

RECEIVED

MAY 20 2019

Dept of Ecology
Central Regional Office



DEPARTMENT OF
ECOLOGY
State of Washington

United States
Environmental Protection
Agency

Office of
Enforcement
Washington, D.C 20460

EPA Form 3510-1
Ecology Form #ECY 070-429
Ecology Revision 04/2015

Permits Division

Application Form 1 – General Information

Consolidated Permits Program

This form must be completed by all persons applying for a permit under EPA's Consolidated Permits Program. See the general instructions to Form 1 to determine which other application forms you will need.

FORM 1 GENERAL	 U.S. ENVIRONMENTAL PROTECTION AGENCY/ECOLOGY GENERAL INFORMATION Consolidated Permits Program (Read the "General Instructions" before starting.)	1. Current permit I.D. WA	T/A 14	C 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 form 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 .																																																										
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">MARK "X"</th> <th rowspan="2"></th> <th colspan="3">MARK "X"</th> </tr> <tr> <th>YES</th> <th>NO</th> <th>FORM ATTACHED</th> <th>YES</th> <th>NO</th> <th>FORM ATTACHED</th> </tr> </thead> <tbody> <tr> <td>A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td>B. Does or will this facility (<i>either existing or proposed</i>) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>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)</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td>D. Is this proposal facility (<i>other than those described in A or B above</i>) which will result in a discharge to waters of the U.S.? (FORM 2D)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td>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)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>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)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td>H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially 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)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td>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)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>						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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B. Does or will this facility (<i>either existing or proposed</i>) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S. ? (FORM 2B)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D. Is this proposal facility (<i>other than those described in A or B above</i>) which will result in a discharge to waters of the U.S. ? (FORM 2D)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	E. Does or will this facility treat, store, or dispose of hazardous wastes ? (FORM 3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially 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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B. Does or will this facility (<i>either existing or proposed</i>) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S. ? (FORM 2B)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																			
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)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D. Is this proposal facility (<i>other than those described in A or B above</i>) which will result in a discharge to waters of the U.S. ? (FORM 2D)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																			
E. Does or will this facility treat, store, or dispose of hazardous wastes ? (FORM 3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																			
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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																			
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially 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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																			
III. NAME OF FACILITY C 1 Wells Hydroelectric Project																																																										
IV. FACILITY CONTACT <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">A. NAME & TITLE (<i>last, first, & title</i>)</td> <td style="width:50%;">B. PHONE (<i>area code & no.</i>)</td> </tr> <tr> <td>C 2 Bruno, Michael</td> <td>(509) 923 2226</td> </tr> </table>					A. NAME & TITLE (<i>last, first, & title</i>)	B. PHONE (<i>area code & no.</i>)	C 2 Bruno, Michael	(509) 923 2226																																																		
A. NAME & TITLE (<i>last, first, & title</i>)	B. PHONE (<i>area code & no.</i>)																																																									
C 2 Bruno, Michael	(509) 923 2226																																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">B. EMAIL ADDRESS</td> <td style="width:50%;">C. Does the facility have or can it obtain broadband internet access?</td> </tr> <tr> <td>C 2 MikeB@dcpud.org</td> <td><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> </table>					B. EMAIL ADDRESS	C. Does the facility have or can it obtain broadband internet access?	C 2 MikeB@dcpud.org	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																		
B. EMAIL ADDRESS	C. Does the facility have or can it obtain broadband internet access?																																																									
C 2 MikeB@dcpud.org	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																									
V. FACILITY MAILING ADDRESS <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">A. STREET OR P.O. BOX</td> <td style="width:50%;">B. CITY OR TOWN</td> </tr> <tr> <td>C 3 P.O Box 549</td> <td>Chelan</td> </tr> <tr> <td>C. STATE</td> <td>D. ZIP CODE</td> </tr> <tr> <td>WA</td> <td>98816</td> </tr> </table>					A. STREET OR P.O. BOX	B. CITY OR TOWN	C 3 P.O Box 549	Chelan	C. STATE	D. ZIP CODE	WA	98816																																														
A. STREET OR P.O. BOX	B. CITY OR TOWN																																																									
C 3 P.O Box 549	Chelan																																																									
C. STATE	D. ZIP CODE																																																									
WA	98816																																																									
VI. FACILITY LOCATION <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER</td> <td style="width:50%;">B. COUNTY NAME</td> </tr> <tr> <td>C 5 485 Azwell Rd.</td> <td>Chelan</td> </tr> <tr> <td>C. CITY OR TOWN</td> <td>D. STATE</td> </tr> <tr> <td>C 6 Chelan</td> <td>WA</td> </tr> <tr> <td>E. ZIP CODE</td> <td>F. COUNTY CODE</td> </tr> <tr> <td>98816</td> <td>007</td> </tr> <tr> <td colspan="2">D. LATITUDE/LONGITUDE (NAD 83 DATUM)</td> </tr> <tr> <td colspan="2">LATITUDE AS DECIMAL DEGREES- N47.946663</td> </tr> <tr> <td colspan="2">LONGITUDE AS DECIMAL DEGREES - W119.866669</td> </tr> </table>					A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	B. COUNTY NAME	C 5 485 Azwell Rd.	Chelan	C. CITY OR TOWN	D. STATE	C 6 Chelan	WA	E. ZIP CODE	F. COUNTY CODE	98816	007	D. LATITUDE/LONGITUDE (NAD 83 DATUM)		LATITUDE AS DECIMAL DEGREES- N47.946663		LONGITUDE AS DECIMAL DEGREES - W119.866669																																					
A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	B. COUNTY NAME																																																									
C 5 485 Azwell Rd.	Chelan																																																									
C. CITY OR TOWN	D. STATE																																																									
C 6 Chelan	WA																																																									
E. ZIP CODE	F. COUNTY CODE																																																									
98816	007																																																									
D. LATITUDE/LONGITUDE (NAD 83 DATUM)																																																										
LATITUDE AS DECIMAL DEGREES- N47.946663																																																										
LONGITUDE AS DECIMAL DEGREES - W119.866669																																																										

RECEIVED

MAY 20 2019

DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

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	N/A	(specify) N/A		
EQUIVALENT NAICS FIRST				EQUIVALENT NAICS SECOND			
C 7	N/A	(specify) N/A	7 7	N/A	(specify) N/A		

UBI NUMBER -091000037

VIII. OPERATOR INFORMATION

A. NAME						B. Is the name listed in Item VIII-A also the owner?			
C 8	Public Utility District No.1 of Douglas County					<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other," specify.)						D. PHONE (area code & no.)			
F = FEDERAL S = STATE P = PRIVATE	M = PUBLIC (other than federal or state) O = OTHER (specify)	M	(specify) County	C A	509	884	7191		

E. STREET OR PO BOX
1151 Valley Mall Parkway

F. CITY OR TOWN		G. STATE	H. ZIP CODE	IX. INDIAN LAND	
C B	East Wenatchee	WA	98802	Is the facility located on Indian lands? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)				D. PSD (Air Emissions from Proposed Sources)			
C 9	T N	I N/A		C 9	T P	8 N/A	
B. UIC (Underground Injection of Fluids)				E. OTHER (specify)			
C 9	T U	I N/A		C 9	T P	8 Order # 8981	(Specify) 401 Certification
C. RCRA (Hazardous Wastes)				E. OTHER (specify)			
C 9	T R	I N/A		C 9	T P	8 P 2149	(Specify) FERC License

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)

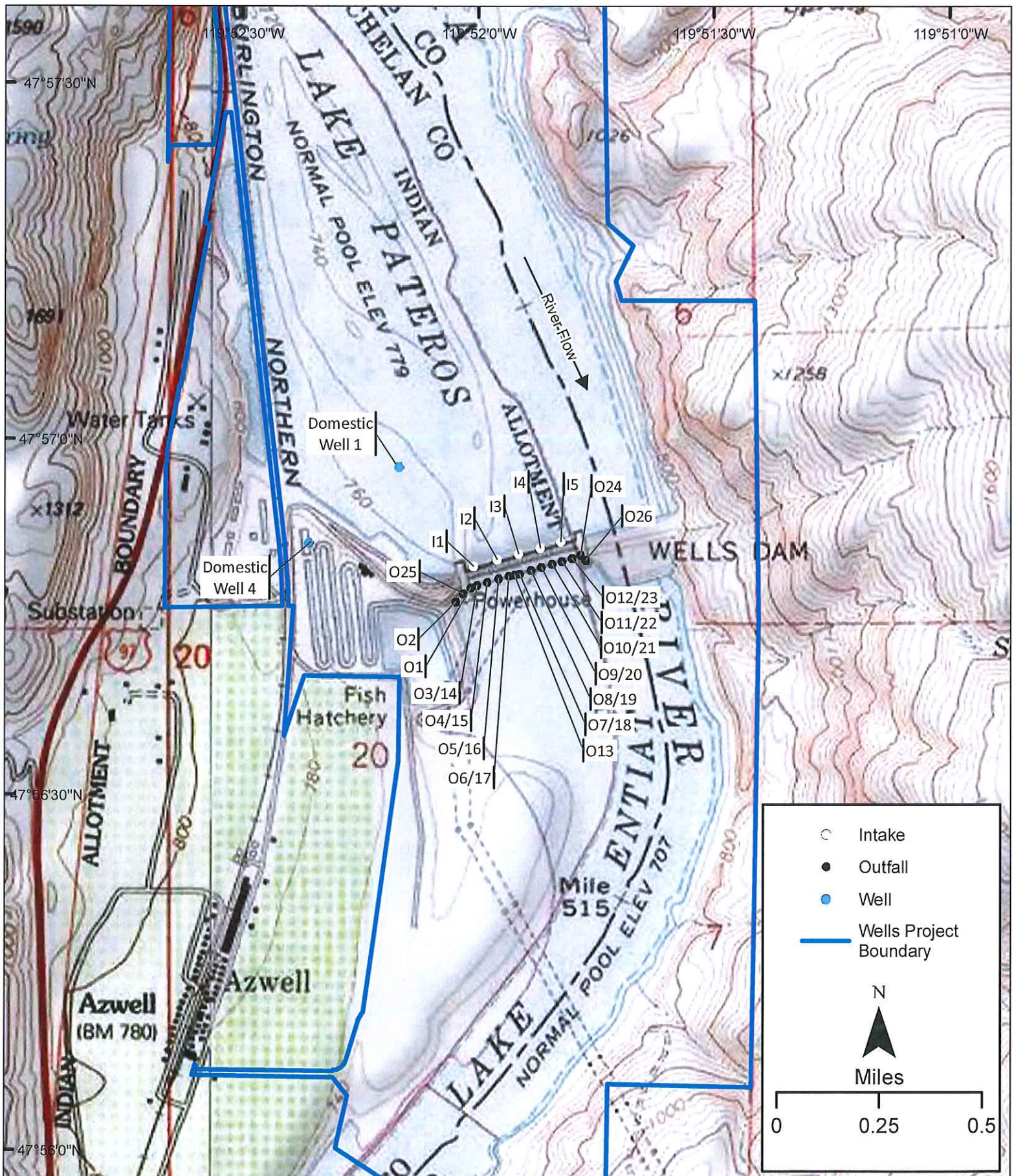
The Wells Hydroelectric Project is used to generate up to 840 MW of electricity for Douglas County and Pacific Northwest customers

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
Gary Ivory, General Manager		5.15.19

To ask about the availability of this document in a version for the visually impaired, call the Water Quality Program at 360-407-6600, Relay Service 711, or TTY 877-833-6341.



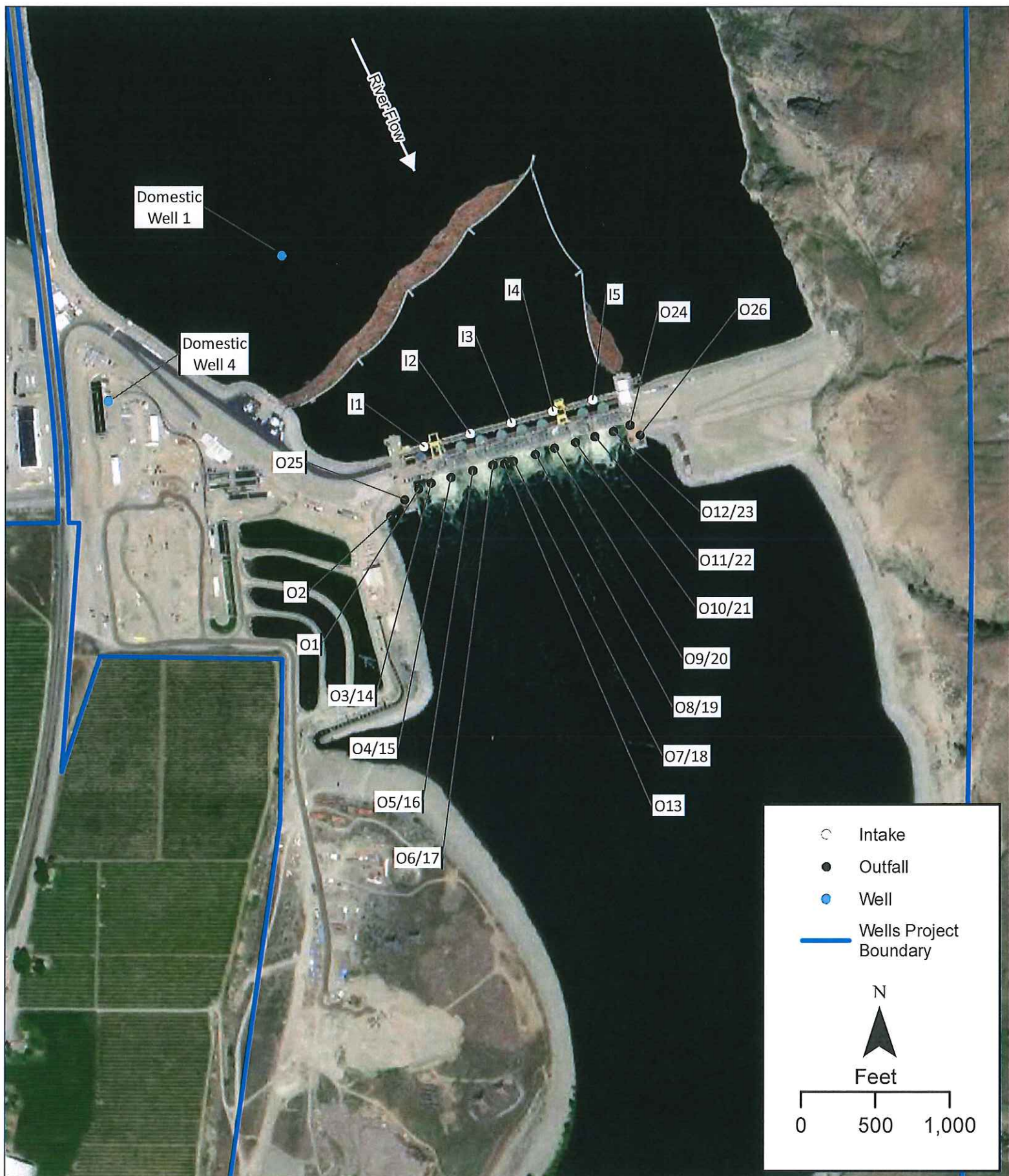


Exhibit B

Form 2C – Wells Dam Hydroelectric Project NPDES Application

Permits Division



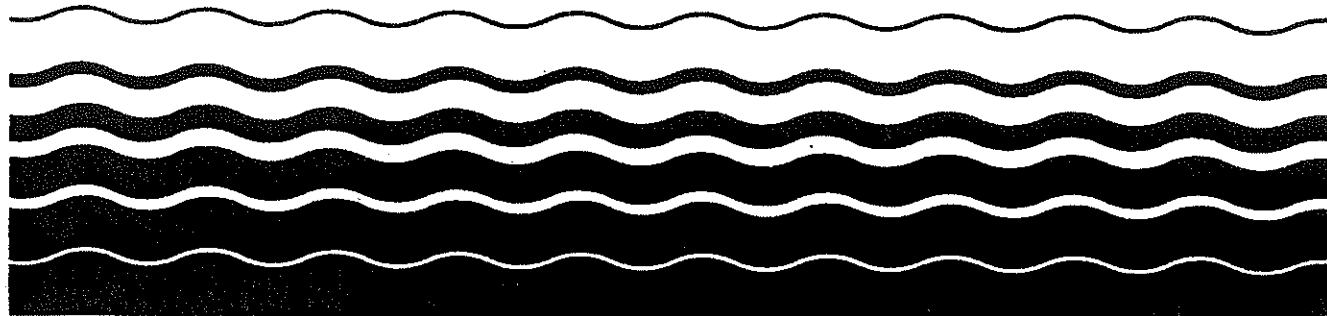
Application Form 2C - Wastewater Discharge Information

Consolidated Permits Program

This form must be completed by all persons applying for an EPA permit to discharge wastewater (*existing manufacturing, commercial, mining, and silvicultural operations*).



Printed on Recycled Paper



Please type or print in the unshaded areas only		EPA ID Number (Copy from Item 1 of Form 1)		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 <i>Consolidated Permits Program</i>			
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	
1-26					Columbia River. For a complete list of outfalls with latitude and longitude refer to Table I.
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 pictorial 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	
001a (Fig. 3)	Uplift Drains	11,000 GPD	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X
001b (Fig. 3)	Unit Expansion Joint Leakage	10,000 GPD	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X
001c (Fig. 3)	Concrete Joint Leakage	290,000 GPD (assumed)	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X
001d (Fig. 3)	Local Unit Control Board HVAC	86,400 GPD	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X
001e (Fig. 3)	Turbine guide Bearing Heat Exchanger	7,000 GPD	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X

RECEIVED

MAY 20 2019

DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

001f (Fig. 3)	Plant floor drains	0 GPD (normal)	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X
001g (Fig. 3)	Spiral Case and Draft Tube Unwatering	0 GPD (normal) 11,000 GPM, 1.5 hours, average 4 units/yr	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X
001h (Fig. 3)	Fish Ladder Unwatering	0 GPD (normal) 11,000 GPM, 1.5 hours, twice per annum (maintenance)	As necessary auto oil skimmer at surface of sump vessel	1-H	1-X
002a (Fig. 4)	Turbine Guide Bearing Packing Box Discharge to Turbine Pits	158,400 GPD	Oil water separator industrial water filter	1-H	1-X
002b (Fig. 4)	Transformer Deck Drains	0 GPD (normal) 590 GPD est in 1.8 inch rain over 24 hours	Oil water separator industrial water filter	1-H	1-X
002c (Fig. 4)	Main Sump Oil Skimmer	0 GPD (Only activitates when oil detected in sump)	Oil water separator industrial water filter	1-H	1-X
003-012 (Fig. 2)	Generator Air Cooling (10 units)	26.5 GPD (max)	Non-contact cooling	NA	NA
013 (Fig. 2)	Unit 5 Draft Tube Gate Gallary Air Compressors	40,000	Non-contact cooling	NA	NA
014a-023a (Fig. 1)	Turbine Silo Air HVAC systems (10 units)	<650,001 (total; all ten silos)	Non-contact cooling	NA	NA
024 (Fig. 1)	Mechanic Shop HVAC	<14,001	Non-contact cooling	NA	NA
015b (Fig. 1)	Engineering Office HVAC	<14,001	Non-contact cooling	NA	NA
014b (Fig. 1)	Auditorium HVAC	<7,201	Non-contact cooling	NA	NA
018b (Fig. 1)	Battery Room HVAC	<14,401	Non-contact cooling	NA	NA
017b (Fig. 1)	Relay Room HVAC	<10,001	Non-contact cooling	NA	NA

017c (Fig. 1)	Main Office HVAC	<14,401	Non-contact cooling	NA	NA
025 (Fig. 2)	Fish Pump Turbine Bearing Cooling (west)	<152,501	Non-contact cooling	NA	NA
026 (Fig. 2)	Fish Pump Turbine Bearing Cooling (east)	<152,501	Non-contact cooling	NA	NA

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		4. FLOW				
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		b. TOTAL VOLUME (specify with units)		c. DUR- ATION (in days)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	
001g	Spriral Case and Draft Tube Unwatering	<1	<1		1 MGD	1 million gal per event	1 million gal per event	1 (4 events total/yr)
001h	Fish Ladder Unwatering	<1	<1		1 MGD	1 million gal per event	1 million gal per event	0.5 (2 events total/yr
024	Mechanic Shop HVAC	7	8	est. 0.0059 MGD	0.01440 MGD		14,400 GPD	est. 150
015b	Engineering Office HVAC	7	8	est. 0.0059 MGD	0.01440 MGD		14,400 GPD	est. 150
014b	Auditorium HVAC	7	8	est. 0.003 MGD	0.0072 MGD		7,200 GPD	est. 150
018b	Battery Room HVAC	7	8	est. 0.0059 MGD	0.01440 MGD		14,400 GPD	est. 150
017b	Relay Room HVAC	7	8	est. 0.0041 MGD	0.01000 MGD		10,000 GPD	est. 150
017c	Main Office HVAC	7	8	est. 0.0059 MGD	0.01440 MGD		14,400 GPD	est. 150

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			2. AFFECTED OUTFALLS (list outfall numbers)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	
N/A			

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		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. No	b. SOURCE OF DISCHARGE		a. REQ-UIRED	b. PRO-JECTED
N/A					

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 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)

N/A

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)
<i>Cascade Analytical</i>	<i>3019 G. S. Center Road Wenatchee, WA 98801</i>	<i>(509) 662-1888</i>	<i>General Chemistry List from Part V: BOD, COD, TOC, TSS, Ammonia (as N), Residual Chlorine, Hexane Extractable Material (Oil and Grease), temperature and pH.</i>
<i>Eurofins TestAmerica Seattle</i>	<i>5755 8th Street East Tacoma, WA 98424</i>	<i>(253) 922-2310</i>	<i>Low Level Mercury & Surfactants</i>
<i>Analytical Resources, Inc.</i>	<i>4611 S. 134th Place, Suite 100 Tukwila, WA 98168</i>	<i>(206) 695-6200</i>	<i>Metals: Boron, Tin Titanium, Aluminum, Antimony, Barium, Beryllium, Chromium, Iron, Lead, Magnesium, Manganese, Silver, Thallium, Arsenic, Cadmium, Cobalt, Copper, Molybdenum, Nickel, Selenium, Zinc</i>
<i>Eurofins TestAmerica, Pensacola</i>	<i>3355 McLemore Drive Pensacola, FL 32514</i>	<i>(850) 474-1001</i>	<i>PCBs: 1016, 1221, 1232, 1242, 1248, 1254, 1260</i>
<i>ALS Environmental</i>	<i>10450 Stancliff Rd, Houston, TX 77099</i>	<i>(281) 530-5656</i>	<i>Dioxin</i>

	()	
	()	
	()	
	()	
	()	
	()	
	()	
	()	
	()	
	()	

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.

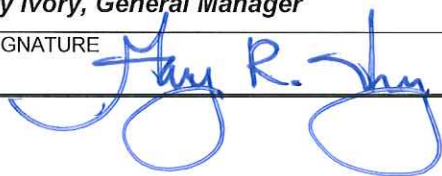
A. NAME & OFFICIAL TITLE (type or print)

Gary Ivory, General Manager

B. PHONE NO. (area code & no.)

(509) 884-7191

C. SIGNATURE



D. DATE SIGNED

5.15.19

Table I. Outfall Location List Continued from Page 1 of EPA Form 3510-2C (8-90). Receiving Water (Name) is "Columbia River" for all outfalls listed.

Operation List	Outfall Number (list)	Combined Latitude	Combined Longitude
Sump System Discharge	1	47° 56M 47.346S	-119° -52M 0.8328S
Oil Water Separator	2	47° 56M 46.1364S	-119° -52M 2.7192S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 1	3	47° 56M 47.5908S	-119° -52M 0.0372S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 2	4	47° 56M 47.8356S	-119° -51M 58.7448S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 3	5	47° 56M 48.138S	-119° -51M 57.2976S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 4	6	47° 56M 48.3792S	-119° -51M 55.9728S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 5	7	47° 56M 48.5592S	-119° -51M 54.6012S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 6	8	47° 56M 48.8472S	-119° -51M 53.1396S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 7	9	47° 56M 49.1244S	-119° -51M 51.8688S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 8	10	47° 56M 49.3764S	-119° -51M 50.4864S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 9	11	47° 56M 49.6176S	-119° -51M 49.2156S
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 10	12	47° 56M 49.848S	-119° -51M 47.952S
Silos Air Compressor room	13	47° 56M 48.444S	-119° -51M 55.2348S
Silo Unit 1 HVAC & Auditorium HVAC	14	47° 56M 47.5908S	-119° -52M 0.0372S
Silo Unit 2 HVAC & Engineering Office HVAC	15	47° 56M 47.8356S	-119° -51M 58.7448S
Silo Unit 3 HVAC	16	47° 56M 48.138S	-119° -51M 57.2976S
Silo Unit 4 HVAC, Relay Room HVAC, & Main Office HVAC	17	47° 56M 48.3792S	-119° -51M 55.9728S
Silo Unit 5 HVAC & Battery Room HVAC	18	47° 56M 48.5592S	-119° -51M 54.6012S
Silo Unit 6 HVAC	19	47° 56M 48.8472S	-119° -51M 53.1396S
Silo Unit 7 HVAC	20	47° 56M 49.1244S	-119° -51M 51.8688S
Silo Unit 8 HVAC	21	47° 56M 49.3764S	-119° -51M 50.4864S

Silo Unit 9 HVAC	22	47° 56M 49.6176S	-119° -51M 49.2156S
Silo Unit 10 HVAC	23	47° 56M 49.848S	-119° -51M 47.952S
Mechanics Shop HVAC	24	47° 56M 50.1396S	-119° -51M 46.8792S
Fish Pump Turbine Bearing Cooling (West)	25	47° 56M 46.8528S	-119° -52M 1.8012S
Fish Pump Turbine Bearing Cooling (East)	26	47° 56M 49.686S	-119° -51M 46.1916S

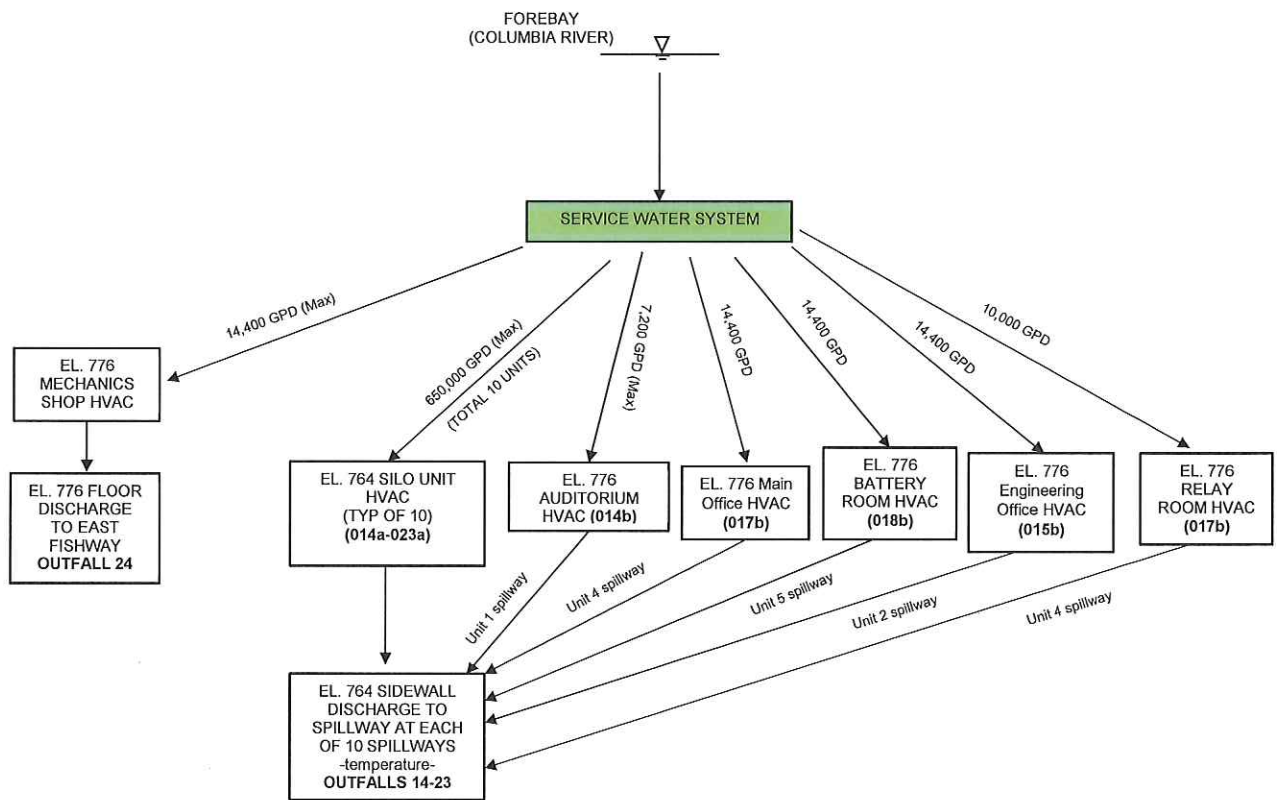


Figure 1: Service Water System Schematic for Temperature Point Source Discharges

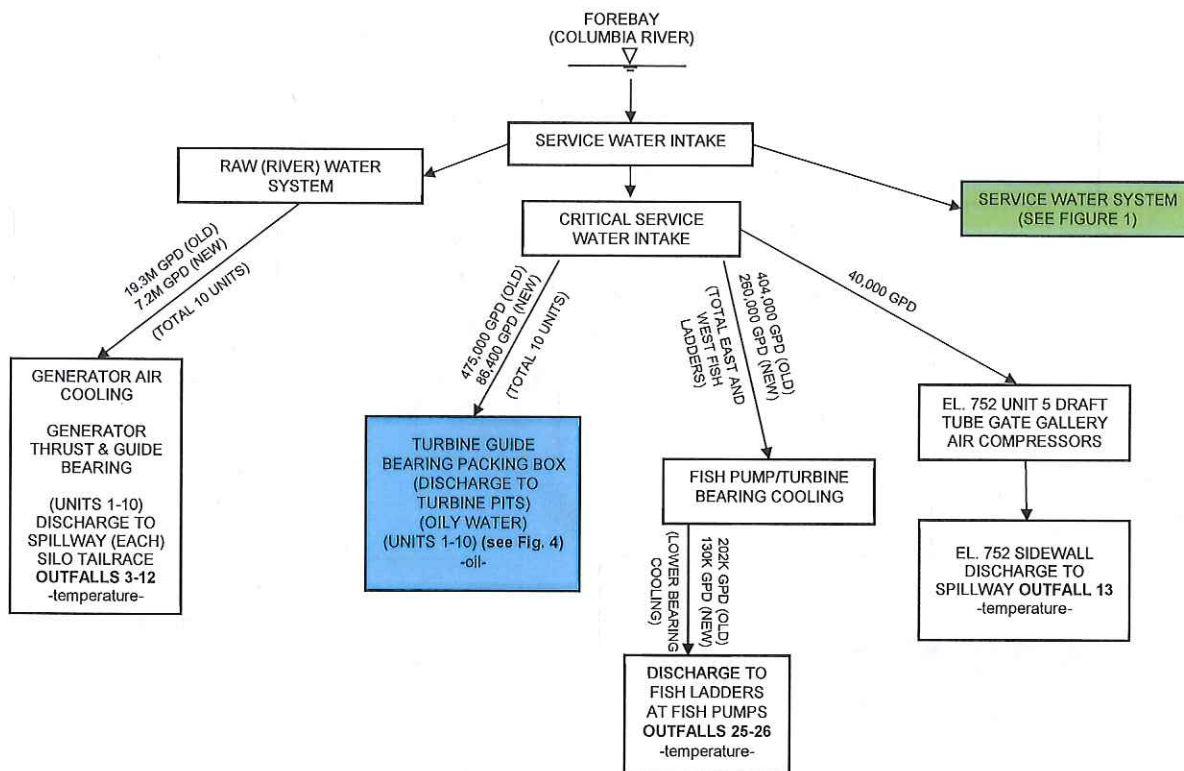
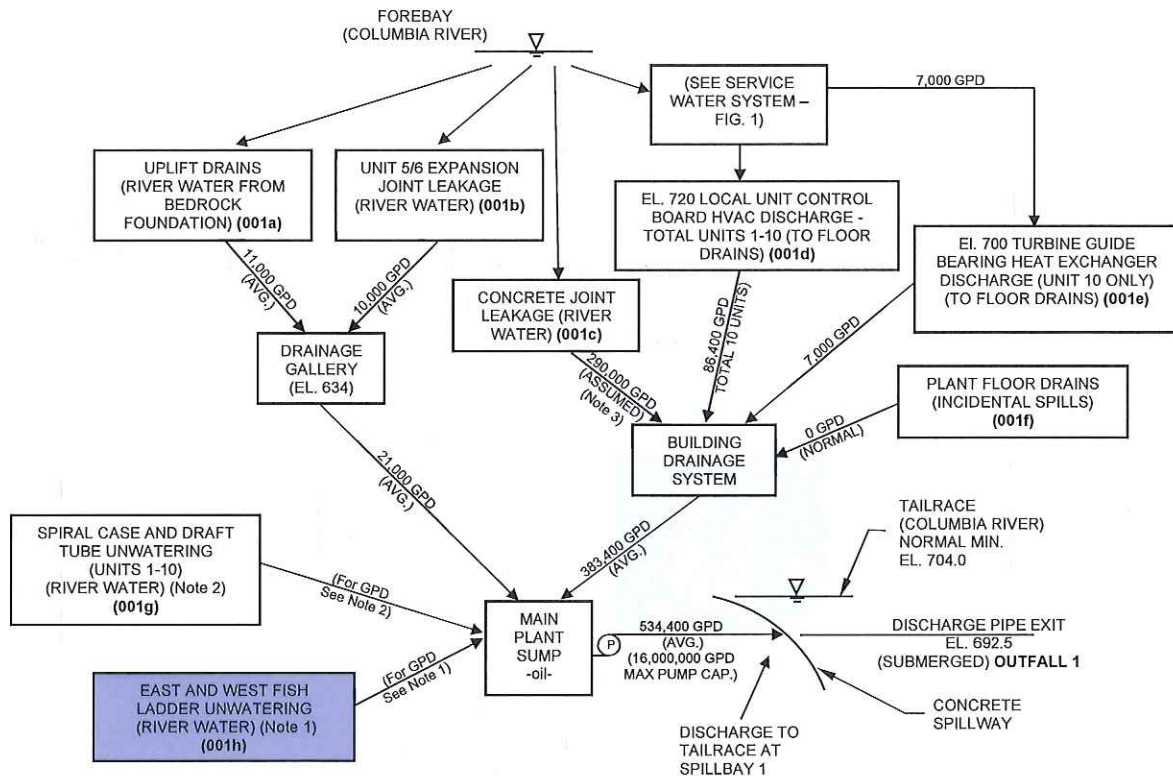


Figure 2: Raw and Critical Service Water System Schematic – Potential Oily Water and Temperature Point Source Discharges

NOTE: "Old" flow values are from the original Bechtel design. "New" flows are expected values after the turbine rebuild project is completed.

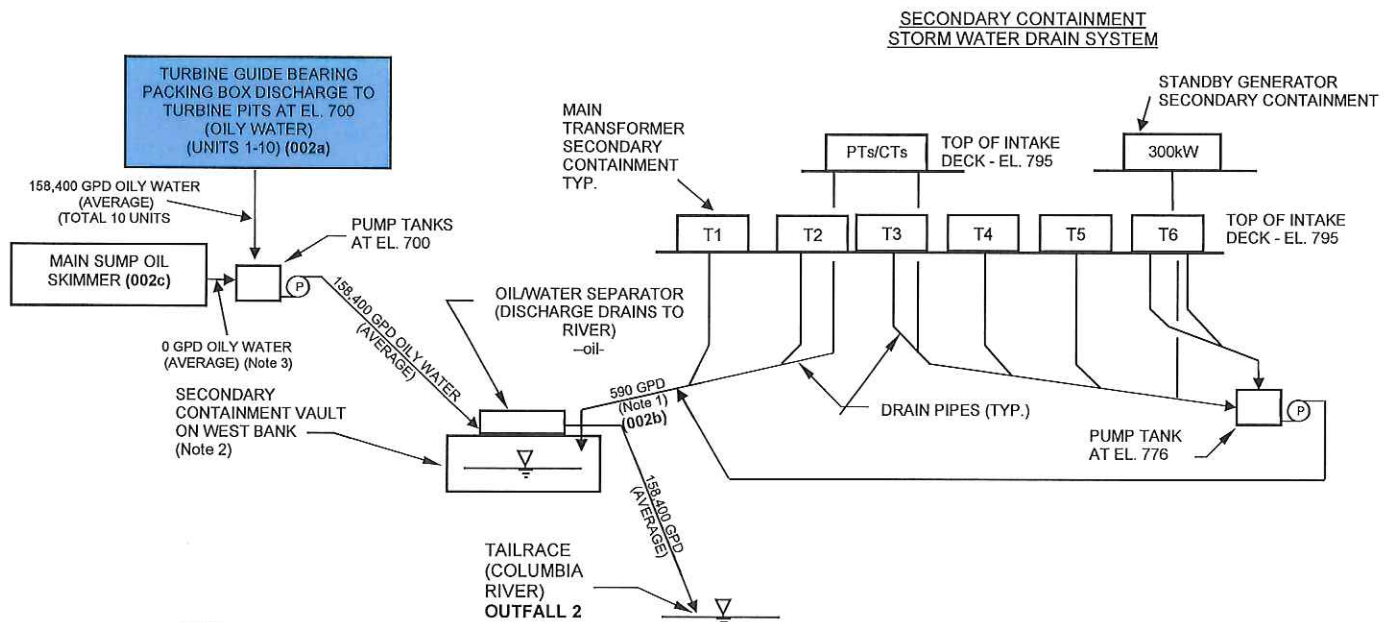


Notes:

1. The West Ladder is unwatered once per year (approximately 1M gallons). It is located adjacent to the main plant sump and takes about 1.5 hours to drain. The East Ladder (also unwatered once per year and also approximately 1M gallons) is approximately 1000 feet away and takes several (6 to 8) hours to drain due to flow rate being constrained by pipe losses in the 24-inch main cross-plant drain line. Flow rate in these lines is ultimately limited by maximum output of sump pumps (11,000 gpm).
2. The Spiral Cases and Draft Tubes in each of the 10 generating units are unwatered separately and infrequently. They are unwatered either for maintenance or for construction affecting these areas. Flow rate is limited by maximum output of sump pumps (11,000 gpm).
3. Concrete joint and crack leakage flow rates inside the dam, except where monitored (example, El. 634 gallery), are largely unknown and likely vary seasonally. The source of the leakage is river water. For this presentation, a leakage rate of 200 gpm (290,000 GPD) is assumed.

Figure 3: Plant Drainage System Schematic- Potential Oily Water Point Source Discharge

INTERNAL DAM OILY WATER REMOVAL SYSTEM



Notes:

- Flow is from 25-year, 24-hour rainfall storm event (1.8 inches at Wells Dam).
- Flow into Secondary Containment Vault on West Bank does not drain directly to river. Liquid collects in the containment and if it contains oil, it is discharged offsite via a waste oil truck. If there is no oil in the water, it is manually discharged to the tailrace.
- Sump Oil Skimmer only activates if oil is detected in the sump. Thus, there is no normal flow from the skimmer as operations in the sump do not normally involve any oily water.

Figure 4: Oily Water and Intake Deck Secondary Containment Systems Schematic – Potential Oily Water Point Source Discharge

Sump Effluent and Forebay Intake Chemical Constituent Results

Form 3510-2C V Part A and Part B

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)

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

(1) sump

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				3. UNITS (specify if blank)				4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY 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	
a. Biochemical Oxygen Demand (BOD)	2.2 mg/L				1	mg/L			2.0 mg/L		1
b. Chemical Oxygen Demand (COD)	10.9 mg/L				1	mg/L			8.8 mg/L		1
c. Total Organic Carbon (TOC)	1.43 mg/L				1	mg/L			1.42 mg/L		1
d. Total Suspended Solids (TSS)	1.0 mg/L				1	mg/L			2.0 mg/L		1
e. Ammonia (as N)	40.07 mg/L				1	mg/L			40.07 mg/L		1
f. Flow	Value	1000 gpm	Value	Maximum	1				Value	59,600 cfs	1
g. Temperature (winter)	Value	8.4°C	Value		1			°C	Value	9.2°C	1
h. Temperature (summer)	Value	8.4°C	Value		1			°C	Value	9.2°C	1
i. pH	Minimum 7.75	Maximum 7.75	Minimum	Maximum	1	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. POLLUT- ANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT						d. NO. OF ANALYSIS	4. UNITS (specify if blank)		5. INTAKE (optional)	
	a. BE- LIEVE D PRES- ENT	b. BE- LIEVE D AB- SENT	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) CONCENTRA TION	(2) MASS	(1) CONCENTRATIO N	(2) MASS	(1) CONCENTRATIO N	(2) MASS					
a. Bromide (24959-67-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
b. Chlorine Total Residual	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
c. Color	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
d. Fecal Coliform	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
e. Fluoride (16984-48-8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
f. Nitrate- Nitrite (as N)	<input type="checkbox"/>	<input checked="" type="checkbox"/>											

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)			
		3 BE- LIEVE D PRE- SENT	4 BE- LIEVE D SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		d. NO. OF ANALYSIS	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRA- TION	(2) MASS	(1) CONCENTRA- TION	(2) MASS				(1) CONCENTRA- TION	(2) MASS	
g. Nitrogen, Total Organic (as N)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
h. Oil and Grease		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.4 mg/L				1	mg/L			3.9 mg/L	1
i. Phosphorus (as P), Total (7723-14-0)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
j. Radioactivity													
(1) Alpha, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
(2) Beta, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
(3) Radium, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
(4) Radium 226, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
k. Sulfate (as SO ₄) (14808-79-8)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
l. Sulfide (as S)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
m. Sulfite (as SO ₃) (14265-45-3)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
n. Surfactants		<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.04				1	mg/L			0.04	1
o. Aluminum, Total (7429-90-5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
p. Barium, Total (7440-39-3)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
q. Boron, Total (7440-42-8)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
r. Cobalt, Total (7440-48-4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
s. Iron, Total (7439-89-4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
t. Magnesium, Total (7439-95-4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
u. Molybdenum, Total (7439-98-7)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
v. Manganese, Total (7439-96-5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
w. Tin, Total (7440-31-5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
x. Titanium, Total (7440-32-6)		<input type="checkbox"/>	<input checked="" type="checkbox"/>										

CONTINUED FROM PAGE 3 OF FORM 2-C

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

OUTFALL NUMBER

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)		b. NO. OF ANALYSES	
	a. TEST-ING REQUIRED	b. BELIEVED PRE-SENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS		
					(2) MASS	(1) CONCENTRATION								(2) MASS
METALS, CYANIDE, AND TOTAL PHENOLS														
1m. Antimony, Total (7440-36-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.116				1	ug/L			0.0960		1
2m. Arsenic, Total (7440-38-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.629				1	ug/L			0.711		1
3m. Beryllium, Total (7440-41-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not detected				1	ug/L			not detected		1
4m. Cadmium, Total (7440-43-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not detected				1	ug/L			not detected		1
5m. Chromium, Total (7440-47-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.150				1	ug/L			not detected		1
6m. Copper, Total (7440-50-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.27				1	ug/L			0.581		1
7m. Lead, Total (7439-92-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.0				1	ug/L			0.760		1
8m. Mercury, Total (7439-97-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.19				1	ng/L			0.30		1
9m. Nickel, Total (7440-02-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.366				1	ug/L			0.336		1
10m. Selenium, Total (7782-49-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not detected				1	ug/L			not detected		1
11m. Silver, Total (7440-22-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	not detected				1	ug/L			not detected		1
12m. Thallium, Total (7440-28-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0230				1	ug/L			not detected		1
13m. Zinc, Total (7440-66-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.06				1	ug/L			1.64		1
14m. Cyanide, Total (57-12-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A				1	ug/L			N/A		N/A
15m. Phenols, Total	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A				1	ug/L			N/A		N/A
DIOXIN														
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1784-01-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
DESCRIBE RESULTS														

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. (if available)			2. MARK 'X'		3. EFFLUENT				4. UNITS (specify if blank)		5. INTAKE (optional)		b. NO. OF ANALYSES
a. TESTING REQUIRED	b. BELIEVED PRE-SENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE	b. MAXIMUM 30 DAY VALUE (if available)	c. LONG TERM AVRG. VALUE (if available)	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE	b. MASS			
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			
GC/MS - VOLATILE COMPOUNDS													
1V. Acrolein (107-02-8)	<input type="checkbox"/>	<input type="checkbox"/>											
2V. Acrylonitrile (107-13-1)	<input type="checkbox"/>	<input type="checkbox"/>											
3V. Benzene (71-43-2)	<input type="checkbox"/>	<input type="checkbox"/>											
4V. Bis (Chloromethyl) Ether (542-88-1)	<input type="checkbox"/>	<input type="checkbox"/>											
5V. Bromoform (75-25-2)	<input type="checkbox"/>	<input type="checkbox"/>											
6V. Carbon Tetrachloride (58-23-5)	<input type="checkbox"/>	<input type="checkbox"/>											
7V. Chlorobenzene (108-90-7)	<input type="checkbox"/>	<input type="checkbox"/>											
8V. Chlorodibromomethane (324-43-1)	<input type="checkbox"/>	<input type="checkbox"/>											
9V. Chloroethane (75-00-3)	<input type="checkbox"/>	<input type="checkbox"/>											
10V. 2-Chloroethylvinyl Ether (110-75-9)	<input type="checkbox"/>	<input type="checkbox"/>											
11V. Chloroform (67-66-3)	<input type="checkbox"/>	<input type="checkbox"/>											
12V. Dichlorobromomethane (75-27-4)	<input type="checkbox"/>	<input type="checkbox"/>											
13V. Dichlorodifluoromethane (75-71-8)	<input type="checkbox"/>	<input type="checkbox"/>											
14V. 1,1-Dichloroethane (75-27-3)	<input type="checkbox"/>	<input type="checkbox"/>											
15V. 1,2-Dichloroethane (107-06-2)	<input type="checkbox"/>	<input type="checkbox"/>											
16V. 1,1-Dichloroethylene (75-35-4)	<input type="checkbox"/>	<input type="checkbox"/>											
17V. 1,2-Dichloroethene (78-07-6)	<input type="checkbox"/>	<input type="checkbox"/>											
18V. 1,3-Dichloropropene (542-75-6)	<input type="checkbox"/>	<input type="checkbox"/>											
19V. Ethylbenzene (100-41-4)	<input type="checkbox"/>	<input type="checkbox"/>											
20V. Methyl Bromide (74-83-9)	<input type="checkbox"/>	<input type="checkbox"/>											
21V. Methyl Chloride (74-87-3)	<input type="checkbox"/>	<input type="checkbox"/>											

1. POLLUTANT AND CAS NO. (if available)		2. MARK 'X'		3. EFFLUENT				4. UNITS (specify if blank)		5. INTAKE (optional)		b. NO. OF ANALYSES
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 ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE	(2) MASS	
			(1) CONCENTRATION	(2) MASS	(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)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
23 V. 1,1,2,2-Tetrachloroethane (79-34-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
24 V. Trichloroethylene (127-18-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
25 V. Toluene (108-88-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
26 V. 1,2,3-Trichlorobenzene (159-89-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
27 V. 1,1,1-Trichloroethane (71-55-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
28 V. 1,1,2-Trichloroethane (78-00-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
29 V. Trichloroethylene (78-01-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
30 V. Trichlorofluoromethane (75-69-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
31 V. Vinyl Chloride (75-01-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
GC/MS FRACTION - ACID COMPOUNDS												
1A. 2-Chlorophenol (95-57-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
2A. 2,4-Dichlorophenol (120-83-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
3A. 2,4-Dimethylphenol (105-67-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
4A. 4,6-Dinitro-2-cresol (534-52-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
5A. 2,4-Dinitrophenol (51-28-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
6A. 2-Nitro-phenol (88-75-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
7A. 4-Nitro-phenol (100-02-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
8A. P-Chloro-M-Cresol (59-50-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
9A. Pentachlorophenol (87-86-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
10A. Phenol (108-95-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
11A. 2,4,6-Trichlorophenol (88-06-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. (if available)			2. MARK 'X'			3. EFFLUENT				4. UNITS (specify if blank)		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BE- LIEVED PRE-SENT	c. BE- LIEVED 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														
18. Acetophenone (93-52-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
28. Acetanaphthylene (208-98-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
32. Anthracene (120-12-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
48. Benzidine (92-87-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
58. Benzo (a) Anthracene (95-55-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
68. Benzo (a) Pyrene (50-35-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
78. 3,4-Benzofluoranthene (205-98-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
88. Benzo (b) Pyrene (191-24-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
98. Benzo (k) Fluoranthene (207-28-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
108. Bis (2-Chloroethoxy) Ethane (111-81-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
118. Bis (2-Chloroethyl) Ether (111-44-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
128. Bis (2-Chloroisopropyl) Ether (109-60-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
138. Bis(2-Ethylhexyl) Phthalate (117-81-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
148. 4-Bromophenyl Phenyl Ether (101-35-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
158. Butyl Benzyl Phthalate (95-55-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
168. Chloronaphthalene (91-59-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
178. 4-Chlorophenyl Phenyl Ether (1005-72-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
188. Chrysene (215-01-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
198. Dibenzo (a,h) Anthracene (53-00-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
208. 1,2-Dichlorobenzene (95-50-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
218. 1,3-Dichlorobenzene (541-73-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											

CONTINUED FROM PAGE V-6

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

OUTFALL NUMBER

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			3. EFFLUENT				4 if blank			5. INTAKE (optional)		b. NO. OF ANALYSES	
	a. TESTING REQUIRED	b. BELIEVED PRE-SENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. MASS
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS							
GC/MS - BASE/NEUTRAL COMPOUNDS (continued)														
22B. 1,4-Dichlorobenzene (105-46-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
23B. 3,3'-Dichlorobenzidine (91-94-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
24B. Diethyl Phthalate (84-66-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
25B. Dimethyl Phthalate (101-81-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
26B. Di-N-Butyl Phthalate (84-74-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
27B. 2,4-Dinitrotoluene (121-14-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
28B. 2,6-Dinitrotoluene (605-20-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
29B. Di-N-Octyl Phthalate (117-84-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
30B. 1,2-Diphenylhydrazine (as Adducts) (122-66-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
31B. Fluoranthene (205-44-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
32B. Fluorene (96-73-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
33B. Hexachlorobenzene (118-74-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
34B. Hexachlorobutadiene (87-68-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
35B. Hexachlorocyclopentadiene (77-47-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
36B. Hexachloroethane (67-72-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
37B. Indeno (1,2,3-cd) Pyrene (183-39-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
38B. Isophorone (78-59-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
39B. Naphthalene (91-20-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
40B. Nitrobenzene (98-95-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
41B. N-Nitrosodimethylamine (62-75-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
42B. N-Nitrosodipropylamine (621-64-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											

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. BE- LIVED PRE-SENT	c. BE- LIVED 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 (85-30-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
44B. Phenanthrene (85-01-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
45B. Pyrene (123-02-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
46B. 1,2,4-Trichlorobenzene (120-35-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
GC/MS FRACTION - PESTICIDES											
1P. Aldrin (309-00-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
2P. γ -BHC (319-84-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
3P. δ -BHC (319-85-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
4P. γ -BHC (98-99-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
5P. δ -BHC (319-86-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
6P. Chlordane (57-74-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
7P. 4,4'-DDT (50-25-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
8P. 2,4'-DDE (72-55-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
9P. 4,4'-DDD (72-64-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
10P. Dieldrin (60-57-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
11P. α -Endo-sulfan (115-29-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
12P. β -Endo-sulfan (115-29-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
13P. Endosulfan Sulfate (103-07-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
14P. Endrin (72-20-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
15P. Endrin Aldehyde (7421-33-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
16P. Heptachlor (76-44-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NO. (if available)				2. MARK 'X'		3. EFFLUENT				4. UNITS (specify if blank)				5. INTAKE (optional)		
a. TEST-ING RE-QUIRED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED ABSENT	a. MAXIMUM DAILY VALUE	b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	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				
GC/MS - PESTICIDES (continued)																
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17P, Heptachlor Epoxide (1024-57-3)	ND				1	ug/L			ND	1			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18P, PCB-1242 (53469-21-9)	ND				1	ug/L			ND	1			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	19P, PCB-1254 (11097-68-1)	ND				1	ug/L			ND	1			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20P, PCB-1221 (11104-26-2)	ND				1	ug/L			ND	1			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21P, PCB-1232 (11141-15-5)	ND				1	ug/L			ND	1			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22P, PCB-1248 (12672-23-6)	ND				1	ug/L			ND	1			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	23P, PCB-1250 (11095-82-5)	ND				1	ug/L			ND	1			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	24P, PCB-1016 (12574-11-2)	ND				1	ug/L			ND	1			
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	25P, Toxaphene (8001-35-2)	N/A				1	ug/L			ND	1			

"ND" = Not detected at or below min. detection limit.

Oil Water Separator Effluent and Forebay Intake Chemical Constituent Results

Form 3510-2C V Part A and Part B

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)

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

201/Jan/19 Sep.

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						3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY 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		
a. Biochemical Oxygen Demand (BOD)	42 mg/L				1				42.0 mg/L		1
b. Chemical Oxygen Demand (COD)	10.9 mg/L				1				8.8 mg/L		1
c. Total Organic Carbon (TOC)	2.06 mg/L				1				1.42 mg/L		1
d. Total Suspended Solids (TSS)	1.0 mg/L				1				2.0 mg/L		1
e. Ammonia (as N)	40.07 mg/L				1				20.07 mg/L		1
f. Flow	Value 110 gpm	Maximum 7.86	Value	Maximum	1				Value 59,600 cfs	1	
g. Temperature (winter)	Value 9.4°C		Value		1		°C		Value 9.2°C	1	
h. Temperature (summer)	Value 9.4°C		Value		1		°C		Value 9.2°C		
i. pH	Minimum 7.86	Maximum 7.86	Minimum	Maximum	1		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						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)				d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
					c. LONG TERM AVRG. VALUE (if available)		(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS								
a. Bromide (24959-67-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>												
b. Chlorine, Total Residual	<input type="checkbox"/>	<input checked="" type="checkbox"/>												
c. Color	<input type="checkbox"/>	<input checked="" type="checkbox"/>												
d. Fecal Coliform	<input type="checkbox"/>	<input checked="" type="checkbox"/>												
e. Fluoride (16984-48-8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>												
f. Nitrate-Nitrite (as N)	<input type="checkbox"/>	<input checked="" type="checkbox"/>												

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. BE- LIEVE PRES- ENT	b. BE- LIEVE DIS- SENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION (2) MASS		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION (2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
h. Oil and Grease		<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.5 mg/L				1	mg/L		3.9 mg/L	1
i. Phosphorus (as P), Total (7723-14-0)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
j. Radioactivity												
(1) Alpha, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
(2) Beta, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
(3) Radium, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
(4) Radium 226, Total		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
k. Sulfate (as SO ₄) (14808-79-8)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
l. Sulfide (as S)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
m. Sulfite (as SO ₃) (14265-45-3)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
n. Surfactants		<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.044				1	mg/L		6.041	1
o. Aluminum, Total (7429-90-5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
p. Barium, Total (7440-39-3)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
q. Boron, Total (7440-42-8)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
r. Cobalt, Total (7440-48-4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
s. Iron, Total (7439-89-4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
t. Magnesium, Total (7439-95-4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
u. Molybdenum, Total (7439-98-7)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
v. Manganese, Total (7439-96-5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
w. Tin, Total (7440-31-5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									
x. Titanium, Total (7440-32-6)		<input type="checkbox"/>	<input checked="" type="checkbox"/>									

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 PRE-SENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)	d. NO. OF ANALYSES	3. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS					(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS														
1m. Antimony, Total (7440-36-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.186					1	ug/L		0.0960		1
2M. Arsenic, Total (7440-38-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.606					1	ug/L		0.711		1
3M. Beryllium, Total (7440-41-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not Detected					1	ug/L		not detected		1
4M. Cadmium, Total (7440-43-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0350					1	ug/L		not detected		1
5M. Chromium, Total (7440-47-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.647					1	ug/L		not detected		1
6M. Copper, Total (7440-50-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7.63					1	ug/L		0.581		1
7M. Lead, Total (7439-92-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.811					1	ug/L		0.0760		1
8M. Mercury, Total (7439-97-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.24					1	ng/L		0.30		1
9M. Nickel, Total (7440-02-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.832					1	ug/L		0.336		1
10M. Selenium, Total (7782-49-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not Detected					1	ug/L		not detected		1
11M. Silver, Total (7440-22-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not Detected					1	ug/L		not detected		1
12M. Thallium, Total (7440-28-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0150					1	ug/L		not detected		1
13M. Zinc, Total (7440-66-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.80					1	ug/L		1.64		1
14M. Cyanide, Total (57-12-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A					1	ug/L		N/A		
15M. Phenols, Total	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A					1	ug/L		N/A		
DIOXIN														
2,3,7,8-Tetrachlorodibenzo-p-Dioxin (1764-01-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DESCRIBE RESULTS Not Detected.										

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			3. EFFLUENT				4. UNITS (specify if blank)		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BE- LIVED PRESENT	c. BE- LIVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			
GC/MS - VOLATILE COMPOUNDS												
1V. Acrolein (107-02-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
2V. Acrylonitrile (107-13-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
3V. Benzene (71-43-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
4V. Bis (Chloromethyl) Ether (542-88-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
5V. Bromoform (75-25-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
6V. Carbon disulfide (56-23-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
7V. Chlorobenzene (108-90-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
8V. Chlorodibromomethane (124-48-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
9V. Chloroethane (75-00-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
10V. 2-Chloroethylvinyl Ether (110-75-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
11V. Chloroform (67-66-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
12V. Dichlorobromomethane (107-72-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
13V. Dichlorodibromomethane (75-71-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
14V. 1,1-Dichloroethane (75-27-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
15V. 1,2-Dichloroethane (107-06-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
16V. 1,1-Dichloroethylene (7535-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
17V. 1,2-Dichloropropane (78-07-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
18V. 1,2-Dichloropropane (78-07-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
19V. Ethylbenzene (100-41-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
20V. Methyl Bromide (74-83-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
21V. Methyl Chloride (74-87-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									

CONTINUED FROM PAGE V-4

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

OUTFALL NUMBER

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			3. EFFLUENT				4. UNITS (specify if blank)			5. INTAKE (optional)		b. NO. OF ANALYSES
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION (2) MASS	b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION (2) MASS		
					(1) CONCENTRATION	(2) MASS							
GC/MS - VOLATILE COMPOUNDS (continued)													
22 V. Methylene Chloride (75-09-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
23V. 1,1,2,2-Tetrachloroethane (79-94-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
24V. Tetrachloroethylene (127-18-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
25V. Toluene (108-88-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
26V. 1,2-Trans-Dichloroethylene (156-60-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
27V. 1,1,1-Trichloroethane (71-55-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
28V. 1,1,2-Trichloroethane (78-00-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
29V. Trichloroethylene (78-01-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
30V. Trichlorofluoromethane (75-69-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
31V. Vinyl Chloride (75-01-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
GC/MS FRACTION - ACID COMPOUNDS													
1A. 2-Chlorophenol (85-57-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
2A. 2,4-Dichlorophenol (120-83-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
3A. 2,4-Dimethylphenol (105-67-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
4A. 1,6-Dinitro-2-cresol (534-52-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
5A. 2,4-Dinitrophenol (51-28-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
6A. 2-Nitrophenol (88-75-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
7A. 4-Nitrophenol (100-02-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
8A. p-Chloro-N-Cresol (95-50-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
9A. Penta-chlorophenol (87-88-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
10A. Phenol (108-95-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
11A. 2,4,6-Trichlorophenol (88-06-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										

CONTINUED FROM THE FRONT

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 PRE-SENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE	b. MAXIMUM 30 DAY VALUE (if available)	c. LONG TERM AVRG. VALUE (if available)	d. NO. OF ANALYSES	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. Acenaphthene (83-32-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
2B. Acenaphthylene (208-96-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
3B. Anthracene (120-12-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
4B. Benzidine (92-87-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
5B. Benzo (a) Anthracene (58-55-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
6B. Benzo (a) Pyrene (50-32-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
7B. 3,4-Benzofluoranthene (253-55-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
8B. Benzo (ghi) Perylene (131-24-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
9B. Benzo (k) Fluoranthene (207-08-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
10B. Bis (2-Chloroethoxy) Methane (111-91-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
11B. Bis (2-Chloroethyl) Ether (111-44-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
12B. Bis (2-Chloropropyl) Ether (108-59-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
13B. Bis (2-Ethylhexyl) Phthalate (117-81-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
14 B. 4-Bromophenyl Phenyl Ether (101-55-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
15B. Butyl Benzyl Phthalate (85-68-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
16B. 2-Chloronaphthalene (81-56-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
17B. 4-Chlorophenyl Phenyl Ether (205-72-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
18B. Chrysene (218-01-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
19B. Dibenzo (a,h) Anthracene (53-70-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
20B. 1,2-Dichlorobenzene (95-50-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
21B. 1,3-Dichlorobenzene (541-73-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									

CONTINUED FROM PAGE V-6

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

OUTFALL NUMBER

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			3. EFFLUENT				4 if blank		5. INTAKE (optional)		b. NO. OF ANALYSES
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION (2) MASS	b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION (2) MASS	
					(1) CONCENTRATION	(2) MASS						
GC/MS - BASE/NEUTRAL COMPOUNDS (continued)												
22B. 1,4-Dichlorobenzene (106-46-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
23B. 3,3'-Dichlorobenzidine (92-84-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
24B. Diethyl Phthalate (84-66-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
25B. Dimethyl Phthalate (131-11-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
26B. Di-N-Butyl Phthalate (84-74-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
27B. 2,4-Dinitrotoluene (121-14-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
28B. 2,6-Dinitrotoluene (89-20-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
29B. Di-N-Octyl Phthalate (101-83-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
30B. 1,2-Diphenylhydrazine (as Alder benzene) (122-65-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
31B. Fluoranthene (205-44-0)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
32B. Fluorene (86-73-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
33B. Hexachlorobenzene (118-74-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
34B. Hexachlorobutadiene (87-68-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
35B. Hexachlorocyclopentadiene (77-47-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
36B. Hexachloroethane (67-72-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
37B. Indeno (1,2,3-cd) Pyrene (183-33-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
38B. Isopropylbenzene (78-59-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
39B. Naphthalene (91-20-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
40B. Nitrobenzene (98-95-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
41B. N-Nitrosodimethylamine (62-75-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
42B. N-Nitrosodipropylamine (621-84-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									

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. BE- LIVED PRE-SENT	c. BE- LIVED 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-Nitro-sodiphenylamine (85-30-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
44B. Pteranthrene (85-01-7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
45B. Pyrene (123-02-0)	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
46B. 1,2,4-Trichlorobenzene (120-82-1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
GC/MS FRACTION - PESTICIDES											
1P. Aldrin (505-00-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
2P. γ -BHC (319-84-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
3P. δ -BHC (319-85-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
4P. η -BHC (58-89-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
5P. Σ -BHC (319-85-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
6P. Chlordane (57-74-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
7P. 2,4-DDT (50-28-5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
8P. 2,4'-DDE (72-55-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
9P. 2,4'-DDD (72-84-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
10P. Dieldrin (60-57-1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
11P. α -Endo-sulfan (115-28-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
12P. β -Endo-sulfan (115-28-7)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
13P. Endo-sulfan Sulfate (1031-07-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
14P. Endrin (72-20-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
15P. Endrin Aldehyde (7421-53-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
16P. Heptachlor (78-44-8)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								

CONTINUED FROM PAGE V-6

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 AVG. VALUE (if available)		d. NO. OF ANALYSES	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 - PESTICIDES (continued)													
17P, Heptachlor Epoxide (1054-572-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
18P, Dieldrin (50469-21-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
19P, PCB-1254 (11097-69-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
20P, PCB-1221 (11104-26-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
21P, PCB-1232 (11141-16-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
22P, PCB-1248 (12672-29-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
23P, PCB-1260 (11096-82-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
24P, PCB-1016 (12674-11-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		ND				1	ug/L		ND	1
26P, Toluene (8001-35-2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		N/A				1	ug/L		ND	1

"ND" = Not detected at or below min. detection limit.

Table II. Outfall Grab Temperatures.

Operation List	Outfall Number	Incoming Temp (°C)	Discharge Temperature (°C)	Date and Time
Sump system discharge	1	9.2	8.4	4/23/19 14:25
Oil Water Separator	2	8.4	9.4	4/23/19 15:10
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 1 (old design, scheduled for rehab)	3	2.90	23.60	2/11/19 14:22
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 2 (new design)	4	NA	Similar outfall to Unit 7. Not measured.	NA
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 3 (old design, scheduled for rehab)	5	NA	Similar outfall to Unit 1. Not measured.	NA
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 4 (new design)	6	NA	Similar outfall to Unit 7. Not measured.	NA
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 5 (old design, scheduled for rehab)	7	NA	Similar outfall to Unit 1. Not measured.	NA
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 6 (old design, scheduled for rehab)	8	NA	Similar outfall to Unit 1. Not measured.	NA
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 7 (new design)	9	3.00	35.40	2/13/19 14:22
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 8 (old design, scheduled for rehab)	10	NA	Similar outfall to Unit 1. Not measured.	NA
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 9 (old design, scheduled for rehab)	11	NA	Similar outfall to Unit 1. Not measured.	NA
Generator Air Cooling: Generator Thrust and Guide Bearing Unit 10 (old design, scheduled for rehab)	12	NA	Similar outfall to Unit 1. Not measured.	NA
Silos Air Compressor room	13	8.5	19.67	5/10/19 14:56
Silo Unit 1 HVAC & Auditorium HVAC	14	8.5	19.07 & 18.90	5/10/19 15:08
Silo Unit 2 HVAC & Engineering Office HVAC	15	8.5	19.34 & 8.89	5/10/19 15:10
Silo Unit 3 HVAC	16	NA	Similar outfall. Not measured.	NA
Silo Unit 4 HVAC, Relay Room HVAC, & Main Office HVAC	17	8.5	17.83, 15.66, & 12.23	5/6/19 14:30
Silo Unit 5 HVAC & Battery Room HVAC	18	8.5	15.03 & 14.89	5/6/19 14:10
Silo Unit 6 HVAC	19	NA	Similar outfall. Not measured.	NA
Silo Unit 7 HVAC	20	NA	Similar outfall. Not measured.	NA
Silo Unit 8 HVAC	21	NA	Similar outfall. Not measured.	NA
Silo Unit 9 HVAC	22	NA	Similar outfall. Not measured.	NA
Silo Unit 10 HVAC	23	NA	Similar outfall. Not measured.	NA
Mechanics Shop HVAC	24	8.5	17.00	5/6/19 14:33
Fish Pump Turbine Bearing Cooling (West)	25	8.5	8.61	5/6/19 15:00
Fish Pump Turbine Bearing Cooling (East)	26	8.5	8.61	5/6/19 15:00

Multiple values in the "Discharge Temperature" column separate two or more HVAC processes that contribute to the same outfall (see operation list for these processes).

Exhibit C

Form 2C Supplement – Wells Dam Hydroelectric Project NPDES Application



EPA Form 2-C Supplemental Cooling Water Intake Structures

CWA §316(b) requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. EPA has promulgated rules for new facilities at 40 CFR 125 Subpart I and for existing facilities at 40 CFR 125 Subpart J. This form requests information from applicants using EPA Form 2-C to determine applicability of CWA 316(b) requirements and inform applicants of additional application requirements that may apply to the facility.

Facility Name: Wells Hydroelectric Project NPDES Permit Number: _____

SECTION A. APPLICABILITY

☒ Yes ☐ No

Is there a cooling water intake associated with this facility? Cooling water intake means a structure withdrawing cooling water, for contact or noncontact cooling, from a surface water source. Withdrawal from groundwater or a public water system is not applicable. If No, STOP.

- What is the design intake flow (in gallons per day)? See detail on next page.
- What percentage of the flow is used exclusively for cooling? "
- What is the maximum intake velocity? "
- Describe the cooling water system (e.g., once-through, closed-cycle). "
- Name the surface water body from which cooling water is withdrawn. "
- Provide latitude/longitude of the cooling water intake(s) (NAD83/WGS84). " / _____
To ensure accurate locations provide at least 5 significant digits.
- Describe the configuration of the intake(s) (e.g., dimensions, screen type). "
If as-built plans and specifications are available, please provide.
- When was the intake(s) installed, including any major modifications? "
- When was the intake(s) last inspected? If regular inspections are scheduled, provide frequency. "
- Have there been any studies to determine the impact of the intake(s) on aquatic organisms (e.g., impingement/entrainment studies). ☒ Yes ☐ No See detail on next page.
If yes, please provide

SECTION B. APPLICATION REQUIREMENTS

CWA §316(b) requirements apply to all industrial NPDES permitted facilities with cooling water intake structures. EPA has promulgated best technology available (BTA) effluent guidelines for facilities meeting certain thresholds:

- Design intake flow greater than two million gallons per day.
- Greater than 25 percent of the water withdrawn is used for cooling purposes.

Submittal requirements for facilities subject to BTA effluent guidelines:

- New facilities must submit information specified in 40 CFR 122.21(r) and 40 CFR 125.86.
- Existing facilities must submit information specified in 40 CFR 122.21(r) and 40 CFR 125.95.

Facilities subject to BTA guidelines are encouraged to contact Ecology early in the application process. Ecology may consider this application administratively incomplete until the required information is received.

Submittal requirements for existing facilities and new facilities below BTA thresholds:

- Ecology will evaluate the information submitted with this form and may request additional information to assess the need for requirements under 40 CFR 125.90(b) or 40 CFR 125.80(c).

RECEIVED

MAY 20 2019

DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Form 2-C Supplement

NPDES Permit Application Wells Dam

1. What is the design intake flow (in gallons per day)?

Flows reported are design (engineering) not physical measurements.

At maximum, cooling water intake flows at Wells Dam could be 28,461,400 gpd. Given that there are five intakes, approximately 5.7 million gpd could be used per intake. However, this maximum intake flow is estimated to be 0.088% of all gpd seen at the face of Wells Dam under the lowest seasonal flows (50 kcfs average daily flow at Wells Dam). As such, a fraction of the water used at the face of Wells Dam is designated as cooling water. Said differently, average daily river flows at Wells Dam of 50,000 cfs (extremely low flows) would amount to greater than 32.3 billion gallons of water, of which a maximum of 0.088% would be used for cooling water purposes. Further, the former is a high design estimate since low flows of 50,000 cfs would only require the operation of 3 hydroelectric turbines and approximately 8.5 million gpd for cooling water purposes (30% of max cooling water intakes). On balance, a small fraction of surface water is used for cooling water purposes even though more than 2 million gallons per day are used on average.

2. What percentage of the flow is used exclusively for cooling?

The five 20 inch intakes that are located behind the screened pier nose intakes are used exclusively for cooling water purposes (100%). However, each is adjacent to spillways above them and turbine intakes below them that use >99.9% of the water used at Wells Dam to manufacture electronics and provide safe passage of salmonids via bypass routes (spillway).

3. What is the maximum intake velocity?

The design maximum intake velocity is approximately 1.19 ft/sec or less at each intake.

4. Describe the cooling water system (e.g., once-through, closed-cycle).

Cooling water systems at Wells Dam are characterized as single pass and non-contact. Greater than 97.4% of the cooling water is used for generator cooling, guide bearing packing box cooling, or fish pump turbine bearing cooling. The balance is used for HVAC systems inside the Project. All uses of cooling are single pass and non-contact.

5. Name the surface water body from which cooling water is withdrawn.

The Columbia River is the source of cooling water withdraws at Wells Dam.

6. Provide latitude/longitude of the cooling water intake(s) (NAD83/WGS84). To ensure accurate locations provide at least 5 significant digits.

1. 47.94700, -119.86681
2. 47.94716, -119.86597

3. 47.94729, -119.86521
4. 47.94743, -119.86444
5. 47.94757, -119.86370

Note the above latitudes and longitudes are surface geo reference points (781 msl). All cooling water intakes start at 708 msl beneath the water surface.

7. Describe the configuration of the intake(s) (e.g., dimensions, screen type). If as-built plans and specifications are available, please provide.

Five intakes spread out across the upstream side of the dam and located on pier noses that separate turbine unit intakes 1, 3, 5, 7, & 9 that are located at 73 feet below (708 msl) the normal reservoir elevation (781 msl). The intakes are screened off by a trash rack that has ½" openings followed by two screens immediately behind the trash rack. The 20 inch intake pipe is located in a vault with a 4' setback from the screens. Screens slide down a track on a chain that can be dogged off from the deck of the dam. Screens are non-traveling and mesh like. The upstream screen has hole sizes of 3/8" and the downstream screen has hole sizes of ¼" in diameter (See Cooling Water Intakes Replacement Screen Panel & Details Replacement Screen Panel Details attachment). The screens are made of 12 gauge 304 stainless steel and have ½" (upstream) spacing and 3/8" (downstream) spacing respectively. Holes are spaced such that there is approximately 51% and 42% openness respectively across their 7'5" foot by 1'8.5" surface area. Please refer to attached drawings.

8. When was the intake(s) installed, including any major modifications?

The intakes are original to the Dam and commissioned in 1967. However, they were updated/replaced with the as-built description as dated on December 22, 2005 and as described in question 7 (see provided plan drawings). The bottom several inches of the trash rack has been removed to allow for more effective cleaning of the screens. This modification allows divers to clean the screens without having to pull the screens and release the debris into the intakes.

9. When was the intake(s) last inspected? If regular inspections are scheduled, provide frequency.

Wells Dam Cooling Water Intakes were last inspected in April 2019. They are inspected approximately once every five years. Typically, divers use physical debris removal to clean the screen and inspect their integrity. Historically, they have needed very little maintenance.

10. Have there been any studies to determine the impact of the intake(s) on aquatic organisms (e.g., impingement/entrainment studies).

Yes, more broadly, data collected in the spring and summers of 1990, 1991, 1992 suggest that bypass efficiency at Wells Dam, or those fish passing Wells Dam are surface oriented with 76.5-97.0% of spring and summer migrants traveling through the bypass (spillway area) rather than sounding to elevations where the cooling water or turbine water intakes are (Skalski et al., 1996). Further, survival studies conducted at Wells Dam using spring migrating smolts suggest that juvenile salmonids have survival rates that are 96.2-96.4% as they pass Wells Dam (Bickford et al., 2001, Bickford et al., 2011) and

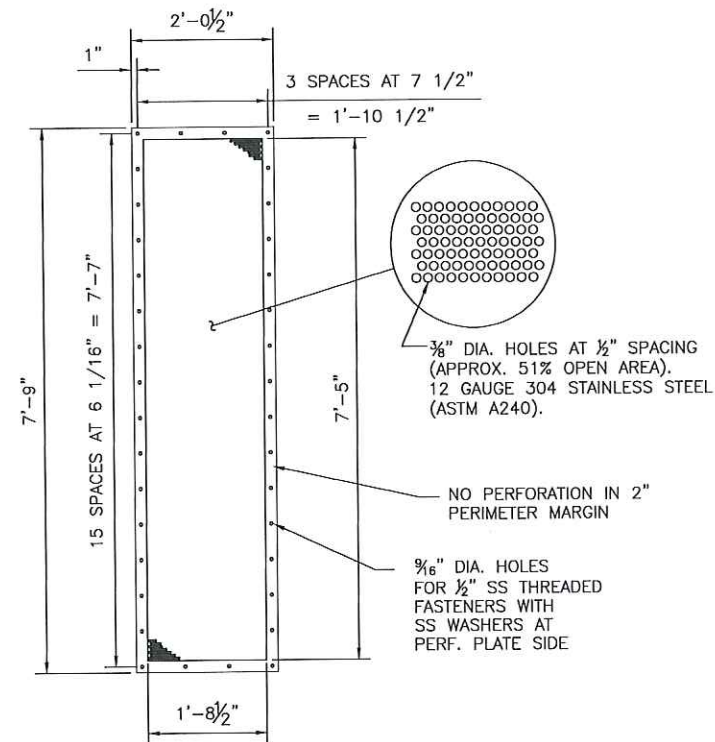
presumably would have had a chance to interact with these intake structures. Therefore, the impact on migrating salmonids and associated with the operation of cooling water intake structures on pier noses 1, 3, 5, 7 & 9 are likely miniscule if at all measurable.

References:

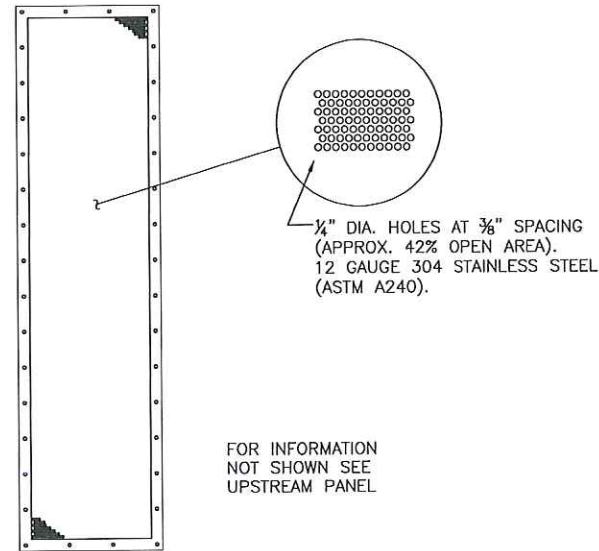
Bickford, S. A., J. R. Skalski, R. Townsend, S. McCutcheon, R. Richmond, R. Frith and R. Fechhelm. 2001. Project survival estimates for yearling summer steelhead migrating through the Wells Hydroelectric Facility, 2000.

Bickford, S.A., T. Kahler, R. Townsend, J.R. Skalski, R. Richmond, S. McCutcheon and R. Fechhelm. 2011. Project survival estimates for yearling Chinook migrating through the Wells Hydroelectric Project, 2010.

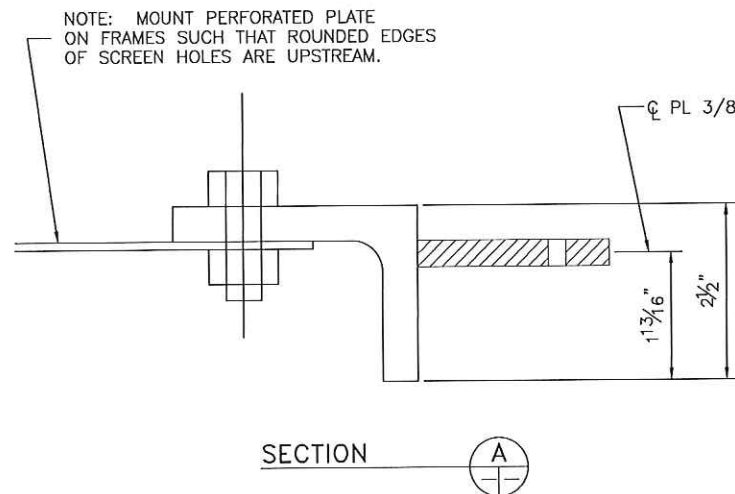
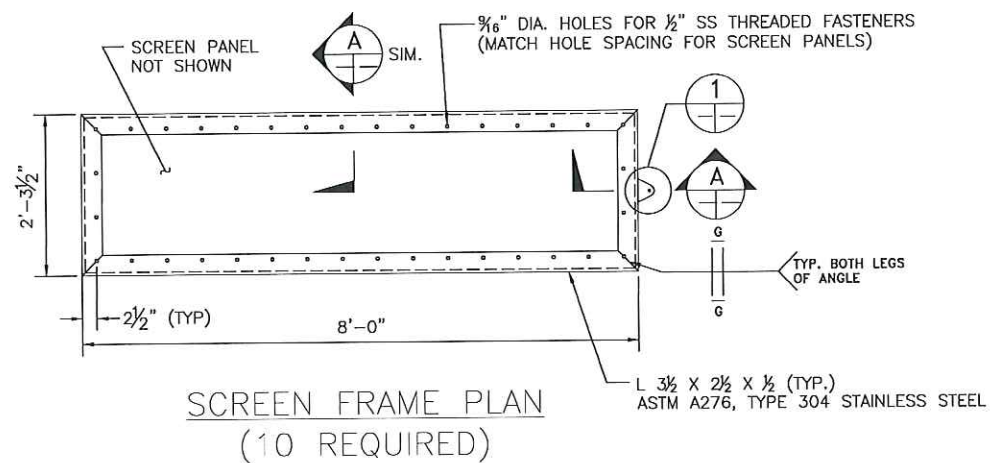
Skalski, J. R., G. E. Johnson, C. M. Sullivan, E. Kudera and M. W. Erho. 1996. Statistical Evaluation of Turbine Bypass Efficiency at Wells Dam on the Columbia River, Washington. Canadian Journal of Fisheries and Aquatic Science. Volume 53, No. 10, 1996. Pages 2188-2198.



UPSTREAM SCREEN PANEL
(5 REQUIRED)

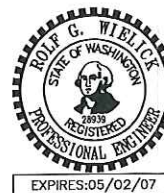
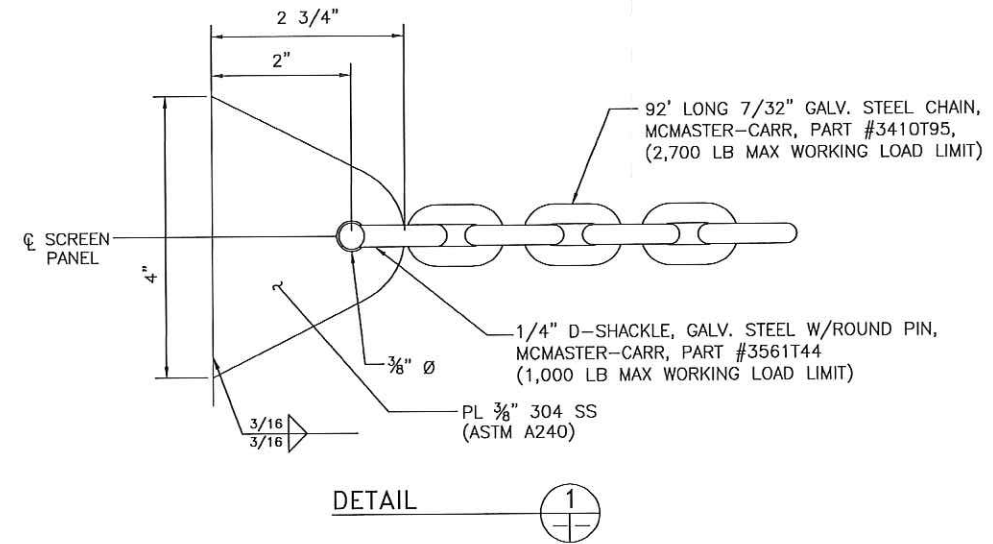


DOWNSTREAM SCREEN PANEL
(5 REQUIRED)



PARTS LIST (10 PANELS):			
L 3 1/2 x 2 1/2 x 1/2	210 LF	ASTM A276, TYPE 304	
3/8 Ø PERF. PLATE (12 GAUGE)	80 SQ FT	ASTM A240, TYPE 304	
1/4 Ø PERF. PLATE (12 GAUGE)	80 SQ FT	ASTM A240, TYPE 304	
PL 3/8	0.833 SQ FT	ASTM A240, TYPE 304	
7/32" GALV. CHAIN	920 LF	MCMaster-CARR #3410T95	
1/4" GALV. SHACKLE	10 EA.	MCMaster-CARR #3561T44	

NOTE: WORKING LOAD FOR EACH SCREEN PANEL = 700 LBS
(INCLUDES IMPACT F.S. = 1.2 AND OVERLOAD F.S. = 2.0)



Public Utility District No. 1 of Douglas County	
WELLS HYDROELECTRIC PROJECT	
WELLS DAM - COLUMBIA RIVER	
COOLING WATER INTAKES	
REPLACEMENT SCREEN PANEL & DETAILS	
REPLACEMENT SCREEN PANEL DETAILS	
DESIGNED: ATH	DRAWN: LN
CHECKED: RGW	DATE: 12/22/05
DRAWING NUMBER: X416-01-0010Z-DS-001	
SCALE: AS SHOWN	
SHEET: 1 OF 1	

Exhibit D

Laboratory Results

General Chemistry Results

pH, Total Residual Chlorine, Total Suspended Solids, Ammonia, Biological Oxygen Demand, Chemical Oxygen Demand, Hexane Extractable Material (Oil and Grease), Total Organic Carbon



(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

Batch: 990015
Client: Douglas County PUD
Account: 01006
Sampler: Michael Darlington
PO Number:
(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

--- Water Analytical Report ---

Report Date: 5/ 9/19

Douglas County PUD
1151 Valley Mall Parkway
E Wenatchee, WA 98802

Laboratory Number: 19-E009795
Sample Identification: Forebay

Date Received: 4/23/19
Date Sampled: 4/23/19

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Field pH	7.89			SM 4500H-B	4/23/19	
Field Total Res. Chlorine	< 0.05	mg/L	0.05	SM 4500-Cl G	4/23/19	
Total Suspended Solids	2.0	mg/l	1.0	SM 2540-D	4/26/19	
Ammonia	< 0.07	mg/L	0.07	SM 4500NH3-G	4/24/19	
Biological Oxygen Demand	< 2	mg/L	2	SM 5210-B	4/24/19	
Chemical Oxygen Demand	8.8	mg/L	5	SM 5220D	4/30/19	
Hexane Extract. Material	3.9	mg/L	1.4	EPA 1664B	5/ 2/19	
Total Organic Carbon	1.42	mg/L	0.5	SM 5310-C	5/ 7/19	

Laura Mrachek

Approved By Name: President

Signature:

Function:

NOTE: Certification programs include controlled sampling by Eurofins-Cascade Analytical personnel. Duplicate samples are collected, registered, and prepared for security. Analysis is performed in a timely manner and results are returned with an indicator of certification. All certification programs provide a chain of custody from point of sampling through results reporting. Eurofins-Cascade Analytical is not responsible for any misrepresentation which may have occurred before the point of sampling. Results relate only to the items tested and the sample(s) as received by the laboratory.

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, APHA, ASTM, and ANWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.



(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

Batch: 990015
Client: Douglas County PUD
Account: 01006
Sampler: Michael Darlington
PO Number:

--- Water Analytical Report ---

Report Date: 5/ 9/19

Douglas County PUD
1151 Valley Mall Parkway
E Wenatchee, WA 98802

Laboratory Number: 19-E009796

Date Received: 4/23/19

Sample Identification: Sump

Date Sampled: 4/23/19

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Field pH	7.75			SM 4500H-B	4/23/19	
Field Total Res. Chlorine	< 0.05	mg/L	0.05	SM 4500-Cl G	4/23/19	
Total Suspended Solids	1.0	mg/l	1.0	SM 2540-D	4/26/19	
Ammonia	< 0.07	mg/L	0.07	SM 4500NH3-G	4/24/19	
Biological Oxygen Demand	< 2	mg/L	2	SM 5210-B	4/24/19	
Chemical Oxygen Demand	10.9	mg/L	5	SM 5220D	4/30/19	
Hexane Extract. Material	< 1.4	mg/L	1.4	EPA 1664B	5/ 2/19	
Total Organic Carbon	1.43	mg/L	0.5	SM 5310-C	5/ 7/19	

Laura Mrachek

Approved By Name: President

Signature:

Function:

NOTE: Certification programs include controlled sampling by Eurofins-Cascade Analytical personnel. Duplicate samples are collected, registered, and prepared for security. Analysis is performed in a timely manner and results are returned with an indicator of certification. All certification programs provide a chain of custody from point of sampling through results reporting. Eurofins-Cascade Analytical is not responsible for any misrepresentation which may have occurred before the point of sampling. Results relate only to the items tested and the sample(s) as received by the laboratory.

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, APHA, ASTM, and AWWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.



(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

Batch: 990015
Client: Douglas County PUD
Account: 01006
Sampler: Michael Darlington
PO Number:
(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

--- Water Analytical Report ---

Report Date: 5/ 9/19

Douglas County PUD
1151 Valley Mall Parkway
E Wenatchee, WA 98802

Laboratory Number: 19-E009797

Date Received: 4/23/19

Sample Identification: Oil/Water Separator

Date Sampled: 4/23/19

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Field pH	7.86			SM 4500H-B	4/23/19	
Field Total Res. Chlorine	< 0.05	mg/L	0.05	SM 4500-Cl G	4/23/19	
Total Suspended Solids	1.0	mg/l	1.0	SM 2540-D	4/26/19	
Ammonia	< 0.07	mg/L	0.07	SM 4500NH3-G	4/24/19	
Biological Oxygen Demand	< 2	mg/L	2	SM 5210-B	4/24/19	
Chemical Oxygen Demand	10.9	mg/L	5	SM 5220D	4/30/19	
Hexane Extract. Material	3.5	mg/L	1.4	EPA 1664B	5/ 2/19	
Total Organic Carbon	2.06	mg/L	0.5	SM 5310-C	5/ 7/19	

Approved By Name:

Laura Mrachek
President

Signature:

Function:

NOTE: Certification programs include controlled sampling by Eurofins-Cascade Analytical personnel. Duplicate samples are collected, registered, and prepared for security. Analysis is performed in a timely manner and results are returned with an indicator of certification. All certification programs provide a chain of custody from point of sampling through results reporting. Eurofins-Cascade Analytical is not responsible for any misrepresentation which may have occurred before the point of sampling. Results relate only to the items tested and the sample(s) as received by the laboratory.

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, APHA, ASTM, and AWWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.



3019 G. S. Center Rd.
Wenatchee, WA 98801
(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

1008 W. Ahtanum Rd.
Union Gap, WA 98903
(509) 452-7707
Fax: (509) 452-7773

WATER ANALYSIS ORDER FORM

Batch#	SAMPLE #				
	1	2	3	4	5
SEND RESULTS TO					
<input type="checkbox"/> Client <input type="checkbox"/> Billing <input type="checkbox"/> Both					
SAMPLE REPRESENTS					
<input type="checkbox"/> Irrigation <input type="checkbox"/> Waste Water <input type="checkbox"/> Other					
SAMPLE BY					
<input type="checkbox"/> Client <input type="checkbox"/> Quality Control <input type="checkbox"/> Cascade <input type="checkbox"/> Other					

New Acct. #

CLIENT NAME/ADDRESS

Douglas Co PUD
1151 Valley Mall Pkwy
East Wenatchee, WA 98802

SAMPLER'S NAME

Michael Darlington

BILLING NAME/ADDRESS

Same

PHONE

E-mail andrewg@dc-pud.org E-mail

RELINQUISHED BY: (Signature) 1	DATE	RELINQUISHED BY: (Signature) 2	DATE	RELINQUISHED BY: (Signature) 3	DATE
<i>[Signature]</i>					
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
Michael Darlington					
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED FOR LAB BY: (Signature)	DATE
				<i>[Signature]</i>	4/23/19
(Printed)	TIME	(Printed)	TIME	Batch #	TIME
				990015	4:00 PM

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

19-000995	Forebay	Sample Date	4/23/19
	TRC = <0.05 pH = 7.89	Sample Time	7:50
9-96	Sump	Sample Date	4/23/19
	TRC = <0.05 pH = 7.75	Sample Time	7:25
9-97	Oil/Water Separator	Sample Date	4/23/19
	TRC = <0.05 pH = 7.86	Sample Time	5:10
		Sample Date	
		Sample Time	
		Sample Date	
		Sample Time	

*METALS - indicate type of analysis - T=total, D=dissolved

Total N package = TKN, NO₃, NO₂, NH₃

Sample container received by client was sealed Yes _____ No _____

Sample container received by laboratory was sealed Yes _____ No _____

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from the use of Cascade's test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are no other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical Inc.'s liability to customer as a result of customers use of Cascade's test results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature: *[Signature]*

Date

4/23/19

This form also serves as "Chain of Custody."

(see legend on back)

SAMPLE #

IRRIGATION WATER	1	2	3	4	5
Standard					
GENERAL CHEMISTRY					
1135 pH	✓	✓	✓		
1140 Conductivity					
1200 Solids-Dis. (TDS)					
1230 Solids-Susp. (TSS)	✓	✓	✓		
1240 Tot. Phosphorus					
1250 Orthophosphate					
1260 Kjeldahl Nitrogen (TKN)					
1170 Nitrate+Nitrite					
1265 NO ₃ (As N)					
1280 Ammonia	✓	✓	✓		
1300 Biol. Oxy. Demand	✓	✓	✓		
1310 Chem. Oxy. Demand	✓	✓	✓		
1190 Sulfate (SO ₄)					
1180 Chloride (Cl)					
7110 TOC	✓	✓	✓		
1320 Hexane Ext. Mat.	✓	✓	✓		
1340 Alkalinity					
217 Total N Pkg					
TRC	✓	✓	✓		
MICROBIOLOGY					
10040 Total Coliform MF					
10010 Fecal Coliform MF					
10041 Total Coliform MPN					
10011 Fecal Coliform MPN					
METALS - TOTAL OR DISSOLVED					
Priority Pollutants					
1391 Antimony (Sb)					
1011 Arsenic (As)					
1025 Barium (Ba)					
1405 Beryllium (Be)					
1031 Cadmium (Cd)					
1045 Chromium (Cr)					
1215 Copper (Cu)					
1035 Iron (Fe)					
1075 Manganese (Mn)					
1081 Mercury (Hg)					
1051 Lead (Pb)					
1335 Nickel (Ni)					
1091 Selenium (Se)					
1105 Silver (Ag)					
1381 Thallium (Tl)					
1225 Zinc (Zn)					
MINERALS					
1120 Calcium (Ca)					
1130 Magnesium (Mg)					
1115 Potassium (K)					
1110 Sodium (Na)					



Water Quality - Drinking & Wastewater

FIELD SERVICES REPORT

DATE 4/23/19 CLIENT: Douglas Co PUB BATCH NUMBER: 990015
Contact Person: Andy G. Phone: 217-722-7045 Email: andrewg@dcpub.org
Location/Facility: Wells Dam, Douglas Co. PUB Check in/out time: 7:55-4:35

On-Site Analyses, Measurements, Observations

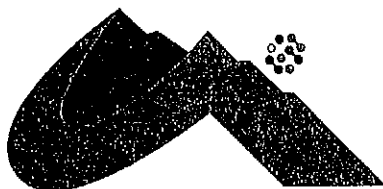
Description Wells Dam Water Sampling
Comments: Composite Sample Times: Forebay: 9:35, 11:10, 1:05, 2:50.
Slump: 9:20, 10:55, 12:50, 2:25
Oil/Water Separator: 9:45, 11:25, 1:15, 3:10

Water System / Identification	On-Site Analyses	Notes
Forebay	pH = 7.89, Temp = 9.2°	TRC < 0.05
Slump	pH = 7.75, Temp = 8.6°	TRC < 0.05
Oil/Water Separator	pH = 7.86, Temp = 9.4°	TRC < 0.05

Billable Services

Site Time: 8 hr (sample preparation, sampling, documentation, on-site analysis)
Drive Time: 0.5 hr
Mileage: 12 mi Circle one: round trip to/from lab between client facilities
Comments: _____

Cascade Analytical Employee Signature: [Signature]



CASCADE ANALYTICAL
A EUROFINS COMPANY
1-800-545-4206

(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

(509) 452-7707 Batch: 990016
Fax: (509) 452-7773 Client: Douglas County PUD
1008 W. Ahtanum Rd. Account: 01006
Union Gap, WA 98903 Sampler: Michael Darlington
PO Number:

--- Water Analytical Report ---

Report Date: 5/ 9/19

Douglas County PUD
1151 Valley Mall Parkway
E Wenatchee, WA 98802

Laboratory Number: 19-E009798
Sample Identification: Forebay

Date Received: 4/23/19
Date Sampled: 4/23/19

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by TAL/ARI/ALS				5/ 9/19	
Other Lab Number	580-85732-1				4/23/19	

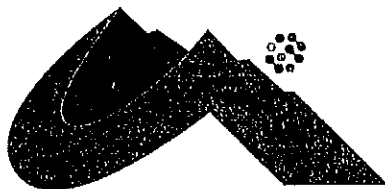
Approved By Name: Andy Schut
Lab Manager/Yakima

Signature: 

Function:

NOTE: Certification programs include controlled sampling by Eurofins-Cascade Analytical personnel. Duplicate samples are collected, registered, and prepared for security. Analysis is performed in a timely manner and results are returned with an indicator of certification. All certification programs provide a chain of custody from point of sampling through results reporting. Eurofins-Cascade Analytical is not responsible for any misrepresentation which may have occurred before the point of sampling. Results relate only to the items tested and the sample(s) as received by the laboratory.

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, APHA, ASTM, and AMWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.



CASCADE ANALYTICAL
A EUROFINS COMPANY
1-800-545-4206

(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

Batch: 990016
Client: Douglas County PUD
Account: 01006
Sampler: Michael Darlington
PO Number:

--- Water Analytical Report ---

Report Date: 5/ 9/19

Douglas County PUD
1151 Valley Mall Parkway
E Wenatchee, WA 98802

Laboratory Number: 19-E009799
Sample Identification: Sump

Date Received: 4/23/19
Date Sampled: 4/23/19

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by TAL/ARI/ALS				5/ 9/19	
Other Lab Number	19-D0371				4/23/19	

Andy Schut

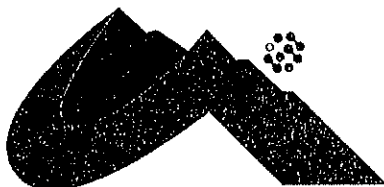
Approved By Name: Lab Manager/Yakima

Signature: 

Function: _____

NOTE: Certification programs include controlled sampling by Eurofins-Cascade Analytical personnel. Duplicate samples are collected, registered, and prepared for security. Analysis is performed in a timely manner and results are returned with an indicator of certification. All certification programs provide a chain of custody from point of sampling through results reporting. Eurofins-Cascade Analytical is not responsible for any misrepresentation which may have occurred before the point of sampling. Results relate only to the items tested and the sample(s) as received by the laboratory.

Eurofins-Cascade Analytical uses procedures established by EPA, ADAC, APHA, ASTM, and AWWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.



CASCADE ANALYTICAL
A EUROFINS COMPANY
1-800-545-4206

(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

(509) 452-7707 Batch: 990016
Fax: (509) 452-7773 Client: Douglas County PUD
1008 W. Ahtanum Rd. Account: 01006
Union Gap, WA 98903 Sampler: Michael Darlington
PO Number:

--- Water Analytical Report ---

Report Date: 5/ 9/19

Douglas County PUD
1151 Valley Mall Parkway
E Wenatchee, WA 98802

Laboratory Number: 19-E009800
Sample Identification: Oil/Water Separator

Date Received: 4/23/19
Date Sampled: 4/23/19

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by TAL/ARI/ALS				5/ 9/19	
Other Lab Number	E1900332				4/23/19	

Andy Schut

Approved By Name: Lab Manager/Yakima

Signature: 

Function:

NOTE: Certification programs include controlled sampling by Eurofins-Cascade Analytical personnel. Duplicate samples are collected, registered, and prepared for security. Analysis is performed in a timely manner and results are returned with an indicator of certification. All certification programs provide a chain of custody from point of sampling through results reporting. Eurofins-Cascade Analytical is not responsible for any misrepresentation which may have occurred before the point of sampling. Results relate only to the items tested and the sample(s) as received by the laboratory.

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, APHA, ASTM, and AWWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.

Low Level Mercury and Surfactants Results

Subcontracted to Eurofins TestAmerica, Seattle



Environment Testing
TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85732-1
Client Project/Site: Douglas County

For:
Cascade Analytical Inc
1008 W. Ahtanum Rd.
Union Gap, Washington 98903

Attn: Andy Schut

A handwritten signature in cursive script that reads "Kayse Zalmai".

Authorized for release by:
5/1/2019 11:25:09 AM

Kayse Zalmai, Project Manager I
(253)922-2310
kayse.zalmai@testamericainc.com

LINKS

Review your project
results through

Total Access

Have a Question?

**Ask
The
Expert**

Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions	4
Client Sample Results	5
QC Sample Results	8
Chronicle	10
Certification Summary	11
Sample Summary	12
Chain of Custody	13
Receipt Checklists	19

Case Narrative

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Job ID: 580-85732-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-85732-1

Receipt

The samples were received on 4/25/2019 11:45 AM. The temperature of the cooler at receipt was 6.8° C.

Receipt Exceptions

The following samples were received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: 19-E009795 (580-85732-1) and 19-E009796 (580-85732-2).

The following samples were received at the laboratory outside the required temperature criteria: 19-E009795 (580-85732-1) and 19-E009796 (580-85732-2).

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLG	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Client Sample ID: 19-E009795

Lab Sample ID: 580-85732-1

Date Collected: 04/23/19 14:50

Matrix: Water

Date Received: 04/25/19 11:45

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.30	J	0.50	0.14	ng/L	-	04/29/19 13:00	04/30/19 11:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS - Surfactants	0.041	J H	0.050	0.020	mg/L	-		04/26/19 14:20	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Client Sample ID: 19-E009796

Lab Sample ID: 580-85732-2

Date Collected: 04/23/19 14:25

Matrix: Water

Date Received: 04/25/19 11:45

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	0.19	J	0.50	0.14	ng/L		04/29/19 13:00	04/30/19 11:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
MBAS - Surfactants	0.049	J H	0.050	0.020	mg/L			04/26/19 14:20	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Client Sample ID: 19-E009798

Lab Sample ID: 580-85732-3

Date Collected: 04/23/19 15:10

Matrix: Water

Date Received: 04/25/19 11:45

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.24	J	0.50	0.14	ng/L		04/29/19 13:00	04/30/19 12:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS - Surfactants	0.044	J H	0.050	0.020	mg/L			04/26/19 14:20	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Method: 1631E - Mercury, Low Level (CVAFS)

Lab Sample ID: MB 240-378669/1-A
Matrix: Water
Analysis Batch: 379072

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378669

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.50	0.14	ng/L		04/29/19 13:00	04/30/19 11:27	1

Lab Sample ID: LCS 240-378669/2-A
Matrix: Water
Analysis Batch: 379072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378669

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	5.00	5.12		ng/L		102	77 - 123

Lab Sample ID: 580-85732-1 MS
Matrix: Water
Analysis Batch: 379072

Client Sample ID: 19-E009795
Prep Type: Total/NA
Prep Batch: 378669

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	0.30	J	5.00	5.17		ng/L		97	71 - 125

Lab Sample ID: 580-85732-1 MSD
Matrix: Water
Analysis Batch: 379072

Client Sample ID: 19-E009795
Prep Type: Total/NA
Prep Batch: 378669

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.30	J	5.00	4.94		ng/L		93	71 - 125	4	24

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 490-591665/4
Matrix: Water
Analysis Batch: 591665

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS - Surfactants	ND		0.050	0.020	mg/L			04/30/19 15:41	1

Lab Sample ID: LCS 490-591665/5
Matrix: Water
Analysis Batch: 591665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
MBAS - Surfactants	0.750	0.764		mg/L		102	85 - 115

Lab Sample ID: 490-172560-B-1 MS
Matrix: Water
Analysis Batch: 591665

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
MBAS - Surfactants	0.34	F1	0.750	0.724	F1	mg/L		51	80 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: 490-172560-B-1 MSD

Matrix: Water

Analysis Batch: 591665

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
MBAS - Surfactants	0.34	F1	0.750	0.725	F1	mg/L		51	80 - 120	0	20

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Client Sample ID: 19-E009795

Lab Sample ID: 580-85732-1

Date Collected: 04/23/19 14:50

Matrix: Water

Date Received: 04/25/19 11:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1631E			378669	04/29/19 13:00	DTN	TAL CAN
Total/NA	Analysis	1631E		1	379072	04/30/19 11:46	DTN	TAL CAN
Total/NA	Analysis	SM 5540C		1	591665	04/26/19 14:20	CER	TAL NSH

Client Sample ID: 19-E009796

Lab Sample ID: 580-85732-2

Date Collected: 04/23/19 14:25

Matrix: Water

Date Received: 04/25/19 11:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1631E			378669	04/29/19 13:00	DTN	TAL CAN
Total/NA	Analysis	1631E		1	379072	04/30/19 11:58	DTN	TAL CAN
Total/NA	Analysis	SM 5540C		1	591665	04/26/19 14:20	CER	TAL NSH

Client Sample ID: 19-E009798

Lab Sample ID: 580-85732-3

Date Collected: 04/23/19 15:10

Matrix: Water

Date Received: 04/25/19 11:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1631E			378669	04/29/19 13:00	DTN	TAL CAN
Total/NA	Analysis	1631E		1	379072	04/30/19 12:02	DTN	TAL CAN
Total/NA	Analysis	SM 5540C		1	591665	04/26/19 14:20	CER	TAL NSH

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Eurofins TestAmerica, Seattle

Accreditation/Certification Summary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Laboratory: Eurofins TestAmerica, Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-20

Laboratory: Eurofins TestAmerica, Canton

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C971	01-12-20 *

Laboratory: Eurofins TestAmerica, Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C789	07-19-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Seattle

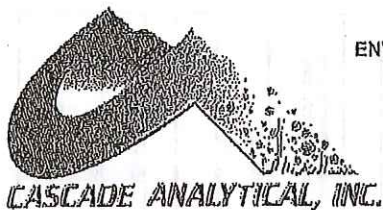
Sample Summary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 580-85732-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85732-1	19-E009795	Water	04/23/19 14:50	04/25/19 11:45
580-85732-2	19-E009796	Water	04/23/19 14:25	04/25/19 11:45
580-85732-3	19-E009798	Water	04/23/19 15:10	04/25/19 11:45

Eurofins TestAmerica, Seattle



1-800-545-4206

AGRICULTURE &
ENVIRONMENTAL ANALYSIS

(509) 662-1888
Fax: (509) 662-8183
3019 G.S. Center Road
Wenatchee, WA 98801
(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahlstrom Rd.
Union Gap, WA 98903

Page 1 of 2

Sub-Contract ORDER FORM

P.O. NO:

990015-1

5/1/2019

PROJECT NAME
Douglas County

CONTRACT LAB
TAL/Seattle
ADDRESS
CITY, STATE, ZIP
TELEPHONE

RELINQUISHED BY: Signature [1]	DATE	RELINQUISHED BY: Signature [2]	DATE	RELINQUISHED BY: Signature [3]	DATE
	04/24/19				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	2:00pm				
RECEIVED BY: Signature	DATE	RECEIVED BY: Signature	DATE	RECEIVED BY: Signature	DATE
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME

Page 14 of 19

1	Sample I.D.	See Attached	Sample Date	Sample Time
	ANALYSIS REQUESTED			
	COMMENT			
2	Sample I.D.		Sample Date	Sample Time
	ANALYSIS REQUESTED			
	COMMENT			
3	Sample I.D.		Sample Date	Sample Time
	ANALYSIS REQUESTED			
	COMMENT			
4	Sample I.D.		Sample Date	Sample Time
	ANALYSIS REQUESTED			
	COMMENT			

SPECIAL INSTRUCTIONS:

Best Available Rush Please!

Chain of Custody Record

[illegible]

TestAmerica Canton Sample Receipt Form/Narrative

Login # : _____

Canton Facility

Client EIA Seattle

Site Name _____

Cooler unpacked by: [Signature]Cooler Received on 4-27-19Opened on 4-27-19FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____

Storage Location _____

TestAmerica Cooler # 1A Foam Box Client Cooler Box Other _____Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp 15.0 °C Corrected Cooler Temp 14.8 °C

IR GUN #36 (CF +0.7 °C) Observed Cooler Temp _____ °C Corrected Cooler Temp _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____

Yes No

-Were the seals on the outside of the cooler(s) signed & dated?

Yes No NA

-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?

Yes No

-Were tamper/custody seals intact and uncompromised?

Yes No NA

3. Shippers' packing slip attached to the cooler(s)?

Yes No

4. Did custody papers accompany the sample(s)?

Yes No

5. Were the custody papers relinquished & signed in the appropriate place?

Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC?

Yes No

7. Did all bottles arrive in good condition (Unbroken)?

Yes No

8. Could all bottle labels be reconciled with the COC?

Yes No

9. Were correct bottle(s) used for the test(s) indicated?

Yes No

10. Sufficient quantity received to perform indicated analyses?

Yes No

11. Are these work share samples?

Yes No

If yes, Questions 12-16 have been checked at the originating laboratory.

12. Were all preserved sample(s) at the correct pH upon receipt?

Yes No NA

13. Were VOAs on the COC?

Yes No14. Were air bubbles >6 mm in any VOA vials? Yes Larger than this

Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____

Yes No

16. Was a LL Hg or Me Hg trip blank present?

Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WT-NC-099

COOLER RECEIPT FORM



Cooler Received/Opened On 4/27/2019 @ 09:30

Time Samples Removed From Cooler 18:40 Time Samples Placed In Storage 13:40 (2 Hour Window)

1. Tracking # 3027 (last 4 digits, FedEx) Courier: FedEx
IR Gun ID 17900353 pH Strip Lot _____ Chlorine Strip Lot _____

2. Temperature of rep. sample or temp blank when opened: 1.3 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES NO...NA

I certify that I opened the cooler and answered questions 1-6 (Initial) ADH

7. Were custody seals on containers: YES NO and intact YES...NO NA

Were these signed and dated correctly? YES...NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry Ice Other None

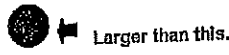
10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO NA



14. Was there a Trip Blank in this cooler? YES NO...NA If multiple coolers, sequence # 2-8

I certify that I unloaded the cooler and answered questions 7-14 (Initial) 2-8

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO...NA

16. Was residual chlorine present? YES...NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (Initial) 2-8

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (Initial) 2-8

I certify that I attached a label with the unique LIMS number to each container (Initial) 2-8

21. Were there Non-Conformance Issues at login? YES NO Was a NCM generated? YES NO...#

Login Sample Receipt Checklist

Client: Cascade Analytical Inc

Job Number: 580-85732-1

Login Number: 85732

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

PCB Results

Subcontracted to Eurofins TestAmerica, Pensacola



Environment Testing
TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

Laboratory Job ID: 400-169353-1
Client Project/Site: Douglas County

For:
Cascade Analytical Inc
1008 W. Ahtanum Rd.
Union Gap, Washington 98903

Attn: Andy Schut

Mark Swafford

Authorized for release by:
5/6/2019 3:12:41 PM

Mark Swafford, Project Manager I
(850)471-6207
mark.swafford@testamericainc.com

Links

Review your project
results through

Total Access

Have a Question?

**Ask
The
Expert**

Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Detection Summary	4
Sample Summary	5
Client Sample Results	6
Definitions	9
QC Association	10
QC Sample Results	11
Chronicle	12
Method Summary	13
Certification Summary	14
Chain of Custody	15
Receipt Checklists	16

Case Narrative

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Job ID: 400-169353-1

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative
400-169353-1

Comments

No additional comments.

Receipt

The samples were received on 4/26/2019 10:30 AM. The temperature of the cooler at receipt was 8.0° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 400-438850.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Client Sample ID: 19-E009795

Lab Sample ID: 400-169353-1

☐ No Detections.

Client Sample ID: 19-E009796

Lab Sample ID: 400-169353-2

☐ No Detections.

Client Sample ID: 19-E009797

Lab Sample ID: 400-169353-3

☐ No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Pensacola

Sample Summary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-169353-1	19-E009795	Water	04/23/19 14:50	04/26/19 10:30
400-169353-2	19-E009796	Water	04/23/19 14:25	04/26/19 10:30
400-169353-3	19-E009797	Water	04/23/19 15:10	04/26/19 10:30

Client Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Client Sample ID: 19-E009795

Lab Sample ID: 400-169353-1

Date Collected: 04/23/19 14:50

Matrix: Water

Date Received: 04/26/19 10:30

Method: 608.3 - Organochlorine Pesticides/PCBs in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.14		0.63	0.14	ug/L		04/29/19 11:07	05/03/19 04:58	1
PCB-1221	<0.11		0.63	0.11	ug/L		04/29/19 11:07	05/03/19 04:58	1
PCB-1232	<0.050		0.63	0.050	ug/L		04/29/19 11:07	05/03/19 04:58	1
PCB-1242	<0.017		0.63	0.017	ug/L		04/29/19 11:07	05/03/19 04:58	1
PCB-1248	<0.010		0.63	0.010	ug/L		04/29/19 11:07	05/03/19 04:58	1
PCB-1254	<0.029		0.63	0.029	ug/L		04/29/19 11:07	05/03/19 04:58	1
PCB-1260	<0.076		0.63	0.076	ug/L		04/29/19 11:07	05/03/19 04:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	79		10 - 125	04/29/19 11:07	05/03/19 04:58	1
Tetrachloro-m-xylene	65		46 - 150	04/29/19 11:07	05/03/19 04:58	1

Eurofins TestAmerica, Pensacola

Client Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Client Sample ID: 19-E009796

Lab Sample ID: 400-169353-2

Date Collected: 04/23/19 14:25

Matrix: Water

Date Received: 04/26/19 10:30

Method: 608.3 - Organochlorine Pesticides/PCBs in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.14		0.63	0.14	ug/L		04/29/19 11:07	05/03/19 05:29	1
PCB-1221	<0.11		0.63	0.11	ug/L		04/29/19 11:07	05/03/19 05:29	1
PCB-1232	<0.050		0.63	0.050	ug/L		04/29/19 11:07	05/03/19 05:29	1
PCB-1242	<0.017		0.63	0.017	ug/L		04/29/19 11:07	05/03/19 05:29	1
PCB-1248	<0.010		0.63	0.010	ug/L		04/29/19 11:07	05/03/19 05:29	1
PCB-1254	<0.029		0.63	0.029	ug/L		04/29/19 11:07	05/03/19 05:29	1
PCB-1260	<0.076		0.63	0.076	ug/L		04/29/19 11:07	05/03/19 05:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	86		10 - 125	04/29/19 11:07	05/03/19 05:29	1
Tetrachloro-m-xylene	65		46 - 150	04/29/19 11:07	05/03/19 05:29	1

Eurofins TestAmerica, Pensacola

Client Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Client Sample ID: 19-E009797

Lab Sample ID: 400-169353-3

Date Collected: 04/23/19 15:10

Matrix: Water

Date Received: 04/26/19 10:30

Method: 608.3 - Organochlorine Pesticides/PCBs in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.14		0.63	0.14	ug/L		04/29/19 11:07	05/03/19 05:59	1
PCB-1221	<0.11		0.63	0.11	ug/L		04/29/19 11:07	05/03/19 05:59	1
PCB-1232	<0.050		0.63	0.050	ug/L		04/29/19 11:07	05/03/19 05:59	1
PCB-1242	<0.017		0.63	0.017	ug/L		04/29/19 11:07	05/03/19 05:59	1
PCB-1248	<0.010		0.63	0.010	ug/L		04/29/19 11:07	05/03/19 05:59	1
PCB-1254	<0.029		0.63	0.029	ug/L		04/29/19 11:07	05/03/19 05:59	1
PCB-1260	<0.076		0.63	0.076	ug/L		04/29/19 11:07	05/03/19 05:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	87		10 - 125	04/29/19 11:07	05/03/19 05:59	1
Tetrachloro-m-xylene	53		46 - 150	04/29/19 11:07	05/03/19 05:59	1

Eurofins TestAmerica, Pensacola

Definitions/Glossary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

GC Semi VOA

Prep Batch: 438850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169353-1	19-E009795	Total/NA	Water	608	
400-169353-2	19-E009796	Total/NA	Water	608	
400-169353-3	19-E009797	Total/NA	Water	608	
MB 400-438850/1-A	Method Blank	Total/NA	Water	608	
LCS 400-438850/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 400-438850/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 439471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169353-1	19-E009795	Total/NA	Water	608.3	438850
400-169353-2	19-E009796	Total/NA	Water	608.3	438850
400-169353-3	19-E009797	Total/NA	Water	608.3	438850
MB 400-438850/1-A	Method Blank	Total/NA	Water	608.3	438850
LCS 400-438850/2-A	Lab Control Sample	Total/NA	Water	608.3	438850
LCSD 400-438850/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	438850

Eurofins TestAmerica, Pensacola

QC Sample Results

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Method: 608.3 - Organochlorine Pesticides/PCBs in Water

Lab Sample ID: MB 400-438850/1-A
Matrix: Water
Analysis Batch: 439471

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438850

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.11		0.50	0.11	ug/L		04/29/19 11:07	05/03/19 03:27	1
PCB-1221	<0.088		0.50	0.088	ug/L		04/29/19 11:07	05/03/19 03:27	1
PCB-1232	<0.040		0.50	0.040	ug/L		04/29/19 11:07	05/03/19 03:27	1
PCB-1242	<0.014		0.50	0.014	ug/L		04/29/19 11:07	05/03/19 03:27	1
PCB-1248	<0.0080		0.50	0.0080	ug/L		04/29/19 11:07	05/03/19 03:27	1
PCB-1254	<0.023		0.50	0.023	ug/L		04/29/19 11:07	05/03/19 03:27	1
PCB-1260	<0.061		0.50	0.061	ug/L		04/29/19 11:07	05/03/19 03:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	24		10 - 125	04/29/19 11:07	05/03/19 03:27	1
Tetrachloro-m-xylene	76		46 - 150	04/29/19 11:07	05/03/19 03:27	1

Lab Sample ID: LCS 400-438850/2-A
Matrix: Water
Analysis Batch: 439471

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438850
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	20.2	14.3		ug/L		71	50 - 114
PCB-1260	20.1	16.6		ug/L		83	8 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	49		10 - 125
Tetrachloro-m-xylene	56		46 - 150

Lab Sample ID: LCSD 400-438850/3-A
Matrix: Water
Analysis Batch: 439471

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438850
%Rec. RPD

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	20.2	17.7		ug/L		88	50 - 114	21	30
PCB-1260	20.1	19.1		ug/L		95	8 - 127	14	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	22		10 - 125
Tetrachloro-m-xylene	71		46 - 150

Eurofins TestAmerica, Pensacola

Lab Chronicle

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Client Sample ID: 19-E009795

Lab Sample ID: 400-169353-1

Date Collected: 04/23/19 14:50

Matrix: Water

Date Received: 04/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			200 mL	5.0 mL	438850	04/29/19 11:07	NTH	TAL PEN
Total/NA	Analysis	608.3		1			439471	05/03/19 04:58	DS	TAL PEN

Client Sample ID: 19-E009796

Lab Sample ID: 400-169353-2

Date Collected: 04/23/19 14:25

Matrix: Water

Date Received: 04/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			200 mL	5.0 mL	438850	04/29/19 11:07	NTH	TAL PEN
Total/NA	Analysis	608.3		1			439471	05/03/19 05:29	DS	TAL PEN

Client Sample ID: 19-E009797

Lab Sample ID: 400-169353-3

Date Collected: 04/23/19 15:10

Matrix: Water

Date Received: 04/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			200 mL	5.0 mL	438850	04/29/19 11:07	NTH	TAL PEN
Total/NA	Analysis	608.3		1			439471	05/03/19 05:59	DS	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 400-438850/1-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			250 mL	5.0 mL	438850	04/29/19 11:07	NTH	TAL PEN
Total/NA	Analysis	608.3		1			439471	05/03/19 03:27	DS	TAL PEN

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 400-438850/2-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			250 mL	5.0 mL	438850	04/29/19 11:07	NTH	TAL PEN
Total/NA	Analysis	608.3		1			439471	05/03/19 01:25	DS	TAL PEN

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: LCSD 400-438850/3-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			250 mL	5.0 mL	438850	04/29/19 11:07	NTH	TAL PEN
Total/NA	Analysis	608.3		1			439471	05/03/19 01:55	DS	TAL PEN

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Eurofins TestAmerica, Pensacola

Method Summary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Method	Method Description	Protocol	Laboratory
808.3	Organochlorine Pesticides/PCBs in Water	40CFR136A	TAL PEN
808	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL PEN

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Eurofins TestAmerica, Pensacola

Accreditation/Certification Summary

Client: Cascade Analytical Inc
Project/Site: Douglas County

Job ID: 400-169353-1

Laboratory: Eurofins TestAmerica, Pensacola

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C915	05-15-20

Eurofins TestAmerica, Pensacola

3355 McLennan Drive

Pensacola, FL 32514

phone 850.474.1001 fax 850.474.4789

Client: **Conway**

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

[illegible]

Form No. CA-C-WI-002 dated 04/07/2011

205 127

Login Sample Receipt Checklist

Client: Cascade Analytical Inc

Job Number: 400-169353-1

Login Number: 169353

List Source: Eurofins TestAmerica, Pensacola

List Number: 1

Creator: Shannon, Jonathon W

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	8.0°C IR7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Metals Results

Subcontracted to Analytical Resources, Incorporated



Analytical Resources, Incorporated
Analytical Chemists and Consultants

01 May 2019

Andy Schut
Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee, WA 98801

RE: Douglas County

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
19D0371

Associated SDG ID(s)
N/A

Shelly
Fishel

Digitally signed by Shelly Fishel
DN: c=US, st=Washington,
l=Tukwila, o=Analytical
Resources, Inc., cn=Shelly Fishel,
email=shelly.fishel@arilabs.com
Date: 2019.05.01 07:47:43 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Analysis: Requested	Notes/Comments
---------------------	----------------

Analysis Requested							Notes/Comments
Total Cyanide	WAD Cyanide	Amenable Cyanide	200.8 TI,Zn	200.8 Al,Ba,B,Cd,Fe	200.8 Mg,Mo,Mn,Sr,Tl	200.8 Sb,As,Ba,Cd,Cr	200.8 Cu,Pb,Ni,Aq,Se
			✓	✓	✓	✓	Report with J-Flags
			✓	✓	✓	✓	Report with J-Flags
			✓	✓	✓	✓	Report with J-Flags
<div style="float:right;">Relinquished by: (Signature) Printed Name:</div> <div style="clear:both;"></div>							Received By: (Signature) Printed Name: Company:
							Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSD/DAP/SEP/SNS protocol will be stored frozen for up to one year and then discarded.



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
19-B009795	19D0371-01	Water	23-Apr-2019 14:50	25-Apr-2019 10:55
19-B009796	19D0371-02	Water	23-Apr-2019 14:25	25-Apr-2019 10:55
19-B009797	19D0371-03	Water	23-Apr-2019 15:10	25-Apr-2019 10:55



Cascade Analytical, Inc.-Burofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received April 25, 2019 under ARI work order 19D0371. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Total Metals - EPA Method 200.7 and 200.8

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Duplicate RPD and Matrix Spike percent recoveries were within control limits.



WORK ORDER

19D0371

Client: Cascade Analytical, Inc.-Eurofins	Project Manager: Shelly Fishel
Project: Douglas County	Project Number: [none]

Analysis	Due	TAT	Expires	Comments
Met 200.8 - Mo UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Mn	04/26/2019	1	10/20/2019	
Met 200.8 - Mg	04/26/2019	1	10/20/2019	
Met 200.8 - Fe	04/26/2019	1	10/20/2019	
Met 200.8 - Sb	04/26/2019	1	10/20/2019	
Met 200.8 - Co UCT	04/26/2019	1	10/20/2019	

19D0371-03 19-E009797 [Water] Sampled 23-Apr-2019 15:10

Met 200.8 - Cu UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Se UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Ag	04/26/2019	1	10/20/2019	
Met 200.7 - Tl	04/26/2019	1	10/20/2019	
Met 200.7 - Sn	04/26/2019	1	10/20/2019	
Met 200.7 - B	04/26/2019	1	10/20/2019	
Met 200.8 - Be	04/26/2019	1	10/20/2019	
Met 200.8 - As UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Cd UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Ba	04/26/2019	1	10/20/2019	
Met 200.8 - Fe	04/26/2019	1	10/20/2019	
Met 200.8 - Cr	04/26/2019	1	10/20/2019	
Met 200.8 - Ti	04/26/2019	1	10/20/2019	
Met 200.8 - Mg	04/26/2019	1	10/20/2019	
Met 200.8 - Mn	04/26/2019	1	10/20/2019	
Met 200.8 - Al	04/26/2019	1	10/20/2019	
Met 200.8 - Mo UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Sb	04/26/2019	1	10/20/2019	
Met 200.8 - Pb	04/26/2019	1	10/20/2019	
Met 200.8 - Ni UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Zn UCT	04/26/2019	1	10/20/2019	
Met 200.8 - Co UCT	04/26/2019	1	10/20/2019	

Preservation Confirmation

Container ID	Container Type	pH	
19D0371-01 A	HDPE NM, 500 mL, 1:1 HNO3	7.2	Fail
19D0371-02 A	HDPE NM, 500 mL, 1:1 HNO3	7.2	Pass
19D0371-03 A	HDPE NM, 500 mL, 1:1 HNO3	7.2	Pass

Preservation Confirmed By

Date

Reviewed By

Date



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Cascade Analytical

Project Name: Douglas County

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other

Assigned ARI Job No: 19D0371

Tracking No: 1Z X34754 0340828062 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.)? YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-8.0 °C for chemicals)

Time: 1055

5.6

If cooler temperature is out of compliance, fill out form 00070F

Temp Gun ID#: 2002565

Cooler Accepted by: ES

Date: 4/23/19

Time: 1055

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gal Packs Baggies Foam Block Paper Other

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Were sample(s) split by ARI? NA YES

Date/Time: 4/23/19

Equipment: ES

Split by: ES

Samples Logged by: ES

Date: 4/23/19

Time: 1314

Labels checked by: ES

** Notify Project Manager of discrepancies or concerns **

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
9798	19-E009795		
9799	19-E009796		
9800	19-E009797		

Additional Notes, Discrepancies, & Resolutions:

Containers marked w/ a star

By: ES

Date: 04/23/19

0016F
01/17/2018

Cooler Receipt Form

Revision 01/4A



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009795
19D0371-01 (Water)

Metals and Metallic Compounds

Method: BPA 200.7

Sampled: 04/23/2019 14:50

Instrument: ICP2 Analyst: TCH

Analyzed: 04/29/2019 10:17

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BHD0706
Prepared: 26-Apr-2019

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 19D0371-01 A 02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Boron	7440-42-8	1	0.0040	0.0200	0.0048	mg/L	J
Tin	7440-31-5	1	0.0015	0.0100	ND	mg/L	U
Titanium	7440-32-6	1	0.0015	0.0050	ND	mg/L	U



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009795

19D0371-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 04/23/2019 14:50

Instrument: ICPMS2 Analyst: MCB

Analyzed: 04/26/2019 15:34

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BHD0709
Prepared: 26-Apr-2019

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 19D0371-01 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	2.37	20.0	24.0	ug/L	
Antimony	7440-36-0	1	0.0180	0.200	0.0960	ug/L	J
Barium	7440-39-3	1	0.0560	0.500	30.7	ug/L	
Beryllium	7440-41-7	1	0.0290	0.200	ND	ug/L	U
Chromium	7440-47-3	1	0.130	0.500	ND	ug/L	U
Iron	7439-89-6	1	6.27	20.0	29.9	ug/L	
Lead	7439-92-1	1	0.0680	0.100	0.0760	ug/L	J
Magnesium	7439-95-4	1	0.307	20.0	5230	ug/L	
Manganese	7439-96-5	1	0.0850	0.500	4.21	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Thallium	7440-28-0	1	0.00800	0.200	ND	ug/L	U



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009795

19D0371-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KBD

Sampled: 04/23/2019 14:50

Instrument: ICPMS2 Analyst: MCB

Analyzed: 04/26/2019 15:34

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19D0371-01 A 01

Preparation Batch: BHD0709

Sample Size: 25 mL

Prepared: 26-Apr-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.711	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0290	0.200	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	0.581	ug/L	
Molybdenum	7439-98-7	1	0.0650	0.200	0.684	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	0.336	ug/L	J
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	1.64	ug/L	J



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009796

19D0371-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.7

Sampled: 04/23/2019 14:25

Instrument: ICP2 Analyst: TCH

Analyzed: 04/29/2019 10:22

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 19D0371-02 A 02

Preparation Batch: BHD0706

Sample Size: 25 mL

Prepared: 26-Apr-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Boron	7440-42-8	1	0.0040	0.0200	0.0044	mg/L	J
Tin	7440-31-5	1	0.0015	0.0100	ND	mg/L	U
Titanium	7440-32-6	1	0.0015	0.0050	ND	mg/L	U



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009796
19D0371-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 04/23/2019 14:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 04/26/2019 15:29

Sample Preparation: Preparation Method: RBN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BHD0709 Sample Size: 25 mL
Prepared: 26-Apr-2019 Final Volume: 25 mL

Extract ID: 19D0371-02 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	2.37	20.0	24.2	ug/L	
Antimony	7440-36-0	1	0.0180	0.200	0.116	ug/L	J
Barium	7440-39-3	1	0.0560	0.500	29.7	ug/L	
Beryllium	7440-41-7	1	0.0290	0.200	ND	ug/L	U
Chromium	7440-47-3	1	0.130	0.500	0.150	ug/L	J
Iron	7439-89-6	1	6.27	20.0	43.5	ug/L	
Lead	7439-92-1	1	0.0680	0.100	17.0	ug/L	
Magnesium	7439-95-4	1	0.307	20.0	5030	ug/L	
Manganese	7439-96-5	1	0.0850	0.500	4.90	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Thallium	7440-28-0	1	0.00800	0.200	0.0230	ug/L	J



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009796

19D0371-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 04/23/2019 14:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 04/26/2019 15:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BHD0709 Sample Size: 25 mL
Prepared: 26-Apr-2019 Final Volume: 25 mL

Extract ID: 19D0371-02 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.629	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0290	0.200	0.0320	ug/L	J
Copper	7440-50-8	1	0.340	0.500	4.27	ug/L	
Molybdenum	7439-98-7	1	0.0650	0.200	0.731	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	0.366	ug/L	J
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	3.06	ug/L	J



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009797

19D0371-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.7

Sampled: 04/23/2019 15:10

Instrument: ICP2 Analyst: TCH

Analyzed: 04/29/2019 10:26

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 19D0371-03 A 02

Preparation Batch: BHD0706

Sample Size: 25 mL

Prepared: 26-Apr-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection		Reporting		Result	Units	Notes
			Limit	Limit	Limit	Limit			
Boron	7440-42-8	1	0.0040	0.0200	0.0045	mg/L	J		
Tin	7440-31-5	1	0.0015	0.0100	ND	mg/L	U		
Titanium	7440-32-6	1	0.0015	0.0050	ND	mg/L	U		



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009797

19D0371-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 04/23/2019 15:10

Instrument: ICPMS2 Analyst: MCB

Analyzed: 04/26/2019 15:23

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BHD0709 Sample Size: 25 mL
Prepared: 26-Apr-2019 Final Volume: 25 mL

Extract ID: 19D0371-03 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	2.37	20.0	21.5	ug/L	
Antimony	7440-36-0	1	0.0180	0.200	0.186	ug/L	J
Barium	7440-39-3	1	0.0560	0.500	30.6	ug/L	
Beryllium	7440-41-7	1	0.0290	0.200	ND	ug/L	U
Chromium	7440-47-3	1	0.130	0.500	0.647	ug/L	
Iron	7439-89-6	1	6.27	20.0	96.4	ug/L	
Lead	7439-92-1	1	0.0680	0.100	0.811	ug/L	
Magnesium	7439-95-4	1	0.307	20.0	5180	ug/L	
Manganese	7439-96-5	1	0.0850	0.500	5.38	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Thallium	7440-28-0	1	0.00800	0.200	0.0150	ug/L	J



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

19-E009797

19D0371-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 04/23/2019 15:10

Instrument: ICPMS2 Analyst: MCB

Analyzed: 04/26/2019 15:23

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19D0371-03 A 01

Preparation Batch: BHD0709

Sample Size: 25 mL

Prepared: 26-Apr-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.606	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0350	ug/L	J
Cobalt	7440-48-4	1	0.0290	0.200	0.0470	ug/L	J
Copper	7440-50-8	1	0.340	0.500	7.63	ug/L	
Molybdenum	7439-98-7	1	0.0650	0.200	0.779	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	0.832	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	3.80	ug/L	J



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Metals and Metallic Compounds - Quality Control

Batch BHD0706 - TWC EPA 3010A

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHD0706-BLK1)					Prepared: 26-Apr-2019 Analyzed: 29-Apr-2019 10:13						
Boron	ND	0.0040	0.0200	mg/L							U
Tin	ND	0.0015	0.0100	mg/L							U
Titanium	ND	0.0015	0.0050	mg/L							U
LCS (BHD0706-BS1)					Prepared: 26-Apr-2019 Analyzed: 29-Apr-2019 10:50						
Boron	0.502	0.0040	0.0200	mg/L	0.500		100	80-120			
Tin	0.501	0.0015	0.0100	mg/L	0.500		100	80-120			
Titanium	2.02	0.0015	0.0050	mg/L	2.00		101	80-120			



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Metals and Metallic Compounds - Quality Control

Batch BHD0709 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHD0709-BLK1)						Prepared: 26-Apr-2019 Analyzed: 26-Apr-2019 15:12						
Aluminum	27	ND	2.37	20.0	ug/L							U
Antimony	121	ND	0.0180	0.200	ug/L							U
Antimony	123	ND	0.0280	0.200	ug/L							U
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Beryllium	9	ND	0.0290	0.200	ug/L							U
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	ND	0.0700	0.500	ug/L							U
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	ND	1.40	20.0	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Magnesium	24	0.392	0.307	20.0	ug/L							J
Manganese	55	ND	0.0850	0.500	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Thallium	205	ND	0.00800	0.200	ug/L							U
Arsenic	75a	ND	0.0220	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0290	0.200	ug/L							U
Copper	63	ND	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Molybdenum	98	ND	0.0650	0.200	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U

LCS (BHD0709-BS1)

Prepared: 26-Apr-2019 Analyzed: 26-Apr-2019 15:18

Aluminum	27	4950	2.37	20.0	ug/L	5000		98.9	80-120
Antimony	121	25.3	0.0180	0.200	ug/L	25.0		101	80-120
Antimony	123	25.6	0.0280	0.200	ug/L	25.0		102	80-120
Barium	135	25.1	0.0560	0.500	ug/L	25.0		101	80-120
Barium	137	25.9	0.0530	0.500	ug/L	25.0		103	80-120
Beryllium	9	23.8	0.0290	0.200	ug/L	25.0		95.0	80-120

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Metals and Metallic Compounds - Quality Control

Batch BHD0709 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHD0709-BS1)						Prepared: 26-Apr-2019 Analyzed: 26-Apr-2019 15:18						
Chromium	52	24.8	0.130	0.500	ug/L	25.0		99.2	80-120			
Chromium	53	24.1	0.0700	0.500	ug/L	25.0		96.2	80-120			
Iron	54	4850	6.27	20.0	ug/L	5000		96.9	80-120			
Iron	57	4910	1.40	20.0	ug/L	5000		98.3	80-120			
Lead	208	24.4	0.0680	0.100	ug/L	25.0		97.8	80-120			
Magnesium	24	4940	0.307	20.0	ug/L	5000		98.9	80-120			
Manganese	55	24.3	0.0850	0.500	ug/L	25.0		97.0	80-120			
Silver	107	26.0	0.0170	0.200	ug/L	25.0		104	80-120			
Thallium	205	24.0	0.00800	0.200	ug/L	25.0		96.0	80-120			
Arsenic	75a	24.5	0.0220	0.200	ug/L	25.0		98.2	80-120			
Cadmium	111	23.9	0.0300	0.100	ug/L	25.0		95.5	80-120			
Cadmium	114	24.2	0.0400	0.100	ug/L	25.0		96.6	80-120			
Cobalt	59	26.2	0.0290	0.200	ug/L	25.0		105	80-120			
Copper	63	25.8	0.340	0.500	ug/L	25.0		103	80-120			
Copper	65	25.9	0.350	0.500	ug/L	25.0		103	80-120			
Molybdenum	98	24.8	0.0650	0.200	ug/L	25.0		99.3	80-120			
Nickel	60	25.0	0.0500	0.500	ug/L	25.0		99.9	80-120			
Nickel	62	25.1	0.220	0.500	ug/L	25.0		100	80-120			
Selenium	78	79.4	0.440	0.500	ug/L	80.0		99.2	80-120			
Zinc	66	80.2	0.820	4.00	ug/L	80.0		100	80-120			
Zinc	67	76.4	0.940	4.00	ug/L	80.0		95.5	80-120			

Duplicate (BHD0709-DUP1)		Source: 19D0371-01				Prepared: 26-Apr-2019 Analyzed: 26-Apr-2019 15:40						
Aluminum	27	23.2	2.37	20.0	ug/L	24.0			3.47	20		
Antimony	121	0.0910	0.0180	0.200	ug/L	0.0960			5.35	20		J
Barium	135	29.8	0.0560	0.500	ug/L	30.7			3.28	20		
Beryllium	9	ND	0.0290	0.200	ug/L	ND						U
Chromium	52	ND	0.130	0.500	ug/L	ND						U
Iron	54	27.7	6.27	20.0	ug/L	29.9			7.84	20		
Lead	208	0.0750	0.0680	0.100	ug/L	0.0760			1.32	20		J
Magnesium	24	5130	0.307	20.0	ug/L	5230			1.87	20		
Manganese	55	4.14	0.0850	0.500	ug/L	4.21			1.75	20		
Silver	107	ND	0.0170	0.200	ug/L	ND						U
Thallium	205	ND	0.00800	0.200	ug/L	ND						U
Arsenic	75n	0.631	0.0220	0.200	ug/L	0.711			11.90	20		

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Metals and Metallic Compounds - Quality Control

Batch BHD0709 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BHD0709-DUP1) Source: 19D0371-01 Prepared: 26-Apr-2019 Analyzed: 26-Apr-2019 15:40												
Cadmium	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt	59	0.0350	0.0290	0.200	ug/L		ND					J
Copper	63	0.540	0.340	0.500	ug/L		0.581			7.31	20	
Molybdenum	98	0.711	0.0650	0.200	ug/L		0.684			3.87	20	
Nickel	60	0.316	0.0500	0.500	ug/L		0.336			6.13	20	J
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	1.53	0.820	4.00	ug/L		1.64			6.87	20	J
Matrix Spike (BHD0709-MS1) Source: 19D0371-01 Prepared: 26-Apr-2019 Analyzed: 26-Apr-2019 15:45												
Aluminum	27	5010	2.37	20.0	ug/L	5000	24.0	99.7	75-125			
Antimony	121	26.3	0.0180	0.200	ug/L	25.0	0.0960	105	75-125			
Barium	135	55.6	0.0560	0.500	ug/L	25.0	30.7	99.6	75-125			
Beryllium	9	25.8	0.0290	0.200	ug/L	25.0	ND	103	75-125			
Chromium	52	24.8	0.130	0.500	ug/L	25.0	ND	99.2	75-125			
Iron	54	4800	6.27	20.0	ug/L	5000	29.9	95.4	75-125			
Lead	208	24.2	0.0680	0.100	ug/L	25.0	0.0760	96.6	75-125			
Magnesium	24	9980	0.307	20.0	ug/L	5000	5230	95.0	75-125			
Manganese	55	28.3	0.0850	0.500	ug/L	25.0	4.21	96.3	75-125			
Silver	107	26.2	0.0170	0.200	ug/L	25.0	ND	105	75-125			
Thallium	205	24.2	0.00800	0.200	ug/L	25.0	ND	96.8	75-125			
Arsenic	75a	27.2	0.0220	0.200	ug/L	25.0	0.711	106	75-125			
Cadmium	111	25.6	0.0300	0.100	ug/L	25.0	ND	103	75-125			
Cobalt	59	26.5	0.0290	0.200	ug/L	25.0	ND	106	75-125			
Copper	63	27.4	0.340	0.500	ug/L	25.0	0.581	107	75-125			
Molybdenum	98	27.3	0.0650	0.200	ug/L	25.0	0.684	106	75-125			
Nickel	60	26.9	0.0500	0.500	ug/L	25.0	0.336	106	75-125			
Selenium	78	84.1	0.440	0.500	ug/L	80.0	ND	105	75-125			
Zinc	66	85.3	0.820	4.00	ug/L	80.0	1.64	105	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.7 in Water	
Boron	WADOE,NELAP,DoD-ELAP
Tin	WADOE,NELAP
Titanium	WADOE,NELAP
EPA 200.8 in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Aluminum-27	NELAP,WADOE,WA-DW,DoD-ELAP
Barium-135	NELAP,WADOE,WA-DW,DoD-ELAP
Barium-137	NELAP,WADOE,WA-DW,DoD-ELAP
Beryllium-9	NELAP,WADOE,WA-DW,DoD-ELAP
Chromium-52	NELAP,WADOE,WA-DW,DoD-ELAP
Chromium-53	NELAP,WADOE,WA-DW,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Magnesium-24	NELAP,DoD-ELAP,WADOE
Manganese-55	NELAP,WADOE,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
Antimony-121	NELAP,WADOE,WA-DW,DoD-ELAP
Thallium-205	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Cadmium-111	NELAP,WADOE,WA-DW,DoD-ELAP
Cadmium-114	NELAP,WADOE,WA-DW,DoD-ELAP
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-65	NELAP,WADOE,WA-DW,DoD-ELAP
Molybdenum-98	NELAP,DoD-ELAP,WADOE
Nickel-60	NELAP,WADOE,WA-DW,DoD-ELAP
Nickel-62	NELAP,WADOE,WA-DW,DoD-ELAP
Selenium-78	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



Cascade Analytical, Inc.-Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: Douglas County
Project Number: [none]
Project Manager: Andy Schut

Reported:
01-May-2019 07:41

Notes and Definitions

- D The reported value is from a dilution
- J Estimated concentration value detected below the reporting limit.
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.

Dioxin Results

Subcontracted to ALS Environmental



May 08, 2019

Service Request No:E1900332

Andrew Schut
Eurofins
1008 W Ahtanum Rd Ste 2
Union Gap, WA 98903

Laboratory Results for: Douglass County

Dear Rick,

Enclosed are the results of the sample(s) submitted to our laboratory April 26, 2019
For your reference, these analyses have been assigned our service request number **E1900332**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental



Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client: Eurofins
Project: Douglass County
Sample Matrix: Waste Water

Service Request No.: E1900332
Date Received: 04/26/19

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three waste water samples were received for analysis at ALS Environmental in Houston on 4/26/19.

The samples were received at 5.6°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ1900153: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Certification is held for Washington for the 1613B/waste water/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Eurofins Calscience Environmental Laboratory
Project: Douglass County

Service Request:E1900332

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
E1900332-001	19-E009795	4/23/2019	1450
E1900332-002	19-E009796	4/23/2019	1425
E1900332-003	19-E009797	4/23/2019	1510

6 1000 ml-Glass Bottle NM AMBER Teflon Liner Unpreserved
 Location: EHRMS-WIC 7B, E-Disposed
 Pressure Gas:
 Rush

Service Request Summary

Project Chemist: Corey Grandits
 Originating Lab: HOUSTON
 Logged By: JGUIN
 Date Received: 04/26/19
 Internal Due Date: 5/8/2019
 QAP: LAB QAP
 Qualifier Set: HRMS Qualifier Set
 Formset: Lab Standard
 Merged?: Y
 Report to MDL?: Y
 P.O. Number: 08-11-0616
 EDD: No EDD Specified

Folder #: E1900332
 Client Name: Eurofins
 Project Name: Douglass County
 Project Number:
 Report To: Andrew Schut

Lab Samp No.	Client Samp No	Matrix	Collected	
E1900332-001	19-E009795	Wastewater	04/23/19 1450	II
E1900332-002	19-E009796	Wastewater	04/23/19 1425	II
E1900332-003	19-E009797	Wastewater	04/23/19 1510	II

HOUST
ON
Dioxins Furans/1613B

Folder #: E1900332
Client Name: Eurofins
Project Name: Douglass County
Project Number:

Report To: Andrew Schut

Phone Number:
Cell Number:
Fax Number:
E-mail:

Service Request Summary

Project Chemist: Corey Grandits
Originating Lab: HOUSTON

Logged By: JGUIN

Date Received: 04/26/19

Internal Due Date: 5/8/2019

QAP: LAB QAP

Qualifier Set: HRMS Qualifier Set

Formset: Lab Standard

Merged?: Y

Report to MDL?: Y

P.O. Number: 08-11-0616

EDD: No EDD Specified

6 1000 ml-Glass Bottle NM AMBER Teflon Liner Unpreserved

Location: EHRMS-WIC 7B, E-Disposed

Pressure Gas:

Rush

Data Qualifiers

HRMS Qualifier Set

- B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
- E Estimated value. The reported concentration is above the calibration range of the instrument.
- H Sample extracted and/or analyzed out of suggested holding time.
- J Estimated value. The reported concentration is below the MRL.
- K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. The concentration of this analyte should be considered as an estimate.
- P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
- Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
- S Signal saturated detector. Result reported from dilution.
- U Compound was analyzed for, but was not detected (ND).
- X See Case Narrative.
- Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-noise ratios are greater than 10:1, making the recoveries acceptable.
- i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient



State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2019
Arizona Department of Health Services	AZ0793	5/27/2019
Arkansas Department of Environmental Quality	19-028-0	3/27/2020
Department of Defense	A2LA 2897.01	11/30/2019
Florida Department of Health	B87611	7/31/2019
Illinois Environmental Protection Agency	004438	5/29/2019
Kansas Department of Health and Environment	E-10352	7/31/2019
Louisiana Department of Environmental Quality	03087	6/30/2019
Louisiana Department of Health and Hospitals	LA028	12/31/2019
Maine Center for Disease Control and Prevention	201815	6/5/2020
Maryland Department of the Environment	343	6/30/2019
Nevada Department of Conservation and Natural Resources	TX026932019-1	7/31/2019
New Hampshire Environmental Laboratory Accreditation Program	209419	4/24/2020
New Jersey Department of Environmental Protection	NLC180001	6/30/2019
New York Department of Health	11707	3/31/2020
Oklahoma Department of Environmental Quality	2018-156	8/31/2019
Pennsylvania Department of Environmental Protection	68-03441-012	6/30/2019
Tennessee Department of Environment and Conservation	04016	6/30/2019
Texas Commission on Environmental Quality	TX104704231-19-23	4/30/2020
United States Department of Agriculture	P330-18-00368	12/14/2019
Utah Department of Health Environmental Laboratory Certification	TX026932018-8	7/3/2019
Washington Department of Health	C819	11/14/2019
West Virginia Department of Environmental Protection	347	6/30/2019

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1900332

DB-5MSU

SPB-Ocyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
05/07/19	JL	-001, -002, -003

Second Level - Data Review - to be filled by person doing peer review

Date:	Analyst:	Samples:
05/08/19	LKL	001-003



Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com



ALS Environmental
8028 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 338-2500
Fax (425) 338-2555
http://www.alsglobal.com

ALS
Houston

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

Date 4/24/19 Page 2 of 2

PROJECT ID: Douglas County P.O.D.
REPORT TO COMPANY: Eurofins - Cascade Analytical
PROJECT MANAGER: Andy Schut
ADDRESS: 1008 W. Altonum Rd., Ste 2
Union Gap, WA 98003
PHONE: 509.452-7707 FAX:
P.O.#: 990015-4 E-MAIL: andrew.schut@eurofins.com
INVOICE TO COMPANY: Same
ATTENTION:
ADDRESS:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#
1. 19-E009795	4/23/19	14:50	W.W.	
2. 19-E009796	4/23/19	14:25	W.W.	
3. 19-E009797	4/23/19	15:10	W.W.	
4.				
5.				
6.				
7.				
8.				
9.				
10.				

ANALYSIS REQUESTED

NWTPH-HID
NWTPH-DX
NWTPH-GX
BTEX by EPA 8260 ☐
MTBE by EPA 8260 ☐
Halogenated Volatiles by EPA 8260
Volatile Organic Compounds by EPA 8260
EDB / EDC by EPA 8260 SIM (water)
EDB / EDC by EPA 8260 (sol)
Semi-volatile Organic Compounds by EPA 8270
Polyaromatic Hydrocarbons (PAH) by EPA 8270 SIM
PCB by EPA 8082 ☐
Pesticides by EPA 8081 ☐
Metals-MTCA-6 ☐ RCRA-9 ☐ Pb ☐ TML ☐
Metals Other (Specify)

TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herb ☐
OTHER (Specify)

RECEIVED IN GOOD CONDITION?
NUMBER OF CONTAINERS

E19000332

ALS Environmental
Dioxin



5

SPECIAL INSTRUCTIONS NPDES testing - Please report w/ 5-Fluor w/ DL of 1.3 ppb/L and QLO of 5pp/L.

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By:

Received By: James Guin - Alstair 4/24/19 09:56 AM

2. Relinquished By:

TURNAROUND REQUESTED IN BUSINESS DAYS
Organic, Metals & Inorganic Analysis

Specify: Best available
TAT please

Fuels & Hydrocarbon Analysis

Page 12 of 32

Revised 1/19



ALS Environmental

Cooler Receipt Form

Project Chemist

Client/Project Eurofins - Cascade Analytical

Thermometer ID 5MD9

Date/Time Received: 4/26/19 0846A

Initials: JB

Date/Time Logged In: 4/26/19 0957 Initials: JB

1. Method of delivery: ☐ US Mail ☒ Fed Ex ☐ UPS ☐ DHL ☐ Courier ☐ Client

2. Samples received in: ☒ Cooler ☐ Box ☐ Envelope ☐ Other

3. Were custody seals on coolers? ☒ Yes ☐ No
If yes, how many and where?
Were they intact? ☒ Yes ☐ No ☐ N/A
Were they signed and dated? ☒ Yes ☐ No ☐ N/A

two on front

4. Packing Material: ☒ Inserts ☒ Baggies ☒ Bubble Wrap ☐ Gel Packs ☒ Wet Ice ☐ Sleeves ☐ Other

5. Foreign or Regulated Soil? ☐ Yes ☒ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp. Blank?
8133 81030 0883		4/26/19	0951	JB	5.2/5.6	<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>

6. Were custody papers properly filled out (ink, signed, dated, etc)? Yes ☒ No ☐
 7. Did all bottles arrive in good condition (not broken, no signs of leakage)? Yes ☒ No ☐
 8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? Yes ☒ No ☐
 9. Were appropriate bottles/containers and volumes received for the requested tests? Yes ☒ No ☐
 10. Did sample labels and tags agree with custody documents? Yes ☒ No ☐

Notes, Discrepancies, & Resolutions:

Service request Label:

E1900332
ALS Environmental
Dioxin

5

Effective 10/04/2013

ALS Environmental - Houston HRMS





10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sample. The COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples are shipped and stored cold, at 0 to 6°C.
- ✓ The sample temperature must be recorded on the COC.

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report.



Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Prep Date/Time: 4/29/19 08:00

Preparation Information Benchsheet

Preparation Information Benchsheet

Prep Run#: 335543
Team: Semivoc GCMS/JGUIN

Prep WorkFlow: OrgExtAg(365)
Prep Method: Method Sep Funnel/Jar

Status: Prepped
Prep Date/Time: 4/29/19 08:00

Preparation Materials

Sensafe Free Chlorine WTR CEIK	AL 10/23/18 (194373)	Carbon, High Purity	JG 4/11/19 (198507)	Ethyl Acetate 99.9% Minimum EtOAc	AL 12/31/18 (195971)
Glass Wool	197792 JG 3/18/19 (197792)	Hexanes 95%	JG 3/22/19 (197958)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JG 4/18/19 (198701)
Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	JG 4/4/19 (198305)	Tridecane (n-Tridecane)	JG 197877 3/29/19 (197877)
ColorpHast pH-Indicator Strips sulfuric acid	AL 10/23/18 (194373) tw 1/28/19 sulfuric (196582)	Silica Gel	JG 4/11/19 (198508)	Toluene 99.9% Minimum	JG 3/22/19 (197957)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	4/29/19 08:00	Started:	4/30/19 07:00	Started:	4/30/19 08:00	Started:	4/30/19 11:00
Finished:	4/29/19 15:00	Finished:	4/30/19 08:00	Finished:	4/30/19 11:00	Finished:	4/30/19 14:00
By:	JGUIN	By:	TWOODS	By:	TWOODS	By:	TWOODS
Comments		Comments		Comments		Comments	

Comments:

Reviewed By: JG Date: 05/03/2019

Chain of Custody

Relinquished By:

Date:

Received By:

Date:

Extracts Examined

Yes No



Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
 Project: Douglass County
 Sample Matrix: Wastewater
 Sample Name: 19-E009795
 Lab Code: E1900332-001

Service Request: E1900332
 Date Collected: 04/23/19 14:50
 Date Received: 04/26/19 08:48

Units: pg/L
 Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
 Prep Method: Method Sep Funnel/Jar
 Sample Amount: 985mL

Date Analyzed: 05/03/19 02:08
 Date Extracted: 4/29/19
 Instrument Name: E-HRMS-08
 GC Column: DB-5MSUI
 Blank File Name: P521686
 Cal Ver. File Name: P617537

Data File Name: P617543
 ICAL Date: 03/12/19

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	2.17	5.08			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
Project: Douglass County
Sample Matrix: Wastewater
Sample Name: 19-E009795
Lab Code: E1900332-001

Service Request: E1900332
Date Collected: 04/23/19 14:50
Date Received: 04/26/19 08:48
Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Sep Funnel/Jar
Sample Amount: 985mL
Data File Name: P617543
ICAL Date: 03/12/19

Date Analyzed: 05/03/19 02:08
Date Extracted: 4/29/19
Instrument Name: E-HRMS-08
GC Column: DB-5MSUI
Blank File Name: P521686
Cal Ver. File Name: P617537

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1126.606	56		31-137	0.77	1.018
37Cl-2,3,7,8-TCDD	800	383.600	48		42-164	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
 Project: Douglass County
 Sample Matrix: Wastewater
 Sample Name: 19-E009796
 Lab Code: E1900332-002

Service Request: E1900332
 Date Collected: 04/23/19 14:25
 Date Received: 04/26/19 08:48
 Units: pg/L
 Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
 Prep Method: Method Sep Funnel/Jar
 Sample Amount: 974mL
 Data File Name: P617544
 ICAL Date: 03/12/19

Date Analyzed: 05/03/19 02:57
 Date Extracted: 4/29/19
 Instrument Name: E-HRMS-08
 GC Column: DB-5MSUI
 Blank File Name: P521686
 Cal Ver. File Name: P617537

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.38	5.13			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
Project: Douglass County
Sample Matrix: Wastewater

Service Request: E1900332
Date Collected: 04/23/19 14:25
Date Received: 04/26/19 08:48

Sample Name: 19-E009796
Lab Code: E1900332-002

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Sep Funnel/Jar
Sample Amount: 974mL

Date Analyzed: 05/03/19 02:57
Date Extracted: 4/29/19
Instrument Name: E-HRMS-08
GC Column: DB-5MSUI
Blank File Name: P521686
Cal Ver. File Name: P617537

Data File Name: P617544
ICAL Date: 03/12/19

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1298.501	65		31-137	0.76	1.018
37Cl-2,3,7,8-TCDD	800	443.579	55		42-164	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
Project: Douglass County
Sample Matrix: Wastewater

Sample Name: 19-E009797
Lab Code: E1900332-003

Service Request: E1900332
Date Collected: 04/23/19 15:10
Date Received: 04/26/19 08:48

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Sep Funnel/Jar
Sample Amount: 981mL

Data File Name: P617545
ICAL Date: 03/12/19

Date Analyzed: 05/03/19 03:46
Date Extracted: 4/29/19
Instrument Name: E-HRMS-08
GC Column: DB-5MSUI
Blank File Name: P521686
Cal Ver. File Name: P617537

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.60	5.10			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
Project: Douglass County
Sample Matrix: Wastewater
Sample Name: 19-E009797
Lab Code: E1900332-003

Service Request: E1900332
Date Collected: 04/23/19 15:10
Date Received: 04/26/19 08:48
Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Sep Funnel/Jar
Sample Amount: 981mL
Data File Name: P617545
ICAL Date: 03/12/19

Date Analyzed: 05/03/19 03:46
Date Extracted: 4/29/19
Instrument Name: E-HRMS-08
GC Column: DB-5MSUI
Blank File Name: P521686
Cal Ver. File Name: P617537

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1199.619	60		31-137	0.78	1.018
37Cl-2,3,7,8-TCDD	800	409.435	51		42-164	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
 Project: Douglass County
 Sample Matrix: Wastewater
 Sample Name: Method Blank
 Lab Code: EQ1900153-01

Service Request: E1900332
 Date Collected: NA
 Date Received: NA
 Units: pg/L
 Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
 Prep Method: Method Sep Funnel/Jar
 Sample Amount: 1000mL
 Data File Name: P521686
 ICAL Date: 04/25/19

Date Analyzed: 05/02/19 12:16
 Date Extracted: 4/29/19
 Instrument Name: E-HRMS-07
 GC Column: DB-5MSUI
 Blank File Name: P521686
 Cal Ver. File Name: P521684

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	3.17	5.00			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
 Project: Douglass County
 Sample Matrix: Wastewater
 Sample Name: Method Blank
 Lab Code: EQ1900153-01

Service Request: E1900332
 Date Collected: NA
 Date Received: NA
 Units: Percent
 Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
 Prep Method: Method Sep Funnel/Jar
 Sample Amount: 1000mL
 Data File Name: P521686
 ICAL Date: 04/25/19

Date Analyzed: 05/02/19 12:16
 Date Extracted: 4/29/19
 Instrument Name: E-HRMS-07
 GC Column: DB-5MSUI
 Blank File Name: P521686
 Cal Ver. File Name: P521684

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1295.921	65		31-137	0.78	1.023
37Cl-2,3,7,8-TCDD	800	519.384	65		42-164	NA	1.024



Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Page 27 of 32

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Eurofins Calscience Environmental Laboratory
Project: Douglass County
Sample Matrix: Wastewater

Service Request: E1900332
Date Analyzed: 05/02/19
Date Extracted: 04/29/19

Duplicate Lab Control Sample Summary

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Sep Funnel/Jar

Units: pg/L
Basis: NA
Analysis Lot: 634267

Lab Control Sample

EQ1900153-02

Duplicate Lab Control Sample

EQ1900153-03

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
2,3,7,8-TCDD	184	200	92	177	200	89	73-146	4	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
Project: Douglass County
Sample Matrix: Wastewater

Service Request: E1900332
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1900153-02

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Sep Funnel/Jar
Sample Amount: 1000mL

Date Analyzed: 05/02/19 17:56
Date Extracted: 4/29/19
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI

Data File Name: P521693
ICAL Date: 04/25/19

Blank File Name: P521686
Cal Ver. File Name: P521684

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	184		2.63	5.00	0.81	1.001	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
 Project: Douglass County
 Sample Matrix: Wastewater

Service Request: E1900332
 Date Collected: NA
 Date Received: NA

Sample Name: Lab Control Sample
 Lab Code: EQ1900153-02

Units: Percent
 Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
 Prep Method: Method Sep Funnel/Jar
 Sample Amount: 1000mL

Date Analyzed: 05/02/19 17:56
 Date Extracted: 4/29/19
 Instrument Name: E-HRMS-07
 GC Column: DB-5MSUI
 Blank File Name: P521686
 Cal Ver. File Name: P521684

Data File Name: P521693
 ICAL Date: 04/25/19

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1216.598	61		31-137	0.79	1.023
37Cl-2,3,7,8-TCDD	800	492.733	62		42-164	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
 Project: Douglass County
 Sample Matrix: Wastewater

Service Request: E1900332
 Date Collected: NA
 Date Received: NA

Sample Name: Duplicate Lab Control Sample
 Lab Code: EQ1900153-03

Units: pg/L
 Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
 Prep Method: Method Sep Funnel/Jar
 Sample Amount: 1000mL

Date Analyzed: 05/02/19 18:45
 Date Extracted: 4/29/19
 Instrument Name: E-HRMS-07
 GC Column: DB-5MSUI
 Blank File Name: P521686
 Cal Ver. File Name: P521684

Data File Name: P521694
 ICAL Date: 04/25/19

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	177		3.47	5.00	0.75	1.000	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Eurofins Calscience Environmental Laboratory
 Project: Douglass County
 Sample Matrix: Wastewater

Service Request: E1900332
 Date Collected: NA
 Date Received: NA

Sample Name: Duplicate Lab Control Sample
 Lab Code: EQ1900153-03

Units: Percent
 Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
 Prep Method: Method Sep Funnel/Jar
 Sample Amount: 1000mL

Date Analyzed: 05/02/19 18:45
 Date Extracted: 4/29/19
 Instrument Name: E-HRMS-07
 GC Column: DB-5MSUI
 Blank File Name: P521686
 Cal Ver. File Name: P521684

Data File Name: P521694
 ICAL Date: 04/25/19

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	994.471	50		31-137	0.79	1.023
37Cl-2,3,7,8-TCDD	800	394.125	49		42-164	NA	1.023



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

SEND RESULTS TO		SAMPLE #					
1) Client	2) Billing	3) Both	Client	1	2	3	4
SAMPLE REPRESENTS							
1) Food	2) Water	3) Soil	4) Plant Tissue	5) Other	Water		
SAMPLE BY							
1) Client	2) Field Rep.	3) Quality Control	4) Cascade	5) Other			
SAMPLER'S NAME							

CLIENT NAME/ADDRESS

Douglas Co PUD
1151 Valley Mill Pkwy
East Wenatchee, WA 98802
PHONE NO. 509.662.1888

BILLING NAME/ADDRESS

Same

PHONE NO.

EMAIL

andrewg@dcpcud.org

EMAIL

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature) [1]	DATE	RELINQUISHED BY: (Signature) [2]	DATE	RELINQUISHED BY: (Signature) [3]	DATE
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME

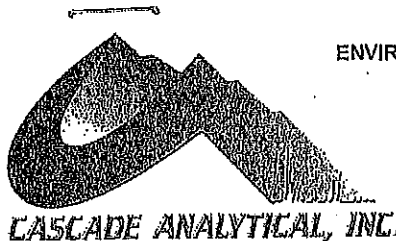
1	SAMPLE I.D.	Forebay	Sample Date	4/23/19	Sample Time	2:30
	ANALYSIS REQUESTED	EPA 1631 Low Level Hg, Surfactants SM 5540 C-2011				
	COMMENT					
2	SAMPLE I.D.	Sump	Sample Date	4/23/19	Sample Time	2:25
	ANALYSIS REQUESTED	EPA 1631 Low Level Hg, Surfactants SM 5540 C-2011				
	COMMENT					
3	SAMPLE I.D.	Oil/Water Separator	Sample Date	4/23/19	Sample Time	5:10
	ANALYSIS REQUESTED	EPA 1631 Low Level Hg, Surfactants SM 5540 C-2011				
	COMMENT					
4	SAMPLE I.D.		Sample Date		Sample Time	
	ANALYSIS REQUESTED					
	COMMENT					

Sample container received by client was sealed Yes ☐ No ☐
Sample container received by laboratory was sealed Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are no other oral agreements or warranties collateral to or affecting this agreement. Cascade Analytical, Inc.'s liability to customer as a result of customer's use of Cascade's test results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature Michael D. Kingston Date 4/23/19



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

SEND RESULTS TO		SAMPLE #				
1) Client	2) Billing	3) Both	1	2	3	4
1) Client 2) Billing 3) Both						
SAMPLE REPRESENTS						
1) Food	2) Water	3) Soil	4) Plant Tissue	5) Other	Other	
SAMPLE BY						
1) Client	2) Field Rep.	3) Quality Control	4) Cascade	5) Other		
SAMPLER'S NAME						

CLIENT NAME/ADDRESS

Douglas Co PUD
1151 Valley Mall Pkwy
E. Wenatchee, WA 98802

PHONE NO. Attn: Andrew G.

BILLING NAME/ADDRESS

Same

PHONE NO.

EMAIL andrewg@dcpud.org

EMAIL

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature)	DATE	RELINQUISHED BY: (Signature)	DATE	RELINQUISHED BY: (Signature)	DATE
(Printed) Michael D. Johnston	4/23				
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME

1	SAMPLE I.D. Forebay	Sample Date 4/23/19	Sample Time 2:50
	ANALYSIS REQUESTED Al, Ba, B, Co, Fe, Mg, Mo, Mn, Sn, Ti, Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Ag, Se, Ti, Zn		
	COMMENT		
2	SAMPLE I.D. Sump	Sample Date 4/23/19	Sample Time 2:25
	ANALYSIS REQUESTED Al, Ba, B, Co, Fe, Mg, Mo, Mn, Sn, Ti, Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Ag, Se, Ti, Zn		
	COMMENT		
3	SAMPLE I.D. Oil/Water Separator	Sample Date 4/23/19	Sample Time 5:10
	ANALYSIS REQUESTED Al, Ba, B, Co, Fe, Mg, Mo, Mn, Sn, Ti, Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Ag, Se, Ti, Zn		
	COMMENT		
4	SAMPLE I.D.	Sample Date	Sample Time
	ANALYSIS REQUESTED		
	COMMENT		

Sample container received by client was sealed Yes ☐ No ☐
Sample container received by laboratory was sealed Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are not other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical, Inc.'s liability to customer as a result of customers use of Cascade's tests results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature Michael D. Johnston Date 4/23/19



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

SEND RESULTS TO		SAMPLE #				
1) Client	2) Billing	3) Both	1	2	3	4
SAMPLE REPRESENTS						
1) Food 2) Water 3) Soil 4) Plant Tissue 5) Other						
SAMPLE BY						
1) Client 2) Field Rep. 3) Quality Control 4) Cascade 5) Other						
SAMPLER'S NAME						

CLIENT NAME/ADDRESS

Douglas Co PUD
1154 Valley Mall Pkwy
E. Wenatchee, WA 98801
PHONE NO. Attn: Andrew G.

BILLING NAME/ADDRESS

Same

PHONE NO.

EMAIL andrewg@dcpud.org

EMAIL

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature) [1]	DATE	RELINQUISHED BY: (Signature) [2]	DATE	RELINQUISHED BY: (Signature) [3]	DATE
<u>[Signature]</u>	<u>4/23</u>				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
<u>Andrew G.</u>					
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
				<u>[Signature]</u>	<u>4/24/19</u>
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
				<u>Batch # 990016</u>	<u>4:55pm</u>

SAMPLE I.D.	ANALYSIS REQUESTED	COMMENT	Sample Date	Sample Time
<u>Forebay</u>	<u>Dioxin 2,3,7,8 TCDD</u>		<u>4/23/19</u>	<u>2:50</u>
<u>Sump</u>	<u>Dioxin 2,3,7,8 TCDD</u>		<u>4/23/19</u>	<u>2:25</u>
<u>Oil/Water Separator</u>	<u>Dioxin 2,3,7,8 TCDD</u>		<u>4/23/19</u>	<u>3:10</u>

Sample container received by client was sealed Yes ☐ No ☐
Sample container received by laboratory was sealed Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are not other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical, Inc.'s liability to customer as a result of customer's use of Cascade's test results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature

[Signature]

Date

4/23/19

Exhibit E

Wells Dam 2018 Surface Water Quality Study



Wells Dam 2018 Surface Water Quality Study

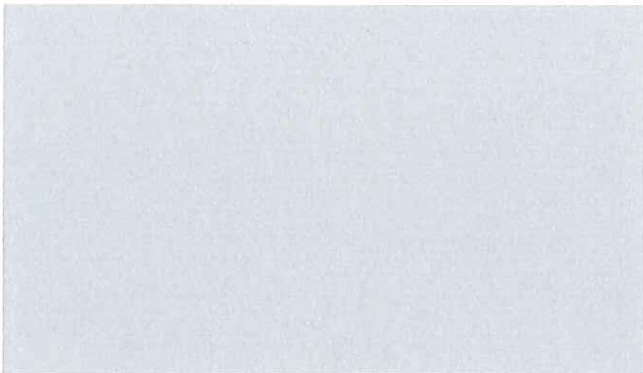
Prepared for:

Douglas County Public Utility District
Wells Dam
Chelan, Washington

Prepared by:

HDR Engineering, Inc.
600 University St, Suite 700
Seattle, WA 98101

November 2018





This page is intentionally left blank.

Contents

1	Introduction	1
1.1	Background	1
1.2	Goals and Objectives	1
2	Surface Water Quality Sampling Program	2
2.1	Sampling Program Strategy and Design	2
2.2	Sample Collection	9
2.3	Sample Management and Handling	10
2.4	Laboratory Analytical Methods and Procedures	11
2.5	Data Management	12
2.6	Variances of the Scope of Work	12
3	Study Results	13
3.1	Laboratory Data Validation	13
3.2	Quality Control Objectives	13
3.2.1	Representativeness	13
3.2.2	Comparability	13
3.2.3	Completeness	13
3.2.4	Sensitivity	13
3.2.5	Precision	14
3.2.6	Bias and Accuracy	14
3.3	Water Quality Sampling Results	14
4	Conclusions	15
5	Limitations	16
6	References	17

Tables

Table 1.	TPH sample labeling scheme	10
Table 2.	Laboratory methods and sample collection metadata.	11

Figures

Figure 1. Surface Water Sampling Overview Map..... 5

Figure 2. Surface Water Sampling Detail Map – Treatment Sample Locations 6

Figure 3. Wells Dam Hourly Hydrologic Flow Data and Water Elevation. 7

Appendices

Appendix A: Photo Log

Appendix B: Field Forms and Water Quality Measurement Results

Appendix C: Chains of Custody (COCs)

Appendix D: Laboratory Data Packages

Appendix E: NWTPH Analytical Method

1 Introduction

1.1 Background

Over the course of general operations, the Wells Dam (Project) uses compounds, including cable lubricants, wicket gate grease, runner hub oil, and transformer oil. It has recently been suggested that these compounds may be discharging at the Project into the Columbia River.

1.2 Goals and Objectives

At the request of Jeffers, Danielson, Sonn & Aylward Law (JDSA Law), counsel to Douglas County Public Utility District's (PUD), HDR Engineering, Inc. (HDR) planned and implemented a surface water quality study (Study) to evaluate whether petroleum compounds are being discharged from the Project during the course of daily operations.. The Study was conducted based on the approved "Wells Dam: Surface Water Quality Study – Total Petroleum Hydrocarbon Screening" work plan, dated October 2018 (HDR 2018). This technical memorandum provides a summary of the Study and its associated results.

The goal of the Study was to collect water samples to evaluate the potential presence of total petroleum hydrocarbons (TPH) in surface waters in the forebay (i.e., upgradient to the Project) and tailrace (i.e., downgradient to the Project), as defined by the following objectives:

Objective No. 1: Determine if TPH concentrations are detected immediately upstream and/or downstream of the Project.

Objective No. 2: Determine if gasoline-range TPH concentrations immediately downstream of the Project are above concentrations upstream of the Project.

Objective No. 3: Determine if diesel-range TPH concentrations immediately downstream of the Project are above concentrations upstream of the Project.

The need to complete Objective Nos. 2 and 3 are conditional upon detecting TPH concentrations upstream or downstream of the Project (Objective No. 1).

2 Surface Water Quality Sampling Program

2.1 Sampling Program Strategy and Design

The Study was designed to support the collection of surface water samples between Monday October 29, 2018 and Friday November 2, 2018 to identify the presence of TPH concentrations. The Study was designed to collect surface water quality samples during the course of the Project's daily operating conditions typical of the season. Surface water samples were collected for analysis of TPH concentrations from the Project forebay (Control sample locations) and from the Project tailrace (Treatment sample locations). The Control samples were collected from three locations across the immediate forebay and the Treatment samples were collected from three locations across the tailrace. Sample locations are presented in Figures 1 and 2.

Water from the Columbia River is used to generate electricity at the Project. The Columbia River originates from the headwaters in Canada, and various Washington State tributary inputs above the Project (including but not limited to the Methow, Okanogan, Spokane, Kettle, Sanpoil, and Pend Oreille rivers). An analysis of the Control group samples was intended to characterize potential upstream TPH contributions to water entering the Project. TPH concentrations in surface water upstream of the Project would not be the result of Project operations.

To assess these potential upstream influences and the quality of water entering the Project, the Control samples were collected in the Project forebay near the back side of the dam next to the spillways¹. The Treatment group samples were collected in the Project tailrace to characterize the combined upstream and potential Project contributions of TPH downstream of the Project.

Samples were collected three times a day during the course of the five day sampling program. Samples were collected between the following time windows on a daily basis (or as close to these time periods as practicable):

- First collection event: between 0900 and 1000,
- Second collection event: between 1200 and 1300, and
- Third collection event: between 1500 and 1600

The Columbia River flow and the flow of water through the turbines and out into the tailrace for the sampling period is shown on the graph in Figure 3. According to representatives of the Project, at this time of year, higher flow volumes start to become realized at Wells Dam starting around 0600 daily, as a result of early morning discharge

¹ The spillways were closed at the time of sample collection.

of the dams above the Project and to accommodate daily energy demands (HDR 2018). Throughout the day, units may turn on or off or have reduced flow profiles as the Project responds to demands. Generally between 0600 and 1700, unit flows and generation are highest compared to nighttime periods of the day (when loads and demands are lowest). Therefore, this time window would represent the times that petroleum products would potentially be discharged in association with unit use and operation.

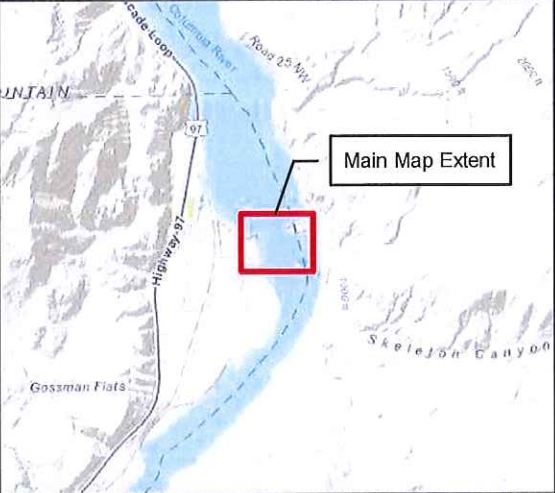
Since three Control samples and three Treatment samples were collected during each individual sampling event, 18 total primary samples were generated on a daily basis (9 treatment and 9 controls). Therefore, at the end of the 5 day sampling event, a total of 90 discrete samples were collected for potential analysis.

Control group sample locations C1 through C3 (Figure 1 and photos in Appendix A) were immediately upstream of the spillways (which were closed during sampling) and adjacent to the pier noses. Upstream sample locations C1, C2, and C3 were between units 1 and 2, in front of unit 5, and between units 9 and 10, respectively (Figures 1 and 2; photos in Appendix A). Treatment group sample locations T1 through T3 (Figures 1 and 2) were aligned in front of spillway 2, spillway 5, and spillway 10, respectively².

Per the approved work plan, water samples were collected from the Control and Treatment locations for analysis using the Washington State Department of Ecology (Ecology) Northwest TPH (NWTPH) Hydrocarbon Identification (HCID) analytical method (Ecology 1997). Additional samples were also collected for follow-on analysis using NWTPH gasoline-range extended (NWTPH-Gx) and/or NWTPH diesel-range extended (NWTPH-Dx) analysis, with silica gel cleanup (Ecology 1997).

² Units 2 and 8 were not in operation during the time of the Study as they were offline for long term rehabilitation and short-term maintenance, respectively. This is a normal operational condition because turbine unit outages are a consistent aspect of normal operation and maintenance. Units 8 of 10 were on and off throughout the day during the course of the Study period.

This page is intentionally left blank.



LEGEND

- Sampled Control Locations
- Sampled Treatment Locations

DATA SOURCES: Aerial - Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community (2018). Other - HDR Inc.
Projection is NAD 1983 StatePlane Washington North FIPS (US Feet).
DISCLAIMER: Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

**SURFACE WATER SAMPLING
OVERVIEW MAP**
CONFIDENTIAL AND PRIVILEGED
DOUGLAS COUNTY PUBLIC UTILITY DISTRICT

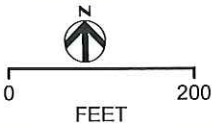
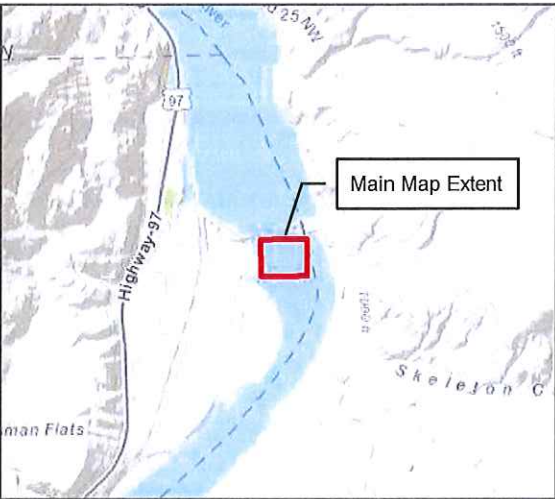


FIGURE 1





LEGEND

■ Sampled Treatment Locations

DATA SOURCES: Aerial - Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community (2018). Other - HDR Inc.
Projection is NAD 1983 StatePlane Washington North FIPS (US Feet).
DISCLAIMER: Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

**TREATMENT SAMPLE LOCATIONS
DETAIL MAP**
CONFIDENTIAL AND PRIVILEGED
DOUGLAS COUNTY PUBLIC UTILITY DISTRICT

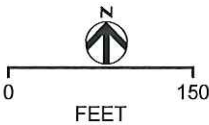
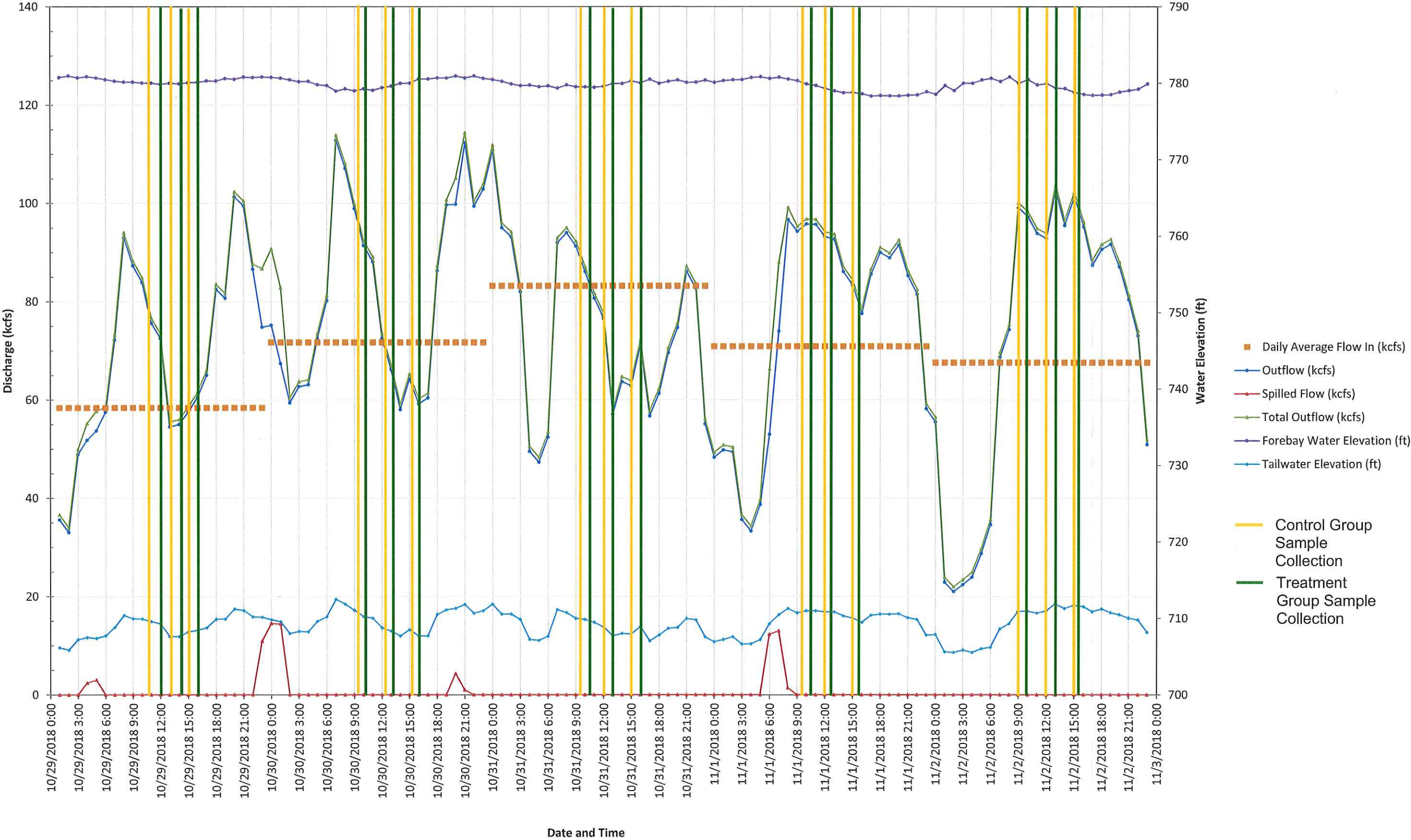


FIGURE 2



Figure 3. Wells Dam Hourly Hydrologic Flow Data and Water Elevation.



This page is intentionally left blank.

2.2 Sample Collection

Sample collection methods were based on the approved work plan (HDR 2018). An initial health and safety orientation meeting was conducted on October 29, 2018 prior to field work starting and daily health and safety briefing meetings were completed to update the team on the day's planned activities. Sample collection was completed based on Ecology's NWTPH sampling methodology and laboratory protocols (Ecology 1997).

For the sample events, attention was paid to cleanliness and to avoiding cross-contamination and false positives. Sampling equipment was placed into a new, clean plastic 5 gallon bucket and hand-carried to the locations. Sample bottles were not opened until the sample was collected and were promptly closed. A "clean hands" protocol was utilized, whereby clean, new gloves were used at each sampling event. Care was taken to avoid collecting samples near operating motor vehicles or other sources of potential false positives.

During the three daily sampling events, Control samples were first collected at sample locations (C1 through C3) in the Project forebay and then the Treatment samples were collected from the tailrace. During the course of the Study, the surface water levels at the Control group sample locations ranged between approximately 20 and 25 feet below the deck of the dam.

In advance of sample collection, field staff recorded the time of day, latitude, and longitude during each sampling event for Treatment locations (daily field forms are included in Appendix B). The "static" Control sample locations were identified on the first day by recording latitude and longitude positions and flagging and photographing the sites (see Appendix A for relative locations of the Control sample locations).

At each sampling location and for each event, field staff recorded the time of day, latitude, and longitude during each sampling event. Field water quality parameters were measured including water temperature, dissolved oxygen, pH, and specific conductivity using an YSI Pro Plus water quality meter (YSI). The water quality meter was calibrated daily in advance of use following the manufacturer's calibration procedure. The field water quality parameter sample was collected for the Control sample locations by dropping a 5-gallon container into the forebay. The Treatment sample location field water quality samples were collected directly in the Columbia River. Control sample location water levels were too far away to sample directly with the YSI. Water was collected in a bucket attached to a rope, and water quality measurements were immediately measured from that water volume.

Analytical samples from the Control group locations were collected directly into sample bottles using a telescopic pole sampler lowered from the dam deck upstream of the spillways. Samples were collected at or near the water's surface. Samples were collected at the same locations during each daily sample period (see Figure 1).

Samples were collected at the Treatment group locations (T1 through T3; see Figures 1 and 2). The Treatment locations were accessed using a 20-foot long aluminum boat (operated by Douglas County PUD staff) powered by an outboard motor and equipped with a global positioning system (GPS) location device. The boat was positioned upstream and the samples were collected from the front of the boat by reaching down into the water using a gloved hand. The sample locations were at approximately the same three locations for each event with the boat positioned using the onboard GPS (see Figure 2 for locations). The GPS locations were verified by HDR staff using a secondary, handheld GPS unit. Sampling of Treatment group locations in subsequent events had slight variations in location because of water flow and research vessel controls and maneuverability.

Water samples collected for NWTPH HCID and NWTPH-Dx analyses were collected directly into laboratory-supplied glass amber bottles (1 liter [L] and 500 milliliters [ml], respectively). The bottles were submerged just below the water surface and allowed to fill per Ecology's NWTPH sampling guidance. A small volume of the water collected for the HCID analysis was then used to fill the NWTPH-Gx volatile organic analysis (VOA) vials (sufficient volume remained in the 1 L bottle HCID at each sample location to effectively run the HCID analysis).

2.3 Sample Management and Handling

A "blind" sample identification method was developed so that lab technicians were unaware of the specific sample locations and dates. Primary samples used labels that were four digits long containing coded information to indicate sample type, location, date, and time (Table 1). For example, the label '2323' corresponds to the Treatment group sample at location T3, collected on 10/30/18, during the third daily collection event (e.g., between 1500 and 1600). The labeling scheme was adapted in the field for management of the field replicate samples (a fifth digit [i.e., '9'] was added to the field duplicate label scheme to allow for clear association with the primary sample location).

Table 1. TPH sample labeling scheme

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit
1 = Control	1 = C or T Location 1	1 = 10/29/18	1 = First Event	9 = Field Duplicate
2 = Treatment	2 = C or T Location 2	2 = 10/30/18	2 = Second Event	
3 = Field Blank	3 = C or T Location 3	3 = 10/31/18	3 = Third Event	
4 = N/A	0 = None (QC sample)	4 = 11/01/18	0 = None (QC sample)	
5 = Trip Blank		5 = 11/02/18		

Samples were placed on ice in a cooler immediately after collection. Ice was replenished in each cooler at the end of the day. Samples collection was documented with field notes and on chain-of-custody (COC) forms (see Appendices B and C, respectively). At the end of the day, sample labels were checked and the samples were prepared for shipment with the signed COC form in a sealed plastic bag, which was taped to the lid of each one of the sample coolers included in each shipment. Prior to shipment, sample



bottles were placed in clean, new bubble-wrap, and coolers were filled with ice and duct taped closed. Samples were processed for shipment to ALS Laboratories (Everett, Washington) for analysis.

A photograph of the COC form was taken for filing and was also emailed to the laboratory project manager, along with the shipping number. Sample coolers were sealed with COC tape and packing tape and shipped via next day air or dropped off directly at the analytical laboratory on the day following sample collection. For those samples that were shipped, they were shipped directly from a pre-established pick-up location in Chelan, Washington. The samples collected on Thursday November 1, 2018 and Friday November 2, 2018 were transported to the Seattle area for drop-off at the analytical laboratory on Saturday November 3, 2018.

2.4 Laboratory Analytical Methods and Procedures

Samples were first analyzed using NWTPH HCID, to identify the potential presence of petroleum hydrocarbon compounds. In the event that the potential presence of petroleum hydrocarbon compounds was identified (i.e., true or false above the method's reporting limits), follow-on analysis was conducted accordingly (either NWTPH-Gx, NWTPH-Dx, or both, as appropriate).

The NWTPH HCID, -Gx, and -Dx methodologies are approved methods established by Ecology and under the Washington State Model Toxics Control Act (MTCA). Although surface water criteria is governed under Ecology's surface water regulations and the Clean Water Act (CWA), MTCA has established criteria for TPH in various media, including soil and groundwater. The reporting limits used in Ecology's NWTPH HCID method (as noted in Table 2) are all below the MTCA Method A groundwater criteria (i.e., unrestricted/residential land use).

Analytical results are provided in Appendix D and discussed further in the subsequent sections. Sample methodology and related information is provided in Table 2; additional detail on the NWTPH analytical method is provided in Appendix E.

Table 2. Laboratory methods and sample collection metadata.

Analyte	Method	Reporting Limits	Expected Range of Results	Bottle Type	Preservation	Hold Time
HCID	NWTPH-HCID	G – 130 ug/L D – 310 ug/L O – 310 ug/L	N/A	1 L Amber	Cool 4°C, none	7 days
TPH- Gasoline Range	NWTPH-Gx	0.25 mg/L	< 1.0 mg/L	2 40-ml vials	Cool 4°C, HCL	14 days
TPH- Diesel Range	NWTPH-Dx/ Silica Gel Cleanup	0.5 mg/L	< 1.0 mg/L	0.5 L Amber Glass	Cool 4°C, none	7 days

Notes:

D – diesel
G – gasoline

Dx – diesel-range extended
Gx – gasoline-range extended

HCID- hydrocarbon identification	HCL – hydrochloric acid
L – liter	mg/L – milligrams per liter
ml – milliliters	N/A – not applicable
O – oil-range	TPH – total petroleum hydrocarbons

2.5 Data Management

Data generated during this Study was stored on field forms and in laboratory reports obtained from the commercial laboratory. Electronic field forms and COC forms will be stored by Douglas County PUD, as appropriate. Laboratory reports will be stored in electronic form (PDF). Hard copies of these various forms are included as Appendices B through D.

2.6 Variances of the Scope of Work

During the course of Study implementation, the following adjustments to the Study's strategy and design occurred:

- Due to travel logistics and initial coordination demands, the initial sample collection on Monday October 19, 2018 was slightly later than planned. The first sampling event on subsequent days was implemented as designed and per the approved work plan. This scope variance will not affect the outcome because the later sample collection time was still reflective of water quality conditions.
- Control samples were collected from “static” locations from the upstream (i.e., north) side of the dam upstream of the spillways.
- Only one field replicate sample was collected on a daily basis, versus two as outlined in the work plan. This will not affect the results as one field replicate provides sufficient information to verify quality of analytical results.
- As discussed in Section 2.3, the sample labeling scheme was adapted in the field for management of the field replicate samples (a fifth digit [i.e., ‘9’] was added to the field duplicate label scheme to allow for clear association with the primary sample location).

3 Study Results

3.1 Laboratory Data Validation

The laboratory analytical data package was reviewed and a cursory validation was performed. The purpose of the cursory data validation was to determine if the laboratory Quality Assurance/Quality Control (QA/QC) procedures were followed and that the QA/QC results were within method limits. The laboratory QA/QC metrics reviewed were within the method limits and no laboratory data QA/QC exemptions were identified. However, no formal data validation (e.g., Level 2a/2b) was performed on the laboratory data packages.

3.2 Quality Control Objectives

Data quality objectives (DQOs) were evaluated in terms of the representativeness, comparability, completeness, sensitivity, precision, bias, and accuracy of the data (HDR 2018).

3.2.1 Representativeness

Representativeness refers to the extent to which measurements represent an environmental condition in time and space. Study representativeness was met through successful siting of the sampling locations. Control group sample locations represented the vast majority of flow moving through the Project. The Treatment group sample locations represent the water moving through the turbines and potentially receiving discharge of petroleum products.

3.2.2 Comparability

Comparability measures how data results can be compared between different sampling events. Comparability was met by sampling the same locations with the same field and laboratory protocols, and by following the NWTPH methodology, as defined by Ecology (see Appendix E for further information).

3.2.3 Completeness

Completeness measures the amount of data prescribed for assessment activities and the usable data actually collected (expressed as a percentage). One hundred percent of the laboratory samples were collected. Among the water quality measurements, the temperature, pH, and specific conductance data were all accepted. Dissolved oxygen measurements were rejected because of repeated calibration issues with the dissolved oxygen meters used during sampling.

3.2.4 Sensitivity

Sensitivity refers to the limit of a measurement to reliably detect a characteristic of a sample. Laboratory method sensitivity was met because detection limits for the

analytical results are within the method specifications and no detection above the reporting limits were identified in the field blanks samples (see Appendix D).

3.2.5 Precision

Precision refers to the degree of agreement among repeated measurements of the same characteristic. Precision was met because all field duplicate pairs were the same value (i.e., no detections in either sample at the reporting limit).

3.2.6 Bias and Accuracy

Bias is directional error from the true value. Accuracy is the combination of high precision and low bias. Bias and accuracy was met by confirming percent recovery of method control standards. All laboratory control samples were within acceptable recovery ranges.

3.3 Water Quality Sampling Results

Temperature, specific conductance, and pH were similar throughout the five-day sampling period. Temperature and pH increased slightly throughout the day, as expected. No substantial differences in water quality parameters were identified among the three Control and Treatment locations, respectively, among Control and Treatment location groups, or among the five sampling days (see Appendix B). Dissolved oxygen measurements were rejected because of probe malfunction. Dissolved oxygen is high both above and below the dam at the water surface and these data are not required to meet the goals and objectives of the Study.

TPH concentrations (i.e., gasoline-, diesel-, or oil-range) were not detected in the Control or Treatment samples analyzed using the TPH-HCID method. Since none of the TPH HCID samples resulted in detections at or above the reporting limit, no follow-on TPH-Gx or TPH-Dx samples were analyzed by the laboratory.

The Study Work Plan states that in the event that TPH concentrations were detected, summary statistics and inference testing between Control and Treatment groups would have been performed. However, because the samples analyzed resulted in no detections of TPH at or above the method reporting limits, a statistical analysis was not performed.

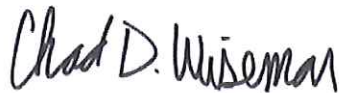
4 Conclusions

Based on results of the Study, petroleum hydrocarbons were not detected in any of the 90 total Control and Treatment water samples (nor the associated field replicates) analyzed using the NWTPH HCID analytical method. The NWTPH HCID is a published and accepted method developed by Ecology and analyzes for detectable concentrations of gasoline-, diesel-, and oil-range hydrocarbons in water. TPH concentrations in the Project forebay and tailrace were not detected above the NWTPH HCID method reporting limits.

5 Limitations

The analysis conducted by HDR Engineering, Inc. (HDR) was based upon the approved work plan (HDR 2018) and limited to the procedures and methods established by the Washington State Department of Ecology's Northwest Total Petroleum Hydrocarbon (NWTPH) Hydrocarbon Identification (HCID) method (Ecology 1997). Accordingly, HDR offers no opinions or guarantees regarding water quality conditions and/or the presence of contaminants that are beyond the scope of HDR's work plan and resulting Study. This Technical Memorandum has been prepared for the exclusive use of Douglas County Public Utility District No. 1 and their designated representative, Jeffers, Danielson, Sonn & Aylward (JDSA) Law, for the specific application to the Wells Dam Facility only. Use of this Technical Memorandum by any other party shall be at the sole risk of such party and without liability to HDR.

This technical memorandum has been prepared and reviewed by the following:



Chad Wiseman



Jeffrey Fellows, PE

6 References

- Ecology. 1997. Analytical Methods for Petroleum Hydrocarbons. Prepared by: Washington State Department of Ecology, Toxics Cleanup Program and the Ecology Environmental Laboratory. Publication No. ECY 97-602. June 1997.
- HDR. 2018. Wells Dam: Surface Water Quality Study, Total Petroleum Hydrocarbon Screening. Prepared for Jeffers, Danielson, Sonn & Aylward (JDSA) Law and the Public Utility District No. 1 of Douglas County, Natural Resources Department. October 2018.