

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 Eastgate Elementary School, 910 East 10<sup>th</sup> Avenue, Kennewick, Washington

Dear Keith:

On Wednesday, December 21, 2016, Fulcrum Environmental Consulting, Inc. (Fulcrum) collected 33 drinking water samples for lead and copper analysis from Eastgate Elementary School (School) located at 910 East 10<sup>th</sup> Avenue in Kennewick, Washington. Initial sampling identified nine fixture locations with copper concentrations above guidance levels. Fulcrum returned to the School on January 21, January 28, March 4, and March 18, 2017, to collect samples after remediation of the fixture 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 nine samples with copper concentrations above the Environmental Protection Agency (EPA) action level of 1,300  $\mu$ 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 January 21<sup>st</sup>, January 28<sup>th</sup>, March 4<sup>th</sup>, and March 18<sup>th</sup> 2007 and collected a sample to evaluate the success of the remediation. The follow-up samples

<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



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 identified 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 in Attachment A for fixture locations and laboratory results. See Figure 1-A and 1-B 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-A and 1-B 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 nine 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.

### 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 aggressive flushes of the fixtures. Fulcrum returned on mornings following the aggressive flush, January 21, January 28, March 4, and March 18, 2017, to collect follow-up samples.

Analytical results from remedial sampling indicated the aggressive flushes were 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. Nine initial samples contained copper above the EPA action level of 1,300 µg/L. The District completed aggressive flushes to reduce the copper concentration of the fixtures follow-up samples 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,

Cubyth

Amanda Enbysk, GIT **Environmental Geologist** 

Ryan KMathers

Ryan K. Mathews, CIH, CHMM Principal



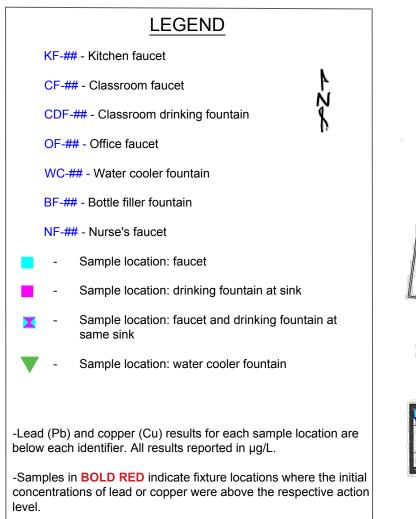


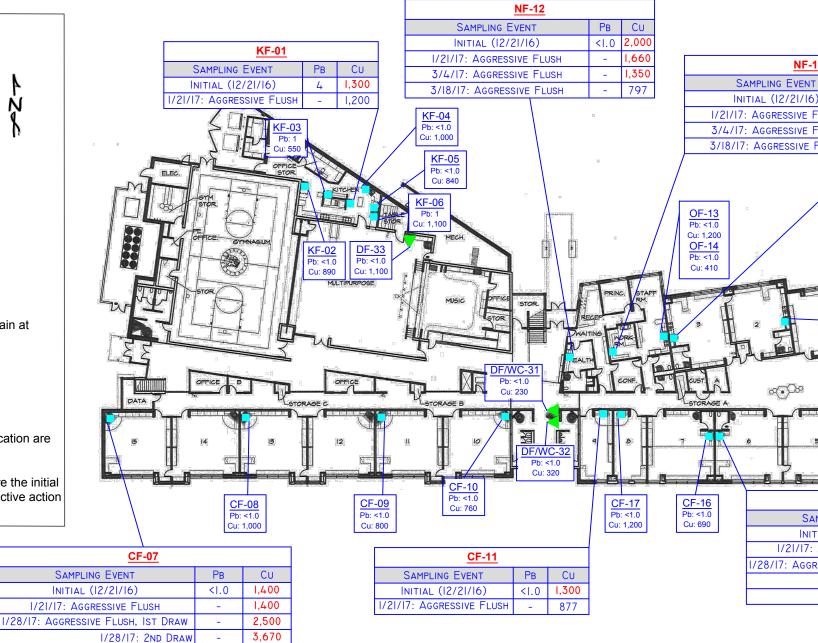


# **ATTACHMENT A**

Figure 1-A: Sample Location Map – First Floor Figure 1-B: Sample Location Map – Second Floor







Fulcrum Environmental Consulting, Inc.Eastgate Elementary SchoolSamp406 North Second Street, Yakima, Washington 98901910 East 10th AvenueSampp: 509.574.0839 f: 509.575.8453 efulcrum.net910 East 10th AvenueSampKennewick SD Drinking Water Sampling. 162017.00. AME. 10232017Kennewick, WashingtonSamp

1,740

837

1/28/17: 3rd Draw

3/4/17: AGGRESSIVE FLUSH



<u>-15</u>							
IT	Рв	CU					
6)	2	1,300					
FLUSH	-	1,590					
FLUSH	-	1,270					
Flush	-	694					

	<u>CF-20</u>		
	SAMPLING EVENT	Рв	CU
	INITIAL (12/21/16)	<1.0	1,600
	1/21/17: Aggressive Flush	-	1,730
	1/28/17: Aggressive Flush, 1st Draw	-	1,770
	1/28/17: 2nd Draw	-	2,250
	1/28/17: 3rd Draw	-	767
	3/4/17: Aggressive Flush	-	1,280
C.	3/18/17: Aggressive Flush	-	674
3			

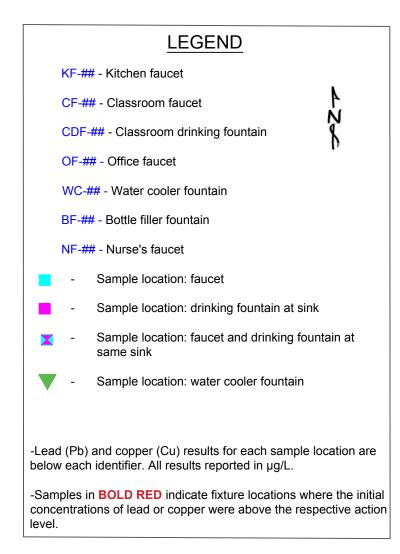
	<u>CF-19</u>		
CILLIE O	SAMPLING EVENT	Рв	Cu
33	INITIAL (12/21/16)	<1.0	I,600
	1/21/17: AGGRESSIVE FLUSH	-	1,480
-	1/28/17: Aggressive Flush, 1st Draw	-	1,610
	1/28/17: 2nd Draw	-	2,370
	1/28/17: 3rd Draw	-	941
5	3/4/17: AGGRESSIVE FLUSH	-	1,300
G.	3/18/17: Aggressive Flush	-	578
8 2 3			

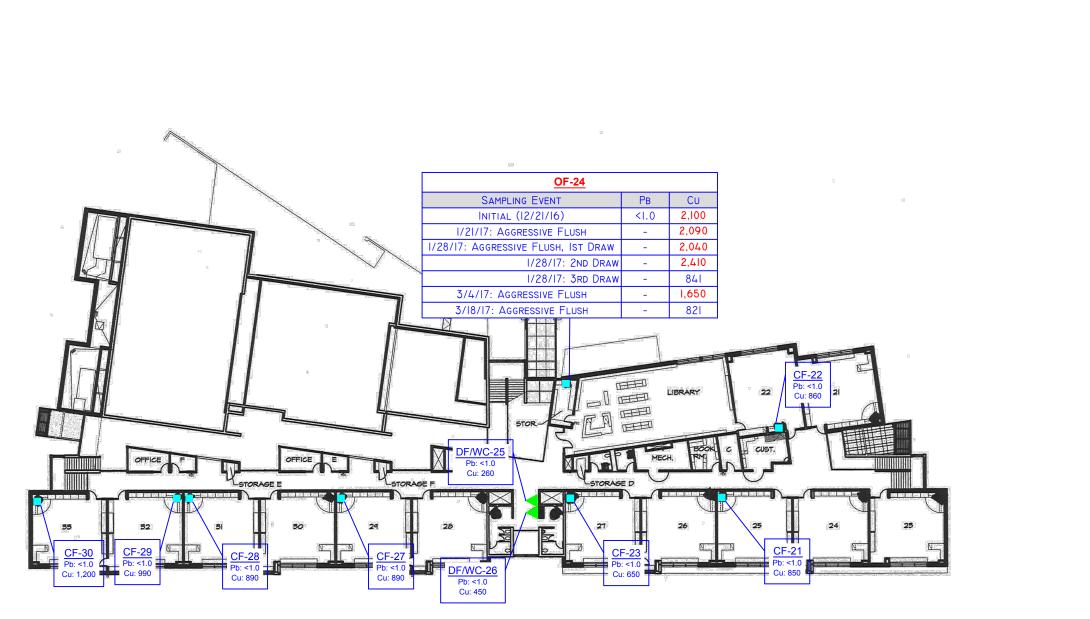
FIGURE

1-A

<u>CF-18</u>		
SAMPLING EVENT	Рв	Cu
IITIAL (12/21/16)	<1.0	1,400
7: Aggressive Flush	-	1,160
gressive Flush, Ist Draw		1,320
1/28/17: 2nd Draw		1,900
1/28/17: 3rd Draw		657

Sample Location Map - First Floor





Eastgate Elementary School 910 East 10th Avenue Kennewick, Washington



## Sample Location Map - Second Floor

FIGURE 1-B



# **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:	Eastgate Elementary	Address: <u>910</u>	E 10 <sup>th</sup> Ave, Kennewick WA
Elementary	□ Middle School	□ High School	□ Administration
Date of Construction:	2015	Modernizatio	ns: <u>N/A</u>

Fixture Type	Locations	Fixture Styles <sup>1</sup>	Samples	Ratio
Drinking fountain/water cooler (DF/WC)	8	3	5	63%
Kitchen Fixture (KF)	6	4	6	100%
Classroom faucet, including faucets in Food Labs and Life Sciences Classrooms (CF)	29	2	17	60%
Classroom drinking fountain at sink (CDF)	N/A	N/A	-	-
Nurse's Office/Health Room (NF)	1	1	1	100%
Teacher's Lounges/Work Rooms (OF)	4	2	4	100%
TOTALS	48		33	69%

1

Fixture styles are approximate based on sampler's observations

Lead Sampler:	Nathan	Bostrom			Date:	12/21/2016	
Sample Prefix:	EGE School Code		– <u>P (first-draw)</u> Sample Type				-
Laboratory:	R. J. Lee Group.	, Columbia	Basin Analytica	<u>ıl</u> De	livery Date: _	December 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)	(µg/L)
EGE122116-P-KF-01: Kitchen, Middle island, E. end	Kitchen Faucet	4	1,300
EGE122116-P-KF-02: Kitchen, W. wall	Kitchen Faucet	<1.0	890
EGE122116-P-KF-03: Kitchen, Middle island, W. end	Kitchen Faucet	1	550
EGE122116-P-KF-04: Kitchen, N. wall	Kitchen Faucet	<1.0	1,000
EGE122116-P-KF-05: Kitchen, E. wall, faucet	Kitchen Faucet	<1.0	840
EGE122116-P-KF-06: Kitchen, E. wall, sprayer	Kitchen Faucet	1	1,100
EGE122116-P-CF-07: Room 15	Classroom Faucet	<1.0	1,400
EGE122116-P-CF-08: Room 13	Classroom Faucet	<1.0	1,000
EGE122116-P-CF-09: Room 11	Classroom Faucet	<1.0	800
EGE122116-P-CF-10: Room 10	Classroom Faucet	<1.0	760
EGE122116-P-CF-11: Room 09	Classroom Faucet	<1.0	1,300
EGE122116-P-NF-12: Health Room	Nurse's Faucet	<1.0	2,000
EGE122116-P-OF-13: Staff Lounge	Office Faucet	<1.0	1,200
EGE122116-P-OF-14: Staff Lounge, instant hot	Office Faucet	<1.0	410
EGE122116-P-NF-15: Work Room	Office Faucet	2	1,300
EGE122116-P-CF-16: Room 07	Classroom Faucet	<1.0	690
EGE122116-P-CF-17: Room 08	Classroom Faucet	<1.0	1,200
EGE122116-P-CF-18: Room 06	Classroom Faucet	<1.0	1,400
EGE122116-P-CF-19: Room 02	Classroom Faucet	<1.0	1,600
EGE122116-P-CF-20: Room 03	Classroom Faucet	<1.0	1,600
EGE122116-P-CF-21: Room 25	Classroom Faucet	<1.0	850
EGE122116-P-CF-22: Room 22	Classroom Faucet	<1.0	860
EGE122116-P-CF-23: Room 27	Classroom Faucet	<1.0	650
EGE122116-P-OF-24: Library Work Room	Office Faucet	<1.0	2,100
EGE122116-P-DW/WC-25: 2nd floor, left fixture	Drinking Fountain/Water Cooler	<1.0	260
EGE122116-P-DW/WC-26: 2nd floor, right fixture	Drinking Fountain/Water Cooler	<1.0	450
EGE122116-P-CF-27: Room 29	Classroom Faucet	<1.0	890
EGE122116-P-CF-28: Room 31	Classroom Faucet	<1.0	890
EGE122116-P-CF-29: Room 32	Classroom Faucet	<1.0	990
EGE122116-P-CF-30: Room 33	Classroom Faucet	<1.0	1,200
EGE122116-P-DF/WC-31: First floor, left fixture	Drinking Fountain/Water Cooler	<1.0	230
EGE122116-P-DF/WC-32: First floor, right fixture	Drinking Fountain/Water Cooler	<1.0	320
EGE122116-P-DF-33: Multipurpose/Cafeteria, right fixture	Drinking Fountain	<1.0	1,100
EGE122116-P-CF-34: Laboratory Blank	Distilled Water Blank	<1.0	<10
EGE122116-P-CF-35: Laboratory Spike	Lead and Copper Spike	14	1,300
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



Comula Number	Eisetuno Temo	pН	pН	Temp (°C)	Temp (°C)
Sample Number	Fixture Type	Flush	Sample	Flush	Sample
EGE122116-P-KF-05: Kitchen, E. wall	Kitchen Faucet	6.94	7.92	13.9	17.3
EGE122116-P-CF-09: Classroom 11	Classroom Faucet	7.91	7.80	16.5	18.7
EGE122116-P-NF-12: Health Room	Nurse's Faucet	7.87	7.82	15.9	20.0
EGE122116-P-CF-16: Classroom 07	Classroom Faucet	7.63	7.88	20.3	20.1
EGE122116-P-CF-20: Classroom 03	Classroom Faucet	7.87	7.83	16.7	20.1
EGE122116-P-OF-24: Storage room, rear	Office Faucet	7.85	7.95	20.6	18.6
of library	Office Faucet	7.05	1.95	20.0	10.0
EGE122116-P-CF-28: Classroom 31	Classroom Faucet	7.31	7.88	21.1	20.8
EGE122116-P-DF/WC-32: First floor	Water Cooler Fountain	7.61	7.96	15.7	15.5
drinking fountain, right fixture	water Cooler Pountain	7.01	7.90	13.7	15.5

### Table 2: pH and Temperature Data Summary

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

					Sample	Identifi	cation				
Sampling Event	KF-01	CF-07	CF-11	NF-12	NF-15	CF-18	CF-19	CF-20	OF-24	Laboratory Blank (-34)	Laboratory Spike(-35)
Initial (12/21/2016)	1,300	1,400	1,300	2,000	1,300	1,400	1,600	1,600	2,100	<10	1,300
Aggressive Flush (1/21/2017)	1,200	1,400	877	1,660	1,590	1,160	1,480	1,730	2,090	0.60	-
3-Part Evaluation; First Draw (1/28/2017)	-	2,500	-	-	-	1,320	1,610	1,770	2,040	<10	1,290
Second Draw (1/28/2017)	-	3,670	-	-	-	1,900	2,370	2,250	2,410	-	-
Third Draw (1/28/2017)	-	1,740	-	-	-	657	941	767	841	-	-
Aggressive Flush (3/4/2017)	-	837	-	1,350	1,270	-	1,300	1,280	1,650	<0.5	1,220
Aggressive Flush (3/18/2017)	-	-	-	797	694	-	578	674	821	0.760	1,310
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  $\mu$ 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 Eastgate Elementary School, Kennewick, Washington



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

#### Subject: Chemical Analysis Report

Columbia Basin Analytical Laboratories received 35 sample(s) on 12/21/16 for analysis. These sample(s) have been assigned a login order number of W612100. 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

01/10/17

Date

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

RJ Lee Group No.:W612100

Samples Received: 12/21/16

Analysis/Prep Date: 01/07/17

Report Date: 01/10/17

COC No.: Kennewick



# **Laboratory Report**

Amanda Enbysk	
E-1	

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

Client Project:

Fulcrum Kennewick

Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-	viatrix:	Potable Water	r	Date Received Date Analyzed	
Analyt	e	Method	l	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		1.3	0.1	Х
Lead		EPA 200.8		0.004	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		Potable Water	r	Date Received Date Analyzed	
Analyt	e	Method	l	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.89	0.01	
Lead		EPA 200.8		< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		Potable Water	r	Date Received Date Analyzed	
Analyt	e	Method	l	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	-	0.55	0.01	
Lead		EPA 200.8		0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		Potable Water	r	Date Received Date Analyzed	
Analyt	e	Method	l	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	-	1.00	0.01	
Lead		EPA 200.8		< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		Potable Water	r	Date Received Date Analyzed	
Analyt	e	Method		Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.84	0.01	
Lead		EPA 200.8		< 0.001	0.001	

Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-0		er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.1	0.1	Х
Lead Sample Name:	EGE12211	EPA 200.8 6-P-CF-07 Matrix: Potable Wat	0.001	0.001 Date Received	: 12/21/16
RJ Lee Grp. ID:	W612100-	)7		Date Analyzed	<b>:</b> 01/07/17
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.4	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-0		er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.00	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-0	<b>VIALEX:</b> FULADIC WAL	er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.80	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.76	0.01	
Lead		EPA 200.8	< 0.001	0.001	
ample Name: RJ Lee Grp. ID:	EGE12211 W612100-		er	Date Received Date Analyzed	
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	

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

Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-1		ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	2.0 < 0.001	0.1	Х
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-1	6-P-OF-13 Matrix: Potable W		Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead	,	EPA 200.8 EPA 200.8	1.2 < 0.001	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-1		ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.41 < 0.001	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-1		ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead	1	EPA 200.8 EPA 200.8	1.3 0.002	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-1		ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.69 < 0.001	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-1		ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.2 < 0.001	0.1 0.001	Х

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Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		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	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.6 < 0.001	0.1	Х
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.6	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		er	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	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-		er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.86	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-	<b>VIALFIX:</b> FULADE Walk	er	Date Received Date Analyzed	
			Result	PQL	Qualifiers
Analy	te	Method	(mg/L)	(mg/L)	Quanners
Analyt	te	EPA 200.8			Quanners

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Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-2		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	2.1	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-2	6-P-DF/WC- <b>25</b> 25	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.26 < 0.001	0.01	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-2	6-P-NF/WC- <b>Matrix:</b> Potable Wa 26	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.45	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-2		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.89	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-2		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.89	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	EGE12211 W612100-2		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.99	0.01	
11					

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Sample Name: RJ Lee Grp. ID:	EGE122110 W612100-3	<b>Walrix:</b> Polable wa	ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.2	0.1	Х
Lead Sample Name: RJ Lee Grp. ID:	EGE122110 W612100-3	EPA 200.8 5-P-DF/WC- <b>Matrix:</b> Potable Wa	< 0.001	0.001 Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.23 < 0.001	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	EGE122110 W612100-3	5-P-DF/WC- <b>Matrix:</b> Potable Wa	ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.32 < 0.001	0.01	
Sample Name: RJ Lee Grp. ID:	EGE122110 W612100-3		ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.1 < 0.001	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	EGE122110 W612100-3		ater	Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	< 0.010	0.01	
Lead Sample Name: RJ Lee Grp. ID:	EGE122110 W612100-3		< 0.001	0.001 Date Received Date Analyzed	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.3	0.1	Х

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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
- $Q = Result \ out \ of \ method \ specific \ acceptance \ QC \ criteria$
- 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 III J Grissmerson

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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WWW DU       Incluse Order No::     Incluse Order No::       Fax:     (509) 575-8433     Sample Orly       Frail: Iboutilier@efulcrum.net     Sample Transition:     Notific:       Fax:     (509) 575-8433     Sample Transition:     Notific:       Frail: Iboutilier@efulcrum.net     Start     Stop     Wiseward       Fax:     (509) 575-8433     Start     Stop     Wiseward       Frail: Iboutilier@efulcrum.net     Native: Research     Native: Research       Fax:     (509) 575-8433     Start     Stop     Wiseward       Frail: Iboutilier@efulcrum.net     Native: Research     Native: Research       Fax:     (509) 575-8433     Start     Stop     Wiseward       Frail: Iboutilier@efulcrum.net     Start     Stop     Wiseward     Wiseward       Fax:     (509) 575-8433     Start     Stop     Wiseward     Stop       Fax:     Stop     Wiseward     Wiseward     Wiseward     Wiseward       Fax:     Stop     Wiseward     Stop     Wiseward     Stop       Fax:     Stop     Wiseward     Kiseward     Stop <td>Washington Columbia Basin Analytica 2710 North 20th Avenue Pasco, WA 99301 509.545.4989 Phone 509.544.6010 Fax</td> <td></td> <td>nt Namej:</td> <td>nature):</td> <td>MICHAM</td> <td></td> <td></td> <td>RN</td> <td>RIA</td> <td>Rily -</td> <td>pm-</td> <td>RM</td> <td>E</td> <td>5</td> <td>£</td> <td>(5)</td> <td>2</td> <td></td> <td>Sample Descr</td> <td></td> <td>74-0839</td> <td>Yakima, WA, 98901</td> <td>rth 2nd Street</td> <td>n Environmental</td> <td>ier</td> <td>Such and an and an and</td> <td>aenbysk@efulcrum.ne</td> <td>/4-0039 Jlts:</td> <td>TAKITIA, WA, JOJUL</td> <td>rth 2nd Street</td> <td>n Environmental Consulti</td> <td>ysk, Ryan Mathews</td> <td></td> <td></td> <td>MATHEWS</td> <td></td>	Washington Columbia Basin Analytica 2710 North 20th Avenue Pasco, WA 99301 509.545.4989 Phone 509.544.6010 Fax		nt Namej:	nature):	MICHAM			RN	RIA	Rily -	pm-	RM	E	5	£	(5)	2		Sample Descr		74-0839	Yakima, WA, 98901	rth 2nd Street	n Environmental	ier	Such and an and an and	aenbysk@efulcrum.ne	/4-0039 Jlts:	TAKITIA, WA, JOJUL	rth 2nd Street	n Environmental Consulti	ysk, Ryan Mathews			MATHEWS	
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Pasco, WA 99301

Washington Columbia Basin Analytical Laboratories 2710 North 20th Avenue

Pennsylvania - HQ 350 Hochberg Road Monroeville, PA 15146

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ATTENTION TO:

**RYAN MATHEWS** 

Request for Environmental and IH Laboratory Analytical Services

1200

Purchase Order No.:

Client Job No.:

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Pennsylvania - HQ 350 Hochberg Road Monroeville, PA 15146

ATTENTION TO:	O: RYAN MATHEWS						Purchase Order	Pr No.:		Client Job No.:	162	162017
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	Name: Amanda Enbysk, Ryan Mathews	ews						Sample Purpose: In	Sample Purpose: Information X Regulatory D	Accreditation (please list below):	list below):	
	Company: Fulcrum Environmental Consulting	Consulting					Drinking	System ID #:				
Report	Address: 406 North 2nd Street						Water	DOH Source #:				
Results	City, State, Zip: Yakima, WA, 98901	98901					Sample Only		71			
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ā	٦Ver							Preservation:	2		Container:	iner:
	Email Results To: aenbysk@efu	aenbysk@efulcrum.net, CC: rmathews@efulcrum.net	s@efulcrum	.net				res	WW=Wastewater	SW=Surface Water	P=Plastic	tic
	Fax Results To:							4 C	S=Soil/Sludge	O=Oil	W=Wipe	De
	Name: Lorrie Boutillier							Other Na-SO.	E=Extract	X=Other	A=Air	A=Air (filter or tube
		f Email: lboutillier@efulcrum.net	illier@efulcr	um.net								
	Address: 406 North 2nd Street							Analysis	Analysis Requested	/N)		
-	City, State, Zip: Yakima, WA, 98901	98901										
	09) 574	Fax:	(509) 575-8453	3453								γŗ
Special Instructions							EPA 200.8:			on Rec	Matri	tainer pH
			Sample	Samp	Sample Time	Wine Area / Air	Pb, Cu					con
Clie	Client Sample ID Sam	Sample Description	Date	Start	Stop	Volume				Pres		
EGE 11	12116-2-CF-28 RM-27	7	12-21-12				×				UNPR. DW	P
568 (J.	(12116-9-6F-24 Librar	library office					-					
E68 12;	0	s left										
568 ju	EUE 12116 PHYla-24 Martais Right	is right										
56 E 12	EGE 124 6-P-100000 (2-27 12M-29	RM-29										
1568 D	NN 80- 20-6- 711001 293	RM-31										
ECE IN	12GR (121) 6-P-CF-25 12 M	1-32										
Elore Do	Dall -P-012 -30 RM	RM-3										
BOG IN	Ć.	Main floor										
BGE 12	History Remained - 2-111561	ht Main Floor										-
BLE D		Catetona DP	E				4	10		X	4	6
Chain of	Relinquished By (Signature): Nothan	has the	Date: 12-21-16	21-16	Time: 0	:25	Chain of	Received BASignature);	datura);	DEC 2	DEC 2 1 2016 Time:	ne: 37
Custody	Company Name: Fulcry	then Bostiern	Relinquished To: Method of Shipment:	d To: Shipment:			Custody	Company Name:	1 24 Creation In	Method of Shipment:	d To: Shipment:	
Chain of	Relinquished By (Signature):		Date:		Time:		Chain of	Received By (Signature):	nature):	Date:	Tin	Time:
Custody	Relinquished By (Print Name): Company Name:		Relinquished To: Method of Shipment:	ed To: Shipment:			Custody	Received By (Print Name): Company Name:	nt Name):	Relinquished To: Method of Shipment:	ed To: Shipment:	

No. Containers

17.2

2

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

11/1/2400

Page 🗸

of H

Pennsylvania - HQ 350 Hochberg Road Monroeville, PA 15146	Chain of Custody	Chain of Custody							EBEN	TGRIO	Clie	Special Instructions		То	Send Invoice						Renort	0	Omy	f 12 Lab Use	ATTENTION TO:	
146	Relinquished By (Signature): Relinquished By (Print Name): Company Name:	Relinquished By (Signature): // Relinquished By (Print Name): N Company Name: ////	1						122116-12-01-35	12.2116 -2-05-3	Client Sample ID		City, State, Zip: Yakim Phone: (509) 574-0839	)6 Nort	Company: Fulcrum Er	Name: Lorrie Boutillier	Fax Results To:	lesult	Phone: (509) 574-0839	City, State, Zip: Y	Address: 406 North 2nd Street	Company: Fulcrum Er	Name: Amanda Enhysk Ryan Mathewis	Project No.:		
Washington Columbia Basin Analytical Laboratories 2710 North 20th Avenue Pasco, WA 99301	ame):	ame): Northigh Bastrom				X	X		53	By RM 203	Sample Description		Yakima, WA, 98901 -0839 Fax:	2nd Street	<u>a</u>		aenbysk@etuicrum.net, cc: rmatnews@etuicrum.net		0839 Fax:	Yakima, WA, 98901	2nd Street	Fulcrum Environmental Consulting		Clien	RYAN MATHEWS	
ories	Date: Relinquished To: Method of Shipment:	Date: 12-21 - 10 Prove Relinquished To: Method of Shipment:						/	4	5-1-6	Sample Date		( 509) 575-8453		Email: lboutillier@efulcrum.net		natnews@etuicrum.i		(509) 575-8453				Logged In By:	Client No:		
	Time: d To: hipment:	11 - 10 Time: d To: hipment:				×					Start Stop		453		ım.net		net		453						VV	W
		Ows		/				1			Wipe Area / Alr Volume															N612100
	Chain of Custody	Chain of Custody	E							×		EPA 200.8: Pb. Cu				Analysis key	Chemistry			Sample Only	Water	Drinking	Request	Turnaround	Purchase Order No.:	
	Received By (Signature): Received By (Print Name): Company Name:	Received By (Signature): Received By (Printh Nather): Company Name: (C. J. L. P.												Analysis Requested	•	Other Na,SO, E=Extract	4°C HCI	Preservation: Matrix: Unpres H.SO. WW=Wastewater		Multiple Sources #s:	DOH Source #:	L 1.	mose- Information X Regul	Standard: Yes No	er No.:	
RJ LEE GROUP	Date: Relinquished To: Method of Shipm	Method of Shipm									Pres. Uj	oon Ree		//N)		X=Other	_	r SW=Surface Water					Accreditation (please list below):	If 'No,' No. of Business Days:	Client Job No.:	
3 GRC	Date: Time: Relinquished To: Method of Shipment:	Date: 2 1 2010Time: 22 Relinquished To: Method of Shipment:	1 10 C							UNPR. DW		Matri ntainer pH	x		-	A=Air (filter or tube)		P=Plastic					e list below):		162017	Page 💙 of
Ĕ Ă		5		_	-		_	 -	1	13		. Conta				·tube)										

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# **ATTACHMENT E**

Remedial Analytical Results



Winter 2016 – Drinking Water Sampling Results Eastgate Elementary 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 - Eastgate Elementary Work Order Number: 1701236

January 24, 2017

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

Fremont Analytical, Inc. received 16 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)

Work Order Sample Summary



Fulcrum Environmental

CLIENT:

Project: Work Order:	Kennewick SD Drinking Water - Eastgate El 1701236		
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701236-001	EGE12117-P-KF-01	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-002	EGE12117-S-KF-01	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-003	EGE12117-T-KF-01	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-004	EGE12117-P-CF-07	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-005	EGE12117-P-CF-11	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-006	EGE12117-P-NF-12	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-007	EGE12117-S-NF-12	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-008	EGE12117-T-NF-12	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-009	EGE12117-P-OF-15	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-010	EGE12117-S-NF-15	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-011	EGE12117-T-NF-15	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-012	EGE12117-P-CF-18	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-013	EGE12117-P-CF-19	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-014	EGE12117-P-CF-20	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-015	EGE12117-P-OF-24	01/21/2017 11:00 AM	01/23/2017 12:25 PM
1701236-016	EGE12117-P-CF-34	01/21/2017 11:00 AM	01/23/2017 12:25 PM



**Case Narrative** 

WO#: **1701236** Date: **1/24/2017** 

 CLIENT:
 Fulcrum Environmental

 Project:
 Kennewick SD Drinking Water - Eastgate 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:

1701236-001A 202824: Prep Comments for EPA200.8, Sample 1701236-001A: Turbidity: 0.08 NTU 1701236-004A 202825: Prep Comments for EPA200.8, Sample 1701236-004A: Turbidity: 0.09 NTU 1701236-005A 202826: Prep Comments for EPA200.8, Sample 1701236-005A: Turbidity: 0.04 NTU 1701236-006A 202827: Prep Comments for EPA200.8, Sample 1701236-006A: Turbidity: 0.10 NTU 1701236-009A 202828: Prep Comments for EPA200.8, Sample 1701236-009A: Turbidity: 0.12 NTU 1701236-012A 202829: Prep Comments for EPA200.8, Sample 1701236-012A: Turbidity: 0.04 NTU 1701236-013A 202830: Prep Comments for EPA200.8, Sample 1701236-013A: Turbidity: 0.14 NTU 1701236-014A 202831: Prep Comments for EPA200.8, Sample 1701236-014A: Turbidity: 0.11 NTU 1701236-015A 202835: Prep Comments for EPA200.8, Sample 1701236-015A: Turbidity: 0.05 NTU 1701236-016A 202836: Prep Comments for EPA200.8, Sample 1701236-015A: Turbidity: 0.05 NTU

# **Qualifiers & Acronyms**



WO#: **1701236** Date Reported: **1/24/2017** 

### 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:
 1701236

 Date Reported:
 1/24/2017

## CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Eastgate Elementary

Lab ID: 1701236-001 Client Sample ID: EGE12117-P-KF	-01		Collection Matrix: D		1/21/2017 11:00:00 AM Water			
Analyses	Result RL Qual Units DF Date Analyze							
Drinking Water Metals by EPA Meth	od 200.8		Batch	ID: 159	998 Analyst: TN			
Copper	1,200	0.500	μg/L	1	1/23/2017 9:28:35 PM			

Lab ID: 1701236-004 Client Sample ID: EGE12			Collection Date: 1/21/2017 11:00:00 AM Matrix: Drinking Water					
Analyses	Result	Ŭ						
Drinking Water Metals by E	PA Method 200.8		Batc	h ID: 15	998 Analyst: TN			
Copper	1,400	0.500	µg/L	1	1/23/2017 9:32:11 PM			
				Defe	4/24/2017 44.00.00 AM			

Lab ID: 1701236-005			Collectior	Date:	1/21/2017 11:00:00 AM
Client Sample ID: EGE12117-P-C	F-11		Matrix: D	rinking \	Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Met	<u>hod 200.8</u>		Batch	n ID: 159	998 Analyst: TN
Copper	877	0.500	µg/L	1	1/23/2017 9:35:48 PM



 Work Order:
 1701236

 Date Reported:
 1/24/2017

## CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Eastgate Elementary

Lab ID: 1701236-006 Client Sample ID: EGE12117-P-	NF-12		Collection Matrix: D		1/21/2017 11:00:00 AM Water			
Analyses	Result	RL Qual Units DF Date Analyzed						
Drinking Water Metals by EPA M	ethod 200.8		Batch	n ID: 15	998 Analyst: TN			
Copper	1,660	0.500	μg/L	1	1/23/2017 9:39:24 PM			

Lab ID: 1701236-009 Client Sample ID: EGI	E12117-P-OF-15		Collectior Matrix: D		1/21/2017 11:00:00 AM Water
Analyses	Result	RL Qual	Date Analyzed		
Drinking Water Metals b	by EPA Method 200.8		Batch	n ID: 15	998 Analyst: TN
Copper	1,590	0.500	µg/L	1	1/23/2017 9:43:00 PM
Lab ID: 1701236-012			Collectior	n Date:	1/21/2017 11:00:00 AM

Lab ID: 1701236-012 Client Sample ID: EGE12117-P-C	F-18				1/21/2017 11:00:00 AM Water			
Analyses	Result	RL Qual	Matrix: Drinking Water Units DF Date Analyzed					
Drinking Water Metals by EPA Met	hod 200.8		Batch	n ID: 159	998 Analyst: TN			
Copper	1,160	0.500	µg/L	1	1/23/2017 9:46:37 PM			



 Work Order:
 1701236

 Date Reported:
 1/24/2017

## CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Eastgate Elementary

Lab ID: 1701236-013 Client Sample ID: EGE12117-P-C	F-19		Collection Date Matrix: Drinking	: 1/21/2017 11:00:00 AM g Water
Analyses	Result	RL Qual	Units DF	Date Analyzed
Drinking Water Metals by EPA Met	<u>hod 200.8</u>		Batch ID: 1	5998 Analyst: TN
Copper	1,480	0.500	μg/L 1	1/23/2017 9:57:28 PM

Lab ID: 1701236-014 Client Sample ID: EGE	12117-P-CF-20	Collectior Matrix: D		1/21/2017 11:00:00 AM Water	
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals b	y EPA Method 200.8		Batch	n ID: 159	999 Analyst: TN
Copper	1,730	0.500	µg/L	1	1/23/2017 10:11:56 PM
Lab ID: 1701236-015			Collectior	Date:	1/21/2017 11:00:00 AM

Client Sample ID: EGE12117-F	P-OF-24		Matrix: Drinking Water					
Analyses	Result	RL Qual	Units	DF	Date Analyzed			
Drinking Water Metals by EPA M	lethod 200.8		Batch	n ID: 159	999 Analyst: TN			
Copper	2,090	0.500	µg/L	1	1/23/2017 10:26:21 PM			



 Work Order:
 1701236

 Date Reported:
 1/24/2017

CLIENT: Project:	Fulcrum Environmental Kennewick SD Drinking	Water - Eastga	ate Eleme	ntary			
	1701236-016 nple ID: EGE12117-P-0	CF-34			Collectior Matrix: D		1/21/2017 11:00:00 AM Water
Analyses		Result	RL	Qual	Units	DF	Date Analyzed
Drinking \	<u>Nater Metals by EPA Me</u>	<u>thod 200.8</u>			Batch	n ID: 159	999 Analyst: TN
Copper		0.600	0.500		µg/L	1	1/23/2017 10:29:58 PM



Work Order:	1701236									QCS	SUMMAI	RY REF	PORT
CLIENT:	Fulcrum Enviro	onmental							rinkin				
Project:	Kennewick SD	Drinking	Water -	Eastgate	El			D	minkin	g Water Me	tais by EF	'A wetho	a 200.
Sample ID MB-15	999	SampType	BLK			Units: µg/L		Prep Date:	1/23/20	017	RunNo: 34	026	
Client ID: MBLK	N	Batch ID:	15999					Analysis Date:	1/23/20	)17	SeqNo: 64	7576	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID LCS-1	5999	SampType	LCS			Units: µg/L		Prep Date:	1/23/20	)17	RunNo: 340	026	
Client ID: LCSW		Batch ID:	15999					Analysis Date:	1/23/20	017	SeqNo: 64	7577	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	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:	1/23/20	)17	RunNo: 340	026	
Client ID: EGE12	117-P-CF-20	Batch ID:	15999					Analysis Date:	1/23/20	)17	SeqNo: 64	7579	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	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:	1/23/20	)17	RunNo: 34	026	
Client ID: EGE12	117-P-CF-20	Batch ID:	15999					Analysis Date:	1/23/20	017	SeqNo: 64	7580	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	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:	1/23/20	)17	RunNo: 340	026	
Client ID: EGE12	117-P-CF-20	Batch ID:	15999					Analysis Date:	1/23/20	)17	SeqNo: 64	7581	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,960	0.500	200.0	1,728	115	70	130	1,912	2.39	30	



Work Order:	1701236									QCS	SUMMAI	RY REF	PORT
CLIENT:	Fulcrum Envir	ronmental							rinkin				
Project:	Kennewick SI	D Drinking	Water -	Eastgate	El			U	'IIIKIII	g Water Me	IN DY EF	Aimetho	u 200.0
Sample ID MB-159	998	SampType	BLK			Units: µg/L		Prep Date:	1/23/20	017	RunNo: 34	)25	
Client ID: MBLKV	v	Batch ID:	15998					Analysis Date:	1/23/20	017	SeqNo: 64	7526	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID LCS-15	998	SampType	LCS			Units: µg/L		Prep Date:	1/23/20	017	RunNo: 340	)25	
Client ID: LCSW		Batch ID:	15998					Analysis Date:	1/23/20	)17	SeqNo: 64	7527	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			94.1	0.500	100.0	0	94.1	85	115				
Sample ID 170123	5-017ADUP	SampType	DUP			Units: µg/L		Prep Date:	1/23/20	)17	RunNo: 34	)25	
Client ID: BATCH	I	Batch ID:	15998					Analysis Date:	1/23/20	017	SeqNo: 64	7529	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,090	0.500						1,167	6.49	30	
Sample ID 170123	5-017AMS	SampType	MS			Units: µg/L		Prep Date:	1/23/20	)17	RunNo: 34	)25	
Client ID: BATCH	I	Batch ID:	15998					Analysis Date:	1/23/20	017	SeqNo: 64	7532	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,360	0.500	200.0	1,167	94.9	70	130				
Sample ID 170123	5-017AMSD	SampType	: MSD			Units: µg/L		Prep Date:	1/23/20	)17	RunNo: 340	)25	
Client ID: BATCH	l	Batch ID:	15998					Analysis Date:	1/23/20	017	SeqNo: 64	7533	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,400	0.500	200.0	1,167	115	70	130	1,357	2.89	30	



### Sample Log-In Check List

CI	ient Name:	FE	Work Order Num	nber: 1701236	
Lo	ogged by:	Clare Griggs	Date Received:	1/23/2017	12:25:00 PM
<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>Client</u>		
<u>Log</u>	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 🗌	NA 🗌
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
		lspace 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 🗌	
<u>Spe</u>	cial Handl	ing (if applicable)			
-		otified of all discrepancies with this order?	Yes	No 🗌	NA 🖌
	Person	Notified: Date			
	By Who	m: Via:	eMail 🗌 Pl	hone 🗌 Fax 🛛	In Person
	Regardi	ng:			
	Client Ir	nstructions:			
19.	Regardi	ng:	eMail Pl	hone 🗌 Fax 🛛	In Person

#### Item Information

Item #	Temp ⁰C
Cooler	9.8
Sample	7.1

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

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			Chain of Custody	70	Record and Laboratory Services Agreement
					Information Project No (Internal): 170, 72, 10
3600 Fremont Ave N. Tel: 20 Seattle, WA 98103 Fax: 2	Tel: 206-352-3790 Fax: 206-352-7178			2	Page:
	Fulcrum Environmental Consulting	nsulting	Project Name:	50 Drinking	stork Elenertan
STUDIE COL ALC	406 North Second Street	NE WELTCARTE SAVURA MULTO	Project No:	Entropy Conventor Connected by	: Unerda Erry C. Mathin Poston
e, Zip:	98901	r gowood of the past of these	Report To (PM):	Rvan Mathe	The Long of the second se
Telephone: 509.574.0839	9	Fax: 509.545.8453	PM Email:	1	ekmafulrum nat
*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk,	ulk, O = Other, P		SL = Solid, W = Water,	ing Water, GW = Ground Water,	SW = Storm Water, WW = Waste Water
Sample Name	Sample Sample Time	ple Type CS CA STO	1997 - 19	48-95-56-56-95-95- 69-56-56-56-56-95- 59-56-56-56-56-56-56-56-56-56-56-56-56-56-	
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EGE12117-P-NF-15	a to not the loss		of a set of the period of the second	$\otimes$	HNO3 preserved
EGEIaliz-S-NF-15	R	*	device of data		How ; unpreserved
**Metals Analysis (Circle): MTCA-5 RCF	RCRA-8 Priority	Priority Pollutants TAL Individual: Ag	1: Ag Al As B Ba Be Ca Cd	Co Cr C Fe Hg K Mg Mn Mo Na Ni Pb	
***Anions (Circle): Nitrate Nitrite Sample Disposal: Return to Client	Chloride S	Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be	O-Phosphate Fluoride Nitra Id for 30 days unless otherwise noted. /	Nitrate+Nitrite Ted. A fee may be on the following business day.	es special Remarks: Bin 8/1024 preserve all unpreserved somples
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.	nto this Agreem t and backside c	ent with Fremont Analytical of this Agreement.	on behalf of the Client name	ed above, that I have verified Client's	
Religioushed Mach Pate/Time	1017, 1600		a da a la consecuencia su	Date/Time	TAT: ASAP
x and March 123/24	イロー /1ime	( Receive		2 Pate/Tipe	TAT → SameDay^ NextDay^ 2 Day 3 Day STD
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509:545.8453     PM Email:     rmathews@efulcrum.net; cc: aenbysk@efulcrum.net       luct, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Was       Sample     Star Star Star Star Star Star Star Star	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	HWO3 grosen			TAL Individual: Ag Al As B Ba Be Ca Cd co Cr/Cu )Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti	TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Bromide O-Phosphate Fluoride Nitrate+Nitrite Turn-around times for samples received after 4:00pm will beein	Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb e O-Phosphate Fluoride Nitrate+Nitrite Turm-around times for samples Ill be held for 30 days unless otherwise noted. A fee may be on the following business day. Analytical on behalf of the Client named above, that I have verified Client's	Individual: Ag Al As B Ba Be Ca Cd Co Cr(Cu) Fe Hg K Mg Mn Mo Na Ni Pb O-Phosphate Fluoride Nitrate+Nitrite Turn-around times for samples be held for 30 days unless otherwise noted. A fee may be on the following business day. Analytical on behalf of the Client named above, that I have verified Client's Received Pate/Time
rmathews@efulcrum.net; cc: aenbysk@efulcrum.net W = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Wate GG GG ST ST GG ST	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				Cd Co Cr/Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Ti U V	Pee Hg K Mg Mn Mo Na Ni Pb	Ni Pb Sb Se Sr Sn Ti Ti U V ples special Remarks: lay. Release preserve a	Aay.

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Distribution: White - Lab, Yellow - File, Pink - Originator

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	remont	S	ain of Custody Record	Chain of Custody Record and Laboratory Services Agreement	Agreement
	A CONTRACT AND A CONTRACT		Date: 1/21/2017	117 Laboratory Project No (internal): 1701230	01230 of 15
3600 Fremont Ave N.	Tel: 206-352-3790			Page:of:	
Seattle, WA SOLUS	Fax: 206-352-7178		Project Name: KIMEWICK SD Dru	Kennewick SD Drinkin, Water-Eastgale Elenertan	<sup>2</sup> age
Client:	ruicium environmental Consulting	ling	Project No: 162017	Collected by: anenda Enlask hithen bostom	
Address:	406 North Second Street			a Konnowick WA	140000
City, State, Zip:	Yakima, WA 98901		(PM):	Rvan Mathews	
Telephone:	509.574.0839 Fax	Fax: 509.545.8453	rmathews@	to construct a fulcrum not	
*Matrix Codes: A = Air, AQ = A	<, 0 = 0ther, P =	S = Soil SD = Sediment	W - Water DW - Dealine Water	יישיבי אזזזזזרי, ייי מינושע אזע פינעורו אוזון ווכר בישיבי אזזזזזרי, ייי מינושע אזע פינעורו אוזן ווכר	
		S - South, SD - Sediment, SL =	W = Drinking Water,	GW = Ground Water, SW = Storm Water, WW = Waste Water	
Sample Name	Sample Sample	Sample CC3 485 CD4			
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EGE12117-8-15-15	Leal X		$\otimes$	HNO3 preserved	
EGEIaliz-S-NF-15	R R	~		How inpreserved	
**Metals Analysis (Circle): N	MTCA-5 RCRA-8 Priority Pollutants	TAL Individual: Ag Al As	B Ba Be Ca Cd Co Cr C Fe Hg K Mg Mn Mo Na	Ni Pb	
***Anions (Circle): Nitrate	Nitrite Chloride Sulfate	Bromide O-Phosphate F			
Sample Disposal:	Return to Client Disposal by L assessed if sa	urisposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)	otherwise noted. A fee may be on the following business day.	usiness day. Plass preserve all upreserved samples	servedsomples
agreement to each of the term	agreement to each of the terms on the front and backside of this Agreement Balionuished	Agreement.	a represent that i atth atthe and the front and backside of this Agreement 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.	Client's	
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X and MASA-	GCP(: tlot/gr)		123/2017 L	$\left( \begin{array}{c} V \mathcal{V} \\ \end{array} \right)^{Please coordinate with the lab in advance} TAT \rightarrow SameDay^{A} NextDay^{A} 2 Day 3 Day STD$	ay STD
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Sample Name         Date         Time         (Matrix)*         JU/ GT/ GT/ GT/ GT/ GT/ GT/ GT/ GT/ GT/ GT		- 06-	EGE12117-p-0F-24	e e			Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se	MTCA-5       RCRA-8       Priority Pollutants       TAL       Individual:       Ag       Al       As       B       Be       Ca       Cd       Co       Cr(Cu)       Fe       Hg       K       Mg       Mn       Mo       Na       Ni       Pb         te<       Nitrite       Chloride       Sulfate       Bromide       O-Phosphate       Fluoride       Nitrate+Nitrite       Turn-around times for samples       assessed if samples are retained after 30 days.)       Turn-around times for samples       in the following business day.	Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Co-Phosphate Fluoride Nitrate+Nitrite Turn-around times for samples in the held for 30 days unless otherwise noted. A fee may be on the following business day. Analytical on behalf of the Client named above, that I have verified Client's	sis (Circle):       MTCA-S       RCRA-8       Priority Pollutants       TAL       Individual:       Ag       Al       As       B       Ba       Ca       Cd       Ca       Ca
tomments HOD; unpreserved	Thuz preservea				2	R	Ni Pb Sb Se Sr Sn Ti Ti U V	Ni Pb	Ni Pb begin	Ni Pb Sb Se Sr Sn Ti TI U V ples Special Remarks: begin Please proserve al ATAT: ASAP



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 - Eastgate Elementary Follow-up Sampling Work Order Number: 1701339

January 31, 2017

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

Fremont Analytical, Inc. received 17 sample(s) on 1/30/2017 for the analyses presented in the following report.

#### Drinking Water Metals by EPA Method 200.8

This report consists of the following:

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

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward Project Manager

**CC:** Amanda Enbysk

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



CLIENT: Project: Work Order:	Fulcrum Environmental Kennewick SD - Eastgate Elementary Follo 1701339	Work Order S	ample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701339-001	EGE12817-P-CF-07	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-002	EGE12817-S-CF-07	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-003	EGE12817-T-CF-07	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-004	EGE12817-P-CF-18	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-005	EGE12817-S-CF-18	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-006	EGE12817-T-CF-18	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-007	EGE12817-P-CF-19	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-008	EGE12817-S-CF-19	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-009	EGE12817-T-CF-19	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-010	EGE12817-P-CF-20	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-011	EGE12817-S-CF-20	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-012	EGE12817-T-CF-20	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-013	EGE12817-P-CF-24	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-014	EGE12817-S-CF-24	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-015	EGE12817-T-CF-24	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-016	EGE12817-P-CF-34	01/28/2017 11:00 AM	01/30/2017 9:20 AM
1701339-017	EGE12817-P-CF-35	01/28/2017 11:00 AM	01/30/2017 9:20 AM



**Case Narrative** 

WO#: **1701339** Date: **1/31/2017** 

CLIENT: Fulcrum Environmental

Project: Kennewick SD - Eastgate Elementary Follow-up 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:

1701339-001A 204217: Prep Comments for EPA200.8, Sample 1701339-001A: Turbidiy: 0.64 NTU
1701339-002A 204218: Prep Comments for EPA200.8, Sample 1701339-002A: Turbidiy: 0.07 NTU
1701339-003A 204219: Prep Comments for EPA200.8, Sample 1701339-003A: Turbidiy: 0.03 NTU
1701339-004A 204220: Prep Comments for EPA200.8, Sample 1701339-004A: Turbidiy: 0.08 NTU
1701339-005A 204221: Prep Comments for EPA200.8, Sample 1701339-005A: Turbidiy: 0.05 NTU
1701339-006A 204222: Prep Comments for EPA200.8, Sample 1701339-006A: Turbidiy: 0.01 NTU
1701339-007A 204223: Prep Comments for EPA200.8, Sample 1701339-007A: Turbidiy: 0.08 NTU
1701339-008A 204224: Prep Comments for EPA200.8, Sample 1701339-008A: Turbidiy: 0.05 NTU
1701339-009A 204225: Prep Comments for EPA200.8, Sample 1701339-009A: Turbidiy: 0.03 NTU
1701339-010A 204226: Prep Comments for EPA200.8, Sample 1701339-010A: Turbidiy: 0.07 NTU
1701339-011A 204227: Prep Comments for EPA200.8, Sample 1701339-011A: Turbidiy: 0.01 NTU
1701339-012A 204230: Prep Comments for EPA200.8, Sample 1701339-012A: Turbidiy: 0.03 NTU
1701339-013A 204234: Prep Comments for EPA200.8, Sample 1701339-013A: Turbidiy: 0.05 NTU
1701339-014A 204235: Prep Comments for EPA200.8, Sample 1701339-014A: Turbidiy: 0.06 NTU
1701339-015A 204236: Prep Comments for EPA200.8, Sample 1701339-015A: Turbidiy: 0.01 NTU
1701339-016A 204237: Prep Comments for EPA200.8, Sample 1701339-016A: Turbidiy: 0.02 NTU
1701339-017A 204238: Prep Comments for EPA200.8, Sample 1701339-017A: Turbidiy: 0.04 NTU

### **Qualifiers & Acronyms**



WO#: **1701339** Date Reported: **1/31/2017** 

### 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:
 1701339

 Date Reported:
 1/31/2017

#### CLIENT: Fulcrum Environmental

Lab ID:         1701339-001         Collection Date:         1/28/2017         11:00:00 A           Client Sample ID:         EGE12817-P-CF-07         Matrix:         Drinking Water						
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Meth	Batch	ID: 160	072 Analyst: TN			
Copper	2,500	0.500	µg/L	1	1/30/2017 9:20:57 PM	

Lab ID:         1701339-002         Collection Date:         1/28/2017         11:00:00 /           Client Sample ID:         EGE12817-S-CF-07         Matrix:         Drinking Water						
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA M	Drinking Water Metals by EPA Method 200.8				072 Analyst: TN	
Copper	3,670	0.500	µg/L	1	1/30/2017 9:24:33 PM	

Lab ID: 1701339-003	Collection Date: 1/28/2017 11:00:00 AM						
Client Sample ID: EGE12817-T-CF-07				Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Drinking Water Metals by EPA Method 200.8				ID: 160	72 Analyst: TN		
Copper	1,740	0.500	µg/L	1	1/30/2017 9:28:09 PM		



 Work Order:
 1701339

 Date Reported:
 1/31/2017

#### CLIENT: Fulcrum Environmental

Lab ID:         1701339-004         Collection Date:         1/28/2017         11:00:00 Al           Client Sample ID:         EGE12817-P-CF-18         Matrix:         Drinking Water						
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Meth	Batch	n ID: 160	072 Analyst: TN			
Copper	1,320	0.500	µg/L	1	1/30/2017 9:31:45 PM	

Lab ID: 1701339-005 Client Sample ID: EGE12817-S-CF	Collection Date: 1/28/2017 11:00:00 AM Matrix: Drinking Water				
Analyses	Result	RL Qual	Units DF Date Analyzed		
Drinking Water Metals by EPA Meth	Batch ID: 16072 Analyst: TN				
Copper	1,900	0.500	µg/L	1	1/30/2017 9:35:22 PM
Lab ID: 1701339-006 Client Sample ID: EGE12817-T-CF	10				1/28/2017 11:00:00 AM
Client Sample ID. EGE12017-1-CF	-10		Matrix: Dr	inking v	Valei
Analyses	Result	RL Qual	Units	DF	Date Analyzed

Drinking Water Metals by EPA Method	<u>d 200.8</u>		Batch	ID: 1	6072	Analyst: TN
Copper	657	0.500	µg/L	1	1/30/20	017 9:38:58 PM



 Work Order:
 1701339

 Date Reported:
 1/31/2017

#### **CLIENT:** Fulcrum Environmental

Project: Kennewick SD - Eastgate Elementary Follow-up Sampling

Lab ID:         1701339-007         Collection Date:         1/28/2017         11:00:00 AN           Client Sample ID:         EGE12817-P-CF-19         Matrix:         Drinking Water							
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Drinking Water Metals by EPA Met	Batch	ID: 160	072 Analyst: TN				
Copper	1,610	0.500	µg/L	1	1/30/2017 9:42:35 PM		

Lab ID: 1701339-008 Client Sample ID: EGE12817-S-CF	Collection Date: 1/28/2017 11:00:00 AM Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	Batch ID: 16072 Analyst: TN				
Copper	2,370	0.500	µg/L	1	1/30/2017 9:46:11 PM
Lab ID: 1701339-009			Collection	Date:	1/28/2017 11:00:00 AM
Client Sample ID: EGE12817-T-CF		Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed

 Drinking Water Metals by EPA Method 200.8
 Batch ID:
 16072
 Analyst:
 TN

 Copper
 941
 0.500
 µg/L
 1
 1/30/2017 9:49:48 PM



 Work Order:
 1701339

 Date Reported:
 1/31/2017

#### CLIENT: Fulcrum Environmental

Lab ID:         1701339-010         Collection Date:         1/28/2017         11:00:00 /           Client Sample ID:         EGE12817-P-CF-20         Matrix:         Drinking Water						
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Meth	Batch	n ID: 160	072 Analyst: TN			
Copper	1,770	0.500	µg/L	1	1/30/2017 9:53:24 PM	

Lab ID: 1701339-011 Client Sample ID: EGE12817-S-CF	-20		Collection Matrix: Dr		1/28/2017 11:00:00 AM Vater
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	<u>od 200.8</u>		Batch	ID: 160	72 Analyst: TN
Copper	2,250	0.500	µg/L	1	1/30/2017 10:04:15 PM
Lab ID: 1701339-012 Client Sample ID: EGE12817-T-CF Analyses	-20 Result	RL Qual	Collection Matrix: Dr Units		1/28/2017 11:00:00 AM Vater <b>Date Analyzed</b>

Drinking Water Metals by EPA Method	200.8			Batch ID:	16073	3 Analyst: TN
Copper	767	0.500	hð	j/L 1		1/30/2017 10:18:42 PM



 Work Order:
 1701339

 Date Reported:
 1/31/2017

#### CLIENT: Fulcrum Environmental

Lab ID: 1701339-013 Client Sample ID: EGE12817-P-CF	-24		Collectior Matrix: D		1/28/2017 11:00:00 AM Water
Analyses	Result	RL Qua	l Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	<u>od 200.8</u>		Batch	n ID: 160	073 Analyst: TN
Copper	2,040	0.500	µg/L	1	1/30/2017 10:33:07 PM

Lab ID: 1701339-014 Client Sample ID: EGE	12817-S-CF-24		Collectior Matrix: D		1/28/2017 11:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by	/ EPA Method 200.8		Batch	n ID: 16	073 Analyst: TN
Copper	2,410	0.500	µg/L	1	1/30/2017 10:36:44 PM
1 ab ID: 1701330-015			Collection	Dato:	1/28/2017 11·00·00 AM

Lab ID: 1701339-015			Collection	n Date:	1/28/2017 11:00:00 AM
Client Sample ID: EGE12817-	T-CF-24		Matrix: D	rinking \	Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA I	Method 200.8		Batcl	n ID: 160	073 Analyst: TN
Copper	841	0.500	µg/L	1	1/30/2017 10:47:35 PM



 Work Order:
 1701339

 Date Reported:
 1/31/2017

#### CLIENT: Fulcrum Environmental

Lab ID: 1701339-016 Client Sample ID: EGE12817-P	-CF-34		Collection Matrix: D		1/28/2017 11:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA M	ethod 200.8		Batch	ID: 16	073 Analyst: TN
Copper	ND	0.500	µg/L	1	1/30/2017 10:51:12 PM

Lab ID: 1701339-017			Collection	Date:	1/28/2017 11:00:00 AM
Client Sample ID: EGE12817-P-CF-	35		Matrix: D	rinking \	Nater
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Metho	od 200.8		Batch	ID: 160	73 Analyst: TN
Copper	1,290	0.500	µg/L	1	1/30/2017 10:54:48 PM



Work Order:	1701339							<b></b>	SUMMARY REF	PORT
CLIENT:	Fulcrum Env	vironmental					-			
Project:	Kennewick S	SD - Eastgate Eleme	ntary Foll	0			D	rinking water M	etals by EPA Metho	a 200.
Sample ID MB-160	)73	SampType: MBLK			Units: µg/L		Prep Date:	1/30/2017	RunNo: 34164	
Client ID: MBLKV	v	Batch ID: 16073					Analysis Date:	1/30/2017	SeqNo: 650626	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		ND	0.500							
Sample ID LCS-16	073	SampType: LCS			Units: µg/L		Prep Date:	1/30/2017	RunNo: 34164	
Client ID: LCSW		Batch ID: 16073					Analysis Date:	1/30/2017	SeqNo: 650629	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		101	0.500	100.0	0	101	85	115		
Sample ID 170133	9-012ADUP	SampType: DUP			Units: µg/L		Prep Date:	1/30/2017	RunNo: 34164	
Client ID: EGE12	817-T-CF-20	Batch ID: 16073					Analysis Date:	1/30/2017	SeqNo: 650634	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		777	0.500					767.1	1.28 30	
Sample ID 170133	9-012AMS	SampType: <b>MS</b>			Units: µg/L		Prep Date:	1/30/2017	RunNo: <b>34164</b>	
Client ID: EGE12	817-T-CF-20	Batch ID: 16073					Analysis Date:	1/30/2017	SeqNo: 650637	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		939	0.500	200.0	767.1	86.1	70	130		
Sample ID 170133	9-012AMSD	SampType: MSD			Units: µg/L		Prep Date:	1/30/2017	RunNo: 34164	
Client ID: EGE12	817-T-CF-20	Batch ID: 16073					Analysis Date:	1/30/2017	SeqNo: 650639	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		925	0.500	200.0	767.1	79.1	70	130 939.3	1.50 30	



Work Order:	1701339								2 30	SUMMAR		PORT
CLIENT:	Fulcrum Env	vironmental					-					
Project:	Kennewick S	SD - Eastgate Eleme	entary Foll	0			L	rinkin	g Water Me	tais by EP	'A Metho	a 200.
Sample ID MB-160	72	SampType: MBLK			Units: µg/L		Prep Date:	1/30/20	17	RunNo: 341	163	
Client ID: MBLKW	V	Batch ID: 16072					Analysis Date:	1/30/20	17	SeqNo: 650	0554	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		ND	0.500									
Sample ID LCS-16	072	SampType: LCS			Units: µg/L		Prep Date:	1/30/20	)17	RunNo: 341	163	
Client ID: LCSW		Batch ID: 16072					Analysis Date:	1/30/20	17	SeqNo: 650	0555	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		99.9	0.500	100.0	0	99.9	85	115				
Sample ID 170133	8-001ADUP	SampType: DUP			Units: µg/L		Prep Date:	1/30/20	17	RunNo: 341	163	
Client ID: BATCH		Batch ID: 16072					Analysis Date:	1/30/20	17	SeqNo: 650	0557	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		207	0.500						211.6	2.01	30	
Sample ID 1701338	8-001AMS	SampType: <b>MS</b>			Units: µg/L		Prep Date:	1/30/20	17	RunNo: 341	163	
Client ID: BATCH		Batch ID: 16072					Analysis Date:	1/30/20	17	SeqNo: 650	0563	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		420	0.500	200.0	211.6	104	70	130				
Sample ID 1701338	8-001AMSD	SampType: MSD			Units: µg/L		Prep Date:	1/30/20	)17	RunNo: 341	163	
Client ID: BATCH		Batch ID: 16072					Analysis Date:	1/30/20	17	SeqNo: 650	0565	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		400	0.500	200.0	211.6	94.3	70	130	419.8	4.81	30	



### Sample Log-In Check List

ent Name:	FE	Work Order Numl	ber: 1701339	
gged by:	Clare Griggs	Date Received:	1/30/2017	9:20:00 AM
in of Cust	ody			
Is Chain of C	ustody complete?	Yes 🖌	No 🗌	Not Present
How was the	sample delivered?	<u>FedEx</u>		
In				
	present?	Yes 🖌	No 🗌	
Shipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌	
		Yes	No 🗌	Not Required 🗹
Was an atten	npt made to cool the samples?	Yes 🖌	No 🗌	NA 🗌
Were all item	s received at a temperature of $>0^{\circ}C$ to $10.0^{\circ}C^{*}$	Yes ✔	No 🗌	
Sample(s) in	proper container(s)?	Yes 🖌	No 🗌	
Sufficient sar	nple volume for indicated test(s)?	Yes 🖌	No 🗌	
Are samples	properly preserved?	Yes 🖌	No 🗌	
Was preserva	ative added to bottles?	Yes	No 🔽	NA 🗌
Is there head	space in the VOA vials?	Yes	No 🗌	NA 🗹
Did all sample	es containers arrive in good condition(unbroken)?	Yes 🖌	No 🗌	
Does paperw	ork match bottle labels?	Yes 🗹	No 🗌	
Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌	
		Yes 🖌	No 🗌	
Were all hold	ing times able to be met?	Yes 🗹	No 🗌	
cial Handli	ing (if applicable)			
		Yes	No 🗌	NA 🗹
Person	Notified: Date			
By Who	m: Via:	eMail 🗌 Ph	one 🗌 Fax	In Person
Regardi	ng:			
Client In	structions:			
	in of Custa Is Chain of C How was the In Coolers are p Shipping con Custody Seal (Refer to corr Was an atter Was an atter Was an atter Was an atter Sample(s) in Sufficient sar Are samples Was preserva Is there head Did all sampl Does paperw Are matrices Is it clear wha Were all hold Cial HandI Was client no Person By Who Regardi	gged by:       Clare Griggs         in of Custody         Is Chain of Custody complete?         How was the sample delivered?         In         Coolers are present?         Shipping container/cooler in good condition?         Custody Seals present on shipping container/cooler?         (Refer to comments for Custody Seals not intact)         Was an attempt made to cool the samples?         Were all items received at a temperature of >0°C to 10.0°C*         Sample(s) in proper container(s)?         Sufficient sample volume for indicated test(s)?         Are samples properly preserved?         Was preservative added to bottles?         Is there headspace in the VOA vials?         Did all samples containers arrive in good condition(unbroken)?         Does paperwork match bottle labels?         Are matrices correctly identified on Chain of Custody?         Is it clear what analyses were requested?         Were all holding times able to be met?         Cial Handling (if applicable)         Was client notified of all discrepancies with this order?         Person Notified:       Date	gged by:       Clare Griggs       Date Received:         in of Custody       Is Chain of Custody complete?       Yes       Yes       Yes         How was the sample delivered?       FedEx       In       Image: Coolers are present?       Yes       Yes       Yes         Coolers are present?       Yes       Yes       Yes       Yes       Yes       Yes         Shipping container/cooler in good condition?       Yes       Yes       Yes       Yes       Yes         Custody Seals present on shipping container/cooler?       Yes       Yes       Yes       Yes       Yes         Was an attempt made to cool the samples?       Yes       Yes       Yes       Yes       Yes         Sufficient sample volume for indicated test(s)?       Yes       Yes       Yes       Yes       Yes         Sufficient sample volume for indicated test(s)?       Yes       Yes       Yes       Yes       Yes         Sufficient sample volume for indicated test(s)?       Yes       Yes	gged by:       Clare Griggs       Date Received:       1/30/2017         in of Custody       Is Chain of Custody complete?       Yes       No       No         How was the sample delivered?       EadEx       In       In       In         Coolers are present?       Yes       ✓       No       No         Shipping container/cooler in good condition?       Yes       ✓       No       In         Custody Seals present on shipping container/cooler?       Yes       ✓       No       In         Custody Seals present on shipping container/cooler?       Yes       ✓       No       In         Was an attempt made to cool the samples?       Yes       ✓       No       In         Were all items received at a temperature of >0°C to 10.0°C*       Yes       ✓       No       In         Sufficient sample volume for indicated test(s)?       Yes       ✓       No       In         Sufficient samples containers arrive in good condition(unbroken)?       Yes       No       In         Did all samples containers arrive in good condition(unbroken)?       Yes       No       In         Did all samples containers arrive in good condition(unbroken)?       Yes       No       In         Are matrices correctly identified on Chain of Custod?       Yes

#### Item Information

Item #	Temp °C
Cooler	9.0
Sample	9.8

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

COC 1.1 - 4.5.16 - 1 of 2

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Chain of Custody Record and Lat Inter 1/12/17/17 Prices Prices 23:2777 Prices Prices Pr	Date/Time     TAT → SameDay^ NextDay^ 2 Day 3 Day STD       ^Please coordinate with the lab in advance	me Received x	Relinquished Date/Time
Freemone       Chain of Custody Record and Laboratory Services Agreement         new Nr       R: 308-353.73       Note:       1/28/2017       Laboratory Services Agreement         Note:       Note:       1/28/2017       Laboratory Services Agreement         Service Nr       R: 308-353.73       Note:       1/28/2017       Laboratory Services Agreement         Service Nr       Service Nr       Note:       N	y	to this Agreement with Fremont Analytical on behalf of the Client nar and backside of this Agreement. me The Market Received	agreement to each of the terms on the front Reimquished
Chain of Custody Record and Laboratory Services Agreement	l begin day.	Disposal by Lab (Samples will be held for 30 days unless otherwise not assessed if samples are retained after 30 days.)	Sample Disposal: Return to Client
Chain of Custody Record and Laboratory Services Agreement	Turn-around times for samples	Sulfate Bromide O-Phosphate Fluoride	Nitrate
Instruction     Instruction     Instruction     Instruction       Area     Fit 206-532-3797     Instruction     Instruction     Instruction     Instruction       Area     Fit 206-532-3797     Instruction     Instruction     Instruction     Instruction     Instruction       Area     Areasean     Instruction     Instruction     Instruction     Instruction     Instruction       Area     Areasean     Instruction     Instruction     Instruction     Instruction     Instruction     Instruction     Instruction     Instruction       Area     Area     Instruction     In	Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti TI U V	Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca	MTCA-5
Image: Chain of Custody Record and Laboratory Services Agreement Custory Record and Laboratory Services Agreement Custory Record and Laboratory Services Agreement Custory Records and Laboratory Services Agreement Services Records and Laboratory Services Agreement Custory Records and Laboratory Services Agreement Custory Records and Laboratory Services Agreement Custory Records and Laboratory Services Agreement Services Records and Recor		e t e	-P-CF-
Image: Figure Function       I			4
Image: Notice of Custody Record and Laboratory Services Agreement of the 206-32-379       Date: 1/28/2017       Laboratory Services Agreement of the 206-32-379         Name: Tel: 206-32-379       For 206-32-379			12
Image: Autor Districts       I	8		\$7-2-6-680374
Freemont       Chain of Custody Record and Laboratory Services Agreemer         Annew       File: 206-325-3739         Annew       File: 206-325-3739         Annew       File: 206-325-3739         File: 206-325-3739       File: 1/28/2017         Annew       File: 206-325-3739         File: 206-325-3739       File: 1/28/2017         Annew       Services Agreemer         Allower       File: 1/28/2017         Allower       Services Agreemer         Allower       Services Agreemer         Allower       Services Agreemer         Allower       Service Agreemer         Service Agreemer       Service Agreemer         Allower       Service Agreemer         Service Agreemer       Service Agreemer         Serv			EGE12817-7-C12-18
Image: Notice of Custody Record and Laboratory Services Agreemer         Anew.       Tel: 26-352-3739       Date: 1/28/2017       Lacemon Project No (internal)         Anew.       Tel: 26-352-3739       Project Name.       Kannewick SD - Eastgate Elementary Follow-Up Sampling       Tube (Main Nu 9901)         Add Noth Second Street       Project Name.       Kannewick SD - Eastgate Elementary Follow-Up Sampling       Tube (Main Nu 9901)         Storage       Fai: 305-352-333       Fai: 305-352-333       Project Name.       Kannewick SD - Eastgate Elementary Follow-Up Sampling       Tube (Main Nu 9901)         Storage       Fai: 305-352-3333       Fai: 305-352-3333       Project Name.       Kannewick SD - Eastgate Elementary Follow-Up Sampling       Tube (Main Nu 9901)         Storage       Fai: 305-352-3333       Fai: 305-352-3333       Project Name.       Kannewick SD - Eastgate Elementary Follow-Up Sampling         Storage       Fai: 305-352-3333       Fai: 305-352-3333       Project Name.       Mainteest       Storage Elementary Follow-Up Sampling         Storage       Fai: 305-352-3333       Fai: 305-352-3333       Project Name.       Mainteest       Storage Elementary Follow-Up Sampling         Storage       Fai: 305-352-3333       Fai: 305-352-3333       Project Name.       Mainteest       Storage Elementary Follow-Up Sampling         Storage       Fai: 305-352-3333 </td <td>8</td> <td></td> <td>S-CE-</td>	8		S-CE-
Image: Line of Custody Record and Laboratory Services Agreemer         Anew.       Tel: 206-325-379         Avew.       Tel: 206-325-379         Fullow Records and Laboratory Project No Internal:       Date: 1/28/2017       Laboratory Project No Internal:         Fullow Records Street       Project Name       Kennewick SD - Eastgate Elementary Follow-Up Sampling         Yakima, WA 98901       Far: 505.55.853       Polet Name       Kennewick SD - Eastgate Elementary Follow-Up Sampling         St05.574.0839       Far: 505.55.8533       Polet Name       Kennewick SD - Eastgate Elementary Follow-Up Sampling         Nr. Act - Aqueous, B = Buk, O - Other, P = Product, S = Solil, SD = Sediment, St = Solil, W = Water, OW = forulary School, kennewick, WA       Son Train Mathews         Nr. Mathews       Sumple Date: Traine       Sumple Sample       Sumple Date: Traine       Sumple Sample         The CF-O7       Valarya, W = Water, OF       Sum Valar, OF       Sum Valar, OF       Sum Valar, OF       Sum Valar, OF         No. CF-O7       Valarya, W = Son, Traine       Sum Valar, OF       Sum Valar, OF       Sum Valar, OF       Sum Valar, OF         No. CF-O7       Valarya, W = Son, Valar, Valar, OF       Sum Valar, Valar, Valar, Valar, OF       Sum Valar, Valar, Valar, Volar, Volar			1×
Image: Subscription       Chain of Custody Record and Laboratory Services Agreemer         Anew       Tel: 206-332-3729         Anew       Tel: 206-332-3729         Fullrum Environmental Consulting       Project Name: Agreemer         406 North Second Street       Project Name: Agreemer         Vakima, WA 39901       Fas: 509.548-843         S09.574.0839       Fas: 509.548-843         Nr. AC = Aqueous, B = Buik, C = Other, P = Product, S = Solid, SD = Sediment, S = Solid, W = Water, DW = binking Water, SW = Cound Water, SW = Som Wat			-T-CF
Area       Tel: 206-352-3790       Date:       1/28/2017       Laboratory Services Agreement         Fullow       Tel: 206-352-3790       Project Name       Interruption       Interruption         Fullow       Tel: 206-352-3790       Project Name       Interruption       Interruption         Fullow       Fullow       Tel: 206-352-3790       Project Name       Interruption       Interruption         Fullow       Fullow       Fullow       Project Name       Kennewick SD - Eastgate Elementary Follow-Up Sampling       Interruption         Yakima, WA 98901       Sog 574.0839       Fas: 503-55-4843       Project No:       Eastgate Elementary Follow-Up Sampling         Yakima, WA 98901       Fas: 503-55-4843       Project No:       Eastgate Elementary School, Kennewick, WA         Sog 574.0839       Fas: 503-55-4843       Project No:       Eastgate Elementary School, Kennewick, WA         Kr. AC = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SI = Soil, W = Water, DW = Dinning Water, GW = Ground Water, W = Storm Water, WH = Water       W = Storm Water, WH = Water         Area       Area       Song base       Song base       Song base       Song base       Song base         Area       Area       Song base       Song base       Song base       Song base       Song base       Song base       Song ba			-5-CF
Anem.       Tel: 206-352-3790       Desc. 206-352-3790       Polect Name.       Memewick SD - Eastgate Elementary Follow-Up Sampling       Page:		11:00 DW	-P-CF-07
Analystical       Chain of Custody Record and Laboratory Services Agreemen         Are N.       Tel: 206-352-7178         Are N.       Tel: 206-352-7178         Fulcrum Environmental Consulting       Project Name:         406 North Second Street       Project No:         406 North Second Street       Location:         Vakima, WA 98901       Fax: 509.545.8453         S09.574.0839       Fax: 509.545.8453         Project, St - Soil, SD = Sediment, St = Soild, W = Water, DW = Dinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water		Sample Sample Street St	
Analytical       Analytical         Analytical       Date: 1/28/2017         Ave N.       Tel: 206-352-7178         Fax: 206-352-7178       Project Name:         Fulcrum Environmental Consulting       Project Name:         Ado North Second Street       Project No:         Vakima, WA 98901       Fax: 509.545.8453         S09.574.0839       Fax: 509.545.8453         S09.574.0839       Fax: 509.545.8453         Mir AO = Anuevic R = Bulk On Charler De Donuter Conditions of Conditio	ung water,	- Control, F - Friender, S - Soni, Sp - Securiterit, St - Sonia, W = Water,	1
Freemont       Chain of Custody Record and Laboratory Services Agreemen         Analytican       International Consulting       Date: 1/28/2017       Laboratory Project No (International Consulting         Ave N.       Tel: 206-352-3790       Forget Name: 1/28/2017       Laboratory Project No (International Consulting       Date: 1/28/2017       Laboratory Project No (International Consulting         Fulcrum Environmental Consulting       Project Name: Nennewick SD - Eastgate Elementary Follow-Up Sampling       Orgotet No: 162017       Collected by: Nathet Bosthrow         406 North Second Street       Project No: 162017       Collected by: Nathet Bosthrow       Date: 162017       Collected by: Nathet Bosthrow         Yakima, WA 98901       Report To (PM):       Ryan Mathews       Ryan Mathews       Ryan Mathews		Fax: 509.545.8453 PM Email:	509.574
Fremont Ave N.       Tel: 206-352-3790       Date:       1/28/2017       Laboratory Project No (Internal):       TULWAY         remont Ave N.       Tel: 206-352-7178       Fax: 206-352-7178       Project Name:       Manuevick SD - Eastgate Elementary Follow-Up Sampling       Internal:       TULWAY         Fulcrum Environmental Consulting       Project Name:       Kennewick SD - Eastgate Elementary Follow-Up Sampling       Internal:       TULWAY         s:       406 North Second Street       Location:       Eastgate Elementary School, Kennewick, WA       Eastgate Elementary School, Kennewick, WA	1		
Fremont Ave N.       Tel: 206-352-3790       Chain of Custody Record and Laboratory Services Agreement         remont Ave N.       Tel: 206-352-3790       Date: 1/28/2017       Laboratory Project No (internal):         remont Ave N.       Tel: 206-352-3790       Project Name:       Marker SD - Eastgate Elementary Follow-Up Sampling         Fulcrum Environmental Consulting       Project No:       162017       Collected by: Marker Bostrown		supersual affects of spectrum and a second second	
Chain of Custody Record and Laboratory Services Agreemen         Analytical         N. Tel: 206-352-3790         Fax: 206-352-7178	Sostrom	and the second se	10 M 10 M
The Chain of Custody Record and Laboratory Services Agreemen	دو		Ŗ
<b>mt</b> Chain of Custody Record and Laboratory Services Agreemen	1/28/2017 Laboratory Project No (Internal): 1018	THRAL	Analy
	ustody Record and Laboratory Services Agreement	nt	Fremo

	remo	ont				Chain of	Custoc	ly Recor	d and	د م
	Anai	ytical					Date:	1	/28/2017	Laboratory Project No (internal):
3600 Fremont Ave N. Seattle, WA 98103	Tel: 20 Fax: 2	Tel: 206-352-3790 Fax: 206-352-7178								Page: 0 of: 2
Client:	Fulcrum Env	Fulcrum Environmental Consulting	Consulting			Project Name:	ne:	newick SD - Eas	tgate Elemen	
Address:	406 North S	406 North Second Street	Tothe Value	171 GV 8.1		Location:		TUZULI	shool Kosses	
City, State, Zip:	Yakima, WA 98901	98901	168 m	11 - T - B - T	Carl E. Migton	Report To (PM):	1	Ryan Mathews	CIUUI, NEIIIEW	NICK, WA
Telephone:	509.574.0839	6	Fax: 50	Fax: 509.545.8453	19475 A 1947	PM Email:		rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	net: cc: aenbys	sk@efulcrum.net
*Matrix Codes: A = Air, AQ =	AQ = Aqueous, B = Bulk,	ulk, O = Other,		P = Product, S = Soil, SD = Sediment,		SL = Solid, W = Water, DW = Drinking Water,	r, DW = Drinking	Water, GW = Gro	W = Ground Water, SW	SW = Storm Water, WW = Waste Water
Sample Name			Sample	Sample	A CARE A		844 127 82 10 21 12 12 12 12 12 12 12 12 12 12 12 12			
77-5	-cf-26						8			Preservoir cade (D.
E661287-T-	cf-20	-		-	and the second	2012 N. 12	8			
EC1312817-P-CF-24	CF-24	_					8			
ECE12817-5-CF-24	CF-24	-		1		and and and	8			
BGEIJ817-T-	-(1-24	~~					30			6
EGE12817-8-05-34	(F-34						$\otimes$			
ENE12817-P- CF-35	CF-35	q	4	4			8			K
**Metals Analysis (Circle):	MTCA-5 RC	RCRA-8 Prior	Priority Pollutants	TAI	Individual: Aa					
Nitrat	Niteito		C. 16-1-					E IIB	A WE WIT WO NA NI PO SO SE	3
Sample Disposal:	Return to Client		sposal by Lab sessed if samp	Bromide (Samples will ples are retain	Sultate Bromide O-Phosphate Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	Suifate Bromide O-Phosphate Fluoride Nitrate+Nitrite 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.)	Nitrate+Nitrite noted. A fee may		received after 4:00pm will begin on the following business day.	egin y. All charalise HUD- preserved
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.	orized to enter rms on the fror	into this Agre	ement with de of this Ag	Fremont Au preement.	nalytical on beh	alf of the Client	named above, ti	hat I have verific	ed Client's	
x Connerder WES	128/2017	128/2017; 1530	Õ		Received x		Date/Time	ne		TAT ; ASAP
x Relinquished	Date/Time	Time			Received x		Date/Time	ne		TAT → SameDay^ NextDay^ 2 Day 3 Day STD



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 - Eastgate Elementary Work Order Number: 1703044

March 13, 2017

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

Fremont Analytical, Inc. received 14 sample(s) on 3/6/2017 for the analyses presented in the following report.

#### Drinking Water Metals by EPA Method 200.8

This report consists of the following:

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

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward Project Manager

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 - Eastgate El 1703044	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1703044-001	EGE3417-P-CF-07	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-002	EGE3417-P-NF-12	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-003	EGE3417-S-NF-12	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-004	EGE3417-T-NF-12	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-005	EGE3417-P-OF-15	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-006	EGE3417-P-CF-19	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-007	EGE3417-P-CF-20	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-008	EGE3417-S-CF-20	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-009	EGE3417-T-CF-20	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-010	EGE3417-P-OF-24	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-011	EGE3417-S-OF-24	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-012	EGE3417-T-OF-24	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-013	EGE3417-P-CF-34	03/04/2017 7:00 AM	03/06/2017 8:54 AM
1703044-014	EGE3417-P-CF-35	03/04/2017 7:00 AM	03/06/2017 8:54 AM



**Case Narrative** 

WO#: **1703044** Date: **3/13/2017** 

 CLIENT:
 Fulcrum Environmental

 Project:
 Kennewick SD Drinking Water - Eastgate 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:

1703044-001A 209766: Prep Comments for EPA200.8, Sample 1703044-001A: Turbidity: 0.12 NTU 1703044-002A 209797: Prep Comments for EPA200.8, Sample 1703044-002A: Turbidity: 0.01 NTU 1703044-005A 209798: Prep Comments for EPA200.8, Sample 1703044-005A: Turbidity: 0.08 NTU 1703044-006A 209799: Prep Comments for EPA200.8, Sample 1703044-006A: Turbidity: 0.04 NTU 1703044-007A 209800: Prep Comments for EPA200.8, Sample 1703044-007A: Turbidity: 0.00 NTU 1703044-010A 209801: Prep Comments for EPA200.8, Sample 1703044-010A: Turbidity: 0.02 NTU 1703044-013A 209802: Prep Comments for EPA200.8, Sample 1703044-013A: Turbidity: 0.00 NTU 1703044-014A 209803: Prep Comments for EPA200.8, Sample 1703044-014A: Turbidity: 0.00 NTU

### **Qualifiers & Acronyms**



WO#: **1703044** Date Reported: **3/13/2017** 

### 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:
 1703044

 Date Reported:
 3/13/2017

#### CLIENT: Fulcrum Environmental **Project:** Kennewick SD Drinking Water - Eastgate Elementary Collection Date: 3/4/2017 7:00:00 AM Lab ID: 1703044-001 Client Sample ID: EGE3417-P-CF-07 Matrix: Drinking Water Analyses **RL** Qual Units DF **Date Analyzed** Result Batch ID: 16429 Analyst: TN Drinking Water Metals by EPA Method 200.8 Copper 837 0.500 µg/L 1 3/10/2017 7:41:49 PM Lab ID: 1703044-002 Collection Date: 3/4/2017 7:00:00 AM Client Sample ID: EGE3417-P-NF-12 Matrix: Drinking Water DF Analyses Result **RL** Qual Units **Date Analyzed** Drinking Water Metals by EPA Method 200.8 Batch ID: 16429 Analyst: TN Copper 1,350 0.500 µg/L 3/10/2017 7:45:51 PM 1 Lab ID: 1703044-005 Collection Date: 3/4/2017 7:00:00 AM Client Sample ID: EGE3417-P-OF-15 Matrix: Drinking Water Analyses Result **RL** Qual Units DF **Date Analyzed** Drinking Water Metals by EPA Method 200.8 Batch ID: 16429 Analyst: TN Copper 1,270 0.500 µg/L 1 3/10/2017 7:49:53 PM



 Work Order:
 1703044

 Date Reported:
 3/13/2017

#### CLIENT: Fulcrum Environmental **Project:** Kennewick SD Drinking Water - Eastgate Elementary Collection Date: 3/4/2017 7:00:00 AM Lab ID: 1703044-006 Client Sample ID: EGE3417-P-CF-19 Matrix: Drinking Water Analyses **RL** Qual Units DF **Date Analyzed** Result Batch ID: 16429 Analyst: TN Drinking Water Metals by EPA Method 200.8 Copper 1,300 0.500 µg/L 1 3/10/2017 7:53:54 PM Lab ID: 1703044-007 Collection Date: 3/4/2017 7:00:00 AM Client Sample ID: EGE3417-P-CF-20 Matrix: Drinking Water DF Analyses Result **RL** Qual Units **Date Analyzed** Drinking Water Metals by EPA Method 200.8 Batch ID: 16429 Analyst: TN Copper 1,280 0.500 µg/L 3/10/2017 8:06:01 PM 1 Lab ID: 1703044-010 Collection Date: 3/4/2017 7:00:00 AM Client Sample ID: EGE3417-P-OF-24 Matrix: Drinking Water Result **RL** Qual Units DF **Date Analyzed** Analyses Drinking Water Metals by EPA Method 200.8 Batch ID: 16429 Analyst: TN Copper 1,650 0.500 µg/L 1 3/10/2017 8:10:03 PM



 Work Order:
 1703044

 Date Reported:
 3/13/2017

#### CLIENT: Fulcrum Environmental **Project:** Kennewick SD Drinking Water - Eastgate Elementary Lab ID: 1703044-013 Collection Date: 3/4/2017 7:00:00 AM Client Sample ID: EGE3417-P-CF-34 Matrix: Drinking Water Analyses Result **RL** Qual Units DF **Date Analyzed** Batch ID: 16429 Analyst: TN **Drinking Water Metals by EPA Method 200.8** Copper ND 0.500 µg/L 1 3/10/2017 8:14:05 PM Collection Date: 3/4/2017 7:00:00 AM Lab ID: 1703044-014 Client Sample ID: EGE3417-P-CF-35 Matrix: Drinking Water Units DF Analyses Result **RL** Qual **Date Analyzed** Batch ID: 16429 Drinking Water Metals by EPA Method 200.8 Analyst: TN Copper 1,220 0.500 µg/L 1 3/10/2017 8:18:07 PM



	703044					QC	SUMMARY REPOR
-	ulcrum Environmental					Drinking Water M	stale by EBA Mothod 200
Project: Ke	ennewick SD Drinking Water -	Eastgate	El			Drinking water we	etals by EPA Method 200
Sample ID MB-16429	SampType: MBLK			Units: µg/L		Prep Date: 3/6/2017	RunNo: 34876
Client ID: MBLKW	Batch ID: 16429					Analysis Date: 3/10/2017	SeqNo: 665941
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	ND	0.500					
Sample ID LCS-16429	SampType: LCS			Units: µg/L		Prep Date: 3/6/2017	RunNo: 34876
Client ID: LCSW	Batch ID: 16429					Analysis Date: 3/10/2017	SeqNo: 665944
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	89.6	0.500	100.0	0	89.6	85 115	
Sample ID 1703042-0	01ADUP SampType: DUP			Units: µg/L		Prep Date: 3/6/2017	RunNo: 34876
Client ID: BATCH	Batch ID: 16429					Analysis Date: 3/10/2017	SeqNo: 665946
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	962	0.500				990.4	2.93 30
Sample ID 1703042-0	01AMS SampType: MS			Units: µg/L		Prep Date: 3/6/2017	RunNo: 34876
Client ID: BATCH	Batch ID: 16429					Analysis Date: 3/10/2017	SeqNo: 665947
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	1,170	0.500	200.0	990.4	89.8	70 130	
Sample ID 1703042-0	01AMSD SampType: MSD			Units: µg/L		Prep Date: 3/6/2017	RunNo: 34876
Client ID: BATCH	Batch ID: 16429					Analysis Date: 3/10/2017	SeqNo: 665948
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper NOTES:	1,110	0.500	200.0	990.4	59.2	70 130 1,170	5.37 30 S

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



### Sample Log-In Check List

С	lient Name:	FE	Work Order Num	ber: 1703044	
Lo	ogged by:	Erica Silva	Date Received:	3/6/2017 8	3:54:00 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>		
<u>Log</u>	. 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	is 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
		lspace 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 🗌	
		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		eMail Pr	none 🗌 Fax 🛛	In Person
	Regardi	,			
	-	nstructions:			
10	Additional rer				

#### Item Information

Item #	Temp ⁰C
Cooler	4.2
Sample	2.8

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

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	Analy	ylical						Date:		3/4/2017	7	Laboratory Project No (internal):	No (internal): 7	1703044	
3600 Fremont Ave N. Seattle, WA 98103	Tel: 21 Fax: 2	Tel: 206-352-3790 Fax: 206-352-7178				Ð	Project Name:		newick SD D	rinking Wate	Page: Kennewick SD Drinking Water - Eastgate Elementary	Page:		Stradium i Panatana gan i	ge 10 c
Client:	Fulcrum Envi	Fulcrum Environmental Consulting	onsulting			P	Project No:		162017.03	w		Collected by:			Pa
Address:	406 North S	406 North Second Street	t	n (see ) and	191 (Q. 191	5	Location:	East	gate Eleme	Eastgate Elementary, Kennewick, WA	iewick, WA				
City, State, Zip:	Yakima, WA, 98901	, 98901	- 1. Surf. 40	A THE LAW	INCOMENTS	R	Report To (PM):		Ryan Mathews	SECT STATES					
Telephone:	509.574.0839	9	Fax: 50	Fax: 509.575.8453	11 10 11 11 11 11 11 11 11 11 11 11 11 1	P	PM Email:	rmat	thews@efu	lcrum.net; c	rmathews@efulcrum.net; cc:aenbysk@efulcrum.net	efulcrum.net			
*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk,	Aqueous, B = B		$O=Other, \ P=Product, \ S=Soil, \ SD=Sediment, \ SL=Solid, \ W=Water,$	, S = Soil, SD	) = Sediment,	SL = Solid, V		DW = Drinking Water,	ater,	V = Ground V	Vater, SW =	GW = Ground Water, SW = Storm Water, WW = Waste Water	laste Water	and success in the second provide and	
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Sample Name	-UR-07	Date	7: AM	(Matrix)*	20 07 8	1	00 50		01			~	Com	Comments	
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-	MTCA-5 R	RCRA-8 Pri	Priority Pollutants	s TAL	Individual:	Ag Al As B	Ba Be Ca	Cd Co Cr	Cu Fe Hg		K Mg Mn Mo Na Ni Pb	Pb Sb Se Sr Sn Ti	TIUV Zn		a do selo
***Anions (Circle): Nitrate	e Nitrite	Chloride	Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be	Bromide (Samples will	O-Phosphate be held for 30 days	hate Fli days unless c	Fluoride s otherwise not	Nitrate+Nitrite ted. A fee may	34	Turn-around times for sample received after 4:00pm will beg	Turn-around times for samples received after 4:00pm will begin	n Preserve	ally	nuppernon	
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	orized to enter	r into this Ag	Agreement with Fremont Analytical on b	h Fremont A	Analytical or	n behalf of t	he Client n	amed above	, that I ha	ve verified	Client's	TAT - ICAP	ica p		
agreement to each of the terms on the front and backside of this Agreement.	rms on the fro	ont and back	side of this A	greement.				1					Ī		
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TAT $\rightarrow$ SameDay <sup>A</sup> NextDay <sup>A</sup> 2 Day 3 Day STD ^Please coordinate with the lab in advance	Date/Time	leceived	a South in which it	Date/Time	1	elinqu
	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 greement to each of the terms on the front and backside of this Agreement. Telinquished $X$ $Z$ $M$ $M$ $P$ $X$ $X$ $Z$ $M$ $M$ $X$ $Z$ $M$ $X$ $Z$ $M$ $M$ $X$	e of this Agreement.	o enter into this Agreer the front and backside Date/Time	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. Relinquished $\sim$ 2 M/M IPM $\times$ 1 PM	I represent agreement Relinquished
Se lave t	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 da assessed if samples are retained after 30 days.	Return to Client Dispo asses	Sample Disposal: Return	Sample [
Special Remarks:	Turn-around times for samples received after 4:00pm will begin	O-Phosphate Fluoride Nitrat	Sulfate Bromide	Nitrite Chloride	**Anions (Circle): Nitrate N	***Anio
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 (	Priority Pollutants TAL	RCRA-8	**Metals Analysis (Circle): MTCA-5	**Meta
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				34 3/4/17	E3417 - P-CF-3	3 EG
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			7: AIM DW	3/4/2017	E 3417 - 5-08-24	1
Comments		4055 (C24 C256 (C24 C24 (C24 (	Sample Type Time (Matrix)*	Sample Sar Date Ti	Sample Name	Samp
SW = Storm Water, WW = Waste Water	ing Water, GW = Ground Water,	SL = Solid, W = Water,	<sup>9</sup> = Product, S = Soil, SD = Sediment,	, B = Bulk, O = Other, P = Product,	*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk,	*Matrix (
Icrum.net	rmathews@efulcrum.net; cc:aenbysk@efulcrum.net	PM Email:	Fax: 509.575.8453	509.574.0839	Telephone: 509.57	Telep
그렇게 가지만 그가 있니? 엄마 지지 않는 것이 가지 않았다. 지하고 않았다. 지하지 않았다. 정말에 가지 않는 것이 같다. 같이 하지 않아 아니는 것이 같아요.	Ryan Mathews	Report To (PM):	of the surf of the surface of the	Yakima, WA, 98901	City, State, Zip: Yakim	City,
	Eastgate Elementary, Kennewick, WA	Location:	Chevron with a reveal	406 North Second Street	10 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Address:
Collected by:	162017.03 Colle	Project No:	ulting	Fulcrum Environmental Consulting	Child Bark And David	Client:
Page: of:	Page: Kennewick SD Drinking Water - Eastgate Elementary	Project Name:		Tel: 206-352-3790 Fax: 206-352-7178	3600 Fremont Ave N. 7 Seattle, WA 98103 F	3600 Seat
Laboratory Project No (internal): 103044	Date: 3/4/2017			nalytical		
Chain of Custody Record and Laboratory Services Agreement	stody Record and Lal	Chain of Cus				<b>B</b>

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APlease coordinate with the lab in advance			* Cenyou			Date/ Ilme	a	Kelinquished x
	(Card	L196	(W)		- IPM	3/4/17	s R	* Multuren
TAT-ASAP	t 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.	Analytical on behalf c	ent with Fremont f this Agreement.	this Agreemo d backside o	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.	at that I am autho t to each of the ter	I represei
Present all interest	runn-around unnes tor samples received after 4:00pm will begin on the following business day.	Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite 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.)	<ul> <li>O-Phosphate</li> <li>Il be held for 30 days unlet</li> <li>ined after 30 days.)</li> </ul>	Sulfate Bromide O-Phosphat Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	Chloride Su Disposal assessed	Nitrite Ch Return to Client	(Circle): Nitrate	•••• Anions (Circle): Sample Disposal:
s Sb Se Sr Sn Ti Ti U V Zn Georaid Bennatie:	Cd Co Cr WFe Hg K Mg Mn Mo Na Ni Pb	As B Ba Be Ca Cd Co Cr O	Individual: Ag Al As	ollutants TAL	Priority Pollutants	MTCA-5 RCRA-8	**Metals Analysis (Circle): MTCA-5	···Metals /
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		×		DW	3/4/2017 7 AM	2	1 ELE3417 - P - US - 0	ECES
Comments				Sample Type (Matrix)*	pie Sample Time	Sample		Sample Name
Storm Water, WW = Waste Water		0 = Other, P = Product, S = Soil, SD = Sediment, SL = Soild, W = Water, DW = Drinking Water, GW = Ground Water,	D = Sediment, SL = Solid,	= Product, S = Soil, S	= Other, P = I	509.574.0839 AQ = Aqueous, B = Bulk, O	A = Air,	Telephone: Matrix Codes:
in not	TEWS	(PAM):				TAKIIIA, WA, SOSUL	te, Zip:	City, State, Zip:
	Eastgate Elementary, Kennewick, WA	1			1 Street	406 North Second Street		Address:
Collected by:	162017.03 Collec	Project No: 1620		Bu	ental Consulti	Fulcrum Environmental Consulting		Client:
entary	Kennewick SD Drinking Water - Eastgate Elementary	Project Name: Kennewick			2-7178	Fax: 206-352-7178	Seattle, WA 98103	Seattle
Page:of:					-3790	Tel: 206-352-3790	3600 Fremont Ave N.	3600 Fr
Laboratory Project No (internal): 1703044	3/4/2017	Date:						
d Laboratory Services Agreement	<b>Record and Lat</b>	Chain of Custody Record an	Cha		+			A A

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×	Relinquished	Relinquished	I represent that I am au	Sample Disposal:	*** Anions (Circle): Nitr	"Metals Analysis (Circle): MTCA-5	10	σ	00	7	6	5	+ ECE3417 - P.	3 EGE 3417 - P-CF - 34	28683417-1-08-24	1 EGE 3417 - 5-0F-24	Sample Name	•Matrix Codes: A = Air, AQ	Telephone:	City, State, Zip:	Address:	Client:	Seattle, WA 98103	3600 Fremont Ave N.		
	Date/Time	3 Date/Time	I represent that I am authorized to enter into this Agreement with Fremont measured to each of the terms on the front and hackside of this Agreement.	Return to Client	Nitrate Nitrite Chloride	RCRA-8							P-CF-35 3/4/17	-cf-34 3/4/17	-05-24 3/4/1	5-05-24 3/4/2017	Sample Date	AQ = Aqueous, B = Bulk, O = Other,	509.574.0839	Yakima, WA, 98901	406 North Second Street	Fulcrum Environmental Consulting	Fax: 206-352-7178	Tel: 206-352-3790	Analytical	remont
×	77		greement with Fremont Ana kside of this Apreement.	Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	Sulfate Bromide	Priority Pollutants TAL In							6		×	7.11m DW	Sample Time (Matrix)*	r, P = Product, S = Soil, SD = S	Fax: 509.575.8453		7	onsulting	3			
	Received V Date/Time	Received MA 3 Date/Time	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 arreament to each of the terms on the front and harkside of this Agreement.	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A tee may be assessed if samples are retained after 30 days.)	O-Phosphate Fluoride Nitrate+Nitrite	Individual: Ag Al As B Ba Be Ca Cd Co Cr 😡							×					V = Drin	PM Email: mathew	Report To (PM): Ryan Mathews	Location: Eastgate	Project No: 162	Project Name: Kennewi		Date:	Chain of Custody
^ple:		0834	hat I have verified Client's	ay	Turn-around times for samples Spein received after 4:00pm will begin	Fe Hg K Mg Mn Mo Na Ni Pb							×	( <u>x</u>				tter, GW = Ground Water, SW = Storm Water, WW = Waste Water		athews	Eastgate Elementary, Kennewick, WA	162017.03 Collected by:	Kennewick SD Drinking Water - Eastgate Elementary	Page	3/4/2017 tabo	Record and Labor
*Please coordinate with the lab in advance	TAT → SameDay <sup>A</sup> NextDay <sup>A</sup> 2 Day 3 Day STD		1	Se rise -	Special Remarks:	Se Sr Sn Ti Ti U V Zn											Comments	rter, WW = Waste Water	net			by:	Y		Laboratory Project No (internal):	Chain of Custody Record and Laboratory Services Agreement



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 - Eastgate Elem. Work Order Number: 1703212

March 21, 2017

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

Fremont Analytical, Inc. received 9 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

**CC:** Amanda Enbysk

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



CLIENT: Project: Work Order:	Fulcrum Environmental Kennewick SD Drinking Water - Eastgate E 1703212		Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1703212-001	EGE31817-P-NF-12	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-002	EGE31817-P-OF-15	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-003	EGE31817-P-CF-19	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-004	EGE31817-P-CF-20	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-005	EGE31817-P-OF-24	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-006	EGE31817-S-OF-24	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-007	EGE31817-T-OF-24	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-008	EGE31817-P-CF-34	03/18/2017 7:00 AM	03/20/2017 9:00 AM
1703212-009	EGE31817-P-CF-35	03/18/2017 7:00 AM	03/20/2017 9:00 AM



**Case Narrative** 

WO#: **1703212** Date: **3/21/2017** 

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking Water - Eastgate Elem.

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:

1703212-001A 211560: Prep Comments for EPA200.8, Sample 1703212-001A: 0.01 NTU 1703212-002A 211561: Prep Comments for EPA200.8, Sample 1703212-002A: 0.10 NTU 1703212-003A 211562: Prep Comments for EPA200.8, Sample 1703212-003A: 0.15 NTU 1703212-004A 211563: Prep Comments for EPA200.8, Sample 1703212-004A: 0.01 NTU 1703212-005A 211564: Prep Comments for EPA200.8, Sample 1703212-005A: 0.02 NTU 1703212-008A 211565: Prep Comments for EPA200.8, Sample 1703212-008A: 0.00 NTU 1703212-009A 211566: Prep Comments for EPA200.8, Sample 1703212-008A: 0.00 NTU 1703212-009A 211566: Prep Comments for EPA200.8, Sample 1703212-008A: 0.00 NTU 1703212-009A 211566: Prep Comments for EPA200.8, Sample 1703212-009A: 0.01 NTU

### **Qualifiers & Acronyms**



WO#: **1703212** 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



 Work Order:
 1703212

 Date Reported:
 3/21/2017

CLIENT:Fulcrum EnvironmentProject:Kennewick SD Drinkir		ate Elem.			
Lab ID: 1703212-001 Client Sample ID: EGE31817-F	P-NF-12		Collectior Matrix: D		3/18/2017 7:00:00 AM Water
Analyses	Result	RL Qua	l Units	DF	Date Analyzed
Drinking Water Metals by EPA M	<u>lethod 200.8</u>		Batch	n ID: 16	542 Analyst: TN
Copper	797	0.500	µg/L	1	3/21/2017 11:48:22 AM
Lab ID: 1703212-002 Client Sample ID: EGE31817-F	P-OF-15		Collectior Matrix: D		3/18/2017 7:00:00 AM Water
Analyses	Result	RL Qua	l Units	DF	Date Analyzed
Drinking Water Metals by EPA M	lethod 200.8		Batch	n ID: 16	542 Analyst: TN
Copper	694	0.500	µg/L	1	3/21/2017 11:52:23 AM
Lab ID: 1703212-003 Client Sample ID: EGE31817-F	P-CF-19		Collectior Matrix: D		3/18/2017 7:00:00 AM Water
Analyses	Result	RL Qua	l Units	DF	Date Analyzed
Drinking Water Metals by EPA M	lethod 200.8		Batch	n ID: 16	542 Analyst: TN
Copper					



 Work Order:
 1703212

 Date Reported:
 3/21/2017

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking		ate Elem.				
Lab ID: 1703212-004 Client Sample ID: EGE31817-P-	CF-20			Collectior Matrix: D		3/18/2017 7:00:00 AM Water
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me	ethod 200.8			Batch	n ID: 16	542 Analyst: TN
Copper	674	0.500		μg/L	1	3/21/2017 12:08:31 PM
Lab ID: 1703212-005				Collection	n Date:	3/18/2017 7:00:00 AM
Client Sample ID: EGE31817-P-	OF-24			Matrix: D	rinking	Water
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me	ethod 200.8			Batch	n ID: 16	542 Analyst: TN
Copper	821	0.500		µg/L	1	3/21/2017 12:12:32 PM
Lab ID: 1703212-008				Collection	n Date:	3/18/2017 7:00:00 AM
Client Sample ID: EGE31817-P-	CF-34			Matrix: D		
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me	ethod 200.8			Batch	n ID: 16	542 Analyst: TN



 Work Order:
 1703212

 Date Reported:
 3/21/2017

CLIENT:	Fulcrum Environmenta	al				
Project:	Kennewick SD Drinkin	g Water - Eastga	ate Elem.			
	1703212-009 mple ID: EGE31817-P	-CF-35		Collection Matrix:		3/18/2017 7:00:00 AM Water
Analyses		Result	RL Qual	Units	DF	Date Analyzed
Drinking \	Water Metals by EPA M	lethod 200.8		Batch	n ID: 16	542 Analyst: TN
Copper			0.500			3/21/2017 12:20:35 PM



Work Order:	1703212									2	SUMMAR		ORT
CLIENT:	Fulcrum En	vironmental							<b></b>				
Project:	Kennewick	SD Drinking	Water -	Eastgate	EI			I	Jrinkin	g Water Me	tais by EP	'A Metho	d 200.8
Sample ID MB-16	542	SampType	MBLK			Units: µg/L		Prep Date	: <b>3/20/20</b>	)17	RunNo: 350	065	
Client ID: MBLK	W	Batch ID:	16542					Analysis Date	: 3/21/20	017	SeqNo: 670	0309	
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-16	6542	SampType	LCS			Units: µg/L		Prep Date	: <b>3/20/2</b> 0	017	RunNo: 350	065	
Client ID: LCSW		Batch ID:	16542					Analysis Date	: <b>3/21/20</b>	017	SeqNo: 670	0310	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			105	0.500	100.0	0	105	85	115				
Sample ID 170321	11-007ADUP	SampType	DUP			Units: µg/L		Prep Date	: <b>3/20/2</b> 0	017	RunNo: 350	065	
Client ID: BATCH	1	Batch ID:	16542					Analysis Date	: 3/21/20	017	SeqNo: 670	0312	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		(	0.689	0.500						0	200	30	
Sample ID 170321	1-007AMS	SampType	MS			Units: µg/L		Prep Date	: <b>3/20/20</b>	017	RunNo: 350	065	
Client ID: BATCH	4	Batch ID:	16542					Analysis Date	: 3/21/20	017	SeqNo: 670	0313	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			200	0.500	200.0	0	100	70	130				
Sample ID 170321	11-007AMSD	SampType	MSD			Units: µg/L		Prep Date	: <b>3/20/2</b> 0	017	RunNo: 350	065	
Client ID: BATCH	4	Batch ID:	16542					Analysis Date	: <b>3/21/20</b>	017	SeqNo: 670	0314	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			213	0.500	200.0	0	106	70	130	200.1	6.16	30	



### Sample Log-In Check List

CI	ient Name:	FE	Work Order Num	nber: 1703212		
Lc	gged by:	Clare Griggs	Date Received:	3/20/2017	7 9:00:00 AM	
<u>Cha</u>	in of Custo	dy				
1.	Is Chain of Cu	stody complete?	Yes 🖌	No 🗌	Not Present	
2.	How was the s	ample delivered?	<u>FedEx</u>			
<u>Log</u>	In					
-	Coolers are pr	esent?	Yes 🖌	No 🗌		
0.						
4.	Shipping conta	iner/cooler in good condition?	Yes 🗹	No 🗌		
		present on shipping container/cooler? nents for Custody Seals not intact)	Yes	No 🗌	Not Required 🔽	
6.	Was an attem	ot made to cool the samples?	Yes 🖌	No 🗌	NA 🗌	
7.	Were all items	received at a temperature of >0°C to 10.0°C*	Yes ✔	No 🗌	NA 🗌	
8.	Sample(s) in p	roper container(s)?	Yes 🖌	No 🗌		
9.	Sufficient sam	ple volume for indicated test(s)?	Yes 🖌	No 🗌		
10.	Are samples p	roperly preserved?	Yes 🗹	No 🗌		
11.	Was preservat	ive added to bottles?	Yes 🖌	No 🗌	NA 🗌	
	In the second second				HNO3	
		pace in the VOA vials?	Yes ∟ Yes ✔	No 🗌	NA 🗹	
-		s containers arrive in good condition(unbroken)? rk match bottle labels?	Yes ⊻ Yes ⊻	No 🗌 No 🗌		
14.						
15.	Are matrices c	orrectly identified on Chain of Custody?	Yes 🗹	No 🗌		
16.	Is it clear what	analyses were requested?	Yes 🗹	No 🗌		
17.	Were all holdir	ng times able to be met?	Yes 🖌	No 🗌		
Spe	cial Handlir	ng (if applicable)				
-		ified of all discrepancies with this order?	Yes 🖌	No 🗌		
	Person N			3/20/2017		
	By Whom		jt.	hone Fax	In Person	
	Regardin					
	Client Ins	-	,0.0.			
19	Additional rem	1				

#### Item Information

Item #	ł	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

COC 1.1 - 4.5.16 - 1 of 2

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<th co<="" th=""></th>	
Date:	
Project Name: <u>Scholard Scholard Li</u> Project Name: <u>Conversion &amp; Spanna</u> Report To (PM): <u>Ryan Mathews</u> PM Email: <u>Imathews@efulcrum.net; cc: aenbyske</u> W = Water, DW = Drinking Water, GW = Ground Water, SW =: W = Water, DW = Drinking Water, GW = Ground Water, SW =: The generation of the state of t	
Becord and L:       3/18/2017       3/18/2017       all statuting of the sta	

	0 100					Ch	ain of Cus	stody	Record and	La	boratory Services Agreement
	eme	onu						Data	2/19/2017		1703212-
3600 Fremont Ave N.	Anioi Tel: 2	06-352-3790						Date:	5/18/2017		Page: of:
Seattle, WA 98103		206-352-7178					Project Name:	Ker	newick SP	Pr	Laboratory Project No (Internal): 1703212 Page: of: in King Later - Easts ate ected by: Amanda Enbysk
Client:	Fulcrum Envi	ironmental Co	onsulting				Project No:			Colle	ected by: Amanda Enbysk
Address:	406 North S	Second Stree	t			-	Location:	Eas-	tgate Elem.		
City, State, Zip:	Yakima, WA	, 98901					Report To (PM):	Ryan Ma	athews		
Telephone:	509.574.083	9	Fax:	509.575.84	153	-	PM Email:	rmathev	ws@efulcrum.net; cc: aenby	/sk@e	fulcrum.net
*Matrix Codes: A = Air, AQ	t = Aqueous, B ≠	Bulk, O = Othe	er, P = Prod	luct, S = Soil	, SD = Sediment, S	L = Solid	W ⇒ Water, DW = I	Drinking Wa	ter, GW = Ground Water, SV	N = Sto	orm Water, WW = Waste Water
			Sample	Sample Type	- ER BISI OF			2/ 22/ 24/ 2/ 22/ 24/ 2/ 22/ 24/ 2/ 22/ 24/2			Secret PHON
Sample Name		Sample Date	Tíme	(Matrix)*	1 5 5 5	68/3	\$ 3 2 2 2	20 Nel	8 8 8 1	R	Comments
1 EGE31817-P-	NF-12	3/18/2017	7AM	DW				K		X	NB 3/20/17
2 56631817-12-1	0F-15	1	N	1				*		*	NB 3/20/17
3E6E31817-P-	CF-19							×		×	NB 3/20/17
+EGE31817-P								×		×	NK 2/20/17
5EGE31811-P								X		X	al to
6 11 S											Hold - Unaversa
7 11 T-	OF -24										It is the age is
8 11 P-	CF-54		-			-		×		x	Hold - Unpresend Hold - Unpresend NB 3/20/17 NB 3/20/17
، ج ۱۰ ج ، ۱ و		1	1	4				×		+	NR 3/20117
9 . ( .			1	4						-	ND 9/2011
10 **Metals Analysis (Circie):	MTCA-5	CRA-8 Pric	ority Polluta	ints TAL			B Ba Be Ca Cd C			Ni Dh	o Sb Se Sr Sn Ti TI U V Zn
***Anions (Circle): Nitra		Chloride	Sulfate					+Nitrite	Turn-around times for same		Special Remarks:
	Return to Clier	nt 🗔	Disposal by	Lab (Sample:		days unle	Fluoride Nitrate ss otherwise noted. A		received after 4:00pm will b	oegin	TAT ASAP
I represent that I am aut		r into this Ag	reement w	ith Fremor	t Analytical on be		the Client named a	above, that	I have verified Client's		
agreement to each of the Relinquished		/Time	nde of this	Agreemen	Received			Date/Time			Please Preserve all unpreserved
* Nathan Bo	CONTRACTOR CONTRACTOR	18-12			8			3/2	20/2017 0900		`
Relinquished	Date	/Time			Received			Date/Time	- the the left		TAT $\rightarrow$ SameDay <sup>A</sup> NextDay <sup>A</sup> 2 Day 3 Day STD
A					×						APlease coordinate with the lab in advance

- 201