

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 Highlands Middle School, 425 South Tweedt Street, Kennewick, Washington

Dear Keith:

On Wednesday, December 21, 2016, Fulcrum Environmental Consulting, Inc. (Fulcrum) collected 34 drinking water samples for lead and copper analysis from Highlands Middle School (School) located at 425 South Tweedt Street in Kennewick, Washington. Initial sampling identified five fixture locations with lead concentrations above guidance levels and four fixture locations with copper concentrations 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 laboratory results found concentrations to be below guidance levels. Sampling was completed as part of a District-wide project and all analysis was completed by Washington State Department of Ecology (Ecology) accredited laboratories.

## Summary

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

Fulcrum completed initial sampling on December 21, 2016. Initial results identified five samples with lead concentrations above the Environmental Protection Agency (EPA) action level of 15 micrograms per liter ( $\mu$ 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 fixtures identified with an elevated lead concentration were replaced and preconditioned by running cold water continuously through the fixture for 24 hours, as specified in WAC 246-366A-130. Following

<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



replacement and preconditioning, Fulcrum returned to the School on January 28, February 25, and April 5, 2017, and collected follow-up samples to confirm the success of fixture replacement. Follow-up samples yielded results below the EPA action level, confirming fixture replacement was successful.

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 three fixtures with cold water to clear the plumbing of copper construction debris and replaced one water cooler with a filtered bottle filler fountain. Fulcrum returned on 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 the fixtures be returned to service. Fulcrum recommended that the District replace all fixtures of like style to those initially identified with elevated lead.

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).

## 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 on 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 five samples 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



replaced the identified fixtures. Fulcrum returned on January 28, and February 25, 2017 following fixture replacement and preconditioning to collect follow-up samples from the initially identified fixtures. The District replaced one fixture of like style, located adjacent to the identified fixture in the kitchen. No other fixtures of like style to the kitchen faucet were identified in the building. No other fixtures of like style to classroom faucets identified producing elevated lead concentrations were replaced. See Attachment F for a photograph layout with the identified classroom faucet fixture style.

To remediate elevated copper concentrations, the District completed an aggressive flush of three of the identified fixtures and replaced the identified water cooler with a filtered bottle filler fountain. Fulcrum returned on the morning following the aggressive flush and fixture replacement, January 28, and April 5, 2017, to collect follow-up samples from the fixtures.

Analytical results from remedial sampling indicated the fixture replacement, aggressive flushing and filter installation were successful at reducing lead and copper concentrations below action levels for the fixtures in question.

## **Recommendations**

Five initial samples 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 replaced the identified fixtures with elevated lead and preconditioned the fixtures for 24 hours as specified in WAC 246-366A-130. The District completed an aggressive flush of three fixtures identified with elevated copper and replaced one identified water cooler with a filtered bottle filler fountain. Follow-up sampling demonstrated that all lead and copper concentrations were below action levels. Following remedial sampling and review of laboratory results, Fulcrum recommended, and the District elected to, return the fixtures to service. Fulcrum recommends the District replace all fixtures of like style to those initially identified with elevated lead. See Attachment F for a photograph layout of the identified classroom faucet fixture style.

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,

Emando Cubyt

Amanda Enbysk, GIT Environmental Geologist

Kyan K Mather

Ryan K. Mathews, CIH, CHMM Principal



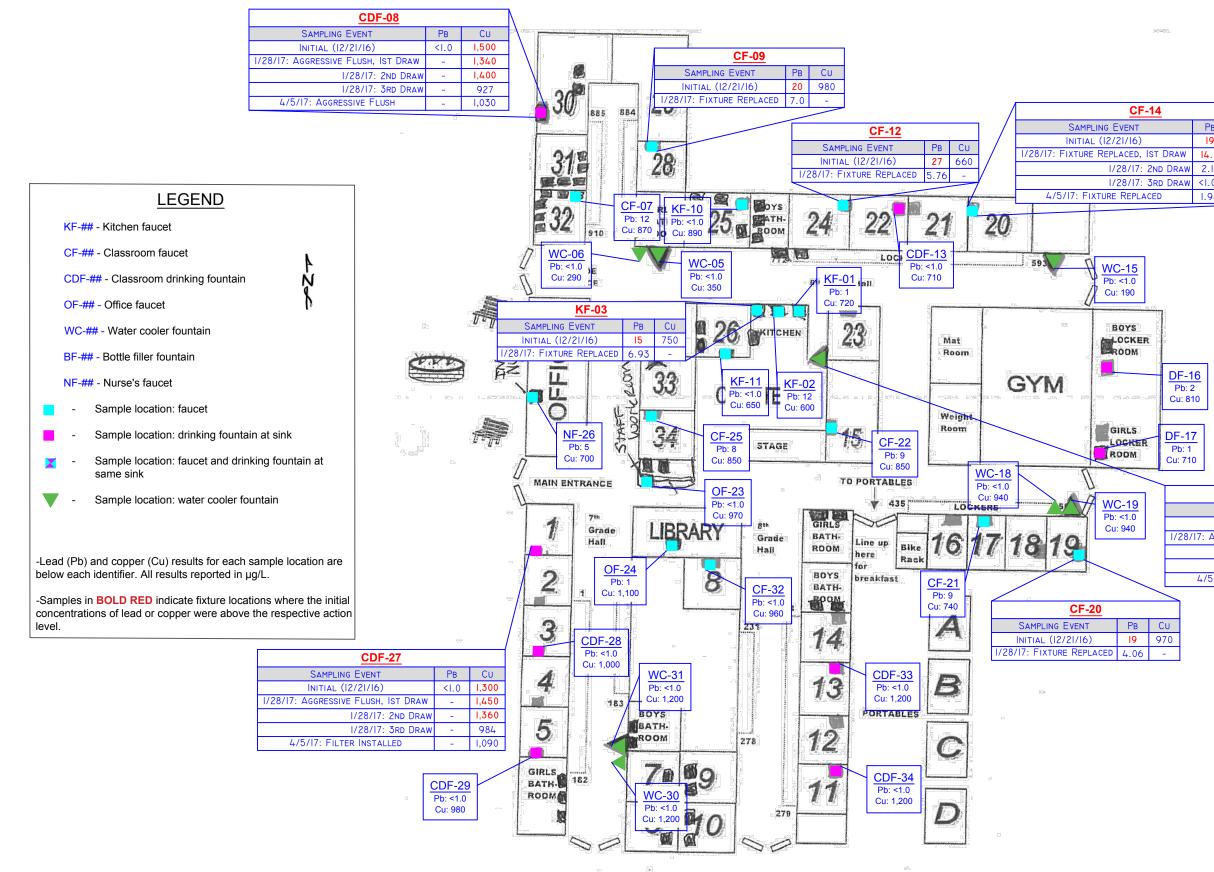
P. 509.574.0839 F. 509.575.8453 406 North 2nd Street Yakima, Washington 98901 *efulcrum.net* 



## **ATTACHMENT A**

Figure 1: Sample Location Map





Fulcrum Environmental Consulting, Inc. 406 North Second Street, Yakima, Washington 98901 p: 509.574.0839 f: 509.575.8453 efulcrum.net Kennewick SD Drinking Water Sampling. 162017.00. AME. 10252017

Highlands Middle School 425 South Tweedt Street Kennewick, Washington



<u>CF-14</u>							
Event	Рв	Cu					
2/21/16)	19	800					
placed, Ist Draw	14.6	-					
1/28/17: 2nd Draw	2.12	-					
1/28/17: 3rd Draw	<1.00	-					
RE REPLACED	1.94	-					

	<u>DF-04</u>		
VC-19 Pb: <1.0 Cu: 940	SAMPLING EVENT	Рв	CU
	INITIAL (12/21/16)	<1.0	1,400
	1/28/17: Aggressive Flush, 1st Draw	-	1,590
	1/28/17: 2nd Draw	-	1,810
_	1/28/17: 3rd Draw	-	1,110
	4/5/17: FILTER INSTALLED	-	306

DRAWING PROVIDED BY KENNEWICK SCHOOL DISTRICT

Sample Location Map





## **ATTACHMENT B**

Site-Specific Sampling and Analysis Plan





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

Kennewick School District – Winter 2016 Drinking Water Sampling

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

Campus/Building:	Highlands Middle Schoo	1 Address: 425 Sout	h Tweedt Street, Kennewick, WA
□ Elementary	Middle School	□ High School	□ Administration
Date of Construction:	1959	Modernizations	s: <u>1966, 1994</u>

Fixture Type	Locations	Fixture Styles <sup>1</sup>	Samples	Ratio
Drinking fountain/water cooler (DF/WC)	8	5	8	100%
Kitchen Fixture (KF)	3	2	3	100%
Classroom faucet, including faucets in Food Labs and Life Sciences Classrooms (CF)	40	3	11	28%
Classroom drinking fountain at sink (CDF)	26	2	9	27%
Nurse's Office/Health Room (NF)	1	1	1	100%
Teacher's Lounges/Work Rooms (OF)	2	2	2	100%
TOTALS	80		34	43%

1 Fixture styles are approximate based on sampler's observations

Lead Sampler:	Amanda En	bysk		Date:	]	2/21/16	_
Sample Prefix:	HMS School Code						
Laboratory:	R. J. Lee Group,	Columbia	Basin Analytica	l Delivery	Date:	December 21	, 2016
Comments:							a



## **ATTACHMENT C**

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



Winter 2016 – Drinking Water Sampling Results Highlands Middle 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
	Fixure Type	(µg/L)	(µg/L)
HMS122116-P-KF-01: Kitchen, N. wall, E. fixture	Kitchen Faucet	1	720
HMS122116-P-KF-02: Kitchen, N. wall, middle fixture	Kitchen Faucet	12	600
HMS122116-P-KF-03: Kitchen, N. wall, W. fixture	Kitchen Faucet	15	750
HMS122116-P-DF-04: Cafeteria	Drinking Fountain	<1.0	1,400
HMS122116-P-WC-05: 5th Grade Hall, W. end, right fixture	Water Cooler	<1.0	350
HMS122116-P-WC-06: 5th Grade Hall, W. end, left fixture	Water Cooler	<1.0	290
HMS122116-P-CF-07: Room 32	Classroom Faucet	12	870
HMS122116-P-CDF-08: Room 30	Classroom Drinking Fountain	<1.0	1,500
HMS122116-P-CF-09: Room 28	Classroom Faucet	20	980
HMS122116-P-KF-10: Room 25	Kitchen Faucet	<1.0	890
HMS122116-P-KF-11: Room 26	Kitchen Faucet	<1.0	650
HMS122116-P-CF-12: Room 24	Classroom Faucet	27	660
HMS122116-P-CDF-13: Room 13	Classroom Drinking Fountain	<1.0	710
HMS122116-P-CF-14: Room 20	Classroom Faucet	19	800
HMS122116-P-WC-15: 5th Grade Hall, E. end	Water Cooler	<1.0	190
HMS122116-P-DF-16: Boy's Locker Room	Drinking Fountain	2	810
HMS122116-P-DF-17: Girl's Locker Room	Drinking Fountain	1	710
HMS122116-P-WC-18: E. end of main hallway, E. fixture	Water Cooler	<1.0	940
HMS122116-P-WC-19: E. end of main hallway, W. fixture	Water Cooler	<1.0	940
HMS122116-P-CF-20: Room 19	Classroom Faucet	19	970
HMS122116-P-CF-21: Room 17	Classroom Faucet	9	740
HMS122116-P-CF-22: Room 15	Classroom Faucet	9	850
HMS122116-P-OF-23: Staff Workroom, S. fixture	Office Faucet	<1.0	970
HMS122116-P-OF-24: Library	Office Faucet	1	1,100
HMS122116-P-CF-25: Room 34	Office Faucet	8	850
HMS122116-P-NF-26: Nurse's Office	Nurse's Faucet	5	700
HMS122116-P-CDF-27: Room 01	<b>Classroom Drinking Fountain</b>	<1.0	1,300
HMS122116-P-CDF-28: Room 03	Classroom Drinking Fountain	<1.0	1,000
HMS122116-P-CDF-29: Room 05	Classroom Drinking Fountain	<1.0	980
HMS122116-P-WC-30: 7th Grade Hall, S. end, S. fixture	Water Cooler	<1.0	1,200
HMS122116-P-WC-31: 7th Grade Hall, S. end, N. fixture	Water Cooler	<1.0	1,200
HMS122116-P-CF-32: Room 08	Classroom Faucet	<1.0	960
HMS122116-P-CDF-33: Room 13	Classroom Drinking Fountain	<1.0	1,200
HMS122116-P-CDF-34: Room 11	Classroom Drinking Fountain	<1.0	1,200
HMS122116-P-CDF-35: Laboratory Spike	Lead and Copper Spike	14	1,300
HMS122116-P-OD-36: Laboratory Blank	Distilled Water Blank	<1.0	<10
<b>EPA Action Level</b>		15	1,300

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

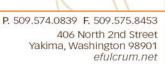
2 Action levels based on the U.S. EPA's Lead and Copper Rule.

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. pri and Temperature Data Summary									
Sample Number	Fixture Type	pH Flush	pH Sample	Temperature (°C) flush	Temperature (°C) sample				
HMS122116-P-KF-01: Kitchen, N. wall, E. fixture	Drinking Fountain	7.39	7.66	19.7	20.6				
HMS122116-P-CDF-08: Classroom 30	Classroom Drinking Fountain	7.44	7.87	20.6	16.5				
HMS122116-P-CF-12: Classroom 24	Classroom Faucet	7.62	7.73	13.2	18.5				
HMS122116-P-DF-16: Boy's locker room	Drinking Fountain	7.50	7.68	19.6	19.8				
HMS122116-P-CF-20: Classroom 19	Classroom Faucet	7.67	7.84	16.5	15.3				
HMS122116-P-OF-24: Library office fixture	Office Faucet	7.68	7.69	17.9	21.7				
HMS122116-P-CF-32: Classroom 08	Classroom Faucet	7.65	7.83	19.1	21.1				

#### Table 2: pH and Temperature Data Summary





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

Table 5. Keneulai Sampling A				·	ample Ide	entificatio	on			
Sampling Event	KF-03	DF-04	CDF-08	CF-09	CF-12	CF-14	CF-20	CDF-27	Laboratory Spike (-35)	Laboratory Blank (-36)
			Lead R	esults					·	
Initial (12/21/2016)	15	<1.0	<1.0	20	27	19	19	<1.0	14	<1.0
First Draw, Fixture Replaced (1/28/2017)	6.93	-	-	7.00	5.76	14.6	4.06	-	16.5	<1.00
Second Draw (1/28/2017)	-	-	-	-	-	2.12	-	-	-	-
Third Draw (1/28/2017)	-	-	-	-	-	<1.00	-	-	-	-
Fixture Replaced (2/25/2017)	-	-	-	-	-	1.94	-	-	13.5	<1.00
EPA Action Level	15	15	15	15	15	15	15	15	15	15
			Copper	Results						
Initial (12/21/2016)	750	1,400	1,500	980	660	800	970	1,300	1,300	<10
First Draw, Aggressive Flush (1/28/2017)	-	1,590	1,340	-	-	-	-	1,450	1,320	<0.50 0
Second Draw (1/28/2017)	-	1,810	1,400	-	-	-	-	1,360	-	-
Third Draw (1/28/2017)	-	1,110	927	-	-	-	-	984	-	-
Aggressive Flush, Filter Installation (4/5/2017)	-	306	1,030	-	-	-	-	1,090	1,300	<0.50 0
EPA Action Level	1,300	1,300	1,300	1,300	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  $\mu$ g/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 Highlands Middle School, Kennewick, Washington



01/10/17

Date

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

#### Subject: Chemical Analysis Report

Columbia Basin Analytical Laboratories received 36 sample(s) on 12/21/16 for analysis. These sample(s) have been assigned a login order number of W612101. Enclosed is the final report that consists of a summary report of the sample(s), and a copy of the chain of custody.

#### **General Lab Comments**

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

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

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

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



Project Coordinator II, M. Fernanda Pincheira

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

RJ Lee Group No.:W612101

Samples Received: 12/21/16

Analysis/Prep Date: 01/07/17

Report Date: 01/10/17

COC No.: Kennewick



# **Laboratory Report**

Amanda Enbysk

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

Client Project:

Fulcrum Kennewick

Sample Name: RJ Lee Grp. ID:	HMS1221 W612101-	16-P-KF-01 Matrix: Potable	e Water	Date Receive Date Analyze	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.72	0.01	
Lead		EPA 200.8	0.001	0.001	
Sample Name: RJ Lee Grp. ID:	HMS1221 W612101-	16-P-KF-02 Matrix: Potable	e Water	Date Receive Date Analyze	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.60	0.01	•
Lead		EPA 200.8	0.012	0.001	
Sample Name: RJ Lee Grp. ID:	HMS1221 W612101-	16-P-KF-03 Matrix: Potable	e Water	Date Receive Date Analyze	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.75	0.01	
Lead		EPA 200.8	0.015	0.001	
ample Name: RJ Lee Grp. ID:	HMS1221 W612101-	16-P-DF-04 <b>Matrix:</b> Potable 04	e Water	Date Receive Date Analyze	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.4	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	HMS1221 W612101-	16-P-WC-05 <b>Matrix:</b> Potable 05	e Water	Date Receive Date Analyze	
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
		EB: 000.0	0.35	0.01	
Copper		EPA 200.8	0.55	0.01	

Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-WC-06 <b>Matrix:</b> Potable V 06	Water	Date Receive Date Analyze	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.29	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-(	vialrix: Folable	Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.87	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-CDF-08 <b>Matrix:</b> Potable V	Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.5	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	16-P-CF-09 Matrix: Potable V 09	Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.98	0.01	
Lead		EPA 200.8	0.020	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-KF-10 <b>Matrix:</b> Potable V 10	Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.89	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-		Water	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
			(ing/L)	(IIIg/L)	
Copper		EPA 200.8	0.65	0.01	

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

Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-CF-12 <b>Matrix:</b> Potable Wa	ıter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.66	0.01	
Lead		EPA 200.8	0.027	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-CDF-13 <b>Matrix:</b> Potable Wa	iter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.71 < 0.001	0.01	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-		iter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.80	0.01	
Lead		EPA 200.8	0.019	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	16-P-WC-15 <b>Matrix:</b> Potable Wa	ıter	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	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-DF-16 <b>Matrix:</b> Potable Wa	ıter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.81	0.01	
Lead		EPA 200.8	0.002	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-DF-17 <b>Matrix:</b> Potable Wa	iter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.71	0.01	

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Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-	.6-P-WC-18 <b>Matrix:</b> Potable Wa	ter	Date Received: Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.94	0.01	
Lead		EPA 200.8	< 0.001	0.001	
ample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-WC-19 <b>Matrix:</b> Potable Wa	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.94 < 0.001	0.01 0.001	
ample Name: RJ Lee Grp. ID:	HMS12211 W612101-2		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.97	0.01	
Lead		EPA 200.8	0.019	0.001	
ample Name: RJ Lee Grp. ID:	HMS12211 W612101-2		ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.74	0.01	
Lead		EPA 200.8	0.009	0.001	
ample Name: RJ Lee Grp. ID:	HMS12211 W612101-2	<b>Walrix:</b> Folable wa	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.85	0.01	
Lead		EPA 200.8	0.009	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-2	.6-P-OF-23 <b>Matrix:</b> Potable Wa	ter	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.97	0.01	

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Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-2	6-P-OF-24 <b>Matrix:</b> Potable Wat 24	er	Date Received: Date Analyzed:	12/21/16 01/07/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.1	0.1	Х
Lead Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-2		0.001 eer	0.001 Date Received: Date Analyzed:	12/21/16 01/07/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.85 0.008	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-2	6-P-NF-26 <b>Matrix:</b> Potable Wat 26	er	Date Received: Date Analyzed:	12/21/16 01/07/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.70 0.005	0.01 0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-2	6-P-CDF-27 <b>Matrix:</b> Potable Wat 27	er	Date Received: Date Analyzed:	12/21/16 01/07/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	1.3 < 0.001	0.1 0.001	Х
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-2	6-P-CDF-28 <b>Matrix:</b> Potable Wat	er	Date Received: Date Analyzed:	12/21/16 01/07/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.00	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Sample Name: RJ Lee Grp. ID:	HMS12211 W612101-2	6-P-CDF-29 <b>Matrix:</b> Potable Wat	er	Date Received: Date Analyzed:	12/21/16 01/07/17
Analyt	e	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper Lead		EPA 200.8 EPA 200.8	0.98 < 0.001	0.01 0.001	

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ample Name:		6-P-WC-30 Matrix: Potable Wat	er	Date Received	: 12/21/16
RJ Lee Grp. ID:	W612101-	30	_	Date Analyzed	: 01/07/17
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.2	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
ample Name: AJ Lee Grp. ID:	HMS12211 W612101-	6-P-WC-31 Matrix: Potable Wat	er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.2	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
ample Name: KJ Lee Grp. ID:	HMS12211 W612101-	<b>Walrix:</b> Folable wal	er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	0.96	0.01	
Lead		EPA 200.8	< 0.001	0.001	
ample Name: AJ Lee Grp. ID:	HMS12211 W612101-	16-P-CDF-33 Matrix: Potable Wat	er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.2	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
ample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-CDF-34 <b>Matrix:</b> Potable Wat	er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	1.2	0.1	Х
Lead		EPA 200.8	< 0.001	0.001	
ample Name: RJ Lee Grp. ID:	HMS12211 W612101-	6-P-CDF-35 <b>Matrix:</b> Potable Wat	er	Date Received Date Analyzed	
			Result	PQL	Qualifiers
Analy	te	Method	(mg/L)	(mg/L)	Quaimers
<b>Analy</b> Copper	te	Method EPA 200.8			X

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Sample Name: RJ Lee Grp. ID:	HMS1221 W612101-	16-P-OF-36 Matrix: Potable Wate	er	Date Received Date Analyzed	
Analy	te	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper		EPA 200.8	< 0.010	0.01	
Lead		EPA 200.8	< 0.001	0.001	
Report Qualifiers: A = Target Analyte media br D = Analyte analyzed in a di	0 1		3 = Analyte detected in the ass l = Data that exceeds the RSD		
$E = Report \ concentration \ water water$	is above the instrun	ient calibration range	H = Holding times for prepara	tion or analysis exceeded	

- 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



- $L = Sample \ condition \ at \ receipt \ out \ of \ compliance \ with \ method \ defined \ conditions$
- 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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Washington

350 Hochberg Road Monroeville, PA 15146 Pennsylvania - HQ

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	O: RYAN	Request for Environmental and IH Laboratory Analytical Services           Intention to:         RVAN MATHEWS           Intention to:         RVAN MATHEWS           Intention to:         Client No:	and	H H	l v	vler2	Analytic		ytical (	ytical Servi			Client Job No.:	
Lab Use	Project No.:	Client No:					Turnaround	nd Standard: Yes	No		If 'No	If 'No,' No. of Business D	If 'No,' No. of Business Days:	If 'No,' No. of Business Days:
	Name: Amanda Enbysk, Ryan Mathews	ysk, Ryan Mathews					-	Sample Purpose: Information X	se: Informatic	ž	Regulatory	Regulatory  Accreditation (		Regulatory   Accreditation (please list below):
	Company: Fulcrun	Fulcrum Environmental Consulting					Drinking					_	_	_
		406 North 2nd Street					Water	_						
	, N	Yakima, WA, 98901					Sample Only	_	ces #s:					
To	Phone: (509) 5	(509) 574-0839 Fax:	( 509) 575-8453	-8453					se: Ac B c	Other 🗆	0			
	Call with Verbal Results:							Preservation:		Matrix:				Container:
	Email Results To:	aenbysk@efulcrum.net, CC: rmathews@efulcrum.net	ws@efulcru	n.net			2	Unpres		VW=V	WW=Wastewater	7	7	r SW=Surface Water
	Fax Results To:							4 C		=Soil	GW=Groudwater			
	Name: Lorrie Boutillier	er						Other Na.SO.		÷,	E=Extract	00	000	X=Other
	Company:	Fulcrum Environmental Email: Ibou	Email: lboutillier@efulcrum.net	crum.net										
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ā	City, State, Zip:	Yakima, WA, 98901								_		t (Y,	_	
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Special Instructions							EPA 200.8:					on Rec	eserva	
Clie	Client Sample ID	Sample Description	Sample Date	Start	t Stop	Wipe Area / Air Volume						Pres. U		P
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lecusivity.	HMS122116-P-KF-03	Kitchen, N wall west								_				
HINGI DALH.	+1161221116-1-DF-04	Cafeteria								_				
. HMSIJJUL	HM5122116-P-WC-05	lethgood hall west, E fixture	A			2.0								
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HMSIDDII	HMS122116-P-CF-07	Classroom 32, NW comer												
Husiaalli	HW2199119-6-COX-08	( Classroom 30, W wall	_											
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Name     No     If No. is no is	Name):		ature):				-	Classingon 17	Classroom 14	Centr hallway, Eastfirth	Center hallway, West fixtu	Girls Locker Koom, Ssin	Boy's Locker Koom, Ssink	Comprade hall, E entrance	Classroom 20	Classroom 22	(lassroon 24	Sample Description				Yakima, WA, 98901	h 2nd Street				aenbysk@efulcrum.net, CC: rmathev			Yakima, WA, 98901	h 2nd Street	Environmental Consulting	k, Ryan Mathews	Logged In B	Client No:	NATHEWS	
Page     Oral Area       Functional Order No:     Functional Order No:       Transmoord     Standard: Yes     No     If Yho' No. of Busines Days:       Transmoord     Standard: Yes     No     If Yho' No. of Busines Days:       Water     Order No:     Transmoord     Standard: Yes     No       Standard: Yes     No     If Yho' No. of Busines Days:     Foregradian       No     Foregradiance     Order No:     Foregradiance       Standard: Yes     Standard: Yes     No     If Yho' No. of Busines Days:       Standard: Transmoord     Standard: Yes     Marking:     Standard: Yes       Standard: Transmoord     Standard: Transmoord     No     If Yho' No. of Busines Days:       No     Order     Transmoord     Standard: Transmoord     No       Standard: Transmoord     No     Foregradiance     Order       No     If Standard: Transmoord     No     Standard: Transmoord     Standard: Transmoord       Standard: Transmoord     No     No     Standard: Transmoord     Standard: Transmoord       Standard: Transmoord     No     No     Standard: Transmoord     Standard: Transmoord       Standard: Transmoord     No     No     No     Standard: Transmoord       Standard: Transmoord     No     No     No	Method of	D.H	Date:	Method of	Relinquishe	Date: 12/1	*				Þ	F				-	\$1/1e/cl	Date	Sample		( 509) 575-8			tillier@efulcr			vs@efulcrum.		( 509) 575-8					Y:			
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Page     O       Client Job No.:     162017       Accreditation (please list below):     Accreditation (please list below):       Accreditation (please list below):     Pres. Upon Receipt (Y/N)       W=Drinking Water     P=Plastic       DW=Drinking Water     P=Plastic       DEface 1 7006     Natrix       Nethod of Shipment:     PH       Date:     No Container Type       PH     No Container       Nethod of Shipment:     No Container	ie):			C	exc C	Per )																	sted		E=Extract	S=Soil/Sludge	GW=Groudwater	Matrix:	L .				ion X Regulatory		If 'No.'		
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**Request for Environmental and IH Laboratory Analytical Services** 

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**Pennsylvania - HQ** 350 Hochberg Road Monroeville, PA 15146 Columbia Basin Analytical Laboratories 2710 North 20th Avenue Washington

ATTENTION TO:		RYAN MATHEWS					Purchase Order No.:	r No.:		Client Job No.:	16	162017	
Lab Use	Project No.:	Client No:					Turnaround	Standard. Voc		If 'No ' No of Rusiness Dave:			
Only	Date Logged In:	Logged in By:	By:	8 H			Request			io, of pushiess pays.			
	Name: Amanda Enbysk, Ryan Mathews	rsk, Ryan Mathews	2					Sample Purpose: Information X Regulatory D	ition X Regulatory D	Accreditation (please list below):	list below):		
		Fulcrum Environmental Consulting					Drinking	System ID #:					
Report	Address: 406 Nor	406 North 2nd Street					Water	DOH Source #:					
Results	City, State, Zip:	Yakima, WA, 98901					Sample Only	_					
	Phone: (509) 574-0839	74-0839 Fax:	( 509) 575-8453	453				Sample Purpose: A  B	o Other o				
;	Call with Verbal Results:	lts:						Preservation:	Matrix:		Cont	Container:	
	Email Results To:	aenbysk@efulcrum.net, CC: rmathews@efulcrum.net	ews@efulcrum.	net			Chomista	ſes	WW=Wastewater	SW=Surface Water	P=Plastic	astic	
	Fax Results To:						Analysis Key	4 0	GW=Groudwater S=Soil/Sludge	DW=Drinking Water 0=0il	W=Wipe	line	
	Name: Lorrie Boutillier	ËL						Other Na-SO.	E=Extract	X=Other	A=Ai	A=Air (filter or tube)	tube
	Company:	Fulcrum Environmental Email: lbc	Email: lboutillier@efulcrum.net	um.net									
	Address:	406 North 2nd Street						Analysis Requested	ested	/N)		_	-
ä	City, State, Zip:	Yakima, WA, 98901					_					pe	_
	Phone: (509) 574-0839	74-0839 Fax:	(509) 575-8453	453						_	x	Тур	
Special Instructions							EPA 200.8:			on Rec	Matri	tainer pH	
	;		Sample	Sample Time	Time	Wine Area / Air	ro, cu			_		Con	
Clie	Client Sample ID	Sample Description	Date	Start	Stop	Volume				Pres.	<u> </u>		
Homsijal	HM5122114-P-0F-23	Staff Lounge	91/16/A				×				UNPR DW	P	
HMS 1221	HMS12216-P-0F-24	Libren worknoom	1)/JC/CI				~				_	-	
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HANSIDDIN	HANSI22116-P-COF-27	classroom 1										_	-
Hirstaalle	this 12216-2-207-28	classroon 3											
Hinsigani	Hinsidalin -P-COT-29	S warsty											
1-1619311	H-VG122116-PC-WC-30	It grade hall, Sfixture	e										-
Hinsipally	Hinspaller-WC-31	7th grade hall, N fixture											
HINS 122114	HN5122116-F- CF-32	ausroom 8									5		_
HINGIDALI	HM5122116-P-COF-33		e				4	)		æ	2	¢	
Chain of	Relinquished By (Signature): Unul W	nature: Und May	Date: 12/21	16	Time: 14	1430	Chain of	Received By (Signator	200	0EC 2 1	2016 -	Time: 14	5
	Relinquished By (Prin	it Name):	Relinquished To:	d To:			Custody	Received By (Print He	peroper y	Relinquished To:	ed To:		
Chain of	Relinquished By (Signature):	nature):	Date:		Time:		Chain of	Received By (Signature):	e):	Date:	_	Time:	
Custody	Relinquished By (Print Name):	it Name):	Relinquished To:	d To:			Custody	Received By (Print Name):	me):	Relinquished To:	ed To: chinment:		
	Company Name:		Method of Shipment:	shipment:				Company Name:		Ivietnod of Shipment:	snipment:		

W612101, Page 11 of 12

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

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# DELIVERING SCIENTIFIC RESOLUTION **RJ LEE GROUP**

509.545.4989 Phone 509.544.6010 Fax Pasco, WA 99301 2710 North 20th Avenue

724.325.1776 Phone 724.733.1799 Fax

350 Hochberg Road Monroeville, PA 15146 Columbia Basin Analytical Laboratories

Pennsylvania - HQ

Washington

	Custody	Chain of	Custody	Chain of							HMSDI	Hms lagt	HUNSIDO	Clie	2	Special Instructions		ē		Cand Invisio				i		Results				Only	Lab Use
Company Name:	Relinquished By (Print Name):	Relinquished By (Signature):	Company Name:	Relinquished By (Signature)							H.NS122116-P-0F-36	HMS 122116-P-00F-35		Client Sample ID			09) 574	City, State, Zip:	Address: 406 North	Company: Fulcrum E	Name: Lorrie Boutillier	Fax Results To:	Email Results To:	Call with Verbal Results:	09) 574	, Zip:	Address: 406 North	Company: Fulcrum E	Name: Amanda Enbysk, Ryan Mathews	Date Logged In:	Project No.:
	Name):	ture):	0	ture Un MUCU							7th Grade hall worknown	Ron 35	Classion []	Sample Description			-0839 Fax:	Yakima, WA, 98901	406 North 2nd Street	invironmental			aenbysk@efulcrum.net, CC: rmathews@efulcrum.net		-0839 Fax:	Yakima, WA, 98901	406 North 2nd Street	Fulcrum Environmental Consulting	c, Ryan Mathews	Logged In By:	Client No:
Method of Shipment:	Relinguished To:	Date:	Method of Shipment:	Date: 12/21/							3	-	41/re/el	Date	Sample		( 509) 575-8453			Email: lboutillier@efulcrum.net			ews@efulcrum.		( 509) 575-8453					י By:	E
Shipment:	d To:		Shipment:	21/16										Start	Samp		453			um.net			net		453						
		Time:		Time: 1430										Stop	Sample Time																
				0										Volume	Vipe Area / Alr															1	
	Custody	Chain of	Custody	Chain of							R		X		ru, cu	EPA 200.8:					- numbers were	Analysis Kev	Chemistry			Sample Only	Water	Drinking		Request	Turnaround
Company Name:	Received By (Print Name):	Received By (Signature):	Company Name	Received By (Signature)															Analysis Requested		Other Na-SO	4 C	res	a a	Sample Purpose: A		DOH Source #:	System ID #:	Sample Purpose: Info	Stalituaru; res	Standard.
	Name):	ture):	wereper	12000														5	equested		E=Extract	S=Soil/Sludge	WW=Wastewater	Matrix:	B				Sample Purpose: Information X Regulatory		No If 'No.' N
Met	Relir	Date:	Met	BE						-				Pres	. Up	on Re	ceip	t (Y	/N)		X=Other		SW=Surface Water						Accreditation (please list below):	0. 01 040111100	lf 'No.' No. of Business Davs:
hod of S	Relinguished To:		hod of S	BEEC 2 1 201	-		+	+			9		UNPR		Pr	eserva	tior	ı				AAArci	Water						ı (please l	- units	Davs:
Method of Shipment:	To:		Method of Shipment:	0.									DW			Matr	ix				A=A	V=		Con					ist below		
đ		Time;	a	Time:		-							р		Cor	ntaine	- Түр	be	_		A=Air (filter or tube)	W=Wipe	R=Glass	Container:					ÿ		
				430	_			-	-		_		_			pН					or tube)										
				C							S	5	Ker		No	. Conta	aine	rs													

W612101, Page 12 of 12

ATTENTION TO:

**RYAN MATHEWS** 

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

N61210

Purchase Order No.:

Client Job No.:

162017

Page

9



## **ATTACHMENT E**

Remedial Analytical Results



Winter 2016 – Drinking Water Sampling Results Highlands Middle 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 - Highlands MS Follow-up Sampling Work Order Number: 1701337

February 03, 2017

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

Fremont Analytical, Inc. received 26 sample(s) on 1/30/2017 for the analyses presented in the following report.

#### Drinking Water Metals by EPA Method 200.8

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward Project Manager

**CC:** Amanda Enbysk

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



Work Order Sample Summary CLIENT: Fulcrum Environmental **Project:** Kennewick SD - Highlands MS Follow-up Sa Work Order: 1701337 **Date/Time Collected Date/Time Received** Lab Sample ID **Client Sample ID** 1701337-001 HMS12817-P-CDF-27 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-002 HMS12817-S-CDF-27 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-003 HMS12817-T-CDF-27 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-004 HMS12817-P-CDF-08 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-005 HMS12817-S-CDF-08 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-006 HMS12817-T-CDF-08 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-007 HMS12817-P-CF-09 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-008 HMS12817-S-CF-09 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-009 HMS12817-T-CF-09 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-010 HMS12817-P-KF-03 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-011 HMS12817-S-KF-03 01/28/2017 10:00 AM 01/30/2017 9:22 AM 01/30/2017 9:22 AM 1701337-012 HMS12817-T-KF-03 01/28/2017 10:00 AM 1701337-013 HMS12817-P-DF-04 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-014 HMS12817-S-DF-04 01/28/2017 10:00 AM 01/30/2017 9:22 AM HMS12817-T-DF-04 1701337-015 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-016 HMS12817-P-CF-12 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-017 HMS12817-S-CF-12 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-018 HMS12817-T-CF-12 01/28/2017 10:00 AM 01/30/2017 9:22 AM HMS12817-P-CF-14 1701337-019 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-020 HMS12817-S-CF-14 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-021 HMS12817-T-CF-14 01/28/2017 10:00 AM 01/30/2017 9:22 AM 1701337-022 HMS12817-P-CF-20 01/30/2017 9:22 AM 01/28/2017 10:00 AM 1701337-023 HMS12817-S-CF-20 01/28/2017 10:00 AM 01/30/2017 9:22 AM 01/28/2017 10:00 AM 1701337-024 HMS12817-T-CF-20 01/30/2017 9:22 AM 01/30/2017 9:22 AM 1701337-025 HMS12817-P-CDF-35 01/28/2017 10:00 AM 1701337-026 HMS12817-P-OF-36 01/28/2017 10:00 AM 01/30/2017 9:22 AM



**Case Narrative** 

WO#: **1701337** Date: **2/3/2017** 

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD - Highlands MS 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:

1701337-001A 204184: Prep Comments for EPA200.8, Sample 1701337-001A: Turbidity: 0.12 NTU 1701337-004A 204185: Prep Comments for EPA200.8, Sample 1701337-004A: Turbidity: 0.01 NTU 1701337-007A 204186: Prep Comments for EPA200.8, Sample 1701337-007A: Turbidity: 0.06 NTU 1701337-010A 204187: Prep Comments for EPA200.8, Sample 1701337-010A: Turbidity: 0.02 NTU 1701337-013A 204188: Prep Comments for EPA200.8, Sample 1701337-013A: Turbidity: 0.01 NTU 1701337-016A 204189: Prep Comments for EPA200.8, Sample 1701337-016A: Turbidity: 0.03 NTU 1701337-016A 204189: Prep Comments for EPA200.8, Sample 1701337-016A: Turbidity: 0.03 NTU 1701337-019A 204190: Prep Comments for EPA200.8, Sample 1701337-019A: Turbidity: 0.24 NTU 1701337-022A 204191: Prep Comments for EPA200.8, Sample 1701337-022A: Turbidity: 0.19 NTU 1701337-025A 204192: Prep Comments for EPA200.8, Sample 1701337-025A: Turbidity: 0.08 NTU 1701337-026A 204193: Prep Comments for EPA200.8, Sample 1701337-026A: Turbidity: 0.01 NTU

# **Qualifiers & Acronyms**



WO#: **1701337** Date Reported: **2/3/2017** 

## Qualifiers:

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

Acronyms:

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



 Work Order:
 1701337

 Date Reported:
 2/3/2017

## CLIENT: Fulcrum Environmental

Lab ID: 1701337-001 Client Sample ID: HMS12817-P-C	CDF-27		Collection Matrix: D		1/28/2017 10:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Met	hod 200.8		Batc	h ID: 16	071 Analyst: TN
Copper	1,450	0.500	µg/L	1	1/30/2017 7:28:58 PM

Lab ID: 1701337-002 Client Sample ID: HMS12817-S-CDF-27			Collection Date: 1/28/2017 10:00:00 AM Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EF	PA Method 200.8		Batc	h ID: 16′	124 Analyst: TN	
Copper	1,360	0.500	µg/L	1	2/3/2017 11:32:17 AM	
Lab ID: 1701337-003 Client Sample ID: HMS128	17-T-CDF-27		Collection Matrix: D		1/28/2017 10:00:00 AM Water	

Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8			Batch	n ID: 16	124 Analyst: TN
Copper	984	0.500	μg/L	1	2/3/2017 11:43:08 AM



 Work Order:
 1701337

 Date Reported:
 2/3/2017

## CLIENT: Fulcrum Environmental

Lab ID: 1701337-004 Client Sample ID: HMS12817-P-CDF-08				<b>Date:</b> rinking '	1/28/2017 10:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8			Batch	n ID: 160	071 Analyst: TN
Copper	1,340	0.500	µg/L	1	1/30/2017 7:32:35 PM

Lab ID: 1701337-005			Collection	Date:	1/28/2017 10:00:00 AM
Client Sample ID: HMS12817-S-C	DF-08		Matrix: D	rinking	Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Met	<u>hod 200.8</u>		Batch	n ID: 16′	124 Analyst: TN
Copper	1,400	0.500	µg/L	1	2/3/2017 11:46:44 AM
Lab ID: 1701337-006			Collectior	Date:	1/28/2017 10:00:00 AM
Client Sample ID: HMS12817-T-C	DF-08		Matrix: D	rinking	Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed

Drinking Water Metals by EPA Method 200.8			Batch	ID: 161	24 Analyst: TN
Copper	927	0.500	µg/L	1	2/3/2017 11:50:20 AM



 Work Order:
 1701337

 Date Reported:
 2/3/2017

## CLIENT: Fulcrum Environmental

Lab ID: 1701337-007 Client Sample ID: HMS12817-P-CF-09				n Date: Prinking	1/28/2017 10:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8		Batcl	h ID: 16	071 Analyst: TN	
Lead	7.00	1.00	µg/L	1	1/30/2017 7:36:11 PM

Lab ID: 1701337-010 Client Sample ID: HMS12817-P-KF-03				Collection Date: 1/28/2017 10:00:00 AM Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Drinking Water Metals by EPA M	lethod 200.8		Batch	ID: 1607	71 Analyst: TN		
Lead	6.93	1.00	µg/L	1	1/30/2017 7:39:47 PM		

Lab ID: 1701337-	·013	Collection	Collection Date: 1/28/2017 10:00:00 AM			
Client Sample ID: HMS12817-P-DF-04			Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Method 200.8			Batcl	h ID: 160	071 Analyst: TN	
Copper	1,590	0.500	µg/L	1	1/30/2017 7:43:24 PM	



 Work Order:
 1701337

 Date Reported:
 2/3/2017

## CLIENT: Fulcrum Environmental

Lab ID: 1701337-014 Client Sample ID: HMS12817-S-DF-04				<b>Date:</b> rinking	1/28/2017 10:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8			Batch	n ID: 16	124 Analyst: TN
Copper	1,810	0.500	μg/L	1	2/3/2017 11:53:57 AM

Lab ID: 1701337-015			Collection	n Date:	1/28/2017 10:00:00 AM	
Client Sample ID: HMS12817-T-DF-04			Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Me	ethod 200.8		Batcl	n ID: 16	124 Analyst: TN	
Copper	1,110	0.500	µg/L	1	2/3/2017 11:57:33 AM	

Lab ID: 1701337-016 Client Sample ID: HMS12817-P-CF-12			Collection Date: 1/28/2017 10:00:00 AM Matrix: Drinking Water			
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Method 200.8			Batc	h ID: 16	071 Analyst: TN	
Lead	5.76	1.00	µg/L	1	1/30/2017 7:54:15 PM	



 Work Order:
 1701337

 Date Reported:
 2/3/2017

## CLIENT: Fulcrum Environmental

Lab ID: 1701337-019 Client Sample ID: HMS12817-P-CF-14			Collection Matrix: D		1/28/2017 10:00:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Method 200.8			Batch	n ID: 160	071 Analyst: TN
Lead	14.6	1.00	µg/L	1	1/30/2017 7:57:52 PM

Lab ID: 1701337-020	Collection Date: 1/28/2017 10:00:00 AM					
Client Sample ID: HMS12817-S		Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Drinking Water Metals by EPA Method 200.8		Batch ID: 16116 Analyst: TN				
Lead	2.12	1.00	µg/L	1	2/2/2017 9:13:17 PM	

Lab ID: 1701337-021				Collection Date: 1/28/2017 10:00:00 AM			
Client Sample ID: HMS12817-T-CF-14			Matrix: Drinking Water				
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Drinking Water Metals by EPA Method 200.8		Batch ID: 16116 Analyst: TN					
Lead	ND	1.00	µg/L	1	2/2/2017 9:16:54 PM		



# **Analytical Report**

 Work Order:
 1701337

 Date Reported:
 2/3/2017

# CLIENT: Fulcrum Environmental

Project: Kennewick SD - Highlands MS Follow-up Sampling

Lab ID: 1701337-022 Client Sample ID: HMS1281	7-P-CF-20	Collection Date: 1/28/2017 10:00:00 AN Matrix: Drinking Water							
Analyses	Result	RL Qual	Units	Date Analyzed					
Drinking Water Metals by EPA	Method 200.8		Batc	h ID: 16	071 Analyst: TN				
Copper Lead	791 4.06	0.500 1.00	μg/L μg/L	1 1	1/30/2017 8:01:28 PM 1/30/2017 8:01:28 PM				

Lab ID: 1701337-025		Collection Date: 1/28/2017 10:00:00 AN						
Client Sample ID: HMS12817-I	P-CDF-35	Matrix: Drinking Water						
Analyses	RL Qual	L Qual Units DF Date Analyzed						
Drinking Water Metals by EPA M	lethod 200.8		Batc	h ID: 16	071 Analyst: TN			
Copper Lead	1,320 16.5	0.500 1.00	μg/L μg/L	1 1	1/30/2017 8:05:05 PM 1/30/2017 8:05:05 PM			

Lab ID: 1701337-026 Client Sample ID: HMS12817-P-OF	F-36	Collection Date: 1/28/2017 10:00:00 AM Matrix: Drinking Water					
Analyses	RL Qual	Units	DF	Date Analyzed			
Drinking Water Metals by EPA Meth	od 200.8		Batcl	n ID: 160	071 Analyst: TN		
Copper Lead	ND ND	0.500 1.00	μg/L μg/L	1 1	1/30/2017 8:08:41 PM 1/30/2017 8:08:41 PM		



Work Order: 1701337 CLIENT: Fulcrum En	nvironmental						Drinkin				
Project: Kennewick	SD - Highlands MS F	ollow-up \$	Sa				DHINKIN	g Water Me		PA Metho	a 200.
Sample ID: MB-16124	SampType: MBLK			Units: µg/L		Prep Dat	te: 2/3/201	17	RunNo: 342	249	
Client ID: MBLKW	Batch ID: 16124					Analysis Da	te: 2/3/201	17	SeqNo: 652	2984	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.500									
Sample ID: LCS-16124	SampType: LCS			Units: µg/L		Prep Dat	te: <b>2/3/20</b> 1	7	RunNo: 342	249	
Client ID: LCSW	Batch ID: 16124					Analysis Da	te: 2/3/201	17	SeqNo: 652	2985	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	95.5	0.500	100.0	0	95.5	85	115				
Sample ID: 1701294-015ADUP	SampType: DUP			Units: µg/L		Prep Dat	te: <b>2/3/20</b> 1	17	RunNo: 342	249	
Client ID: BATCH	Batch ID: 16124					Analysis Da	te: 2/3/201	17	SeqNo: 652	2987	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	205	0.500						219.7	7.05	30	
Sample ID: 1701294-015AMS	SampType: <b>MS</b>			Units: µg/L		Prep Dat	te: 2/3/201	17	RunNo: 342	249	
Client ID: BATCH	Batch ID: 16124					Analysis Da	te: 2/3/201	17	SeqNo: 652	2988	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	418	0.500	200.0	219.7	99.2	70	130				
Sample ID: 1701294-015AMSD	SampType: MSD			Units: µg/L		Prep Dat	te: <b>2/3/20</b> 1	17	RunNo: 342	249	
Client ID: BATCH	Batch ID: 16124					Analysis Da	te: 2/3/201	17	SeqNo: 652	2989	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	417	0.500	200.0	219.7	98.5	70	130	418.0	0.315	30	



-	ivironmental SD - Highlands MS Fo	llow-up S	Sa			E		SUMMARY RE etals by EPA Meth	
Sample ID: MB-16116	SampType: MBLK			Units: µg/L		Prep Date:	2/2/2017	RunNo: <b>34242</b>	
Client ID: MBLKW	Batch ID: 16116				A	nalysis Date:	2/2/2017	SeqNo: 652929	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Lead	ND	1.00							
Sample ID: LCS-16116	SampType: LCS			Units: µg/L		Prep Date:	2/2/2017	RunNo: <b>34242</b>	
Client ID: LCSW	Batch ID: 16116				A	nalysis Date:	2/2/2017	SeqNo: 652930	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Lead	47.3	1.00	50.00	0	94.7	85	115		
Sample ID: 1701233-016ADUP	SampType: <b>DUP</b>			Units: µg/L		Prep Date:	2/2/2017	RunNo: 34242	
Client ID: BATCH	Batch ID: 16116				A	nalysis Date:	2/2/2017	SeqNo: 652932	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Lead	ND	1.00					0	30	)
Sample ID: 1701233-016AMS	SampType: <b>MS</b>			Units: µg/L		Prep Date:	2/2/2017	RunNo: 34242	
Client ID: BATCH	Batch ID: 16116				A	nalysis Date:	2/2/2017	SeqNo: 652933	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Lead	85.5	1.00	100.0	0.2482	85.3	70	130		
Sample ID: 1701233-016AMSD	SampType: <b>MSD</b>			Units: µg/L		Prep Date:	2/2/2017	RunNo: <b>34242</b>	
Client ID: BATCH	Batch ID: 16116				A	nalysis Date:	2/2/2017	SeqNo: 652934	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Lead	88.6	1.00	100.0	0.2482	88.3	70	130 85.51	3.53 30	)

Fremont
Analytical

Work Order: 1701337 CLIENT: Fulcrum En	vironmental				QC SUMMARY REPOR
Project: Kennewick	SD - Highlands MS F	ollow-up	Sa		Drinking Water Metals by EPA Method 20
Sample ID: MB-16071	SampType: MBLK			Units: µg/L	Prep Date: 1/30/2017 RunNo: 34162
Client ID: MBLKW	Batch ID: 16071				Analysis Date: 1/30/2017 SeqNo: 650506
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua
Copper Lead	ND ND	0.500 1.00			
Sample ID: LCS-16071	SampType: LCS			Units: µg/L	Prep Date: 1/30/2017 RunNo: 34162
Client ID: LCSW	Batch ID: 16071				Analysis Date: 1/30/2017 SeqNo: 650507
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua
Copper	99.3	0.500	100.0	0	99.3 85 115
Lead	49.2	1.00	50.00	0	98.4 85 115
Sample ID: 1701225-002ADUP	SampType: <b>DUP</b>			Units: µg/L	Prep Date: 1/30/2017 RunNo: 34162
Client ID: BATCH	Batch ID: 16071				Analysis Date: 1/30/2017 SeqNo: 650509
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua
Copper	366	0.500			360.8 1.46 30
Lead	9.21	1.00			9.286 0.844 30
Sample ID: 1701225-002AMS	SampType: <b>MS</b>			Units: µg/L	Prep Date: 1/30/2017 RunNo: 34162
Client ID: BATCH	Batch ID: 16071				Analysis Date: 1/30/2017 SeqNo: 650510
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua
Copper	590	0.500	200.0	360.8	114 70 130
Lead	109	1.00	100.0	9.286	99.5 70 130
Sample ID: 1701225-002AMSD	SampType: MSD			Units: µg/L	Prep Date: 1/30/2017 RunNo: 34162
Client ID: BATCH	Batch ID: 16071				Analysis Date: 1/30/2017 SeqNo: 650511
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua
Copper	564	0.500	200.0	360.8	102 70 130 589.6 4.44 30
					Page 13



### Work Order: 1701337 QC SUMMARY REPORT CLIENT: Fulcrum Environmental **Drinking Water Metals by EPA Method 200.8** Project: Kennewick SD - Highlands MS Follow-up Sa Sample ID: 1701225-002AMSD SampType: MSD Units: µg/L Prep Date: 1/30/2017 RunNo: 34162 Client ID: BATCH Batch ID: 16071 Analysis Date: 1/30/2017 SeqNo: 650511 LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual Result SPK value SPK Ref Val %REC Analyte RL Lead 109 1.00 100.0 9.286 99.4 70 130 108.8 0.125 30

# Revision v1



# Sample Log-In Check List

С	ient Name:	FE	Work Or	der Num	nber: 1701337	
Lo	ogged by:	Clare Griggs	Date Re	ceived:	1/30/201	7 9:22:00 AM
<u>Cha</u>	in of Cust	ody				
1.	Is Chain of C	ustody complete?	Yes	✓	No 🗌	Not Present
2.	How was the	sample delivered?	FedE	x		
<u>Log</u>	<u>In</u>					
-	Coolers are p	present?	Yes	✓	No 🗌	
4.	Shipping con	tainer/cooler in good condition?	Yes	✓	No 🗌	
5.		ls present on shipping container/cooler? nments for Custody Seals not intact)	Yes		No 🗌	Not Required 🗹
6.	Was an atter	npt made to cool the samples?	Yes	✓	No 🗌	NA 🗌
7.	Were all item	as 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 🗌
12.	Is there head	lspace in the VOA vials?	Yes		No 🗌	NA 🗹
13.	Did all sampl	es containers arrive in good condition(unbroken)?	Yes	✓	No 🗌	
14.	Does paperw	ork match bottle labels?	Yes	✓	No 🗌	
15.	Are matrices	correctly identified on Chain of Custody?	Yes	✓	No 🗌	
16.	Is it clear what	at analyses were requested?	Yes	✓	No 🗌	
17.	Were all hold	ling times able to be met?	Yes	✓	No 🗌	
<u>Spe</u>	cial Handl	ing (if applicable)				
18.	Was client no	otified of all discrepancies with this order?	Yes		No 🗌	NA 🗹
	Person	Notified: Date:				
	By Who	om: Via:	eMa	I 🗌 P	hone 🗌 Fax	In Person
	Regardi	ing:				
	Client Ir	nstructions:				
19.	Additional rer	marks:				

### Item Information

Item #	Temp <sup>o</sup> C
Cooler 1	9.6
Cooler 2	8.2
Sample 1	4.5
Sample 2	9.6

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

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The second secon	remoi	int		Chain of Cus	Date: 1/28/2017	Chain of Custody Record and Laboratory Services Agreement
3600 Fremont Ave N. Seattle, WA 98103	Tel: 206-352-3790 Fax: 206-352-7178	2-3790 52-7178				Page: of:
Client:	Fulcrum Environmental Consulting	mental Consulti	20	Project Name: _	Kennewick SD - Highlands MS Follow-Up Sampling 162017 Collected by: No	collected by: Nate Costrom
Address:	406 North Second Street	d Street		Location:	lle School, Kennewick,	
City, State, Zip:	Yakima, WA 98901	01	and the second second	Report To (PM):		the state and a second and a second
Telephone:	509.574.0839	Fax	Fax: 509.545.8453	PM Email:	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	sk@efulcrum.net
A = Air,	7	O = Other, P = Pro	P = Product, S = Soil, SD = Sediment,	SL = Solid, W = Water,	ing Water, GW = Ground Water,	SW = Storm Water, WW = Waste Water
Sample Name	Samp	Sample Date Time	Sample Type (Matrix)*	105-54 105-54		Comments
-0-1	COF-27 1/2	10			8	Pried Preserved in NO3; Comment
HINCID8-2-CIBEIDNIH	CC-70D					Hold - unpr.
HMS12817-T-Q	COF-27					Hold-unpr. Gashite for
80-902- 9-518-12 MH	80-91					$NO_3$ ;
HMS 12817-5-G	CDF-08					Held. Preserved with Mos
1	-CDF-08					Hold unpresided
G	croq	and a second second			8	preserved in Noz anythering
HMS 128-0-S-C	F-09					Hold-Preserved with NO3
HMS 1280-T-C	G-09					Hold runpreserved
4-6-61881 SWH	KF-03	R	-€	No. of the second s	$\otimes$	Preserval in WOZ; and sto
**Metals Analysis (Circle):	MTCA-5 RCRA-8	3 Priority Pollutants	TAL	Individual: Ag Al As B Ba Be Ca Cd	co Cr C Fe Hg K Mg Mn Mo Na	K Mg Mn Mo Na N Pb Sb Se Sr Sn Ti TI U V Zn
***Anions (Circle): Nitrate	Nitrite	Chloride Sulfate	te Bromide C v Lab (Samples will be hel	Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be	_	egin Processing an unpresented simply
Sample Disposal:	Return to Client	assessed i	assessed if samples are retained after 30 days	er 30 days.)		
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.	rms on the front an Date/Time	this Agreement nd backside of th	is Agreement. Receive	I represent that I am authorized to enter into this Agreement with Fremont Analytical on hehalf of the Client named above, that I have greement to each of the terms on the front and backside of this Agreement.	above, that I have verified Client's	TAT: AC AD
(Inul WAY	tiot/se/	.1560	×		LIDEN &	ALCH IN IN
Relinquished	Date/Time	U	Received	wed	Date/ime OQ2	C TAT → SameDay^ NextDay^ 2 Day 3 Day STD

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Analytical		Date: 1/20/201/	Laboratory Project No (Internal):
3600 Fremont Ave N. Tel: 206-352-3790 Seattle, WA 98103 Fax: 206-352-7178		Page:	Page: Q of: 3
Client: Fulcrum Environmental Consulting	Consulting	Project No: 162017	collected by: Nake Bostron
Address: 406 North Second Street	APP APP TRATE APP APP APP APP APP APP APP	Highlands Middle School, Kennewick,	
City, State, Zip: Yakima, WA 98901	Matrix 200 - 1000 - 1000	(PM):	
Telephone: 509.574.0839	Fax: 509.545.8453	1	(@efulcrum.net
*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other	O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water,	DW = Drinking Water,	GW = Ground Water, SW = Storm Water, WW = Waste Water
	Sample Sample Cost of the State		
HMS 12-5-167-03 1/28/2017			Hold - Preserval with Nor
-1-1(12-03			Hold - unpreserved
40-70-0-01861SWH		8	-
40-70-5-CISCISNH			served with
40-30-1-218CISWH			Hill - unprescrued
HWSD29-0-CF-12		8	Preserved in 1002; Constration by
HMS12817-S-CF-12			Hold - Preserved with No.
TI- 70- 12/861514			Hold -unpreserved
HMS12817-7-6-14		×	Preserved in Nozianny to any
A 41-27-5-21871SMH	* Y		01
RCRA-8	Priority Pollutants TAL Individual: Ag Al	As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na	K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti TI U V Zn
***Anions (Circle): Nitrate Nitrite Chloride	Sulfate Bromide O-Phosphate	Fluoride Nitrate+Nitrite Turn-around times for samples received after 4:00pm will begin	S
Sample Disposal:   Return to Client  a	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)		Verse preserve all upreserved
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.	reement with Fremont Analytical on behal side of this Agreement.	I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.	
Reinquished Wicha 126/2017; 1530	D Received	Date/Time	TAT: ASAP
	Received	Date/Time	TAT → SameDay <sup>^</sup> NextDay <sup>^</sup> 2 Day 3 Day STD

Aplease coordinate with the lab in advance			×				×
TAT → SameDay <sup>^</sup> NextDay <sup>^</sup> 2 Day 3 Day STD	at which - maximum and	Date/Time	Received	We LINK & PARA	Date/Time	ed 🗸	Relinquished
TAT: ASAP		Date/Time	Received ×	0291	128/2017;	Wind MCY	× Wund
	I have verified Client's	I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's greement to each of the terms on the front and backside of this Agreement.	ont Analytical on beha ent.	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.	s on the front and b	ent that I am authoriz nt to each of the term	I represe agreemen
plass preserve all unpreserves ampris		Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)	Disposal by Lab (Samples will be held for 30 days assessed if samples are retained after 30 days.)		Return to Client	0	Sample Disposal:
Special Remarks:	Turn-around times for samples S received after 4:00pm will begin	Fluoride Nitrate+Nitrite	Bromide O-Phosphate		Nitrite Chloride	s (Circle): Nitrate	***Anions (Circle):
b Sb Se Sr Sn Ti TI U V Zn	e Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti	As B Ba Be Ca Cd Co Cr Cu	TAL Individual: Ag Al	Priority Pollutants T	MTCA-5 RCRA-8	**Metals Analysis (Circle): MT	**Metals
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IT NO3 preserved Tanany & to I b th		8	on a chur shunan ta	o la color de l	-36	+12017-P-0F-36	this
		<u>\</u>			0F-35	HM512817-P-00F-35	this
			v or out of Maar 1903. A	attend of produced and	ach-	HMS12812-T-COS	HM
Hold - Preserval with Nor					5-07-26	M-SUBCISWH	5WH
Preserver & Mos	All of the second se	8	and the second second second	the second state of the second se	- Cf-20-	- d-LIBEISWH	,HMS
Hold - unpr.				MD C2 201 21	- CP-14 1/28/2017	21-218915-2-1	HMS
rm Water, WW = Waste Water Gomments	nking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water Store Set (Store) Store Set (Store) St	W = Water, DW = Drinking W = Water, DW = Drinking W = Water, GS = 14,03 H	il, SD = Sediment, SL =	ther, P = Product, S = Sc Sample Sample Type Time (Matrix)*	B = Bulk, Sam	*Matrix Codes: A = Air, AQ = Aqueous, Sample Name	*Matrix Codes: A
ulcrum.net	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	PM Email: rmathews	3453 <u>1980 - 188 192 (1980 -</u>	Fax: 509.545.8453	509.574.0839	WELL NITHING	Telephone:
And there are supported to the second s	hews	Report To (PM): Ryan Mathews	and the staged growing has	Mo to Clie 1 July and 018	Yakima, WA 98901	City, State, Zip: Ya	City, Sta
	le School, Kennewick,	Location: Highlands Midd	HERE SAT CT THEAMON	reet	406 North Second Street	A.S. E.S. PTROL	Address:
Collected by: Not'c Bostrovn	- Highlands MS Follow- Colle	Project Name: Kennewick SD Project No: 162017	and browned the second state	<b>178</b> 178 tal Consulting	Tel: 206-352-3790 Fax: 206-352-7178 Fulcrum Environmental Consulting	3600 Fremont Ave N. Seattle, WA 98103 Client:	3600 F Seattle Client:
Laboratory Project No (internal):	1/28/2017	Date:	viscout laste sold kriteauer		remon	TRE	
cord and Laboratory Services Agreement	Record and Lab	Chain of Custody Re	0				A NA

TAT $\rightarrow$ SameDay <sup>A</sup> NextDay <sup>A</sup> 2 Day 3 Day STD ^Please coordinate with the lab in advance	Défestime 1 Oy22	Received	× Re	Time	Date/Time	Relinquished X
TAT: AS AP	Date/Time V 30/17	x Aleceivel	Re	Time 117:1560	- /20/2017	Rolinguished WMA
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Plase preserve at unpresence tempers	A fee may be on the following business day.	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)	Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	0	Return to Client	Sample Disposal:
Special Remarks:	Nitrate+Nitrite Turn-around times for samples	O-Phosphate Fluoride Nitra	te Bromide	Chloride Sulfate	ate Nitrite	***Anions (Circle): Nitrate
TI U V Zn	Co Cr Cy Fe Hg K Mg Mn Mo Na N	Individual: Ag Al As B Ba Be Ca Cd	TAL	RCRA-8 Priority Pollutants	MTCA-5	**Metals Analysis (Circle):
Preservat in WOZ; and state	8		-€	R	KF-03	HMS 12812-P-KF-03
Hold runpreserved			-	-	Po- JJ.	HMS 12812-T.
Hold - Preserved with NOS					CF-09	HMS 128-1 SWH
preserved in Noz; anything	8				croq	HMSDZ87-P-CF09
Hold unpresided					-CDF-08	HMS12817-T-
Hold. Preserved with WCZ					-CDF-08	- 5-21301 SMH
Preserved in NO3; Cuenty					-CDF-08	- 2- 21871 SMH
Hold - unpr. Garding Ca					T-00F-27	HMS12817-T-
Hold - unpr.					CC-70D	HIMCIDBID - S-COF-JD
Area Areserved to NO3; Cheonly				1/28/2017 00:00	COF-27	HMS12812-D-
Comments Conductor			Sample Type (Matrix)*	Sample Date Time	6	Sample Name
SW = Storm Water, WW = Waste Water	ing Water, GW = Ground Water,	diment, SL = Solid, W = Water, DW =	duct, S = Soil, SD = Sediment,	Jlk, O = Other, P = Product,	t = Aqueous, B = Bulk,	*Matrix Codes: A = Air, AQ = Aqueous,
fulcrum.net	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	PM Email:	Fax: 509.545.8453	-	509.574.0839	Telephone:
	Ryan Mathews	Report To (PM):		98901	Yakima, WA 98901	City, State, Zip:
	Highlands Middle School, Kennewick, WA	Location:		cond Street	406 North Second Street	Address:
che Bostrom	162017 Colle	Project No:	36	Fulcrum Environmental Consulting	Fulcrum Envi	Client:
	Konnewick CD - Highlande MC Follow. In Sampling			Tel: 206-352-3790 Fax: 206-352-7178	Tel: 200 Fax: 20	3600 Fremont Ave N. Seattle, WA 98103
Tory Project No (internal):	Date: 1/28/2017			vtical	Analy	
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Page 19 of 24

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Aurony Marcelling       Date: 1/28/2017       Laboratory Project No (Internal):         M.       Tel: 206-352-3790       Project Name:       Manual Marcelling         Fulcrum Environmental Consulting       Project No::       162017       Collected by: 3/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2		Comments		PC KAP STAR OF ALL		Sample Time	Sample Da	Name	mple M
remont Ave N.       Tel: 206-352-3790         remont Ave N.       Tel: 206-352-7178         Fulcrum Environmental Consulting       Project Name:         Kennewick SD - Highlands MS Follow-Up Sampling         Project No:       162017         contation:       Highlands Middle School, Kennewick, WA         ate, Zip:       Yakima, WA 98901         Fax: 509.574.0839       Fax: 509.545.8453         Me mail:       rmathews@efulcrum.net; cc: aenbysk@efulcrum.net		orm Water, WW = Waste Water	GW = Ground Water,	iolid, W = Water, DW = Drinkin	= Soil, SD = Sediment, SL = S	P = Product,	B = Bulk,		trix Cod
Fremont Ave N.       Tel: 206-352-3790         remont Ave N.       Tel: 206-352-7178         Fulcrum Environmental Consulting       Project Name:         Kennewick SD - Highlands MS Follow-Up Sampling         remont Ave N.       Tel: 206-352-7178         Fulcrum Environmental Consulting       Project No:         162017       Collected by:         A06 North Second Street       Location:         Yakima, WA 98901       Report To (PM):         Report To (PM):       Ryan Mathews		fulcrum.net	thews@efulcrum.net; cc: aenbysk@et		5.8453	Fax: 509.54	09.574.0839		elepho
Fremont Ave N.       Tel: 206-352-3790         remont Ave N.       Tel: 206-352-7178         Fulcrum Environmental Consulting       Project Name:         Kennewick SD - Highlands MS Follow-Up Sampling         Project No:       162017         Collected by:       Not C Bostrovn         s:       406 North Second Street			n Mathews	I.			akima, WA 98901		ty, Sta
Fremont Ave N.       Tel: 206-352-3790         remont Ave N.       Tel: 206-352-3790			Ilands Middle School, Kennewick, WA	I		eet	06 North Second Str		Address:
Analytical Analytical N. Tel: 206-352-7178 Project Name: Kennewick SD - Highlands MS Follow-Up Sampling Project Name: Kennewick SD - Highlands MS Follow-Up Sampling	P	de		Project No:		al Consulting	Jcrum Environment	Ft	Client:
Change Costory Record and Laboratory Project No (internal):       N.     Tel: 206-352-3790		-Up Sampling				178	Fax: 206-352-71	, WA 98103	eattle,
Date: 1/28/2017 Laboratory Project No (internal):	14 c	Page: J of: J				00	Tel: 206-352-37	emont Ave N.	600 Fn
	) ) ) ) (	Laboratory Project No (internal):		Dat		6	Analytica		
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		I represent that I am authorized to enter into this Agreement with Fremont Analytical on hehalf 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.	vith Fremont Analy s Agreement.	is Agreement v backside of thi	I represent that I am authorized to enter into this Agreement with Fremont agreement to each of the terms on the front and backside of this Agreement.	at I am author ach of the terr	I represent th agreement to e
	Mase present an unpresence unipers	ys unless otherwise noted. A fee may be )	Disposal by Lab (Samples will be held for 30 da assessed if samples are retained after 30 days.	<ul> <li>Disposal by assessed if s</li> </ul>	Return to Client C	0	Sample Disposal:
	Special Remarks:	O-Phosphate Fluoride Nitrate+Nitrite Turn-around times for samples	e Bromide	Chloride Sulfate	Nitrite Chlo	le): Nitrate	***Anions (Circle):
	Pb Sb Se Sr Sn Ti TI U V Zn	Individual: Ag Al As B Ba Be Ca Cd Co Cr 🕲 Fe Hg K Mg Mn Mo Na N	TAL	Priority Pollutants	MTCA-5 RCRA-8		**Metals Analysis (Circle):
	Preservat in WOR: untitle only	8	-€	ę	F-03 V	-10-K	CIBEI SWH
	Hold runpreserved		>	-	P-09	p-t-G	HMS 12812-
	Hold-Preserved with NOS				-09	7-5-CF	CIBEL SWH
	preserved in Noz jumbrany	8			CF09	1	HMSD287-P
41/12	Held unpresident Chalypetarin Cli				80.31	7-T-CDF	LIBEISWH
	Heid heserved with Hestington				-CDF-08	5	- 21801 SMH
	Preserved in NO3; Cuionly				-CDF-08	S	- 21871 SMH
4/14	Hold unpr. an istera Stronty Ce.	8			-005-27	1	HMS12817-
4/2/17	Heid - unper analyte for lu only (al)				-CDF-27	is	LIBEIJMH
	Prisa Preserved in NO3; Cononly	0	DW	017 00,00	COF-27 1/28/2017	0.	HWS 12817-
	Commerts Cruelize for	124 120 120 120 120 120 120 120 120		T	Sample Date	P	Sample Name
			Sample	Sample			
	SW = Storm Water, WW = Waste Water	SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water,	luct, S = Soil, SD = Sediment,	O = Other, P = Product,	B = Bulk,	A = Air, AQ = Aqueous,	*Matrix Codes:
	fulcrum.net	PM Email: rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	Fax: 509.545.8453	Fax:	509.574.0839		Telephone:
		Report To (PM): Ryan Mathews			Yakima, WA 98901		City, State, Zip:
		Location: Highlands Middle School, Kennewick, WA		street	406 North Second Street		Address:
	the Bustrom Po	162017	69	ntal Consulting	Fulcrum Environmental Consulting		Client:
rag	age 1	Project Name: Kennewick SD - Highlands MS Follow-Up Sampling		7178	Fax: 206-352-7178	98103	Seattle, WA 98103
e 22	Page: of:			3790	Tel: 206-352-3790	nt Ave N.	3600 Fremont Ave N.
2 of 2		Date: 1/28/2017					
24	rd and Laboratory Services Agreement	Chain of Custody Record and La			Fremon		THE REAL

		Lucience containate with the iap in advance								Г
	yay suu suu	Aplace coordinate with the lab in advance			X				x	×
		AT: ASAP	Date/Time	Dat	Received		1. 1530	126/2017	Umil Whey	
		k	I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's greement to each of the terms on the front and backside of this Agreement.	alf of the Client named abov	nt.	ent with Freme of this Agreeme	nto this Agreen t and backside	rms on the from	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.	
	mples	Plase preserve all upreserved	may be on the following business day.	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)	Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	ed if samples are	Dispo assess	Return to Client	Sample Disposal:	110
キル		Special Remarks:		Fluoride Nitrate+Nitrite	nide O-Phosphate	Sulfate Bromide	Chloride	e Nitrite	***Anions (Circle): Nitrate	*
196 6	hung.	5 Sb Se Sr Sn Ti Ti U V Zn	Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn	Al As B Ba Be Ca Cd Co C	Individual: Ag	Priority Pollutants TAL	RCRA-8 Priority		**Metals Analysis (Circle): MTCA-5	*
eter	with Wandyze	Hold - Nor ervel				4	8	4-14	HMS (2817-5-4-14	
	21 Anount to to	Preserved in No						H- J.	HMS42817-7-CF	6
		Hold -unpreserved						F-12	- 1-2187514H	+
	The No.	Hold - Preserved in						GF-12	14512817-S-GF-	T
1.61	2. Condity & tor poor by	Preserved in NO						7-12	HUZIDBIS - b-ct	T
2/12	Grahreter Cush	Hill upprescrued						40-210	- L- 218CISWH	1
the for	- The No Craw ta	toth - Praserval L						-10F-04	HUSIZAIZ - S -	
$\tilde{\mathcal{D}}$	02; analyte tar only	Preserved in N	8					p-or-oy	d- cibel SWH	
		Hold - unpreserved						-1(12-03	HMS 12817-7.	-
	with Nos	Hold - Preserval				DW	1/28/2017 10:00	-S-1(7-03	5- 21 861 SWH	
	б	Comments				sample Sample Ple Type re (Matrix)*	Sample Date Time	s	Sample Name	
		SW = Storm Water, WW = Waste Water	ing Water, GW = Ground Water,	SL = Solid, W = Water, DW = Drinking Water,	SD = Sediment,	P = Product, S = Soil,	O = Other,	AQ = Aqueous, B = Bulk,	*Matrix Codes: A = Air, AQ =	*
		fulcrum.net	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net	PM Email: rn	153	Fax: 509.545.8453		509.574.0839	Telephone:	
			Ryan Mathews	Report To (PM): R			8901	Yakima, WA 98901	City, State, Zip:	
			Highlands Middle School, Kennewick, WA	Location: Hi			cond Street	406 North Second Street	Address:	
		collected by: Nake Bostron	162017 Colle			ulting	Fulcrum Environmental Consulting	Fulcrum Envi	Client:	
Pa		-Up Sampling	Kennewick SD - Highlands MS Follow-Up Sampling	Project Name: K			Fax: 206-352-7178	Fax: 20	Seattle, WA 98103	Spart & Schements
ge 2	13 (	Page: Q of: 3					Tel: 206-352-3790	Tel: 206	3600 Fremont Ave N.	
3 of		Laboratory Project No (internal):	Date: 1/28/2017	D			tical	Analy		
24		boratory Service	Chain of Custody Record and Laboratory Services Agreement	hain of Custo	0		nt	remont		
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$ \begin{array}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	ren annou	Please preserve all unpreser		nless otherwise noted. A fee ma	vill be held for 30 days u ained after 30 days.)	Lab (Samples v samples are ret	Disposal by assessed if s	Client	Return to	ample Disposal:
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Ame:       1/28/2017       Laboratory Project No         M.       Tel:       206-352-3738       Project Name:       Kennewick SD - Highlands MS Follow-Up Sampling         Fulrrum Environmental Consulting       Project Name:       Kennewick SD - Highlands MS Follow-Up Sampling       Project No:         406 North Second Street       Location:       Highlands MS Follow-Up Sampling       Project No:       162017       Collected by:       Oct 4_ Do's Frows         Yakima, WA 99901       Fax:       509.545.8453       PM Email:       Report To (PM):       Ryan Mathews         S09.574.0839       Fax:       509.545.8453       PM Email:       rmathews@efulcrum.net; cc: aenbysk@efulcrum.net;       Mathews         AQ= Aqueous, B = Bulk, O = Other, P = Product, S = Solid, W = Water, DW = Drinking Water, SW = Storm Water, SW =	any	there. analyteter							1	HMS 1981:
Aurouveroveroveroveroveroveroveroveroverovero		Comments		2 (G 7 2 ) 32 G 12 (HC)				Sample Date		Sample Name
Image: State: 1/28/2017       Laboratory Project No (internal):         N.       Tel: 206-352-3790         Fax: 206-352-3790       Project Name:         Fulcrum Environmental Consulting       Project Name:         406 North Second Street       Project No:         Yakima, WA 98901       Location:         509.574.0839       Fax: 509.545.8453         Fax: 509.545.8453       PM Email:			ater, GW = Ground Water,		SD = Sediment, SL = So	duct, S = Soil,			AQ = Aqueous,	Matrix Codes: A = Air
Amelytical       Date: 1/28/2017       Laboratory Project No (internal):         V.       Tel: 206-352-3790       Project Name:       Manewick SD - Highlands MS Follow-Up Sampling         Fulcrum Environmental Consulting       Project No:       162017       Collected by: 1/26/Shovy         406 North Second Street       Location:       Highlands Middle School, Kennewick, WA       Report To (PM):		fulcrum.net	:hews@efulcrum.net; cc: aenbysk@ef		3	509.545.845	Fax:	.0839	509.574	Telephone:
American       Date:       1/28/2017       Laboratory Project No (internal):         V.       Tel: 206-352-3790       Page:       2         Fox: 206-352-7178       Project Name:       Kennewick SD - Highlands MS Follow-Up Sampling         Fulcrum Environmental Consulting       Project No:       162017       Collected by:       Not & Bostrovy         406 North Second Street       Location:       Highlands Middle School, Kennewick, WA       Environmentick, WA			Mathews	1				WA 98901	Yakima,	City, State, Zip:
Amalytical       Date:       1/28/2017       Laboratory Project No (Internal):         V.       Tel:       206-352-3790       Page:	1		School, Kennewick				et	th Second Stre	406 Not	Address:
Amalytical N. Tel: 206-352-3790 Fax: 206-352-7178 Project Name: Kennewick SD - Highlands MS Follow-Up Sampling	D	ste				60	l Consultin	Environmenta	Fulcrum	Client:
Tel: 206-352-3790		-Up Sampling					00	(; 206-352-71)		Seattle, WA 981
Date: 1/28/2017 Laboratory Project No (internal):	4.4	Page: 0 of: 0					0	: 206-352-379		3600 Fremont Av
		Laboratory Project No (internal):	1/2	Date				alytical	An	
			Ay Necola alla La		<u>c</u>					



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 - Highlands Middle School Work Order Number: 1702288

February 27, 2017

# **Attention Ryan Mathews:**

Fremont Analytical, Inc. received 5 sample(s) on 2/27/2017 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 - Highlands 1702288	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1702288-001	HMS22517-P-CF-14	02/25/2017 7:45 AM	02/27/2017 9:19 AM
1702288-002	HMS22517-S-CF-14	02/25/2017 7:45 AM	02/27/2017 9:19 AM
1702288-003	HMS22517-T-CF-14	02/25/2017 7:45 AM	02/27/2017 9:19 AM
170000 001			00/07/0047 0.40 AM

1702288-004 1702288-005

HMS22517-P-CDF-35 HMS22517-P-OF-36

02/25/2017 7:45 AM 02/25/2017 7:45 AM 02/27/2017 9:19 AM 02/27/2017 9:19 AM



Case Narrative

WO#: **1702288** Date: **2/27/2017** 

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking Water - Highlands Middle 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:

1702288-004A 208799: Prep Comments for EPA200.8, Sample 1702288-004A: Turbidity: 0.00 NTU 1702288-001A 208798: Prep Comments for EPA200.8, Sample 1702288-001A: Turbidity: 0.00 NTU 1702288-005A 208800: Prep Comments for EPA200.8, Sample 1702288-005A: Turbidity: 0.00 NTU

# **Qualifiers & Acronyms**



WO#: **1702288** Date Reported: **2/27/2017** 

# 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



**Drinking Water Metals by EPA Method 200.8** 

# **Analytical Report**

 Work Order:
 1702288

 Date Reported:
 2/27/2017

# CLIENT: Fulcrum Environmental

Project: Kennewick SD Drinking Water - Highlands Middle School

Lab ID: 1702288-001 Client Sample ID: HMS22517-P	-CF-14		Collectior Matrix: D		2/25/2017 7:45:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA M	ethod 200.8		Batch	n ID: 16	360 Analyst: TN
Lead	1.94	1.00	µg/L	1	2/27/2017 4:47:52 PM

Lab ID: 1702288-004 Client Sample ID: HMS2251	7-P-CDF-35		Collection Matrix: D		2/25/2017 7:45:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EP	A Method 200.8		Batcl	h ID: 16	360 Analyst: TN
Lead	13.5	1.00	µg/L	1	2/27/2017 4:51:28 PM
Lab ID: 1702288-005 Client Sample ID: HMS2251	7-P-OF-36		Collection Matrix:		2/25/2017 7:45:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed

1.00

ND

Batch ID: 16360

1

µg/L

Lead

Analyst: TN

2/27/2017 4:55:04 PM



Work Order: 1	702288								00.9	SUMMAI		
CLIENT: F	ulcrum Environmental	I										
Project: K	ennewick SD Drinking	g Water - Highl	ands					Drinkin	g Water Me	etals by EP	'A Metho	d 200.
Sample ID MB-16360	) SampType	e: MBLK			Units: µg/L		Prep Dat	te: 2/27/2	017	RunNo: 34	678	
Client ID: MBLKW	Batch ID:	16360					Analysis Dat	te: 2/27/2	017	SeqNo: 662	2272	
Analyte	F	Result	RL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		ND 1	.00									
Sample ID LCS-1636	<b>60</b> SampType	e: LCS			Units: µg/L		Prep Dat	te: <b>2/27/2</b>	017	RunNo: 340	678	
Client ID: LCSW	Batch ID:	16360					Analysis Dat	te: 2/27/2	017	SeqNo: 662	2273	
Analyte	F	Result	RL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		44.6 1	.00	50.00	0	89.1	85	115				
Sample ID 1702286-0	001ADUP SampType	e: DUP			Units: µg/L		Prep Dat	te: <b>2/27/2</b>	017	RunNo: 340	678	
Client ID: BATCH	Batch ID:	16360					Analysis Dat	te: 2/27/2	017	SeqNo: 662	2277	
Analyte	F	Result	RL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		6.19 1	.00						6.458	4.26	30	
Sample ID 1702286-0	001AMS SampType	e: MS			Units: µg/L		Prep Dat	te: 2/27/2	017	RunNo: 34	678	
Client ID: BATCH	Batch ID:	16360					Analysis Dat	te: 2/27/2	017	SeqNo: 662	2278	
Analyte	F	Result	RL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		88.8 1	.00	100.0	6.458	82.3	70	130				
Sample ID 1702286-0	001AMSD SampType	e: MSD			Units: µg/L		Prep Dat	te: <b>2/27/2</b>	017	RunNo: 340	678	
Client ID: BATCH	Batch ID:	16360					Analysis Dat	te: 2/27/2	017	SeqNo: 662	2279	
Analyte	F	Result	RL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		92.3 1	.00	100.0	6.458	85.9	70	130	88.79	3.92	30	



# Sample Log-In Check List

CI	lient Name:	FE	Work Order Num	ber: 1702288		
Lo	ogged by:	Erica Silva	Date Received:	2/27/2017	7 9:19:00 AM	
<u>Cha</u>	in of Cust	ody				
1.	Is Chain of C	ustody complete?	Yes 🗹	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>FedEx</u>			
<u>Log</u>	<u>. In</u>					
3.	Coolers are p	present?	Yes 🗹	No 🗌		
4	Shipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌		
	Custody Sea	ls present on shipping container/cooler?	Yes	No 🗹	Not Required	
		nments for Custody Seals not intact)				
6.	Was an atten	npt made to cool the samples?	Yes 🖌	No 🗌	NA 🗌	
7.	Were all item	is received at a temperature of $>0^{\circ}C$ to $10.0^{\circ}C^{*}$	Yes 🔽	No 🗌		
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	
		Ispace 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 🗌		
<u>Spe</u>	cial Handl	ing (if applicable)				
-		otified of all discrepancies with this order?	Yes	No 🗌	NA 🔽	
	Person	Notified: Date				
	By Who		le .	none 🗌 Fax	In Person	
	Regardi					
	-	instructions:				
19.	Additional rer	marks:				

HNO3 added to 002A, 003A

### Item Information

Item #	Temp °C
Cooler 1	1.8
Cooler 2	0.9
Sample 1	1.2
Sample 2	1.5

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

^Please coordinate with the lab in advance							
TAT → SameDay <sup>A</sup> NextDay <sup>A</sup> 2 Day 3 Day STD	Date/Time	Received	×	e	Date/ Ilme	<	x
TAT: ASAP	27/17 09/9	Received 2		1207,1300	2/25/20	MEX .	Reimquished
	above, that I have verified Client's	I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have agreement to each of the terms on the front and backside of this Agreement.	with Fremont An s Agreement.	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.	ms on the front a	hat I am author each of the terr	I represent t agreement to
Pleasepreserve unpreserved samples	e following business day.	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)	Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	Disposal by assessed if	Return to Client	₽	Sample Disposal:
	Turn-	O-Phosphate Fluoride Nitrat	e Bromide	Chloride Sulfate	Nitrite (	rcle): Nitrate	***Anions (Circle):
Sb Se Sr Sn Ti TI U V Zn	Co Cr Cu Fe Hg K Mg Mn Mo Na N Pb Sb Se Sr Sn	Individual: Ag Al As B Ba Be Ca Cd (	TAL	8 Priority Pollutants	MTCA-5 RCRA-8	1	**Metals Analysis (Circle):
				100 000 000 000 000	100 N	AVE OF PARALLY	anty oneward
And a protocol and process of the control of the second second second					10 - 2 The second second		Same part of the
							a contra da la
						100 BEE 100 BEE 100 BEE	
							1 - 2 - 2 - 12 - 2 - 2 - 2 - 2 - 2 - 2 -
F	8 		F	F	3F-36	HWA 22517-1-0F-36	ANSA
Hinda pres.	⊗				0F-35	HM522517-P-COF-35	HM526
4					514	+M5 22517-1-05-14	+msa
HOLD; unper.					4-14	HUNS22517-5-0-14	HUSZ
HWO3 pres.			DW	2/25/2017 0745		the 22517-P-CF-14	this aa
Comments			Sample Type (Matrix)*	Sample Date Time	Sam	<b>T</b> e	Sample Name
SW = Storm Water, WW = Waste Water	GW = Ground Water,	O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water,	oduct, S = Soil, SD		AQ = Aqueous, B = Bulk,	s: A = Air, AQ = /	*Matrix Codes: A = Air,
tfulcrum.net	rmathews@efulcrum.net; cc:aenbysk@efulcrum.net	PM Email:	Fax: 509.575.8453	Fay	509.574.0839	:	Telephone:
munto strant tool generate he and not require to the second second	Ryan Mathews	Report To (PM):	Check and The Link of	The second second second	Yakima, WA 98901	, Zip:	City, State, Zip:
P	Highlands Middle School, Kennewick, WA	Location:	1916 - 1977 - 1918	Street	406 North Second Street	TT UC STRAIL	Address:
Collected by: Amanda Enbysk	162017.06 Coll	Project No:		Fulcrum Environmental Consulting, Inc.	Fulcrum Environm		Client:
	Kennewick SD Drinking Water - Highlands Middle School	Project Name:		0/1/-700	rux. 200-332-/1/0	COTOC VI	Jenne,
Page: of:				352-3790	Tel: 206-352-3790	3600 Fremont Ave N.	3600 Fre
Laboratory Project No (internal): 170228 5 6	Date: 2/25/2017			cal	Analyti		
Chain of Custody Record and Laboratory Services Agreement	stody Record and La	Chain of Cu		h	remol	Fre	A



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-Highlands MS Work Order Number: 1704069

April 07, 2017

# **Attention Ryan Mathews:**

Fremont Analytical, Inc. received 9 sample(s) on 4/6/2017 for the analyses presented in the following report.

# Drinking Water Metals by EPA Method 200.8

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward Project Manager

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



CLIENT: Project: Work Order:	Fulcrum Environmental Kennewick SD Drinking Water-Highlands M 1704069	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1704069-001	HMS4517-P-DF-04	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-002	HMS4517-P-CDF-08	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-003	HMS4517-S-CDF-08	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-004	HMS4517-T-CDF-08	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-005	HMS4517-P-CDF-27	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-006	HMS4517-S-CDF-27	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-007	HMS4517-T-CDF-27	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-008	HMS4517-P-CDF-35	04/05/2017 10:00 AM	04/06/2017 10:31 AM
1704069-009	HMS4517-P-OF-36	04/05/2017 10:00 AM	04/06/2017 10:31 AM



**Case Narrative** 

WO#: **1704069** Date: **4/7/2017** 

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking Water-Highlands MS

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:

1704069-001A 214540: Prep Comments for EPA200.8, Sample 1704069-001A: Turbidity: 0.01 NTU 1704069-002A 214541: Prep Comments for EPA200.8, Sample 1704069-002A: Turbidity: 0.02 NTU 1704069-005A 214542: Prep Comments for EPA200.8, Sample 1704069-005A: Turbidity: 0.01 NTU 1704069-008A 214543: Prep Comments for EPA200.8, Sample 1704069-008A: Turbidity: 0.01 NTU 1704069-009A 214546: Prep Comments for EPA200.8, Sample 1704069-009A: Turbidity: 0.01 NTU

# **Qualifiers & Acronyms**



WO#: **1704069** Date Reported: **4/7/2017** 

# 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



# **Analytical Report**

 Work Order:
 1704069

 Date Reported:
 4/7/2017

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking V	Vater-Highland	ds MS	
Lab ID: 1704069-001 Client Sample ID: HMS4517-P-DF	-04		Collection Date: 4/5/2017 10:00:00 AM Matrix: Drinking Water
Analyses	Result	RL Qua	I Units DF Date Analyzed
Drinking Water Metals by EPA Meth	<u>10d 200.8</u>		Batch ID: 16722 Analyst: TN
Copper	306	0.500	μg/L 1 4/7/2017 2:41:25 PM
Lab ID: 1704069-002 Client Sample ID: HMS4517-P-CD	F-08		Collection Date: 4/5/2017 10:00:00 AM Matrix: Drinking Water
Analyses	Result	RL Qua	-
Drinking Water Metals by EPA Meth	nod 200.8		Batch ID: 16722 Analyst: TN
Copper	1,030	0.500	μg/L 1 4/7/2017 2:45:27 PM
Lab ID: 1704069-005 Client Sample ID: HMS4517-P-CD	F-27		Collection Date: 4/5/2017 10:00:00 AM Matrix: Drinking Water
			C C
Analyses	Result	RL Qua	
Analyses Drinking Water Metals by EPA Meth	Result	RL Qua	



# **Analytical Report**

 Work Order:
 1704069

 Date Reported:
 4/7/2017

CLIENT:Fulcrum EnvironmentalProject:Kennewick SD Drinking	Water-Highlan	ds MS	
Lab ID: 1704069-008 Client Sample ID: HMS4517-P-C	DF-35		Collection Date: 4/5/2017 10:00:00 AM Matrix: Drinking Water
Analyses	Result	RL Qual	Units DF Date Analyzed
Drinking Water Metals by EPA Me	<u>thod 200.8</u>		Batch ID: 16722 Analyst: TN
Copper	1,300	0.500	μg/L 1 4/7/2017 2:53:30 PM
Lab ID: 1704069-009 Client Sample ID: HMS4517-P-O	F-36		Collection Date: 4/5/2017 10:00:00 AM Matrix: Drinking Water
Analyses	Result	RL Qual	Units DF Date Analyzed
Drinking Water Metals by EPA Me	thod 200.8		Batch ID: 16723 Analyst: TN
Copper	ND	0.500	μg/L 1 4/7/2017 3:17:41 PM



Work Order: CLIENT:	1704069 Fulcrum En	vironmental								QC S	SUMMAI	RY REF	PORT
Project:	Kennewick	SD Drinking	Water-H	lighlands	M		Drinking Water Metals by EPA Method 200.8						
Sample ID MB-16	5723	SampType	MBLK			Units: µg/L		Prep Date	: 4/7/201	17	RunNo: 354	429	
Client ID: MBLK	W	Batch ID:	16723					Analysis Date	: 4/7/201	17	SeqNo: 67	8502	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500									
Sample ID LCS-1	6723	SampType	LCS			Units: µg/L		Prep Date	: 4/7/201	17	RunNo: 354	429	
Client ID: LCSW	1	Batch ID:	16723					Analysis Date	: <b>4/7/20</b> 1	17	SeqNo: 67	8505	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			96.5	0.500	100.0	0	96.5	85	115				
Sample ID 17040	69-009ADUP	SampType	DUP			Units: µg/L		Prep Date	: 4/7/201	17	RunNo: 354	429	
Client ID: HMS4	517-P-OF-36	Batch ID:	16723					Analysis Date	: 4/7/201	17	SeqNo: 67	8507	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	0.500						0		30	
Sample ID 17040	69-009AMS	SampType	MS			Units: µg/L		Prep Date	: 4/7/201	17	RunNo: 354	429	
Client ID: HMS4	517-P-OF-36	Batch ID:	16723					Analysis Date	: 4/7/201	17	SeqNo: 67	8508	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			188	0.500	200.0	0.4218	93.9	70	130				
Sample ID 17040	69-009AMSD	SampType	MSD			Units: µg/L		Prep Date	: 4/7/201	17	RunNo: 354	429	
Client ID: HMS4	517-P-OF-36	Batch ID:	16723					Analysis Date	: 4/7/201	17	SeqNo: 67	8509	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			194	0.500	200.0	0.4218	97.0	70	130	188.3	3.16	30	



SUMMARY REPOR	00.5							der: 1704069	Work Ord
	•	<b>D</b>					vironmental	Fulcrum En	CLIENT:
etals by EPA Method 200	rinking water we	D			М	lighlands	SD Drinking Water-H	Kennewick	Project:
RunNo: 35427	4/7/2017	Prep Date:		Units: µg/L			SampType: <b>MBLK</b>	MB-16722	Sample ID
SeqNo: 678405	4/7/2017	Analysis Date:					Batch ID: 16722	MBLKW	Client ID:
%RPD RPDLimit Qual	ighLimit RPD Ref Val	LowLimit Hi	%REC	SPK Ref Val	SPK value	RL	Result		Analyte
						0.500	ND		Copper
RunNo: 35427	4/7/2017	Prep Date:		Units: µg/L			SampType: LCS	LCS-16722	Sample ID
SeqNo: 678406	4/7/2017	Analysis Date:					Batch ID: 16722	LCSW	Client ID:
%RPD RPDLimit Qual	ighLimit RPD Ref Val	LowLimit Hi	%REC	SPK Ref Val	SPK value	RL	Result		Analyte
	115	85	98.2	0	100.0	0.500	98.2		Copper
RunNo: <b>35427</b>	4/7/2017	Prep Date:		Units: µg/L			SampType: DUP	1704067-001ADUP	Sample ID
SeqNo: 678408	4/7/2017	Analysis Date:					Batch ID: 16722	BATCH	Client ID:
%RPD RPDLimit Qual	ighLimit RPD Ref Val	LowLimit Hi	%REC	SPK Ref Val	SPK value	RL	Result		Analyte
3.19 30	932.8					0.500	963		Copper
RunNo: <b>35427</b>	4/7/2017	Prep Date:		Units: µg/L			SampType: <b>MS</b>	1704067-001AMS	Sample ID
SeqNo: 678409	4/7/2017	Analysis Date:					Batch ID: 16722	ВАТСН	Client ID:
%RPD RPDLimit Qual	ighLimit RPD Ref Val	LowLimit Hi	%REC	SPK Ref Val	SPK value	RL	Result		Analyte
S	130	70	131	932.8	200.0	0.500	1,190		Copper NOTES:
			ge.	ecovered within rang	rformed and r	lysis was pe	observed. A duplicate anal	ng spike recovery(ies)	S - Outlyii
RunNo: <b>35427</b>	4/7/2017	Prep Date:		Units: µg/L			SampType: MSD	1704067-001AMSD	Sample ID
SeqNo: 678410	4/7/2017	Analysis Date:					Batch ID: 16722	ВАТСН	Client ID:
%RPD RPDLimit Qual	ighLimit RPD Ref Val	LowLimit Hi	%REC	SPK Ref Val	SPK value	RL	Result		Analyte
4.82 30	130 1,195	70	103	932.8	200.0	0.500	1,140		Copper



# Sample Log-In Check List

С	lient Name:	FE	Work Ord	er Numb	er: 1704069		
Lo	ogged by:	Erica Silva	Date Rec	eived:	4/6/2017	10:31:00 AM	
Cha	nin of Cust	ody					
1.	Is Chain of C	sustody complete?	Yes	✓	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>FedEx</u>				
<u>Log</u>	<u>In</u>						
-	Coolers are p	present?	Yes	✓	No 🗌	NA 🗌	
	<b></b>		. г. Г				
		tainer/cooler in good condition?	Yes	<b>⊻</b>	No 🗌		
5.		Is present on shipping container/cooler? nments for Custody Seals not intact)	Yes		No 🗌	Not Required 🖌	
6.	Was an atter	npt made to cool the samples?	Yes	✓	No 🗌	NA 🗌	
7.	Were all item	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 🗌		
•••	,	mple volume for indicated test(s)?	Yes	✓	No 🗌		
-		properly preserved?	Yes		No 🗌		
-		ative added to bottles?	Yes	✓	No 🗌	NA 🗌	
				ŀ	HNO3 to 003A	A, 004A, 006A, 007A	<b>\</b>
12.	Is there head	Ispace in the VOA vials?	Yes		No 🗌	NA 🖌	
13.	Did all sampl	es containers arrive in good condition(unbroken)?	Yes	✓	No 🗌		
14.	Does paperw	vork 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 🗌		
<u>Spe</u>	cial Handl	ing (if applicable)					
-		otified of all discrepancies with this order?	Yes		No 🗌	NA 🔽	
	Person	Notified: Date					
	By Who	om: Via:	eMail	D Pho	one 🗌 Fax	In Person	
	Regardi	ing:					
	Client Ir	nstructions:					
19.	By Who Regardi	om: Via: ing: Instructions: Via:		Pho	one 🗌 Fax	In Person	

### Item Information

Item #	Temp ⁰C
Cooler 1	2.2
Cooler 2	0.9
Sample 1	2.9
Sample 2	1.1

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

0
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	remont		Chain of Custody Re	cord and Laboratory Service
	Analytical	아마 아파 같은 것 같은	Date: 4	15/17 Laboratory Project No (internal): 1704069
3600 Fremont Ave N.	Tel: 206-352-3790			Page: of:
Seattle, WA 98103	Fax: 206-352-7178		Project Name: Lennem UK	c 50 Brnking Water - Highlands MS
Client:	Fulcrum Environmental Consulting	ulting		Colle
Address:	406 North Second Street	state for the place of the second state	Location: Highlands	Highlands middle School, lannewick, WA
City, State, Zip:	Yakima, WA, 98901	S. SANTAN AMAL	Report To (PM): Ryan Mathews	WS
Telephone:	509.574.0839	Fax: 509.575.8453	É.	rmathews@efulcrum.net; cc: aenbysk@efulcrum.net
*Matrix Codes: A = Air, AQ =		D = Sediment,	SL = Solid, W = Water, DW = Drinking Water,	GW = Ground Water, SW = Storm Water, WW = Waste Water
		Sample Starter		5
HM54517-P-K	NE-04 4/6/17 1	1000 bw		HWO3 preserved
10.	_		8	
3 FM/546)7-5-COF-	DF-08			HOLD; uppr.
HM54517-T-U	60Ja			E
++++++++++++++++++++++++++++++++++++++	05-27		8	thill thills preserved
6HW84517-5-C	5-005-27			HOLD; ungo-
1	T-405-27			(e-
7	COF-35		8	thioz preserved
P	0F-36 V	¥	 ⊗	
**Metals Analysis (Circle):	MTCA-5 RCRA-8	Priority Pollutants TAL Individual: Ag	Al As B Ba Be Ca Cd Co Cr Cu Fe Hg	Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti TI U V Zn
***Anions (Circle): Nitrate	te Nitrite Chloride	Sulfate Bromide O-Phosphate		Turn-around times for samples Special Remarks:
Sample Disposal:	Return to Client     D     as	Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)	on the following business day. Allase present all wry
I represent that I am aut agreement to each of the t	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.	eement with Fremont Analytical on b de of this Agreement.	I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.	
Reinquished	"holdort; (500	Received	Hlul 2017	1031 TAT: ASAP
Relinquished	Date/Time	x		Ablase contribute with the lab in advance



# **ATTACHMENT F**

Fixture Style Photographs



Winter 2016 – Drinking Water Sampling Results Highlands Middle School, Kennewick, Washington





Sample HMS122116-P-CF-14: **19 µg/L** initial lead concentration. Faucet above is identified producing elevated lead concentrations.



Sample AE122216-P-CF-07: 12  $\mu$ g/L initial lead concentration. Same fixture style as classroom faucets with elevated lead concentrations.

P. 509.574.0839 F. 509.575.8453 406 North 2nd Street Yakima, Washington 98901 *efulcrum.net*