

November 6, 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 Washington Elementary School, 105 West 21<sup>st</sup> Avenue, Kennewick, Washington

Dear Keith:

On Thursday, December 22, 2016, Fulcrum Environmental Consulting, Inc. (Fulcrum) collected 37 drinking water samples for lead and copper analysis from Washington Elementary (School) located at 105 West 21<sup>st</sup> Avenue in Kennewick, Washington. Initial sampling identified four fixture locations with copper concentrations above guidance levels. Fulcrum returned to the School on February 11, 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 22, 2016. Initial results identified four 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. Fulcrum returned on February 11, 2017 and collected samples to evaluate the success of the remediation. Follow-up samples yielded results confirming the remediation was

<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



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). Additionally, if WAC 246-366A-130 is enacted, the regulations would require testing of all remaining fixtures within two years of the effective date (July 1, 2017). See Figure 1 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 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 four samples with copper concentrations above the EPA action level of 1,300  $\mu$ g/L. No samples were identified with lead concentrations above the EPA action level of 15  $\mu$ g/L.

### Remedial Sampling

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 an aggressive flush of the fixtures. Fulcrum returned on the morning following the aggressive flush, February 11, 2017, to collect follow-up samples.

Analytical results from remedial sampling indicated the aggressive flush 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 the EPA action level of 15  $\mu$ g/L. A total of four initial samples contained copper above the EPA action level of 1,300  $\mu$ g/L. The District completed an aggressive flush to reduce the copper concentration of the fixtures and a follow-up sample yielded results below the action level, confirming the remediation was 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). Additionally, if WAC 246-366A-130 is enacted, the regulations would require testing of all remaining fixtures within two years of the effective date (July 1, 2017).

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

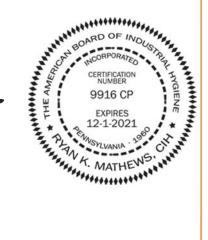
Sincerely,

Cupyth

Amanda Enbysk, GIT Environmental Geologist

fyar KMathers

Ryan K. Mathews, CIH, CHMM Principal

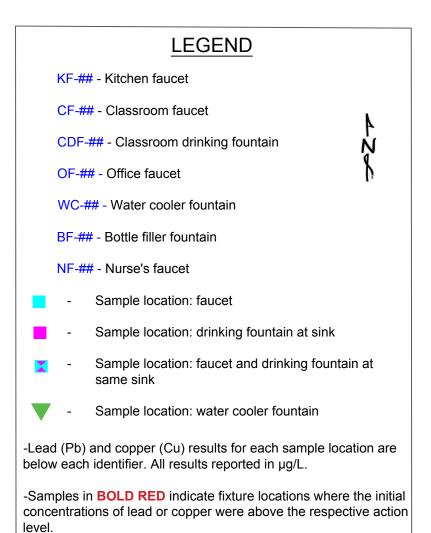


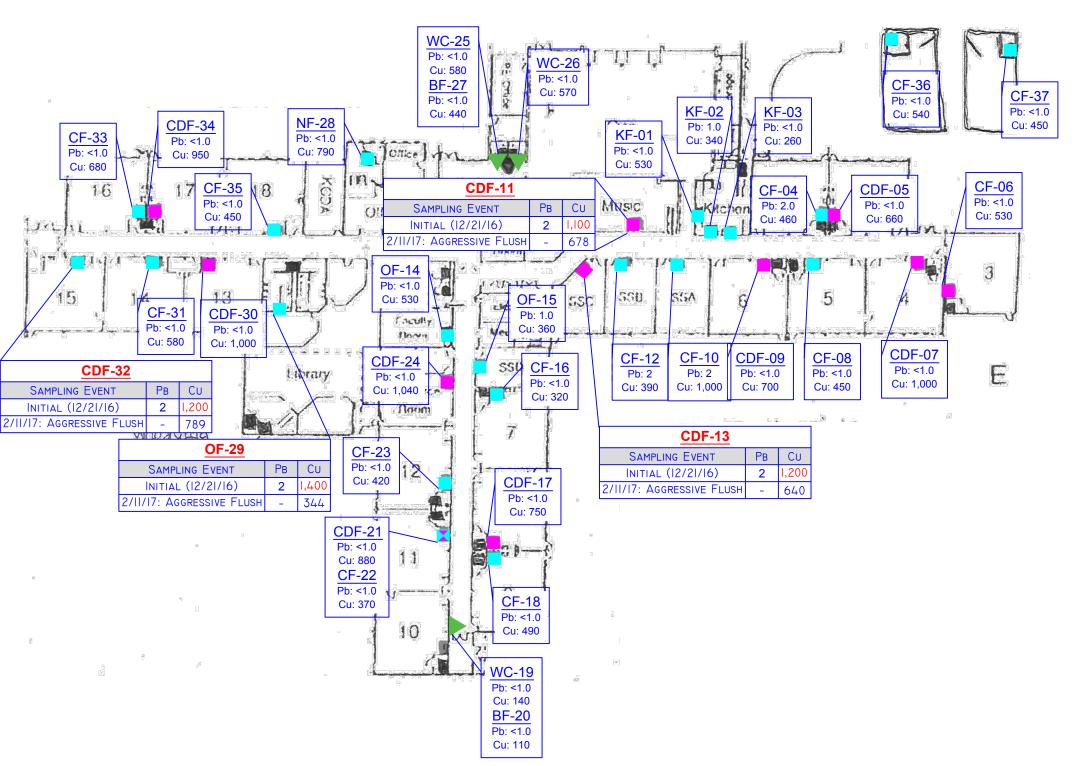


### **ATTACHMENT A**

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. TJF. 10302017 Washington Elementary School 105 West 21st Avenue Kennewick, Washington



DRAWING PROVIDED BY KENNEWICK SCHOOL DISTRICT



Sample Location Map



### **ATTACHMENT B**

Site-Specific Sampling and Analysis Plan





### **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:	Washington Elementary	Address: <u>105 W</u>	Vest 21st Avenue, Kennewick, WA
Elementary	□ Middle School	□ High School	□ Administration
Date of Construction:	1957	Modernizations	

Fixture Type	Locations	Fixture Styles <sup>1</sup>	Samples	Ratio
Drinking fountain/water cooler (DF/WC)	5	3	5	100%
Kitchen Fixture (KF)	3	3	3	100%
Classroom faucet, including faucets in Food Labs and Life Sciences Classrooms (CF)	23	2	13	57%
Classroom drinking fountain at sink (CDF)	24	1	12	50%
Nurse's Office/Health Room (NF)	1	1	1	100%
Teacher's Lounges/Work Rooms (OF)	3	2	3	100%
TOTALS	59		37	63%

1

Fixture styles are approximate based on sampler's observations

Lead Sampler:	]	Levi Wyatt			Date:	12/22/	2016
Sample Prefix:	WE School Code						
Laboratory:	R. J. Lee Group	, Columbia	Basin Analytica	<u>l</u> Delivery	Date:	December	<u>22, 2016</u>
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**

Sample Identification and Location	Fixture Type	Lead Results (µg/L)	Copper Results (µg/L)
WE122216-P-KF-01: Kitchen	Kitchen Faucet	<1.0	530
WE122216-P-KF-02: Kitchen	Kitchen Faucet	1	340
WE122216-P-KF-03: Kitchen	Kitchen Faucet	<1.0	260
WE122216-P-CF-04: Room 1	Classroom Faucet	2	460
WE122216-P-CDF-05: Room 2	Classroom Drinking Fountain	<1.0	660
WE122216-P-CF-06: Room 3	Classroom Drinking Fountain	<1.0	530
WE122216-P-CDF-07: Room 4	Classroom Drinking Fountain	<1.0	1,000
WE122216-P-CF-08: Room 5	Classroom Faucet	<1.0	450
WE122216-P-CDF-09: Room 6	Classroom Drinking Fountain	<1.0	700
WE122216-P-CF-10: Support Services A	Classroom Faucet	2	1,000
WE122216-P-CDF-11: Music Room	Classroom Drinking Fountain	2	1,100
WE122216-P-CF-12: Support Services B	Classroom Faucet	2	390
WE122216-P-CDF-13: Support Services C	Classroom Drinking Fountain	2	1,200
WE122216-P-OF-14: Faculty Lounge	Office Faucet	<1.0	530
WE122216-P-OF-15: Counselors Office	Office Faucet	1	360
WE122216-P-CF-16: Room 7	Classroom Faucet	<1.0	320
WE122216-P-CDF-17: Room 8	Classroom Drinking Fountain	<1.0	750
WE122216-P-CF-18: Room 9	Classroom Faucet	<1.0	490
WE122216-P-WC-19: South Entry Hallway C	Water Cooler Fountain	<1.0	140
WE122216-P-BF-20: South Entry Hallway C	Bottle Filler Fountain	<1.0	110
WE122216-P-CDF-21: Room 11	Classroom Drinking Fountain	<1.0	880
WE122216-P-CF-22: Room 11	Classroom Faucet	<1.0	370
WE122216-P-CF-23: Room 12	Classroom Faucet	<1.0	420
WE122216-P-CDF-24: Resource Room	Classroom Drinking Fountain	<1.0	1,040
WE122216-P-WC-25: Outside Gym	Water Cooler Fountain	<1.0	580
WE122216-P-WC-26: Outside Gym	Water Cooler Fountain	<1.0	570
WE122216-P-BF-27: Outside Gym	Bottle Filler Fountain	<1.0	440
WE122216-P-NF-28: Nurse's Office	Nurse's Faucet	<1.0	790
WE122216-P-OF-29: Library Work Room	Office Faucet	2	1,400
WE122216-P-CDF-30: Room 13	Classroom Drinking Fountain	<1.0	1,000
WE122216-P-CF-31: Room 14	Classroom Faucet	<1.0	580
WE122216-P-CDF-32: Room 15	Classroom Drinking Fountain	<1.0	1,200
WE122216-P-CF-33: Room 16	Classroom Faucet	<1.0	680
WE122216-P-CDF-34: Room 17	Classroom Drinking Fountain	<1.0	950
WE122216-P-CF-35: Room 18	Classroom Faucet	<1.0	450
WE122216-P-CF-36: P2	Classroom Faucet	<1.0	540
WE122216-P-CF-37: P1	Classroom Faucet	<1.0	450



Sample Identification and Location	Fixture Type	Lead Results (µg/L)	Copper Results (µg/L)
WE122216-P-CF-38: Laboratory Spike- Labelled P4	Lead and Copper Spike	13	1,100
WE122216-P-CF-39: Laboratory Blank- Labelled P5	Distilled Water Blank	<1.0	<10
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.

Sample Number	Fixture Type	pH Flush	pH Sample	Temperature (°C) Flush	Temperature (°C) Sample
WE122216-P-KF-01: Kitchen West Wall	Kitchen Faucet	7.69	7.72	20.4	19.4
WE122216-P-CF-04: Room 1	Classroom Faucet	7.66	7.74	20.1	18.6
WE122216-P-CF-08: Room 5	Classroom Faucet	7.71	7.70	18.5	19.3
WE122216-P-CF-12: Support Services B	Classroom Faucet	7.73	7.69	18.8	21.4
WE122216-P-CF-16: Room 7	Classroom Faucet	7.55	7.81	14.8	18.4
WE122216-P-BF-20: South Entry Hallway C	Bottle Filler Fountain	7.72	7.81	21.0	15.1
WE122216-P-CDF-24: Resource Room	Classroom Drinking Fountain	7.61	7.62	22.0	-
WE122216-P-NF-28: Nurse's Office	Nurse's Faucet	7.54	7.72	20.9	19.4
WE122216-P-CDF-32: Room 15	Classroom Drinking Fountain	7.58	7.66	15.8	20.4
WE122216-P-CF-36: P2	Classroom Faucet	7.71	7.65	24.1	12.9

### Table 2: pH and Temperature Data Summary

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

			Sample I	dentification		
Sampling Event	CDF-11	CDF-13	OF-29	CDF-32	Laboratory Spike (-38)	Laboratory Blank (-39)
Initial (12/22/16)	1,100	1,200	1,400	1,200	1,100	<10
Aggressive Flush (2/11/17)	678	640	344	789	1,210	<0.5
EPA Action Level	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





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 39 sample(s) on 12/22/16 for analysis. These sample(s) have been assigned a login order number of W612118. 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:

Project Coordinator II, M. Fernanda Pincheira

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

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

WWW.RJLEEGROUP.COM

02/01/17

Date



### Laboratory Report

tal			Samples Received: Analysis/Prep Date:	Kennewick 12/22/16 01/30/17
	<b>WIALFIX:</b> FOLADLE W	ater		-
e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
	EPA 200.8	0.53	0.01	
	EPA 200.8	< 0.0010	0.001	
	<b>Viatrix:</b> Polable wa	ater		
e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
	EPA 200.8	0.34	0.01	
	EPA 200.8	0.001	0.001	
		ater		
e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
	EPA 200.8	0.26	0.01	
	EPA 200.8	< 0.0010	0.001	
	<b>WIALFIX:</b> FOLADLE W	ater		
e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
	EPA 200.8	0.46	0.01	
	EPA 200.8	0.002	0.001	
		ater		
e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
	EPA 200.8	0.66	0.01	
	L111 200.0	0.00		
	W612118-0 WE122216 W612118-0 WE122216 W612118-0 WE122216 W612118-0 WE122216 W612118-0 WE122216	WE122216-P-KF-01 W612118-01       Matrix:       Potable W         PA 200.8       EPA 200.8         EPA 200.8       EPA 200.8         WE122216-P-KF-02 W612118-02       Matrix:       Potable W         WE122216-P-KF-03 W612118-03       Matrix:       Potable W         WE122216-P-KF-03 W612118-03       Matrix:       Potable W         WE122216-P-KF-03 W612118-04       Matrix:       Potable W         WE122216-P-CF-04 W612118-04       Matrix:       Potable W         WE122216-P-CF-04 W612118-04       Matrix:       Potable W         WE122216-P-CF-04 W612118-04       Matrix:       Potable W         WE122216-P-CF-05 W612118-04       Matrix:       Potable W         WE122216-P-CDF-05 W612118-05       Matrix:       Potable W	WE122216-P-KF-01 W612118-01       Matrix: Potable Water         Method       Result (mg/L)         PEA 200.8       0.53         EPA 200.8       0.030         WE122216-P-KF-02 W612118-02       Matrix: Potable Water         WE122216-P-KF-03 W612118-03       Matrix: Potable Water         PEA 200.8       0.34         EPA 200.8       0.001         WE122216-P-KF-03 W612118-03       Matrix: Potable Water         VE122216-P-KF-03 W612118-03       Matrix: Potable Water         WE122216-P-KF-03 W612118-03       Matrix: Potable Water         WE122216-P-KF-04 W612118-04       Method       Result (mg/L)         Matrix: Potable Water       EPA 200.8       0.26         WE122216-P-CF-04 W612118-04       Matrix: Potable Water       Conool         WE122216-P-CF-04 W612118-04       Matrix: Potable Water       Matrix         WE122216-P-CF-04 W612118-04       Matrix: Potable Water       Matrix         WE122216-P-CDF-05 W612118-05       Matrix: Potable Water       Matrix         WE122216-P-CDF-05       Matrix: Potable Water	tal Samples Received: Analysis/Prep Date: Report Rep

Sample Name: RJ Lee Grp. ID:	WE122216 W612118-0	<b>Matrix:</b> Polable	Water	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.53 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-0	-P-CDF-07 Matrix: Potable	Water	Date Received Date Analyzed	•
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.0 < 0.0010	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-0	watry: rotable	Water	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.45 < 0.0010	0.01	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-0	P-CDF-09 Matrix: Potable	Water	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.70 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-		Water	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.0 0.002	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-	P-CDF-11 Matrix: Potable	Water	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.1	0.1	Х

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

Sample Name: RJ Lee Grp. ID:	WE122216 W612118-	<b>Vialrix:</b> Polable wat	er	Date Received: Date Analyzed:	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.39 0.002	0.01	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-	-P-CDF-13 Matrix: Potable Wat	er	Date Received: Date Analyzed:	
Analyt	æ.	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.2 0.002	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-	<b>Matrix:</b> Polable wat	er	Date Received: Date Analyzed:	
Analyt	e.	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.53 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-	<b>WALFIX:</b> FULADIC WAL	er	Date Received: Date Analyzed:	
Analyt	æ	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.36 0.001	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-		er	Date Received: Date Analyzed:	
Analyt	e.	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.32 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-	-P-CDF-17 <b>Matrix:</b> Potable Wat	er	Date Received: Date Analyzed:	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.75	0.01	

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

Sample Name: RJ Lee Grp. ID:	WE122216 W612118-1	Watrix: Folable	Water	Date Received: Date Analyzed:	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.49 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-1		Water	Date Received: Date Analyzed:	-
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.14 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2	<b>Mairix:</b> Foldole	Water	Date Received: Date Analyzed:	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.11 < 0.0010	0.01	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2		Water	Date Received: Date Analyzed:	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.88 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2		Water	Date Received: Date Analyzed:	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.37 < 0.0010	0.01	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2		Water	Date Received: Date Analyzed:	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.42 < 0.0010	0.01 0.001	

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Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2	5-P-CDF-24 <b>Matrix:</b> Potable Wat	er	Date Received: Date Analyzed:	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.04	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2	<b>Walrix:</b> Folable wal	er	Date Received: Date Analyzed:	12/22/16 01/31/17
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.58	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2	<b>Mailix.</b> I blable wat	er	Date Received: Date Analyzed:	12/22/16 01/31/17
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.57	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2	<b>VIAIRIX:</b> POLADIE WAL	er	Date Received: Date Analyzed:	12/22/16 01/31/17
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.44	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2	<b>Mailix.</b> I blable wat	er	Date Received: Date Analyzed:	12/22/16 01/31/17
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.79	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-2	<b>Mailix.</b> I blable wat	er	Date Received: Date Analyzed:	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.4	0.1	Х
Lead		EPA 200.8	0.002	0.001	

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Sample Name: RJ Lee Grp. ID:	WE122216 W612118-3	5-P-CDF-30 <b>Matrix:</b> Potable Wate	r	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.0	0.1	Х
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-:		r	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.58 < 0.0010	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-:	5-P-CDF-32 <b>Matrix:</b> Potable Wate	r	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.2 < 0.0010	0.1	Х
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-3		r	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.68 < 0.0010	0.01	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-:	5-P-CDF-34 <b>Matrix:</b> Potable Wate	r	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.95	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-3	<b>Viality.</b> I blable wate	r	Date Received Date Analyzed	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.45	0.01	
Lead		EPA 200.8	< 0.0010	0.001	

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Sample Name: RJ Lee Grp. ID:	WE122216 W612118-3		Potable Water		Date Received Date Analyzed	
Analy	te	Metho	d	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.54	0.01	
Lead		EPA 200.8		< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-3		Potable Water		Date Received Date Analyzed	-
Analy	te	Metho	d	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	•	0.45	0.01	
Lead		EPA 200.8		< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-3	IVIAULIX	Potable Water		Date Received Date Analyzed	
Analy	te	Metho	d	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		1.1	0.1	Х
Lead		EPA 200.8		0.013	0.001	
Sample Name: RJ Lee Grp. ID:	WE122216 W612118-3		Potable Water		Date Received Date Analyzed	-
Analy	to	Metho	d	Result	PQL	Qualifiers
				(mg/L)	(mg/L)	
Copper	it .	EPA 200.8		(mg/L) < 0.010	(mg/L)	

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Report Qualifiers:

- A = Target Analyte media breakthrough suspect, see analytical report
- 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
- $Q = Result \ out \ of \ method \ specific \ acceptance \ QC \ criteria$
- $\overline{S} = Spike Recovery outside accepted recovery limits$
- *Z* = *Not ELAP accredited analyte ND* = *Not Detected*



- B = Analyte detected in the associated blank
- 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

#### Scientist II DeNomy Dage

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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509.545.4989 Phone 509.544.6010 Fax	Washington Columbia Basin Analytical Laboratories 2710 North 20th Avenue Pasco, WA 99301	nt Name):	nature):		It Namely LPUI WI WI HATT	nature): I a a a lun		Support Saving A	12comb	Reoms	Room 4	(200m 3	5 1200m 2	Room 1		2 Kitchen	Kitchen	Sample Description			(509) 574-0839 Fax:	Yakima, WA, 98901		nvironmental	er	oenobov@enoistantinet/ ee tillatileso@enoistantinet	nts:	r4-0839 Fax:	a, WA, 98901	406 North 2nd Street	Fulcrum Environmental Consulting		Logged In By:	Client No:	RYAN MATHEWS	Request for Environmental
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**Request for Environmental and IH Laboratory Analytical Services** 

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Client Job No.:       162017         No. of Business Days:       Accreditation (please list below):         BW=Drinking Water D=Oill       P=Plasticer G=Glass W=Wipe S=Other       P=Plasticer G=Glass W=Wipe A=Air (Filter or tub Preservation         Accreditation (please list below):       P=Plasticer G=Glass W=Wipe A=Air (Filter or tub Preservation       P=Plasticer G=Glass W=Wipe A=Air (Filter or tub P=Plasticer G=Glass W=Wipe A=Air (Filter or tub P=Distributer D=Distributer D=Distributer Method of Shipment: Method of Shipme	R	2);	the for															ted		=Extract	Groudwater	/W=Wastewater	Other D				on X Regulatory	lf 'No,' I	
Vater     Permanant       Vater     Permanant       G-Glass     Scientificer or tub       Preservation     Matrix       Matrix     Matrix       C22     Dub       Dub     P       Preservation     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P       P     P </td <td>J LI</td> <td>Date Relin Meth</td> <td>, Relin Meth</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td>Pres. U</td> <td>pon Re</td> <td>ceip</td> <td>ot (Y</td> <td>/N)</td> <td></td> <td>X=Other</td> <td>DW=Drinking</td> <td>SW=Surface V</td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>No. of Business E</td> <td>Client Job No.:</td>	J LI	Date Relin Meth	, Relin Meth			-							*	Pres. U	pon Re	ceip	ot (Y	/N)		X=Other	DW=Drinking	SW=Surface V					1	No. of Business E	Client Job No.:
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													e		pН					ter or tub			7						

Request for Environmental and IH Laboratory Analytical Services

RYAN N act No.: Logged In: Logged In: E: Amanda Enbysi- ress: 406 North State, Zip: Results To: Results To: Results To: State, Zip: State, Zip: State, Zip: Ne: (509) 574 P-CF-35 P-CF-35 P-CF-35 P-CF-35 P-CF-36 P-CF-36 P-CF-36 P-CF-37 P-CF-37 P-CF-38 P-CF
NYAN MATHEWS         Client No: Laged In: Set Logged In: (1993) X: Value (1995) X: Value (1995
MATHEWS         Client No:         Partous Orier No:           Listorionmental Consulting         Isono Mathews         Sample Original Science Information X Repare         Sample Original Science Information Science Informatinformation Science Information Science Informatinf
Purchase Order No:       Turnaround Request     Standard:     Yes     No     1       Oniking Sample Oniking Intel     Sample Purpose: Information X     Regular Sample Onicity Nutriple Sources #: Sample Onicity     Sample Purpose: All B is Other is Sumple Purpose: All B is Other is Unipres H_SO, Sumple Purpose: All B is Other is Unipres H_SO, Start     No     1       Start     Stop     Wije Aress / All Volume     EX     Fill Analysis Key Wile Vastew Other Nappe Public Analysis Requested     No     Start       Start     Stop     Wije Aress / All Volume     EX     Fill Analysis Requested     Start     Start     No     Start       Start     Stop     Wije Aress / All Volume     Ex     Start     Start     No     Start       Start     Stop     Wije Aress / All Volume     Ex     Start     Start     Start     Start       Start     Stop     Wije Aress / All Volume     Ex     Start     Start     Start       Start     Start     Chain of Reserved By (Signature):     Reserved By (Print Name):     Start       Imment:     Chain of Reserved By (Signature):     Reserved By (Signature):     Start
Purchase Order No:       Turnaround Request     Standard:     Yes     No     1       Oniking Sample Onition net     Sample Purpose: Information X     Regula       Stant     Stanple Nume: Stanple Nume: Nume: Stanple Nume: Num: Nume: Nume: Nume: Nume: Num: Nume: Nume: Num: Nume: Nu
Purchase Order No.:       Turnaround Request     Sandard:     Yes     No     In       Binking Water     Sample Durpose:     Information X. Regula Doi Nource #:     Sample Durpose:     Information X. Regula Doi Nource #:       Other     Sample Only     Multiple Sources #:     Other services Other No.5     No.6     No.7       Nop     Multiple Sources #:     No.6     Sample Only     Multiple Sources #:       Nop     No.7     Preservation Other Na,50,     Sample Only and Supervision Guide Other Na,50,     Sample Other I Supervision Guide Other Na,50,       Nop     Nop     Nop     Nop     Sources #:       Nop     Nop     Sources #:     Sources #:       Nop     Nop     Nop     Sources #:       Nop     Nop     Nop     Sources #:       Nop     Nop     Nop     Sources #:       Nop     Received By (Signarue):     Company Name:       Nop     Received By (Signarue):       Nop     Received By (Signarue):
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Order No:: und Standard: Yes No In est Sample Purpose: Information X Regula Supple Purpose: Information X Regula System ID #: DOH Sources #:: Only Multiple Sources #: Unpreservation: Preservation: NaOH Preservation: NaOH Preservation: NaOH Preservation: SKey Other Na_SO, B C Other C NaOH Preservation: SKey Other NaOH Secondary Received By (Signature): Received By (Print Name): Company Name: Company Name:
dard: Yes No h ple Purpose: Information X Regula em ID #: I Source #: iple Sources #:: ple Purpose: A B C Other C reservations: Requested Analysis Requested Analysis Requested eived By (Signature): eived By (Print Name): eived By (Print Name): mpany Name:
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### **ATTACHMENT E**

Remedial Analytical Results





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 School District - Washington Elementary Drinking W Work Order Number: 1702137

February 14, 2017

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

Fremont Analytical, Inc. received 14 sample(s) on 2/13/2017 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 School District - Washington Ele 1702137	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1702137-001	WE21117-P-CDF-11	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-002	WE21117-S-CDF-11	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-003	WE21117-T-CDF-11	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-004	WE21117-P-CDF-13	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-005	WE21117-S-CDF-13	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-006	WE21117-T-CDF-13	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-007	WE21117-P-OF-29	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-008	WE21117-S-OF-29	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-009	WE21117-T-OF-29	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-010	WE21117-P-CDF-32	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-011	WE21117-S-CDF-32	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-012	WE21117-T-CDF-32	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-013	WE21117-P-CF-38	02/10/2017 8:30 AM	02/13/2017 9:37 AM
1702137-014	WE21117-P-CF-39	02/10/2017 8:30 AM	02/13/2017 9:37 AM



Case Narrative WO#: 1702137 Date: 2/14/2017

CLIENT: Fulcrum Environmental

Project:

Kennewick School District - Washington Elementary Drinking Water Sampling

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:

1702137-001A 206694: Prep Comments for EPA200.8, Sample 1702137-001A: Turbidity: 0.27 NTU 1702137-004A 206698: Prep Comments for EPA200.8, Sample 1702137-004A: Turbidity: 0.21 NTU 1702137-007A 206699: Prep Comments for EPA200.8, Sample 1702137-007A: Turbidity: 0.07 NTU 1702137-010A 206700: Prep Comments for EPA200.8, Sample 1702137-010A: Turbidity: 0.08 NTU 1702137-013A 206701: Prep Comments for EPA200.8, Sample 1702137-013A: Turbidity: 0.00 NTU 1702137-014A 206702: Prep Comments for EPA200.8, Sample 1702137-014A: Turbidity: 0.00 NTU

### **Qualifiers & Acronyms**



WO#: **1702137** Date Reported: **2/14/2017** 

### 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: 1702137 Date Reported: 2/14/2017

#### CLIENT: Fulcrum Environmental

**Project:** Kennewick School District - Washington Elementary Drinking Water Sam

Lab ID: 1702137-001 Client Sample ID: WE21117-P-	CDF-11		Collection Matrix: D		2/10/2017 8:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA M	lethod 200.8		Batcl	h ID: 16	210 Analyst: TN
Copper	678	0.500	µg/L	1	2/13/2017 4:11:47 PM

Lab ID: 1702137-004 Client Sample ID: WE21117-P-CD	F-13		Collection Matrix: Dr		2/10/2017 8:30:00 AM Vater
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	nod 200.8		Batch	ID: 162	10 Analyst: TN
Copper	640	0.500	μg/L	1	2/13/2017 4:36:45 PM
Lab ID: 1702137-007	20				2/10/2017 8:30:00 AM
Client Sample ID: WE21117-P-OF	-29		Matrix: Dr	inking v	vater
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	nod 200.8		Batch	ID: 162	10 Analyst: TN
Copper	344	0.500	µg/L	1	2/13/2017 4:40:22 PM



Drinking Water Metals by EPA Method 200.8

## **Analytical Report**

 Work Order:
 1702137

 Date Reported:
 2/14/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick School District - Washington Elementary Drinking Water Sam

Lab ID: 1702137-010 Client Sample ID: WE21117-P-	CDF-32		Collectior Matrix: D		2/10/2017 8:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA M	lethod 200.8		Batch	n ID: 16	210 Analyst: TN
Copper	789	0.500	µg/L	1	2/13/2017 4:43:58 PM

Lab ID: 1702137-013 Client Sample ID: WE21117-P-CF-3	38		Collection Matrix: Di		2/10/2017 8:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	<u>od 200.8</u>		Batch	ID: 162	210 Analyst: TN
Copper	1,210	0.500	µg/L	1	2/13/2017 4:47:34 PM
Lab ID: 1702137-014 Client Sample ID: WE21117-P-CF-3	39		Collection Matrix: D		2/10/2017 8:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed

0.500

ND

Batch ID: 16210

1

µg/L

Copper

Analyst: TN

2/13/2017 4:51:10 PM

Fremont Analytical	<b>nont</b>							<b>Date</b> : 2/14/2017	017	
der:	vironmental						QC SUMMARY REPORT	QC SUMMARY REPORT	REP(	200.8
) MB-162	= iii		υ	Units: µg/L		Prep Date:	2/13/2017	RunNo: 34432		
Client ID: MBLKW Analyte	Batch ID: <b>16210</b> Result	RL	SPK value	SPK Ref Val	REC	Analysis Date: 2 LowLimit High	e: 2/13/2017 HighLimit RPD Ref Val	SeqNo: <b>657198</b> %RPD RP	DLimit	Qual
Copper	QN	0.500								
Sample ID LCS-16210 Client ID: LCSW	SampType: LCS Batch ID: 16210			Units: µg/L		Prep Date: 3 Analysis Date: 3	2/13/2017 2/13/2017	RunNo: <b>34432</b> SeqNo: <b>657199</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit High	LowLimit HighLimit RPD Ref Val	%RPD RP	RPDLimit	Qual
Copper	93.2	0.500	100.0	0	93.2	85	115			
Sample ID 1702137-001ADUP Client ID: WE21117-P-CDF-11	SampType: DUP Batch ID: 16210	Ē	onitory Xigos	Units: µg/L Sek Bof Val		Prep Date: 2 Analysis Date: 2	e: 2/13/2017 e: 2/13/2017 Licel init DDD Dof Vol	RunNo: 34432 SeqNo: 657201 % DDD DD	22 201 1551	
Anlaryte Copper	676	0.500	OF N Value				677.5			Qual
Sample ID <b>1702137-001AMS</b> Client ID: <b>WE21117-P-CDF-11</b> Analyte	SampType: MS Batch ID: 16210 Result	RL	SPK value	Units: <b>µg/L</b> SPK Ref Val	%REC	Prep Date: 3 Analysis Date: 3 LowLimit High	e: <b>2/13/2017</b> e: <b>2/13/2017</b> HighLimit RPD Ref Val	RunNo: <b>34432</b> SeqNo: <b>657202</b> %RPD RP	32 202 RPDLimit	Qual
Copper	869	0.500	200.0	677.5	95.8	20	130			
Sample ID 1702137-001AMSD Client ID: WE21117-P-CDF-11	SampType: MSD Batch ID: 16210			Units: µg/L		Prep Date: 3	2/13/2017 2/13/2017	RunNo: <b>34432</b> SeqNo: <b>657203</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit High	HighLimit RPD Ref Val	%RPD RP	RPDLimit	Qual
Copper	830	0.500	200.0	677.5	76.3	20	130 869.0	4.57	30	

Original

Page 7 of 10



### Sample Log-In Check List

CI	ient Name:	FE	Work Order Num	ber: 1702137	
Lo	ogged by:	Erica Silva	Date Received:	2/13/2017	9:37:00 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.		Is 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 🗌	
7.	Were all item	s received at a temperature of >0°C to 10.0°C*	Yes 🖌	No 🗌	
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 🗌 HNO3
12.	Is there head	space in the VOA vials?	Yes	No 🗌	NA 🗹
13.	Did all sampl	es containers arrive in good condition(unbroken)?	Yes 🖌	No 🗌	
14.	Does paperw	rork match bottle labels?	Yes 🗹	No 🗌	
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌	
16.	Is it clear what	at analyses were requested?	Yes 🗹	No 🗌	
17.	Were all hold	ing times able to be met?	Yes 🖌	No 🗌	
<u>Spe</u>	cial Handl	ing (if applicable)			
18.	Was client no	otified of all discrepancies with this order?	Yes	No 🗌	NA 🗹
	By Who Regardi			none 🗌 Fax	In Person
19.	Additional rer	marks:			

HNO3 added to to 002A, 003A, 005A, 006A, 008A, 009A, 011A, 012A

#### Item Information

Item #	Temp °C
Cooler	1.3
Sample	1.1

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

AN AHN				Chain of Cus	Chain of Custody Record and La	Laboratory Services Agreement
	I CHION				Date: 2/11/2017	Laboratory Project No (internal): 1702437
3600 Fremont Ave N. Senttle WA 98103	Tel: 206-352-3790 Fax: 206-352-7178	i-3790 2-7178				Page:
Client	Fulcrum Environmental Consulting	iental Consul	ting	Project Name: Project No:	Kennewick School District - Wasning 162017.17 Coll	162017.17 Collected by: Nathan Bostrom
Address:	406 North Second Street	Street	AN ALLOW HIS	Location:	ntary, Kennewick,	
City, State, Zip:	Yakima, WA 98901	June of City	1 90, 11 10, 20, 2	Report To (PM):	Ryan Mathews	survey duringly a service of the service problem for a pro-
Telephone:	509.574.0839		Fax: 509.545.8453	53 PM Email:	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	efulcrum.net
A = Air,	5	O = Other, P = I	P = Product, S = Soil,	SD = Sediment, SL = Solid, W = Water,	ng Water, GW = Ground Water,	SW = Storm Water, WW = Waste Water
Sample Name	Samp	Sample Date Time	le Type			Comments
WE21117-P-CDF-11	2/1	2/10/2017 8:30 AM	DAM DW		X	Preserved with HNO3
WE21117-S-CDF-11	2/1	2/10/2017	DW	A DI N A	<ul> <li>M. S. S.</li></ul>	FR
WE21117-T-CDF-11	2/1	2/10/2017	DW			-
WE21117-P-CDF-13	2/1	2/10/2017	DW			reserved with HNUZ
WE21117-S-CDF-13	2/1	2/10/2017	DW			1) ett
WE21117-T-CDF-13	2/1	2/10/2017	DW	10 10 10 10 10 10 10 10 10 10 10 10 10 1		[4+1d]
WE21117-P-OF-29	2/1	2/10/2017	DW	The second	×	Preserved with HMUZ
WE21117-S-OF-29	2/1	2/10/2017	DW			Hald
WE21117-T-OF-29	2/1	2/10/2017	DW	the manufacture of the second se	the second of the second se	How
WE21117-P-CDF-32	<i>دا</i> ر ۲	2/10/2017	DW	a jub Bi terayan ajerna ant	×	Prosessed with HNO2
**Metals Analysis (Circle):	MTCA-5 RCRA-8	Priority Pollutants	llutants TAL	Individual: Ag Al As B Ba Be Ca Cd	Co Cr Cy Fe Hg K Mg Mn Mo Na Ni P	Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Ti U V Zn
***Anions (Circle): Nitrate	Nitrite	Chloride Su Disposi	Sulfate Bromide	O-Phosphate Fluoride ill be held for 30 days unless otherwise n		Are Orean Waresmal
Sample Disposal:	Return to Client	assesse	ed if samples are n	assessed if samples are retained after 30 days.)	on the following business day.	( Tende to Beloc antimation
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.	orized to enter into rms on the front an	this Agreeme d backside of	nt with Fremon this Agreement	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.	above, that I have verified Client's	Samples TAT
x Vallan Ba	Tom 2-	11-17	10:45A	x M 2 F	3/17 0927	
Relinquished	Date/Time	and the second second	- Mar - March		Date/Time	TAT A SameDay^ NextDay^ 2 Day 3 Day STD
×						^Please coordinate with the lab in advance

Desirements where the set were the wire Cephanise

^Please coordinate with the lab in advance						
TAT → SameDay^ NextDay^ 2 Day 3 Day STD	Daté/Time	Received			Date/Time	Relinquished
	2/13/17 293	x And	1	UNAShio1 2		× Northan Bas
(	above, 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 have verified Client's agreement to each of the terms on the front and backside of this Agreement.	with Fremont Ana is Agreement.	this Agreement id backside of th	prized to enter into rms on the front ar	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.
Ste Pase 1	A fee 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 day assessed if samples are retained after 30 days.)	Disposal b assessed i	Return to Client	Sample Disposal:
Special Remarks:	Turn-around times for samples	O-Phosphate Fluoride Nitrat	e Bromide	Chloride Sulfate	Nitrite	***Anions (Circle): Nitrate
Sb Se Sr Sn Ti Ti U V Zn	Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb	Individual: Ag Al As B Ba Be Ca Cd	TAL	Priority Pollutants	MTCA-5 RCRA-8	**Metals Analysis (Circle):
				14 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	11日 日本市政部務部署の行政の
					A STATE OF	and a submittee
					ALL DATE OF THE SECOND	and the part of the second
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and the sound state of the state of the second		10 AV		and the state		In the second se
with the second se	×		DW	2/10/2017	2/	WE21117-P-CF-39
Preserved with HNU31	×		DW	2/10/2017	2/	WE21117-P-CF-38
Hold			DW	2/10/2017	2/	WE21117-T-CDF-32
50			DW	2/10/2017 8:30/1	2/	WE21117-S-CDF-32
Comments			Sample Type (Matrix)*	Sample Date Time	Sam	Sample Name
SW = Storm Water, WW = Waste Water	Drinking Water, GW = Ground Water, SW = Sto	SL = Solid,	P = Product, S = Soil, SD = Sediment,	O = Other, P = Pro	AQ = Aqueous, B = Bulk,	*Matrix Codes: A = Air, AQ =
fulcrum.net	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	PM Email:	Fax: 509.545.8453	Fa	509.574.0839	Telephone:
the second second water the second second second	Ryan Mathews	Report To (PM):	and the second	01	Yakima, WA 98901	City, State, Zip:
1 10	Washington Elementary, Kennewick, WA	Location:	Burylo 2.	nd Street	406 North Second Street	Address:
162017.17 Collected by: Northon Bost on P	Kennewick School District - Washingt 162017.17 Colle	Project Name: Project No:	Bu	mental Consulti	Fulcrum Environmental Consulting	Client:
Page: 2 of: 2				52-3790 52-7178	Tel: 206-352-3790 Fax: 206-352-7178	3600 Fremont Ave N. Seattle, WA 98103
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