

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
Administration Building, 1000 West Fourth Avenue, Kennewick, Washington**

Dear Keith:

On Thursday, December 22, 2016, Fulcrum Environmental Consulting, Inc. (Fulcrum) collected 11 drinking water samples for lead and copper analysis from the Administration Building (Building), located at 1000 West Fourth Avenue in Kennewick, Washington. Initial sampling identified four fixture locations with copper concentrations above guidance levels. Fulcrum returned to the Building on February 11, 2017 to collect samples after remediation of the fixtures and laboratory results found concentrations to be below guidance levels. Sampling was completed as part of a District-wide project and all analysis was completed by Washington State Department of Ecology (Ecology) accredited laboratories.

Summary

The purpose of initial sampling was to evaluate current drinking water quality conditions with respect to lead and copper as a result of the increased national and local interest related to lead in drinking water. The intent of sampling was to meet the requirements of the pending regulations set forth in Washington Administrative Code (WAC) 246-366A-130 and 246-366A-135¹. Consistent with the regulations, Fulcrum completed sampling at the rates of at least 50% of plumbing fixtures used regularly for drinking or cooking in elementary and preschools and at least 25% of drinking or cooking fixtures in middle schools, junior high schools, and high schools. In addition, Fulcrum sampled administrative facilities in the District at the same rate as elementary schools, of at least 50% of drinking and cooking fixtures.

Fulcrum completed initial sampling on December 22, 2016. Initial results identified four samples with copper levels above the Environmental Protection Agency (EPA) action level of 1,300 micrograms per liter ($\mu\text{g/L}$). Upon receipt of results, the District removed the identified fixtures from service pending remediation and further testing.

Copper is not a significant component in fixtures, but is the primary material in the plumbing system. To remediate elevated copper, the District aggressively flushed the fixtures with cold water to clear the plumbing of copper construction debris. Fulcrum returned on February 11, 2017 and collected samples to evaluate the success of the remediation. The follow-up samples yielded results confirming the remediation

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

was successful at reducing copper below the EPA action level. Following sampling and review of laboratory results, Fulcrum recommended, and the District elected, to return the fixtures to service.

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

Sampling Methodology

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

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

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

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

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

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

Sampling Activities

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

Initial Sampling

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

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

Fixture Replacement and Flushing

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

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

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

Remedial Sampling

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

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

Analytical Results

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

Initial Sampling

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

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

Remedial Sampling

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

Discussion

Initial Sampling

Analytical results identified four samples, with a copper concentration above the EPA action level of 1,300 µg/L. No samples were identified with lead concentrations above the EPA action level of 15 µg/L.

Remedial Sampling

Immediately following receipt of initial sampling results, the District removed the identified fixtures from service pending remediation and further testing. To remediate elevated copper concentrations, the District completed an aggressive flush of the fixtures. Fulcrum returned on the morning following the aggressive flush, February 11, 2017, to collect follow-up samples.

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

Recommendations

No samples were identified with lead concentrations above the EPA action level of 15 µg/L. Four initial samples contained copper above the EPA action level of 1,300 µg/L. The District completed an aggressive flush to reduce the copper concentration of the fixtures and follow-up samples yielded results below the action level, confirming the remediation was successful. Following sampling and review of laboratory results, Fulcrum recommended, and the District elected, to return the fixtures to service.

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

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

Sincerely,



Amanda Enbysk, GIT
Environmental Geologist

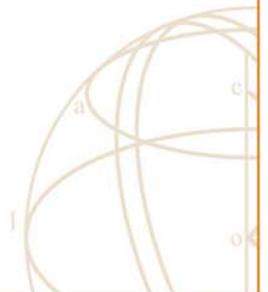


Ryan K. Mathews, CIH, CHMM
Principal



ATTACHMENT A

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



LEGEND

KF-## - Kitchen faucet

OF-## - Office faucet

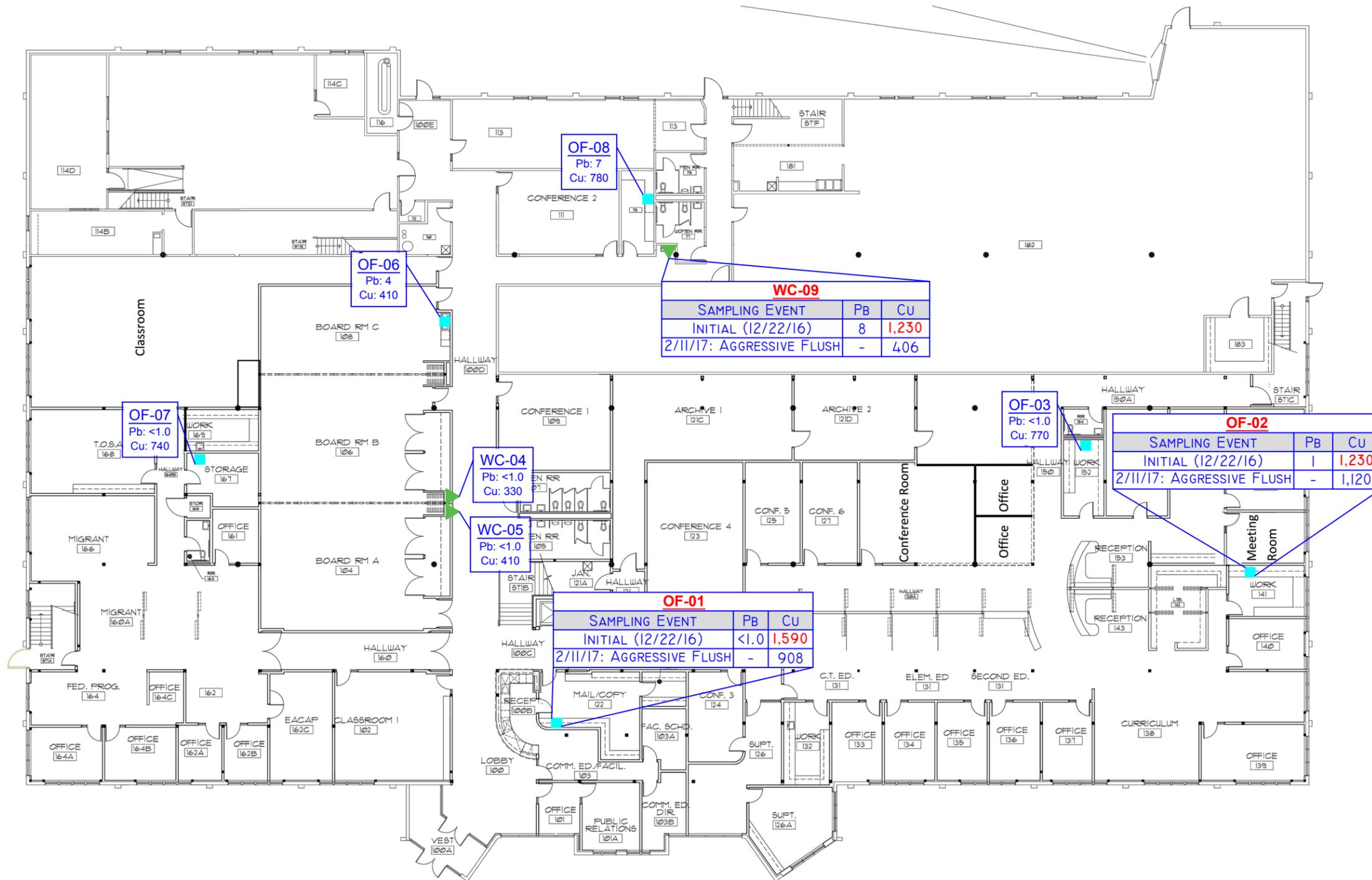
WC-## - Water cooler fountain

■ - Sample location: faucet

▼ - Sample location: water cooler fountain

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

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



DRAWING PROVIDED BY KENNEWICK SCHOOL DISTRICT

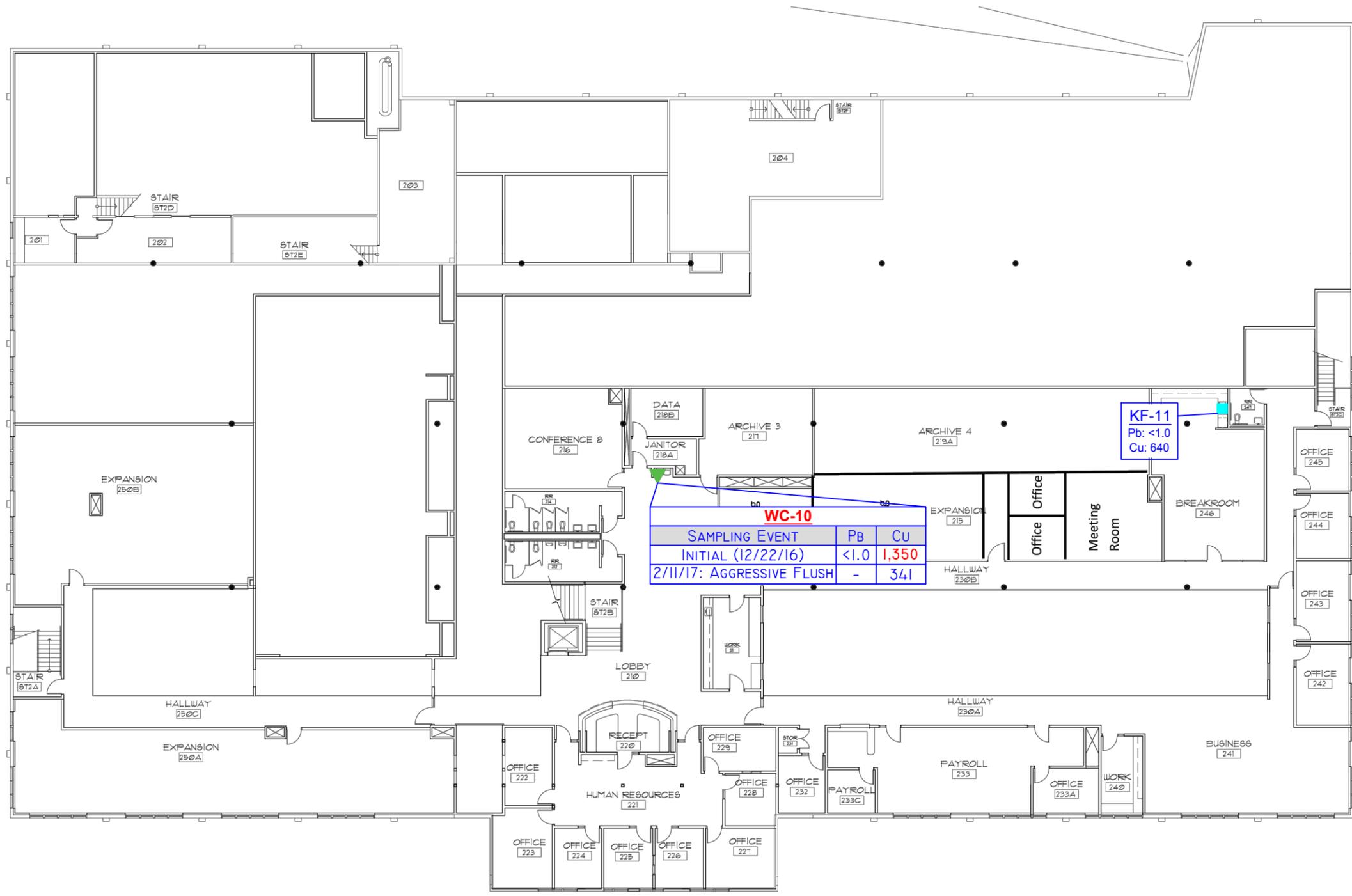
LEGEND

KF-## - Kitchen faucet
 OF-## - Office faucet
 WC-## - Water cooler fountain

■ - Sample location: faucet
 ▼ - Sample location: water cooler fountain

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

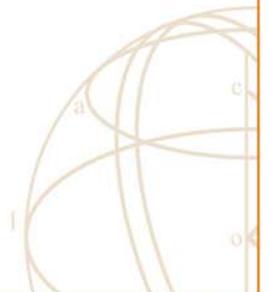
-Samples in **BOLD RED** indicate fixture locations where the initial concentrations of lead or copper were above the respective action level.



DRAWING PROVIDED BY KENNEWICK SCHOOL DISTRICT

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: Administration Building Address: 1000 West 4th Avenue, Kennewick, WA

Elementary Middle School High School Administration

Date of Construction: _____ Modernizations: _____

Fixture Type	Locations	Fixture Styles ¹	Samples	Ratio
Drinking fountain/water cooler (DF/WC)	6	2	4	67%
Kitchen Fixture (KF)	1	1	1	100%
Classroom faucet, including faucets in Food Labs and Life Sciences Classrooms (CF)	-	-	-	-
Classroom drinking fountain at sink (CDF)	-	-	-	-
Nurse’s Office/Health Room (NF)	-	-	-	-
Teacher’s Lounges/Work Rooms (OF)	8	3	6	75%
TOTALS	15		11	73%

¹ Fixture styles are approximate based on sampler’s observations

Lead Sampler: Amanda Enbysk Date: 12/22/2016

Sample Prefix: ADM – 122216 – P (first-draw) – _____ – 01-13
School Code Date Sample Type Fixture Type Sample Number

Laboratory: R. J. Lee Group, Columbia Basin Analytical Delivery Date: December 22, 2016

Comments:

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

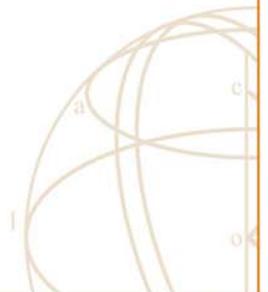


Table 1: Initial Sampling Analytical Results

Sample Identification and Location	Fixture Type	Lead Results (µg/L)	Copper Results (µg/L)
ADM122216-P-OF-01: Mail/Copy Room 122	Office Faucet	<1.0	1,590
ADM122216-P-OF-02: Work Room 141	Office Faucet	1	1,230
ADM122216-P-OF-03: Work Room 152	Office Faucet	<1.0	770
ADM122216-P-WC-04: Hallway 100D, right fixture	Water Cooler Fountain	<1.0	330
ADM122216-P-WC-05: Hallway 100D, left fixture	Water Cooler Fountain	<1.0	410
ADM122216-P-OF-06: Room 108	Office Faucet	4	410
ADM122216-P-OF-07: Storage Room 167	Office Faucet	<1.0	740
ADM122216-P-OF-08: Breakroom adjacent Room 111	Office Faucet	7	780
ADM122216-P-WC-09: Corridor adjacent Room 111, right fixture	Water Cooler Fountain	8	1,230
ADM122216-P-WC-10: Second Floor near Room 216, left fixture	Water Cooler Fountain	<1.0	1,350
ADM122216-P-KF-11: Breakroom 246	Kitchen Faucet	<1.0	640
ADM122216-P-WC-12: Laboratory Spike	Lead and Copper Spike	13	1,170
ADM122216-P-WC-13: Laboratory Blank	Distilled Water Blank	<1.0	<10
EPA Action Level		15	1,300

- 1 µg/L means microgram per liter or parts per billion (ppb).
- 2 Action levels based on the U.S. EPA’s Lead and Copper Rule.
Results indicated in **bold** indicate concentrations above the action levels of 15 µg/L for lead and 1,300 µg/L for copper
Results indicated in *italics* are quality assurance spike and blank samples.

Table 2: pH and Temperature Data Summary

Sample Number	Fixture Type	pH Flush	pH Sample	Temperature (°C) Flush	Temperature (°C) Sample
ADM122216-P-WC-04	Water Cooler Fountain	7.96	7.95	14.5	12.6

Table 3: Remedial Sampling Analytical Results

Sampling Event	Sample Identification					
	OF-01	OF-02	WC-09	WC-10	Laboratory Spike (-12)	Laboratory Blank (-13)
Initial (12/22/2016)	1,590	1,230	1,230	1,350	1,170	<10
Aggressive Flush (2/11/2017)	908	1,120	406	341	1,260	<0.5
EPA Action Level	1,300	1,300	1,300	1,300	1,300	1,300

- 1 µg/L means microgram per liter or parts per billion (ppb).
- 2 Action levels based on the U.S. EPA’s Lead and Copper Rule.
Results indicated in **bold** indicate concentrations above the action levels of 15 µg/L for lead and 1,300 µg/L for copper
Results indicated in *italics* are quality assurance spike and blank samples.

ATTACHMENT D

Initial Analytical Results





RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratories

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 545-4989 | Fax: (509) 544-6010

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

Subject: Chemical Analysis Report

Columbia Basin Analytical Laboratories received 13 sample(s) on 12/22/16 for analysis. These sample(s) have been assigned a login order number of W612115. 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.

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

01/27/17

Project Coordinator II, M. Fernanda Pincheira

Date

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



Laboratory Report

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

RJ Lee Group No.: W612115
COC No.: Kennewick
Samples Received: 12/22/16
Analysis/Prep Date: 01/25/17
Report Date: 01/27/17

Client Project:

Fulcrum Kennewick

Sample Name: ADM122216-P-OF-01 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-01 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	1.59	0.01	
Lead	EPA 200.8	< 0.0010	0.001	

Sample Name: ADM122216-P-OF-02 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-02 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	1.29	0.01	
Lead	EPA 200.8	0.001	0.001	

Sample Name: ADM122216-P-OF-03 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-03 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	0.77	0.01	
Lead	EPA 200.8	< 0.0010	0.001	

Sample Name: ADM122216-P-WC-04 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-04 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	0.33	0.01	
Lead	EPA 200.8	< 0.0010	0.001	

Sample Name: ADM122216-P-WC-05 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-05 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	0.41	0.01	
Lead	EPA 200.8	< 0.0010	0.001	

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

WWW.RJLEEGROUP.COM

Report Template: GenMetalReportFull_v12.rpt

Approved: 01/27/17 14:37
Report Time Stamp: 01/27/17 16:47



Sample Name: ADM122216-P-OF-06 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-06 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	0.41	0.01	
Lead	EPA 200.8	0.004	0.001	

Sample Name: ADM122216-P-OF-07 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-07 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	0.74	0.01	
Lead	EPA 200.8	< 0.0010	0.001	

Sample Name: ADM122216-P-OF-08 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-08 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	0.78	0.01	
Lead	EPA 200.8	0.007	0.001	

Sample Name: ADM122216-P-WC-09 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-09 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	1.23	0.01	
Lead	EPA 200.8	0.008	0.001	

Sample Name: ADM122216-P-WC-10 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-10 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	1.35	0.01	
Lead	EPA 200.8	< 0.0010	0.001	

Sample Name: ADM122216-P-KF-11 **Matrix:** Potable Water **Date Received:** 12/22/16
RJ Lee Grp. ID: W612115-11 **Date Analyzed:** 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	0.64	0.01	
Lead	EPA 200.8	< 0.0010	0.001	



Sample Name: ADM122216-P-WC-12 **Matrix:** Potable Water
RJ Lee Grp. ID: W612115-12

Date Received: 12/22/16

Date Analyzed: 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	1.17	0.01	
Lead	EPA 200.8	0.013	0.001	

Sample Name: ADM122216-P-WC-13 **Matrix:** Potable Water
RJ Lee Grp. ID: W612115-13

Date Received: 12/22/16

Date Analyzed: 01/25/17

Analyte	Method	Result (mg/L)	PQL (mg/L)	Qualifiers
Copper	EPA 200.8	< 0.010	0.01	
Lead	EPA 200.8	< 0.0010	0.001	

Report Qualifiers:

A = Target Analyte media breakthrough suspect, see analytical report

D = Analyte analyzed in a dilution

E = Report concentration was above the instrument calibration range

J = Analyte detected below quantitation limits, concentration is estimated

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

Q = Result out of method specific acceptance QC criteria

S = Spike Recovery outside accepted recovery limits

Z = Not ELAP accredited analyte

ND = Not Detected

B = Analyte detected in the associated blank

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

H = Holding times for preparation or analysis exceeded

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

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

U = Analyte analyzed for but not detected

N/A = Not Applicable

Scientist II DeNomy Dage

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

Request for Environmental and IH Laboratory Analytical Services

W6/21/15

ATTENTION TO:		RYAN MATHEWS		Purchase Order No.:	Client Job No.:		162017						
Lab Use Only	Project No.:	Client No.:	Logged In By:	Standard:	Yes	No	If 'No', No. of Business Days:						
Report Results To	Name: Amanda Embysk, Ryan Mathews			Sample Purpose:	Information X Regulatory		Accreditation (please list below):						
	Company: Fulcrum Environmental Consulting			System ID #:									
	Address: 406 North 2nd Street			DOH Source #:									
	City, State, Zip: Yakima, WA, 98901			Multiple Sources #:									
	Phone: (509) 574-0839	Fax: (509) 575-8453		Sample Purpose: A <input type="checkbox"/> B <input type="checkbox"/> Other <input type="checkbox"/>									
	Call with Verbal Results:	aembysk@fulcrum.net	CC: rmathews@fulcrum.net	Preservation:	H ₂ SO ₄	Matrix:	WW=Wastewater	SW=Surface Water					
	Email Results To:			4°C	HCl	GW=Groundwater	GW=Groundwater	DW=Drinking Water					
	Fax Results To:			HNO ₃	NaOH	S=Soil/Sludge	S=Soil/Sludge	O=Oil					
	Name: Lorrie Boutilier			Other	Na ₂ SO ₄	E=Extract	E=Extract	X=Other					
Send Invoice To	Company: Fulcrum Environmental	Email: lboutilier@fulcrum.net		Analysis Requested					Container:				
	Address: 406 North 2nd Street								P=Plastic				
	City, State, Zip: Yakima, WA, 98901								G=Glass				
	Phone: (509) 574-0839	Fax: (509) 575-8453							W=Wipe				
									A=Air (filter or tube)				
Special Instructions	Client Sample ID	Sample Description	Sample Date	Sample Time	Start	Stop	Wipe Area / Air Volume	Pres. Upon Receipt (Y/N)	Preservation	Matrix	Container Type	pH	No. Containers
	ADM122216-P-07-01	mail logy room behind reception	12/21/16						UNPR	DW			14.5
	ADM122216-P-07-02	lab X room 141											15.1
	ADM122216-P-07-03	lab room 152											15.1
	ADM122216-P-07-04	1st floor main entry, W											14.7
	ADM122216-P-07-05	1st floor minority, E											14.8
	ADM122216-P-07-06	Board room C											14.8
	ADM122216-P-07-07	Storage, Room 167											15.0
	ADM122216-P-07-08	1st floor breakroom											15.0
	ADM122216-P-07-09	1st floor hallway outside											14.6
	ADM122216-P-07-10	2nd floor reception, S											15.1
	ADM122216-P-07-11	2nd floor breakroom 216											15.1
Chain of Custody	Relinquished By (Signature):	Relinquished To:	Date: 12/22/16	Time: 1545	Method of Shipment:								
Chain of Custody	Relinquished By (Print Name):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Signature):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Print Name):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Signature):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Print Name):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Signature):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Print Name):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Signature):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Print Name):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Signature):	Relinquished To:	Date:	Time:	Method of Shipment:								
Chain of Custody	Relinquished By (Print Name):	Relinquished To:	Date:	Time:	Method of Shipment:								

Pennsylvania - HQ
350 Hochberg Road
Monroeville, PA 15146
724.325.1776 Phone
724.733.1799 Fax

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



ATTACHMENT E

Remedial Analytical Results





Fulcrum Environmental

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

**RE: Kennewick School District - Administration Drinking Water Sam
Work Order Number: 1702135**

February 14, 2017

Attention Ryan Mathews:

Fremont Analytical, Inc. received 14 sample(s) on 2/13/2017 for the analyses presented in the following report.

Drinking Water Metals by EPA Method 200.8

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager



CLIENT: Fulcrum Environmental
Project: Kennewick School District - Administration
Work Order: 1702135

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1702135-001	ADM21117-P-OF-01	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-002	ADM21117-S-OF-01	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-003	ADM21117-T-OF-01	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-004	ADM21117-P-OF-02	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-005	ADM21117-S-OF-02	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-006	ADM21117-T-OF-02	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-007	ADM21117-P-WC-09	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-008	ADM21117-S-WC-09	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-009	ADM21117-T-WC-09	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-010	ADM21117-P-WC-10	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-011	ADM21117-S-WC-10	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-012	ADM21117-T-WC-10	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-013	ADM21117-P-WC-12	02/11/2017 10:00 AM	02/13/2017 9:05 AM
1702135-014	ADM21117-P-WC-13	02/11/2017 10:00 AM	02/13/2017 9:05 AM

CLIENT: Fulcrum Environmental
Project: Kennewick School District - Administration Drinking Water Sampling

WorkOrder Narrative:

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Prep Sample Comments:

1702135-001A 206638: Prep Comments for EPA200.8, Sample 1702135-001A: Turbidity: 0.35 NTU
1702135-004A 206639: Prep Comments for EPA200.8, Sample 1702135-004A: Turbidity: 0.34 NTU
1702135-007A 206640: Prep Comments for EPA200.8, Sample 1702135-007A: Turbidity: 0.01 NTU
1702135-010A 206641: Prep Comments for EPA200.8, Sample 1702135-010A: Turbidity: 0.27 NTU
1702135-013A 206642: Prep Comments for EPA200.8, Sample 1702135-013A: Turbidity: 0.09 NTU
1702135-014A 206643: Prep Comments for EPA200.8, Sample 1702135-014A: Turbidity: 0.19 NTU

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



CLIENT: Fulcrum Environmental
Project: Kennewick School District - Administration Drinking Water Sampling

Lab ID: 1702135-001 **Collection Date:** 2/11/2017 10:00:00 AM
Client Sample ID: ADM21117-P-OF-01 **Matrix:** Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Drinking Water Metals by EPA Method 200.8</u>				Batch ID: 16209		Analyst: TN
Copper	908	0.500		µg/L	1	2/13/2017 6:50:19 PM

Lab ID: 1702135-004 **Collection Date:** 2/11/2017 10:00:00 AM
Client Sample ID: ADM21117-P-OF-02 **Matrix:** Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Drinking Water Metals by EPA Method 200.8</u>				Batch ID: 16209		Analyst: TN
Copper	1,120	0.500		µg/L	1	2/13/2017 6:53:55 PM

Lab ID: 1702135-007 **Collection Date:** 2/11/2017 10:00:00 AM
Client Sample ID: ADM21117-P-WC-09 **Matrix:** Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Drinking Water Metals by EPA Method 200.8</u>				Batch ID: 16209		Analyst: TN
Copper	406	0.500		µg/L	1	2/13/2017 6:57:31 PM



CLIENT: Fulcrum Environmental

Project: Kennewick School District - Administration Drinking Water Sampling

Lab ID: 1702135-010

Collection Date: 2/11/2017 10:00:00 AM

Client Sample ID: ADM21117-P-WC-10

Matrix: Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Drinking Water Metals by EPA Method 200.8

Batch ID: 16209

Analyst: TN

Copper	341	0.500		µg/L	1	2/13/2017 7:01:07 PM
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Lab ID: 1702135-013

Collection Date: 2/11/2017 10:00:00 AM

Client Sample ID: ADM21117-P-WC-12

Matrix: Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Drinking Water Metals by EPA Method 200.8

Batch ID: 16209

Analyst: TN

Copper	1,260	0.500		µg/L	1	2/13/2017 7:04:44 PM
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Lab ID: 1702135-014

Collection Date: 2/11/2017 10:00:00 AM

Client Sample ID: ADM21117-P-WC-13

Matrix: Drinking Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Drinking Water Metals by EPA Method 200.8

Batch ID: 16209

Analyst: TN

Copper	ND	0.500		µg/L	1	2/13/2017 7:08:20 PM
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Work Order: 1702135
CLIENT: Fulcrum Environmental
Project: Kennewick School District - Administration

QC SUMMARY REPORT
Drinking Water Metals by EPA Method 200.8

Sample ID MB-16209	SampType: MBLK	Units: µg/L	Prep Date: 2/13/2017	RunNo: 34433							
Client ID: MBLKW	Batch ID: 16209	Analysis Date: 2/13/2017	SeqNo: 657246								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Copper ND 0.500

Sample ID LCS-16209	SampType: LCS	Units: µg/L	Prep Date: 2/13/2017	RunNo: 34433							
Client ID: LCSW	Batch ID: 16209	Analysis Date: 2/13/2017	SeqNo: 657247								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Copper 92.0 0.500 100.0 0 92.0 85 115

Sample ID 1702133-004ADUP	SampType: DUP	Units: µg/L	Prep Date: 2/13/2017	RunNo: 34433							
Client ID: BATCH	Batch ID: 16209	Analysis Date: 2/13/2017	SeqNo: 657249								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Copper ND 0.500 0 30

Sample ID 1702133-004AMS	SampType: MS	Units: µg/L	Prep Date: 2/13/2017	RunNo: 34433							
Client ID: BATCH	Batch ID: 16209	Analysis Date: 2/13/2017	SeqNo: 657250								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Copper 186 0.500 200.0 0 93.1 70 130

Sample ID 1702133-004AMSD	SampType: MSD	Units: µg/L	Prep Date: 2/13/2017	RunNo: 34433							
Client ID: BATCH	Batch ID: 16209	Analysis Date: 2/13/2017	SeqNo: 657251								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Copper 189 0.500 200.0 0 94.4 70 130 186.2 1.37 30

Client Name: **FE**
 Logged by: **Erica Silva**

Work Order Number: **1702135**
 Date Received: **2/13/2017 9:05:00 AM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? FedEx

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >0°C to 10.0°C* Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 HNO3 to 002A, 003A, 005A, 006A, 008A, 009A
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	6.3
Sample	6.7

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

