

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: KSD Drinking Water - Chinook MS Work Order Number: 1708167

August 16, 2017

Attention Ryan Mathews:

Fremont Analytical, Inc. received 17 sample(s) on 8/16/2017 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 #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Fulcrum Environmental KSD Drinking Water - Chinook MS 1708167	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1708167-001	CHK81517-P-CF-06	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-002	CHK81517-S-CF-06	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-003	CHK81517-T-CF-06	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-004	CHK81517-P-KF-20	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-005	CHK81517-S-KF-20	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-006	CHK81517-T-KF-20	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-007	CHK81517-P-CF-24	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-008	CHK81517-S-CF-24	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-009	CHK81517-T-CF-24	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-010	CHK81517-P-WC-31	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-011	CHK81517-S-WC-31	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-012	CHK81517-T-WC-31	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-013	CHK81517-P-OF-34	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-014	CHK81517-S-OF-34	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-015	CHK81517-T-OF-34	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-016	CHK81517-P-WC-35	08/15/2017 7:30 AM	08/16/2017 9:26 AM
1708167-017	CHK81517-P-WC-36	08/15/2017 7:30 AM	08/16/2017 9:26 AM



Case Narrative

WO#: **1708167** Date: **8/16/2017**

CLIENT:Fulcrum EnvironmentalProject:KSD Drinking Water - Chinook 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:

1708167-001A 231898: Prep Comments for EPA200.8, Sample 1708167-001A: Turbidity: 0.57 NTU 1708167-004A 231902: Prep Comments for EPA200.8, Sample 1708167-004A: Turbidity: 0.01 NTU 1708167-007A 231903: Prep Comments for EPA200.8, Sample 1708167-007A: Turbidity: 0.06 NTU 1708167-010A 231904: Prep Comments for EPA200.8, Sample 1708167-010A: Turbidity: 0.01 NTU 1708167-013A 231905: Prep Comments for EPA200.8, Sample 1708167-013A: Turbidity: 0.18 NTU 1708167-016A 231906: Prep Comments for EPA200.8, Sample 1708167-016A: Turbidity: 0.01 NTU 1708167-016A 231907: Prep Comments for EPA200.8, Sample 1708167-017A: Turbidity: 0.01 NTU

Qualifiers & Acronyms



WO#: **1708167** Date Reported: **8/16/2017**

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:
 1708167

 Date Reported:
 8/16/2017

CLIENT: Fulcrum Environmental

Project: KSD Drinking Water - Chinook MS	
--	--

Drinking Water Metals by EPA Method 200.8

Lab ID: 1708167-001 Client Sample ID: CHK81517-P	-CF-06		Collection Matrix: Dri		8/15/2017 7:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA M	ethod 200.8		Batch	ID: 179	22 Analyst: TN
Copper	173	0.500	µg/L	1	8/16/2017 2:49:38 PM

Lab ID: 1708167-004					8/15/2017 7:30:00 AM
Client Sample ID: CHK81517-P-KI	20		Matrix: D	rinking	Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Meth	nod 200.8		Batch	n ID: 179	922 Analyst: TN
Copper	85.9	0.500	µg/L	1	8/16/2017 2:33:32 PM
Lab ID: 1708167-007			Collection	n Date:	8/15/2017 7:30:00 AM
Client Sample ID: CHK81517-P-CI	-24		Matrix: D	rinking	Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed

0.500

409

Batch ID: 17922

1

µg/L

Original

Copper

Analyst: TN

8/16/2017 2:53:39 PM



Analytical Report

 Work Order:
 1708167

 Date Reported:
 8/16/2017

CLIENT:Fulcrum EnvironmentalProject:KSD Drinking Water - Chinook MS

Lab ID: 1708167-010 Client Sample ID: CHK81517-P-	WC-31		Collectior Matrix: D		8/15/2017 7:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me	<u>ethod 200.8</u>		Batch	n ID: 179	922 Analyst: TN
Copper	74.7	0.500	µg/L	1	8/16/2017 3:05:44 PM

Lab ID: 1708167-013 Client Sample ID: CHK8151	7-P-OF-34		Collection Matrix: D		8/15/2017 7:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EP	A Method 200.8		Batcl	n ID: 179	022 Analyst: TN
Copper	295	0.500	µg/L	1	8/16/2017 3:09:46 PM
Lab ID: 1708167-016 Client Sample ID: CHK8151	7-P-WC-35		Collection Matrix: D		8/15/2017 7:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EP	A Method 200.8		Batcl	n ID: 179	022 Analyst: TN
Copper	ND	0.500	µg/L	1	8/16/2017 3:13:47 PM



Analytical Report

 Work Order:
 1708167

 Date Reported:
 8/16/2017

CLIENT: Fulcrum Environmental Project: KSD Drinking Water - Chinook MS

Lab ID: 1708167-017 Client Sample ID: CHK81517-P-	WC-36		Collectior Matrix: D		8/15/2017 7:30:00 AM Water
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Drinking Water Metals by EPA Me	ethod 200.8		Batch	n ID: 17	922 Analyst: TN
Copper	1,400	0.500	µg/L	1	8/16/2017 3:17:49 PM



Work Order: CLIENT: Project:	Fulcrum Env	ironmental g Water - Chinook N	ИS				D		SUMMARY REP etals by EPA Method	
Sample ID MB-	17922	SampType: MBLK			Units: µg/L		Prep Date:	8/16/2017	RunNo: 38041	
Client ID: MBL	.KW	Batch ID: 17922					Analysis Date:	8/16/2017	SeqNo: 731139	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		ND	0.500							
Sample ID LCS	-17922	SampType: LCS			Units: µg/L		Prep Date:	8/16/2017	RunNo: 38041	
Client ID: LCS	w	Batch ID: 17922					Analysis Date:	8/16/2017	SeqNo: 731140	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		103	0.500	100.0	0	103	85	115		
Sample ID 1708	167-004ADUP	SampType: DUP			Units: µg/L		Prep Date:	8/16/2017	RunNo: 38041	
Client ID: CHK	81517-P-KF-20	Batch ID: 17922					Analysis Date:	8/16/2017	SeqNo: 731142	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		82.4	0.500					85.90	4.11 30	
Sample ID 1708	167-004AMS	SampType: MS			Units: µg/L		Prep Date:	8/16/2017	RunNo: 38041	
Client ID: CHK	81517-P-KF-20	Batch ID: 17922					Analysis Date:	8/16/2017	SeqNo: 731143	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		290	0.500	200.0	85.90	102	70	130		
Sample ID 1708	167-004AMSD	SampType: MSD			Units: µg/L		Prep Date:	8/16/2017	RunNo: 38041	
Client ID: CHK	81517-P-KF-20	Batch ID: 17922					Analysis Date:	8/16/2017	SeqNo: 731144	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD RPDLimit	Qual
Copper		279	0.500	200.0	85.90	96.4	70	130 290.1	4.03 30	



Sample Log-In Check List

C	ient Name:	FE	Work Order Numl	ber: 1708167	
Lo	ogged by:	Clare Griggs	Date Received:	8/16/2017	9:26:00 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>UPS</u>		
Log	In				
-	Coolers are p	present?	Yes 🔽	No 🗌	
4.	Shipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌	
5.		Is present on shipping container/cooler? Inments for Custody Seals not intact)	Yes	No 🗌	Not Required 🗹
6.	Was an atter	npt made to cool the samples?	Yes 🖌	No 🗌	
7.	Were all item	is received at a temperature of $>0^{\circ}C$ to $10.0^{\circ}C^{*}$	Yes 🔽	No 🗌	
8.	Sample(s) in	proper container(s)?	Yes 🔽	No 🗌	
9.	Sufficient sar	nple volume for indicated test(s)?	Yes 🖌	No 🗌	
10.	Are samples	properly preserved?	Yes 🖌	No 🗌	
11.	Was preserv	ative added to bottles?	Yes 🗹	No 🗌	NA 🗌
12.	Is there head	space in the VOA vials?	Yes	No 🗌	HNO3 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 🗹
	By Who Regardi		a de la constante de la consta	one 🗌 Fax	In Person
19.	Additional rei	narks:			

Item Information

lte	em #	Temp ⁰C
Cooler		2.2
Sample		2.4

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

				×				(
TAT → SameDay^ NextDay^ 2 Day 3 Day STD		Date/Time	1	Received	No.		Date/fime	Date	Relinquished
TAT: AS AT	20-17 0926	Date/Time	5	Received x		1600	Date/Time	Che Blater	Relinquished
	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 a greement to each of the terms on the front and backside of this Agreement.	t named above, that	behalf of the Client	t Analytical on	Agreement	reement w side of this	r into this Ag ont and back	authorized to ente he terms on the fr	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.
place procence all unpreserved	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.)	0 days unless otherwis lays.)	Disposal by Lab (Samples will be held for 30 day assessed if samples are retained after 30 days.)	Lab (Samples samples are re	Disposal by assessed if		Return to Client	Sample Disposal:
Special Remarks:	Turn-around times for samples received after 4:00pm will begin	Nitrate+Nitrite	hate Fluoride	le O-Phosphate	Bromide	Sulfate	Chloride	Nitrate Nitrite	***Anions (Circle): N
Sb Se Sr Sn Ti Tl U V Zn	e Hg K Mg Mn Mo Na Ni Pb	Ca Cd Co Cr	Ag Al As B Ba Be	Individual: 1	ints TAL	Priority Pollutants	RCRA-8 Pr	MTCA-5	**Metals Analysis (Circle):
	 ⊗	8	10 mm		R	¢	Ł	P-wc-31	10CHK81517-P-wc-31
e				•			1.1.1	T-CF-24	, CHK81517-T-
HOLD; unpre.				17 - 17 - 17 - 17 - 17 - 17 - 17 - 17 -				-CF-24	8 CHK81517-S-CF-24
	8	Ø	the first size of the state	100		191 m		- CF-24	CHK81517-8-CF-24
t			and the second s	and the second				-KF-70	6 CHK81517-T-KF-
HOLD; MARC.						_		5-KF-20	CHK81517-5-KF-20
Contraction of the second second second second	 ⊘*	8	111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				-KF-20	C#281517-P-KF-20
←								-CF-06	3 CHK81517 -T-CF-06
Hold; unpr.			a state a serie a sur	100 - 100 -	-	-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-CF-06	2 (4KB/617-5-CF-06
		8			DW	730	8/15/2017	8-45-06	1CHK81517-P-
SW = Storm water, ww = waste water	val. 11. 24. 49. 19. 19. 19. 19. 19. 19. 19. 19. 19. 1	Contraction (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	1980 Alland	r = Product, s = soll, su = sediment, st = sample Sample Sample Cover Type Type Cover Time (Matrix)* SC-Cover Sample Sample Cover Time Sample Sample Stream	Sample (Matrix)*		Sample Date	AQ = Aqueous, 8 =	Sample Name
fulcrum.net	pefulcrum.net; cc: aer		PM Email:	53	Fax: 509.575.8453		•		
	thews	o (PM): Ryan Mathews	Report To (PM):				4, 98901	Yakima, WA, 98901	City, State, Zip:
	Chinook Middle School, Kennewick, WA		Location:	No. 1 To A	d Date UN	et	406 North Second Street	406 North	Address:
Collected by: Amanda Enbysk	162017.28 Colle		Project No:			onsulting	Fulcrum Environmental Consulting	Fulcrum Env	Client:
Page: of:	Water - Chinook MS	Name: KSD Drinking	Project Name:			[∞] C	Tel: 206-352-3790 Fax: 206-352-7178	~	3600 Fremont Ave N. Seattle, WA 98103
15/2017 Laboratory Project No (internal): 108/07		Date: 8					non	remo	
horstory Corvines Agreem		frictody	Chain a						ANCI A FACE

APlease coordinate with the lab in advance		×				
TAT → SameDay^ NextDay^ 2 Day 3 Day STD	Date/Time	leceived		ıe	Date/Time	Relinquished
	Date/Time 114/2017 0924	Received		17; 1600	Control Date/Time	Refinquished M
see fage I	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 a spreament to each of the terms on the front and backside of this Agreement.	nt with Fremont Ar this Agreement.	o this Agreemer and backside of	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.	represent that I am greement to each of t
	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.)	Disposa assesse	Return to Client	Sample Disposal:
Special Remarks:	Turn-around times for samples received after 4:00pm will begin	O-Phosphate Fluoride Nitrate	Sulfate Bromide	Chloride Sul	Nitrate Nitrite	**Anions (Circle): N
Sb Se Sr Sn Ti TI U V Zn	Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb	Individual: Ag Al As B Ba Be Ca Cd C	llutants TAL	-8 Priority Pollutants	le): MTCA-5 RCRA-8	**Metals Analysis (Circle):
				A ST A ST A	de la serie	10
			E	C		
			10	D		
	8		2	e e		CHK81517-P- WC-36
					-WC-35	CHK81517-8-WC-35
¢					-0F-34	CHK81517-T-0F-34
How; uppr.					-0F-34	CHK81517-5-0F-34
	8				P-0F-34	CHK81517-P-0F-34
¢					r-wc-31	CHK81517 - T-WC-31
town; upp.			DW	8/15/2017 730		CHK81517-5-WC-31
SW = Storm Water, WW = Waste Water	ng Water, GW = Ground Water, 9 9 9 9 9 9 9 9 9 9 9 9 9	SL = Solid, W = Water,	Sample Type (Matrix)*	0 = Other, ple Date	AQ = Aqueous, B = Bulk,	*Matrix Codes: A = Air, Sample Name
ulcrum.net	crum.net; cc: ae	PM Email:	Fax: 509.575.8453		509.574.0839	
	Ryan Mathews	Report To (PM):	THE REPORT OF A DESCRIPTION OF A DESCRIP	3901	Yakima, WA, 98901	City, State, Zip:
	Chinook Middle School, Kennewick, WA	Location:		ond Street	406 North Second Street	Address:
Collected by: Amanda Enbysk	162017.28 Colle	Project No:	50	Fulcrum Environmental Consulting	Fulcrum Environ	Client:
Page: & of: A	KSD Drinking Water - Chinook MS	Project Name:		352-3790 352-7178	N. Tel: 206-352-3790 3 Fax: 206-352-7178	3600 Fremont Ave N. Seattle, WA 98103
Laboratory Project No (internal):	Date: 8/15/2017			ylical		
cord and Laboratory Services Agreement	stody Record and Lal	Chain of Custody Re				ANALU -