Use F11 to navigate through fields.

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

This form is equivalent to EPA NPDES Form 3510-2A

FORM 2A NPDES

DEPARTMENT OF ECOLOGY State of Washington

NPDES FORM 2A APPLICATION OVERVIEW

APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.

B. **Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.

C. **Certification.** All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):

1. Has a design flow rate greater than or equal to 1mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to provide the information.

E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to submit results of toxicity testing.

F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:

1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
2. Any other industrial user that:
   a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
   b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
   c. Is designated as an SIU by the control authority.

G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

BASIC APPLICATION INFORMATION

PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

All treatment works must complete questions A.1 through A.8 of this Basic Application Information Packet.

A.1. Facility Information.

Facility Name: **Birch Bay Water & Sewer**

Mailing Address: **7096 Point Whitehorn Road**

Facility Address (not P.O. Box): **Blaine, WA 98248**

Location (Latitude/Longitude as decimal degrees (NAD83/WGS84)): **Latitude: 48.89954° Longitude: -122.76909**

Telephone Number: **(360) 371-7100**

E-mail address: **mike@bbwsd.com**

Contact Person: **Michael Sowers**

Title: **Operations' Manager**

UBI Number: **600019154**

A.2. Applicant Information. If the applicant is different from the above, provide the following:

Applicant Name

Mailing Address

Telephone Number ( )

E-mail address

Contact Person

Title

Is the applicant the owner or operator (or both) of the treatment works? ☒ owner ☒ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.
☒ facility ☐ applicant

Can the facility obtain broadband internet access for WQWebDMR (http://www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html)?
☒ yes ☐ no

A.3. Existing Environmental Permits. Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES	**WA-0029556**	PSD	
UIC		Other	
RCRA		Other	

A.4. Collection System Information. Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Name	Population Served	Type of Collection System	Ownership
Birch Bay	**8700 (Avg Annual)**	**Separate**	**Municipal**

Total population served **8700 (Avg Annual)**

FACILITY NAME AND PERMIT NUMBER:

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A.5. Indian Country.

a. Is the treatment works located in Indian Country?

☐ Yes ☒ No

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

☐ Yes ☒ No

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

a. Design flow rate **1.44** mgd

		Two Years Ago	Last Year	This Year
b.	Annual average daily flow rate	**0.828**	**0.903**	**0.858**
c.	Maximum daily flow rate	**2.197**	**1.981**	**2.131**

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

☒ Separate sanitary sewer **100** %

☐ Combined storm and sanitary sewer _____ %

A.8. Discharges and Other Disposal Methods.

a. Does the treatment works discharge effluent to waters of the U.S.? ☒ Yes ☐ No

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent **1**

ii. Discharges of untreated or partially treated effluent **0**

iii. Combined sewer overflow points **0**

iv. Constructed emergency overflows (prior to the headworks) **0**

v. Other _____ **0**

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? ☐ Yes ☒ No

If yes, provide the following for each surface impoundment:

Location :
(Latitude/Longitude as decimal degrees (NAD83/WGS84))

Annual average daily volume discharge to surface impoundment(s) _____ mgd

Is discharge ☐ continuous or ☐ intermittent?

c. Does the treatment works land-apply treated wastewater? ☐ Yes ☒ No

If yes, provide the following for each land application site:

Location :
(Latitude/Longitude as decimal degrees (NAD83/WGS84))

Number of acres:

Annual average daily volume applied to site: _____ mgd

Is land application ☐ continuous or ☐ intermittent?

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? ☐ Yes ☒ No

If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

If transport is by a party other than the applicant, provide:

Transporter Name

Mailing Address

Contact Person

Title

Telephone Number ( )

For each treatment works that receives this discharge, provide the following:

Name

Mailing Address

Contact Person

Title

Telephone Number ( )

If known, provide the NPDES permit number of the treatment works that receives this discharge

Provide the average daily flow rate from the treatment works into the receiving facility. mgd

e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8. through A.8.d above (e.g., underground percolation, well injection): ☐ Yes ☒ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

Annual daily volume disposed by this method:

Is disposal through this method ☐ continuous or ☐ intermittent?

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 **once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a,** go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

a. Outfall number: **WWTP Outfall No. 1**

b. Location: **Birch Bay** (City or town, if applicable) **98230** (Zip Code)

Whatcom (County) **WA** (State)

48.89250000 (Latitude) **-122.80138889** (Longitude) Provide these as decimal degrees (NAD83/WGS84)

c. Distance from shore (if applicable): **2000** ft.

d. Depth below surface (if applicable): **48.5** ft.

e. Average daily flow rate: **0.863 (8/16/15-8/15/18)** mgd

f. Does this outfall have either an intermittent or a periodic discharge? ☐ Yes ☒ No (go to A.9.g.)

If yes, provide the following information:

Number f times per year discharge occurs: _____

Average duration of each discharge: _____

Average flow per discharge: _____ mgd

Months in which discharge occurs: _____

g. Is outfall equipped with a diffuser? ☒ Yes ☐ No

A.10. Description of Receiving Waters.

a. Name of receiving water: **Strait of Georgia**

b. Name of watershed (if known): **unknown**

United States Soil Conservation Service 14-digit watershed code (if known): **unknown**

c. Name of State Management/River Basin (if known): **Padilla Bay - Strait of Georgia**

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): **17110002**

d. Critical low flow of receiving stream (if applicable)
acute **N/A** cfs chronic **N/A** cfs

e. Total hardness of receiving stream at critical low flow (if applicable): **N/A** mg/l of $CaCO_3$

FACILITY NAME AND PERMIT NUMBER:

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A.11. Description of Treatment

a. What level(s) of treatment are provided? Check all that apply.

☒ Primary ☒ Secondary

☐ Advanced ☐ Other. Describe: _____

b. Indicate the following removal rates (as applicable):

Design BOD5 removal or Design CBOD5 removal	85	%
Design SS removal	85	%
Design P removal	0	%
Design N removal	0	%
Other _____	0	%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:

UV Disinfection

If disinfection is by chlorination is dechlorination used for this outfall? ☐ Yes ☐ No

d. Does the treatment plant have post aeration? ☐ Yes ☒ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than one and one-half years apart.

Outfall number: Birch Bay WWTP No. 1

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.2	s.u.			
pH (Maximum)	7.3	s.u.			
Flow Rate	2.131	MGD	0.870	MGD	546
Temperature (Winter)	12.9	C	11.9	C	91
Temperature (Summer)	22.4	C	21.0	C	94

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NON CONVENTIONAL COMPOUNDS								
BIOCHEMICAL OXYGEN DEMAND (Report one)	BOD5	51	mg/l	15	mg/l	186	5210-B	<45 AVM
	CBOD5	-	-	-	-	-	-	-
FECAL COLIFORM		90	#/100/M	8	#/100	156	9222-D	<200/100ml/ MGM
TOTAL SUSPENED SOLIDS (TSS)		37	mg/l	14	mg/l	188	2540-D	<45 AVM

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

BASIC APPLICATION INFORMATION

PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

25,000 gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

1)Use smoke to check areas and RV parks on frequent basis 2)installed flow meters at 8 sewage lift stations to identify areas with abnormally high flows during dry low flow periods, and to isolate and and identify areas that have consistently high flows during wet weather periods (for further investigation). 3)Use sewer camera to check lines for visible I&I during wet weather. 4)Utlize a special internal pipe patching system to fix large piping deficiencies at a reasonable expense and with minimal impact to the environment. Have patched approx 6 large infiltration leaks/cracks, per year, for the last 3 years.

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

a. The area surrounding the treatment plant, including all unit processes.

b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.

c. Each well where wastewater from the treatment plant is injected underground.

d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.

e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.

f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where the hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redunancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g., chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

B.4. Operation/Maintenance Performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ☐ Yes ☒ No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: _____

Mailing Address: _____

_____

Telephone Number: ( ) _____

Responsibilities of Contractor: _____

B.5. Scheduled improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

_____

b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

☐ Yes ☐ No

c. If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM/DD/YYYY	Actual Completion MM/DD/YYYY
- Begin Construction	/ /	/ /
- End Construction	/ /	/ /
- Begin Discharge	/ /	/ /
- Attain Operational Level	/ /	/ /

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ☐ Yes ☐ No

Describe briefly:

B.6. EFFLUENT TESTING DATA (GREATER THAN OR EQUAL TO 0.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods (See attachment A). In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: **Birch Bay WWTP No. 1**

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NON CONVENTIONAL COMPOUNDS							
AMMONIA (as N)	28.3	mg/l	4.4	mg/l	18	350.1	0.0012
CHLORINE (TOTAL RESIDUAL, TRC)	0.1	mg/l	0.02	mg/l	546	DPD	0.01
DISSOLVED OXYGEN	11.3	mg/l	8.9	mg/l	375	SM4500-O	
TOTAL KJELDAHL NITROGEN (TKN)	38.2	mg/l	8.5	mg/l	18	351.2/351.2	0.0047
NITRATE PLUS NITRITE NITROGEN	41.1	mg/l	23.3	mg/l	18	SM4500-NO3F	0.015
OIL and GREASE	3.5	mg/l	<0.9	mg/l	18	1664	0.9
PHOSPHORUS (Total)	6.2	mg/l	4.1	mg/l	18	SM4500-P	0.0026
TOTAL DISSOLVED SOLIDS (TDS)	1264	mg/l	1035	mg/l	18	SM2540 C	
OTHER							

END OF PART B.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

☒ Basic Application Information packet

Supplemental Application Information packet:

☒ Part D (Expanded Effluent Testing Data)

☒ Part E (Toxicity Testing: Biomonitoring Data)

☐ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

☐ Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE THE FOLLOWING 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 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.

Permittee

Name and Title of Responsible Official: **Dan Eisses - General Manager**

Signature: _____

Telephone number: **(360) 371-7100**

E-mail address: **Dan@bbwsd.com**

Date signed: **9/27/18**

Co-Permittee (if applicable)

Name and official title: _____

Signature: _____

Telephone number: **( )** _____

E-mail address: _____

Date signed: _____

Upon request of the permitting authority, you must submit any other information necessary to assure wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

SEND COMPLETED FORMS TO[1]: Mail: NW Regional Office; Email: Tricia Miller at tmil461@ecy.wa.gov

[1]If unknown, contact an Ecology regional wastewater permit coordinator at: http://www.ecy.wa.gov/programs/wq/permits/permit_coord.html

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

SUPPLEMENTAL APPLICATION INFORMATION

PART D. EXPANDED EFFLUENT TESTING DATA

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old. The applicant should also review Attachment A.

Outfall number: **WWTP 1** (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.											
ANTIMONY	0.3	ug/l			0.075	ug/l			4	200.8/3010A	0.00691
ARSENIC	2.5	ug/l			2	ug/l			4	200.8/3010A	0.02177
BERYLLIUM	0.05	ug/l			0.013	ug/l			4	200.8/3010A	0.00676
CADMIUM	0.07	ug/l			0.018	ug/l			4	200.8/3010A	0.01127
CHROMIUM	0.0018	mg/l			0.001	mg/l			4	200.8/3010A	0.00012
COPPER	0.014	mg/l			0.008	mg/l			4	200.8/3010A	8.63E-05
LEAD	0.0005	mg/l			0.0002	mg/l			4	200.8/3010A	5.53E-05
MERCURY	2.68	ng/l			1.68	ng/l			4	245.1	0.00006
NICKEL	0.003	mg/l			0.002	mg/l			4	200.8/3010A	4.60E-05
SELENIUM	0.0026	mg/l			0.002	mg/l			4	200.8/3010A	0.00016
SILVER	<MDL	mg/l			<MDL	mg/l			4	200.8/3010A	2.27E-05
THALLIUM	0.00004	mg/l			0.00001	mg/l			4	200.8/3010A	3.26E-05
ZINC	0.061	mg/l			0.035	mg/l			4	200.8/3010A	0.00047
CYANIDE	0.01	mg/l			0.005	mg/l			4	D7511-09	0.002
TOTAL PHENOLIC COMPOUNDS	0.033	mg/l			0.020	mg/l			4	420.4	
HARDNESS (AS CaCO3)	292.1	mg/l			217.3	mg/l			4	200.7/3010A	0.01
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

Outfall number: WWTP 1 **(Complete once for each outfall discharging effluent to waters of the United States.)**

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	<MDL	ug/l			<MDL	ug/l			4	624	1.66
ACRYLONITRILE	<MDL	ug/l			<MDL	ug/l			4	624	0.56
BENZENE	<MDL	ug/l			<MDL	ug/l			4	624	0.13
BROMOFORM	<MDL	ug/l			<MDL	ug/l			4	624	0.12
CARBON TETRACHLORIDE	<MDL	ug/l			<MDL	ug/l			4	624	0.23
CHLORBENZENE	<MDL	ug/l			<MDL	ug/l			4	624	0.08
CHLOROBIDBROMO-METHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.12
CHLOROETHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.29
2-CHLORO-ETHYLVINYL ETHER	<MDL	ug/l			<MDL	ug/l			4	624	0.97
CHOLOROFORM	<MDL	ug/l			<MDL	ug/l			4	624	0.06
DICHLOROBROMO-METHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.07
1,1-DICHLOROETHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.12
1,2-DICHLOROETHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.08
1,2-DICHLOROETHYLENE	<MDL	ug/l			<MDL	ug/l			4	624	0.21
TRANS-1,2-DICHLORO-ETHYLENE	<MDL	ug/l			<MDL	ug/l			4	624	0.17
1,1-DICHLOROETHYLENE	<MDL	ug/l			<MDL	ug/l			4	624	0.21
1,2-DICHLOROPROPANE	<MDL	ug/l			<MDL	ug/l			4	624	0.09
1,3-DICHLOROPROPYLENE	<MDL	ug/l			<MDL	ug/l			4	624	0.08
ETHYLBENZENE	<MDL	ug/l			<MDL	ug/l			4	624	0.11
METHYL BROMIDE	<MDL	ug/l			<MDL	ug/l			4	624	0.36
METHYL CHLORIDE	<MDL	ug/l			<MDL	ug/l			4	624	0.17
METHYLENE CHLORIDE	<MDL	ug/l			<MDL	ug/l			4	624	0.06
1,1,2,2-TETRACHLORO-ETHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.13

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

Outfall number: WWTP 1 **(Complete once for each outfall discharging effluent to waters of the United States.)**

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
TETRACHLORO-ETHYLENE	<MDL	ug/l			<MDL	ug/l			4	624	0.21
TOLUENE	<MDL	ug/l			<MDL	ug/l			4	624	0.12
1,1,1-TRICHLOROETHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.31
1,1,2-TRICHLOROETHANE	<MDL	ug/l			<MDL	ug/l			4	624	0.15
TRICH LORETHYLENE	<MDL	ug/l			<MDL	ug/l			4	624	0.15
VINYL CHLORIDE	<MDL	ug/l			<MDL	ug/l			4	624	0.18
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL	<MDL	ug/l			<MDL	ug/l			3	625	0.3
2-CHLOROPHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.1
2,4-DICHLOROPHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.2
2,4-DIMETHYLPHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.4
4,6-DINITRO-O-CRESOL	<MDL	ug/l			<MDL	ug/l			3	625	0.3
2,4-DINITROPHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.5
2-NITROPHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.2
4-NITROPHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.3
PENTA CHLOROPHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.2
PHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.1
2,4,6-TRICHLORO PHENOL	<MDL	ug/l			<MDL	ug/l			3	625	0.1
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE	<MDL	ug/l			<MDL	ug/l			4	625	0.04
ACENAPHTYLENE	<MDL	ug/l			<MDL	ug/l			4	625	0.07
ANTHRACENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
BENZIDINE	<MDL	ug/l			<MDL	ug/l			4	625	9

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

Outfall number: WWTP 1 **(Complete once for each outfall discharging effluent to waters of the United States.)**

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
BENZO(A) ANTHRACENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
BENZO(J)FLUORANTHENE	<MDL	ug/l			<MDL	ug/l			4	625	0.08
BENZO(r,s.t)PENTAPHENE	<MDL	ug/l			<MDL	ug/l			4	625	0.3
BENZO(A)PYRENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
3.4 BENZO-FLUORANTHENE	<MDL	ug/l			<MDL	ug/l			4	625	0.08
BENZO(GHI)PERYLENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
BENZO(K)FLOURANTHENE	<MDL	ug/l			<MDL	ug/l			4	625	0.08
BIS (2-CHLORO ETHOXY) METHANE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
BIS (2-CHLOROETHYL)-ETHER	<MDL	ug/l			<MDL	ug/l			4	625	0.06
BIS (2-CHLOROISO-PROPYL) ETHER	<MDL	ug/l			<MDL	ug/l			4	625	0.06
BIS (2-ETHYLHEXYL) PHTHALATE	0.5	ug/l			<MDL	ug/l			4	625	0.01
4-BROMOPHENYL PHENYL ETHER	<MDL	ug/l			<MDL	ug/l			4	625	0.04
BUTYL BENZYL PHTHALATE	<MDL	ug/l			<MDL	ug/l			4	625	0.03
2-CHLORO NAPHTHALENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
4-CHLORPHENYL PHENYL ETHER	<MDL	ug/l			<MDL	ug/l			4	625	0.04
CHRYSENE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
DIBENZO(a,j)ACRIDINE	<MDL	ug/l			<MDL	ug/l			4	625	0.04
DIBENZO(a,h)ACRIDINE	<MDL	ug/l			<MDL	ug/l			4	625	0.4
DIBENZO(a,e)PYRENE	<MDL	ug/l			<MDL	ug/l			4	625	0.5
DIBENZO(a,h)PYRENE	<MDL	ug/l			<MDL	ug/l			4	625	0.3
DI-N-BUTYL PHTHALATE	<MDL	ug/l			<MDL	ug/l			4	625	0.07
DI-N-OCTYL PHTHALATE	<MDL	ug/l			<MDL	ug/l			4	625	0.02
DIBENZO(A,H) ANTHRACENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
1,2-DICHLORO BENZENE	<MDL	ug/l			<MDL	ug/l			4	625	0.04

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

Outfall number: WWTP 1 **(Complete once for each outfall discharging effluent to waters of the United States.)**

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
1,3-DICHLORO BENZENE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
1,4-DICHLORO BENZENE	<MDL	ug/l			<MDL	ug/l			4	625	0.08
3,3-DICHLORO BENZIDINE	<MDL	ug/l			<MDL	ug/l			4	625	0.2
DIETHYL PHTHALATE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
DIMETHYL PHTHALATE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
2,4-DINITROTOLUENE	<MDL	ug/l			<MDL	ug/l			4	625	0.07
2,6-DINITROTOLUENE	<MDL	ug/l			<MDL	ug/l			4	625	0.09
1,2-DIPHENYLHYDRAZINE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
FLUORANTHENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
FLUORENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
HEXACHLORO BENZENE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
HEXACHLOROBUTADIENE	<MDL	ug/l			<MDL	ug/l			4	625	0.09
HEXACHLOROCYCLO-PENTADIENE	<MDL	ug/l			<MDL	ug/l			4	625	0.2
HEXA CHLOROETHANE	<MDL	ug/l			<MDL	ug/l			4	625	0.09
INDENO(1,2,3-CD) PYRENE	<MDL	ug/l			<MDL	ug/l			4	625	0.09
ISOPHORONE	<MDL	ug/l			<MDL	ug/l			4	625	0.07
3-METHYL CHOLANTHRENE	<MDL	ug/l			<MDL	ug/l			4	625	0.4
NAPHTHALENE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
NITROBENZENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
N-NITROSODI-N-PROPYLAMINE	<MDL	ug/l			<MDL	ug/l			4	625	0.1
N-NITROSODI-METHYLAMINE	<MDL	ug/l			<MDL	ug/l			4	625	0.3
N-NITROSODI-PHENYLAMINE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
PERYLENE	<MDL	ug/l			<MDL	ug/l			4	625	0.6
PHENANTHRENE	<MDL	ug/l			<MDL	ug/l			4	625	0.06
PYRENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05
1,2,4-TRICHLOROBENZENE	<MDL	ug/l			<MDL	ug/l			4	625	0.05

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Outfall number: WWTP 1 **(Complete once for each outfall discharging effluent to waters of the United States.)**

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											

END OF PART D.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

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SUPPLEMENTAL APPLICATION INFORMATION

PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

☒ chronic ☒ acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	Test number: _____	Test number: _____	Test number: _____
a. Test information.			
Test Species & test method number			
Age at initiation of test			
Outfall number			
Dates sample collected			
Date test started			
Duration			
b. Give toxicity test methods followed.			
Manual title			
Edition number and year of publication			
Page number(s)			
c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite			
Grab			
d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each.			
Before disinfection			
After disinfection			
After dechlorination			

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	Test number: _____	Test number: _____	Test number: _____
e. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:			
f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic toxicity			
Acute toxicity			
g. Provide the type of test performed.			
Static			
Static-renewal			
Flow-through			
h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.			
Laboratory water			
Receiving water			
i. Type of dilution water. If salt water, specify “natural” or type of artificial sea salts or brine used.			
Fresh water			
Salt water			
j. Give the percentage effluent used for all concentrations in the test series.			
k. Parameters measured during the test. (State whether parameter meets test method specifications)			
pH			
Salinity			
Temperature			
Ammonia			
Dissolved oxygen			
l. Test Results.			
Acute:			
Percent survival in 100% effluent	**%**	**%**	**%**
LC_{50}			
95% C.I.	**%**	**%**	**%**
Control percent survival	**%**	**%**	**%**
Other (describe)			

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Chronic:			
NOEC	%	%	%
IC_{25}	%	%	%
Control percent survival	%	%	%
Other (describe)			
m. Quality Control/Quality Assurance.			
Is reference toxicant data available?			
Was reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?	/ /	/ /	/ /
Other (describe)			

E.3. **Toxicity Reduction Evaluation.** Is the treatment works involved in a Toxicity Reduction Evaluation?

☐ Yes ☐ No If yes, describe: _____

E.4. **Summary of Submitted Biomonitoring Test Information.** If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: **08/08/2018** (MM/DD/YYYY)

Summary of results: (see instructions)

(Report submitted on-line via WA DOE WQ WEB Reporting Portal). Summary: Effective 100% survival rate for both acute and chronic tests: no statistical difference between the control and samples

END OF PART E.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA,CERCLA, or other remedial wastes must complete part F.

GENERAL INFORMATION:

F.1. Pretreatment Program. Does the treatment works have, or is subject ot, an approved pretreatment program?

☐ Yes ☒ No

F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. **0**

b. Number of CIUs. **0**

SIGNIFICANT INDUSTRIAL USER INFORMATION::

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: _____

Mailing Address: _____

_____

F.4. Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge.

_____

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): _____

Raw material(s): _____

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

_____ gpd (_____ continuous or _____ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

_____ gpd (_____ continuous or _____ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☐ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

_____

F.8. **Problems at the Treatment Works Attributed to Waste Discharge by the SIU.** Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☐ No If yes, describe each episode.

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. **RCRA Waste.** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe?

☐ **Yes** ☒ **No (go to F.12)**

F.10. **Waste Transport.** Method by which RCRA waste is received (check all that apply):

☐ Truck ☐ Rail ☐ Dedicated Pipe

F.11. **Waste Description.** Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA Hazardous Waste Number	Amount	Units

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. **Remediation Waste.** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

☐ Yes (complete F.13 through F.15.) ☒ No

F.13. **Waste Origin.** Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

F.14. **Pollutants.** List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary.)

F.15. **Waste Treatment.**

a. Is this waste treated (or will be treated) prior to entering the treatment works?

☐ Yes ☐ No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

☐ Continuous ☐ Intermittent If intermittent, describe discharge schedule.

END OF PART F.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

Birch Bay Water & Sewer WWTP WA-002955-6

SUPPLEMENTAL APPLICATION INFORMATION

PART G. COMBINED SEWER SYSTEMS

If the treatment works has a combined sewer system, complete Part G.

G.1. System Map. Provide a map indicating the following: (may be included with Basic Application Information)

a. All CSO discharge points.

b. Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).

c. Waters that support threatened and endangered species potentially affected by CSOs.

G.2. System Diagram. Provide a diagram, either in the map provided in G.1 or on a separate drawing, of the combined sewer collection system that includes the following information.

a. Location of major sewer trunk lines, both combined and separate sanitary.

b. Locations of points where separate sanitary sewers feed into the combined sewer system.

c. Locations of in-line and off-line storage structures.

d. Locations of flow-regulating devices.

e. Locations of pump stations.

CSO OUTFALLS:

Complete questions G.3 through G.6 once <u>for each CSO discharge point</u>.

G.3. Description of Outfall.

a. Outfall number _____

b. Location _____ (city or town, if applicable) _____ (Zip Code)

_____ (County) _____ (State)

_____ (Latitude) _____ (Longitude)

c. Distance from shore (if applicable) _____ ft.

d. Depth below surface (if applicable) _____ ft.

e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall ☐ CSO pollutant concentrations ☐ CSO frequency

☐ CSO flow volume ☐ Receiving water quality

f. How many storm events were monitored during the last year? _____

G.4. CSO Events.

a. Give the number of CSO events in the last year.

_____ events (☐ actual or ☐ approx.)

b. Give the average duration per CSO event.

_____ hours (☐ actual or ☐ approx.)

c. Give the average volume per CSO event.

_____ million gallons (☐ actual or ☐ approx.)

d. Give the minimum rainfall that caused a CSO event in the last year

_____ Inches of rainfall

G.5. Description of Receiving Waters.

a. Name of receiving water: _____

b. Name of watershed/river/stream system: _____

United State Soil Conservation Service 14-digit watershed code (if known): _____

c. Name of State Management/River Basin: _____

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): _____

G.6. CSO Operations.

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

_____

_____

END OF PART G.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

Additional information, if provided, will appear on the following pages.

This revision supercedes the renewal application previously submitted on 9/13/18 :
1. Section A.9 - Corrected the long/lat location of the outfall
2. Section E.4 – Added to the statement to clarify that the WET tests have been submitted on line via the WA DOE WQ WEB Portal
3. Section F – We do NOT have any SIU's. However, for clarification, as per the permit manager, Sections F.1, F.2, F9, F12 were completed.

ATTACHMENT A
EFFLUENT CHARACTERIZATION FOR PERMIT APPLICATION

This attachment is used in conjunction with Section V, Parts A, B, and C of EPA Application Form 2C, and Parts A.12, B.6, and D of EPA application Form 2A. It specifies effluent characterization requirements of the Department of Ecology and analytical procedure and detection and quantitation levels for some parameters. For new permit applications, analyze your wastewater for all parameters required by the application and any additional pollutants or groups of pollutants with an X in the left column. Existing Permittees should compile the data from the last year's data for parameters routinely measured. If you are a primary industry category with effluent guidelines you may have some mandatory testing requirements (see Table 2C-2 Form 2C). If you are a municipal POTW, EPA has identified mandatory testing requirements, which depend upon the design flow (see EPA Form 2A).

Ecology added this attachment to the application in order to reduce the number of analytical "non-detects" in required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost. The applicant must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for application required monitoring unless:

- Another permit condition specifies other methods, detection levels, or quantitation levels.
- The method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136.

If the applicant uses an alternative method, as allowed above, it must report the test method, DL, and QL in the application. If the applicant is unable to obtain the required DL and QL in its effluent due to matrix effects, the applicant must submit a matrix-specific detection limit (MDL) and a quantitation limit (QL) to Ecology with appropriate laboratory documentation.

	Form 2C Ref. #	**Pollutant & CAS No. *(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1] *µg/L unless specified***	**Quantitation Level (QL) [2] *µg/L unless specified***
10		**Conventional (Part A)**			
	a.	Biochemical Oxygen Demand	SM5210-B		2 mg/L
		Soluble Biochemical Oxygen Demand	SM5210-B [3]		2 mg/L
	b.	Chemical Oxygen Demand	SM5220-D		10 mg/L
	c.	Total Organic Carbon	SM5310-B/C/D		1 mg/L
	d.	Total Suspended Solids	SM2540-D		5 mg/L
	e.	Total Ammonia (as N)	SM4500-NH3-B and C/D/E/G/H		20
	f.	Flow	Calibrated device		
		Dissolved oxygen	SM4500-OC/OG		0.2 mg/L
		Temperature (max. 7-day avg.)	Analog recorder or Use micro-recording devices known as thermistors		0.2º C
	i.	pH	SM4500-H^+ B	N/A	N/A
10		**Nonconventional (Part B)**			
		Total Alkalinity	SM2320-B		5 mg/L as CaCO3
	b.	Chlorine, Total Residual	SM4500 Cl G		50.0
	c.	Color	SM2120 B/C/E		10 color units
	d.	Fecal Coliform	SM 9221E,9222	N/A	Specified in method - sample aliquot

	Form 2C Ref. #	Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL) [2] *µg/L unless specified*
					dependent
	e.	Fluoride (16984-48-8)	SM4500-F E	25	100
	f.	Nitrate + Nitrite Nitrogen (as N)	SM4500-NO3-E/F/H		100
	g.	Nitrogen, Total Kjeldahl (as N)	SM4500-N_{org}B/C and SM4500NH_3-B/C/D/EF/G/H		300
		Soluble Reactive Phosphorus (as P)	SM4500-P E/F/G	3	10
	i.	Phosphorus, Total (as P)	SM 4500 PB followed by SM4500-PE/PF	3	10
	h.	Oil and Grease (HEM) (Hexane Extractable Material)	1664 A or B	1,400	5,000
		Salinity	SM2520-B		3 practical salinity units or scale (PSU or PSS)
		Settleable Solids	SM2540 -F		500 (or 1.0 mL/L)
	k.	Sulfate (as mg/L SO_4)	SM4110-B		0.2 mg/L
	l.	Sulfide (as mg/L S)	SM4500-S^2F/D/E/G		0.2 mg/L
	m.	Sulfite (as mg/L SO_3)	SM4500-SO3B		2 mg/L
		Total Coliform	SM 9221B, 9222B, 9223B	N/A	Specified in method - sample aliquot dependent
		Total dissolved solids	SM2540 C		20 mg/L
		Total Hardness	SM2340B		200 as CaCO3
	o.	Aluminum, Total (7429-90-5)	200.8	2.0	10
	p.	Barium Total (7440-39-3)	200.8	0.5	2.0
		BTEX (benzene +toluene + ethylbenzene + m,o,p xylenes)	EPA SW 846 8021/8260	1	2
	q.	Boron Total (7440-42-8)	200.8	2.0	10.0
	r.	Cobalt, Total (7440-48-4)	200.8	0.05	0.25
	s.	Iron, Total (7439-89-6)	200.7	12.5	50
	t.	Magnesium, Total (7439-95-4)	200.7	10	50
	u.	Molybdenum, Total (7439-98-7)	200.8	0.1	0.5
	v.	Manganese, Total (7439-96-5)	200.8	0.1	0.5
		NWTPH Dx [4]	Ecology NWTPH Dx	250	250
		NWTPH Gx [5]	Ecology NWTPH Gx	250	250
	w.	Tin, Total (7440-31-5)	200.8	0.3	1.5
	x.	Titanium, Total (7440-32-6)	200.8	0.5	2.5
10		**Metals, Cyanide and Total Phenols (Part C)**			
	1M.	Antimony, Total (7440-36-0)	200.8	0.3	1.0

	Form 2C Ref. #	Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL)[2] *µg/L unless specified*
	2M.	Arsenic, Total (7440-38-2)	200.8	0.1	0.5
	3M.	Beryllium, Total (7440-41-7)	200.8	0.1	0.5
	4M.	Cadmium, Total (7440-43-9)	200.8	0.05	0.25
		Chromium (hex) dissolved (18540-29-9)	SM3500-Cr EC	0.3	1.2
	5M.	Chromium, Total (7440-47-3)	200.8	0.2	1.0
	6M.	Copper, Total (7440-50-8)	200.8	0.4	2.0
	7M.	Lead, Total (7439-92-1)	200.8	0.1	0.5
	8M.	Mercury, Total (7439-97-6)	1631E	0.0002	0.0005
	9M.	Nickel, Total (7440-02-0)	200.8	0.1	0.5
	10M.	Selenium, Total (7782-49-2)	200.8	1.0	1.0
	11M.	Silver, Total (7440-22-4)	200.8	0.04	0.2
	12M.	Thallium, Total (7440-28-0)	200.8	0.09	0.36
	13M.	Zinc, Total (7440-66-6)	200.8	0.5	2.5
	14M.	Cyanide, Total (57-12-5)	335.4	5	10
		Cyanide, Weak Acid Dissociable	SM4500-CN I	5	10
		Cyanide, Free Amenable to Chlorination (Available Cyanide)	SM4500-CN G	5	10
	15M.	Phenols, Total	EPA 420.1		50
10		**Acid Compounds**			
	1A.	2-Chlorophenol (95-57-8)	625	1.0	2.0
	2A.	2,4-Dichlorophenol (120-83-2)	625	0.5	1.0
	3A.	2,4-Dimethylphenol (105-67-9)	625	0.5	1.0
	4A.	4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6,-dinitrophenol)	625/1625B	1.0	2.0
	5A.	2,4 dinitrophenol (51-28-5)	625	1.0	2.0
	6A.	2-Nitrophenol (88-75-5)	625	0.5	1.0
	7A.	4-nitrophenol (100-02-7)	625	0.5	1.0
	8A.	Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	625	1.0	2.0
	9A.	Pentachlorophenol (87-86-5)	625	0.5	1.0
	10A.	Phenol (108-95-2)	625	2.0	4.0
	11A.	2,4,6-Trichlorophenol (88-06-2)	625	2.0	4.0
10		**Volatile Compounds**			
	1V.	Acrolein (107-02-8)	624	5	10
	2V.	Acrylonitrile (107-13-1)	624	1.0	2.0
	3V.	Benzene (71-43-2)	624	1.0	2.0
	5V.	Bromoform (75-25-2)	624	1.0	2.0
	6V.	Carbon tetrachloride (56-23-5)	624/601 or SM6230B	1.0	2.0
	7V.	Chlorobenzene (108-90-7)	624	1.0	2.0
	9V.	Chloroethane (75-00-3)	624/601	1.0	2.0

	Form 2C Ref. #	Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL)[2] *µg/L unless specified*
	10V.	2-Chloroethylvinyl Ether (110-75-8)	624	1.0	2.0
	11V.	Chloroform (67-66-3)	624 or SM6210B	1.0	2.0
	8V.	Dibromochloromethane (124-48-1)	624	1.0	2.0
	20B.	1,2-Dichlorobenzene (95-50-1)	624	1.9	7.6
	21B.	1,3-Dichlorobenzene (541-73-1)	624	1.9	7.6
	22B.	1,4-Dichlorobenzene (106-46-7)	624	4.4	17.6
	12V.	Dichlorobromomethane (75-27-4)	624	1.0	2.0
	14V.	1,1-Dichloroethane (75-34-3)	624	1.0	2.0
	15V.	1,2-Dichloroethane (107-06-2)	624	1.0	2.0
	16V.	1,1-Dichloroethylene (75-35-4)	624	1.0	2.0
	17V.	1,2-Dichloropropane (78-87-5)	624	1.0	2.0
	18V.	1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene) (542-75-6) [6]	624	1.0	2.0
	19V.	Ethylbenzene (100-41-4)	624	1.0	2.0
	20V.	Methyl bromide (74-83-9) (Bromomethane)	624/601	5.0	10.0
	21V.	Methyl chloride (74-87-3) (Chloromethane)	624	1.0	2.0
	22V.	Methylene chloride (75-09-2)	624	5.0	10.0
	23V.	1,1,2,2-Tetrachloroethane (79-34-5)	624	1.9	2.0
	24V.	Tetrachloroethylene (127-18-4)	624	1.0	2.0
	25V.	Toluene (108-88-3)	624	1.0	2.0
	26V.	1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	624	1.0	2.0
	27V.	1,1,1-Trichloroethane (71-55-6)	624	1.0	2.0
	28V.	1,1,2-Trichloroethane (79-00-5)	624	1.0	2.0
	29V.	Trichloroethylene (79-01-6)	624	1.0	2.0
	31V.	Vinyl chloride (75-01-4)	624/SM6200B	1.0	2.0
10		**Base/Neutral Compounds (compounds in bold are Ecology PBTs)**			
	1B.	Acenaphthene (83-32-9)	625	0.2	0.4
	2B.	Acenaphthylene (208-96-8)	625	0.3	0.6
	3B.	Anthracene (120-12-7)	625	0.3	0.6
	4B.	Benzidine (92-87-5)	625	12	24
	15B.	Benzyl butyl phthalate (85-68-7)	625	0.3	0.6
	5B.	Benzo(a)anthracene (56-55-3)	625	0.3	0.6
	7B.	Benzo(b)fluoranthene (3,4-benzofluoranthene) (205-99-2) [7]	610/625	0.8	1.6
		Benzo(j)fluoranthene (205-82-3) [7]	625	0.5	1.0
	9B.	Benzo(k)fluoranthene (11,12-benzofluoranthene) (207-08-9) [7]	610/625	0.8	1.6

	Form 2C Ref. #	Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL)[2] *µg/L unless specified*
		Benzo(r,s,t)pentaphene (189-55-9)	625	0.5	1.0
	6B.	Benzo(*a*)pyrene (50-32-8)	610/625	0.5	1.0
	8B.	Benzo(*ghi*)Perylene (191-24-2)	610/625	0.5	1.0
	10B.	Bis(2-*chloroethoxy*)methane (111-91-1)	625	5.3	21.2
	11B.	Bis(2-*chloroethyl*)ether (111-44-4)	611/625	0.3	1.0
	12B.	Bis(2-*chloroisopropyl*)ether (39638-32-9)	625	0.3	0.6
	13B.	Bis(2-*ethylhexyl*)phthalate (117-81-7)	625	0.1	0.5
	14B.	4-Bromophenyl phenyl ether (101-55-3)	625	0.2	0.4
	16B.	2-Chloronaphthalene (91-58-7)	625	0.3	0.6
	17B.	4-Chlorophenyl phenyl ether (7005-72-3)	625	0.3	0.5
	18B.	Chrysene (218-01-9)	610/625	0.3	0.6
		Dibenzo (a,h)acridine (226-36-8)	610M/625M	2.5	10.0
		Dibenzo (a,j)acridine (224-42-0)	610M/625M	2.5	10.0
	19B.	Dibenzo(a-h)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	625	0.8	1.6
		Dibenzo(a,e)pyrene (192-65-4)	610M/625M	2.5	10.0
		Dibenzo(a,h)pyrene (189-64-0)	625M	2.5	10.0
	23B.	3,3-Dichlorobenzidine (91-94-1)	605/625	0.5	1.0
	24B.	Diethyl phthalate (84-66-2)	625	1.9	7.6
	25B.	Dimethyl phthalate (131-11-3)	625	1.6	6.4
	26B.	Di-n-butyl phthalate (84-74-2)	625	0.5	1.0
	27B.	2,4-dinitrotoluene (121-14-2)	609/625	0.2	0.4
	28B.	2,6-dinitrotoluene (606-20-2)	609/625	0.2	0.4
	29B.	Di-n-octyl phthalate (117-84-0)	625	0.3	0.6
	30B.	1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	1625B	5.0	20
	31B.	Fluoranthene (206-44-0)	625	0.3	0.6
	32B.	Fluorene (86-73-7)	625	0.3	0.6
	33B.	Hexachlorobenzene (118-74-1)	612/625	0.3	0.6
	34B.	Hexachlorobutadiene (87-68-3)	625	0.5	1.0
	35B.	Hexachlorocyclopentadiene (77-47-4)	1625B/625	0.5	1.0
	36B.	Hexachloroethane (67-72-1)	625	0.5	1.0
	37B.	Indeno(*1,2,3-cd*)Pyrene (193-39-5)	610/625	0.5	1.0
	38B.	Isophorone (78-59-1)	625	0.5	1.0
		3-Methyl cholanthrene (56-49-5)	625	2.0	8.0
	39B.	Naphthalene (91-20-3)	625	0.3	0.6
	40B.	Nitrobenzene (98-95-3)	625	0.5	1.0

	Form 2C Ref. #	Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL) [2] *µg/L unless specified*
	41B.	N-Nitrosodimethylamine (62-75-9)	607/625	2.0	4.0
	42B.	N-Nitrosodi-n-propylamine (621-64-7)	607/625	0.5	1.0
	43B.	N-Nitrosodiphenylamine (86-30-6)	625	0.5	1.0
		Perylene (198-55-0)	625	1.9	7.6
	44B.	Phenanthrene (85-01-8)	625	0.3	0.6
	45B.	Pyrene (129-00-0)	625	0.3	0.6
	46B.	1,2,4-Trichlorobenzene (120-82-1)	625	0.3	0.6
10		**Dioxin**			
		2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16) (2,3,7,8 TCDD)	1613B	1.3 pg/L	5 pg/L
10		**Pesticides/PCBs**			
	1P.	Aldrin (309-00-2)	608	0.025	0.05
	2P.	alpha-BHC (319-84-6)	608	0.025	0.05
	3P.	beta-BHC (319-85-7)	608	0.025	0.05
	4P.	gamma-BHC (58-89-9)	608	0.025	0.05
	5P.	delta-BHC (319-86-8)	608	0.025	0.05
	6P.	Chlordane (57-74-9) [8]	608	0.025	0.05
	7P.	4,4'-DDT (50-29-3)	608	0.025	0.05
	8P.	4,4'-DDE (72-55-9)	608	0.025	0.0510
	9P.	4,4' DDD (72-54-8)	608	0.025	0.05
	10P.	Dieldrin (60-57-1)	608	0.025	0.05
	11P.	alpha-Endosulfan (959-98-8)	608	0.025	0.05
	12P.	beta-Endosulfan (33213-65-9)	608	0.025	0.05
	13P.	Endosulfan Sulfate (1031-07-8)	608	0.025	0.05
	14P.	Endrin (72-20-8)	608	0.025	0.05
	15P.	Endrin Aldehyde (7421-93-4)	608	0.025	0.05
	16P.	Heptachlor (76-44-8)	608	0.025	0.05
	17P.	Heptachlor Epoxide (1024-57-3)	608	0.025	0.05
	18P.	PCB-1242 (53469-21-9) [9]	608	0.25	0.5
	19P.	PCB-1254 (11097-69-1)	608	0.25	0.5
	20P.	PCB-1221 (11104-28-2)	608	0.25	0.5
	21P.	PCB-1232 (11141-16-5)	608	0.25	0.5
	22P.	PCB-1248 (12672-29-6)	608	0.25	0.5
	23P.	PCB-1260 (11096-82-5)	608	0.13	0.5
	24P.	PCB-1016 (12674-11-2) [9]	608	0.13	0.5
	25P.	Toxaphene (8001-35-2)	608	0.24	0.5

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by

the procedure given in 40 CFR part 136, Appendix B.

2. Quantitation Level (QL) also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10^n, where n is an integer. (64 FR 30417).
   ALSO GIVEN AS:
   The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

3. Soluble Biochemical Oxygen Demand method note: First, filter the sample through a Millipore Nylon filter (or equivalent) - pore size of 0.45-0.50 um (prep all filters by filtering 250 ml of laboratory grade deionized water through the filter and discard). Then, analyze sample as per method 5210-B.

4. NWTPH Dx - Northwest Total Petroleum Hydrocarbons Diesel Extended Range – see http://www.ecy.wa.gov/biblio/97602.html

5. NWTPH Gx - Northwest Total Petroleum Hydrocarbons Gasoline Extended Range – see http://www.ecy.wa.gov/biblio/97602.html

6. 1, 3-dichloroproylene (mixed isomers) You may report this parameter as two separate parameters: cis-1, 3-dichlorpropropene (10061-01-5) and trans-1, 3-dichloropropene (10061-02-6).

7. Total Benzofluoranthenes - Because Benzo(b)fluoranthene, Benzo(j)fluoranthene and Benzo(k)fluoranthene co-elute you may report these three isomers as total benzofluoranthenes.

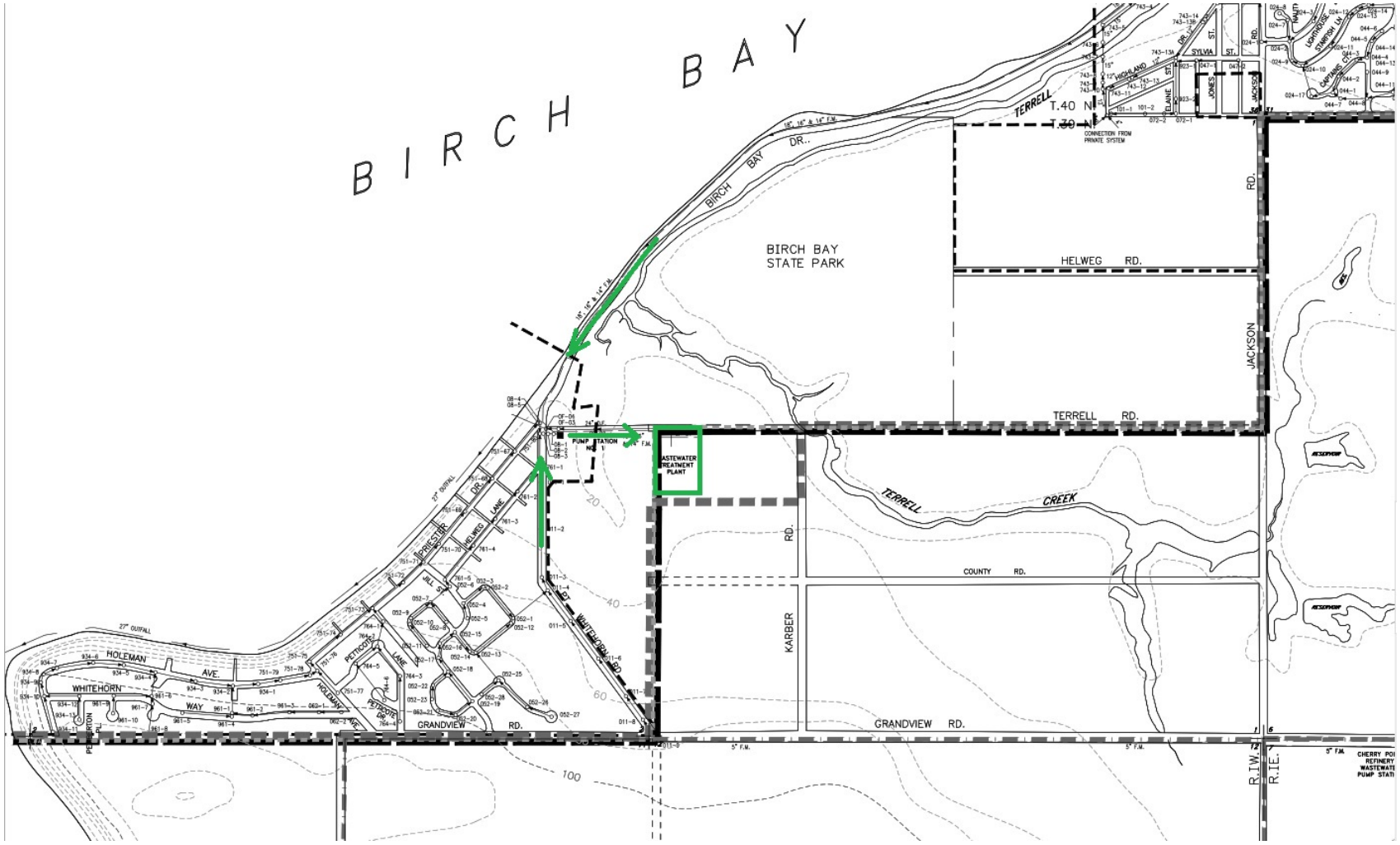
8. Chlordane – You may report alpha-chlordane (5103-71-9) and gamma-chlordane (5103-74-2) in place of chlordane (57-74-9). If you report alpha and gamma-chlordane, the DL/PQLs that apply are 0.025/0.050.

9. PCB 1016 & PCB 1242 – You may report these two PCB compounds as one parameter called PCB 1016/1242.

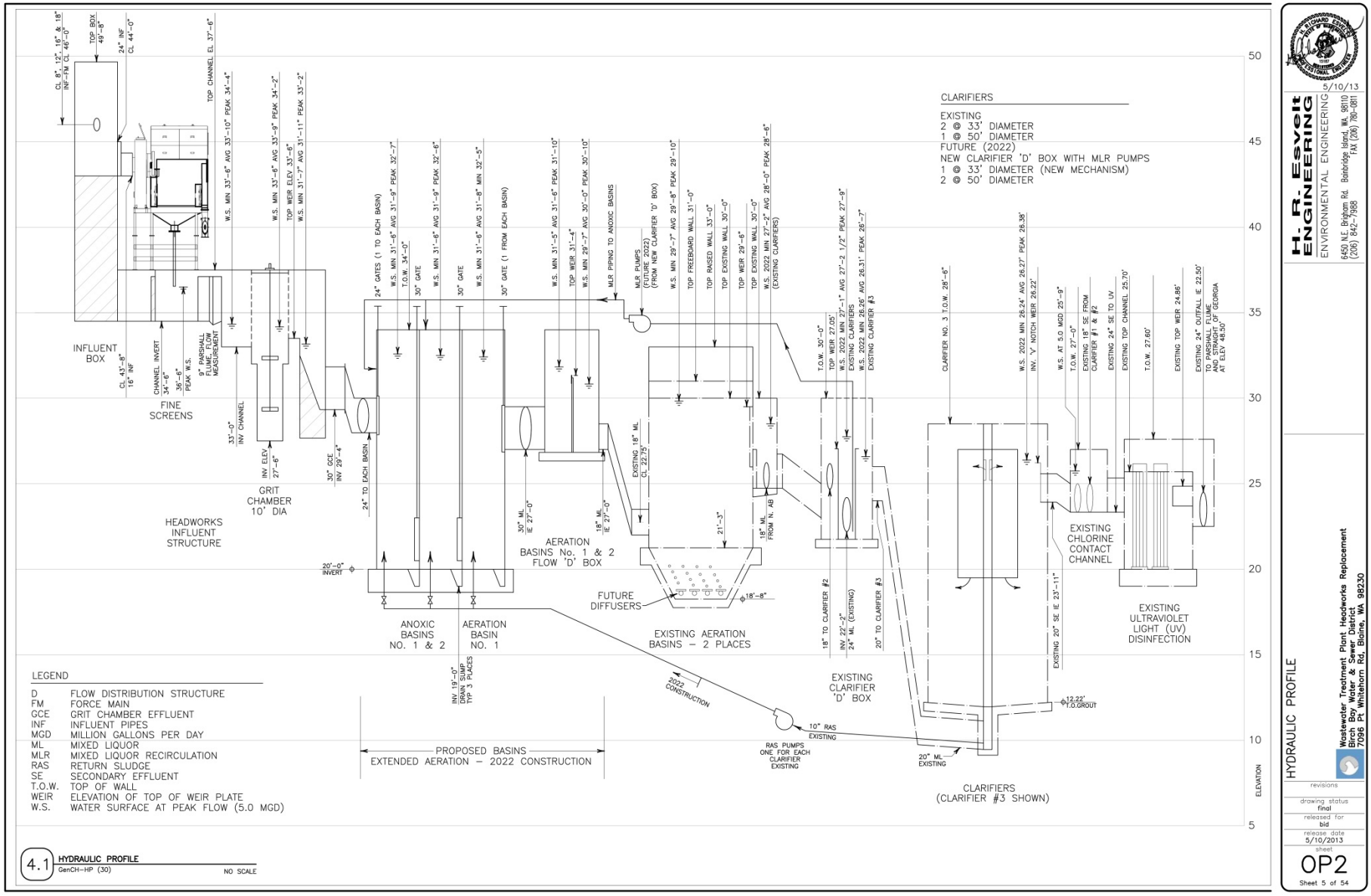
10. An X placed in this box means you must analyze for all pollutants in the group. This may be in addition to NPDES application requirements.

NPDES Renewal Application
Birch Bay Water & Sewer WWTP WA-002955-6
Supplement Information

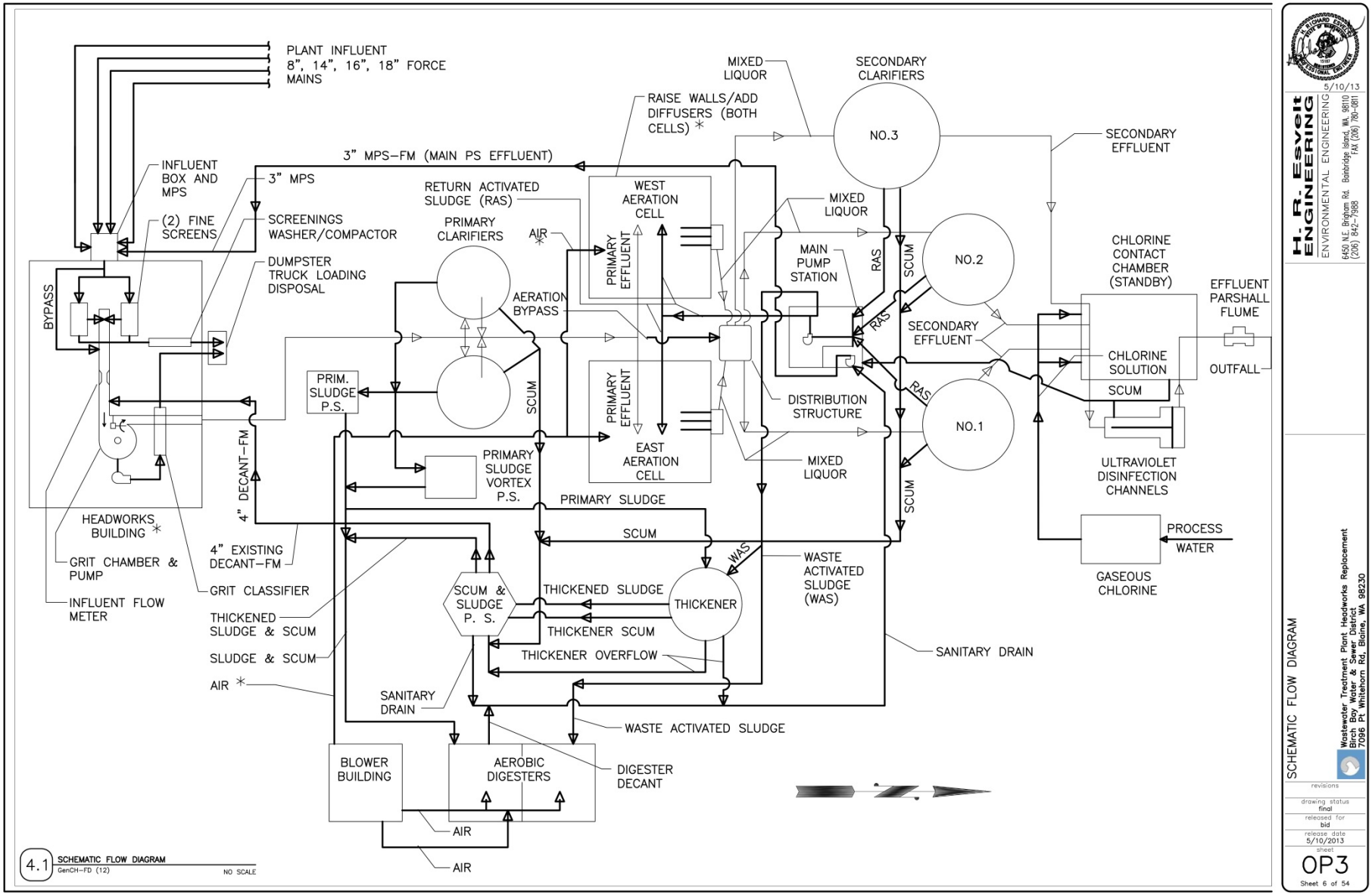
B.2. MAPS



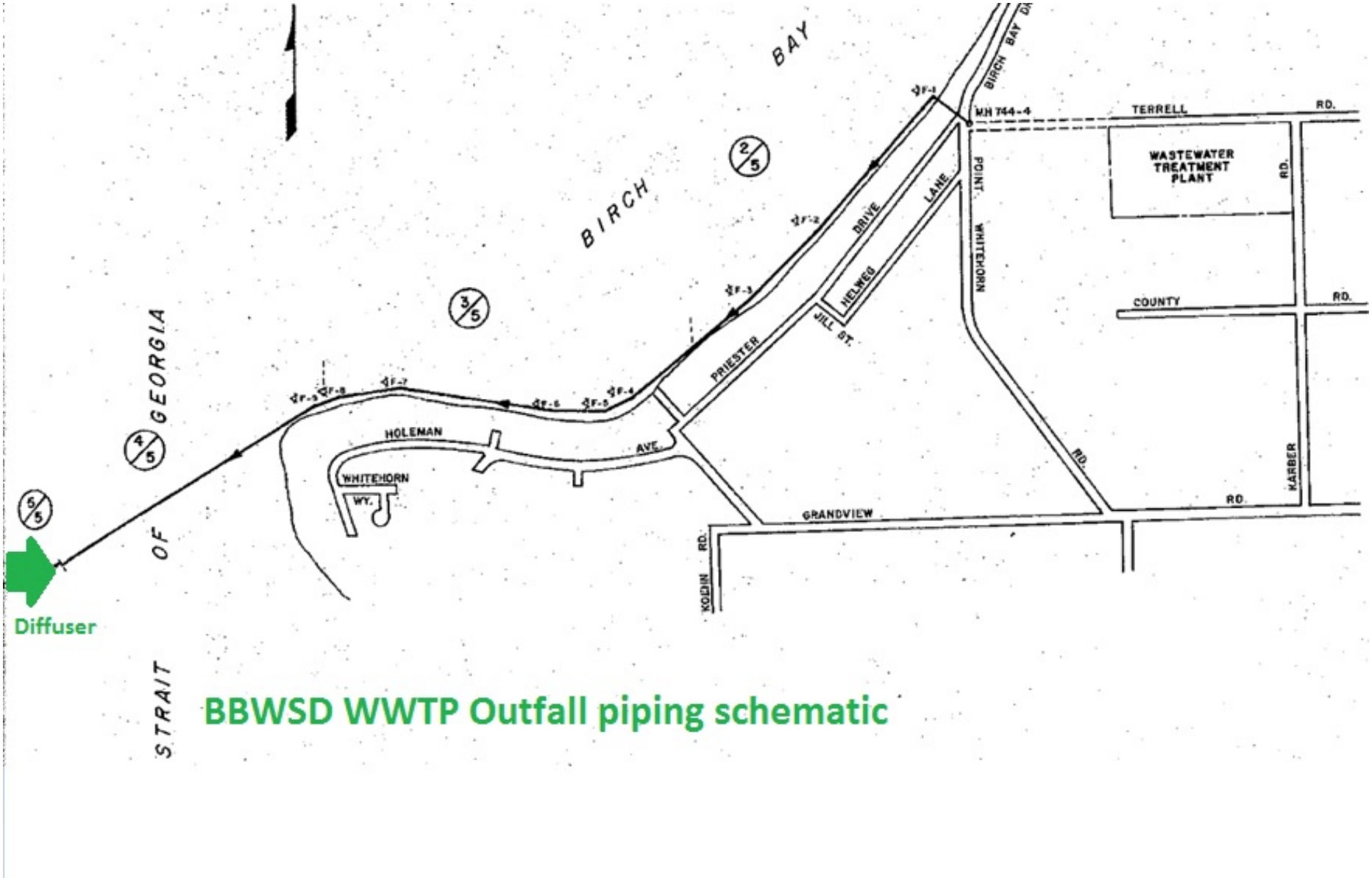
Map of Area around BBWSD WWTP (arrows show direction of flow into plant)

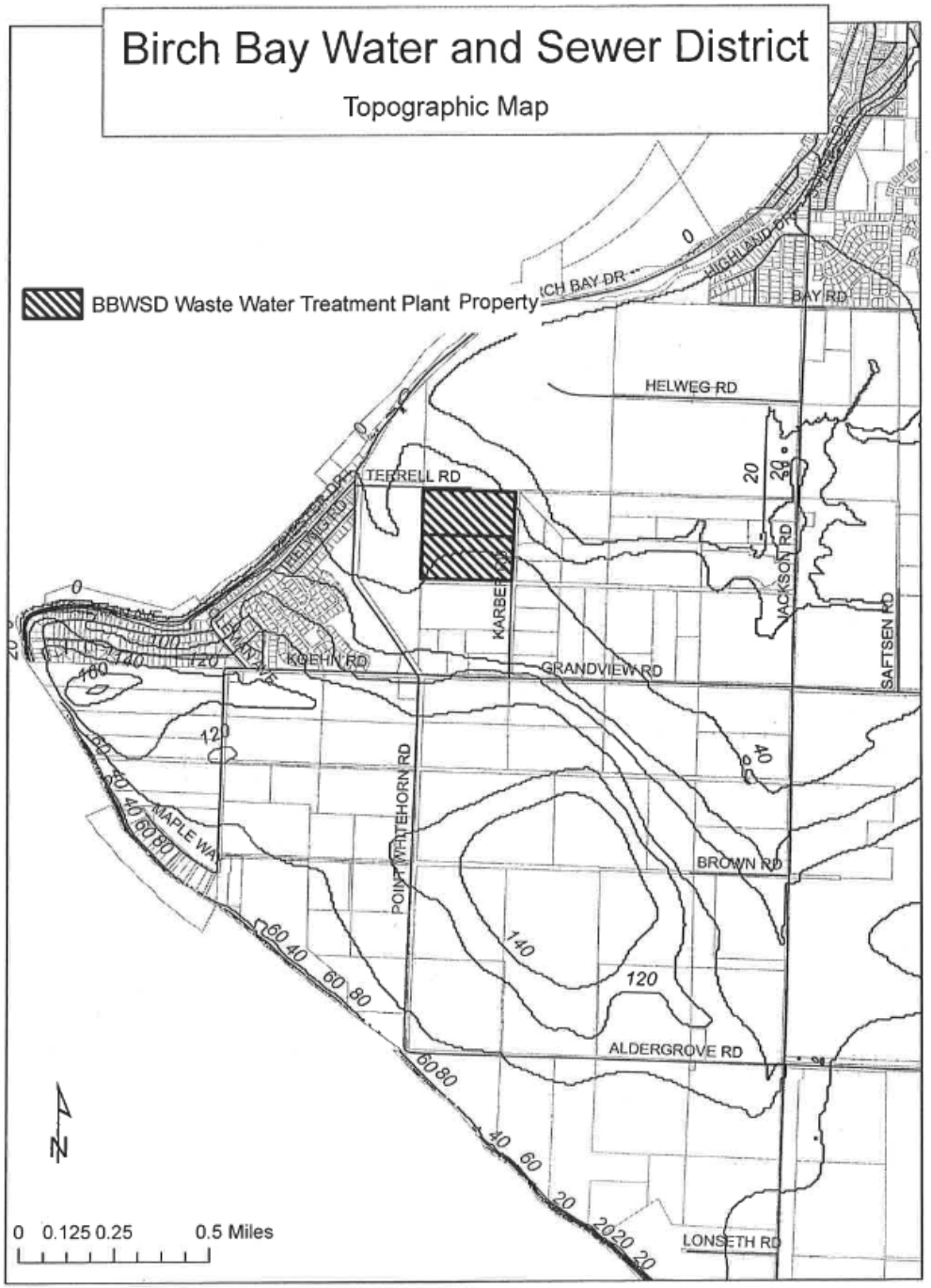


Hydraulic Profile



WWTP Schematic


BAY
BIRCH
GEORGIA
STRAIT
OF
BIRCH BAY DR.
MH 744-4
TERRELL
RD.
WASTEWATER TREATMENT PLANT
POINT WHITEHORN
COUNTY
RD.
DRIVE
LANE
HELWEG
JILL ST.
PRIESTER
HOLEMAN
AVE.
WHITEHORN
WY.
GRANDVIEW
KOBIN
KARBER
Diffuser
BBWSD WWTP Outfall piping schematic


Birch Bay Water and Sewer District
Topographic Map
BBWSD Waste Water Treatment Plant Property
HELWEG RD
TERRELL RD
KOEHN RD
GRANDVIEW RD
BROWN RD
ALDERGROVE RD
LONSETH RD
JACKSON RD
SAFTSEN RD
POINT WHITEHORN RD
MAPLE WAY
BAY RD
HIGHLAND DR
N
0 0.125 0.25 0.5 Miles

B.3. Description of Treatment Process

Wastewater is pumped into the treatment plant through an 8 inch diameter force main from a small collection system lift station and via 14 and 16 inch diameter force mains from a larger collection system pump station. The wastewater passes through magnetic flowmeters as it exits each lift station, measuring the flow rates and daily volumes specifically from the collection system pump stations. The flows are combined into one collection box at the inlet to the headworks building, along with flows from a small lift station which serves the district offices, before it then passes through one or both of two 3 mm rotary fine screens. The screen removes trash and large solids from the system and conveys, compacts and dewaters the removed material. The supernatant from the compacted solids is returned to the WWTP process stream for further treatment.

The combined influent flow from all sources is measured via a Parshall flume at the discharge of the rotary screens. This flow meter includes all sources of wastewater from within the plant, including drum screen sprays, a small sanitary lift station and minimal amounts of recycled water and/or supernatant. If necessary, the wastewater can be bypassed around both screens if the mechanical screens need to be bypassed for maintenance or repair.

A continuous flow proportional sample of the influent is taken at the inlet of the headworks structure, just prior to where flow enters the drum screens. The sample is analyzed in the laboratory for various physical and chemical parameters.

Downstream of the Parshall flume, the wastewater enters a large vortex grit chamber. The low velocity allows inorganic solids such as sand, glass and gravel to settle at the bottom of the grit chambers while lighter organic solids continue to remain suspended in the wastewater. The settled inorganic solids are automatically pumped at designated intervals into a grit classifier, which cleans and dewaters the grit. The grit is then hauled off for disposal.

The wastewater then flows to two circular primary clarifiers; where the settleable organic solids settle and form a sludge. The sludge is scraped into a central sludge collection pit and pumped to the thickener where it is further dewatered and then pumped to the digester. Scum, which includes grease, seeds and floatable trash, remains on the primary clarifier water surface and is removed by skimming devices.

From the primary clarifiers, the wastewater flows to the aeration cells. There it is mixed with recycled sludge from the secondary clarifiers. The product of this mixing is called mixed liquor. The mixed liquor is aerated by fine bubble diffusers. Aerobic bacteria contained in the liquor utilize the dissolved oxygen during the consumption of finely divided and dissolved organic matter. The waste products of this biological treatment are settleable solids, but these solids remain in suspension while in the aeration cell due to the air from the diffusers, which continually stirs the liquor.

Treated liquor containing well-mixed settleable solids flows from the aeration cells to the secondary clarifiers. The mixed liquor in the secondary clarifiers separates into scum, clarified wastewater and sludge. Scum rises to the surface of Secondary Clarifier Nos. 1 and 2 and is removed by skimming devices. Scum and floatables from Clarifier No. 3 are discharged with the sludge. The clarified wastewater, or secondary effluent, flows over a weir and into the inlet channel of the chlorine contact chamber. The sludge settles to the bottom of the secondary clarifiers and is collected by a rotating collection pipe.

The wastewater flows from the secondary clarifiers to the chlorine contact chamber inlet channel and then into the UV disinfections channels. Disinfection occurs by passing flow past UV light sources altering the microorganisms so they are unable to reproduce. The UV disinfection channels provide sufficient

exposure time to ensure proper disinfection. Scum/floatables may be collected from the disinfection channels by manually rotated pipe skimming devices. Chlorine is used to treat water that is returned and re-used within the plant, such as for hoses, sprays, and pumps, and for filament control as necessary. Chlorine may also be used to provide disinfection if the UV system fails.

The disinfected wastewater then flows into the chlorine contact chamber outlet channel and then through the effluent Parshall Flume, where flow rate is metered and a continuous flow-proportioning sample is collected. From the Parshall Flume, the treated wastewater is channeled into the outfall, located out in Georgia Strait.

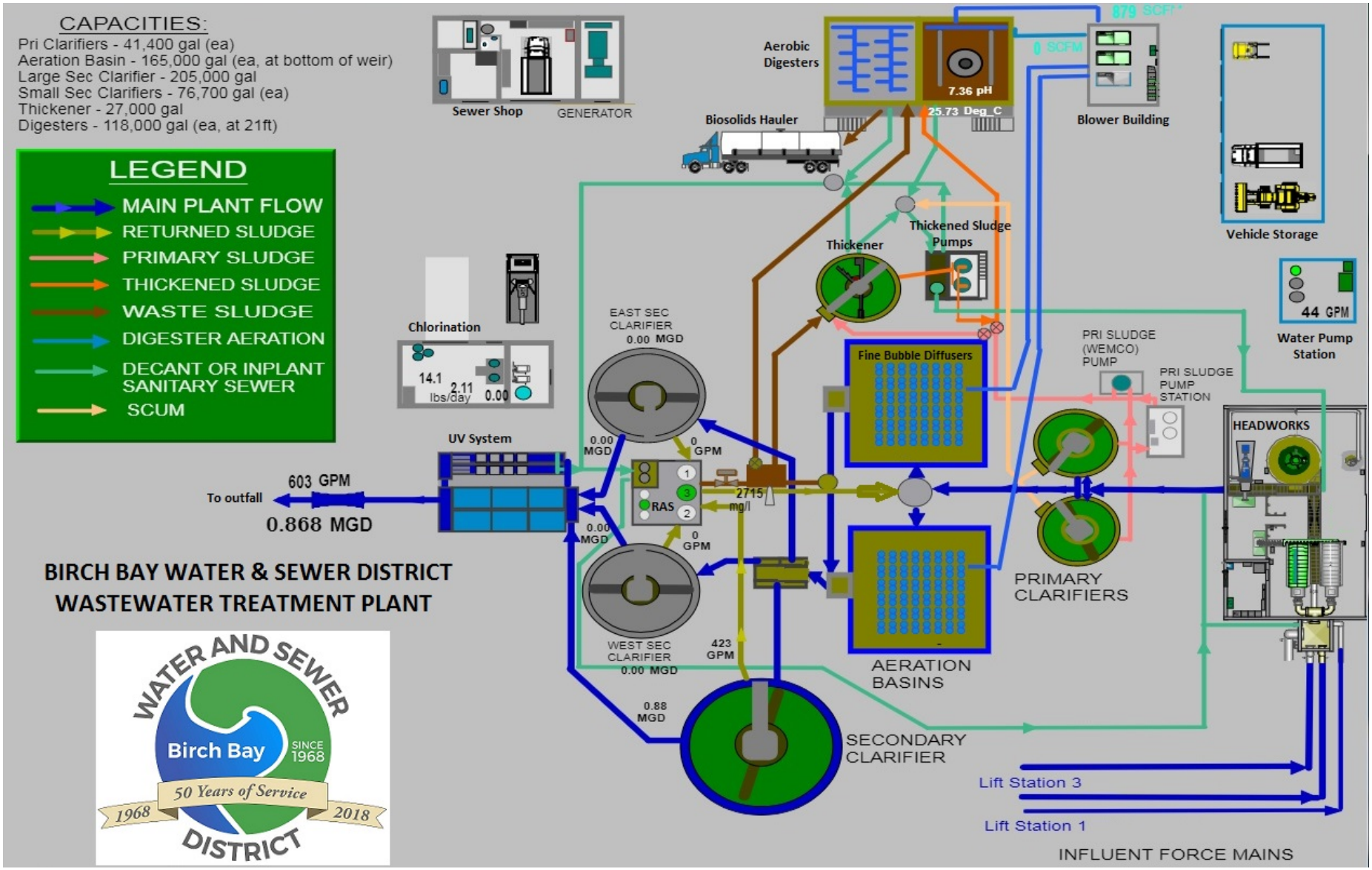
The sludge from the secondary clarifiers, or secondary sludge, is biologically active. Most of this sludge is "recycled", or returned to the aeration cells to consume the organic matter in the wastewater. This is accomplished by three recycle sludge pumps, which pump sludge withdrawn from the secondary clarifiers back to the aeration cells.

The sludge from the primary clarifiers, and a portion of the sludge from the secondary clarifiers, flows to the gravity thickener where it is combined with sludge from the primary clarifiers. In this process scum is removed and the waste sludge settles to the bottom of the tank. This consolidation results in a thickened sludge and provides a reduction in sludge volume. The decant is recycled back into the process in the headworks (Screenings) building,

The sludge from the bottom gravity thickener then flows into the aerobic digester. Here, air is pumped into the sludge by one of three blowers through a fixed header aeration system. Aeration is discontinued or adjusted as necessary to allow the aerobic bacteria contained in the sludge to utilize the dissolved oxygen and reduce the volatile organic matter until the sludge is biologically inert. The digested sludge is then withdrawn into a truck for hauling to land disposal (permitted site managed by others). The water, or filtrate, that is removed from the digested sludge, is returned to the influent end of the treatment plant.

Laboratory, control and administrative facilities are located in the laboratory office building. The laboratory is equipped to run all necessary laboratory tests to control the process and show that the treatment plant is meeting regulatory agency requirements. The treatment plant alarms, controls, and telemetry are located in the office, allowing centralized supervision of the facility via an updated SCADA system. Normally, the plant receives its primary power from a utility connection. An onsite standby generator provides power to support all critical treatment processes, the laboratory, and the District office building if primary power is lost.

A snapshot of the SCADA display is shown below (Plant Processes) to highlight the process areas and direction of flow.



Plant Processes

B.3. Water Balance

A water balance is provided in as much detail as possible in Table 1 below, utilizing the Parshall flume meters located at the influent and effluent, magnetic flow meters for the Return Activated Sludge (RAS) Process (including individual RAS mag meters at each clarifier), and magnetic flow meters for the thickened sludge system.

Flow between processes is controlled by gravity and pump speeds and setpoints. There is effectively no storage within the plant. Therefore, with the exception of the Return Activated Sludge Process (which returns a portion of the settled sludge from the clarifier back into the aeration basin to maintain an optimum aerobic bacteria population and age) and other small, various plant processes, what flows in through each major portion of the process is effectively the same as what flows out and in to the next portion of the process. Additionally, a small portion of the treated plant effluent is returned to the plant for wash-down water, pump seal water, and surface and equipment sprays (to conserve and minimize potable water use). At no time during the past NPDES permit cycle has a bypass of any process occurred.

The primary source of flow entering the plant is from the influent pump stations and internal processes. A small volume of flow enters the plant as precipitation, collected in the uncovered tanks located throughout the plant. The volume added from precipitation is estimated to be < 0.1 % of the total volume entering the plant during heavy rain events. Three ways that flow can leave the plant are by discharge through the outfall, evaporation, or by removal of liquid sludge by a contractor for land application. Based on the volume of flow, it is estimated that approximately 0.07% of the total flow entering the plant leaves by evaporation and approximately 0.56% is hauled away as sludge for liquid land application. The remaining volume of flow is discharged through the outfall to the Strait of Georgia after being treated.

Based on a 3 year water balance analysis, an additional error of approximately 0.56% between influent and effluent flow meters exists, which is well within the accuracy parameters of the flow meters (Each meter has an accuracy of +/- 2%). Influent and Effluent Flow meter accuracy is checked and maintained using two methods. Flow meters are compared and verified on a continuous basis against other meters using real-time algorithms in a PLC, including a comparison of flume meters to the mag meters at the lift stations feeding the WWTP. If flow & balance errors are increasing above an acceptable tolerance, automatic warnings via the SCADA system occur, allowing the operator to check/calibrate equipment in a timely manner. Furthermore, influent and effluent flume meters are specifically checked and calibrated at least once per year.

A more detailed table providing average flows through each section of the process for the past 3 years is shown in TABLE 1.

Table 1

FLOW/PROCESS AREA	**Avg Daily Flow (gal)**	**Notes**
Influent (Parshall Flume Meter)	902,000	Includes flow from two collection system lift stations, drum screen spray via returned plant effluent (~20 gpm, or ~28,800 gal/day), and Inplant Sanitary lift Station flow (~5000 gal/day)
Primary (estimated)	920,000	Flow directly from Influent & headworks building, minus negligible amount of grit and trash removed, plus supernatant from thickener (~18,000 gallons/day)
Sanitary Lift Station (estimated based on pump curves and runtimes)	5,000	Flow from within Admin building and WWTP bathrooms, and infrequent dewatering, scum skimmers and thickener overflows
Return Activated Sludge (RAS) (Mag Meter)	696,000	Settled clarifier flow returned from the secondary clarifiers to maintain biomass in aeration basins
Aeration (Sec Flow + RAS)	1,598,000	Flow through the aeration basins, including RAS flow from the clarifiers
Secondary Flow	883,700	Flow leaving secondary clarifiers (should equal Influent flow – Waste Flow)
Secondary Wasting (to Thickener)	18,300	Waste flow from Secondary Clarifier to Gravity Thickener
Disinfection/Effluent (Parshall Flume Meter)	863,000	Should equal influent, minus digester flow, the returned flow for drum screen spray and cleaning, and dewatered material from the sanitary lift station. 902,000-28,800–5100 = 868,100. Average Recorded value was 863,000. This amounts to a difference of 5,100 gallons, or 0.56%, compared to influent flow. This is well within the +/- 2% accuracy parameters of the Parshall flow meters
To Digesters (hauled away) (Mag meter)	5,100	Biosolids from thickener, treated and hauled away for land application