

November 3, 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 Kennewick High School, 500 South Dayton Street, Kennewick, Washington

Dear Keith:

On Wednesday, December 21, 2016, Fulcrum Environmental Consulting, Inc. (Fulcrum) collected 59 drinking water samples for lead and copper analysis from Kennewick High School (School) located at 500 South Dayton Street in Kennewick, Washington. Initial sampling identified one fixture location with a lead concentration above guidance levels and four fixture locations with copper concentrations above guidance levels. Fulcrum returned to the School to collect samples after remediation of the fixtures and found results 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 one sample with a lead concentration of 15 micrograms per liter ( $\mu$ g/L), at or above the Environmental Protection Agency (EPA) action level of 15  $\mu$ g/L, and four samples with copper concentrations above the 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.

The District elected to permanently remove the fixture identified with an elevated lead concentration from service. No other fixtures of like style were identified in the building.

<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



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 identified fixtures with cold water to clear the plumbing of copper construction debris. Fulcrum returned on January 21, January 28, and April 5, 2017 and collected samples to evaluate the success of the remediation. Follow-up samples found copper concentrations below the EPA action level, confirming the remediation was successful. Following sampling and review of laboratory results, Fulcrum recommended, and the District elected, to return all fixtures reporting below action levels to service.

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

### Sampling Methodology

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

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

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

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

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

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



## **Sampling Activities**

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

### Initial Sampling

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

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

### Fixture Replacement and Flushing

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

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

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

### Remedial Sampling

Remedial sampling typically consisted of first, second, and third draw samples from the fixture locations and plumbing system in question. First draw samples were collected into 250 mL polyethylene bottles preserved with nitric acid. The second draw water volume consists of water collected into a 250 mL



unpreserved polyethylene container immediately following the first draw. No water was lost between collection of the first and second draw samples. The third draw water volume is a 1,000 mL sample collected into a one liter unpreserved polyethylene container after the fixture has been flushed for about three to five minutes.

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

## **Analytical Results**

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

### Initial Sampling

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

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

### Remedial Sampling

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

## Discussion

### Initial Sampling

Analytical results identified one sample with a lead concentration above the EPA action level of 15  $\mu$ g/L and four samples with copper concentrations above the EPA action level of 1,300  $\mu$ 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 lead concentrations, the District



permanently removed the identified fixture from service. No fixtures of the same style were identified in the building.

To remediate elevated copper concentrations, the District completed an aggressive flush of the identified fixtures. Fulcrum returned on the morning following the aggressive flush, January 21, January 28, and April 5, 2017, to collect follow-up samples from the fixtures.

Analytical results from remedial sampling indicated the aggressive flushes were successful at reducing copper concentrations below action levels for the fixtures in question.

### Recommendations

One initial sample contained lead above the EPA action level of 15  $\mu$ g/L and four initial samples contained copper above the EPA action level of 1,300  $\mu$ g/L. The District permanently removed the identified fixture with elevated lead from service. No other fixtures of like style were identified in the building. The District completed an aggressive flush of the fixtures identified with elevated copper. Follow-up sampling demonstrated that all copper concentrations were below the action level. Following remedial sampling and review of laboratory results, Fulcrum recommended, and the District elected, to return all fixtures reporting below action levels to service.

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

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

Sincerely,

Cmando Cubyt

Amanda Enbysk, GIT Environmental Geologist

kyan KMathen

Ryan K. Mathews, CIH, CHMM Principal







# **ATTACHMENT A**

Figure 1: Sample Location Map





# **ATTACHMENT B**

Site-Specific Sampling and Analysis Plan



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

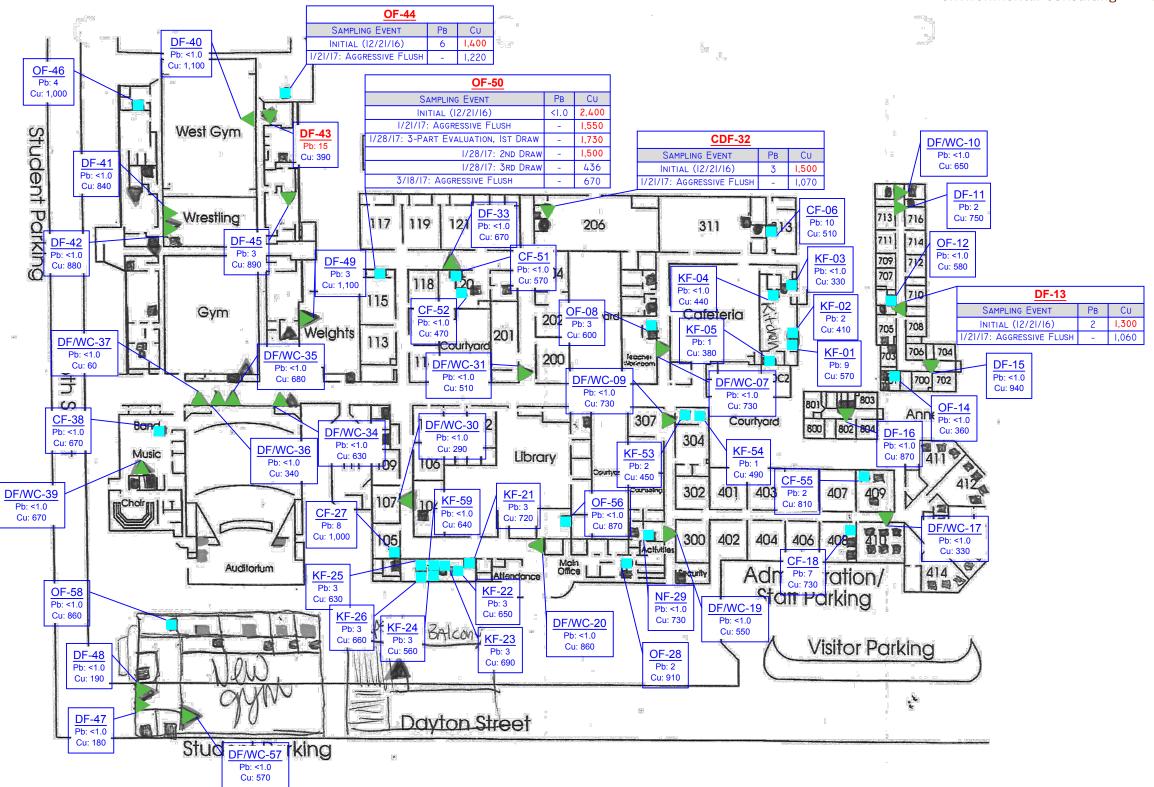


~Z~

- KF-## Kitchen faucet
- CF-## Classroom faucet
- CDF-## Classroom drinking fountain
- OF-## Office faucet
- WC-## Water cooler fountain
- BF-## Bottle filler fountain
- NF-## Nurse's faucet
- Sample location: faucet
- Sample location: drinking fountain at sink
- Sample location: faucet and drinking fountain at same sink
- Sample location: water cooler fountain V

-Lead (Pb) and copper (Cu) results for each sample location are below each identifier. All results reported in µg/L.

-Samples in BOLD RED indicate fixture locations where the initial concentrations of lead or copper were above the respective action level.



Fulcrum Environmental Consulting, Inc. 406 North Second Street, Yakima, Washington 98901 p: 509.574.0839 f: 509.575.8453 efulcrum.net Kennewick SD Drinking Water Sampling. 162017.00. AME. 10232017

Kennewick High School 500 South Dayton Street Kennewick, Washington



DRAWING PROVIDED BY KENNEWICK SCHOOL DISTRICT

FIGURE

1

Sample Location Map



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

Kennewick School District – Winter 2016 Drinking Water Sampling

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

Campus/Building: <u>WA</u>	Kennewick High School		Address:	<u>500 S</u>	South I	Dayton Street, K	ennewick,
□ Elementary	□ Middle School	$\checkmark$	High School			dministration	
Date of Construction:	1952		Moderniz	zations	8:	1985, 1990_	

Fixture Type	Locations	Fixture Styles <sup>1</sup>	Samples	Ratio
Drinking fountain/water cooler (DF/WC)	31	7	28	90%
Kitchen Fixture (KF)	7	4	7	100%
Classroom faucet, including faucets in Food Labs and Life Sciences Classrooms (CF)	26	6	16	62%
Classroom drinking fountain at sink (CDF)	7	1	1	14%
Nurse's Office/Health Room (NF)	1	1	1	100%
Teacher's Lounges/Work Rooms (OF)	8	4	6	75%
TOTALS	80		59	74%

Fixture styles are approximate based on sampler's observations

 Lead Sampler:
 Nathan Bostrom
 Date:
 12/21/2016

 Sample Prefix:
 KHS
 122116
 P (first-draw)
 01-61

 School Code
 Date
 Sample Type
 Fixture Type
 Sample Number

Laboratory: R. J. Lee Group, Columbia Basin Analytical Delivery Date: December 21, 2016

Comments:

1



## **ATTACHMENT C**

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



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



### Table 1: Initial Sampling Analytical Results

Table 1: Initial Sampling Analytical Results		Lead	Copper
Sample Identification and Location	Fixture Type	Results	Results
		$(\mu g/L)$	(µg/L)
KHS122116-P-KF-01: Kitchen, N. wall, right fixture	Kitchen Faucet	9	570
KHS122116-P-KF-02: Kitchen, N. wall, center fixture	Kitchen Faucet	2	410
KHS122116-P-KF-03: Kitchen, N. wall, center fixture	Kitchen Faucet	<1.0	330
KHS122116-P-KF-04: Kitchen, W. wall	Kitchen Faucet	<1.0	440
KHS122116-P-KF-05: Kitchen, E. wall, left fixture	Kitchen Faucet	1	380
KHS122116-P-CF-06: Room 313	Classroom Faucet	10	510
KHS122116-P-DF/WC-07: Corridor S. of Cafeteria	Drinking Fountain/ Water Cooler	<1.0	730
KHS122116-P-OF-08: Teacher Workroom	Office Faucet	3	600
KHS122116-P-DF/WC-09: Corridor adjacent Room 307	Drinking Fountain/ Water Cooler	<1.0	710
KHS122116-P-DF/WC-10: Corridor adjacent Room 716, right fixture	Drinking Fountain/ Water Cooler	<1.0	650
KHS122116-P-DF-11: Corridor adjacent Room 716, left fixture	Drinking Fountain	2	750
KHS122116-P-OF-12: Room between Room 705 and 707	Office Faucet	<1.0	580
KHS122116-P-DF-13: Corridor adjacent Room 710	Drinking Fountain	2	1,300
KHS122116-P-OF-14: Room 701, N.W. fixture	Office Faucet	<1.0	360
KHS122116-P-DF-15: Corridor adjacent Room 706	Drinking Fountain	<1.0	940
KHS122116-P-DF-16: Corridor adjacent Room 802	Drinking Fountain	<1.0	870
KHS122116-P-DF/WC-17: Corridor adjacent Room 409	Drinking Fountain/ Water Cooler	<1.0	330
KHS122116-P-CF-18: Room 408, leftmost fixture, adjacent entrance	Classroom Faucet	7	730
KHS122116-P-DF/WC-19: Corridor adjacent Room 300	Drinking Fountain/ Water Cooler	<1.0	550
KHS122116-P-DF/WC-20: Corridor adjacent Main Office	Drinking Fountain/ Water Cooler	<1.0	860
KHS122116-P-KF-21: Room 103, N. W. station	Kitchen Faucet	3	720
KHS122116-P-KF-22: Room 103, N. E. station	Kitchen Faucet	3	650
KHS122116-P-KF-23: Room 103, middle W. station	Kitchen Faucet	3	690
KHS122116-P-KF-24: Room 103, middle E. station	Kitchen Faucet	3	560
KHS122116-P-KF-25: Room 103, S. W. station	Kitchen Faucet	3	630
KHS122116-P-KF-26: Room 103, S. E. station	Kitchen Faucet	3	660
KHS122116-P-CF-27: Room 105	Classroom Faucet	8	1,000
KHS122116-P-OF-28: Teacher's Lounge in Main Office	Office Faucet	2	910
KHS122116-P-NF-29: Nurse's Office	Nurse's Faucet	<1.0	730
KHS122116-P-DF/WC-30: Corridor adjacent Room 104	Drinking Fountain/ Water Cooler	<1.0	290
KHS122116-P-DF/WC-31: Corridor adjacent Room 200	Drinking Fountain/ Water Cooler	<1.0	510
KHS122116-P-CDF-32: Room 206	<b>Classroom Drinking Fountain</b>	3	1,500
KHS122116-P-DF-33: Corridor adjacent Room 118	Drinking Fountain	<1.0	670
KHS122116-P-DF/WC-34: Corridor outside Auditorium, N. most	Drinking Fountain/ Water Cooler	<1.0	630
fixture		1.0	020
KHS122116-P-DF/WC-35: Corridor outside Auditorium, S. bank, N.	Drinking Fountain/ Water Cooler	<1.0	680
fixture			A
KHS122116-P-DF/WC-36: Corridor outside Auditorium, S. bank,	Drinking Fountain/ Water Cooler	<1.0	340
middle fixture		a	
KHS122116-P-DF/WC-37: Corridor outside Auditorium, S. bank, S.	Drinking Fountain/ Water Cooler	<1.0	60
		1/	
KHS122116-P-CF-38: Band and Music Room	Classroom Faucet	<1.0	670



Sample Identification and Location	Fixture Type	Lead Results	Copper Results
		(µg/L)	(µg/L)
KHS122116-P-DF/WC-39: Band and Music Room	Drinking Fountain/ Water Cooler	<1.0	670
KHS122116-P-DF-40: West Gym	Drinking Fountain	<1.0	1,100
KHS122116-P-DF-41: Wrestling Room, S. fixture	Drinking Fountain	<1.0	840
KHS122116-P-DF-42: Wrestling Room, N. fixture	Drinking Fountain	<1.0	880
KHS122116-P-DF-43: West end of corridor N. of West Gym	Drinking Fountain	15	390
KHS122116-P-OF-44: Office N. of West Gym	Office Faucet	6	1,400
KHS122116-P-DF-45: E. East end of corridor N. of West Gym	Drinking Fountain	3	890
KHS122116-P-OF-46: South of West Gym	Drinking Fountain	4	1,000
KHS122116-P-DF-47: South end of New Gym, E. fixture	Drinking Fountain	<1.0	180
KHS122116-P-DF-48: South end of New Gym, W. fixture	Drinking Fountain	<1.0	190
KHS122116-P-DF-49: Weights Room	Drinking Fountain	3	1,100
KHS122116-P-OF-50: Room 115	Office Faucet	<1.0	2,400
KHS122116-P-CF-51: Room 120, W. fixture	Classroom Faucet	<1.0	570
KHS122116-P-CF-52: Room 120, E. fixture	Classroom Faucet	<1.0	470
KHS122116-P-KF-53: W. end of Room 304, S. fixture	Kitchen Faucet	2	450
KHS122116-P-KF-54: W. end of Room 304, N. fixture	Kitchen Faucet	1	490
KHS122116-P-CF-55: Room 409	Classroom Faucet	2	810
KHS122116-P-OF-56: Library Workroom	Office Faucet	<1.0	870
KHS122116-P-DF/WC-57: E. end of New Gym	Drinking Fountain/ Water Cooler	<1.0	570
KHS122116-P-OF-58: W. office in New Gym	Office Faucet	<1.0	860
KHS122116-P-KF-59: Room 103, main station	Kitchen Faucet	<1.0	640
KHS122116-P-DF-60: Laboratory Blank	Distilled Water Blank	<1.0	<10
KHS122116-P-DF-61: 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 in **bold** indicate concentrations above the action levels of 15  $\mu$ g/L for lead and 1,300  $\mu$ g/L for copper Results in *italics* are quality assurance spike and blank samples

### Table 2: pH and Temperature Data Summary

Sample Number	Fixture Type	pН	pН	Temperature	Temperature
Sample Number	Fixture Type	Flush	Sample	(°C) Flush	(°C) Sample
KHS122116-P-KF-04: Kitchen, W. wall	Kitchen Faucet	7.81	7.81	17.4	18.4
KHS122116-P-OF-08: Teacher workroom	Office Faucet	7.78	7.82	17.2	18.5
KHS122116-P-OF-12: E. of room 707	Office Faucet	7.86	7.90	16.1	18.7
KHS122116-P-DF-16: Outside room 802	Drinking Fountain	7.45	-	19.8	-
KHS122116-P-DF/WC-17: Outside room 409	Water Cooler Fountain	7.85	7.93	14.8	13.4
KHS122116-P-DF/WC-20: Outside main office	Water Cooler Fountain	7.54	8.47	16.5	13.7
KHS122116-P-KF-24: Room 103, middle E.	Kitchen Faucet	7.76	7.79	20.6	17.6
fixture	Kitchell Faucet	7.70	1.19	20.0	17.0 6
KHS122116-P-OF-28: Main Office	Office Faucet	7.77	7.80	19.5	19.6
KHS122116-P-CDF-32: Room 206	Classroom Drinking	7.64	7.70	19.9	20.8
K115122110-1-CD1-52. K00111200	Fountain	7.04	7.70	19.9	20.0



Sample Number	Fixture Type	pH Flush	pH Sample	Temperature (°C) Flush	Temperature (°C) Sample
KHS122116-P-DF/WC-36: Outside auditorium, S. bank, middle fixture	Water Cooler Fountain	7.74	8.15	16.7	14.6
HS122116-P-DF-40: West Gym	Drinking Fountain	7.65	7.85	19.2	20.1
KHS122116-P-OF-44: N. of West Gym	Office Faucet	7.80	7.88	19.0	19.4
KHS122116-P-DF-48: S. end of New Gym, W. fixture	Drinking Fountain	7.59	7.73	14.3	14.5
KHS122116-P-CF-52: Room 120, E. fixture	Classroom Faucet	7.83	7.84	18.4	18.2

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

			Sample Ide	entification		
Sampling Event	DF-13	CDF-32	OF-44	OF-50	Laboratory Blank (-60)	Laboratory Spike (-61)
Initial (12/21/16)	1,300	1,500	1,400	2,400	<10	1,300
Aggressive Flush (1/21/2017)	1,060	1,070	1,220	1,550	< 0.5	-
3-Part Evaluation, First Draw (1/28/2017)	-	-	-	1,730	-	-
Second Draw (1/28/2017)	-	-	-	1,500	-	-
Third Draw (1/28/2017)	-	-	-	436	-	-
Aggressive Flush (4/7/2017)	-	-	-	670	<0.5	1,390
EPA Action Level	1,300	1,300	1,300	1,300	1,300	1,300

1 Results reported in micrograms per liter ( $\mu$ g/L) 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 Results indicated in *italics* are quality assurance spike and blank samples



# **ATTACHMENT D**

Initial Analytical Results



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



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

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

#### Subject: Chemical Analysis Report

Columbia Basin Analytical Laboratories received 61 sample(s) on 12/21/16 for analysis. These sample(s) have been assigned a login order number of W612102. 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.

-Samples W612102-01 - 04 were analyzed on January 7, 2017 because they were analyzed on separate instrumentation runs. The following samples were analyzed on January 9, 2017 and samples requiring dilutions were analyzed on January 10, 2017.

- Samples have been analyzed and reported in numerical order of client's sample number. CBAL's sample login numbers have been rearranged to follow the numerical order of client's sample number.

All samples were diluted 1:10.

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

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

01/17/17

Date

Project Coordinator II, M. Fernanda Pincheira

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

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



# Laboratory Report

Ryan Mathews Fulcrum Environmer 406 N. 2nd St. Yakima, WA 98901 Client Project:	ntal			RJ Lee Group No. COC No.: Samples Received: Analysis/Prep Date: Report Date:	Kennewick 12/21/16 01/07/17
Fulcrum Kennewick					
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.57	0.01	
Lead		EPA 200.8	0.009	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-	<b>VIALFIX:</b> FOLADLE WAL	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.41	0.01	
Lead		EPA 200.8	0.002	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.33	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-	<b>Matrix:</b> Foldole wat	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.44	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
		EPA 200.8	0.38	0.01	
Copper		EPA 200.8	0.58	0.01	

WWW.RJLEEGROUP.COM

Approved: 01/17/ Report Time Stamp: 01/17/

Sample Name:	KHS12211	Matrix: PO	table Water	Date Received:	12/21/16
RJ Lee Grp. ID:	W612102-	J6		Date Analyzed:	01/09/17
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.51	0.01	
Lead		EPA 200.8	0.010	0.001	
Sample Name:	KHS12211	6-P-DF/WC-Matrix: Po	. 1 1 337 .	Date Received:	12/21/16
RJ Lee Grp. ID:	W612102-	07 Matrix: Po	table water	Date Analyzed:	01/09/17
Analy	te	Method	Result	PQL	Qualifiers
· · · · · · · · · · · · · · · · · · ·		, in the second s	(mg/L)	(mg/L)	Quantors
Copper		EPA 200.8	0.73	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Leau		EIA 200.8	< 0.0010		
Sample Name:	KHS12211		table Water	Date Received:	12/21/16
RJ Lee Grp. ID:	W612102-	08		Date Analyzed:	01/09/17
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.60	0.01	
Lead		EPA 200.8	0.003	0.001	
Sample Name:	KHS12211	6-P-DF/WC-99 Matrix: Po	. 11 337 .	Date Received:	12/21/16
RJ Lee Grp. ID:	W612102-	09 Matrix: Po	table water	Date Analyzed:	01/09/17
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	2
Connor		EPA 200.8	0.71	0.01	
Copper Lead		EPA 200.8	< 0.0010	0.001	
Sample Name:	KHS12211	6-P-DF/WC-Matrix: Po	table Water	Date Received:	12/21/16
RJ Lee Grp. ID:	W612102-	10	Γ	Date Analyzed:	01/09/17
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.65	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name:	KHS12211	6-P-DF-11 <b>b</b>	4-1-1 - W/-4	Date Received:	12/21/16
RJ Lee Grp. ID:	W612102-		table Water	Date Analyzed:	01/09/17
Analy		Method	Result	PQL	Qualifiers
2 Kindi y		method	(mg/L)	(mg/L)	Qualifiers
Compan		EDA 200.9	0.75	0.01	
Copper		EPA 200.8			
Lead		EPA 200.8	0.002	0.001	

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-	6-P-OF-12 <b>Matrix:</b> Potable Wa	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.58	0.01	_
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	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	0.002	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.36	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name: IJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.94	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-	6-P-DF-16 Matrix: Potable Wa	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.87	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-	6-P-DF/WC- <b>Matrix:</b> Potable Wa	ter	Date Received Date Analyzed	
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	(mg/L) 0.33	( <b>mg/L</b> ) 0.01	

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ater	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.73	0.01	
Lead		EPA 200.8	0.007	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-	6-P-DF/WC- <b>Matrix:</b> Potable Wa 19	ater	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.55 < 0.0010	0.01	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-2	6-P-DF/WC- <b>20</b> 20	ater	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.86	0.01	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-2	6-P-KF-21 Matrix: Potable Wa		Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.72	0.01	
Lead ample Name: &J Lee Grp. ID:	KHS12211 W612102-2		0.003 ater	0.001 Date Received: Date Analyzed:	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.65	0.01	
Lead		EPA 200.8	0.003	0.001	
ample Name: 3J Lee Grp. ID:	KHS12211 W612102-2		ater	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.69	0.01	

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-2		ter	Date Received: Date Analyzed:	12/21/16 01/09/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.56	0.01	
Lead Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-2		0.003 ter	0.001 Date Received: Date Analyzed:	12/21/16 01/09/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.63 0.003	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-2		ter	Date Received: Date Analyzed:	12/21/16 01/09/17
Analyt	æ	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.66 0.003	0.01	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-2		ter	Date Received: Date Analyzed:	12/21/16 01/09/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.00 0.008	0.01	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-2		ter	Date Received: Date Analyzed:	12/21/16 01/09/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.91	0.01	
Lead		EPA 200.8	0.002	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-2		ter	Date Received: Date Analyzed:	12/21/16 01/09/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.73 < 0.0010	0.01 0.001	

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-	6-P-DF/WC- <b>Matrix:</b> Potable Wat	er	Date Received Date Analyzed	
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.29	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name:	KHS12211	6-P-DF/WC-31 Matrix: Potable Wat		Date Received	12/21/16
kJ Lee Grp. ID:	W612102-	31	er	Date Analyzed	
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.51	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name:	VUS12211	6 D CDE 22		Date Received	12/21/16
J Lee Grp. ID:	W612102-	6-P-CDF-32 <b>Matrix:</b> Potable Wat	er	Date Analyzed	
Analy		Method	Result	PQL	Qualifiers
Anary	le	Wiethou	(mg/L)	(mg/L)	Quanners
C		EDA 200.9			V
Copper Lead		EPA 200.8 EPA 200.8	1.5 0.003	0.1 0.001	Х
			0.003		10/01/11/2
Sample Name:	KHS12211		ter	Date Received	
RJ Lee Grp. ID:	W612102-			Date Analyzed	
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.67	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name:	KHS12211	6-P-DF/WC- <b>Matrix:</b> Potable Wat	er	Date Received	: 12/21/16
J Lee Grp. ID:	W612102-	34		Date Analyzed	: 01/09/17
Analy	te	Method	Result	PQL	Qualifiers
			(mg/L)	(mg/L)	
Copper		EPA 200.8	0.63	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name:	KHS12211	6-P-DF/WC-35		Date Received	12/21/16
RJ Lee Grp. ID:	W612102-	6-P-DF/WC- <b>35</b> 35	ter	Date Analyzed	
Analy		Method	Result	PQL	Qualifiers
Tinaly		Without	(mg/L)	(mg/L)	Quantitiers
Connor		EPA 200.8	0.68	0.01	
Copper Lead		EPA 200.8 EPA 200.8	< 0.0010	0.01	
Leau		LIA 200.0	< 0.0010	0.001	

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-3	6-P-DF/WC- <b>Matrix:</b> Po 36	otable Water		Date Received: Date Analyzed:	
Analyt	te	Method		Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.34	0.01	
Lead		EPA 200.8		< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-3	6-P-DF/WC- <b>Matrix:</b> Po 37	otable Water		Date Received: Date Analyzed:	
Analyt	te	Method		Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.06	0.01	
Lead		EPA 200.8		< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-3		otable Water		Date Received: Date Analyzed:	
Analyt	te	Method		Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.67	0.01	
Lead		EPA 200.8		< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-3	6-P-DF/WC-39 39	otable Water		Date Received: Date Analyzed:	
Analyt	te	Method		Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.67	0.01	
Lead		EPA 200.8		< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-4		otable Water		Date Received: Date Analyzed:	
Analyt	te	Method		Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		1.1	0.1	Х
Lead		EPA 200.8		< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-4		otable Water		Date Received: Date Analyzed:	
Analyt	te	Method		Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8		0.84	0.01	
copper						

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-4	<b>Watrix:</b> Polable wa	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.88	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-4		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.39 0.015	0.01	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-4		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.4	0.1	Х
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-4		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	0.003	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-4		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.0	0.1	Х
Lead		EPA 200.8	0.004	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-4		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
G		EPA 200.8	0.18	0.01	
Copper		200.0	0110	0.01	

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102	<b>VIALFIX:</b> FOLADIE WA	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.19	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.1 0.003	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	2.4	0.1	Х
Lead		EPA 200.8	< 0.0010	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.57	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.47	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.45	0.01	
copper					

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-:	6-P-KF-54 <b>Matrix:</b> Potable Wa 54	ıter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.49	0.01	
Lead		EPA 200.8	0.001	0.001	
Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-:		iter	Date Received: Date Analyzed:	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.81 0.002	0.01	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-:		iter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.87	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-:	6-P-DF/WC- <b>Matrix:</b> Potable Wa 57	ıter	Date Received: Date Analyzed:	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.57	0.01	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-:		iter	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	< 0.0010	0.001	
ample Name: RJ Lee Grp. ID:	KHS12211 W612102-:	6-P-KF-59 <b>Matrix:</b> Potable Wa	iter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
		EPA 200.8	0.64	0.01	
Copper		EFA 200.8	0.04	0.01	

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Sample Name: RJ Lee Grp. ID:	KHS12211 W612102-	6-P-DF-60 <b>Matrix:</b> Potable Wat	er	Date Receive Date Analyze	
Analyt	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	< 0.010	0.01	
<b>T</b> 1			< 0.0010	0.001	
Lead		EPA 200.8	< 0.0010	0.001	
ample Name:	KHS12211 W612102-	6-P-DF-61 <b>Matrix:</b> Potable Wat		Date Receive Date Analyze	
ample Name:	W612102-	6-P-DF-61 <b>Matrix:</b> Potable Wat		Date Receive	
Sample Name: RJ Lee Grp. ID:	W612102-	6-P-DF-61 <b>Matrix:</b> Potable Wat 61	er Result	Date Receive Date Analyze PQL	ed: 01/09/17

D = Analyte analyzed in a dilution

 $E = Report \ concentration \ was \ above \ the \ instrument \ calibration \ range$ 

J = Analyte detected below quantitation limits, concentration is estimated

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

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected



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

H = Holding times for preparation or analysis exceeded

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

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

U = Analyte analyzed for but not detected

*N/A* = *Not Applicable* 

#### 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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	DELIVERING SCIENTIFIC RESOLUTION	LEE
R4	TIFIC RESOLU	GROU
12032015	JTION	UP

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Fax	Phone	301	0th Avenue

350 Hochberg Road Monroeville, PA 15146

Pennsylvania - HQ

724.325.1776 Phone

724.733.1799 Fax

Washington Columbia Basin Analytical Laboratories

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	Custody	Chain of		Custody	Chain of	51221	51221	1221	5122	5122	5122	512211	110011	1221	1221	51221	Clier		Special Instructions				Sand Invoice				;		Results
Company Name:	Relinquished By (Print Name):	Relinquished By (Signature):		2D	Relinquished By (Signature):	KHSIZZIG POFM +1 Next to	(HS122116-P-0)=/12-10 Next to 713	KHUI22116-P-OF/ix on Next to RM 307	(HSI2216-P-OF-08 Teachers Look	KITSI22116-P-DINALTON WSauth of cafe mill	KITSIZZIIG-2-Marcf-oc PUM B	KHS122116-P-KP-65	CH5/2211 ( -T-1512-64	KHS12 JIL -7 77 70 110 CHS12 1	CH512211C-P-151-02	(4512211C-P. KE-01 Kitche Faurer	Client Sample ID Sample Description			Phone: (509) 574-0839	City, State, Zip: Yakima, WA, 98901	Address: 406 North 2nd Street	Company: Fulcrum Environmental	Name: Lorrie Boutillier	Fax Results To:	Email Results To: aenbysk@efulcrum.net, CC: rmathews@efulcrum.net	Call with Verbal Results:	Phone: (509) 574-0839	City, State, Zip: Yakima, WA, 98901
				Bestion	K	716	13	M 307	ork RM	· cafe "						er	ription			Fax:			Email: II			et, CC: rmat		Fax:	
Method (	Relinguished To:	Date:	L	Relinquished To:	Date:	4		7	3	1					-	12-21-16	Date	Cample		( 509) 575-8453			Email: lboutillier@efulcrum.net			hews@efulcru		( 509) 575-8453	
Method of Shipment:	hed To:		Method of Shipment:	hed To:	Date: 12 -21-16											6	Start	San		5-8453			lcrum.net			m.net		5-8453	
		Time:			Time:												Stop	Sample Time											
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Compan	Receivec	Received	Company Name:	Received	Received																	Þ	-	Other	4 C	_	Preservation:	Sample Pu	Multiple Sources #s:
Company Name:	Received By (Print Name):	Received By (Signature):	y Name:	Received By (Print Name)	Received By (Signati	-							_									Analysis Requested		Na-SO	HCI	H <sub>2</sub> SO <sub>4</sub>	ion:	Ы	ources #s:
	ame):	ıre):	Lury	anter (ULL)	Color C																	uested		E=Extract	S=Soil/Sludge	WW=Wastewater	Matrix:	B  Other  D	
2	R	D	2	R	D																			X=Other	0=0il	SW=Surface Water			
Method of Shipment:	Relinguished To:	Date:	Method of Shipment:	<b>Relinquished To:</b>	DaDEC 2	*										UNPR.	Pres.	_	oon Re		_	/N)				ice Water			
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17.9

12.0 8

13/8

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2 0

3

18.3

No. Containers

W612102, Page 13 of 18 ATTENTION TO:

Name: Amanda Enbysk, Ryan Mathews Company: Fulcrum Environmental Consulting

Lab Use

Client No: Logged In By:

Only

Date Logged In: Project No.:

Report

Address:

406 North 2nd Street

Drinking

Water

DOH Source #: System ID #: Request

Standard:

Yes

No

If 'No,' No. of Business Days:

Accreditation (please list below):

Sample Purpose: Information X Regulatory

**RYAN MATHEWS** 

Request for Environmental and IH Laboratory Analytical Services

N612102

Purchase Order No.: Turnaround

> Client Job No.: Page 162017 g,

> > 5

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LEE GROUP

509.544.6010 Fax 509.545.4989 Phone

724.733.1799 Fax 724.325.1776 Phone

Pasco, WA 99301

350 Hochberg Road Monroeville, PA 15146

Pennsylvania - HQ

Washington Columbia Basin Analytical Laboratories 2710 North 20th Avenue

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**Request for Environmental and IH Laboratory Analytical Services** W612102

W612102, Page 14 of 18

ATTENTION TO:

**RYAN MATHEWS** 

Purchase Order No.: Turnaround Request

Standard:

Yes

No

If 'No,' No. of Business Days:

**Client Job No.:** 

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Lab Use Only

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Pasco, WA 99301 509.545.4989 Phone 509.544.6010 Fax 2710 North 20th Avenue Columbia Basin Analytical Laboratories

Washington

Monroeville, PA 15146 724.325.1776 Phone 724.733.1799 Fax	Pennsylvanla - HQ 350 Hochberg Road
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ATTENTION TO:		RYAN MATHEWS					Purchase Order No.:	No.:		Client Job No.:	162017	17	
Lab Use	Project No.:	Client No:					Turnaround			If 'No ' No of Business Dave:			
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Results	City, State, Zip:	Yakima, WA, 98901					Sample Only	Multiple Sources #s:					
	Phone: (509) 574-0839	-0839 Fax:	(509) 575-8453	453				Sample Purpose: A	B D Other D				
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	Name: Lorrie Boutillier						and the final sector	Other Na,SO,	E=Extract	X=Other	A=Air (f	A=Air (filter or tube)	tube)
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Special Instructions							EPA 200.8:			on Ree	Matri	рН	. Conta
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**Request for Environmental and IH Laboratory Analytical Services** 

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W612102, Page 16 of 18

Request for Environmental and IH La         ATTENTION TO:       RYAN MATHEWS         Lab Use Date Logged In:       Client No: Date Logged In:       Client No: Date Logged In:       Logged In By:         Name:       Amanda Enbysk, Ryan Mathews       Company:       Fulcrum Environmental Consulting         Report Results To       City, State, Zip:       Yakima, WA, 98901       colspan="2">Fax:       (509) 575-8453         Call with Verbal Results To:       aenbysk@efulcrum.net, CC: rmathews@efulcrum.net       Fax Results To:       Aenthews@efulcrum.net         Email Results To:       aenbysk@efulcrum.net, CC: rmathews@efulcrum.net       Company: Fulcrum Environmental       Email: Iboutillier@efulcrum.net         Name: Lorrie Boutillier       Address:       406 North 2nd Street       Email: Iboutillier@efulcrum.net	uest for Environmental and IH Laborato         N To:       RYAN MATHEWS         Project No.:       Client No:         Date Logged In:       Logged In By:         Name: Amanda Enbysk, Ryan Mathews       Logged In By:         Company:       Fulcrum Environmental Consulting         Address:       406 North 2nd Street         Email Results To:       aenbysk@efulcrum.net, CC: rmathews@efulcrum.net         Fax Results To:       aenbysk@efulcrum.net, Email: lboutillier@efulcrum.net         Name: Lorrie Boutillier       Email: lboutillier@efulcrum.net	Ryan MATHEWS       Client No:       W///         roject No:       Client No:       W///         are Logged In:       Logged In By:       Logged In By:         ame: Amanda Enbysk, Ryan Mathews       Logged In By:       Logged In By:         ompany:       Fulcrum Environmental Consulting       Logged In By:         ity, State, Zip:       Yakima, WA, 98901       Logged In Environmental Consulting         ity, State, Zip:       Yakima, WA, 98901       Fax:       (509) 575-8453         all with Verbal Results:       Fax:       (509) 575-8453       Imail Results To:         all with Verbal Results:       Fax:       (509) 575-8453       Imail Results To:         mail Results To:       aenbysk@efulcrum.net, CC: rmathews@efulcrum.net       Imail Results To:       Imail Results To:         and: Inservice Boutillier       Finail: Iboutillier@efulcrum.net       Imail Results To:       Imail Result To:         ame: Lorrie Boutillier       Email: Iboutillier@efulcrum.net       Imail Result To:       Imail Result To:         ame: Lorrie Boutillier       Email: Iboutillier@efulcrum.net       Imail Result To:       Imail: Iboutillier@efulcrum.net         ame: Arrie Boutillier       Email: Iboutillier@efulcrum.net       Imail: Iboutillier@efulcrum.net       Imail: Iboutillier	PST for Environmental and IH Laboratory Analytical Service         WULLUL         NULLUL         NULLUL         NULLUL         Prictal Service Service         Intervice Service Service         Intervice Service Service         Intervice Service Servic
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Washington Columbia Basin Analytical Laboratories 2710 North 20th Avenue

Pennsylvania - HQ 350 Hochberg Road Monroeville, PA 15146

Chain of Custody Chain of	Chaii Cust	Chaii Cust	Chai		KHS	NH NH	KHS	CHN		CH3	KHS	KHS	KHS	KHS	いき	CIIS			Special Instructions		-		Cond In		V	<u>V6</u> .			Z Recults		ge	18	of	Lab Use	ATTENT		Re
_					1 Julic	122116	1100	LH2 199116 -	allep 1	CHSIDDIL	KHUIJANC	KH512211C .	KHSIDOIL	KIASIDDIIK	SITI 19911C	21151221/6	Client S		cial tions	Pho			_	Na	Fax	Em		_		_	Cor	Nar			ATTENTION TO:		que
Kelinguished By (Print Name)	Relinquished By (Signature):	Company Name: Full Cr www	Relinquished By (Print Name): No. How	Relinquished By (Signature):	c-9	~	ic	1	27	1	5H- JQ- 9-	N-010-0	09-39. de	-2-KFA-51	-61-58	- p- ap/1x-b/Dew	Client Sample ID			Phone: (509) 574-0839	City, State, Zip: Ya	Address: 406 North 2nd Street	Company: Fulcrum En	Name: Lorrie Boutillier		Email Results To: ac	Call with Verbal Results:	09) 574	City, State, Zip: Ya	Address: 406 North 2nd Street	Company: Fulcrum En	Name: Amanda Enbysk, Ryan Mathews	Date Logged In:	Project No.:	<b>RYAN MATHEWS</b>		<b>Request for Environmental and IH Laboratory Analytical Services</b>
lame):	ıre):	Crewy		ure): Northan	/	/					Sec man	Nex to KI	Next to R	RM 103	New Gym	New Gym	Sample Description			0839	Yakima, WA, 98901	2nd Street	Fulcrum Environmental			aenbysk@efulcrum.net, CC: rmathews@efulcrum.net		9839	Yakima, WA, 98901	2nd Street	Fulcrum Environmental Consulting	Ryan Mathews			ATHEWS		vironm
R	D	3	>	Bock D						-	Ó	RM 408	RM HOL	103 Main Station	Office	6				Fax: (5			Email: Iboutillier@efulcrum.net			et, CC: rmathews@		Fax: (5			ting		Logged In By:	Client No:			ental a
Relinguished To:	Date:	Method of Shipment:	Relinquished To:	Date: 12-21-								t			-	11-16-9	Date			(509) 575-8453			er@efulcru			efulcrum.n		( 509) 575-8453									nd II
Relinquished To:		hipment:	To:	21-6						1							Start	Sample Time		53			m.net			et		53									H La
	Time:			Time: 3:2						/							Stop	e Time																			bora
				25					1								Volume	Wine Area / Al-																		W6/210	tory A
Custody	Chain of		Custody	Chain of				4		_	4	¥		-		×			EPA 200.8:					Anaiysis Key	Chemistry				Sample Only	Water	Drinking		Request	Turnaround	Purchase Order No.:	2102	naly
Received By (Print Name):	Received By (Signature):	Company Name:	Received By (Print Name)	Received By (Signature)			/															Analysis I		HNO <sub>3</sub>	4°C	Unpres H <sub>2</sub> SO <sub>4</sub>	Preservation:	Sample Purpose: A	Sample Only Multiple Sources #s:	DOH Source #:	System ID #:	Sample Purpose: Information X Regulatory		standard.	er No.:	ı	tical Se
it Name):	nature):	K	it Name):	andere 2	1	/																Analysis Requested		s=son/sindge	GW=Groudwater	WW=Wastewater	Matrix:	D B D Other D				formation X Re	NO	2			rvices
		a	10/01									-												Idge									II NO, NO				•
Kelir	Date:	Met	/ Relir	이라 다 다	-					_						-	Pres.	Up	oon Red	ceip	t (Y,	/N)		X=Other	DW=Drinking Water	SW=Surface Water						Accreditation (please list below):	II NU, NU, UI BUSIIIESS DAYS.	of Bucinese	Client Job No.:		
Method of Shinment		Method of Shipment:	Relinquished To:	17							4	4		-		UNPR.		Pr	eserva	tior	ז				Water	Water						(please list	Days.				
o:	Time:	pment:		ZUID Time:	_					_	4	4			-	ow		Сог	Matri		be			A=Air (filt		P=Plastic	Container:					below):			162017	Page 🕼	5
	10			بذ					1		-					ρ			pН		_	_		A=Air (filter or tube)	,	C	er:								17	of	
				20								2	2	66	17	1		No	. Conta	ine	rs			be)												a	*0



# **ATTACHMENT E**

Remedial Analytical Results



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



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

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

# RE: Kennewick SD Drinking Water - Kennewick High School Work Order Number: 1701238

January 24, 2017

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

Fremont Analytical, Inc. received 5 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

**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 - Kennewick 1701238	Work Order Sa	ample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701238-001	KHS12117-P-DF-13	01/21/2017 12:00 PM	01/23/2017 12:25 PM
1701238-002	KHS12117-P-DF-32	01/21/2017 12:00 PM	01/23/2017 12:25 PM
1701238-003	KHS12117-P-OF-44	01/21/2017 12:00 PM	01/23/2017 12:25 PM
1701238-004	KHS12117-P-OF-50	01/21/2017 12:00 PM	01/23/2017 12:25 PM
1701238-005	KHS12117-P-DF-60	01/21/2017 12:00 PM	01/23/2017 12:25 PM



**Case Narrative** 

WO#: **1701238** Date: **1/24/2017** 

 CLIENT:
 Fulcrum Environmental

 Project:
 Kennewick SD Drinking Water - Kennewick High School

WorkOrder Narrative:

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

#### **III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

#### Prep Sample Comments:

1701238-001A 202848: Prep Comments for EPA200.8, Sample 1701238-001A: Turbidity: 0.04 NTU 1701238-002A 202849: Prep Comments for EPA200.8, Sample 1701238-002A: Turbidity: 0.05 NTU 1701238-003A 202850: Prep Comments for EPA200.8, Sample 1701238-003A: Turbidity: 0.02 NTU 1701238-004A 202851: Prep Comments for EPA200.8, Sample 1701238-004A: Turbidity: 0.01 NTU 1701238-005A 202852: Prep Comments for EPA200.8, Sample 1701238-005A: Turbidity: 0.01 NTU

## **Qualifiers & Acronyms**



WO#: **1701238** 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:
 1701238

 Date Reported:
 1/24/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kennewick High School

Lab ID: 1701238-001 Client Sample ID: KHS12117-P-I	Collection Date: 1/21/2017 12:00:00 PM Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me	Batch	n ID: 15	999 Analyst: TN		
Copper	1,060	0.500	µg/L	1	1/23/2017 11:27:42 PM

Lab ID: 1701238-002 Client Sample ID: KHS12117-	P-DF-32		Collection Date: 1/21/2017 12:00:00 PM Matrix: Drinking Water			
Analyses	Result	RL Qual	Date Analyzed			
Drinking Water Metals by EPA	Method 200.8		Batch	ID: 159	999 Analyst: TN	
Copper	1,070	0.500	µg/L	1	1/23/2017 11:31:18 PM	

Lab ID: 1701238-003	Collection Date: 1/21/2017 12:00:00 PM				
Client Sample ID: KHS12117-P-OF	Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth		Batch	ID: 159	99 Analyst: TN	
Copper	1,220	0.500	µg/L	1	1/23/2017 11:34:55 PM



 Work Order:
 1701238

 Date Reported:
 1/24/2017

## CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kennewick High School

Lab ID: 1701238-004 Client Sample ID: KHS12117-P-		Collection Date: 1/21/2017 12:00:00 PM Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me	Batch	n ID: 15	999 Analyst: TN		
Copper	1,550	0.500	µg/L	1	1/23/2017 11:38:31 PM

Lab ID: 1701238-005	Collection	Date:	1/21/2017 12:00:00 PM		
Client Sample ID: KHS12117-P-DF	Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Metho	<u>od 200.8</u>		Batch	ID: 159	999 Analyst: TN
Copper	ND	0.500	μg/L	1	1/23/2017 11:42:08 PM



	1701238									QCS	SUMMAR		<b>ORT</b>
CLIENT:	Fulcrum Enviro	onmental							Duindain				
Project:	Kennewick SD	Drinking	Water - k	Kennewic	k				Drinkin	g Water Me	tais by EP	'A Metho	a 200.
Sample ID MB-159	99 8	SampType:	MBLK			Units: µg/L		Prep Da	te: 1/23/2	017	RunNo: 340	026	
Client ID: MBLKW	V I	Batch ID:	15999					Analysis Da	te: 1/23/2	017	SeqNo: 647	7576	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID LCS-15	999	SampType:	LCS			Units: µg/L		Prep Da	te: 1/23/2	017	RunNo: 340	026	
Client ID: LCSW	I	Batch ID:	15999					Analysis Da	te: 1/23/2	017	SeqNo: 647	7577	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			93.6	0.500	100.0	0	93.6	85	115				
Sample ID 170123	6-014ADUP	SampType:	DUP			Units: µg/L		Prep Da	te: 1/23/2	017	RunNo: 340	026	
Client ID: BATCH	I	Batch ID:	15999					Analysis Da	te: 1/23/2	017	SeqNo: 647	7579	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		1	,730	0.500						1,728	0.181	30	
Sample ID 170123	6-014AMS	SampType:	MS			Units: µg/L		Prep Da	te: 1/23/2	017	RunNo: 340	026	
Client ID: BATCH	I	Batch ID:	15999					Analysis Da	te: 1/23/2	017	SeqNo: 647	7580	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		1	,910	0.500	200.0	1,728	91.9	70	130				
Sample ID 170123	6-014AMSD S	SampType:	MSD			Units: µg/L		Prep Da	te: 1/23/2	017	RunNo: 340	026	
Client ID: BATCH	I	Batch ID:	15999					Analysis Da	te: 1/23/2	017	SeqNo: 647	7581	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		1	,960	0.500	200.0	1,728	115	70	130	1,912	2.39	30	



# Sample Log-In Check List

CI	ient Name:	FE	Work Order Numb	ber: 1701238		
Lo	gged by:	Clare Griggs	Date Received:	1/23/2017	7 12:25:00 PM	
Cha	in of Cust	ody				
1.	Is Chain of C	ustody complete?	Yes 🖌	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>Client</u>			
Log	In					
-	Coolers are p	present?	Yes 🗸	No 🗌		
0.						
4.	Shipping con	tainer/cooler in good condition?	Yes 🗹	No 🗌		
5.		ls present on shipping container/cooler? ments for Custody Seals not intact)	Yes	No 🗌	Not Required 🗹	
6.	Was an atten	npt made to cool the samples?	Yes 🖌	No 🗌		
7.	Were all item	is received at a temperature of $>0^{\circ}$ C to $10.0^{\circ}$ C*	Yes 🔽	No 🗌		
8.	Sample(s) in	proper container(s)?	Yes 🖌	No 🗌		
9.	Sufficient sar	nple volume for indicated test(s)?	Yes 🖌	No 🗌		
10.	Are samples	properly preserved?	Yes 🗹	No 🗌		
11.	Was preserva	ative added to bottles?	Yes	No 🗹	NA 🗌	
12.	Is there head	space in the VOA vials?	Yes	No 🗌	NA 🗹	
		es containers arrive in good condition(unbroken)?	Yes 🖌	No 🗌		
14.	Does paperw	ork match bottle labels?	Yes 🖌	No 🗌		
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌		
		at analyses were requested?	Yes 🖌	No 🗌		
17.	Were all hold	ling times able to be met?	Yes 🖌	No 🗌		
Spe	cial Handl	ing (if applicable)				
-		otified of all discrepancies with this order?	Yes	No 🗌	NA 🔽	
	Person	Notified: Date				
	By Who		eMail Ph	one 🗌 Fax	In Person	
	Regardi					
	Client In	instructions:				

#### Item Information

Item #	Temp ⁰C
Cooler	8.3
Sample	9.2

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

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www.fremontanalytical.com

Fre	Fremont	Y R	aboratory Services Agreeme
	Analytical	Date: 1/21/2017	atory Project
3600 Fremont Ave N. Seattle, WA 98103	Tel: 206-352-3790 Fax: 206-352-7178	Read SD Do to Anothe	
Client:	Fulcrum Environmental Consulting	Project No: 162017	interesting a factor with the faction
Address:	406 North Second Street	Knowwick HS,	Kennewick WA
City, State, Zip:	Yakima, WA 98901	(PM): Ryan Mathews	a che staticate della scala della contra della contra della contra della contra della contra della contra della
Telephone:	509.574.0839 Fax: 509.545.8453		@efulcrum.net
*Matrix Codes: A = Air, AQ = .	<pre>c, O = Other, P = Product, S = Soil, SD = Sediment,</pre>	ing Water,	GW = Ground Water, SW = Storm Water, WW = Waste Water
and the second sec	Sample Colored (6)		
KH512117-P-0F-13	Mo arei tility.		HNO2 proceed
KH512117-8-20	-32	8	
KH512117-P-0F	5F-44	8	
KH512117-P-0F-50	50 4 4 4	<b>S</b>	tabilitati ni mang Kingan Tupang Pala a tabu kasatan kasatan kasa
KHSIZII7-P-DF	DF-60 x x x	8	~
The second of the second secon	P. C. Martin, J. Martin, M. M. Martin, J. M. M. Martin, J. Mart		NOR YE REAL ADDRESS TO A DREAM AND A D
state to bride an interpla	and a state of the second s	)	
**Metals Analysis (Circle):	MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag	Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni	Pb Sb Se Sr Sn Ti TI U V Zn
***Anions (Circle): Nitrate Sample Disposal:	Nitrite Chloride	e Fluoride Nitrate+Nitrite Turn-around times for samples ys unless otherwise noted. A fee may be on the following business day.	Special Remarks:
represent that I am autho greement to each of the ter	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.	ehalf of the Client named above, that I have verified Client's	HT. AXAD
x Www.lutMCC	pate/Time Received	Date/Time	IAL TOTAL
Relinquished	1 13/2017 Data Received	XLYZEIT INZS	TAT → SameDay <sup>^</sup> NextDay <sup>^</sup> 2 Day 3 Day STD <sup>^</sup> Please coordinate with the lab in advance

٦



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 - Kennewick High School Follow-Up Sampling Work Order Number: 1702037

February 07, 2017

### **Attention Ryan Mathews:**

Fremont Analytical, Inc. received 5 sample(s) on 2/3/2017 for the analyses presented in the following report.

### Drinking Water Metals by EPA Method 200.8

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward Project Manager

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



CLIENT:	Fulcrum Environmental	Work Order Sample Summary
Project:	Kennewick SD - Kennewick High School Fol	
Work Order:	1702037	

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1702037-001	KHS12817-P-CF-50	01/28/2017 11:30 AM	02/03/2017 3:12 PM
1702037-002	KHS12817-S-CF-50	01/28/2017 11:30 AM	02/03/2017 3:12 PM
1702037-003	KHS12817-T-CF-50	01/28/2017 11:30 AM	02/03/2017 3:12 PM
1702037-004	KHS12817-P-DF-60	01/28/2017 11:30 AM	02/03/2017 3:12 PM
1702037-005	KHS12817-P-DF-61	01/28/2017 11:30 AM	02/03/2017 3:12 PM



Case Narrative

WO#: **1702037** Date: **2/7/2017** 

### CLIENT: Fulcrum Environmental

Project: Kennewick SD - Kennewick High School 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:

1702037-001A 205379: Prep Comments for EPA200.8, Sample 1702037-001A: Turbidity: 0.01 NTU 1702037-002A 205383: Prep Comments for EPA200.8, Sample 1702037-002A: Turbidity: 0.01 NTU 1702037-003A 205384: Prep Comments for EPA200.8, Sample 1702037-003A: Turbidity: 0.00 NTU 1702037-004A 205385: Prep Comments for EPA200.8, Sample 1702037-004A: Turbidity: 0.02 NTU 1702037-005A 205386: Prep Comments for EPA200.8, Sample 1702037-005A: Turbidity: 0.01 NTU

## **Qualifiers & Acronyms**



 WO#:
 1702037

 Date Reported:
 2/7/2017

## 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:
 1702037

 Date Reported:
 2/7/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick SD - Kennewick High School Follow-Up Sampling

Lab ID: 1702037-001 Client Sample ID: KHS12817-P-Cl	F-50		Collection Matrix: D		1/28/2017 11:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth		Batch	n ID: 16	139 Analyst: TN	
Copper	1,730	0.500	µg/L	1	2/6/2017 3:32:50 PM

Lab ID: 1702037-002 Client Sample ID: KHS12817-S-	Collection Da Matrix: Drini		28/2017 11:30:00 AM ater		
Analyses	Result	RL Qual	Units I	DF I	Date Analyzed
Drinking Water Metals by EPA Me	ethod 200.8		Batch ID	: 16139	Analyst: TN
Copper	1,500	0.500	µg/L 1	1	2/6/2017 3:54:32 PM
Lab ID: 1702037-003 Client Sample ID: KHS12817-T-	CF-50		Collection D Matrix: Drinl		28/2017 11:30:00 AM ater
Analyses	Result	RL Qual	Units I	DF [	Date Analyzed

Allalyses	Nesun		Onits		Date Analyzed	
Drinking Water Metals by EPA	Method 200.8		Batch	n ID: 16	139 Analyst: TN	٧
Copper	436	0.500	µg/L	1	2/6/2017 3:58:08 PN	1



 Work Order:
 1702037

 Date Reported:
 2/7/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick SD - Kennewick High School Follow-Up Sampling

Lab ID: 1702037-004 Client Sample ID: KHS12817-P-	-DF-60		Collection Matrix: D		1/28/2017 11:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA M	ethod 200.8		Batch	n ID: 16	139 Analyst: TN
Copper	ND	0.500	µg/L	1	2/6/2017 4:01:44 PM

Lab ID: 1702037-005			Collection Date: 1/28/2017 11:30			
Client Sample ID: KHS12817-P-DF-	61		Matrix: D	rinking \	Vater	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Method 200.8 Batch ID: 161					39 Analyst: TN	
Copper	1,280	0.500	µg/L	1	2/6/2017 4:05:20 PM	



Work Order: CLIENT:	1702037 Fulcrum Env								Drinkin	QC S g Water Me	SUMMAI		
Project:	Kennewick S			School F	-ol					-	-		
Sample ID MB-16		SampType				Units: µg/L			e: 2/6/201		RunNo: 34	-	
Client ID: MBLK	w	Batch ID:	16139					Analysis Date	e: <b>2/6/201</b>	7	SeqNo: 65	3797	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID LCS-10	6139	SampType	e: LCS			Units: µg/L		Prep Date	e: <b>2/6/201</b>	7	RunNo: 342	291	
Client ID: LCSW		Batch ID:	16139					Analysis Date	e: <b>2/6/201</b>	7	SeqNo: 65	3798	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			100	0.500	100.0	0	100	85	115				
Sample ID 170203	37-001ADUP	SampType	e: DUP			Units: µg/L		Prep Date	e: <b>2/6/201</b>	7	RunNo: 34	291	
Client ID: KHS12	2817-P-CF-50	Batch ID:	16139					Analysis Date	e: <b>2/6/201</b>	7	SeqNo: 65	3800	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,680	0.500						1,726	2.81	30	
Sample ID 170203	37-001AMS	SampType	: MS			Units: µg/L		Prep Date	e: <b>2/6/201</b>	7	RunNo: 34	291	
Client ID: KHS12	2817-P-CF-50	Batch ID:	16139					Analysis Date	e: <b>2/6/201</b>	7	SeqNo: 65	3801	
Analyte		l	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			1,880	0.500	200.0	1,726	78.8	70	130				
Sample ID 170203	37-001AMSD	SampType	e: MSD			Units: µg/L		Prep Date	e: <b>2/6/201</b>	7	RunNo: 342	291	
Client ID: KHS12	2817-P-CF-50	Batch ID:	16139					Analysis Date	e: <b>2/6/201</b>	7	SeqNo: 65	3802	
Analyte		l	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper NOTES:			1,860	0.500	200.0	1,726	67.3	70	130	1,883	1.22	30	S

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



Client N	Name: FE	E	Work Order Num	ber: 1702037	
Logged	d by: Er	ica Silva	Date Received:	2/3/2017 3	3:12:00 PM
<u>Chain o</u>	of Custod	Y			
1. Is Ch	hain of Custo	ody complete?	Yes 🖌	No 🗌	Not Present
2. How	was the sar	nple delivered?	<u>FedEx</u>		
<u>Log In</u>					
-	lers are pres	ent?	Yes 🔽	No 🗌	
			🗔		
		er/cooler in good condition?	Yes 🗹	No 🗌	_
		resent on shipping container/cooler? ents for Custody Seals not intact)	Yes	No 🗹	Not Required
6. Was	an attempt	made to cool the samples?	Yes	No 🔽	
		Me	tals in water, pres	served	
7. Were	e all items re	eceived at a temperature of $>0^{\circ}C$ to $10.0^{\circ}C^{*}$	Yes	No 🗌	NA 🗹
8. Sam	ple(s) in pro	per container(s)?	Yes 🗸	No 🗌	
•		e volume for indicated test(s)?	Yes 🗹	No 🗌	
-		perly preserved?	Yes 🗹	No 🗌	
		e added to bottles?	Yes	No 🗹	NA 🗌
			$\sim$ $\Box$		🗖
		ice in the VOA vials?	Yes	No 🗌	NA 🗹
-		containers arrive in good condition(unbroken)?	Yes ✔ Yes ✔		
14. Does	s paperwork	match bottle labels?	res 💌	No 🗌	
15. Are r	matrices cor	rectly identified on Chain of Custody?	Yes 🖌	No 🗌	
16. <sup>Is it o</sup>	clear what a	nalyses were requested?	Yes 🗹	No 🗌	
17. Were	e all holding	times able to be met?	Yes 🗹	No 🗌	
Special	Handling	<u>ı (if applicable)</u>			
-	-	ed of all discrepancies with this order?	Yes	No 🗌	NA 🗸
	Person Not				
	By Whom:	Via:	eMail Ph	ione 🗌 Fax [	In Person
	Regarding:				
	Client Instru	uctions:			
19 Addi	itional remar				

#### Item Information

Item #	Temp °C
Cooler	9.4
Sample	10.3

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

FICE	emont		Date: 1/28/2017	
	Analytica			
3600 Fremont Ave N. Seattle, WA 98103	Tel: 206-352-3790 Fax: 206-352-7178			Page:
Client:	Fulcrum Environmental Consulting	Project No:	162017 162017	Collected by: LOSSA LOPET
Address:	406 North Second Street	Location:	h School. Kennewick. V	A
City, State, Zip:	Yakima, WA 98901	Report To (PM):	Ryan Mathews	
Telephone:	509.574.0839 Fax: 509.545.8453	ON SHERE & LAND STORE	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	@efulcrum.net
*Matrix Codes: A = Air, AQ = A	AQ = Aqueous, $B = Bulk$ , $O = Other$ , $P = Product$ , $S = Soil$ ,	SD = Sediment, SL = Solid, W = Water,	ing Water,	GW = Ground Water, SW = Storm Water, WW = Waste Water
		27 23 2 27	*** (5) - 628 (5) - 628	
Sample Name	Time (M	20 10 10 10 10 10 10 10 10 10 10 10 10 10	2 4	H in Comments
VICINAL S-	1/28/2017		3K	I'my gus.
KHS 17917-1-			8	
CHS 12817-1	- 11-20		8	and a first state of the state
KHS 12817-K	-05-60			
ST ATT A CONTRACT OF A CONTRAC	-DF-60 V & V			
<ul> <li>And grows of address short is an ob- action system of a size state of a data set as an data of a size of a size of data set as an data of a size of a size of data set as an data of a size of a size of a data set as an data of a size of a size of a data set as an data size of a size of a data set as an data size of a size of a data set as an data size of a size of a data set as an data size of a size of a data set as an data size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a data set as a size of a size of a size of a data set a size of a size of a size of a data set a size of a size of a size of a size of a data set a size of a data set a size of a size of a size of a size of a data set a size of a data set a size of a data set a size of a data set a size of a s</li></ul>	e e			e
ring on motor we will the week	E e			e
**Metals Analysis (Circle): N	AAAE E			e
****Anions (Circle): Nitrate	CRA-8 Priority Pollutants	TAL Individual: Ag Al As B Ba Be Ca Cd C		8
	rCRA-8 P	TAL Individual: Ag Al As B Ba Be Ca Cd C Bromide O-Phosphate Fluoride Nitrate	Fe Hg	
ample Disposal:	PUCA-5 RCRA-8 Priority Pollutants T NITCA-5 RCRA-8 Priority Pollutants T Nitrite Chloride Sulfate Br Return to Client Disposal by Lab (Samples ar	Image: Sulfate       Bromide       C-Phosphate       Fluoride       Nitrate+Nitrite         Disposal by Lab (Samples will be held for 30 days.)       Sulfate       Nitrate after 30 days.)	Cr Cr Cr Fe Hg K Mg Mn Mo Na N 2+Ntrrite received after 4:00pm will beg on the following business day.	Pb sb se sr sn Ti Ti U V Special Remarks: C, 11 Soundes HWC
ample Disposal:	CLUSS CDG-60	KHS 12 & 17 - CC 50       Image: Solution of the terms on the front and backside of this Agreement.	Cr Cr Cu Fe Hg K Mg Mn Mo Na Na received after 4:00pm will beg fee may be on the following business day.	
Sample Disposal:	KHS       128/7-1-06-60         KHS       128/7-10-06-80         KHS       128/7-10-06-80         KHS       128/7-10-06-80         K       Nitrate         Nitrate       Nitrite         Sample Disposal:       Disposal by Lab (Samples v         Sample Disposal:       Return to Client       Disposal by Lab (Samples are ret         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       Date/Time         X       Date/Time         X       Date/Time	TAL Individual: Ag Al As B Ba Be Ca Cd C omide O-Phosphate Fluoride Nitrate bles will be held for 30 days unless otherwise noted. At re retained after 30 days.) mont Analytical on behalf of the Client named a nent. Received	Cr Cr Cr Fe Hg K Mg Mn Mo Na N received after 4:00pm will beg fee may be on the following business day. above, that I have verified Client's Cate/Time	



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 - Kennewick High School Work Order Number: 1704106

April 10, 2017

### **Attention Ryan Mathews:**

Fremont Analytical, Inc. received 5 sample(s) on 4/10/2017 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 - Kennewick 1704106	Work Order Sa	ample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1704106-001	KHS4717-P-OF-50	04/07/2017 9:00 AM	04/10/2017 9:55 AM
1704106-002	KHS4717-S-OF-50	04/07/2017 9:00 AM	04/10/2017 9:55 AM
1704106-003	KHS4717-T-OF-50	04/07/2017 9:00 AM	04/10/2017 9:55 AM
1704106-004	KHS4717-P-DF-60	04/07/2017 9:00 AM	04/10/2017 9:55 AM
1704106-005	KHS4717-P-DF-61	04/07/2017 9:00 AM	04/10/2017 9:55 AM
		• ., • . , = • • . • . • . • .	• •



**Case Narrative** 

WO#: **1704106** Date: **4/10/2017** 

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

WorkOrder Narrative:

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

### II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

### **III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Prep Sample Comments:

1704106-001A 214895: Prep Comments for EPA200.8, Sample 1704106-001A: Turbidity: 0.01 NTU 1704106-004A 214896: Prep Comments for EPA200.8, Sample 1704106-004A: Turbidity: 0.01 NTU 1704106-005A 214897: Prep Comments for EPA200.8, Sample 1704106-005A: Turbidity: 0.04 NTU

# **Qualifiers & Acronyms**



WO#: **1704106** Date Reported: **4/10/2017** 

## Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

%Rec - Percent Recovery **CCB** - Continued Calibration Blank CCV - Continued Calibration Verification **DF** - Dilution Factor HEM - Hexane Extractable Material ICV - Initial Calibration Verification LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate MB or MBLANK - Method Blank MDL - Method Detection Limit MS/MSD - Matrix Spike / Matrix Spike Duplicate PDS - Post Digestion Spike Ref Val - Reference Value **RL - Reporting Limit RPD** - Relative Percent Difference SD - Serial Dilution SGT - Silica Gel Treatment SPK - Spike Surr - Surrogate



 Work Order:
 1704106

 Date Reported:
 4/10/2017

### CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Kennewick High School

Lab ID: 1704106-001 Client Sample ID: KHS4717-P-OI	F-50		Collection Matrix: D		4/7/2017 9:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me		Batch	n ID: 16	741 Analyst: TN	
Copper	670	0.500	µg/L	1	4/10/2017 2:09:51 PM

Lab ID: 1704106-004 Client Sample ID: KHS4717-P-DF-	60		Collection Matrix: D		4/7/2017 9:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	od 200.8		Batch	n ID: 167	741 Analyst: TN
Copper	ND	0.500	µg/L	1	4/10/2017 2:13:52 PM
Lab ID: 1704106-005			••••••		4/7/2017 9:00:00 AM
Client Sample ID: KHS4717-P-DF-	61		Matrix: D	rinking	Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	od 200.8		Batch	n ID: 167	741 Analyst: TN

0.500

µg/L

1

1,390

Copper

4/10/2017 2:17:53 PM



Work Order:	1704106									QCS	SUMMA	RY REF	PORT
CLIENT:	Fulcrum En	vironmental							Drinkin				
Project:	Kennewick	SD Drinking	Water -	Kennewic	:k				DHIIKIII	g Water Me	cais by Er	Aimetho	u 200.
Sample ID MB-16	741	SampType:	MBLK			Units: µg/L		Prep Da	te: 4/10/2	017	RunNo: 35	452	
Client ID: MBLK	N	Batch ID:	16741					Analysis Da	te: 4/10/2	017	SeqNo: 67	9043	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID LCS-16	6741	SampType:	LCS			Units: µg/L		Prep Da	te: 4/10/2	017	RunNo: 35	452	
Client ID: LCSW		Batch ID:	16741					Analysis Da	te: 4/10/2	017	SeqNo: 67	9046	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			99.3	0.500	100.0	0	99.3	85	115				
Sample ID 170410	5-001ADUP	SampType:	DUP			Units: µg/L		Prep Da	te: 4/10/2	017	RunNo: 35	452	
Client ID: BATCH	1	Batch ID:	16741					Analysis Da	te: 4/10/2	017	SeqNo: 67	9048	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			167	0.500						168.0	0.767	30	
Sample ID 170410	5-001AMS	SampType:	MS			Units: µg/L		Prep Da	te: 4/10/2	017	RunNo: 35	452	
Client ID: BATCH	1	Batch ID:	16741					Analysis Da	te: 4/10/2	017	SeqNo: 67	9049	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			351	0.500	200.0	168.0	91.7	70	130				
Sample ID 170410	5-001AMSD	SampType:	MSD			Units: µg/L		Prep Da	te: 4/10/2	017	RunNo: 35	452	
Client ID: BATCH	ł	Batch ID:	16741					Analysis Da	te: 4/10/2	017	SeqNo: 67	9050	
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			349	0.500	200.0	168.0	90.6	70	130	351.3	0.592	30	



# Sample Log-In Check List

CI	ient Name:	FE	Work Or	der Numbe	er: 1704106	
Lo	ogged by:	Clare Griggs	Date Re	ceived:	4/10/2017	7 9:55:00 AM
Cha	in of Cust	ody				
1.	Is Chain of C	ustody complete?	Yes	✓	No 🗌	Not Present
2.	How was the	sample delivered?	<u>UPS</u>			
<u>Log</u>	In					
-	Coolers are p	present?	Yes	✓	No 🗌	
0.						
4.	Shipping con	tainer/cooler in good condition?	Yes	✓	No 🗌	
5.		ls present on shipping container/cooler? ments for Custody Seals not intact)	Yes		No 🗌	Not Required 🗹
6.	Was an atten	npt made to cool the samples?	Yes	✓	No 🗌	
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
		space in the VOA vials?	Yes		No 🗌	NA 🗹
-		es containers arrive in good condition(unbroken)?	Yes Yes	<ul> <li>✓</li> <li>✓</li> </ul>		
14.	Does paperw	ork match bottle labels?	res		No 🗀	
15.	Are matrices	correctly identified on Chain of Custody?	Yes	✓	No 🗌	
		at analyses were requested?	Yes	✓	No 🗌	
17.	Were all hold	ing times able to be met?	Yes	✓	No 🗌	
Spe	cial Handli	ing (if applicable)				
-		tified of all discrepancies with this order?	Yes		No 🗌	NA 🔽
	Person					
	By Who		eMai	il 🗌 Pho	ne 🗌 Fax	In Person
	Regardi					
	-	istructions:				
19	Additional rer	narks:				

#### Item Information

Item #	Temp ⁰C
Cooler	2.4
Sample	1.1

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

3600 Fremont Ave N. Seattle, WA 98103 Client:	A malytical Tel: 206-352-3790 Fax: 206-352-7178 Fulcrum Environmental Consulting 406 North Second Street Vakima WA 98901		Lannewick High School, Kurnewick, WA
Address:	Yakima, WA, 98901	(PM):	John Provinces in a
City, state, Lip:		1	net: cc: aenbysk@efulcrum.net
Telephone:	509.574.0839 Fax: 509.575.8453	PM Email:	nbysk@etulcrum.ne
*Matrix Codes: A = Air, AQ =	AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, S	Solid, W = Water, DW = Drinking Water,	Water, SW =
Sample Name	Sample Date Time (Matrix)*		Solution of the second
1 2454717-8-05-50	11-1- 2227 2.1	8	0
2 KEYTIT-S-OF-50	0000 HAA		(
3 KHSH717-7-0F-50	1 11/14		
4 KH5+717-P-0F-60	00b0 HA/A		toLD; uppreserved
5 4454717-P-DF-61	Cobol HAM		
	A A Cobo		00
6	HAMB COOD		
	F-50         H/H         OPOD           F-50         I         I         I           F-50         I         I         I         I           OF-60         I         I         I         I         I           OF-60         I         I         I         I         I         I           OF-61         I         I         I         I         I         I         I           OF-61         I         I         I         I         I         I         I           OF-61         I         I         I         I         I         I         I           OF-62         I         I         I         I         I         I         I           I         I         I         I         I         I         I         I           I         I         I         I         I         I         I         I           I         I         I         I         I         I         I         I         I           I         I         I         I         I         I         I         I           I         I	Al As B Ba Be Ca Cd Co Cr Cu Fe Hg	
	0F-50     4/4/4       0F-50     F       0F-60     F       0F-60     F       0F-61     F       0F-62     F       0F-61     F       0F-62     F       0F	VI As B Ba Be Ca Cd Co Cr Cu Fe Hg Fluoride Nitrate+Nitrite Turn Fluoride Nitrate+Nitrite Turn on the souther the	HtuD; unperescurved       HtuD; unperescurved       K       M
6 7 7 9 9 10 ***Anions (Circle): Nitrat ***Anions (Circle): Nitrat ***Anions (Circle): Nitrat ***Anions (Circle): Nitrat ***Anions (Circle): Nitrat	WHS YFILT F ~ OF -500       WHY HT       09000         WHS YFILT - F - OF -500       WHS YFILT - F - OF -500       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT - F - OF -600       WHS YFILT - F - OF -600       WHS YFILT - F - OF -600         WHS YFILT -	Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg ate Fluoride Nitrate+NItrite received aft days unless otherwise noted. A fee may be on the follow	A HOLD; unpersource HOLD; unpersource A HOLD; unp
6 7 7 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	1       KHS YFUET ("OF -50")       YFUE (OPOQ)         2       KHS YFUE ("STOF-50")       Image: Control of the second	Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg ate Fluoride Nitrate+Nitrite Teceived att days unless otherwise noted. A fee may be on the folloy ys.) Date/Time U 10 DAI 0	s day.