/2017 10:40:48 PM

Lab ID: 1701237-004			Collectio	n Date:	1/21/2017 10:00:00 AM
Client Sample ID: KMH121	17-P-WC-06		Matrix:	Drinking	Water
Analyses	Result	RL Qua	Units	DF	Date Analyzed
Drinking Water Metals by EF	A Method 200.8		Bato	ch ID: 15	999 Analyst: TN
Copper	1,100	0.500	µg/L	1	1/23/2017 10:44:24 PM
Lab ID: 1701237-005			Collectio	n Data:	1/21/2017 10:00:00 AM
Client Sample ID: KMH121	17 <b>-P-KF-</b> 13		Matrix: [	Jrinking	vvater
Analyses	Result	RL Qua	Units	DF	Date Analyzed
Drinking Water Metals by EF	A Method 200.8		Bato	ch ID: 15	999 Analyst: TN

0.500

µg/L

1

1,150

Copper

1/23/2017 10:48:00 PM



 Work Order:
 1701237

 Date Reported:
 2/3/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kamiakin Elementary

Lab ID: 1701237-006 Client Sample ID: KMH12117-P-	Collection Date: 1/21/2017 10:00:00 AM Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me		Batcl	n ID: 15	999 Analyst: TN	
Copper	1,200	0.500	µg/L	1	1/23/2017 10:51:37 PM

Lab ID: 1701237-007				Collection Date: 1/21/2017 10:00:00 AM			
Client Sample ID: KMH12117	S-DF-14		Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Drinking Water Metals by EPA	<u>Method 200.8</u>		Batc	h ID: 16′	116 Analyst: TN		
Copper	1,270	0.500	µg/L	1	2/2/2017 8:58:50 PM		
Lab ID: 1701237-008 Client Sample ID: KMH12117			Collection Matrix: D		1/21/2017 10:00:00 AM		

			Wallix. Diliking waler					
Analyses	Result	RL Qual	Units	DF	Date Analyzed			
Drinking Water Metals by EPA Method 200.8			Batcl	n ID: 16	116 Analyst: TN			
Copper	774	0.500	µg/L	1	2/2/2017 9:09:41 PM			



 Work Order:
 1701237

 Date Reported:
 2/3/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kamiakin Elementary

Lab ID: 1701237-009 Client Sample ID: KMH12117-P-DF-15				Collection Date: 1/21/2017 10:00:00 AM Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Drinking Water Metals by EPA Method 200.8			Batcl	n ID: 15	999 Analyst: TN		
Copper	1,200	0.500	µg/L	1	1/23/2017 10:55:13 PM		

Lab ID: 1701237-010 Client Sample ID: KMH12117	Collection Date: 1/21/2017 10:00:00 AM Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA	Method 200.8		Batc	h ID: 159	999 Analyst: TN
Copper	1,140	0.500	µg/L	1	1/23/2017 10:58:50 PM
Lab ID: 1701237-011 Client Sample ID: KMH12117			Collection Matrix: D		1/21/2017 10:00:00 AM

Client Sample ID:		<b>Watrix:</b> Drinking water					
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Drinking Water Metals by EPA Method 200.8			Batc	h ID: 15	5999 Analyst: TN		
Copper	1,190	0.500	µg/L	1	1/23/2017 11:02:26 PM		



 Work Order:
 1701237

 Date Reported:
 2/3/2017

## CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kamiakin Elementary

Lab ID: 1701237-012 Client Sample ID: KMH12117-P-D	Collection Date: 1/21/2017 10:00:00 AM Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8			Batch	n ID: 15	999 Analyst: TN
Copper	1,080	0.500	µg/L	1	1/23/2017 11:06:03 PM

Lab ID: 1701237-013 Client Sample ID: KMH1217	17-P-DF-32	Collection Date: 1/21/2017 10:00:00 AM Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EP	A Method 200.8		Batcl	h ID: 159	999 Analyst: TN
Copper	1,180	0.500	μg/L	1	1/23/2017 11:09:39 PM
Lab ID: 1701237-014 Client Sample ID: KMH121	17-P-KF-35		Collection Matrix: D		1/21/2017 10:00:00 AM Water
A	Desult		L lucitor	<b>DC</b>	Data Analyzad

Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8			Batcl	n ID: 159	999 Analyst: TN
Copper	1,130	0.500	µg/L	1	1/23/2017 11:13:15 PM



 Work Order:
 1701237

 Date Reported:
 2/3/2017

CLIENT:	Fulcrum Environmental							
Project:	Kennewick	SD Drinking Water	- Kamiaki	n Eleme	entary			
	1701237-017 <b>nple ID: KN</b>	//H12117-P-CF-39				Collection Matrix: D		1/21/2017 10:00:00 AM Water
Analyses		Re	sult	RL	Qual	Units	DF	Date Analyzed
Drinking \	Water Metals	by EPA Method 20	00.8			Batch	n ID: 159	999 Analyst: TN
Copper			ND	0.500		µg/L	1	1/23/2017 11:24:05 PM



Work Order: CLIENT:	1701237 Fulcrum Env	vironmental								QC S	SUMMAR	RY REF	PORT
Project:	Kennewick S		Water - ł	Kamiakin	EI				Drinkin	g Water Me	tals by EP	PA Metho	d 200.
Sample ID: MB-161	116	SampType:	MBLK			Units: µg/L		Prep Da	te: 2/2/201	17	RunNo: 342	242	
Client ID: MBLKV	v	Batch ID:	16116					Analysis Da	te: 2/2/201	17	SeqNo: 652	2929	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID: LCS-16	5116	SampType:	LCS			Units: µg/L		Prep Da	te: 2/2/201	7	RunNo: 342	242	
Client ID: LCSW		Batch ID:	16116					Analysis Da	te: 2/2/201	17	SeqNo: 652	2930	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			95.1	0.500	100.0	0	95.1	85	115				
Sample ID: 170123	3-016ADUP	SampType:	DUP			Units: µg/L		Prep Da	te: 2/2/201	7	RunNo: 342	242	
Client ID: BATCH	l	Batch ID:	16116					Analysis Da	te: 2/2/201	17	SeqNo: 652	2932	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		1	,040	0.500						1,087	4.72	30	
Sample ID: 170123	3-016AMS	SampType:	MS			Units: µg/L		Prep Da	te: 2/2/201	7	RunNo: 342	242	
Client ID: BATCH	l	Batch ID:	16116					Analysis Da	te: 2/2/201	17	SeqNo: 652	2933	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		1	,250	0.500	200.0	1,087	83.8	70	130				
Sample ID: 170123	3-016AMSD	SampType:	MSD			Units: µg/L		Prep Da	te: 2/2/201	7	RunNo: 342	242	
Client ID: BATCH	l	Batch ID:	16116					Analysis Da	te: 2/2/201	17	SeqNo: 652	2934	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		1	,300	0.500	200.0	1,087	108	70	130	1,255	3.76	30	



Work Order: CLIENT:	1701237 Fulcrum Envi	ronmental								QC S	SUMMAR	RY REF	PORT
Project:	Kennewick S	D Drinking	Water - I	Kamiakin	EI				Drinkin	g Water Me	tals by EP	PA Metho	d 200.
Sample ID: MB-159	999	SampType	BLK			Units: µg/L		Prep Date	e: <b>1/23/20</b>	)17	RunNo: 340	)26	
Client ID: MBLK	N	Batch ID:	15999					Analysis Date	e: <b>1/23/20</b>	)17	SeqNo: 647	576	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID: LCS-15	5999	SampType	: LCS			Units: µg/L		Prep Date	e: <b>1/23/2</b> (	)17	RunNo: 340	)26	
Client ID: LCSW		Batch ID:	15999					Analysis Date	e: <b>1/23/20</b>	)17	SeqNo: 647	577	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			93.6	0.500	100.0	0	93.6	85	115				
Sample ID: 170123	6-014ADUP	SampType	: DUP			Units: µg/L		Prep Date	e: <b>1/23/2</b> (	)17	RunNo: 340	)26	
Client ID: BATCH	I	Batch ID:	15999					Analysis Date	e: <b>1/23/20</b>	)17	SeqNo: 647	579	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,730	0.500						1,728	0.181	30	
Sample ID: 170123	6-014AMS	SampType	: MS			Units: µg/L		Prep Date	e: 1/23/20	)17	RunNo: 340	)26	
Client ID: BATCH	I	Batch ID:	15999					Analysis Date	e: <b>1/23/20</b>	)17	SeqNo: 647	580	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,910	0.500	200.0	1,728	91.9	70	130				
Sample ID: 170123	6-014AMSD	SampType	MSD			Units: µg/L		Prep Date	e: <b>1/23/2</b> (	)17	RunNo: 340	)26	
Client ID: BATCH	ł	Batch ID:	15999					Analysis Dat	e: 1/23/20	)17	SeqNo: 647	7581	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,960	0.500	200.0	1,728	115	70	130	1,912	2.39	30	



С	ient Name:	FE	Work Order N	lumber: 1701237	
Lo	ogged by:	Clare Griggs	Date Receive	d: <b>1/23/2017</b>	7 12:25:00 PM
<u>Cha</u>	in of Cust	ody			
1.	Is Chain of C	sustody complete?	Yes 🖌	No 🗌	Not Present
2.	How was the	sample delivered?	<u>Client</u>		
<u>Log</u>	<u>In</u>				
-	Coolers are p	present?	Yes 🖌	No 🗌	NA 🗌
4.	Shipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌	
5.		Is present on shipping container/cooler? nments for Custody Seals not intact)	Yes	No 🗌	Not Required 🗹
6.	Was an atter	npt made to cool the samples?	Yes 🖌	No 🗌	NA 🗌
7.	Were all item	ns received at a temperature of >0°C to 10.0°C*	Yes 🗌	No 🔽	NA 🗌
		Samples re		opriate temperatu	ire
8.	Sample(s) in	proper container(s)?	Yes 🖌	No	
9.	Sufficient sar	mple volume for indicated test(s)?	Yes 🖌	No	
10.	Are samples	properly preserved?	Yes 🖌	No 🗌	
11.	Was preserv	ative added to bottles?	Yes 🖌	No 🗌	
12.	Is there head	Ispace in the VOA vials?	Yes	No 🗌	HNO3 NA 🗹
		es containers arrive in good condition(unbroken)?	Yes 🖌	No 🗌	
14.	Does paperw	ork match bottle labels?	Yes 🖌	No 🗌	
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌	
16.	Is it clear what	at analyses were requested?	Yes 🖌	No 🗌	
17.	Were all hold	ling times able to be met?	Yes 🗹	No 🗌	
Spe	cial Handl	ing (if applicable)			
18.	Was client no	otified of all discrepancies with this order?	Yes	No 🗌	NA 🗹
	Person	Notified: Date:			
	By Who	om: Via:	eMail	Phone 🗌 Fax	In Person
	Regardi	ing:			
	Client Ir	nstructions:			
19.	Client Ir Additional rei	r			

### Item Information

Item #	Temp ºC
Cooler	10.3
Sample	1.2

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

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of
N

TAT → SameDay^ NextDay^ 2 Day 3 Day STD	1121	14/14/1	N N N					
		100	5		- 577	NO ALVI-	The North	
	Date/Time	Dat	Redeived			Date/Time	1 Da	Curved o
TAT: ASAP	Date/Time	Dati	x	and the second	Date/Time	Date/Time	1 the	Relinquished
	ove, that 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 agreement to each of the terms on the front and backside of this Agreement.	nt Analytical on beh t.	with Fremon is Agreemen	Agreement ackside of th	ter into this front and b	authorized to en he terms on the	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.
Plass preserve all unpreserved samples	may be on the following business day.	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.)	Disposal by Lab (Samples will be held for 30 days assessed if samples are retained after 30 days.)	Lab (Samples w amples are ret	Disposal by assessed if s	lient	Return to Client	Sample Disposal:
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HNO3 pres.							-WC-06	KWHIZIIZ-P-
HOLD; unpr.							-NF-01	Km+12117-T-NF-01
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efulcrum.net	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	PM Email:	3 A CAVA OF L	509.545.8453	Fax:	9839	509.574.0839	Telephone:
for the second	Ryan Mathews	(PM):	por provincia de la como de la	A U.V. AVIC M	D	VA 98901	Yakima, WA 98901	City, State, Zip:
rewick, WA	Konniaken High School, Kinnewick,		STATES IN THE ST	20 1 H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	reet	406 North Second Street	406 North	Address:
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Page: 1 of:	Kennew ick 50 Dr miking ho	Project Name: Kew			790 178	Tel: 206-352-3790 Fax: 206-352-7178	ž	3600 Fremont Ave N. Seattle, WA 98103
Laboratory Project No (internal): 1701257	Date: 1/21/2017						Amaly	

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Address:     406 North Second Street     Figure North	Client.	Fulcrum Er	wironment	al Consulti	ng		Project Nar	Kenne	KOP PIVIE	in marchine He
Chy, State, Zip:       Yakima, WA 9901       Fac: 503:545.6453       Report To (Pk): Telephone       Report To (Pk): Sumple       Report To (Pk): Telephone       Report Telephone       Report Telephone <threport telephone<="" th="">       Report Telephone</threport>	Address:	406 North	Second Str	eet		SALE IN STREET	Location:	Konnio	Vin High School	1. Comercia of CHINA
Telephone:       500 574.0839       Fax: 500 543.8433       PM Final:       Trainbew@ethclumm.net:cc.ae         Varino Codes:       A = Au, AG = Aqueous, B = Bulk, O = Other, P = Product, S = Soll, S0 = Sollment, S = Soll, W = Water, DW = Driving Water, RW = Ground RW	City, State, Zip:	Yakima, W.	A 98901	is to your si	odd hu wear of	100 March 1000	Report To (		athews	
Varier Codes:     A = Mir, A = Aqueous, B = Belk, O = Other, P = Product, S = Soll, SD = Sediment, S1 = Sold, W = Water, DW = Dinking Water, CW = Ground Water,       Sample Name     Sample     Sample<	Telephone:	509.574.08	39	Fax:	509.545.845	ü	PM Email:	1	ws@efulcrum.net; cc: ae	nbvsk@efulcrum.net
Sample Name     Sample     Samp	A = Air,	8		P = Proc	fuct, S = Soil,	SD = Sediment,	= Solid, W = Water,	DW = Drinking Wa	GW = Ground Water,	SW = Storm Water, WW = Waste Water
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MH13 17-P-(F-3q)       V	Knitialia-I-K	F-35				ALL PARTS				How, unpreserved
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Distribution: White - Lab, Yellow - File, Pink - Originator

^Please coordinate with the lab in advance	1771 11976-7 AN	chell (Haeller) Anningen
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Pb Sb Se Sr Sn	ants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni	*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants
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e		Km+12117-19-19-14
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HND3 pres.	⊗	KMH12117-P-NF-01 /21/12 1000
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rm Water, W	P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water	*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Proc
fulcrum.net	Fax: 509.545.8453 PM Email: rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	509.574.0839
	Report To (PM): Ryan Mathews	City, State, Zip: Yakima, WA 98901
ewick, WA	Location: Knyniaken High School, Kynnewick,	Address: 406 North Second Street
collected by: Curenda Energisk . Nathin Bectron	Project No:	Client: Fulcrum Environmental Consulting
hater - Kamiakin	project Name: KNNNINWICK SO Dr wikin	3600 Fremont Ave N. Tel: 206-352-3790 Seattle, WA 98103 Fax: 206-352-7178
Laboratory Project No (internal):	Date: 1/21/2017	Analytical
porat	Chain of Custody Record and Laboratory Services Agreement	Fremont

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$\mathcal{C}$	Amod M CA		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.	Sample Disposal:	***Anions (Circle): Nitrate	**Metals Analysis (Circle):		KMH12117-P-	KNHIZIF-T-KF	KMH1217-ES-KF.35	KM+12117-P-KF-35	Kn+12117-P-DF-32	KMH12117-P-0F-31	KMHIZIIZ-P-OF-	Sample Name	*Matrix Codes: A = Air, AQ :	Telephone:	City, State, Zip:	Address:	Client:	3600 Fremont Ave N. Seattle, WA 98103		
	123/2017 1	Date/Time	orized to enter into the rms on the front and	Return to Client C	Nitrite	MTCA-5 RCRA-8		(F-39 K	F-35	KF-35	F-35	F-32	15-21	-30 Yal/12	Sample Date	AQ = Aqueous, B = Bulk, O	509.574.0839	Yakima, WA 98901	406 North Second Street	Fulcrum Environmental Consulting	Tel: 206-352-3790 Fax: 206-352-7178	Analyti	Fremont
	ofel	t; lloo	his Agreement with F backside of this Agree	Disposal by Lab (Sar assessed if samples	Chloride Sulfate	Priority Pollutants		2						m0 0001 ti	e Time (Matrix)*	O = Other, P = Product, S	Fax: 509.545.8453	P	i Street	nental Consulting	2-7178	Cal	7
(	x	Received	remont Analytical on b eement.	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.)	Bromide O-Phosphate	TAL Individual: Ag									ASS CONTRACTOR	P = Product, S = Soil, SD = Sediment, SL = Solid,	45.8453						
V	N V-		ehalf of the Client nan	ys unless otherwise noted	te Fluoride Nit	Al As B Ba Be Ca										W = Water,	PM Email:	Report To (PM):	Location:	Project Name: Project No:			Chain of C
1	Date/Time	Date/Time	ned above, that I have	I. A fee may be on the		Cd Co Cr Cu Fe Hg I	5	 $\otimes$			8	8	8	$\otimes$		ing Water,	rmathews@efu		Kenninkun			Date: 1,	ustody Re
	1225		verified Client's	on the following business day.	Turn-around times for samples	Hg K Mg Mn Mo Na Ni Pb										= Ground Water, SW =	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net		Conniation High School, Kennewick, 144	C C C C C C C C C C C C C C C C C C C	SD Drocking In	1/21/2017	cord and L
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Page 16 of 16



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 - Kamiakin High School Work Order Number: 1703210

March 21, 2017

# **Attention Ryan Mathews:**

Fremont Analytical, Inc. received 2 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: Work Order:	Kennewick SD Drinking Water - Kamiakin Hi 1703210	

# Lab Sample ID Client Sample ID

1703210-001KMH31817-P-DF-141703210-002KMH31817-P-CF-39

Date/Time Collected	I
03/18/2017 9:30 AM	
03/18/2017 9:30 AM	

Date/Time Received 03/20/2017 9:00 AM 03/20/2017 9:00 AM



**Case Narrative** 

WO#: **1703210** Date: **3/21/2017** 

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking Water - Kamiakin High School

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: 1703210-001A 211547: Prep Comments for EPA200.8, Sample 1703210-001A: 0.00 NTU 1703210-002A 211548: Prep Comments for EPA200.8, Sample 1703210-002A: 0.00 NTU

# **Qualifiers & Acronyms**



WO#: **1703210** 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:
 1703210

 Date Reported:
 3/21/2017

# CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kamiakin High School

Lab ID: 1703210-001 Client Sample ID: KMH31817-P-	DF-14		Collection Date: 3/18/2017 9:30:00 AM Matrix: Drinking Water
Analyses	Result	RL Qual	Units DF Date Analyzed
Drinking Water Metals by EPA Me	<u>thod 200.8</u>		Batch ID: 16538 Analyst: MW
Copper	425	0.500	μg/L 1 3/20/2017 4:41:26 PM

Lab ID: 1703210-002 Client Sample ID: KMH31817-P-CF	-39		Collection Matrix: D		3/18/2017 9:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Metho	od 200.8		Batch	ID: 165	38 Analyst: MW
Copper	ND	0.500	µg/L	1	3/20/2017 4:45:27 PM



Work Order:	1703210									2 20	SUMMAR		PORT
CLIENT:	Fulcrum Env	rironmental						-	) win kin				
Project:	Kennewick S	SD Drinking	Water -	Kamiakin	Н			L	Prinking	g Water Me	tais by EP	'A metho	a 200.
Sample ID MB-16	538	SampType	MBLK			Units: µg/L		Prep Date	3/20/20	17	RunNo: 350	047	
Client ID: MBLK	N	Batch ID:	16538					Analysis Date	: 3/20/20	17	SeqNo: 669	9901	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID LCS-16	6538	SampType	LCS			Units: µg/L		Prep Date	3/20/20	17	RunNo: 350	047	
Client ID: LCSW		Batch ID:	16538					Analysis Date	3/20/20	17	SeqNo: 669	9902	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			201	0.500	200.0	0	100	85	115				
Sample ID 170314	7-001ADUP	SampType	DUP			Units: µg/L		Prep Date	3/20/20	17	RunNo: 350	047	
Client ID: BATCH	1	Batch ID:	16538					Analysis Date	3/20/20	17	SeqNo: 669	9904	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			8.90	0.500						9.003	1.17	30	
Sample ID 170314	7-001AMS	SampType	MS			Units: µg/L		Prep Date	3/20/20	17	RunNo: 350	047	
Client ID: BATCH	1	Batch ID:	16538					Analysis Date	3/20/20	17	SeqNo: 669	9905	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			215	0.500	200.0	9.003	103	70	130				
Sample ID 170314	7-001AMSD	SampType	MSD			Units: µg/L		Prep Date	3/20/20	17	RunNo: 350	047	
Client ID: BATCH	1	Batch ID:	16538					Analysis Date	: 3/20/20	17	SeqNo: 669	9906	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			199	0.500	200.0	9.003	95.2	70	130	214.7	7.38	30	



# Sample Log-In Check List

CI	ient Name:	FE	Work Order Num	ber: 1703210	
Lo	ogged by:	Erica Silva	Date Received:	3/20/2017	9:00:00 AM
<u>Cha</u>	in of Cust	ody			
1.	Is Chain of C	ustody complete?	Yes 🖌	No 🗌	Not Present
2.	How was the	sample delivered?	<u>FedEx</u>		
Log	In				
-	Coolers are p	present?	Yes 🖌	No 🗌	
4.	Shipping con	tainer/cooler in good condition?	Yes 🗹	No 🗌	
5.		ls present on shipping container/cooler? ments for Custody Seals not intact)	Yes	No 🗹	Not Required
6.	Was an atten	npt made to cool the samples?	Yes 🖌	No 🗌	NA 🗌
7.	Were all item	is received at a temperature of $>0^{\circ}C$ to $10.0^{\circ}C^{*}$	Yes 🗹	No 🗌	NA 🗌
8.	Sample(s) in	proper container(s)?	Yes 🖌	No 🗌	
9.	Sufficient sar	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 🗌
12.	Is there head	space in the VOA vials?	Yes	No 🗌	NA 🔽
		es containers arrive in good condition(unbroken)?	Yes 🖌	No 🗌	
14.	Does paperw	ork match bottle labels?	Yes 🖌	No 🗌	
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌	
16.	Is it clear what	at analyses were requested?	Yes 🖌	No 🗌	
17.	Were all hold	ling times able to be met?	Yes 🖌	No 🗌	
Spe	cial Handl	ing (if applicable)			
-		bified of all discrepancies with this order?	Yes	No 🗌	NA 🔽
		Notified: Date			
	By Who		p.	none 🗌 Fax 🗌	In Person
	Regardi	,		- <u> </u>	
		nstructions:			
19.	Additional rer	marks:			

### Item Information

Item #	Temp ⁰C
Cooler	2.9
Sample	1.9

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

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Sample Date Time (Matrix)* 35 34 54 54 54 54 55 54 55 55
509.574.0839 Fax: 509.575.8453 PM Email:
Zip: Yakima, WA, 98901 Report To (PM):
406 North Second Street Vakima, WA, 98901 Fax: 509.575.8453 PM Email:
Fulcrum Environmental Consulting Project No: 406 North Second Street Location: Yakima, WA, 98901 Fax: 509.575.8453 PM Email:
remont Ave N.       Tel: 206-352-3790         e, WA 98103       Fax: 206-352-7178       Project Name:       10         Fulcrum Environmental Consulting       Project No:       16         s:       406 North Second Street       Location:       16         ate, Zip:       Yakima, WA, 98901       Fax: 509.575.8453       Report To (PM):       16
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