1411 East Mission Avenue
PO Box 3727
Spokane, WA 99220-3727

April 13, 2018

Department of Ecology
Water Quality Permit Coordinator
4601 North Monroe
Spokane, WA 99205-1295

Subject: NPDES Permit No. WA0045217 Kettle Falls Generating Station Renewal Application

Avista Corporation (Avista) is submitting this application for NPDES renewal that reflects upcoming replacement of process water treatment with a more robust reverse osmosis system. There are no changes to the industrial wastewater treatment at this facility.

Three (3) EPA Application Forms and their required supporting documents for the renewal of above-referenced permit are attached as follows along with a revised Engineering Report for the facility:

1. **3510-1 General Information**
   XI Topographic Map
2. **3510-2C Wastewater Discharge**
   IIA Process Flow Diagram
   Sample Results
3. **3510-2F Stormwater Discharge Associated with Industrial Activity**
   III Site Drainage Map
4. **Revised Engineering Report**

Additionally, Avista has compiled available water quality data and performed preliminary potential permit limit calculations. This information is provided in two spreadsheets submitted electronically only (excluded from hard copy).

Please call me at (509) 495-4738 with any questions regarding this application. We appreciate your attention to this application and look forward to working with you to obtain the final permit renewal.

Sincerely,

Kevin Booth
Senior Environmental Scientist
Avista Corporation

This form is equivalent to EPA Form 3510-1

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

FORM 1 GENERAL

EPA DEPARTMENT OF ECOLOGY State of Washington

U.S. ENVIRONMENTAL PROTECTION AGENCY/ECOLOGY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

1. Current permit I.D.

		T/A	C
	WA0045217		D
		14	15

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit a NPDES permit application forms to Ecology. If you answer "yes" to any questions, you must submit this form and the supplemental from listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

	MARK "X"				MARK "X"		
	YES	NO	FORM ATTACHED		YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.?** (FORM 2A)	☐	☒	☐	B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.?** (FORM 2B)	☐	☒	☐
C. Is this facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C) Does this facility operate a cooling water intake structure? (FORM 2C Supplemental)	☒ ☐	☐ ☒	☒ ☐	D. Is this proposal facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.?** (FORM 2D)	☐	☒	☐
E. Does or will this facility treat, store, or dispose of **hazardous wastes?** (FORM 3)	☐	☒	☐	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	☐	☒	☐
G. Do you or will you inject at this facility any produced water other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)	☐	☒	☐	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfer by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	☐	☒	☐
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentialiy emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area?** (FORM 5)	☐	☒	☐	J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area?** (FORM 5)	☐	☒	☐

III. NAME OF FACILITY

C 1	***Kettle Falls Generating Station***

IV. FACILITY CONTACT

	A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2	***Wiggins, Gregory, Plant Manager***	***509 738 1505***

	B. EMAIL ADDRESS	C. Does the facility have or can it obtain broadband internet access?
C 2	***Gregory.Wiggins@avistacorp.com***	☒ Yes ☐ No

V. FACILITY MAILING ADDRESS

	A. STREET OR P.O. BOX
C 3	***P.O. Box 609***

	B. CITY OR TOWN	C. STATE	D. ZIP CODE
C 4	***Kettle Falls***	***WA***	***99141***

VI. FACILITY LOCATION

	A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER
C 5	***1151 Highway 395 North***

B. COUNTY NAME
Stevens

	C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE
C 6	***Kettle Falls***	***WA***	***99141***	***n/a***

	D. LATITUDE/LONGITUDE (NAD 83 DATUM)
7	LATITUDE AS DECIMAL DEGREES– N4 48.6196
	LONGITUDE AS DECIMAL DEGREES – W1 118.1116

CONTINUED FROM THE FRONT

VII. SIC, NAICS CODES *(in order of priority)* **AND UBI NUMBER** *Place additional on an attachment.*

SIC FIRST			SIC. SECOND	
C 7	4911	(specify) Electric services	7 7	(specify)
EQUIVALENT NAICS FIRST			**EQUIVALENT NAICS SECOND**	
C 7	221117	(specify) Biomass electric power generation	7 7	(specify)

UBI NUMBER - 328-000-223

VIII. OPERATOR INFORMATION

A. NAME: C 8 — Avista Corporation

B. Is the name listed in Item VIII-A also the owner? ☒ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other," specify.)*
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC *(other than federal or state)*, O = OTHER *(specify)*
P (specify)

D. PHONE *(area code & no.)*: C A — 509 489 0500

E. STREET OR PO BOX: 1411 East Mission Avenue

F. CITY OR TOWN: C B — Spokane

G. STATE: WA

H. ZIP CODE: 99202

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)* C 9 T N I	WA0045217	D. PSD *(Air Emissions from Proposed Sources)* C 9 T P 8	X80-11
B. UIC *(Underground Injection of Fluids)* C 9 T U I		E. OTHER *(specify)* C 9 T 8	07AQ-E231 (Specify) AOP
C. RCRA *(Hazardous Wastes)* C 9 T R I		E. OTHER *(specify)* C 9 T 8	(Specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

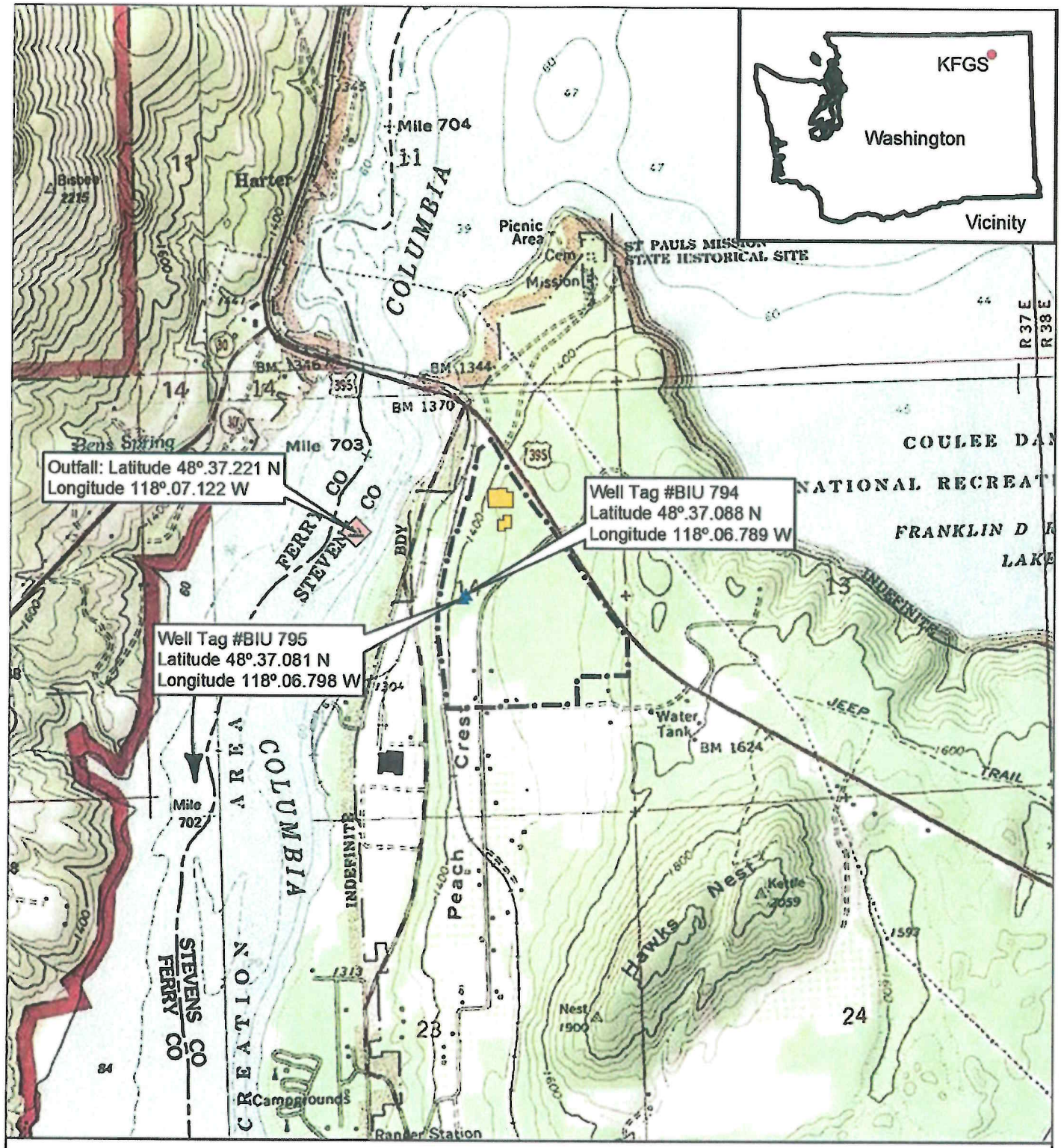
XII. NATURE OF BUSINESS *(provide a brief description)*

The Kettle Falls Generating Station is a wood-waste fired steam-electrical generating facility.

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Dennis Vermillion, President, Avista Corporation	Dennis Vermillion	4/13/2018



AVISTA

Kettle Falls Generation Station

Site Location and Surrounding Topography

Date: 09-22-2017

Please type or print in the unshaded areas only

EPA ID Number *(Copy from Item 1 of Form 1)*
WA0045217

Form Approved
OMB No. 2040-0086
Approval expires 8-31-98

Form **2C** NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. Outfall Location

For this outfall, list the latitude and longitude, (degrees, min.xxxx) and name of the receiving water(s)

Outfall Number *(list)*	Latitude		Longitude		Receiving Water *(name)*
	Deg	Min	Deg	Min	
1	*48*	*37.221*	*118*	*07.122*	*Lake Roosevelt, Columbia River*

II. Flows, Sources of Pollution, and Treatment Technologies

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed description in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictoral description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. Outfall No. (list)	2. Operations Contributing Flow		3. Treatment		
	a. OPERATION *(list)*	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
1	*Cooling Tower*	*138,316 GPD*	*Sedimentation*	*1*	*U*
1	*Process and Boiler*	*13,200 GPD*	*Sedimentation*	*1*	*U*
1	*Reverse Osmosis Reject*	*192,010 GPD*	*Sedimentation*	*1*	*U*

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☒ **YES** *(complete the following table)* ☐ **NO** *(go to Section III)*

1. OUTFALL NUMBER (list)	2. OPERATION(s) CONTRIBUTING FLOW *(list)*	3. FREQUENCY a. DAYS PER WEEK *(specify average)*	3. FREQUENCY b. MONTHS PER YEAR *(specify average)*	4. FLOW a. FLOW RATE *(in mgd)* 1. LONG TERM AVERAGE	4. FLOW a. FLOW RATE *(in mgd)* 2. MAXIMUM DAILY	4. FLOW b. TOTAL VOLUME *(specify with units* 1. LONG TERM AVERAGE	4. FLOW b. TOTAL VOLUME *(specify with units* 2. MAXIMUM DAILY	4. FLOW c. DURATION *(in days)*
	Intermittent							
1	***Total Operations***	***5.7***	***10***	****0.4920***	***0.5***	***0.1934***	***0.5***	***299***
	as listed in II-B 2	***AVE***	***AVE***			***MGD***	***MGD***	
	****Instantaneous***							
	342 gpm flow							
	over an 8-12 hr							
	discharge within							
	a 24 hr period							

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☐ **YES** *(complete Item III-B)* ☒ **NO** *(go to Section IV)*

B. Are the limitations in the applicable effluent guideline expressed in terms of production *(or other measure of operation)*?

☐ **YES** *(complete Item III-C)* ☒ **NO** *(go to Section IV)*

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*	2. AFFECTED OUTFALLS *(list outfall numbers)*

IV. IMPROVEMENTS

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ **YES** *(complete the following table)* ☒ **NO** *(go to Item IV-B)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS a. No	2. AFFECTED OUTFALLS b. SOURCE OF DISCHARGE	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE a. REQUIRED	4. FINAL COMPLIANCE DATE b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs *(or other environmental projects which may affect your discharges)* you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☐ **MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAM IS ATTACHED**

 CONTINUED ON PAGE 3

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding - Complete one set of tables or each outfall - Annotate the outfall number in the space provided. **NOTE:** Tables V-A, V-B, and V-C are included on separate sheets number V-1 through V-9.

D: Use the space below t list any of the pollutants listed in Tables 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ **YES** *(list all such pollutants below)* ☒ **NO** *(go to Item VI-B)*

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ **YES** *(identify the test(s) and describe their purpose below)* ☒ **NO** *(go to Section VIII)*

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ **YES** *(list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)* ☐ **NO** *(go to Section IX)*

A. NAME	B. ADDRESS	C. TELEPHONE *(area code & no.)*	D. POLLUTANTS ANALYZED *(list)*
Edge Analytical, Inc. -	1620 S Walnut St	((360) 757-1400)	See Lab Sampling
Sampling Analysis	Burlington, WA 98223	( )	Results Attachment
		( )	
Schwyn Environmental	4621 S Custer Court	((509) 448-3187)	All Pollutants on Lab
Services, LLC -	Spokane, WA 99223	( )	Sampling Results
Sample Collection		( )	Attachment
		( )	
Anatek Labs, Inc.	504 E Sprague, Suite D	(509) 838-3999	See Lab Sampling
Sampling Analysis	Spokane, WA 99202	( )	Results Attachment
		( )	
		( )	
		( )	
		( )	
		( )	

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE *(type or print)*	B. PHONE NO. *(area code & no.)*
Dennis Vermillion, President, Avista Utilities	(509) 495-4752
C. SIGNATURE	D. DATE SIGNED
	4/13/2018

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*
WA0045217

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT						d. NO. OF ANALYSIS	3. UNITS *(specify if blank)*		4. INTAKE *(optional)*		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*					a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS		a. CONCEN-TRATION	b. MASS	(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand *(BOD)*	***ND***	***0.00***					***1***	***mg/l***	***g***			
b. Chemical Oxygen Demand *(COD)*	***31.3***	***59.24***					***1***	***mg/l***	***g***			
c. Total Organic Carbon *(TOC)*	***6.53***	***12.36***					***1***	***mg/l***	***g***			
d. Total Suspended Solids *(TSS)*	***5***	***9.46***					***1***	***mg/l***	***g***			
e. Ammonia *(as N)*	***0.05***	***0.09***					***1***	***mg/l***	***g***			
f. Flow	Value ***500,000***		Value		Value		***1***	***GPD***		Value		
g. Temperature *(winter)*	Value ***18.3***		Value		Value ***17.7***		***3***	°C		Value		
h. Temperature *(summer)*	Value ***26.7***		Value		Value ***22.2***		***26***	°C		Value		
i. pH	Minimum ***6.0***	Maximum ***9.1***	Minimum	Maximum			***54***	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitation guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'		3. EFFLUENT						d. NO. OF ANALYSIS	4. UNITS *(specify if blank)*		5. INTAKE *(optional)*		
	a. BELIEVED PRESENT	B. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*					a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS		a. CONCEN-TRATION	b. MASS	(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)	☒	☐	***0.05***	***0.09***					***1***	***mg/l***	***g***			
b. Chlorine, Total Residual	☒	☐	***0.03***	***0.06***					***1***	***mg/l***	***g***			
c. Color	☒	☐	***5***	***0.00***					***1***	***color units***				
d. Fecal Coliform	☐	☒	***<1.8***						***1***	***100/ml***				
e. Fluoride (16984-48-8)	☒	☐	***1.13***	***2.14***					***1***	***mg/l***	***g***			
f. Nitrate-Nitrite *(as N)*	☒	☐	***3.79***	***7.17***					***1***	***mg/l***	***g***			

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'		3. EFFLUENT							4. UNITS *(specify if blank)*		5. INTAKE *(optional)*		
	a. BELIEVED PRESENT	B. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic *(as N)*	☒	☐	*0.65*	*1.23*					*1*	*mg/l*	*g*			
h. Oil and Grease	☒	☐	*1.3*	*2.46*					*1*	*mg/l*	*g*			
i. Phosphorus *(as P)*, Total (7723-14-0)	☒	☐	*1.45*	*2.74*					*1*	*mg/l*	*g*			
j. Radioactivity														
(1) Alpha, Total	☒	☐	*14.9*						*1*	*pCi/l*				
(2) Bets, Total	☒	☐	*9.70*						*1*	*pCi/l*				
(3) Radium, Total	☒	☐	*1.74*						*1*	*pCi/l*				
(4) Radium 226, Total	☒	☐	*1.33*						*1*	*pCi/l*				
k. Sulfate *(as SO_4) (14808-79-8)*	☒	☐	*714*	*1351.4*					*1*	*mg/l*	*g*			
l. Sulfide (as S)	☐	☒	*ND*						*1*					
m. Sulfite *(as SO_3)(14265-45-3)*	☐	☒	*ND*						*1*	*mg/l*				
n. Surfactants	☐	☒	*ND*						*1*	*mg/l*				
o. Aluminum, Total (7429-90-5)	☐	☒	*ND*						*1*	*ug/l*				
p. Barium, Total (7440-39-3)	☒	☐	*305*	*0.58*					*1*	*ug/l*	*g*			
q. Boron, Total (7440-42-8)	☒	☐	*260*	*0.49*					*1*	*ug/l*	*g*			
r. Cobalt, Total (7440-48-4)	☒	☐	*0.6*	*0.00*					*1*	*ug/l*	*g*			
s. Iron, Total (7439-89-4)	☒	☐	*130*	*0.25*					*1*	*ug/l*	*g*			
t. Magnesium, Total (7439-95-4)	☒	☐	*73700*	*139.49*					*1*	*ug/l*	*g*			
u. Molybdenum, Total (7439-98-7)	☒	☐	*20.0*	*0.04*					*1*	*ug/l*	*g*			
v. Manganese, Total (7439-96-5)	☒	☐	*2.00*	*0.00*					*1*	*ug/l*	*g*			
w. Tin, Total (7440-31-5)	☒	☐	*7.10*	*0.01*					*1*	*ug/l*	*g*			
x. Titanium, Total (7440-32-6)	☐	☐	*13.0*	*0.02*					*1*	*ug/l*	*g*			

CONTINUED FROM PAGE 3 OF FORM 2-C

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*	OUTFALL NUMBER
WA0045217	*1*

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant. If you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table *(all 7 pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS *(specify if blank)*		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1m. Antimony, Total (7440-36-0)	☒	☐	☐	*2.1*	*0.00*					*1*	*ug/l*	*g*			
2M. Arsenic, Total (7440-38-2)	☒	☐	☐	*8.7*	*.02*					*1*	*ug/l*	*g*			
3M. Beryllium, Total (7440-41-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
4M. Cadmium, Total (7440-43-9)	☒	☐	☐	*ND*						*1*	*ug/l*				
5M Chromium, Total (7440-47-3)	☒	☐	☐	*5.1*	*0.01*					*1*	*ug/l*	*g*			
6M Copper, Total (7440-50-8)	☒	☐	☐	*0.6*	*0.00*					*1*	*ug/l*	*g*			
7M lead, Total (7439-92-1)	☒	☐	☐	*0.1*	*0.00*					*1*	*ug/l*	*g*			
8M Mercury, Total (7439-97-6)	☒	☐	☐	*0.00599*	*0.000*					*2*	*ug/l*	*g*			
9M Nickel, Total (7440-02-0)	☒	☐	☐	*0.7*	*0.00*					*1*	*ug/l*	*g*			
10M Selenium, Total (7782-49-2)	☒	☐	☐	*3.6*	*0.01*					*1*	*ug/l*	*g*			
11M Silver, Total (7440-22-4)	☒	☐	☐	*ND*						*1*	*ug/l*				
12M Thallium, Total (7440-28-0)	☒	☐	☐	*ND*						*1*	*ug/l*				
13M Zinc, Total (7440-66-6)	☒	☐	☐	*13.0*	*0.02*					*1*	*ug/l*	*g*			
14M Cyanide, Total (57-12-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
15M Phenols, Total	☒	☐	☐	*ND*						*1*	*ug/l*				
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764--01-6)	☒	☐	☐	DESCRIBE RESULTS *ND*											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'			3. EFFLUENT						d. NO. OF ANALYSIS	4. UNITS *(specify if blank)*		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*					a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS		a. CONCENTRATION	b. MASS	(1) CONCENTRATION	(2) MASS	
GC/MS - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☒	☐	☐	ND						1	ug/l				
2V. Acrylonitrile (107-13-1)	☒	☐	☐	ND						1	ug/l				
3V. Benzene (71-43-2)	☒	☐	☐	ND						1	ug/l				
4V. Bis (Chloromethyl) Ether (542-88-1)	☒	☐	☐	ND						1	ug/l				
5V. Bromoform (75-25-2)	☒	☐	☐	ND						1	ug/l				
6V. Carbon Tetrachloride (56-23-5)	☒	☐	☐	ND						1	ug/l				
7V. Chlorobenzene (108-90-7)	☒	☐	☐	ND						1	ug/l				
8V. Chlorodibromomethane (124-48-1)	☒	☐	☐	ND						1	ug/l				
9V. Chloroethane (75-00-3)	☒	☐	☐	ND						1	ug/l				
10V. 2-Chloroethylvinyl Ether (110-75-8)	☒	☐	☐	ND						1	ug/l				
11V. Chloroform (67-66-3)	☒	☐	☐	0.7	0.00					1	ug/l	g			
12V. Dichlorobromoethane (75-27-4)	☒	☐	☐	ND						1	ug/l				
13V. Dichlorodifluoromethane (75-71-8)	☒	☐	☐	ND						1	ug/l				
14V. 1,1-Dichloroethane (75-27-3)	☒	☐	☐	ND						1	ug/l				
15V. 1,2-Dichloroethane (107-06-2)	☒	☐	☐	ND						1	ug/l			-	
16V. 1,1-Dichloroethylene (7535-4)	☒	☐	☐	ND						1	ug/l				
17V. 1,2-Dichloropropane (78-87-5)	☒	☐	☐	ND						1	ug/l				
18V. 1,3-Dichloropropylene (542-75-6)	☒	☐	☐	ND						1	ug/l				
19V. Ethylbenzene (100-41-4)	☒	☐	☐	ND						1	ug/l				
20V. Methyl Bromide (74-83-9)	☒	☐	☐	ND						1	ug/l				
21V. Methyl Chloride (74-87-3)	☒	☐	☐	ND						1	ug/l				

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: *WA0045217*

OUTFALL NUMBER: *1*

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'			3. EFFLUENT						d. NO. OF ANALYSIS	4. UNITS *(specify if blank)*		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*			a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS - VOLATILE COMPOUNDS *(continued)*															
22.V. Methylene Chloride (75-09-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
23V. 1,1,2,2-Tetra-Chloroethane (79-34-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
24V. Tetrachloro-ethylene (127-18-4)	☒	☐	☐	*ND*						*1*	*ug/l*				
25V. Toluene (108-88-3)	☒	☐	☐	*ND*						*1*	*ug/l*				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
27V. 1,1,1-Tri-chloroethane (71-55-6)	☒	☐	☐	*ND*						*1*	*ug/l*				
28V. 1,1,2-Tri-chloroethane (79-00-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
29V. Trichloro-ethylene (79-01-6)	☒	☐	☐	*ND*						*1*	*ug/l*				
30V. Trichloro-fluoromethane (75-69-4)	☒	☐	☐	*ND*						*1*	*ug/l*				
31V. Vinyl Chloride (75-01-4)	☒	☐	☐	*ND*						*1*	*ug/l*				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☒	☐	☐	*ND*						*1*	*ug/l*				
2A. 2,4-Dichloro-phenol (120-83-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
3A. 2,4-Dimethyl-phenol (105-67-9)	☒	☐	☐	*ND*						*1*	*ug/l*				
4A. 4,6-Dinitro-O-cresol (534-52-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
5A. 2,4-Dinitro-phenol (51-28-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
6A. 2-Nitro-phenol (88-75-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
7A. 4-Nitro-phenol (100-02-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
8A. P-Chloro-M-Cresol (59-50-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
9A. Penta-chlorophenol (87-86-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
10A. Phenol (108-95-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
11A. 2,4,6-Tri-chlorophenol (88-06-2)	☒	☐	☐	*ND*						*1*	*ug/l*				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'			3. EFFLUENT						d. NO. OF ANALYSIS	4. UNITS *(specify if blank)*		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*			a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenphthene (83-32-9)	☒	☐	☐	ND						1	ug/l				
2B. Acenaphtylene (208-96-8)	☒	☐	☐	ND						1	ug/l				
3B. Anthracene (120-12-7)	☒	☐	☐	ND						1	ug/l				
4B. Benzidine (92-87-5)	☒	☐	☐	ND						1	ug/l				
5B. Benzo (a) Anthracene (56-55-3)	☒	☐	☐	ND						1	ug/l				
6B. Benzo (a) Pyrene (50-32-8)	☒	☐	☐	ND						1	ug/l				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☒	☐	☐	ND						1	ug/l				
8B. Benzo (ghi) Perylene (191-24-2)	☒	☐	☐	ND						1	ug/l				
9B. Benzo (k) Fluoranthene (207-08-9)	☒	☐	☐	ND						1	ug/l				
10B. Bis (2-Chloroethoxy) Methane (111-91-1)	☒	☐	☐	ND						1	ug/l				
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)	☒	☐	☐	ND						1	ug/l				
12B. Bis (2-Chloroisopropyl) Ether (108-60-1	☒	☐	☐	ND						1	ug/l				
13B. Bis(2-Ethyl-hexyl) Phthalate (117-81-7)	☒	☐	☐	ND						1	ug/l				
14 B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	☒	☐	☐	ND						1	ug/l				
15B Butyl Benzyl Phthalate (85-68-7)	☒	☐	☐	ND						1	ug/l				
16B. 2-Chloro-naphthalene (91-58-7)	☒	☐	☐	ND						1	ug/l				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	☒	☐	☐	ND						1	ug/l				
18B. Chrysene (218-01-9)	☒	☐	☐	ND						1	ug/l				
19B. Dibenzo (a,h) Anthracene (53-70-3)	☒	☐	☐	ND						1	ug/l				
20B. 1,2-Dichloro-benzene (95-50-1)	☒	☐	☐	ND						1	ug/l				
21B. 1,3-Dichloro-benzene (541-73-1)	☒	☐	☐	ND						1	ug/l				

CONTINUE ON PAGE V-7

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: *WA0045217*

OUTFALL NUMBER: *1*

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'			3. EFFLUENT						d. NO. OF ANALYSIS	4 *if blank)*		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*			a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS - BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
23B. 3,3'-Dichlorobenzidine (91-94-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
24B. Diethyl Phthalate (84-66-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
25B. Dimethyl Phthalate (131-11-3)	☒	☐	☐	*ND*						*1*	*ug/l*				
26B. Di-N-Butyl Phthalate (84-74-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
27B. 2,4-Dinitrotoluene (121-14-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
28B. 2,6-Dinitrotoluene (606-20-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
29B. Di-N-Octyl Phthalate (117-84-0)	☒	☐	☐	*ND*						*1*	*ug/l*				
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
31B. Fluoranthene (206-44-0)	☒	☐	☐	*ND*						*1*	*ug/l*				
32B. Fluorene (86-73-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
33B. Hexachlorobenzene (118-74-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
34B. Hexachlorobutadiene (87-68-3)	☒	☐	☐	*ND*						*1*	*ug/l*				
35B. Hexachlorocyclopentadiene (77-47-4)	☒	☐	☐	*ND*						*1*	*ug/l*				
36B. Hexachloroethane (67-72-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
38B. Isophorone (78-59-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
39B. Napthalene (91-20-3)	☒	☐	☐	*ND*						*1*	*ug/l*				
40B. Nitrobenzene (98-95-3)	☒	☐	☐	*ND*						*1*	*ug/l*				
41B. N-Nitrosodimethylamine (62-75-9)	☒	☐	☐	*ND*						*1*	*ug/l*				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☒	☐	☐	*ND*						*1*	*ug/l*				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'			2. EFFLUENT							3. UNITS *(specify if blank)*		4. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	☒	☐	☐	*ND*						*1*	*ug/l*				
44B. Phenanthrene (85-01-/	☒	☐	☐	*ND*						*1*	*ug/l*				
45B. Pyrene (129-00-0)	☒	☐	☐	*ND*						*1*	*ug/l*				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
2P. α-BHC (319-84-6	☒	☐	☐	*ND*						*1*	*ug/l*				
3P. β-Bhc (319-85-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
4P. γ-BHC (58-89-9)	☒	☐	☐	*ND*						*1*	*ug/l*				
5P. δ-BHC (319-86-8)	☒	☐	☐	*ND*						*1*	*ug/l*				
6P. Chlordane (57-74-9)	☒	☐	☐	*ND*						*1*	*ug/l*				
7P. 4,4'-DDT (50-29-3)	☒	☐	☐	*ND*						*1*	*ug/l*				
8P. 4,4'-DDE (72-55-9)	☒	☐	☐	*ND*						*1*	*ug/l*				
9P. 4,4'-DDD (72-54-8)	☒	☐	☐	*ND*						*1*	*ug/l*				
10P. Dieldrin (60-57-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
11P. α-Endo-sulfan (115-29-7)	☒	☐	☐	*ND*						*1*	*ug/l*				
12P. β-Endo-sulfan (115-29-7	☒	☐	☐	*ND*						*1*	*ug/l*				
13P. Endosulfan Sulfate (1031-07-8)	☒	☐	☐	*ND*						*1*	*ug/l*				
14P. Endrin (72-20-8)	☒	☐	☐	*ND*						*1*	*ug/l*				
15P. Endrin Aldehyde (7421-93-4)	☒	☐	☐	*ND*						*1*	*ug/l*				
16P. Heptachlor (76-44-8)	☒	☐	☐	*ND*						*1*	*ug/l*				

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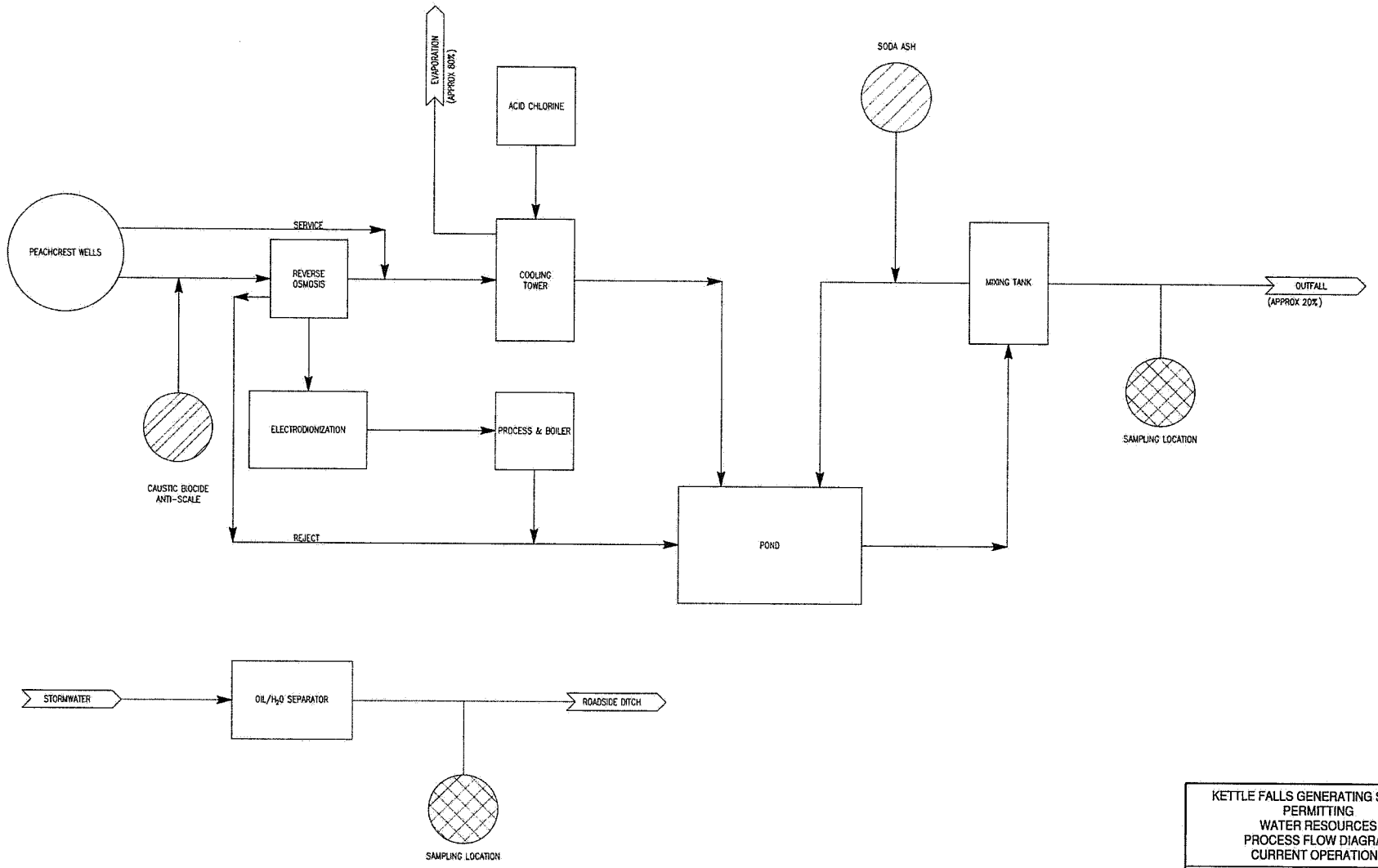
CONTINUED FROM PAGE V-6

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*	OUTFALL NUMBER
WA0045217	*1*

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS *(specify if blank)*		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSIS			a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS		a. CONCENTRATION	b. MASS	(1) CONCENTRATION	(2) MASS	
GC/MS - PESTICIDES *(continued)*															
17P. Heptachlor Expxide (1024-57-3)	☒	☐	☐	*ND*						*1*	*ug/l*				
18P. PCB-1242 (53469-21-9)	☒	☐	☐	*ND*						*1*	*ug/l*				
19P. PCB-1254 (11097-69-1)	☒	☐	☐	*ND*						*1*	*ug/l*				
20P. PCB-1221 (11104-28-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
21P. PCB-1232 (11141-16-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
22P. PCB-1248 (12672-29-6)	☒	☐	☐	*ND*						*1*	*ug/l*				
23P. PCB-1260 (11096-82-5)	☒	☐	☐	*ND*						*1*	*ug/l*				
24P. PCB-1016 (12674-11-2)	☒	☐	☐	*ND*						*1*	*ug/l*				
25P. Toxa-phene (8001-35-2)	☒	☐	☐	*ND*						*1*	*ug/l*				



KETTLE FALLS GENERATING STATION
PERMITTING
WATER RESOURCES
PROCESS FLOW DIAGRAM
CURRENT OPERATIONS

AVISTA CORPORATION
SPOKANE, WASHINGTON

NONE	3-28-18	APPROVED
SCALE	DATE	
DESIGN K.BOOTH	CHECKED K.B.	3/30/18
DRAWN S.GRAF	NOTED	DATE
CHECKED	NOTED	MFG DWG NO:

DWG NO: 212E-53-509-00-02

NO	DATE	REVISION	BY	CKD	AS BUILT
0					

212E-53-509-00-02

4/12/2018 11:50 AM
212E-53-509-00-02.dwg

GEN AUTOCAD DWG

EDGE ANALYTICAL

Burlington, WA	Corporate Laboratory (a)	1620 S Walnut St	Burlington, WA 98233	800 755 9295 • 360 757 1400
Bellingham, WA	Microbiology (b)	805 Orchard Dr Ste 4	Bellingham, WA 98225	360 715 1212
Portland, OR	Microbiology/Chemistry (c)	9150 SW Pioneer Ct Ste W	Wilsonville, OR 97070	503 682 7602
Corvallis, OR	Microbiology (d)	540 SW Third Street	Corvallis, OR 97333	541 753 4946

September 12, 2017

Pam Kish
Avista Corporation
1411 E Mission Ave
Spokane, WA 99202

RE: 17-17631 - KFGS NPDES Permit Sampling

Dear Pam Kish,

Your project: KFGS NPDES Permit Sampling, was received on Friday July 21, 2017.

The following comments are reported for your project:
The following analytes were analyzed by alternate methods approved for NPDES testing.

Ammonia - EPA 350.1
Fluoride - EPA 300.0
Nitrate and Nitrite Nitrogen - EPA 300.0
Total Kjeldahl Nitrogen - EPA 351.2
Sulfate - EPA 300.0
Total Cyanide - ASTM D7511-09
Available Cyanide - OIA -1677
Total Phenols - EPA 420.4
1,2-Diphenolhydrazine - EPA 625

The following analytes were analyzed by an alternate method approved for NPDES testing but did not meet the permit DL and QL because there was a measureable amount in the samples.

Boron - EPA 200.7
Molybdenum - EPA 200.7
Manganese - EPA 200.7
If you have questions phone us at 800 755-9295.

Respectfully

Pat Miller

Patrick Miller, MS
QA Officer

Enclosures: Data Report
QC Reports
Chain of Custody

EDGE ANALYTICAL

Burlington, WA	Corporate Laboratory (a)	1620 S Walnut St	Burlington, WA 98233	800.755.9295 • 360.757.1400
Bellingham, WA	Microbiology (b)	805 Orchard Dr Ste 4	Bellingham, WA 98225	360.715.1212
Portland, OR	Microbiology/Chemistry (c)	9150 SW Pioneer Ct Ste W	Wilsonville, OR 97070	503.682.7602
Corvallis, OR	Microbiology (d)	549 SW Third Street	Corvallis, OR 97333	541.753.4946

September 12, 2017

Case Narrative

Reference: **17-17631**

Lab Sample ID	Sample Information
40079	Discharge H2O - KFGS

Analytical Method	Notes	Created by
625	The acid surrogates are significanly below the acceptance limits and indicates a matrix affect for low recoveries likely for the acid fraction. The sample field duplicate was also analyzed in the extraction batch and confirmed the low recoveries due to matrix. The QA samples and other samples analyzed within this batch met QC criteria. co 8/4/17	CO
625	The acid surrogates are significanly below the acceptance limits and indicates a matrix affect for low recoveries likely for the acid fraction. The sample field duplicate was also analyzed in the extraction batch and confirmed the low recoveries due to matrix. The QA samples and other samples analyzed within this batch met QC criteria. I would encourage to request the laboratory to use this sample location as the matrix spike for the next sampling required. co 8/4/17	CO

Analytical Method	Notes	Created by
SM2120 B	Sample was filtered prior to analysis.	RHF

EDGE ANALYTICAL

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540 SW Third Street · Corvallis, OR 97333 · 541.753.4946

Bend, OR Microbiology (e)
20332 Empire Blvd Ste 4 · Bend, OR 97701 · 541.639.8425

Data Report

Client Name: Avista Corporation
1411 E Mission Ave
Spokane, WA 99202

Reference Number: 17-17631
Project: KFGS NPDES Permit Sampling
Report Date: 9/12/17
Date Received: 7/21/17
Approved by: anp,bj,fm,ljh,lrs
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: Discharge Dup KFGS (Clean Hg) — Sample Date: 7/19/17 1:45 pm
Lab Number: 40076 — Sample Comment: — Collected By:

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-97-6	MERCURY - clean	5.28	0.40		ng/L	1.0	1631		7/31/17	ETL	ANAT1631_170731	Analyzed by Anatek

Sample Description: Discharge H2O KFGS (Clean Hg) — Sample Date: 7/19/17 1:45 pm
Lab Number: 40077 — Sample Comment: — Collected By:

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-97-6	MERCURY - clean	5.99	0.40		ng/L	1.0	1631		7/31/17	ETL	ANAT1631_170731	Analyzed by Anatek

Sample Description: Discharge Blank KFGS (Clean Hg) — Sample Date: 7/19/17 1:45 pm
Lab Number: 40078 — Sample Comment: — Collected By:

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-97-6	MERCURY - clean	0.592	0.40		ng/L	1.0	1631		7/31/17	ETL	ANAT1631_170731	Analyzed by Anatek

Sample Description: Discharge H2O KFGS — Sample Date: 7/19/17 12:00 pm
Lab Number: 40079 — Sample Comment: — Collected By:

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
1332-21-4	ASBESTOS	ND	0.098		MFL>10um	1.0	100.2	a	7/28/17	RM	LAB100_170728	Analyzed by LabCor
E-10140	OIL AND GREASE	1.3 J	2.5	0.9	mg/L	1.0	1664	a	7/27/17	RHF	1664_170727	
18540-29-9	HEXAVALENT CHROMIUM	3.79	0.030	0.0016	ug/L	1.0	218.6	a	8/4/17	LJH	218.6_170804	
16984-48-8	FLUORIDE	1.13	0.1		mg/L	1.0	300.0		9/1/17	ALI	ANTK_170901	Analyzed by Anatek (SM4500F)
14797-55-8	NITRATE-N	3.79	0.100	0.0236	mg/L	1.0	300.0	a	7/21/17	HKL	1170721A	
14797-65-0	NITRITE-N	ND	0.10	0.0203	mg/L	1.0	300.0	a	7/21/17	HKL	1170721A	
14808-79-8	SULFATE	714.0	0.2	0.0497	mg/L	1.0	300.0	a	7/21/17	HKL	1170721A	

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EDGE ANALYTICAL

Reference Number: 17-17631
Report Date: 9/12/17

Data Report

24959-67-9	BROMIDE	0.05	0.005	0.00051	mg/L	1.0	300.1	a	9/6/17	BJ	ANTK_170906	Analyzed by Edge Analytical
7664-41-7	AMMONIA-N	0.05	0.010	0.0012	mg/L	1.0	350.1	a	7/31/17	LRS	350.1_170731	
E-10264	TOTAL KJELDAHL NITROGEN	0.70	0.20	0.0047	mg/L	1.0	351.2	a	8/15/17	LRS	351.2_170815	
E-10253	PHENOLICS	ND	50	5	ug/L	1.0	420.4		8/16/17	KF	AM1420_170816	Analyzed by AmTest
12587-46-1	GROSS ALPHA	14.9	3		pCi/L	1.0	900.0		9/6/17	APM	ANTK_170906R	Analyzed by Anatek
12587-47-2	GROSS BETA	9.70	4		pCi/L	1.0	900.0		9/6/17	APM	ANTK_170906R	Analyzed by Anatek
7440-14-4	RADIUM 226,228 (combined)	1.74	1		pCi/L	1.0	903.1/904.0		9/5/17	APM	ANTK_170906R	Analyzed by Anatek
15262-20-1	RADIUM 228	0.413	1		pCi/L	1.0	904.0		9/5/17	APM	ANTK_170906R	Analyzed by Anatek
57-12-5	CYANIDE, TOTAL	ND	0.010	0.002	mg/L	1.0	D7511-09	a	8/3/17	ANP	D7511_170803	
57-12-5	CYANIDE, TOTAL	ND	10	2	ug/L	1.0	D7511-09	a	8/3/17	ANP	D7511_170803	
E-10162	TOTAL SUSPENDED SOLIDS	5	4		mg/L	1.0	I-3765-85	a	7/24/17	HKL	TSS_170724	
57-12-5	CYANIDE, AVAILABLE	ND	0.1		mg/L	1.0	OIA 1677	a	7/27/17	ANP	1677_170727	
E-11712	COLOR	5	5		Color Units	1.0	SM2120 B	a	8/31/17	KAE	ANATEK_170721	pH: 7.06
E-14506	ALKALINITY	442.8	10		mg CaCO3/L	10.0	SM2320 B	a	7/23/17	SRS	ALK_170723	
NA	SALINITY	1.133	0		PSS	1.0	SM2520 B	a	8/15/17	LRS	SALINITY_170815	
E-10173	TOTAL DISSOLVED SOLIDS (TDS)	1672	10		mg/L	1.0	SM2540 C	a	7/24/17	HKL	TDS_170724	
E-11949	SETTLEABLE SOLIDS BY VOLUMN	ND	1		ml/L	1.0	SM2540F	a	7/24/17	LRS	SET_170721	
7782-50-5	FREE CHLORINE RESIDUAL	0.03	0.05		mg/L	1.0	SM4500 Cl G		8/16/17	MS	FLD_170816	Analyzed in Field
57-12-5	CYANIDE (WAD)	0.005	0.005	0.0034	mg/L	1.0	SM4500 CN I	a	7/28/17	LRS	WAD_170728	
E-14539	DISSOLVED OXYGEN	5.92			mg/L	1.0	SM4500-O G	a	7/21/17	MS	FLD_DO_170804	Performed in Field
14265-44-2	ORTHO-PHOSPHATE	0.75	0.01	0.0011	mg/L	1.0	SM4500-P F	a	7/21/17	LRS	OPHOS_170721	
18496-25-8	HYDROGEN SULFIDE	ND	0.05	0.044	mg/L	1.0	SM4500-S2 F	a	7/28/17	RHF	H2S_170726	
14265-45-3	SULFITE	ND	2	0.7	mg/L	1.0	SM4500-SO3 B	a	7/25/17	RHF	SO3_170725	
E-10106	5-Day BOD Test	ND	2.0		mg/L	1.0	SM5210 B	a	8/31/17	KAE	ANATEK_170831	Analyzed by Anatek
E-10106	5-Day Soluble BOD	ND	2.0		mg/L	1.0	SM5210 B	a	8/31/17	KAE	ANATEK_170831	Analyzed by Anatek
E-10117	CHEMICAL OXYGEN DEMAND	31.3	8	4	mg/L	1.0	SM5220 D	a	9/1/17	KAE	ANTK_COD170901	Analyzed by Anatek
E-10195	TOTAL ORGANIC CARBON	6.53	0.15	0.05	mg/L	1.0	SM5310 B	a	7/27/17	ANP	TOC_170727	
NA	SURFACTANTS	ND	0.05		mg/L	1.0	SM5540 C		9/1/17	KMC	ANTK_170901	
7429-90-5	ALUMINUM	ND	10	4	ug/L	1.0	200.7/3010A	a	7/25/17	ANP	200.7_170725B	
7440-42-8	BORON	260	50	7	ug/L	1.0	200.7/3010A	a	7/25/17	ANP	200.7_170725B	
E-11778	HARDNESS as Calcium Carbonate	950200	3300	10.	ug/L	1.0	200.7/3010A	a	7/25/17	ANP	200.7_170725B	
7439-89-6	IRON	130	50	1.2	ug/L	1.0	200.7/3010A	a	7/25/17	ANP	200.7_170725B	
7439-95-4	MAGNESIUM	73700	500	1.	ug/L	1.0	200.7/3010A	a	7/25/17	ANP	200.7_170725B	
7439-96-5	MANGANESE	2	1	0.2	ug/L	1.0	200.7/3010A	a	7/25/17	ANP	200.7_170725B	
7439-98-7	MOLYBDENUM	20	10	5.	ug/L	1.0	200.7/3010A	a	7/25/17	ANP	200.7_170725B	
7440-36-0	ANTIMONY	2.1	1	0.00691	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2	
7440-38-2	ARSENIC	8.7	0.5	0.02177	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2	
7440-39-3	BARIUM	305	1	0.01489	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2	

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Reference Number: 17-17631
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Data Report

7440-41-7	BERYLLIUM	ND	0.3	0.00676	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-43-9	CADMIUM	ND	1	0.01127	ug/L	1.0	200.8/3010A	a	8/5/17	KNP	ANTK_170905
7440-47-3	CHROMIUM	5.1	1	0.02026	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-48-4	COBALT	0.6	1	0.00405	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-50-8	COPPER	2.6	2	0.02764	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7439-92-1	LEAD	0.1	0.5	0.00666	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-02-0	NICKEL	0.7	0.5	0.01618	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7782-49-2	SELENIUM	3.6	1	0.0266	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-22-4	SILVER	ND	0.2	0.01175	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-28-0	THALLIUM	ND	0.1	0.00706	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-28-0	THALLIUM	ND	0.001	7.06E-06	mg/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-31-5	TIN	7.1	1	0.5	ug/L	1.0	200.8/3010A	a	8/7/17	BJ	200.8_170807A2
7440-32-6	TITANIUM	13	1	0.05	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7440-66-6	ZINC	13	2.5	0.55193	ug/L	1.0	200.8/3010A	a	7/28/17	BJ	200.8_170728B2
7723-14-0	TOTAL PHOSPHORUS	1.45	0.100	0.0026	mg/L	10.0	SM4500-P F/SM4500-P B(5)	a	7/25/17	LRS	TPHOS_170725

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D.F. = Dilution Factor

Reference Number: 17-17631
Report Date: 9/12/17

Data Report

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ANALYTICAL

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Corvallis, OR *Microbiology/Chemistry (d)*
540 SW Third Street - Corvallis, OR 97333 - 541 753 4540

Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541 639 8426

WSDOE Lab C567

Revised - 9/12/2017

DATA REPORT

Client Name: Avista Corporation
1411 E Mission Ave
Spokane, WA 99202

Reference Number: 17-17631
Project: KFGS NPDES Permit Sampl

Lab Number: 40079
Field ID: Discharge H2O
Sample Description: KFGS
Matrix: Water
Sample Date: 7/19/17
Extraction Date:
Extraction Method: 3510C

Report Date: 8/18/17
Date Analyzed: 8/3/17
Analyst: SMT
Analytical Method: 1613
Batch: PACE1613_170803
Approved By: fm,pdm

Authorized by:

Patrick Miller, MS
QA Officer

CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F.	Lab	COMMENT
	Base/Neutral Extractables									
41903-57-5	2,3,7,8-TCDD(DIOXIN)	ND		pg/l	5	5	1.24	1.00		Analyzed by PACE_MN

Notes:

Flags are data qualifiers. If there are data qualifiers on your report definitions can be found on an accompanying sheet.
ND - indicates the compound was not detected above the PQL or MDL
Lab QL = Laboratory Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions
Permit QL = Quantitation Limit required by permit (listed in Appendix A) or other regulatory requirement
D.F. - Dilution Factor.

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WSDOE Lab C567

Revised - 9/12/2017

DATA REPORT

Client Name: Avista Corporation
1411 E Mission Ave
Spokane, WA 99202

Reference Number: 17-17631
Project: KFGS NPDES Permit Sampl

Lab Number: 40079
Field ID: Discharge H2O
Sample Description: KFGS
Matrix: Water
Sample Date: 7/19/17
Extraction Date: 7/26/17
Extraction Method: 3510C

Report Date: 8/18/17
Date Analyzed: 7/27/17
Analyst: CO
Analytical Method: 608
Batch: 608_170726
Approved By: fm,pdm

Authorized by:

Patrick Miller, MS
QA Officer

CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F.	Lab	COMMENT
	PCBs									
12674-11-2	AROCLOR 1016	ND		ug/L	0.1	0.5	0.1	1.00	a	
11104-28-2	AROCLOR 1221	ND		ug/L	0.5	0.5	0.2	1.00	a	
11141-16-5	AROCLOR 1232	ND		ug/L	0.5	0.5	0.2	1.00	a	
53469-21-9	AROCLOR 1242	ND		ug/L	0.1	0.5	0.1	1.00	a	
12672-29-6	AROCLOR 1248	ND		ug/L	0.5	0.5	0.2	1.00	a	
11097-69-1	AROCLOR 1254	ND		ug/L	0.1	0.5	0.1	1.00	a	
11096-82-5	AROCLOR 1260	ND		ug/L	0.1	0.5	0.1	1.00	a	
	Organochlorine Pesticides									
309-00-2	ALDRIN	ND		ug/L	0.05	0.05	0.013	1.00	a	
319-84-6	BHC, ALPHA -	ND		ug/L	0.05	0.05	0.021	1.00	a	
319-85-7	BHC, BETA -	ND		ug/L	0.05	0.05	0.009	1.00	a	
58-89-9	LINDANE (BHC - GAMMA)	ND		ug/L	0.05	0.05	0.015	1.00	a	
319-86-8	BHC, DELTA -	ND		ug/L	0.05	0.05	0.013	1.00	a	
57-74-9	CHLORDANE	ND		ug/L	0.05	0.05	0.018	1.00	a	
50-29-3	4,4' - DDT	ND		ug/L	0.05	0.05	0.011	1.00	a	
72-55-9	4,4' - DDE	ND		ug/L	0.05	0.05	0.025	1.00	a	
72-54-8	4,4' - DDD	ND		ug/L	0.05	0.05	0.011	1.00	a	
60-57-1	DIELDRIN	ND		ug/L	0.05	0.05	0.017	1.00	a	
959-98-8	ENDOSULFAN I	ND		ug/L	0.05	0.05	0.022	1.00	a	
33213-65-9	ENDOSULFAN II	ND		ug/L	0.05	0.05	0.023	1.00	a	
1031-07-8	ENDOSULFAN SULFATE	ND		ug/L	0.05	0.05	0.017	1.00	a	
7421-93-4	ENDRIN ALDEHYDE	ND		ug/L	0.05	0.05	0.015	1.00	a	
76-44-8	HEPTACHLOR	ND		ug/L	0.05	0.05	0.024	1.00	a	
1024-57-3	HEPTACHLOR EPOXIDE "B"	ND		ug/L	0.05	0.05	0.014	1.00	a	
8001-35-2	TOXAPHENE	ND		ug/L	0.5	0.5	0.4	1.00	a	

Notes:

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Form c608 rpt

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WSDOE Lab C567

Revised - 9/12/2017

DATA REPORT

Client Name: Avista Corporation
1411 E Mission Ave
Spokane, WA 99202

Reference Number: 17-17631
Project: KFGS NPDES Permit Sampl

Lab Number: 40079
Field ID: Discharge H2O
Sample Description: KFGS
Matrix: Water
Sample Date: 7/19/17
Extraction Date: 7/21/17
Extraction Method: 5030B

Report Date: 8/18/17
Date Analyzed: 7/21/17
Analyst: HY
Analytical Method: 624
Batch: 624_170721
Approved By: fm,pdm

Authorized by:

Patrick Miller, MS
QA Officer

CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F	Lab	COMMENT
	Volatiles									
120-82-1	1,2,4 - TRICHLOROBENZENE	ND		ug/L	0.5	0.5	0.06	1.00	a	
107-02-8	ACROLEIN	ND		ug/L	4.0	10	1.05	1.00	a	
107-13-1	ACRYLONITRILE	ND		ug/L	1.0	2.0	0.97	1.00	a	
71-43-2	BENZENE	ND		ug/L	0.5	2.0	0.13	1.00	a	
75-25-2	BROMOFORM	ND		ug/L	0.5	2.0	0.12	1.00	a	
56-23-5	CARBON TETRACHLORIDE	ND		ug/L	0.5	2.0	0.23	1.00	a	
108-90-7	CHLOROBENZENE	ND		ug/L	0.5	2.0	0.08	1.00	a	
75-00-3	CHLOROETHANE	ND		ug/L	0.5	2.0	0.29	1.00	a	
110-75-8	2 - CHLOROETHYL VINYL ETHER	ND		ug/L	0.5	2.0	0.97	1.00	a	
67-66-3	CHLOROFORM	0.7		ug/L	0.5	2.0	0.06	1.00	a	
124-48-1	CHLORODIBROMOMETHANE	ND		ug/L	0.5	2.0	0.12	1.00	a	
95-50-1	O - DICHLOROBENZENE	ND		ug/L	0.5	7.6	0.04	1.00	a	
541-73-1	M - DICHLOROBENZENE	ND		ug/L	0.5	7.6	0.06	1.00	a	
106-46-7	P - DICHLOROBENZENE	ND		ug/L	0.5	17.6	0.08	1.00	a	
75-27-4	DICHLOROBROMOMETHANE	ND		ug/L	0.5	2.0	0.07	1.00	a	
75-34-3	1,1 - DICHLOROETHANE	ND		ug/L	0.5	2.0	0.12	1.00	a	
107-06-2	1,2 - DICHLOROETHANE	ND		ug/L	0.5	2.0	0.08	1.00	a	
75-35-4	1,1 - DICHLOROETHYLENE	ND		ug/L	0.5	2.0	0.21	1.00	a	
78-87-5	1,2 - DICHLOROPROPANE	ND		ug/L	0.5	2.0	0.09	1.00	a	
10061-01-5	CIS - 1,3 - DICHLOROPROPENE	ND		ug/L	0.5	2.0	0.08	1.00	a	
10061-02-6	TRANS- 1,3 - DICHLOROPROPENE	ND		ug/L	0.5	2.0	0.08	1.00	a	
542-75-6	1,3-DICHLOROPROPYLENE, TOTAL	ND		ug/L	0.5	0.5		1.00	a	
100-41-4	ETHYLBENZENE	ND		ug/L	0.5	2.0	0.11	1.00	a	
75-09-2	METHYLENE CHLORIDE	ND		ug/L	0.5	10.0	0.06	1.00	a	
79-34-5	1,1,2,2 - TETRACHLOROETHANE	ND		ug/L	0.5	2.0	0.13	1.00	a	
127-18-4	TETRACHLOROETHYLENE	ND		ug/L	0.5	2.0	0.21	1.00	a	

Notes:

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Permit QL = Quantitation Limit required by permit (listed in Appendix A) or other regulatory requirement.
D.F. - Dilution Factor.

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CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F.	Lab	COMMENT
108-88-3	TOLUENE	ND		ug/L	0.5	2.0	0.12	1.00	a	
156-60-5	1,2 - TRANS - DICHLOROETHYLENE	ND		ug/L	0.5	2.0	0.17	1.00	a	
71-55-6	1,1,1 - TRICHLOROETHANE	ND		ug/L	0.5	2.0	0.31	1.00	a	
79-00-5	1,1,2 - TRICHLOROETHANE	ND		ug/L	0.5	2.0	0.15	1.00	a	
79-01-6	TRICHLOROETHYLENE	ND		ug/L	0.5	2.0	0.15	1.00	a	
75-01-4	VINYL CHLORIDE	ND		ug/L	0.5	2.0	0.18	1.00	a	

Notes:

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540 SW Third Street · Corvallis, OR 97333 · 541 753 4948

Bend, OR Microbiology (e)
20332 Empire Blvd Ste 4 · Bend, OR 97701 · 541 639 0425

WSDOE Lab C567

Revised - 9/12/2017

DATA REPORT

Client Name: Avista Corporation
1411 E Mission Ave
Spokane, WA 99202

Reference Number: 17-17631
Project: KFGS NPDES Permit Sampl

Lab Number: 40079
Field ID: Discharge H2O
Sample Description: KFGS
Matrix: Water
Sample Date: 7/19/17
Extraction Date: 7/25/17
Extraction Method: 3510C

Report Date: 8/18/17
Date Analyzed: 7/26/17
Analyst: CO
Analytical Method: 625
Batch: 625_170725
Approved By: fm,pdm

Authorized by:

Patrick Miller, MS
QA Officer

CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F.	Lab	COMMENT
	Base/Neutral Extractables									
83-32-9	ACENAPHTHENE	ND		ug/L	0.4	0.4	0.04	1.00	a	
208-96-8	ACENAPHTHYLENE	ND		ug/L	0.4	0.6	0.07	1.00	a	
120-12-7	ANTHRACENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
92-87-5	BENZIDINE	ND		ug/L	10	24	9.	1.00	a	
85-68-7	BENZYL BUTYL PHTHALATE	ND		ug/L	0.4	0.6	0.03	1.00	a	
56-55-3	BENZ[A]ANTHRACENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
205-99-2	3,4 - BENZOFLUORANTHENE (BENZO[E	ND		ug/L	0.4	1.6	0.08	1.00	a	unresolved w/ Benzo(J)Fluoranthene
207-08-9	BENZO[K]FLUORANTHENE	ND		ug/L	0.4	1.6	0.08	1.00	a	
50-32-8	BENZO[A]PYRENE	ND		ug/L	0.4	1	0.05	1.00	a	
191-24-2	BENZO[G,H,I]PERYLENE	ND		ug/L	0.4	1	0.05	1.00	a	
111-91-1	BIS(2-CHLOROETHOXY)METHANE	ND		ug/L	0.4	21.2	0.06	1.00	a	
111-44-4	BIS(2-CHLOROETHYL)ETHER	ND		ug/L	0.4	1	0.06	1.00	a	
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	ND		ug/L	0.4	0.6	0.06	1.00	a	
117-81-7	Bis(2-ETHYLHEXYL)PHTHALATE	ND		ug/L	0.4	0.5	0.1	1.00	a	
101-55-3	4-BROMOPHENYL PHENYL ETHER	ND		ug/L	0.4	0.4	0.04	1.00	a	
91-58-7	2-CHLORONAPHTHALENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
7005-72-3	4-CHLOROPHENYL PHENYL ETHER	ND		ug/L	0.4	0.5	0.04	1.00	a	
218-01-9	CHRYSENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
53-70-3	DIBENZO[A,H]ANTHRACENE	ND		ug/L	0.4	1.6	0.05	1.00	a	
91-94-1	3,3 DICHLOROBENZIDINE	ND		ug/L	0.4	1	0.2	1.00	a	
84-66-2	DIETHYL PHTHALATE	ND		ug/L	0.4	7.6	0.06	1.00	a	
131-11-3	DIMETHYL PHTHALATE	ND		ug/L	0.4	6.4	0.05	1.00	a	
84-74-2	DI-N-BUTYL PHTHALATE	ND		ug/L	0.4	1	0.07	1.00	a	
121-14-2	2,4-DINITROTOLUENE	ND		ug/L	0.4	0.4	0.07	1.00	a	
606-20-2	2,6-DINITROTOLUENE	ND		ug/L	0.4	0.4	0.09	1.00	a	

Notes:

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Permit QL = Quantitation Limit required by permit (listed in Appendix A) or other regulatory requirement
D.F. - Dilution Factor

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CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F.	Lab	COMMENT
117-84-0	DI-N-OCTYL PHTHALATE	ND		ug/L	0.4	0.6	0.02	1.00	a	
122-66-7	1,2-DIPHENYLHYDRAZINE (as Azobenze	ND		ug/L	0.4	20	0.06	1.00	a	as Azobenzene
206-44-0	FLUORANTHENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
86-73-7	FLUORENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
118-74-1	HEXACHLOROBENZENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
87-68-3	HEXACHLOROBUTADIENE	ND		ug/L	0.4	1	0.09	1.00	a	
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND		ug/L	0.4	1	0.2	1.00	a	
67-72-1	HEXACHLOROETHANE	ND		ug/L	0.4	1	0.09	1.00	a	
193-39-5	INDENO(1,2,3,C,D)PYRENE	ND		ug/L	0.4	1	0.09	1.00	a	
78-59-1	ISOPHORONE	ND		ug/L	0.4	1	0.07	1.00	a	
91-20-3	NAPHTHALENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
98-95-3	NITROBENZENE	ND		ug/L	0.4	1	0.05	1.00	a	
62-75-9	N-NITROSODIMETHYLAMINE	ND		ug/L	0.4	4	0.3	1.00	a	
621-64-7	N-NITROSODI-N-PROPYLAMINE	ND		ug/L	0.4	1	0.1	1.00	a	
86-30-6	N-NITROSODIPHENYLAMINE	ND		ug/L	0.4	1	0.05	1.00	a	as Diphenylamine
85-01-8	PHENANTHRENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
129-00-0	PYRENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
120-82-1	1,2,4-TRICHLOROBENZENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
	Acid Extractables									
95-57-8	2-CHOROPHENOL	ND		ug/L	1	2	0.1	1.00	a	
120-83-2	2,4-DICHLOROPHENOL	ND		ug/L	1	1	0.2	1.00	a	
105-67-9	2,4-DIMETHYLPHENOL	ND		ug/L	1	1	0.4	1.00	a	
534-52-1	4,6-DINITRO-O-CRESOL	ND		ug/L	1	2	0.3	1.00	a	
88-75-5	2-NITROPHENOL	ND		ug/L	1	1	0.2	1.00	a	
100-02-7	4-NITROPHENOL	ND		ug/L	1	1	0.3	1.00	a	
59-50-7	P-CHLORO-M-CRESOL	ND		ug/L	1	2	0.2	1.00	a	
87-86-5	PENTACHLOROPHENOL	ND		ug/L	1	1	0.2	1.00	a	
108-95-2	PHENOL	ND		ug/L	1	4	0.1	1.00	a	
88-06-2	2,4,6-TRICHLOROPHENOL	ND		ug/L	1	4	0.1	1.00	a	
	Ecology Priority Toxic Chemicals									
205-82-3	BENZO(J)FLUORANTHENE	ND		ug/L	1	1	0.4	1.00	a	unresolved w/ Benzo(B)Fluoranthene
189-55-9	BENZO(R,S,T)PENTAPHENE	ND		ug/L	1	1	0.3	1.00	a	
226-36-8	DIBENZO(A,H)ACRIDINE	ND		ug/L	1	10	0.4	1.00	a	
192-65-4	DIBENZO(A,E)PYRENE	ND		ug/L	1	10	0.5	1.00	a	
189-64-0	DIBENZO(A,H)PYRENE	ND		ug/L	1	10	0.3	1.00	a	
56-49-5	3-METHYL CHOLANTHRENE	ND		ug/L	1	8	0.4	1.00	a	
198-55-0	PERYLENE	ND		ug/L	1	7.6	0.6	1.00	a	

Notes

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Permit QL = Quantitation Limit required by permit (listed in Appendix A) or other regulatory requirement.
D.F. - Dilution Factor

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Burlington, WA *Corporate Laboratory (a)*
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Bend, OR *Microbiology (e)*
20937 Empire Blvd Ste 4 · Bend, OR 97701 · 541 639 8425

Revised - 9/12/2017

Hydrocarbon Data Report

Client Name: Avista Corporation
1411 E Mission Ave
Spokane, WA 99202

Reference Number: 17-17631
Project: KFGS NPDES Permit Sampl
Report Date: 8/18/17
Date Received: 7/21/17
Approved By: hy.pdm
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: Discharge H2O - KFGS
Lab Number: 40079
Date Analyzed: 7/24/17

Sample Date: 7/19/17 12:00
Collected By:
Analyzed By: WCY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	ND		1	0.5	0.1	0.07	mg/L	NWTPH-Dx/3510C	a	DXW_170724	
HEAVIER OILS (>C24)	ND		1	0.5	0.1		mg/L	NWTPH-Dx/3510C	a	DXW_170724	

Notation:

ND - A result of 'ND' indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions
D F - Dilution Factor
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173 340 WAC) contaminants in the specified matrix. Amended Feb 12, 2001

The Cleanup level for Gasoline Range Organics (GRO) is 100 mg/Kg for gas mixtures without benzene and when the total ethylbenzene, toluene and xylenes are less than 1% of the gasoline concentration. The Cleanup level for GRO is 30 mg/Kg for all other mixtures.

If you have any questions concerning this report contact us at the above phone number.
Form: cHCID.rpt

ANALYTICAL

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Revised - 9/12/2017

Hydrocarbon Data Report

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1411 E Mission Ave
Spokane, WA 99202

Reference Number: 17-17631
Project: KFGS NPDES Permit Sampl
Report Date: 8/18/17
Date Received: 7/21/17
Approved By: hy,pdm
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: Discharge H2O - KFGS
Lab Number: 40079
Date Analyzed: 7/25/17

Sample Date: 7/19/17 12:00
Collected By:
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											
BENZENE	ND		1	0.005	0.0004	0.00014	mg/L	8260C/5030B	a	GXW_170725	
TOLUENE	ND		1	1.00	0.0004	7.00E-05	mg/L	8260C/5030B	a	GXW_170725	
ETHYLBENZENE	ND		1	0.70	0.0004	9.00E-05	mg/L	8260C/5030B	a	GXW_170725	
TOTAL XYLENES	ND		1	1.00	0.0008		mg/L	8260C/5030B	a	GXW_170725	
GASOLINE (C8 - C12)	ND		1	1	0.10		mg/L	8260C/5030B	a	GXW_170725	

Notation:
ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
POL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions
D F - Dilution Factor
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter 173-340 WAC) contaminants in the specified matrix Amended Feb 12, 2001
The Cleanup level for Gasoline Range Organics (GRO) is 100 mg/Kg for gas mixtures without benzene and when the total ethylbenzene, toluene and xylenes are less than 1% of the gasoline concentration. The Cleanup level for GRO is 30 mg/Kg for all other mixtures.

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Form cHCID.rpt

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: AVISTA CORPORATION
Address: 1411 EAST MISSION
SPOKANE, WA 99202
Attn: PAM KISH

Batch #: 170830004
Project Name: 2018 KFGS, NPDES SAMPLING

Analytical Results Report

Sample Number 170830004-001 **Sampling Date** 8/30/2017 **Date/Time Received** 8/30/2017 9:00 AM
Client Sample ID KFGS DISCHARGE **Sampling Time** 5:50 AM **Extraction Date**
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
BOD	<2	mg/L	2	8/31/2017 11:00:00 AM	KAE	SM5210B	K5
SBOD	<2	mg/L	2	8/31/2017 11:00:00 AM	KAE	SM5210C	K5
Bromide	0.05	mg/L	0.05	9/6/2017	SUB	EPA 300.1	
Cadmium	ND	mg/L	0.001	9/5/2017 3:14:00 PM	KNP	EPA 200.8	
COD	31.3	mg/L	5	9/1/2017 4:30:00 PM	KAE	EPA 410.4	
Color	5 @ pH7.06	Color Units	5	8/31/2017 12:35:00 PM	KAE	SM 2120B	
Fluoride	1.13	mg/L	0.1	9/1/2017	SUB	SM4500F	
Gross Alpha	14.9 ± 2.98	pCi/L	3	9/6/2017 7:06:14 PM	APM	EPA 900.0	
Gross Beta	9.70 ± 1.73	pCi/L	4	9/6/2017 7:06:14 PM	APM	EPA 900.0	
Radium 228	0.413 ± 0.317	pCi/L	1	9/5/2017	GPB	EPA 904.0	
Hexachlorobutadiene	ND	ug/L	0.5	9/1/2017	HSW	EPA 625	
MBAS	ND	mg/L 342.4MW LAS	0.05	9/1/2017	KMC	SM5540C	
Titanium	0.00469	mg/L	0.001	9/5/2017 3:14:00 PM	KNP	EPA 200.8	
Total Alpha Radium	1.74 ± 0.247	pCi/L		9/2/2017 10:51:00 AM	APM	EPA 903.0	

Authorized Signature Kathleen A. Sattler
Kathleen A. Sattler, Lab Manager

K5 Glucose/glutamic acid BOD was above method acceptance criteria
MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013, MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	AVISTA CORPORATION	**Batch #:**	170830004
Address:	1411 EAST MISSION SPOKANE, WA 99202	**Project Name:**	2018 KFGS, NPDES SAMPLING
Attn:	PAM KISH		

Analytical Results Report - Radiochemistry

Sample Number	170830004-001	**Sampling Date**	8/30/2017	**Date/Time Received**	8/30/2017	9:00 AM
Client Sample ID	KFGS DISCHARGE	**Sampling Time**	5:50 AM	**Prep Date**		
Matrix	Water	**Sample Location**				
Comments						

Parameter	Activity +/- Uncertainty Units	MDA	Analysis Date	Analyst	Method	Qualifier
Radium 226	0.566 ± 0.0980 pCi/L	0.2	9/15/2017	APM	EPA 903.0	

Authorized Signature

Kathleen A. Sattler

Kathy Sattler, Lab Manager

MDA	Minimum Detectable Activity
MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Please print or type in the unshaded areas only.

EPA ID Number (*copy from Item 1 of Form 1*)
WA0045217

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

FORM 2F NPDES

U.S. Environmental Protection Agency
Washington, DC 20460

Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. Outfall Number (*list*)	B. Latitude			C. Longitude			D. Receiving Water (*name*)
SW - South	48.00	37.00	16.47	118.00	6.00	44.44	Peach Crest Road Side Ditch
SW - North	48.00	37.00	10.22	118.00	6.00	47.59	Peach Crest Road Side Ditch

II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	number	source of discharge		a. req.	b. proj.
NA					

B: You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfalls(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage of disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which received storm water discharges from the facility.

Continued from the Front

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of imperious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface *(provide units)*	Total Area Drained *(provide units)*	Outfall Number	Area of Impervious Surface *(provide units)*	Total Area Drained *(provide units)*
SW - S	135,507 sq ft	232,000 sq ft	SW - N	140,430 sq ft	477,000 sq ft

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas, and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

Boiler ash is collected in a covered building and trucked to the landfill.

The sub-station adjacent to the plant is sprayed once per year for weed control.

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number	Treatment	List Codes from Table 2F-1
SW - S	Oil-water Separator	NA
SW - N	Oil-water Separator	NA

V. Nonstormwater Discharges

A. I certify under penalty of law hat the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharged from these outfall(s) are identified in either an accompanying Form 2C or From 2E application for the outfall.

Name and Official Title *(type or print)*	Signature	Date Signed
Dennis Vermillion, President		4/13/2018

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

Avista relies on the fact that no changes to the stormwater system have been made. No other non-stormwater contributions have been added to the stormwater collection system.

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

NA

Continued from Page 2

EPA ID Number *(copy from Item 1 of Form 1)*
WA0045217

VII. Discharge Information

A, B, C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided. Table VII-A, VII-B, VII-C are included on separate sheets numbers VII-1 and VII-2.

E. Potential discharges not covered by analysis – is any toxic pollutant listed in table 2F-2, 2F-3, or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

Applies to both outfalls SW-S and SW-N

VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

Applies to both outfalls SW-S and SW-N

IX. Contract Analysis Information

Were any of the analyses reported in Item VII performed by a contract laboratory or consulting firm?

☐ Yes (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☑ No (*go to Section X*)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
Applies to both outfalls SW-S and SW-N			

X. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title (*Type Or Print*)	B. Area Code and Phone No.
Dennis Vermillion, President	(509) 495-4752
C. Signature	D. Date Signed
	4/13/2018

EPA ID Number (*copy from Item 1 of Form 1*)
WA0045217

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge information *(Continued from page 3 of Form 2F)*

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Oil and Grease	26.2 mg/l	N/A			1.00	Outfall SW - S
Biological Oxygen Demand (BOD5)	>37.1 mg/l				1.00	
Chemical Oxygen Demand (COD)	1180 mg/l				1.00	
Total Suspended Solids (TSS)	838 mg/l				1.00	
Total Nitrogen	3.75 mg/l				1.00	
Total Phosphorus	3.34 mg/l				1.00	
pH	Minimum 5.61	Maximum 5.61	Minimum	Maximum	1.00	

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Free Chlorine	0 mg/l				1.00	
Total Chromium	ND				1.00	
Total Zinc	1.4 mg/l				1.00	
	Prior to the	09/19/17 rain	event, no	rain had fallen		
	for 80 days;	therefore, result	may show	higher conc.		

Continued from the Front

Part C - List each pollutant shown in Table 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Do not	believe any	to be present				Outfall SW - S

Part D – Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event *(gallons/minute or specify units)*	6. Total flow from rain event *(gallons or specify units)*
9/19/17	240	0.04	3,600 hours	15 gpm	3,600 gallons

7. Provide a description of the method of flow measurement or estimate.

Outfall has 3 round holes that are larger than a garden hose and flow approximately 5 gpm each, resulting in total flow of approximately 15 gpm.

VII. Discharge information *(Continued from page 3 of Form 2F)*

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Oil and Grease	7.3 mg/l	N/A			1.00	Outfall SW - N
Biological Oxygen Demand (BOD5)	30.2 mg/l				1.00	
Chemical Oxygen Demand (COD)	98.5 mg/l				1.00	
Total Suspended Solids (TSS)	767 mg/l				1.00	
Total Nitrogen	1.52 mg/l				1.00	
Total Phosphorus	5.43 mg/l				1.00	
pH	Minimum 8.20	Maximum 8.20	Minimum	Maximum	1.00	

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Free Chlorine	0 mg/l				1.00	
Total Chromium	0.00812 mg/l				1.00	
Total Zinc	0.995 mg/l				1.00	
	Prior to the	09/19/17 rain	event, no	rain had fallen		
	for 80 days;	therefore, result	may show	higher conc.		

Continued from the Front

Part C - List each pollutant shown in Table 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

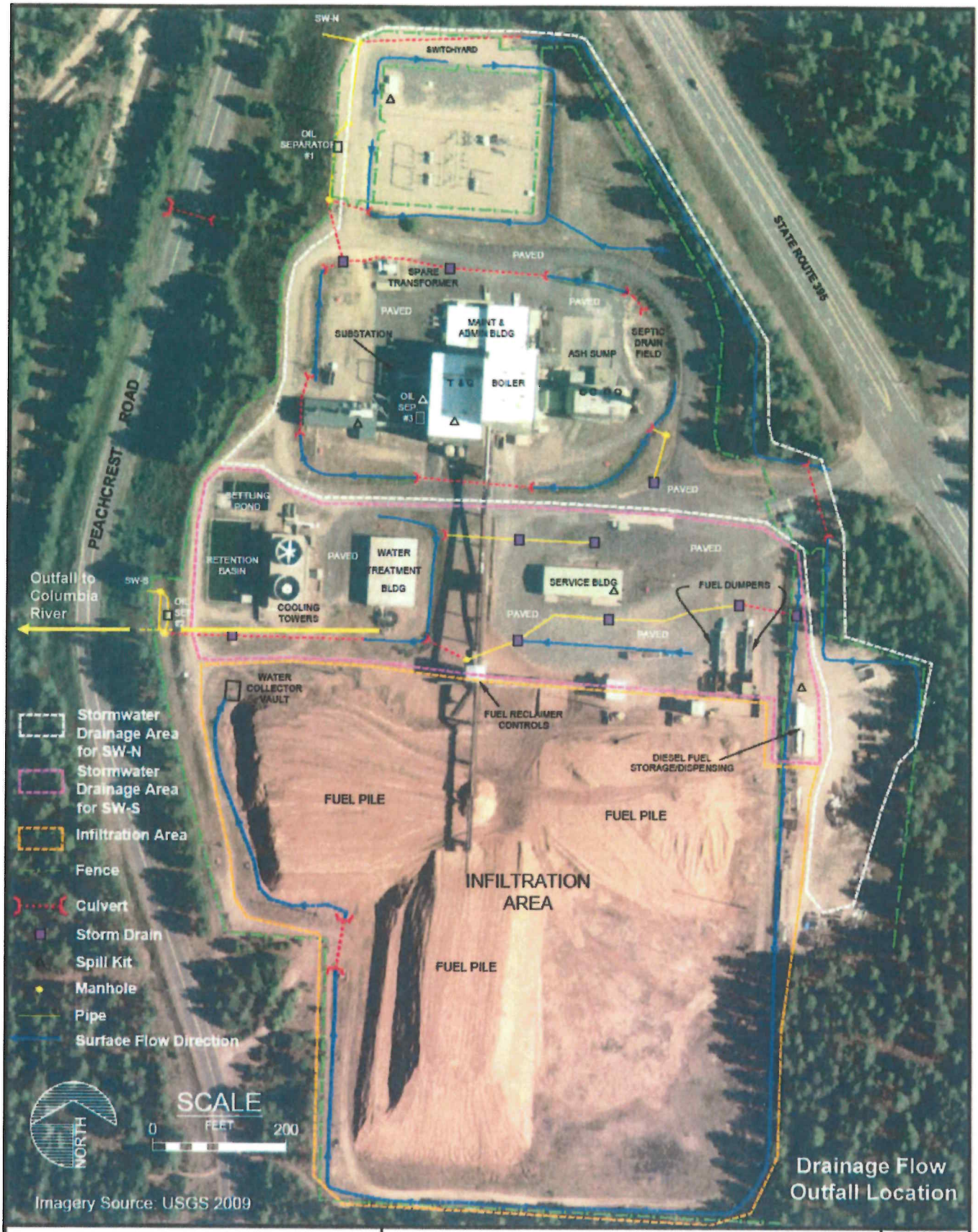
Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Do not	believe any	to be present				Outfall SW - N

Part D – Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event *(gallons/minute or specify units)*	6. Total flow from rain event *(gallons or specify units)*
9/19/17	240	0.04	3,600 hours	15 gpm	3,600 gallons

7. Provide a description of the method of flow measurement or estimate.

Outfall has 3 round holes that are larger than a garden hose and flow approximately 5 gpm each, resulting in total flow of approximately 15 gpm.



KETTLE FALLS GENERATING STATION AVISTA UTILITIES	STORMWATER POLLUTION PREVENTION PLAN SITE MAP	FIGURE 1-2

Project No.14012.00 8/26/2014

Hydrometrics, Inc.
Consulting Scientists and Engineers

FINAL

Kettle Falls Generating Station

Engineering Report

Avista Corporation

April 12, 2018

CDM Smith

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Section 1
General Information

This Engineering Report is a revision of the Engineering Report prepared by Morrison-Knudsen Company, Inc. December 1981. CDM Smith, Inc. (CDM Smith) has been tasked by Avista Corporation (Avista) to update the existing 1981 Engineering Report in support of an upcoming NPDES permit application. This Engineering Report contains the water use, treatment and discharge information required by Chapter 173-240-130 of the Washington Administrative Code.

1.1 Description of Existing Facility & Proposed Modifications

The Kettle Falls Generating Station is located approximately 3-miles northwest of Kettle Falls, Washington, adjacent to Franklin D. Roosevelt Lake in Stevens County. The generating unit consists of a wood-fired steam generator and a steam turbine driven electric generator with net generating capacity of approximately 46 megawatt electrical. The wastewater treatment facilities are an integral part of the plant operation. There are no proposed changes to the existing wastewater treatment facilities at the plant site and no provisions for any future committed plans. This revision reflects a proposed changed in the treatment of process water. The relative location of major plant components is show in Figure 1-1.

1.2 Ownership

The wastewater treatment facilities are owned, operated and maintained by the Avista Corporation.

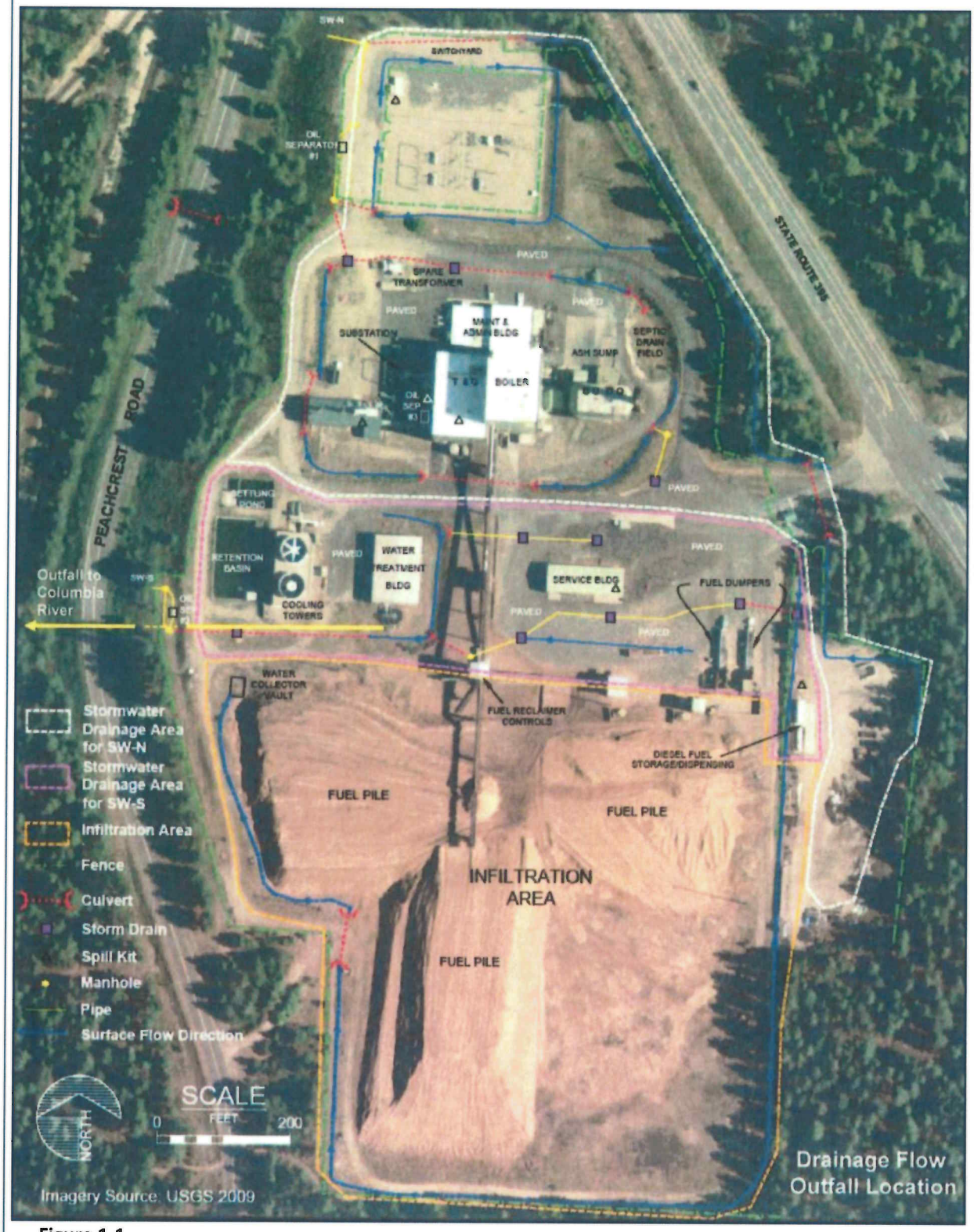

Figure 1-1
General Site Layout

Section 2
Water Usage

The overall plant process flow diagram is presented in Figure 2-1. Daily average flow rates for typical case conditions are included in the text below for major flow paths. All process related flow rates are calculated daily averages at 100% load factor. The values presented herein should be multiplied by 0.75 (i.e. the projected plant availability factor) to obtain annual averages for process related flows.

2.1 Plant Water Supply

Process water and non-contact cooling water is supplied by the Peachcrest groundwater wells at the Kettle Falls Generating Station. A summary of the chemical characteristics of this water source is presented in Table 2-1. The data in Table 2-1 was compiled from the analysis of water sampled collected by Avista from the Peachcrest wells.

Domestic water for the Kettle Falls Generating Station is supplied by the Kettle Falls Municipal Water System from wells in the Kettle Falls area.

2.2 Non-Contact Cooling Water

The use of non-contact cooling water at the Kettle Falls Generating Station is limited to the circulating water system. This system utilizes a conventional mechanical draft cooling tower for condenser water cooling. Since the circulating water is cooled in the cooling tower largely by evaporation, the solids dissolved in the circulating water become concentrated. The average number of circulating water system cycles of concentration is 3.5, but is expected to increase once the full-scale reverse osmosis (RO) system is installed as it will supply approximately 80% of the water to the cooling tower with the remaining makeup water coming directly from the Peachcrest wells. Cooling tower blowdown is used to maintain acceptable circulating water quality by removing both dissolved and suspended solids. The amount of blowdown is affected by makeup water quality, the evaporation rate and selected circulating water quality characteristics. The primary water quality parameter that governs the blowdown rate is calcium hardness. Cooling tower blowdown is used to limit hardness to 600-1000 mg/l as $CaCO_3$.

The circulating water is conditioned with a scale inhibitor to limit the formation of mineral scale, sulfuric acid to control alkalinity, and chlorine to minimize biofouling. The use of corrosion inhibitors is not included in the design of the circulating water system. Typically, the concentration of scale inhibitor is maintained between 40 and 60 mg/l depending upon the formulation of the commercial product used. The feed rate of scale inhibitor is estimated to average 18 pounds per day. This feed rate is anticipated to reduce by 70-80% once the full-scale RO system is installed.

Sulfuric acid is fed to the circulating water to neutralize a portion of the alkalinity present in the makeup to this system and to lower the pH of the entire circulating water inventory. The alkalinity of the circulating water will be maintained at 100 to 200 mg/l as $CaCO_3$. Based on

operation at 3.5 cycles of concentration and an average unit load factor of 100%, acid feed averages 500 pounds per day of 93% sulfuric acid. The cycles of concentration are anticipated to increase and the acid feed rate is anticipated to decrease by 80-90% once the full-scale RO system is installed.

Intermittent shock chlorination of the circulating water system is utilized to prevent biofouling. The amount of chlorine used is not significantly affected by the cooling tower cycles of concentration. The frequency of chlorination and the rate of application varies seasonally with warmer weather requiring more frequent chlorination periods and higher application rates. Typically, shock chlorination is performed once every four hours for a 10-minute duration. Total chlorination per day requires approximately 10-15 pounds of chlorine.

Average evaporation from the cooling tower is estimated to be 562,464 gallons per day (gpd). Average drift (spray loss) is estimated to be 2,300 gpd. Blowdown from the circulating water system is anticipated to be discharged to the retention basin at a daily average flow rate of 133,316 gpd and to feed the ash handling system at a daily average flow rate of 5,000 gpd. The expected daily makeup requirement for the circulating water system is 703,080 gpd. The blowdown is not sampled separately prior to combining with other wastewater.

2.3 Process Water

Process water is supplied to various plant systems including the RO system, EDI system, ash handling system, the steam cycle and miscellaneous equipment.

2.3.1 RO System

The full-scale RO system is being designed by Newterra, Ltd. (Newterra) and will provide high quality water to the cooling tower and to the EDI system that will ultimately supply the steam cycle.

Pressurized well water will be directed through the cartridge filters which acts as a safeguard to remove any residual suspended solids in solution.

The filtered water from the cartridge filters will feed the RO high pressure pumps which will pressurize the feed water and send it through the 1st pass RO units. The piping and valves are arranged to allow either of the high pressure pumps to feed either RO skid for maintenance service operation.

RO uses semi-permeable membranes with very small pores, smaller than 0.001 µm. Water is able to diffuse across the membrane much more readily than dissolved solutes (salts). High feed water pressure is used to counteract the natural osmotic pressure enabling the passage of water from the side of high concentration (feed) of the membrane to the side of low concentration (permeate). A percentage of the water fed to the RO is discarded, as it will contain the salts rejected by the RO membrane. This RO reject will be discharged to the settling basin at a maximum anticipated daily average flow rate of 192,010 gpd.

The RO system is equipped with three chemical dosing systems; antiscalant, biocide and caustic which will be dosed as required upstream of the cartridge filters. The antiscalant to reduce the fouling potential of the water, the biocide to protect against biological growth in the RO

membranes to reduce the cleaning frequency and maintain permeate water quality. Caustic will be dosed to reduce the CO^2 level in the RO permeate which improves EDI performance. Under normal operation (RO→RO→EDI) only antiscalant and biocide are dosed ahead of the 1st pass RO units.

Two (2) RO units are included, each designed to produce 200 gallons per minute (gpm) of clean permeate with a recovery of 75%. The permeate from the two RO units is directed to the 12,000 gallon 1st pass RO permeate storage tank. From there separate transfer pumps send permeate to the 2nd pass RO unit and to the cooling tower. The permeate to the cooling tower will be blended with up to 100 gpm of raw water to produce a total of up to 500 gpm make up to the cooling towers. The blending will be controlled by a proportional valve and flow monitoring. The maximum daily average flow rate from the RO system to the cooling tower is anticipated to be 559,080 gpd.

A 2nd pass RO pretreats 1st pass treated water to supply to the EDI and ultimately the boiler system. A dedicated pump sends permeate from the 12,000 USG tank to the 2nd pass RO unit. The permeate is directed through a cartridge filter which acts as a safeguard to remove any residual suspended solids in solution.

As with the 1st pass RO units, the 2nd pass RO unit is equipped with all three chemical dosing systems as well. During normal operation (RO→RO→EDI) only caustic is dosed ahead of the 2nd pass RO unit. This is done to reduce CO2 in the RO permeate and optimize EDI performance. The 2nd pass RO will further treat the permeate making the water suitable to be fed to the EDI units increasing the quality of the final product water.

The 2nd pass RO is mainly designed to treat permeate from the 1st pass RO units, however in service mode it can directly treat well water (in this case, the 2nd pass RO unit acts as a 1st pass RO). During this situation all three chemical dosing systems (antiscalant, biocide, and caustic) are dosed ahead of the 2nd pass RO unit.

One (1) 2nd pass RO unit is included designed to produce 36 gpm of clean permeate with a recovery of 75%. The permeate from the 2nd pass RO unit is sent directly to the EDI units. The reject in normal operation is sent to the 1st pass RO permeate storage tank to reduce discharge from the system. During service mode operation when the 2nd pass RO is acting as the 1st pass RO, the concentrate will be sent directly to the settling basin.

Under service mode 2, the process can be configured so that 1st pass RO permeate bypasses the 2nd pass RO unit and is sent directly to the EDI units. In this case, all three chemicals (antiscalant, biocide, and caustic) will be dosed ahead of the 1st pass RO units. This configuration will also require some manual valve arrangement and selecting the appropriate control scheme

2.3.2 Polishing Process

The electrodeionization (EDI) process is used as a polishing step to remove traces of dissolved solids in the water so that the product water is very high purity water prior to feeding the boiler system. The EDI system consists of multiple channels through which water is directed.

The majority of the water is directed through channels that are filled with ion exchange resin. The resin is compressed between two membranes. An electrical potential or voltage is applied across the channel. This creates an electric field which applies force on charged ions (dissolved solids) in the water. The electric field forces positively charged ions in one direction while negatively charged ions are moved in the opposite direction. The membranes on one side are permeable only to negative ions while only positive ions are able to pass through the opposite membrane. In this way ions are removed from the resin filled chamber and collected in wastewater chambers. The resin in effect increases the conductivity within the channel between the two membranes. This facilitates the lateral movement of ions away from the center of the channel and through the membranes on either side of the channel.

A small portion of feed water feeding the EDI system is directed through the waste collection channels to convey the waste out of the system where it is blended to produce an electrically neutral waste stream. The EDI reject will be sent back to the 1st pass RO permeate storage tank to minimize the discharge from the overall system. Treated water from the EDI system is directed to a 2,100-gallon break tank and from there it is pumped via transfer pumps to the two existing Condensate Storage Tanks (CSTs).

Two (2) EDI units are included each designed to produce 15 gpm of clean permeate with a recovery of 90%. The EDI is designed to treat two pass RO permeate however in service mode it can treat one-pass RO permeate (from either the 1st pass RO units or 2nd pass RO unit) for a short period of time. The system is designed to run both EDI units all the time. If for some reason one of the EDI units is out of service, the system will be able to operate with only one EDI unit. The additional flow from the 2nd pass RO system will be directed to the 1st pass RO permeate storage tank. The EDI will only be operated as needed to replenish the CSTs and make up for boiler losses and blowdown estimated at 14,100 gpd.

2.3.3 Ash Handling Systems

The fly ash and bottom ash handling systems utilize process water during normal operation. Based on a load factor of 100%, approximately 110 tons of total ash are collected daily. Fly ash production averages 75 tons per day while bottom ash averages 35 tons per day.

2.3.3.1 Fly Ash

Fly ash is removed from the flue gas by an electrostatic precipitator. The fly ash handling system utilizes 4,300 gpd of water for dust suppression and to aid in compaction of the ash. The fly ash is transported by truck to the Kettle Falls Generating Station Limited Purpose Landfill for disposal. There is no wastewater discharge from the fly ash handling system.

2.3.3.2 Bottom Ash

Bottom ash from the combustion process consists of sand, gravel and other inert materials. Bottom ash collected in the bottom ash hopper is removed mechanically and transported by truck along with the fly ash to the Kettle Falls Generating Station Limited Purpose Landfill for disposal. An insignificant amount of water is entrained in the discarded bottom ash. This system utilizes process water to cool the bottom ash and bottom ash handling equipment and to provide furnace seal water between the furnace and the bottom ash hopper.

The bottom ash handling system requires an average of 1,000 gpd of water. There is no wastewater discharge from the bottom ash handling system.

2.3.4 Steam Cycle

The steam cycle utilizes a subcritical drum type steam generator and is, in essence, a closed system. However, some losses occur particularly from sampling, soot-blowing, leakage and boiler blowdown. An average of 14,100 gpd of high purity makeup water from EDI water storage is introduced to the condenser hotwell to compensate for cycle losses. An estimated 2,000 gallons per day is recovered in the plant drains, 2,600 gpd is sampled and directed to the building sump, with the remainder lost through soot blowing and cycle losses. This high purity wastewater is directed to the settling basins via the building sump.

Chemicals used to condition the condensate and feedwater include hydrazine and ammonia. Hydrazine serves as an oxygen scavenger by reacting with oxygen to form water and nitrogen gas, thus eliminating traces of dissolved oxygen which are not removed by mechanical de aeration. A dilute hydrazine solution of approximately 35 mg/l is fed in proportion to the condensate flow rate with a bias from the hydrazine residual. Hydrazine residual is controlled in the range of 0.005 to 0.020 mg/l.

Ammonia is fed to the condensate to increase the pH in the cycle to a level that will minimize corrosion. Ammonia feed is automatically controlled in proportion to the specific conductance of the condensate. The ammonia residual is maintained at approximately 0.8 to 1.2 mg/l, corresponding to a pH of 9.3 to 9.5.

Hydrazine rapidly decomposes into ammonia and nitrogen gas at boiler water temperatures. Since ammonia and nitrogen are relatively insoluble in water at this temperature, the concentration of these chemicals in boiler blowdown is insignificant.

The boiler blowdown is not sampled prior to combining with other wastewater.

2.4 Domestic Water

Kettle Falls Municipal Water is used in all sanitary facilities at the plant site. Approximately 1,200 gpd is used for domestic and sanitary purposes and routed to the sanitary waste collection system.

Table 2-1 Peachcrest Groundwater Well Water Quality Data

Parameter	Concentration	Units
3-Methyl Cholanthrene	ND	ug/L
5-day BOD Test	ND	mg/L
5-day Soluble BOD	ND	mg/L
Acid Extractables[1]	ND	ug/L
Alkalinity	243.3	mg CaCO3/L
Aluminum	ND	ug/L
Ammonia-N	ND	mg/L
Antimony	0.2	ug/L
Arsenic	2	ug/L
Asbestos	ND	MFL>10um
Barium	76	ug/L

Parameter	Concentration	Units
Base/Neutral Extractables[2]	ND	ug/L
Base/Neutral Extractables - 2,3,7,8 TCDD (Dioxin)	ND	pg/L
Benzo (J) Fluoranthene	ND	ug/L
Benzo (R,S,T) Pentaphene	ND	ug/L
Beryllium	ND	ug/L
Boron	70	ug/L
Cadmium	ND	mg/L
Chemical Oxygen Demand	ND	ug/L
Chromium	0.6	mg/L
Cobalt	0.16	ug/L
Color	ND N1	ug/L
Copper	1.1	CU
Cyanide (WAD)	ND	ug/L
Cyanide, Available	ND	mg/L
Cyanide, Total	ND	mg/L
Dibenzo (A,H) Acridine	ND	ug/L
Dibenzo (A, J) Acridine	ND	ug/L
Dibenzo (A,E) Pyrene	ND	ug/L
Dibenzo (A, H) Pyrene	ND	ug/L
Dissolved Oxygen	8.68	mg/L
Hydrogen Sulfide	ND	mg/L
Hardness (CaCO3)	212200	ug/L
Hexavalent Chromium	1.29	ug/L
Hydrocarbons	ND	mg/L
Iron	ND	ug/L
Lead	0.05	ug/L
Magnesium	16300	ug/L
Manganese	ND	ug/L
Mercury	0.695	ng/L
Molybdenum	ND	ug/L
Nickel	ND	ug/L
Nitrate-N	0.86	mg/L
Nitrite-N	ND	mg/L
Oil and Grease	ND	mg/L
Ortho-phosphate	0.03	mg/L
Organochlorine Pesticides[3]	ND	ug/L
PCBs[4]	ND	ug/L
Perylene	ND	ug/L
Phenolics	ND	ug/L
Salinity	0.292	PSS
Selenium	0.8	ug/L
Settleable Solids by Volume	ND	mL/L
Silver	ND	ug/L
Sulfate	27.7	mg/L
Sulfite	ND	mg/L
Total Dissolved Solids	320	mg/L
Thallium	ND	ug/L
Tin	3.7	ug/L
Titanium	3	ug/L
Total Kjeldahl Nitrogen	0.24	mg/L
Total Organic Carbon	0.58	mg/L

Parameter	Concentration	Units
Total Phosphorus	0.022	mg/L
Total Suspended Solids	ND	mg/L
Volatiles[5]	ND	ug/L
Zinc	4.5	ug/L

[1]A total of 11 Acid Extractable compounds were tested and analyzed resulting in all non-detect values.
[2]A total of 43 Base/Neutral Extractable compounds were tested and analyzed resulting in all non-detect values.
[3]A total of 18 Organochlorine Pesticide compounds were tested and analyzed resulting in all non-detect values.
[4]A total of seven Aroclor PCB compounds were tested and analyzed resulting in all non-detect values.
[5]A total of 34 Volatile compounds were tested and analyzed resulting in all non-detect values.

Table 2-2 Expected Water Quality of RO Reject

Parameter	Concentration	Units
Ammonia and Ammonium	0.77	mg/L
Potassium	11.56	mg/L
Sodium	87.69	mg/L
Magnesium	99.84	mg/L
Calcium	335.49	mg/L
Strontium	2.16	mg/L
Barium	0.41	mg/L
Carbonate	8.46	mg/L
Bicarbonate	1301.32	mg/L
Nitrate	0.79	mg/L
Chlorine	151.90	mg/L
Fluorine	0.00	mg/L
Sulfate	155.95	mg/L
Silicon Dioxide	79.96	mg/L
Boron	0.20	mg/L
Carbon Dioxide	25.13	mg/L
TDS	2237.44	mg/L
pH	7.86	

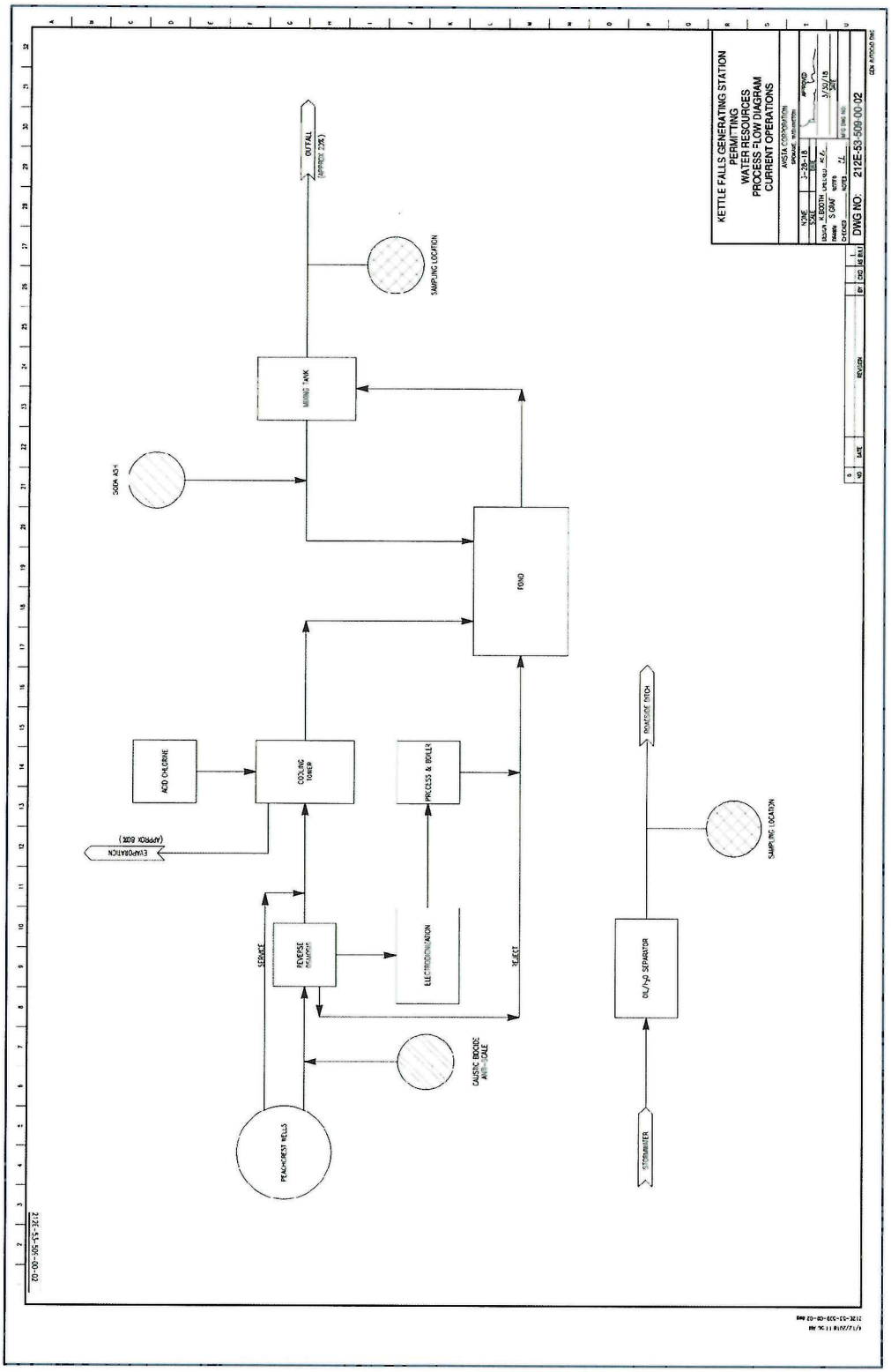

Figure 2-1
Process Flow Diagram

Section 3
Wastewater Collection, Treatment and Disposal

The wastewater collection and treatment systems provide a method of treatment for all plant wastewaters. The treated wastewaters are discharged to Franklin D. Roosevelt Lake (Columbia River), surface drainage ditches or recycled within the facility.

3.1 Process Wastewater Treatment

Process wastewater is received from the RO reject, the ash handling system, the steam cycle and miscellaneous floor and equipment drains. A common wastewater treatment system is used to treat all process wastes. Depending on the suspended solids concentration of the wastewater, each process waste stream is routed to either the retention basin or one of the settling basins. Circulating water system blowdown is also routed to the retention basin. Since this blowdown is combined with the process wastewater, the blowdown is considered as a process waste in the following discussion.

Major components of the process wastewater treatment system include two settling basins, a retention basin and a mixing tank for recirculation. This wastewater treatment system is presented in Figure 2-1. The wastewater treatment systems have been operational for over 30 years and no changes are proposed at this time.

3.1.1 Settling Basins

The two rectangular settling basins with concrete sides and bottoms receive boiler blowdown, miscellaneous plant drains, RO reject, precipitation, and mixing tank sludge. Daily average settling basin influent flow rate is anticipated to be 208,510 gpd.

Each settling basin is sized to contain one year's solids production from the influent sources. This volume is estimated to be approximately 5,000 cubic feet per year. Following commercial operation, the settled solids will be excavated from the basin annually and trucked to the Stevens County landfill for final disposal.

Depending upon the volume of accumulated solids in the basins, approximately 12 to 48 hours retention time will be provided in the settling basins. This allows the majority of suspended solids to settle out and provides some mixing and cooling of the influent streams. Suspended solids concentrations in the settling basin effluent are expected to average from 50 mg/l to 150 mg/l. The settling basins overflow to the retention basin at an anticipated average flow rate of 208,410 gpd, accounting for 100 gpd evaporation.

3.1.2 Retention Basin

The retention basin with concrete sides and bottom receives settling basin overflow, cooling tower blowdown, and precipitation. Daily average retention basin influent flow rate is anticipated to be 342,326 gpd.

The retention basin provides up to 48 hours retention time for the combined wastewater streams. This allows mixing and cooling of the wastewater. The retention period is expected to reduce the chlorine residual in the cooling tower blowdown to less than 0.1 mg/l free available chlorine. The effluent suspended solids concentration from the retention basin is expected to average less than 30 mg/l. Retention basin effluent will be pumped to the mixing tank for final settling and recirculation as needed to meet effluent limits at an anticipated average flow rate of 342,126 gpd, accounting for approximately 200 gpd evaporation.

3.1.3 Mixing Tank

The mixing tank consists of a circular steel tank with a concrete bottom that is approximately 25 feet in diameter. This unit provides additional settling of solids and recirculation to the retention pond as needed to meet effluent limitations. The mixing tank can be bypassed when the unit is out of service or the retention basin effluent does not require further treatment.

Suspended solids concentration in the mixing tank effluent is expected to average 30 mg/l or less. Daily average and daily maximum effluent temperatures are expected to be less than 90°F. The mixing tank is anticipated to overflow to Franklin D. Roosevelt Lake at an average flow rate of approximately 339,126 gpd. Table 3-1 presents the expected chemical characteristics of the final plant effluent. These are based on current effluent sampling results as chemical characteristics are anticipated to be similar to, or better than, current effluent once the full-scale RO system is installed.

3.2 Effluent Disposal

Effluent from the solids contact unit is discharged to Franklin D. Roosevelt Lake through a simple outfall. The location of the outfall is shown in Figure 3-1. The design of the effluent disposal system was based on mixing calculations, applicable receiving water quality standards (Chapter 173-201-045 of the Washington Administrative Code), and the delineation of mixing zone boundaries as presented in the Washington Department of Ecology "Effluent Dilution Zone Guidelines" (Chapter 25). No changes are proposed to the outfall at this time.

The existing outfall consists of an 8-inch pipe with 0.125-inch mesh screening at the discharge point. The entire length of the effluent line from the water treatment plant to the outfall is buried. The outfall is located in Franklin D. Roosevelt Lake at an elevation of approximately 1170 feet (mean sea level, MSL), which is 38 feet below the normal low water surface elevation of 1208 ft. The discharge point is approximately 125 feet from the shoreline at the normal low water level.

3.3 Treatment Alternatives Considered

Treatment alternatives were considered during initial design of the existing wastewater treatment systems. No changes to the existing wastewater treatment systems are proposed at this time.

3.4 Domestic Wastewater Treatment

Sanitary waste is collected by the sanitary waste collection system and treated by a septic tank and sanitary drain field. This system design conforms to the Northeast Tri-County Health District On-Site Sewage Regulation (Regulation No. 04-1978). Based on a wastewater generation rate of

40 gallons/person/day, the total plant sanitary wastewater generation for an average of 30 plant employees is 1,200 gallons/day. Since the On-Site Sewage Regulation requires a septic tank designed to accommodate 150 percent of the daily waste rate, the plant septic tank is sized at 1,800 gallons.

This regulation also requires that the associated drain field have a maximum loading rate of 1.2 gallons/ft^2/day. Based on the daily waste rate of 1,200 gallons/day, the plant sanitary drain field design incorporates 1,000 square feet of drain field trench. The pipe material selected for the drain field is 4-inch diameter slotted PVC pipe.

3.5 Non-Point Source Contamination

Three types of non-point source contamination are expected from the Kettle Falls Generating Plant: (1) leachate from the fuel storage pile, (2) stormwater runoff, and (3) hydrocarbons and oily wastes from paved areas. All fuel storage pile leachate is collected in a holding pond and applied by spray to the incoming fuel. This method of treatment and disposal prevents the discharge of fuel pile leachate to surface waters of the State.

All stormwater runoff from the plant site is collected by the stormwater collection system. The majority of this runoff is transported to normal drainage channels. Appropriate measures are implemented to minimize soil erosion and the transport of sediments from the plant in stormwater runoff. The collection and treatment of runoff from paved areas within the plant site is discussed in Section 3.6.

3.6 Oil and Grease Removal

All runoff water from paved areas is collected and passed through an oil separation system. The separators are designed to handle a portion of the peak flow rate of the design storm. The majority of the oil and grease washed off of these paved surfaces appears well before the runoff peak and should be removed by the oil separators. After passing through the oil separators, the storm water from paved areas is routed through normal drainage channels along with runoff from the rest of the plant.

Floor drains from the machine shop area, located in the maintenance and administration building, pass through an oil separator for the removal of oil and grease. Collected oils and greases are stored in a tank adjacent to the separator. Disposal of these wastes is contracted to a vendor specializing in the recovery of oil and grease.

3.7 Bulk Material Storage and Containment

Containment dikes or berms are constructed around major sources of oil contaminated wastes such as large storage tanks and transformers. Bulk chemical storage on the site includes 93% sulfuric acid and 50% sodium hydroxide. Note that sodium hydroxide is maintained onsite if needed to adjust wastewater pH; however, it is not needed as part of typical operations. Separate containment dikes, sized to contain the maximum spill, are constructed around each bulk chemical tank.

3.8 Chemical Cleaning Wastewater

Chemical cleaning of the boiler and preboiler systems includes both acid and alkaline preoperational cleaning solutions and system flush water. If operational acid and alkaline cleaning of the boiler were required, that would generate chemical cleaning wastewater. Chemical cleaning will be performed by a qualified subcontractor. Chemical cleaning wastewater will be removed from the site by the subcontractor and will not, therefore, be discharged to Franklin D. Roosevelt Lake.

3.9 Sludge Disposal

Suspended solids from influent wastewater sources and recovered solids sludge from the mixing tank accumulate in the two settling basins. As noted in Section 3.1.1, the settled solids will be excavated and trucked to the Stevens County landfill for final disposal. Alternative sludge management techniques that were considered include onsite disposal and incineration.

Due to the limited availability of suitable onsite sludge disposal areas, the onsite disposal option was discarded. Incineration of the sludge also proved unsatisfactory from an economic standpoint. The relatively minor volume reduction expected from incineration and the associated high operating and maintenance costs made this option unfeasible. Offsite disposal of the sludge in a landfill provides the most suitable cost-effective method of final sludge disposal for the Kettle Falls Generating Station.

Table 3-1 AVISTA Effluent Discharge Water Quality Data

Parameter	Concentration	Units
3-Methyl Cholanthrene	ND	ug/L
5-day BOD Test	ND	mg/L
5-day Soluble BOD	ND	mg/L
Acid Extractables[1]	ND	ug/L
Alkalinity	442.8	mg CaCO3/L
Aluminum	ND	ug/L
Ammonia-N	0.05	mg/L
Antimony	2.1	ug/L
Arsenic	8.7	ug/L
Asbestos	ND	MFL>10um
Barium	305	ug/L
Base/Neutral Extractables[2]	ND	ug/L
Base/Neutral Extractables - 2,3,7,8 TCDD (Dioxin)	ND	pg/L
Benzo (J) Fluoranthene	ND	ug/L
Benzo (R,S,T) Pentaphene	ND	ug/L
Beryllium	ND	ug/L
Boron	260	ug/L
Bromide	0.05	mg/L
Cadmium	ND	ug/L
Chemical Oxygen Demand	31.3	mg/L
Chromium	5.1	ug/L
Cobalt	0.6	ug/L
Color	5	CU
Copper	0.6	ug/L
Cyanide (WAD)	0.005	mg/L
Cyanide, Available	ND	mg/L
Cyanide, Total	ND	mg/L
Cyanide, Total	ND	ug/L
Dibenzo (A,H) Acridine	ND	ug/L
Dibenzo (A,E) Pyrene	ND	ug/L
Dibenzo (A, H) Pyrene	ND	ug/L
Dissolved Oxygen	5.92	mg/L
Ecology Priority Toxic Chemicals	ND	ug/L
Fluoride	1.13	mg/L
Free Chlorine Residual	0.03	mg/L
Gross Alpha	14.9	pCi/L
Gross Beta	9.7	pCi/L
Hydrogen Sulfide	ND	mg/L
Hardness (CaCO3)	950200	ug/L
Hexavalent Chromium	3.79	ug/L
Hydrocarbons	ND	mg/L
Iron	130	ug/L
Lead	0.1	ug/L
Magnesium	73700	ug/L
Manganese	2	ug/L
Mercury	5.28	ng/L
Mercury	5.99	ng/L
Molybdenum	20	ug/L
Nickel	0.7	ug/L
Nitrate-N	3.79	mg/L

Parameter	Concentration	Units
Nitrite-N	ND	mg/L
Oil and Grease	1.3	mg/L
Ortho-phosphate	0.75	mg/L
Organochlorine Pesticides[3]	ND	ug/L
PCBs[4]	ND	ug/L
Perylene	ND	ug/L
pH	6.0 to 9.0	
Phenolics	ND	ug/L
Radium 226,228 (combined)	1.74	pCi/L
Radium 228	0.413	pCi/L
Salinity	1.133	PSS
Selenium	3.6	ug/L
Settleable Solids by Volume	ND	mL/L
Silver	ND	ug/L
Sulfate	714	mg/L
Sulfite	ND	mg/L
Surfactants	ND	mg/L
Total Dissolved Solids	1672	mg/L
Thallium	ND	ug/L
Thallium	ND	mg/L
Tin	7.1	ug/L
Titanium	13	ug/L
Total Kjeldahl Nitrogen	0.7	mg/L
Total Organic Carbon	6.53	mg/L
Total Phosphorus	1.45	mg/L
Total Suspended Solids	5	mg/L
Volatiles[5]	ND	ug/L
Volatiles - Chloroform	0.7	ug/L
Zinc	13	ug/L

[1]A total of 10 Acid Extractable compounds were tested and analyzed resulting in all non-detect values.

[2]A total of 43 Base/Neutral Extractable compounds were tested and analyzed resulting in all non-detect values.

[3]A total of 17 Organochlorine Pesticide compounds were tested and analyzed resulting in all non-detect values.

[4]A total of seven Aroclor PCB compounds were tested and analyzed resulting in all non-detect values.

[5]A total of 31 Volatile compounds were tested and analyzed resulting in all non-detect values.

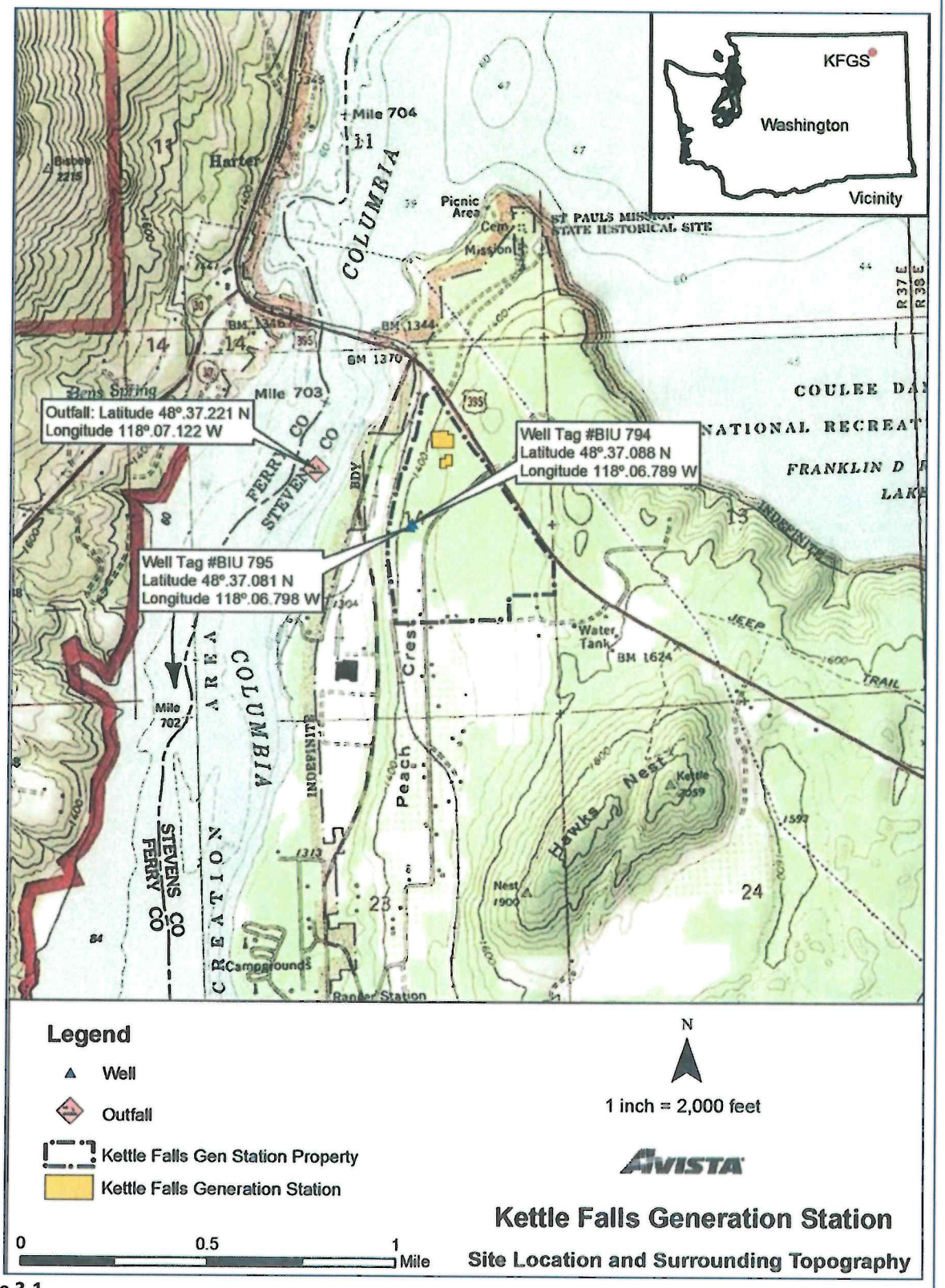

Figure 3-1
Outfall Location

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Section 4
Compliance with Regulatory Requirements

4.1 Effluent Limitations

The Washington Department of Ecology has adopted the Environmental Protection Agency Effluent Guidelines and Standards for Steam Electric Power Generating (40 CFR 423) as a guideline in establishing specific effluent limitations for the Kettle Falls Generating Station previously. 40 CFR 423.10 dictates that the guidelines apply to fossil-fuel, fuel derived from fossil-fuel and nuclear steam electric plants and does not include biomass steam electric plants like Kettle Falls Generating Station.

4.2 Water Quality Criteria

The Washington Department of Ecology has classified the receiving water for the Kettle Falls discharge as CLASS AA (EXTRAORDINARY). As such, the specific criteria identified in Chapter 173-201-045 of the Washington Administrative Code for Class AA waters must not be violated. The Kettle Falls Generating Station wastewater treatment systems and associated outfall structure are designed to maintain the integrity of the receiving water and compliance with the applicable water quality criteria.

4.3 Water Quality Management

The wastewater treatment systems existing at the Kettle Falls Generating Station do not conflict with the goals and objectives of the Washington Continuing Planning Process as implemented under the provisions of Section 301 (e) of the Federal Water Pollution Control Act (PL 92-500, as amended). No local water quality management plans under Section 208 of the Act have been developed and implemented in the Kettle Falls Generating Station area.

4.4 Environmental Impact Assessment

An Environmental Impact Statement for the Kettle Falls Generating Station was prepared by Stevens County in 1979 and 1980 pursuant to the Washington State Environmental Policy Act of 1971 (Chapter 43.21C, Washington Revised Code) and State Environmental Policy Act Guidelines (Chapter 197-10 of the Washington Administrative Code). This impact statement was prepared to accompany the Environmental Coordination Procedures Act process (Chapter 90.62 of the WRC) since project approval was deemed to be a major action significantly affecting the quality of the environment.

The National Environmental Policy Act of 1969 (43 U.S.C. 4341) requires an environmental impact statement for major federal actions significantly affecting the quality of the human environment. However, the Bureau of Reclamation, as lead federal agency in the approval of the Kettle Falls Generating Station, determined that execution of a water service contract to supply water from Franklin D. Roosevelt Lake was not a major Federal action requiring the preparation of an Environmental Impact Statement. A "Finding of No Significant Impact" was published by the Water and Power Resources Service in October 1980.

With respect to NPDES permits, Clean Water Act Section 511 establishes that only EPA-issued permits to new sources are subject to NEPA's environmental review procedures under state law prior to permit issuance. This revised report supports an application for renewal of an existing NPDES permit, therefore NEPA review is not required.

Section 5
Final Design and Construction Schedule

5.1 Full-Scale RO System Schedule

A general project schedule with selected milestones for the design and construction of the full-scale process water RO system at Kettle Falls Generating Station is shown in Table 5-1. The final system design and construction will be completed during 2018.

Table 5-1 Selected Milestones for the Design and Construction of the RO System

Milestone	Target Completion Date
Procurement of Design/Build Services	11/8/2017
Substantial Completion	8/20/2018
Acceptance Testing	10/23/2018
Final Completion	11/19/2018

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