Fact Sheet

The U.S. Environmental Protection Agency (EPA)

Proposes to Reissue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:

City of Wapato

Public Comment Start Date: June 27, 2022

Public Comment Expiration Date: August 11, 2022

Technical Contact: Abigail Conner
(206) 553-6358
800-424-4372, ext. 6358 (within Alaska, Idaho, Oregon, and Washington)
conner.abigail@epa.gov

EPA Proposes to Reissue the NPDES Permit

EPA proposes to reissue the NPDES permit for the facility referenced above. The proposed permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet (FS) includes:

- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

CWA § 401 Certification

Since this facility discharges to tribal waters and the Yakama Nation does not have Treatment as a State (TAS), EPA is the certifying authority for the permit. See FS Section V.C. and Appendix F. Comments regarding the intent to certify should be directed to the EPA technical contact listed above.

Public Comment

We request that all comments on EPA's proposed permits or requests for a public hearing be submitted via email to Abigail Conner (conner.abigail@epa.gov). If you are unable to submit comments via email, please call (206) 553-6358.

Persons wishing to comment on or request a Public Hearing for the proposed permit for this facility may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address, and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to the EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA's regional Director for the Water Division will make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the proposed permit will become final, and the permit will become effective upon issuance. If substantive comments are received, EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days pursuant to 40 CFR 124.19.

DOCUMENTS ARE AVAILABLE FOR REVIEW

The proposed permit, this Fact Sheet and the Public Notice can also be found by visiting the Region 10 website at https://www.epa.gov/npdes-permits/about-region-10s-npdes-permit-program.

The draft Administrative Record for this action contains any documents listed in the References section. The Administrative Record or documents from it are available electronically upon request by contacting Abigail Conner.

For technical questions regarding the Fact Sheet, contact Abigail Conner at (206) 553-6358 or conner.abigail@epa.gov. Services can be made available to persons with disabilities by contacting Audrey Washington at (206) 553-0523.

TABLE OF CONTENTS

Tables

Acronyms

1Q10	1-day, 10-year low flow
7Q10	7-day, 10-year low flow
30B3	Biologically based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
30Q10	30-day, 10-year low flow
AML	Average Monthly Limit
BO or BiOp	Biological Opinion
BOD_5	Biochemical oxygen demand, five-day
BOD_{5u}	Biochemical oxygen demand, ultimate
BMP	Best Management Practices
°C	Degrees Celsius
C BOD_5	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
ICIS	Integrated Compliance Information System
LA	Load Allocation
lbs/day	Pounds per day
LC	Lethal Concentration
LC_{50}	Concentration at which 50% of test organisms die in a specified time period
LD_{50}	Dose at which 50% of test organisms die in a specified time period
LOEC	Lowest Observed Effect Concentration
LTA	Long Term Average
mg/L	Milligrams per liter
mL	Milliliters
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
MPN	Most Probable Number

N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observable Effect Concentration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and maintenance
POTW	Publicly owned treatment works
PSES	Pretreatment Standards for Existing Sources
PSNS	Pretreatment Standards for New Sources
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
SPCC	Spill Prevention and Control and Countermeasure
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
TU_a	Toxic Units, Acute
TU_c	Toxic Units, Chronic
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WD	Water Division
WET	Whole Effluent Toxicity
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. BACKGROUND INFORMATION

A. GENERAL INFORMATION

This fact sheet provides information on the proposed NPDES permit for the following entity:

Table 1. General Facility Information

NPDES Permit #:	WA0050229
Applicant:	City of Wapato City of Wapato Wastewater Treatment Plant
Type of Ownership	Municipal
Physical Address:	69172 Highway 97 Wapato, WA 98951
Mailing Address:	City of Wapato 205 E. Third St. Wapato, WA 98951-1326
Facility Contact:	Jeff Schumacker Public Works Director jschumacker@wapato-city.org (509) 853-8013
Operator Name:	Jeff Schumacker
Facility Location:	46.434326°N 120.422001°W
Receiving Water	WIP Drainage Way No.2
Facility Outfall	46.433056°N 120.421389°W

B. PERMIT HISTORY

The most recent NPDES permit for the City of Wapato Wastewater Treatment Plant (WWTP) was issued on September 12, 2011, became effective on November 1, 2011, and expired on October 31, 2016. An NPDES application for permit issuance was submitted by the permittee on May 31, 2016. By letter on June 9, 2016, EPA requested additional information to complete the application, and requested submittal by September 1, 2016. The permittee submitted supplemental materials on August 31, 2016. EPA determined that the application was timely and complete. Therefore, pursuant to 40 Code of Federal Regulations (CFR) 122.6, the permit has been administratively continued and remains fully effective and enforceable.

C. TRIBAL CONSULTATION

EPA met with the Yakama Nation (YN) on September 21, 2021 to understand tribal concerns with the reissuance of the permit. EPA shared the preliminary proposed permit and draft fact sheet on May 24, 2022 with YN prior to public notice for their review.

At the start of the comment period, EPA sent a letter to YN offering the opportunity for them to request Tribal Consultation on the proposed permit.

II. FACILITY INFORMATION

A. TREATMENT PLANT DESCRIPTION

1. Service Area

City of Wapato owns and operates the City of Wapato WWTP located in Wapato, WA. The collection system has no combined sewers. The facility serves a resident population of 5,058. The plant receives domestic wastewater from commercial and residential sources. The plant also receives industrial wastewater from three local fruit packing plants.

2. Treatment Process

The design flow of the facility is 1.16 million gallons per day (mgd). The reported actual flows from the facility between April 2017 and February 2022 ranged from 0.436 to 0.922 mgd (average monthly flow). In late 2015, the facility upgraded to a a Membrane Bio-Reactor (MBR) system for secondary treatment. Prior to this, the facility had an Rotating biological condactor (RBC) SBC fixed film system with chlorination. The MBR system uses a combination of a suspended growth biological treatment method, and membrane filtration. In addition, the facility uses ultraviolet (UV) disinfection. A schematic of the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A**.** Because the design flow is greater than 1.0 mgd, the facility is considered a major facility.

B. OUTFALL DESCRIPTION

The outfall discharges into Wapato Irrigation Project (WIP) Drainage Way No. 2. WIP Drainage Way No. 2 drains into Wanity Slough, which empties into the Yakima River. The facility discharges to the YN's tribal waters.

C. EFFLUENT CHARACTERIZATION

To characterize the effluent, EPA evaluated the facility's application form, discharge monitoring report (DMR) data, and additional data provided by Wapato WWTP. The effluent quality is summarized in Table 1. Data are provided in Appendix B.

Table 1. Effluent Characterization

Parameter	Average Monthly		Average Weekly		Max Daily	
	Min	Max	Min	Max	Min	Max
Temperature (deg C)	14	27	---	---	---	---
BOD_5 (mg/L)	0.1	4.48	0.1	7.35	---	---
BOD, 5-day, percent removal	96.6%	99.9%	---	---	---	---
TSS (mg/L)	1	10.3	1	30	---	---

Parameter	Average Monthly		Average Weekly		Max Daily	
	Min	Max	Min	Max	Min	Max
TSS, percent removal	92.5%	99.5%	---	---	---	---
DO (mg/L)	5.8	8.8				
E.coli (#/100mL)	1	1.89	---	---	1	3
Ammonia, Apr1-Oct31 (mg/L)	0.03	0.7	---	---	0.04	1.2
Ammonia, Nov1–Mar31 (mg/L)	0.02	0.46	---	---	0.033	0.99
Copper, total recoverable (µg/L)	0.9	6.4	---	---	0.9	10.2
Zinc, total recoverable (µg/L)	30.7	136.5	---	---	31.6	189
WET, Apr1-Oct31 (C. Dubia; TUa,c)	1.0	1.0	---	---	1.0	1.0
WET, Nov1-Mar31(C. Dubia; TUc)	1.0	1.0	---	---	1.0	1.0
WET, Apr1-Oct31 (P.prome; TUa,c)	1.0	1.0	---	---	1.0	1.0
WET, Nov1-Mar31(P.prome; TUc)	1.0	1.0	---	---	1.0	1.0
Cadmium, total recoverable (µg/L)	0.03	0.9	---	---	---	---
Mercury, total recoverable (µg/L)	0.00014	0.018	---	---	---	---
Phosphorus, total recoverable (mg/L)	0.12	21.1	---	---	---	---
Total Nitrogen (mg/L)	0.3	21.5				
Source: Facility DMR Data, April 2017 – Feb 2022						

D. COMPLIANCE HISTORY

A summary of effluent violations is provided in Table 2. Overall, the facility has had difficulty achieving compliance with the ammonia, copper, and zinc effluent limits. A compliance order was issued in June 2021 for violations of these parameters during the period of August 2015 - August 2020. These effluent violations are summarized in Table 2.

Additional compliance information for this facility, including compliance with other environmental statutes, is available on Enforcement and Compliance History Online (ECHO). The ECHO web address for this facility is: https://echo.epa.gov/detailed-facility-report?fid=WA0050229&sys=ICP

Table 2. Summary of Effluent Violations from August 2015 - February 2020

Parameter	Limit Type	Units	Number of Instances	Number of Violations
Ammonia	Average Monthly	mg/L	3	3
Copper	Daily Maximum	lb/day	1	1

Copper	Daily Maximum	mg/L	3	3
Copper	Average Monthly	µg/L	8	887
Zinc	Daily Maximum	lb/day	19	19
Zinc	Daily Maximum	µg/L	44	44
Zinc	Average Monthly	lb/day	43	43
Zinc	Average Monthly	µg/L	48	1,459
Source: City of Wapato WWTP Enforcement Order, June 2021				

EPA conducted an inspection of the facility on August 27, 2019. The inspection encompassed the wastewater treatment process, records review, operation and maintenance, and the collection system. The inspection noted effluent limit exceedances, primarily for ammonia, zinc, and copper, failure to update the Quality Assurance Plan (QAP) to account for facility upgrades, two missing discharge monitoring reports (DMRs) and missing parameters in other monitoring reports. The inspection also found the grinder at the headworks was out of service at the time of inspection.

E. RECEIVING WATER

In drafting permit conditions, EPA must analyze the effect of the facility's discharge on the receiving water. The details of that analysis are provided in the Water Quality-Based Effluent Limits (WQBEL) section below. This section summarizes characteristics of the receiving water that impact that analysis.

This facility discharges to WIP Drainage Way No. 2 near the City of Wapato, WA. The outfall is located within the YN Reservation and upstream of the Yakima River.

1. Water Quality Standards (WQS)

CWA § 301(b)(1)(C) requires the development of limitations in permits necessary to meet WQS. 40 CFR 122.4(d) requires that the conditions in NPDES permits ensure compliance with the WQS of all affected States. A State's WQS are composed of use classifications, numeric and/or narrative water quality criteria and an anti-degradation policy. The use classification system designates the beneficial uses that each water body is expected to achieve, such as drinking water supply, contact recreation, and aquatic life. The numeric and narrative water quality criteria are the criteria deemed necessary to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

The facility is located within the City of Wapato and discharges to tribal waters on the YN Reservation. The YN applied for the status of Treatment as a State (TAS) in 1994 from EPA for purposes of the CWA, and the current permit used YN WQS as a basis for permit limits. However, to date, EPA has not acted on the TAS submission nor does the Tribe have EPA-approved WQS. If the YN is granted TAS, and when it has WQS approved by EPA, those tribal WQS will be used to determine effluent limitations in the permit. In the meantime, the

Washington WQS were used as reference for setting permit limits and to protect downstream uses in the State of Washington, located around 15 miles downstream.

2. Designated Beneficial Uses

WIP Drainage Way No. 2 does not have specific use designations in the Washington WQS (WAC 173-201A-602). The WQS state that such "undesignated waterways" are to be protected for the designated uses of: salmonid spawning, rearing, and migration; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values (WAC 173-201A-600).

The Yakima River is designated for these same uses.

a. Water Quality

The water quality for the receiving water is summarized in Table 3.

Table 3. Receiving Water Quality Data

Parameter	Units	Percentile	Value
Temperature	°C	95th	23.1
pH	Standard units	5th – 95th	7.2-9.1
Hardness	mg/L	5th – 95th	24.0 –77.8
DO	mg/L	5th – 95th	8.1-10.6
Phosphorus	mg/L	5th – 95th	0.07 – 0.09
Nitrogen	mg/L	5th – 95th	0.2 – 1.4
Source: Data collected by permittee 2016-2020 at Upstream Monitoring Station, 50 feet above outfall			

b. Water Quality Limited Waters

WIP Drainage Way No. 2 is not listed as impaired for any parameters. WIP Drainage Way No.2 drains into the Wanity Slough then Marion Drain, and around 15 miles downstream, into the Yakima River.

At the point where Marion Drain enters the Yakima River near Granger, the Yakima River is listed as impaired for polychlorinated biphenyl congeners (PCBs), dioxin, and certain pesticides (4,4'-DDE, 4,4'-DDT). Further downstream, the Lower Yakima River is impaired for bacteria and dissolved oxygen (DO).

The only total maximum daily load (TMDL) downstream of the influence of Marion Drain to address these impairments is a TMDL for the target parameter of total DDT using the target surrogate parameter of total suspended solids (TSS). This TMDL did not impose wasteload allocations (WLAs) on point source discharges since agricultural practices were

identified as the principal source of sediment loading to the river and its tributaries.

The WWTP may in the future receive WLAs in TMDLs to address the impairments discussed above. However, currently, there are no WLAs applicable to the WWTP.

c. Low Flow Conditions

Receiving water data collected during the irrigation season (April 1 through October 30) from 2016 to 2020 were used to calculate critical low flows for this period. During non-irrigation season (November 1 through March 30), there is no flow in WIP Drainage No. 2. Therefore, the critical low flows for November through March are 0 mgd, consistent with the previous permit. Critical low flows for the receiving water during irrigation season are summarized in Table 4.

The 7Q10 low flow used to develop limits in the proposed permit is 44 mgd and is based on daily flow monitoring by the permittee from the last five years. The previous permit was based on a 7Q10 low flow of 11.9 mgd which was calculated from flow monitoring collected from 1988 through 1997. Since receiving water flows collected over the last five years are more recent and frequent which is more representative of current receiving water conditions, the proposed permit limits were calculated using a 7Q10 flow based on these data. Critical low flows for the receiving water are summarized in Table 4. Low flows are defined in Appendix D.

Table 4. Critical Flows in Receiving Water

Flows	Seasonal Flows, Irrigation Season (April 1- October 30)	Seasonal Flows, Non-Irrigation Season (November 1 – March 31)
1Q10	20 mgd	0 mgd
7Q10	44 mgd	0 mgd
30Q5	48 mgd	0 mgd
Harmonic Mean	94 mgd	0 mgd

III. EFFLUENT LIMITATIONS AND MONITORING

Table 5 below presents the existing effluent limits and monitoring requirements in the previous permit. Table 6 below presents the effluent limits and monitoring requirements in the proposed permit.

Table 5. Previous Permit - Effluent Limits and Monitoring Requirements

Parameter	Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type

Flow, mgd	---	---	---	Influent or Effluent	Continuous	Meter
Temperature, °C	---	---	---	Effluent	Daily or Continuous	Grab or Meter
Biological Oxygen Demand (BOD_5)	30 mg/l 290 lbs/day	45 mg/l 435 lbs/day	--- ---	Influent and Effluent	1/week	24-hour composite
Total Suspended Solids (TSS)	30 mg/l 290 lbs/day	45 mg/l 435 lbs/day	--- ---	Influent and Effluent	1/week	24-hour composite
Removal Rates for BOD_5 and TSS	≥85% Minimum, See Note 1	---	---	---	---	---
Dissolved Oxygen	---	---	---	Effluent	1/week	Grab
E. *coli* Bacteria	100/100 ml	---	200/100 ml	Effluent	5/month	Grab
Total Residual Chlorine	7.5 µg/L 0.073 lbs/day	---	19 µg/L 0.18 lbs/day	Effluent	5/week	Grab
Total Ammonia as N, applies from Apr 1 – Oct 31	1.2 mg/L 11.9 lbs/day	---	2.5 mg/L 24.0 lbs/day	Effluent	2/month	24-hour composite
Total Ammonia as N, applies from Nov 1 – Mar 31	1.3 mg/L 13 lbs/day	---	2.7 mg/L 25.8 lbs/day	Effluent	1/week	24-hour composite
Copper, total recoverable	3.4 µg/L 0.033 lbs/day	---	5.5 µg/L 0.053 lbs/day	Effluent	1/week	24-hour composite
Zinc, total recoverable	25 µg/L 0.24 lbs/day	---	52 µg/L 0.50 lbs/day	Effluent	1/week	24-hour composite
Whole Effluent Toxicity, Apr 1 – Oct 31	1.5 TUa,c See Note 3	---	3.0 TUa,c See Note 3	Effluent	See Note 5	24-hour composite
Whole Effluent Toxicity, Nov 1 – Mar 31	1.0 TUc See Note 4	---	1.6 TUc See Note 4	Effluent	See Note 5	24-hour composite
Cadmium, total recoverable	---	---	---	Effluent	1/month	24-hour composite
Mercury, total recoverable	---	---	---	Effluent	1/month	24-hour composite
Phosphorus, total	---	---	---	Effluent	1/month	24-hour composite
Nitrogen, total	---	---	---	Effluent	1/month	24-hour composite
Expanded Effluent Testing	---	---	---	Effluent	See Note 7	24-hour composite

Notes:

1. The monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent effluent samples must be taken over approximately the same time period.
2. The average monthly limit for residual chlorine is not quantifiable using EPA-approved analytical methods. EPA will use 19 µg/L as the compliance evaluation level for this parameter. EPA will consider the effluent in compliance with the effluent limit provided the monitoring result is <19 µg/L.
3. $TU_{a,c}$ is when acute toxicity is expressed in chronic toxic units (TU_c) $TU_{a,c}$ should be treated as TU_c, which is defined in Part I.D.2.d of this permit.
4. From November 1 – March 31 (non-irrigation season), the monthly chronic WET limit is expressed as a median value.
5. Monitoring must occur quarterly. The timing of quarterly testing must be such that two tests are conducted between April 1 – October 31 (irrigation season) and two tests are conducted between November 1 – March 31 (non-irrigation season).
6. During the first year of the permit, monitoring must occur once per month. After the first year of the permit, monitoring must occur once per quarter. Monitoring will occur once in each of the following quarters: January – March, April – June, July – September, and October – December.
7. See NPDES Permit Application Form 2A, Part D for the list of pollutants to include in this testing. Testing must occur once in the 2nd, 3rd, and 4th year of the permit. Additionally, the expanded effluent testing must occur on the same day as a whole effluent toxicity test and must be submitted with the WET test results with the next DMR as well as with the next permit application.

The following effluent limitations are proposed in the draft permit:

Table 6. Proposed Permit - Effluent Limits and Monitoring Requirements

Parameter	Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Flow, mgd	---	---	---	Influent or Effluent	Continuous	Meter
Temperature, °C[1]	---	---	---	Effluent	Daily or Continuous	Grab or Meter
Biological Oxygen Demand (BOD_5)	30 mg/l 290 lbs/day	45 mg/l 435 lbs/day	---	Influent and Effluent	1/week	24-hour composite
Total Suspended Solids (TSS)	30 mg/l 290 lbs/day	45 mg/l 435 lbs/day	---	Influent and Effluent	1/week	24-hour composite
Removal Rates for BOD_5 and TSS	≥85% Minimum[2]	---	---	---	---	---
Dissolved Oxygen, mg/L	---	---	---	Effluent	1/week	Grab
E. *coli* Bacteria	100/100 ml	---	200/100 ml	Effluent	5/month	Grab
Total Ammonia as N, applies from Apr 1 – Oct 31	0.7 mg/L 7.0 lbs/day	---	2.6 mg/L 25.0 lbs/day	Effluent	1/week	24-hour composite
Total Ammonia as N, applies from Nov 1 – Mar 31	1.1 mg/L 10.4 lbs/day	---	5.4 mg/L 52.3 lbs/day	Effluent	1/week	24-hour composite

Copper, total recoverable, µg/L	3.6 µg/L 0.035 lbs/day	---	6.8 µg/L 0.066 lbs/day	Effluent	1/week	24-hour composite
Mercury, total recoverable, µg/L	0.008 µg/L 0.00008 lbs/day	---	0.022 µg/L 0.00021 lbs/day	Effluent	1/month	24-hour composite
Silver	0.29 µg/L 0.003 lbs/day	---	0.42 µg/L 0.004 lbs/day	Effluent	1/month	24-hour composite
Zinc	27 µg/L 0.261 lbs/day	---	47 µg/L 0.451 lbs/day	Effluent	1/week	24-hour composite
Phosphorus, total	**---**	---	**---**	Effluent	1/month	24-hour composite
Nitrogen, total	**---**	---	**---**	Effluent	1/month	24-hour composite
WET	**---**	---	**---**	Effluent	1/year[3,5]	24-hour composite
Permit Application Effluent Testing Data[4]	--	--	--	Effluent	1/year	--
Permit Application Expanded Effluent Testing[5]	--	--	--	Effluent	1/year	--

Notes:

1. See Permit Parts I.B.3 and I.B.4.
2. The monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent effluent samples must be taken over approximately the same time period.
3. Monitoring must occur yearly. See Permit Part I.C.
4. Effluent Testing Data - See NPDES Permit Application Form 2A, Table B for the list of pollutants to be included in this testing. The Permittee must use sufficiently sensitive analytical methods in accordance with Permit Part I.B.8.
5. Expanded Effluent Testing - See NPDES Permit Application Form 2A, Table C for the list of pollutants to be included in this testing. Testing must be conducted annually during alternating quarters. The expanded effluent testing must occur on the same day as a whole effluent toxicity testing. Quarters are defined as: January 1 to March 31; April 1 to June 30; July 1 to September 30; and, October 1 to December 31. The Permittee must use sufficiently sensitive analytical methods in accordance with Permit Part I.B.8.

Table 7. Summary of Proposed Changes to Effluent Limits

Parameter	Current Permit	Proposed Permit	Basis
Ammonia, Apr 1 – Oct 31	1.2 mg/L AML 11.9 lbs/day AML 2.5 mg/L MDL 24.0 lbs/day MDL	0.7 mg/L AML 6.9 lbs/day AML 2.6 mg/L MDL 25.0 lbs/day MDL	Updated receiving water flow and effluent monitoring data
Ammonia, Nov 1 – Mar 31	1.3 mg/L AML 13 lbs/day AML 2.7 mg/L MDL 25.8 lbs/day MDL	1.1 mg/L AML 10.4 lbs/day AML 5.4 mg/L MDL 52.3 lbs/day MDL	Updated receiving water flow and effluent monitoring data
Chlorine	7.5 µg/L AML 0.073 lbs/day AML 19 µg/L MDL 0.18 lbs/day	None	Facility no longer uses chlorine disinfection
Copper	3.4 µg/L AML 0.033 lbs/day AML 5.5 µg/L MDL 0.053 lbs/day MDL	3.6 µg/L AML 0.035 lbs/day AML 6.8 µg/L MDL 0.066 lbs/day MDL	Updated receiving water flow and effluent monitoring data
Mercury	None	0.008 µg/L AML 0.00008 lbs/day AML 0.022 µg/L MDL 0.00021 lbs/day MDL	Reasonable potential to exceed water quality standards.
Silver	None	0.29 µg/L AML 0.003 lbs/day AML 0.42 µg/L MDL 0.004 lbs/day MDL	Reasonable potential to exceed water quality standards
WET, Apr 1 – Oct 31	1.5 TUa,c AML 3.0 TUa,c MDL	None	Upgraded facility and no reasonable potential
WET, Nov 1 – Mar 31	1.0 TUc AML 1.6 TUc MDL	None	Upgraded facility and no reasonable potential

Zinc	25 µg/L AML 0.24 lbs/day AML 52 µg/L MDL 0.50 lbs/day MDL	27 µg/L AML 0.261 lbs/day AML 47 µg/L MDL 0.451 lbs/day MDL	Updated receiving water flow and effluent monitoring data

Table 8. Summary of Proposed Changes to Monitoring Requirements

Parameter	Current Permit	Proposed Permit	Reason
Cadmium	Effluent 1/month	1/year	No detections were found during monthly monitoring
Chlorine	Effluent 5/week	None	The facility no longer uses chlorine disinfection
Silver	Toxic scan with permit application	1/month	Monitoring to support new effluent limits
WET	Quarterly[1]	Yearly[2]	No detections of toxicity after upgrade of facility during last 5 years

Notes:

1. Monitoring must occur quarterly. The timing of quarterly testing must be such that two tests are conducted between April 1 – October 31 (irrigation season) and two tests are conducted between November 1 – March 31 (non-irrigation season).
2. Monitoring must occur yearly. The timing of yearly testing must be such that the tests are conducted between April 1 – October 31 (irrigation season) in the 2nd year, between November 1 – March 31 (non-irrigation season) in the 3rd year, and in alternating seasons every year thereafter. Expanded effluent testing must occur on the same day as a whole effluent toxicity test and must be submitted with the WET test results with the next DMR as well as with the next permit application.

A. BASIS FOR EFFLUENT LIMITS

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based effluent limits (TBELs) or water quality-based effluent limits (WQBELs). TBELs are set according to the level of treatment that is achievable using available technology. WQBELs are designed to ensure that the WQSs applicable to a waterbody are being met and may be more stringent than TBELs.

1. Pollutants of Concern

Pollutants of concern are those that either have TBELs or may need WQBELs. EPA identifies pollutants of concern for the discharge based on those which:

- Have a TBEL
- Have an assigned WLA from a TMDL
- Had an effluent limit in the previous permit
- Are present in the effluent monitoring. Monitoring data are reported in the application and DMR and any special studies
- Are expected to be in the discharge based on the nature of the discharge

The wastewater treatment process for this facility includes both primary and secondary treatment, as well as UV disinfection. Pollutants expected in the discharge from a facility with this type of treatment, include but are not limited to: five-day biochemical oxygen demand (BOD_5), TSS, *E. coli* bacteria, pH, ammonia, temperature, phosphorus, and DO.

Based on this analysis, pollutants of concern are as follows:

- BOD_5
- DO
- TSS
- Ammonia
- Total residual chlorine (TRC)
- Copper
- *E. coli* bacteria
- Nitrogen
- Phosphorus
- pH
- Temperature
- Whole Effluent Toxicity (WET)
- Zinc
- Antimony
- Arsenic
- Beryllium
- Bis (2-Ethylhexyl) Phthalate
- Cadmium
- Chromium
- Chloroform
- Lead
- Nickel
- Selenium
- Silver
- Thallium
- Toulene

2. Technology-Based Effluent Limits (TBELs)

a. Federal Secondary Treatment Effluent Limits

The CWA requires publicly owned treatment works (POTWs) to meet performance-based requirements based on available wastewater treatment technology. CWA § 301 established a required performance level, referred to as "secondary treatment," which POTWs were required to meet by July 1, 1977. EPA has developed and promulgated "secondary treatment" effluent limitations, which are found in 40 CFR 133.102. These TBELs apply to certain municipal WWTPs and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS, and pH. The federally promulgated secondary treatment effluent limits are listed in Table 9. For additional information and background refer to Part 5.1 *Technology Based Effluent Limits for POTWs* in the Permit Writers Manual.

Table 9. Secondary Treatment Effluent Limits

Parameter	30-day average	7-day average
BOD_5	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
Removal for BOD_5 and TSS (concentration)	85% (minimum)	--
pH	within the limits of 6.0 - 9.0 s.u.	
Source: 40 CFR 133.102		

b. Mass-Based Limits

40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, except under certain conditions. 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass based limits are expressed in pounds per day and are calculated as follows:

Mass based limit = concentration limit (mg/L) × design flow (mgd) × 8.34[1]

Since the design flow for this facility is 1.16 mgd, the technology-based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 1.16 mgd × 8.34 = 290 lbs/day

Average Weekly Limit = 45 mg/L × 1.16 mgd × 8.34 = 435 lbs/day

3. Water Quality-Based Effluent Limits (WQBELs)

a. Statutory and Regulatory Basis

[1] 8.34 is a conversion factor with units (lb ×L)/(mg × gallon×10^6)

CWA § 301(b)(1)(C) requires the development of limitations in permits necessary to meet WQSs. Discharges to State or Tribal waters must also comply with conditions imposed by the State or Tribe as part of its certification of NPDES permits under CWA § 401. 40 CFR 122.44(d)(1) implementing CWA § 301(b)(1)(C) requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal WQS, including narrative criteria for water quality. Effluent limits must also meet the applicable water quality requirements of affected States other than the State in which the discharge originates, which may include downstream States (40 CFR 122.4(d), 122.44(d)(4), see also CWA § 401(a)(2)).

The regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that WQSs are met and must be consistent with any available WLA for the discharge in an approved TMDL. If there are no approved TMDLs that specify WLAs for this discharge; all of the WQBELs are calculated directly from the applicable WQSs.

b. Reasonable Potential Analysis and Need for WQBELs

EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (*TSD*) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a WQBEL must be included in the permit.

In some cases, a dilution allowance or mixing zone is permitted. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain water quality criteria may be exceeded (EPA, 2014). While the criteria may be exceeded within the mixing zone, the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired, all designated uses are maintained, and acutely toxic conditions are prevented.

The Washington WQS at WAC 173-201A-400 provides Washington's mixing zone policy for point source discharges. EPA proposes to use a mixing zone of 25% per Washington WQS during irrigation season. During non-irrigation season when there is no receiving water, there is no authorized mixing zone, and the dilution factors are 1.0. The

proposed mixing zones are summarized in Table 10. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 1.16 mgd.

Table 10. Mixing Zones (Irrigation Season)

Criteria Type	Mixing Zone (% of Critical Low Flow)	Critical Low Flow Irrigation Season (cfs)	Dilution Factor Irrigation Season
Acute Aquatic Life	25	20	3.7
Chronic Aquatic Life (except ammonia)	25	44	6.9
Chronic Aquatic Life (ammonia)	25	48	7.4
Human Health Noncarcinogen	25	94	13.6
Human Health Carcinogen	25	94	13.6

The reasonable potential analysis and WQBEL calculations were based on mixing zones shown in Table 10.

The equations used to conduct the reasonable potential analysis and calculate the WQBELs are provided in Appendix C.

c. Reasonable Potential and WQBELs

The reasonable potential and WQBEL for specific parameters are summarized below. The calculations are provided in Appendix D.

Ammonia

Ammonia criteria are based on a formula which relies on the pH and temperature of the receiving water, because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase. Due to seasonal flows in the receiving water, two scenarios were considered for determining applicable ammonia criteria and evaluating reasonable potential, during irrigation and non-irrigation season. The table below details the equations used to determine water quality criteria for ammonia.

Table 14 Ammonia Criteria

Freshwater Un-ionized Ammonia Criteria Calculation April 1 - October 31

Based on Chapter 173-201A WAC, amended November 20, 2006

INPUT	
1. Receiving Water Temperature (deg C):	23.1
2. Receiving Water pH:	9.0
3. Is salmonid habitat an existing or designated use?	Yes
4. Are non-salmonid early life stages present or absent?	Present
OUTPUT	
Using mixed temp and pH at mixing zone boundaries?	no
Ratio	13.500
FT	1.400
FPH	1.000
pKa	9.305
Unionized Fraction	0.331
Unionized ammonia NH3 criteria (mg/L as NH_3)	
Acute:	0.356
Chronic:	0.042
RESULTS	
Total ammonia nitrogen criteria (mg/L as N):	
Acute:	0.885
Chronic:	0.105

Data source: DMR and data provided by Wapato WWTF

Freshwater Un-ionized Ammonia Criteria Calculation November 1 - March 31

Based on Chapter 173-201A WAC, amended November 20, 2006

INPUT	
1. Receiving Water Temperature (deg C):	19.2
2. Receiving Water pH:	7.8
3. Is salmonid habitat an existing or designated use?	Yes
4. Are non-salmonid early life stages present or absent?	Present
OUTPUT	
Using mixed temp and pH at mixing zone boundaries?	no
Ratio	13.500
FT	1.400
FPH	1.118
pKa	9.428
Unionized Fraction	0.023
Unionized ammonia NH3 criteria (mg/L as NH_3)	
Acute:	0.227
Chronic:	0.038
RESULTS	
Total ammonia nitrogen criteria (mg/L as N):	
Acute:	8.107
Chronic:	1.353

Data source: DMR and data provided by Wapato WWTF

Using facility monitoring data for ammonia, EPA conducted a reasonable potential analysis with a 25% mixing zone during irrigation season and no mixing zone during non-irrigation season. EPA determined that the discharge has reasonable potential to cause or contribute to a violation of the water quality criteria for ammonia in both the irrigation season and the non-irrigation season. The current permit has seasonal ammonia limits. During both seasons, effluent limit calculations result in a more stringent average monthly limit and a less stringent maximum daily limit.

When relaxing limits, the facility must meet antibacksliding requirements consistent with CWA sections 303(d)(4) or 402(o)(2). The facility meets the requirements for an exception to antibacksliding

regulations for ammonia limits as described in Section III.A.3.d. Therefore, the proposed permit contains irrigation season limits of 0.7 mg/L average monthly (7.0 lbs/day) and 2.6 mg/L maximum daily (25.0 lbs/day) and non-irrigation season limits of 1.1 mg/L monthly average (10.4 lbs/day) and 5.4 mg/L maximum daily (52.3 lbs/day). The proposed permit also requires that the permittee monitor the receiving water for ammonia, pH, and temperature in order to determine the applicable ammonia criteria for the next permit reissuance. See Appendices C and D for reasonable potential and effluent limit calculations for ammonia.

Bis (2-ethylhexyl) Phthalate

The Washington WQS at WAC 173-201A-240 establish a human health criterion for water and organisms of 0.23 µg/L and for organisms only of 0.25 µg/L. The two samples submitted by the WWTP for bis (2-ethylhexyl) phthalate are above the criteria, with a maximum concentration of 1.98 µg/L and a 50% effluent concentration of 1.036 µg/L. EPA believes it is possible that the measurements could have been biased due to contamination during sample collection and analysis.Therefore, EPA has determined that there is insufficient information to demonstrate that the facility has the reasonable potential to cause or contribute to excursions above water quality standards for this pollutant.

BOD_5 and Dissolved Oxygen (DO)

Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The water quality criterion requires DO to be greater than a 1-day minimum of 8.0 mg/L (WAC 173-201A-100 1(d)). The BOD_5 of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. During April 2016- April 2021, the 95^{th} percentile of BOD_5 in the effluent has a monthly average of 3.4 mg/L and a weekly average of 5.1 mg/L. This is below the secondary treatment standards and thus protective of the receiving waters. In addition to TBELs for BOD_5, effluent and receiving water monitoring for dissolved oxygen are continued in the proposed permit.

Chlorine

The proposed permit proposes to remove the total residual chlorine effluent limits that are in the current permit. After the current permit was issued in 2011, the chlorine disinfection system was replaced with ultraviolet disinfection. There is no longer a source of chlorine in the discharge. Therefore, Wapato WWTP does not have the reasonable potential to cause or contribute to excursions above WQS for chlorine and WQBELs are not required.

Copper

The Washington WQS at WAC 173-201A-240 establish acute and chronic copper criteria for the protection of aquatic life and human health criteria for consumption of water and fish. Using the 5th percentile hardness value from facility surface monitoring of 29.4 mg/L, the hardness-dependent calculated acute and chronic aquatic life criteria are 5.4 µg/L and 4.0 µg/L, for acute and chronic respectively. The human health criterion for protection of water and organisms is 1,300 µg/L.

Using facility effluent monitoring data for copper and the mixing zone for the critical season described in Section III.A.3.b above, EPA conducted a reasonable potential analysis. EPA determined there is reasonable potential to exceed the aquatic life criteria for copper. The calculated effluent limits are less stringent than the limits in the current permit. When relaxing limits, the facility must meet antibacksliding requirements consistent with CWA section 303(d)(4) or 402(o)(2). EPA has determined the calculated copper limits meet antidegradation and antibacksliding requirements as described in Section III.A.3.d,e**.** Therefore, the proposed permit contains a limit of 3.6 mg/L average monthly (0.035 lbs/day) and 6.8 mg/L maximum daily (0.066 lbs/day) for the non-irrigation season. See Appendices C and D for the reasonable potential and effluent limit calculations for copper.

E. coli

The Washington water quality standards at WAC 173-201A-200(2)(b) state that in waters of the State of Washington that are designated for recreation, E. coli organism levels within an averaging period must not exceed a geometric mean value of 100 CFU or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained within the averaging period exceeding 320 CFU or MPN per 100 mL.

Regulations at 40 CFR 122.45(d)(2) require that effluent limitations for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable. Additionally, the terms “average monthly limit” and “average weekly limit” are defined in 40 CFR 122.2 as being arithmetic (as opposed to geometric) averages. It is impracticable to properly implement a 30-day geometric mean criterion in a permit using monthly and weekly arithmetic average limits. The geometric mean of a given data set is equal to the arithmetic mean of that data set if and only if all of the values in that data set are equal. Otherwise, the geometric mean is always less than the arithmetic mean. In order to ensure that the effluent limits are “derived from and comply with” the geometric mean water quality criterion, as required by 40 CFR 122.44(d)(1)(vii)(A), it is necessary to express the effluent limits as a monthly geometric mean and an instantaneous maximum limit.

The current permit contains effluent limits for E.coli of 100 CFU per 100 mL (average monthly) and 200 CFU per 100 mL (maximum daily). Since these effluent limitations meet Washington water quality standards, these limits are retained in the current permit.

Mercury

The Washington WQS at WAC 173-201A-240 establish acute and chronic criteria for the protection of aquatic life of 2.1 µg/L and 0.012 µg/L respectively. EPA promulgated human health criteria for mercury at 40 CFR 131.36 of 0.14 µg/L for water and organisms, and 0.15 µg/L for organisms only.

Using the last 5 years (2016-2020) of discharge monitoring data, EPA determined that Wapato WWTP has the reasonable potential to exceed the aquatic life criteria but does not have reasonable potential to exceed the human health criteria. Therefore, the proposed permit includes effluent limits for mercury based on the aquatic life criteria. The included mercury effluent limits are a monthly average limit of 0.008 µg/L (0.00008 lbs/day) and a maximum daily limit of 0.022 µg/L (0.00021 lbs/day). See Appendices C and D for reasonable potential and effluent limit calculations for mercury.

The proposed permit contains a compliance schedule for mercury requiring the WWTP to meet the new mercury limits within 96 months of permit issuance.

Additionally, the WWTP was required to complete a Mercury Minimization Plan in the previous permit but failed to do as such. As a result, the proposed permit contains a requirement to complete a Mercury Minimization Plan within 6 months of permit issuance.

Nutrients

The State of Washington has a narrative water quality criterion which reads “Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste” (WAC 173-201A-260(2)(b)). The State of Washington does not have numeric water quality criteria for total phosphorus (TP) or total nitrogen (TN).

Eutrophication from excess nutrients in the Lower Yakima River has been noted since 2001, and the Lower Yakima River is impaired for DO downstream of the facility. The Marion Drain downstream of Wanity Slough and Yakima River has shown increasing signs of nutrient enrichment showing signs of algal blooms and increased turbidity (USGS, Assessment of eutrophication in the Lower Yakima River Basin, 2009). The reach of the Yakima River downstream of Wapato where the Marion Drain drains into the Yakima River shows high levels of productivity signals and DO and pH levels consistently not meeting criteria. It is believed that excess nutrients, such as phosphorus and nitrogen could be the cause of this problem. Both

nitrogen and phosphorus can contribute to violations of WQS that result from excess nutrients (i.e., nuisance algae or aesthetics, DO, and pH).

Due to the excess nutrients in the Yakima, phosphorus and nitrogen effluent monitoring were included in the 2011 permit. These monitoring data taken during the current permit term measured the 95th percentile in the effluent as 7.7 mg/L for phosphorus and 11.1 mg/L for nitrogen. Comparatively, the receiving water has lower concentrations, with a 95th percentile concentration of phosphorus of 0.09 mg/L and nitrogen of 1.43 mg/L, upstream of the outfall.

The Wapato WWTP is not operated to remove nitrogen or phosphorus, and as such the nutrient concentrations are typical of a secondary effluent without nutrient removal. The addition of any nutrients to the Lower Yakima River will cause further impairment, and since the flow of the WIP Drainage Way No. 2 is effluent dominated during the non-irrigation season the WWTP discharge is contributing nutrients to the Lower Yakima River.

EPA believes there may be potential to improve nutrient removal within the current treatment system using techniques such as those described within *Case Studies on Implementing Low-Cost Modifications to Improve Nutrient Reduction at Wastewater Treatment Plants* (EPA 2015*)* and other EPA resources (https://www.epa.gov/eg/national-study-nutrient-removal-and-secondary-technologies#fact-sheets). Since the Lower Yakima River downstream of the facility is impaired for DO, and because the facility is a source of nutrients, EPA has included a requirement to develop and implement a Nutrient Optimization Plan in the proposed permit (Section II.1 of the draft permit).

pH

The Washington WQS at WAC 173-201A-200(1)(g), require pH values of the river to be within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units. The minimum effluent pH measured between January 2016 and December 2020 was 6.7 standard units and the maximum effluent pH was 8.0 standard units.

Mixing zones are generally not granted for pH, therefore the most stringent water quality criterion must be met before the effluent is discharged to the receiving water. The proposed permit requires that the effluent have a pH of no less than 6.5 and no greater than 8.5 standard units. Effluent data indicate that Wapato WWTP can comply with these effluent limits.

Silver

The Washington WQS include a hardness-dependent acute criteria for protection of aquatic life. Using a 5th percentile hardness of 29.4 mg/L, the acute water quality criteria is 0.42 µg/L.

Using information submitted by the WWTP with the permit application, EPA determined that the facility has reasonable potential to exceed the aquatic life water quality criteria. Therefore, the proposed permit includes effluent limits for silver of 0.29 µg/L (0.003 lbs/day) average monthly and 0.42 µg/L (0.004 lbs/day) maximum daily. See Appendices C and D for reasonable potential and effluent limit calculations for silver.

EPA has evaluated the WWTP's effluent data and determined that the WWTP will be consistently able to comply with the new silver effluent limits immediately upon the effective date of the permit. Therefore, no compliance schedule is included for the silver limits in the proposed permit.

Temperature

The Washington WQS include temperature criterion in WAC 173-201A-200(1)(c), 210(c), and Table 602. The site-specific annual maximum temperature criterion applicable to the receiving water at the closest point of Washington water quality standards, WRIA 37, Lower Yakima, is "temperature shall not exceed a 1-Dmax of 21°C due to human activities. When natural conditions exceed a 1-DMax of 21°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed t=34/(T+9)."

Based on upstream monitoring data from 2016 – 2020, the 95th percentile of ambient temperature upstream of the outfall in WIP Drainage Way No. 2 is 23.1 ºC and the 95th percentile of temperature downstream of the outfall is 22.8 ºC . The 95th percentile of the effluent temperature is 25 ºC. Since the maximum temperatures of the natural conditions of the receiving water is above 21°C, the temperature increase must not raise the receiving water more than 0.3°C.

EPA evaluated the reasonable potential to exceed the temperature criteria. The max temperature of the receiving waters and the max temperature of the effluent are both above the aquatic life criteria. Considering a 25% mixing zone during the summer season, the effluent will not raise the temperature more than 0.3°C (Figure 1). Based on this analysis, a temperature limit is not required.

INPUT	Cold Water Critera	Data Source
Chronic Dilution Factor at Mixing Zone Boundary	7.1	High River Flow
Ambient Temperature (T) (Upstream Background)	23.1 °C	95th Percentile based on permittee or USGS data
Effluent Temperature	25.0 °C	95th Percentile of **monthly daily max effluent** based on daily max per DMR data
Aquatic Life Temperature WQ Criterion in Fresh Water	21.0 °C	Lowest daily max criteria
OUTPUT		
Temperature at Chronic Mixing Zone Boundary:	23.4 °C	Mass balance
Incremental Temperature Increase or decrease:	0.3 °C	WQS 401.c - allow for maximum of 0.3°C rise in receiving water temperature.

Figure 1 Temperature Reasonable Potential Analysis

WET

The federal regulations require POTWs with design influent flows equal to or greater than 1.0 mgd or POTWs with approved treatment programs to submit results of WET testing (40 CFR 122.21(j)(1). Additionally, Washington WQS for toxics states, “Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health (WAC 173-201A-240-1)”.

The current permit has WET limits and requires quarterly WET monitoring. Using the WET results from the previous 5 years, EPA determined that the facility’s effluent does not have reasonable potential for acute and chronic WET. Since the current permit was issued in 2011, the facility upgraded to an MBR and has reduced the toxicity in the effluent.

When relaxing limits, the facility must meet antibacksliding and requirements consistent with CWA section 303(d)(4) or 402(o)(2). Since EPA did not find reasonable potential for WET and the facility qualifies for an exception to antibacksliding as described in Section III.A.3.e, and the revised effluent limit complies with Washington’s antidegradation policy as described in Section III.A.3.d, the proposed permit removes the current WET limits. The proposed permit also proposes to reduce the frequency of WET monitoring to once a year.

Zinc

The Washington WQS at WAC 173-201A-240 establish hardness-dependent acute and chronic zinc criteria for the protection of aquatic life and human health criteria for consumption of water and fish and water only. Using the 5th percentile hardness value from facility surface

monitoring of 29.4 mg/L, the hardness-dependent calculated acute and chronic aquatic life criteria are 34.2 µg/L and 31.2 µg/L, for acute and chronic respectively. The human health criterion for protection of water and organisms is 2,300 µg/L.

Using facility effluent monitoring data for zinc and the mixing zones described in Section III.A.3.b above, EPA conducted a reasonable potential analysis. EPA determined there is reasonable potential to exceed the aquatic life criteria for zinc on an annual basis. There is no reasonable potential to exceed the human health criteria for zinc.

The calculated monthly average effluent limits for zinc during the irrigation season are less stringent than the limits in the current permit, and the calculated maximum daily effluent limits are more stringent than the current effluent limits. When relaxing limits, the facility must meet antibacksliding requirements consistent with CWA section 303(d)(4) or 402(o)(2). EPA has determined the monthly average zinc limits can be relaxed by 10% in accordance with antidegradation requirements described in Section III.A.3.d. and antibacksliding requirements as described in Section III.A.3.e.

Therefore, the proposed permit contains WQBELs for zinc. The proposed limits are 27 µg/L (0.261 lbs/day) average monthly and 47 µg/L (0.451 lbs/day) maximum daily. See Appendices C and D for reasonable potential and effluent limit calculations for zinc.

Other Parameters

40 CFR 122.21(j)(4) requires that certain priority pollutants be monitored, and results be submitted with the permit application. In addition to the pollutants discussed above, antimony, arsenic, beryllium, chloroform, chromium, lead, nickel, selenium, thallium, and toulene have been detected in the Wapato WWTP effluent. As shown in Appendix C and D, the discharge does not have the reasonable potential to cause or contribute to excursions above water quality standards for those pollutants, thus, no effluent limits are required for any of those pollutants.

d. Antidegradation

Overview

EPA is required under Section 301(b)(1)(C) of the CWA and implementing regulations (40 CFR 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure protection of the downstream State water quality standards, including antidegradation requirements. Since the receiving water WIP Drainage Way No. 2 is located within the Yakama Reservation, but the YN does not have approved WQS, this permit is based on Ecology's WQS, including antidegradation Therefore, EPA has prepared an antidegradation analysis consistent with Ecology's antidegradation implementation

procedures. EPA referred to Washington's antidegradation policy (WAC 173-201A-300) and Ecology's 2011 Supplemental Guidance on Implementing Tier II Antidegradation (https://apps.ecology.wa.gov/publications/documents/1110073.pdf)

The purpose of Washington's Antidegradation Policy is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART); and
- Apply three tiers of protection (described below) for surface waters of the state.
    - Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollution.
    - Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.
    - Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

Tier I Protection

According to Washington's antidegradation policy, a facility must first meet Tier I requirements. Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in Chapter 173-201A WAC. WIP Drainage Way No.2 at the point of discharge has the following designated beneficial uses:

Aquatic Life Uses: Salmonoid Spawning, Rearing, and Migration

Recreational Uses: Primary Contact

Water Supply Uses: Domestic Water; Industrial Water; Agricultural Water; Stock Water

Misc. Uses: Wildlife Habitat; Harvesting; Commerce/Navigation; Boating; and Aesthetics.

The effluent limits in the draft permit ensure compliance with applicable numeric and narrative water quality criteria. The numeric and narrative water quality criteria are set at levels that ensure protection of the designated uses. As there is no information indicating the presence of existing beneficial uses other than those that are designated, the draft permit ensures a level of water quality necessary to protect the designated uses and, in compliance with WAC 173-201A-310 and 40 CFR 131.12(a)(1), also ensures that the level of water quality necessary to protect existing uses is maintained and protected.

If EPA receives information during the public comment period demonstrating that there are existing uses for which WIP Drainage Way No.2 is not designated, EPA will consider this information before issuing a final permit and will establish additional or more stringent permit conditions if necessary to ensure protection of existing uses.

Tier II Protection

Whenever a water quality constituent is of a higher quality than a criterion designated for that water under the Washington WQS, new or expanded actions within certain categories, including NPDES permits, that are expected to cause a measurable change in the qualtiy of the water may not be allowed unless Ecology determines that the lowering of water quality is necessary and in the overriding public interest.

With the exceptions of chlorine, WET, ammonia, copper, and zinc, all the effluent limits in the reissued permit are as stringent as or more stringent than the corresponding limits in the current permit. For those parameters with limits that are as stringent or more stringent than the corresponding limits in the current permit, the proposed permit will not allow lower water quality. Of the effluent limits that are not as stringent as the current permit, Chlorine and WET limits are removed from the proposed permit and ammonia, copper, and zinc effluent limits in the proposed permit are in some cases less stringent than the current permit.

Chlorine limits are not included in the proposed permit because the facility now uses ultraviolet disinfection. Since there is no longer a source of chlorine in the discharge, the removal of chlorine limits will not allow lower water quality.

WET limits are not included in the proposed permit because EPA has determined that there is not reasonable potential to exceed water quality criteria. The WET effluent data shows that there have been no

exceedances of the limits since the facility upgraded the plant to an MBR facility after the current permit was issued. Therefore, the removal of WET limits will not allow lower water quality.

The ammonia, copper and zinc limits are, in some cases, less stringent than the corresponding limits in the current permit. Since there is no water quality data to determine the status of WIP Drainage Way No. 2, and the goal is to track the incremental effect on water quality caused by the action under evaluation, it is appropriate to assume the zero as a background concentration according to Washington Tier II policy and therefore that the receiving water is of higher quality than the water quality criteria for these parameters. However, as explained below, the revised limits are nonetheless consistent with Washington's Tier II antidegradation policy.

Washington's antidegradation policy states that Tier II reviews will only be conducted for new or expanded actions conducted under certain authorizations, including NPDES permits (WAC 173-201A-320(2)). The State of Washington has published the *Supplemental Guidance on Implementing Tier II Antidegradation* ("Washington Tier II Guidance") which defines the actions that are considered "expanded" in the context of its Tier II antidegradation requirements (Ecology 2011). The Washington Tier II Guidance states that:

> "*Expanded" means:*
>
> - *A physical expansion of the facility (production or wastewater system expansions with a potential to allow an increase of the volume of wastewater or the amount of pollution) or activity*
> - *An increase (either monthly average or annual average) to an existing permitted concentration or permitted effluent mass limit (loading) to a water body greater than 10%*
> - *The act of re-rating the capacity of an existing plant greater than 10%."*

The Wapato WWTP has not been physically expanded or re-rated to a higher capacity since the current permit was issued. However, increases to existing concentration or mass limits are considered "expansions" within the Washington antidegradation policy. Therefore, the applicable limits are increased by no more than 10% above the current permits limits to ensure consistency with Washington's antidegradation policy.

The calculated effluent limits for ammonia result in a more stringent average monthly limit and a less stringent maximum daily limit during both the irrigation and non-irrigation season. Since the Tier II guidance defines an expansion as an increase in the monthly or annual average, a change to the maximum daily limit, in accordance with

water quality criteria, is allowed under Washington antidegradation policy.

The calculated effluent limits for copper result in less stringent monthly average and maximum daily effluent limits. The calculated monthly average copper effluent limit results in a less than 10% increase from the current limit, and thus meets the Tier II antidegradation requirements. As discussed above, the maximum daily effluent requirements can be relaxed in accordance with Tier II guidance. Therefore, the proposed permit contains less stringent copper limits.

The calculated effluent limits for zinc result in less stringent monthly average and more stringent maximum daily effluent limits. The calculated monthly average copper effluent limit results in a more than 10% increase from the current limit, however, as discussed above, the monthly average limits can not be relaxed more than 10% without a Tier II antidegradation review. Therefore, the monthly average effluent limit for zinc will only be relaxed by 10%. Therefore, the proposed permit contains less stringent monthly average zinc limits and more stringent maximum daily zinc limits.

e. Antibacksliding

CWA § 402(o) and 40 CFR §122.44 (l) generally prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. For explanation of the antibacksliding exceptions refer to Chapter 7 of the Permit Writers Manual *Final Effluent Limitations and Anti-backsliding*.

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy. Additionally, CWA § 402(o) contains exceptions to the general prohibition on backsliding in 402(o)(1). According to the According to the U.S. EPA NPDES Permit Writers' Manual (EPA-833-K-10-001) the 402(o)(2) exceptions are applicable to WQBELs (except for 402(o)(2)(B)(ii) and 402(o)(2)(D)) and are independent of the requirements of 303(d)(4). Therefore, WQBELs may be relaxed as long as either the 402(o)(2) exceptions or the requirements of 303(d)(4) are satisfied.

Even if the requirements of Sections 303(d)(4) or 402(o)(2) are satisfied, Section 402(o)(3) prohibits backsliding which would result in violations of WQS or effluent limit guidelines.

According to Section 402(o)(2), one of the exceptions when EPA may propose a less stringent limit is if "material and substantial alterations

to the permitted facility occurred after permit issuance, justifying application of a less stringent effluent limit." This exception applies to WET limits and chlorine limits, since the facility upgraded to an MBR treatment facility after the previous permit was issued. The upgraded facility consistently achieves lower toxicity in the effluent and therefore the facility upgrade justifies the removal of WET effluent limits. The proposed permit continues to include yearly WET monitoring to continue to monitor effluent toxicity.

In addition, the chlorine disinfection system was replaced with UV disinfection, and chlorine is no longer used in the treatment process. The replacement of the chlorine disinfection system with UV disinfection is a material and substantial alteration to the permitted facility, which occurred after the current 2011 permit was issued, and which justifies the deletion of the chlorine effluent limits.

Another listed exception to antibacksliding is if "information, not available at the time of permit issuance…would have justified applying a less stringent effluent limit at the time of permit issuance." This exception is applicable to ammonia, copper, and zinc effluent limits.

In the case of ammonia limits, more accurate and recent flow data is available at the time of this proposed permit that was not available at the time the current permit was issued. The current permit used receiving water flow data collected from 1988 through 1997, a 7Q10 of 11.9 mgd during the irrigation season. Flow data collected during 2016-2020 results in a 7Q10 of 44 mgd during the irrigation season. Therefore, the ammonia limits meet the exceptions for antibacksliding.

The revised copper and zinc effluent limits are also based on information not available at the time of permit issuance. The current permit used a hardness of 37 mg/L based on 11 samples during two months, however, the proposed permit uses a hardness of 29.4 mg/L based on more extensive and recent receiving water data, from 2016-2020. In addition, the copper and zinc limits in the current permit are based on limited effluent sampling during July and August 2010 whereas the proposed limits are based on weekly effluent sampling during 2017-2022. Therefore, the copper and zinc limits meet the exceptions for antibacksliding based on new flow and water quality data available at this time.

As discussed in Section III.A.d above, the revised effluent limits in the proposed permit for chlorine, WET, ammonia, copper, and zinc are consistent with Washington's antidegradation policy. The proposed effluent limits are adequately stringent to ensure compliance with water quality for those pollutants, and furthermore, the effluent limits are consistent with Washington's antidegradation policy. Therefore, the revised effluent limits comply with Section 402(o)(3).

B. MONITORING REQUIREMENTS

CWA § 308 and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality.

The permit also requires the permittee to perform effluent monitoring required by the NPDES Form 2A application, so that these data will be available when the permittee applies for a renewal of its NPDES permit.

The permit also requires the permittee to perform effluent monitoring required by Tables B, C, D, and E of the NPDES Form 2A application, so that these data will be available when the permittee applies for a renewal of its NPDES permit.

The permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to EPA.

1. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit. Proposed monitoring changes from the current permit are summarized in Table 8.

2. Surface Water Monitoring

In general, surface water monitoring may be required for pollutants of concern to assess the assimilative capacity of the receiving water for the pollutant. In addition, surface water monitoring may be required for pollutants for which the water quality criteria are dependent and to collect data for TMDL development if the facility discharges to an impaired water body. Table 11 presents the proposed surface water monitoring requirements for the proposed permit. Surface water monitoring results must be submitted with the DMR.

Table 11. Surface Water Monitoring in Proposed Permit

Parameter	Units	Upstream Sampling Frequency	Downstream Sampling Frequency	Sample Type
Flow	mgd	1/week	1/week	Meter
Temperature	ºC	Continuous	Continuous	Meter
BOD5	mg/L	1/week	1/week	24-hour composite
TSS	mg/L	1/week	1/week	24-hour composite

Parameter	Units	Upstream Sampling Frequency	Downstream Sampling Frequency	Sample Type
Dissolved Oxygen	mg/L	1/week	1/week	Grab
pH	Standard units	1/month	1/month	24-hour composite
Hardness as $CaCO_3$	µg/L	1/month	1/month	24-hour composite
Total Phosphorus	Mg/L	1/month	1/month	24-hour composite
Total Nitrogen	Mg/L	1/month	1/month	24-hour composite
Source: Facility DMR Data, 2016-2021				

3. Electronic Submission of Discharge Monitoring Reports

The proposed permit requires that the permittee submit DMR data electronically using NetDMR. NetDMR is a national web-based tool that allows DMR data to be submitted electronically via a secure Internet application.

EPA currently conducts free training on the use of NetDMR. Further information about NetDMR, including upcoming trainings and contacts, is provided on the following website: https://netdmr.epa.gov. The permittee may use NetDMR after requesting and receiving permission from EPA Region 10.

Permit Part III.C requires that the Permittee submit a copy of the DMR to the YN. Currently, the permittee may submit a copy to the YNin one of three ways: 1) a paper copy may be mailed; 2) The email address for the YN may be added to the electronic submittal through NetDMR; or 3) The permittee may provide the YN viewing rights through NetDMR.

C. SLUDGE (BIOSOLIDS) REQUIREMENTS

EPA Region 10 separates wastewater and sludge permitting. EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued.

IV. OTHER PERMIT CONDITIONS

A. COMPLIANCE SCHEDULES

Compliance schedules are authorized by federal NPDES regulations at 40 CFR 122.47 and Washington WQS WAC 173-201A-510(4). Compliance schedules allow a discharger to phase in, over time, compliance with WQBELs when limitations are in the permit for the first time.

The proposed permit contains new effluent limits for mercury, and silver, and more stringent revised effluent limits in some cases for ammonia and zinc.

Effluent data indicate that the permittee can immediately comply with all of the new water quality-based effluent limits proposed in the proposed permit, except for mercury and zinc.

Although the maximum daily zinc limit is more stringent, the average monthly zinc limit is less stringent. Therefore, EPA is not authorizing a compliance schedule for zinc in this permit.

EPA has found that a compliance schedule is appropriate for mercury because the facility cannot immediately comply with the new effluent on the effective date of the permit. Refer to Section 9.1.3 Compliance Schedules in the Permit Writers Manual. While the schedules of compliance are in effect, the permittee must comply with the monitoring requirements in Section III.B.

EPA proposes a compliance schedule that begins with source reduction achieved through a Mercury Minimization Plan (MMP), see Fact Sheet Part IV.B and Permit Part II.E. Source reduction is a quicker and more cost-efficient method of achieving compliance with mercury effluent limits. In the event that effluent limits are not met after 36 months of source reduction efforts, the compliance schedule requires the facility to improve its treatment process for mercury in order to meet the mercury effluent limits. If compliance with the final mercury effluent limits is achieved sooner than required in the compliance schedule, the permittee may submit the supporting documentation. The permittee must provide written notice to EPA that the mercury limitations are achieved. The mercury effluent limits must be fully met by 96 months from the effective date of the permit.

1. Mercury Minimization Plan

   Potential sources for mercury include residential, institutional, municipal, and commercial sources (such as dental clinics, hospitals, medical clinics, nursing homes, schools, laundries, and industries with potential for mercury contributions). Other potential influent mercury sources are stormwater inputs, ground water (inflow & infiltration) inputs, lift station components, and waste streams or sewer tributaries to the wastewater treatment facility.

   The permittee must develop and implement a MMP that identifies potential sources of mercury and the measures to reduce or eliminate mercury

loading. The MMP must be submitted to EPA and YN within 6 months of the effective date of this permit. The MMP must include the following:

a. A Program Plan which includes the City of Wapato's commitments for:
   - Identification of potential sources of mercury that contribute to discharge levels;
   - Reasonable, cost-effective activities designed to reduce or eliminate mercury loadings from identified sources;
   - Tracking mercury source reduction implementation and mercury source monitoring;
   - Meeting effluent and influent mercury monitoring requirements in permit Section I.B;
   - Resources and staffing.

b. Implementation of cost-effective control measures for direct and indirect contributors, including:
   - An evaluation of past and present WWTP operations to determine those operating procedures that maximize mercury removal.
   - A summary of any mercury reduction activities implemented during the last five years.

For more guidance, see the EPA Region 5 Mercury Pollutant Minimization Program Guidance, November 2004.

2. Annual Status Reports

The permittee must submit annual status reports at 12, 24, and 36 months from the effective date of the permit. The annual status reports must include:

- Identification of potential sources of mercury that contribute to discharge concentrations;
- Reasonable, cost-effective activities to reduce or eliminate mercury loadings from identified sources;
- Mercury source reduction implementation, source monitoring results, influent and effluent, and results for the previous year
- Proposed adjustments to the MMP based on findings from the previous year.

Table 12. Compliance Schedule for Mercury

Task No.	Due By	Task Activity
1	6 months from the effective date of the permit	**Mercury Minimization Plan** The permittee must complete a Mercury Minimization Plan as described in permit Section II.E. Deliverable: The permit must submit the Mercury Minimization Plan to EPA. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Minimization_Plan_CS011, where YYYY_MM_DD is the date that the permittee submits the document.
2	12 months from the effective date of the permit	**Annual Status Report** Deliverable: The permit must submit the annual status report to EPA. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Annual_Report_CS010, where YYYY_MM_DD is the date that the permittee submits the document.
4	24 months from the effective date of this permit	**Annual Status Report** Deliverable: The permit must submit the annual status report to EPA. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Annual_Report_CS010, where YYYY_MM_DD is the date that the permittee submits the document.
5	36 months from the effective date of this permit	**Annual Status Report** Deliverable: The permit must submit the annual status report to EPA. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Annual_Report_CS010, where YYYY_MM_DD is the date that the permittee submits the document.
6	48 months from the effective	**Facility Planning** The permittee must develop a facility plan that evaluates alternatives to meet the final effluent limitations for mercury and select a preferred alternative. The facility plan will include

	date of this permit	a cost estimate for design and construction of the preferred alternative. If final effluent limitations are met through source reduction efforts, facility may submit supporting documentation instead of proceeding with compliance schedule requirements. Deliverable: The permit must submit the facility plan to EPA. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Facility_Plan_CS011, where YYYY_MM_DD is the date that the permittee submits the document.
7	54 months from the effective date of this permit	**Facility Funding** The permittee must acquire the funds necessary to complete all facility upgrades/changes in facility operations outlined in the facility plan required to meet the final effluent limitations for mercury by the end of this schedule. Deliverable: The permit must submit the funding plan to EPA. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Funding_Plan_CS011, where YYYY_MM_DD is the date that the permittee submits the document.
8	66 months from the effective date of this permit	**Final Design** The permittee must complete design of the selected alternative for meeting the final mercury effluent limitations. Deliverable: The permit must submit the final design to EPA. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Final_Design_CS011, where YYYY_MM_DD is the date that the permittee submits the document.
9	72 months from the effective date of this permit	**Award Bid for Construction** Deliverable: The permit must submit a letter to EPA certifying that the facility has awarded a bid for construction for meeting the mercury effluent limits. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Construction_Bid _Certification_CS011, where YYYY_MM_DD is the date that the permittee submits the document.

10	84 months from the effective date of this permit	**Construction Complete** The permittee must complete construction to achieve the mercury effluent limitations. Deliverable: The permit must submit a letter to EPA certifying that the facility has completed construction for meeting the final mercury effluent limits. The permittee must submit the plan as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Mercury_Construction_ Complete_Certification_CS016, where YYYY_MM_DD is the date that the permittee submits the document.
11	96 months from the effective date of the permit	**Meet Effluent Limitation for Mercury** Training and optimization of process such that compliance with the mercury effluent limitations are achieved. Deliverable: The permittee must provide written notice to EPA that the mercury effluent limitations are achieved. The permittee may submit the written notification as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_WA0050229_Limits_FELMC_CS017, where YYYY_MM_DD is the date that the permittee submits the written notification.
Note: If compliance with the final mercury effluent limits is achieved sooner than the listed deadlines, the permittee may submit the supporting documentation earlier than the dates listed above. The permittee must provide written notice to EPA that the mercury limitations are achieved.		

B. NUTRIENT OPTIMIZATION PLAN

The City of Wapato is required to submit a Nutrient Optimization Plan within 48 months of the effective date of the permit and identify the optimization strategy selected for implementation within 18 months of the effective date of the permit. The Nutrient Optimization Plan must evaluate and implement operational strategies for maximizing nitrogen and phosphorus removal from the existing treatment plant during the permit term. The plan must be submitted to EPA and the YN.

C. QUALITY ASSURANCE PLAN

The City of Wapato is required to update the Quality Assurance Plan (QAP) within 90 days of the effective date of the permit. The QAP must consist of standard operating procedures the permittee must follow for collecting, handling, storing, and shipping samples, laboratory analysis, and data

reporting. The plan must be retained on-site and made available to EPA and the YN upon request.

D. OPERATION AND MAINTENANCE PLAN

The permit requires the City of Wapato to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance are essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to develop and implement an operation and maintenance plan for their facility within 60 days of the effective date of the permit. The plan must be retained on site and made available to EPA and YN upon request.

E. SANITARY SEWER OVERFLOWS AND PROPER OPERATION AND MAINTENANCE OF THE COLLECTION SYSTEM

SSOs are not authorized under this permit. The permit contains language to address SSO reporting and public notice and operation and maintenance of the collection system. The permit requires that the permittee identify SSO occurrences and their causes. In addition, the permit establishes reporting, record keeping and third party notification of SSOs. Finally, the permit requires proper operation and maintenance of the collection system.

The following specific permit conditions apply:

Immediate Reporting – The permittee is required to notify EPA of an SSO within 24 hours of the time the permittee becomes aware of the overflow. (See 40 CFR 122.41(l)(6))

Written Reports – The permittee is required to provide EPA a written report within five days of the time it became aware of any overflow that is subject to the immediate reporting provision. (See 40 CFR 122.41(l)(6)(i)).

Third Party Notice – The permit requires that the permittee establish a process to notify specified third parties of SSOs that may endanger health due to a likelihood of human exposure; or unanticipated bypass and upset that exceeds any effluent limitation in the permit or that may endanger health due to a likelihood of human exposure. The permittee is required to develop, in consultation with appropriate authorities at the local, county, tribal and/or state level, a plan that describes how, under various overflow (and unanticipated bypass and upset) scenarios, the public, as well as other entities, would be notified of overflows that may endanger health. The plan should identify all overflows that would be reported and to whom, and the specific information that would be reported. The plan should include a description of lines of communication and the identities of responsible officials. (See 40 CFR 122.41(l)(6)).

Record Keeping – The permittee is required to keep records of SSOs. The permittee must retain the reports submitted to EPA and other appropriate reports that could include work orders associated with investigation of system problems related to a SSO, that describes the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the SSO. (See 40 CFR 122.41(j)).

Proper Operation and Maintenance – The permit requires proper operation and maintenance of the collection system. (See 40 CFR 122.41(d) and (e)). SSOs may be indicative of improper operation and maintenance of the collection system. The permittee may consider the development and implementation of a capacity, management, operation, and maintenance (CMOM) program.

The permittee may refer to the Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by EPA inspectors to evaluate a collection system's management, operation, and maintenance program activities. Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

F. ENVIRONMENTAL JUSTICE

As part of the permit development process, EPA Region 10 conducted a screening analysis to determine whether this permit action could affect overburdened communities. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. EPA used a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool is used to identify permits for which enhanced outreach may be warranted.

The City of Wapato WWTP is located within or near a Census block group that is potentially overburdened based on the State Wastewater Discharge Indicator (93rd percentile) and the State EJ Index for Wastewater Discharge Indicator (98th percentile). In order to ensure that individuals near the facility are able to participate meaningfully in the permit process, EPA will work collaboratively with the to conduct enhanced outreach activities such as posting the proposed permit and fact sheet in public places, the YN website, and other media the YN feels is necessary to ensure membership are able to participate in the review and comment period.

Regardless of whether a facility is located near a potentially overburdened community, EPA encourages permittees to review (and to consider adopting, where appropriate) Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways To Engage Neighboring Communities (see https://www.federalregister.gov/d/2013-10945). Examples of promising practices include: thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, etc.

For more information, please visit https://www.epa.gov/environmentaljustice and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

G. DESIGN CRITERIA

The permit includes design criteria requirements. This provision requires the permittee to compare influent flow and loading to the facility's design flow and loading and prepare a facility plan for maintaining compliance with NPDES permit effluent limits when the flow or loading exceeds 85% of the design criteria values for any two months in a twelve-month period.

H. PRETREATMENT REQUIREMENTS

The City of Wapato does not have an approved POTW pretreatment program per 40 CFR 403.8. EPA is the Control Authority of industrial users that might introduce pollutants into the Wapato WWTP.

The Permittee may not authorize discharges which may violate the national specific prohibitions of the General Pretreatment Program under 40 CFR 403.5(b).

Although, not a permit requirement, the Permittee may wish to consider developing the legal authority enforceable in Federal, State, or local courts which authorizes or enables the POTW to apply and to enforce the requirement of CWA §§ 307 (b) and (c) and 402(b)(8), as described in 40 CFR 403.8(f)(1). Where the POTW is a municipality, legal authority is typically through a sewer use ordinance, which is usually part of the city or county code. EPA has a Model Pretreatment Ordinance for use by municipalities operating POTWs that are required to develop pretreatment programs to regulate industrial discharges to their systems (EPA, 2007). The model ordinance should also be useful for communities with POTWs that are not required to implement a pretreatment program in drafting local ordinances to control nondomestic dischargers within their jurisdictions.

I. STANDARD PERMIT PROVISIONS

Permit Parts III., IV. and V. contain standard regulatory language that must be included in all NPDES permits. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

V. OTHER LEGAL REQUIREMENTS

A. ENDANGERED SPECIES ACT

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. A review of the threatened and endangered species located in Washington finds that the following federally listed endangered and threatened species may be located in the vicinity of the discharges: Middle Columbia River steelhead (O. mykiss), Bull Trout (Salvelinus confluentus), and Ute Ladies'-tresses (Spiranthes diluvialis).

Middle Columbia River Steelhead are found in Wanity Slough and Marion Drain, downstream of the outfall from Wapato WWTP. With regards to Bull

Trout, the Athanum local population is the only population found in the action area. Ahtanum Creek is 15-20 miles north of the action area and are seasonally isolate (from July through October) from fish in the Yakima River due to thermal barriers and dewatering of lower Ahtanum Creek below river mile 19.7 by irrigation withdrawals. Ute Ladies'-Tresses are endemic to moist soils in near bodies of water. Since the action addresses the effluent discharge and the in-stream water quality, it will not affect areas where the orchid is likely to be found.

A Biological Assessment was completed for the prior permit, in March 2011. Since there have been no changes in endangered species found in the action area since the prior Biological Assessment, and the proposed permit similar to the prior permit and will continue to protect water quality, the no effect determination still applies.

Therefore, EPA has determined that the issuance of this permit will have no effect on Bull trout, Mid Columbia River steelhead, or Ute-Ladies'-tresses. EPA made the determination that Bull trout are not in the area of the discharge, and Ute Ladies'-tresses is not found within streams and therefore will not be impacted. Mid Columbia River steelhead are within the area of discharge, and EPA made the determination that there will be no effect on steelhead because the proposed permit contains effluent limitations based on criteria that are designed to be protective of aquatic life.

B. ESSENTIAL FISH HABITAT

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH). A review of the Essential Fish Habitat documents shows that Chinook and Coho Salmon in the Lower Yakima River, and all streams, estuaries, marine waters, and other waterbodies historically accessible to Chinook and Coho in the Lower Yakima (see 73 FR 60991).

The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. EPA has prepared an EFH assessment which appears in Appendix D.

EPA has determined that issuance of this permit will not affect any EFH species in the Yakima River.

C. CWA § 401 CERTIFICATION

CWA § 401 requires a Certification that any permit requirements comply with the appropriate sections of the CWA, as well as any appropriate requirements of Tribal Law. See 33 USC § 1341(d). Since this facility discharges to tribal waters and the YN has not been approved for TAS from EPA under the CWA,

EPA is the certifying authority. EPA is taking comment on EPA's intent to certify this permit. See Appendix F for the draft certification.

D. ANTIDEGRADATION

EPA has completed an antidegradation review which is shown in Appendix G.

E. PERMIT EXPIRATION

The permit will expire five years from the effective date.

VI. REFERENCES

Ecology 2011. *Supplemental Guidance on Implementing Tier II Antidegradation* ("Washington Tier II Guidance"), 11-10-073 https://apps.ecology.wa.gov/publications/documents/1110073.pdf

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001. https://www3.epa.gov/npdes/pubs/owm0264.pdf

Water Pollution Control Federation. Subcommittee on Chlorination of Wastewater. *Chlorination of Wastewater.* Water Pollution Control Federation. Washington, D.C. 1976.

EPA. 2004. *Mercury Pollutant Minimization Program Guidance.* US EPA Region 5, NPDES Programs Branch https://www3.epa.gov/npdes/pubs/pt_region5_mercury_pmp_guidance.pdf

EPA. 2008. *Municipal Nutrient Removal Technology Reference Document.* US Environmental Protection Agency, Office of Wastewater Management, EPA/832/R-08-006. https://www.epa.gov/sites/default/files/2019-08/documents/municipal_nutrient_removal_technologies_vol_i.pdf

EPA. 2010. *NPDES Permit Writers' Manual.* Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001. September 2010. https://www3.epa.gov/npdes/pubs/pwm_2010.pdf

EPA, 2007. *EPA Model Pretreatment Ordinance*, Office of Wastewater Management/Permits Division, January 2007.

EPA, 2011. *Introduction to the National Pretreatment Program*, Office of Wastewater Management, EPA 833-B-11-011, June 2011.

EPA. 2014. Water Quality Standards Handbook Chapter 5: General Policies. Environmental Protection Agency. Office of Water. EPA 820-B-14-004. September 2014. https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter5.pdf

EPA, 2015. Case Studies on Implementing Low-Cost Modifications to Improve Nutrient Reduction at Wastewater Treatment Plants, Draft, 2015. https://www.epa.gov/sites/default/files/2015-08/documents/case_studies_on_implementing_low-cost_modification_to_improve_potw_nutrient_reduction-combined_508_-_august.pdf

Wise, D.R., Zuroske, M.L., Carpenter, K.D., and Kiesling, R.L. 2009. Assessment of eutrophication in the Lower Yakima River Basin, Washington, 2004–07: U.S. Geological Survey Scientific Investigations Report 2009–5078. 108 p. https://pubs.usgs.gov/sir/2009/5078/pdf/sir20095078.pdf

Appendix A. **Facility Information**

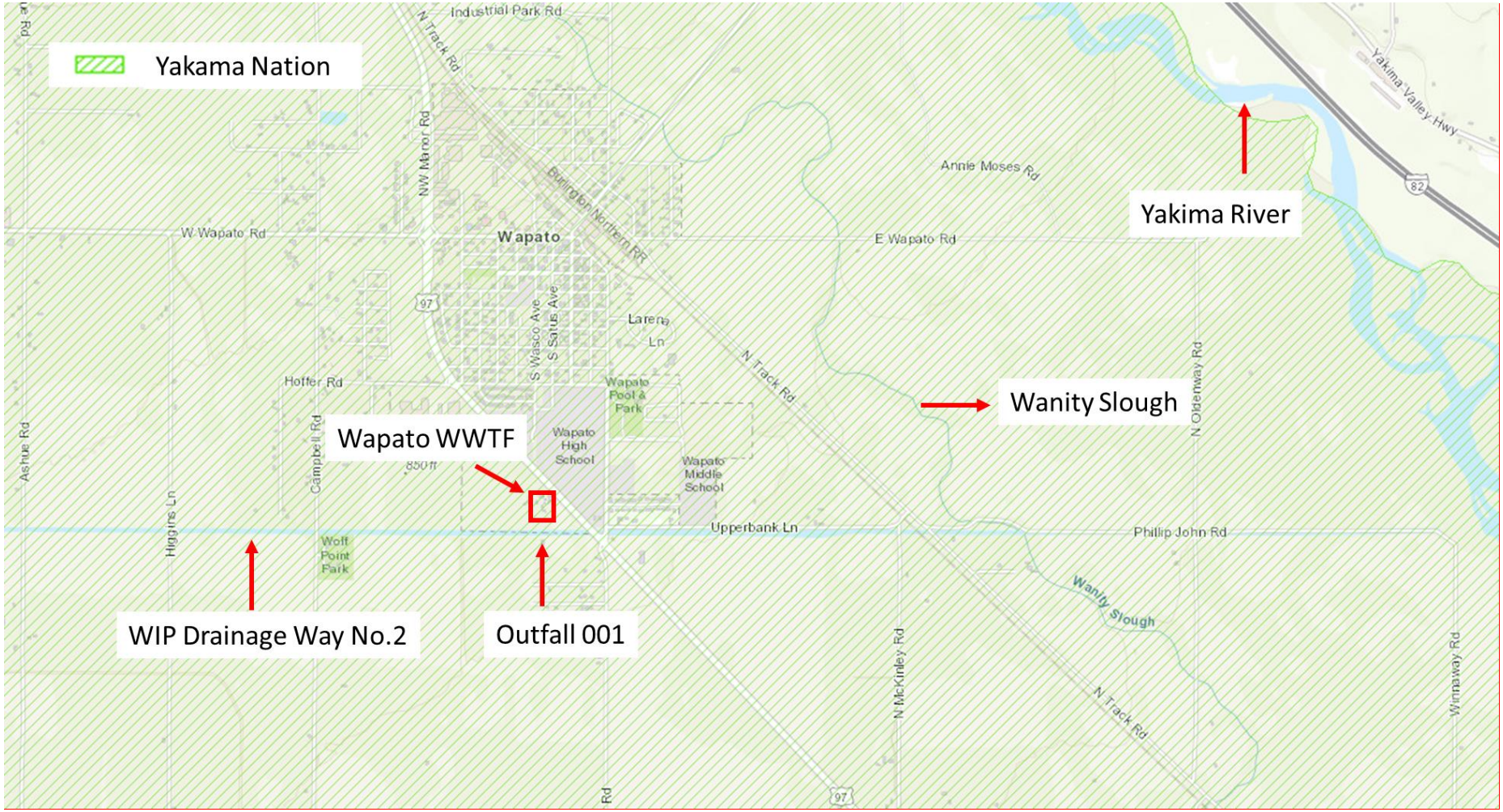

Figure 2 Wapato Area Map

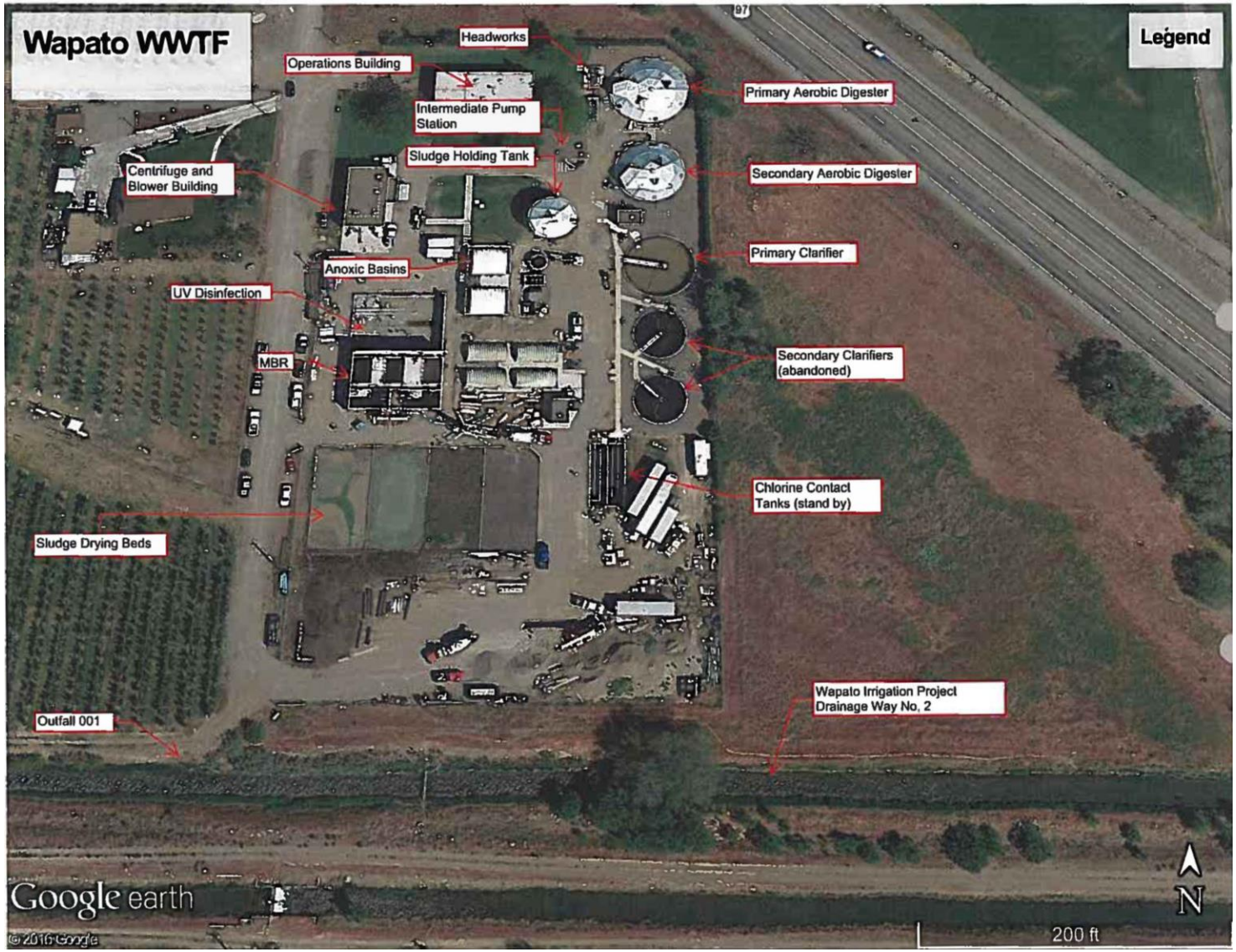

Figure 3 Facility Layout Diagram

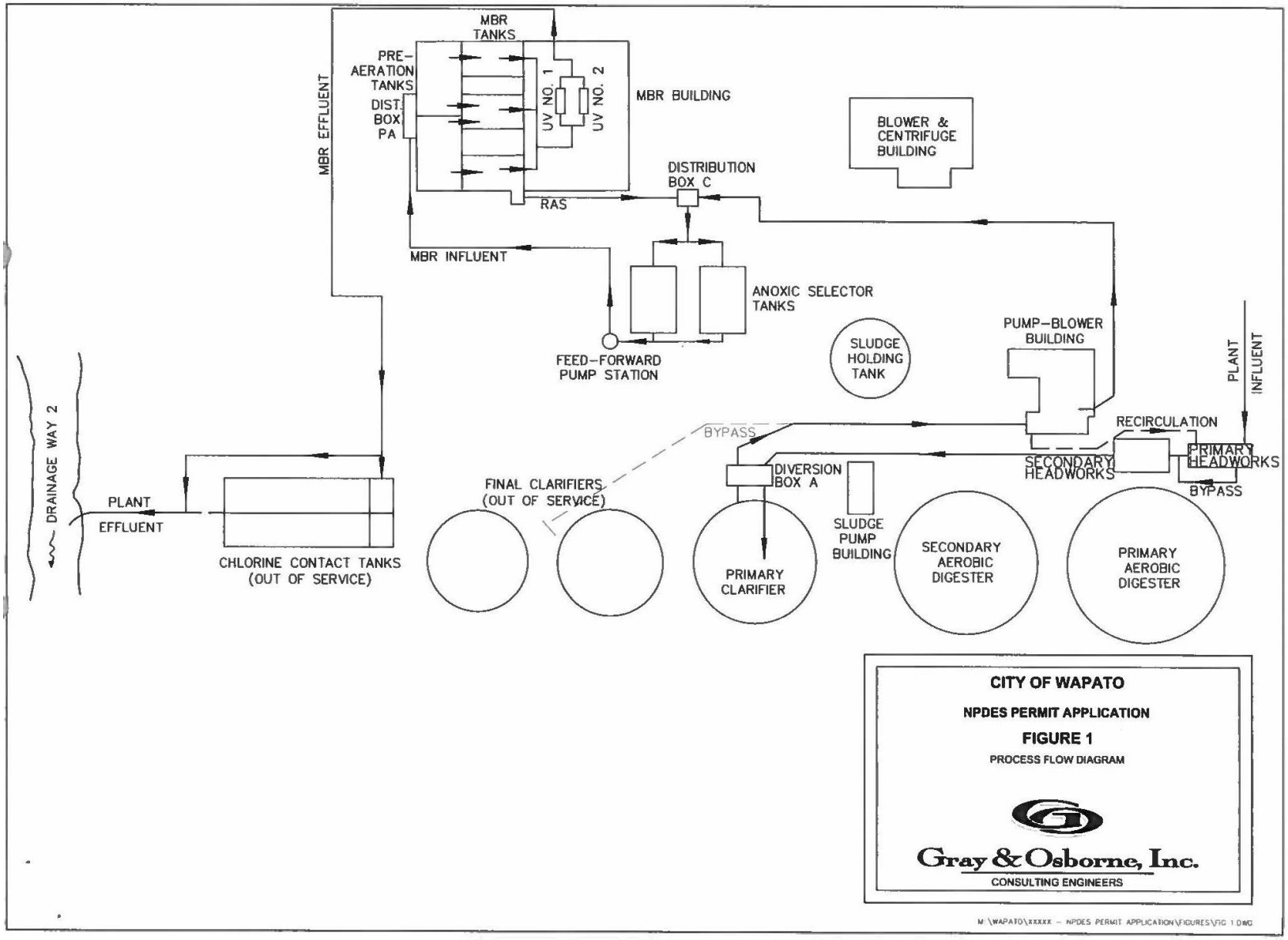

Figure 4 Process Flow Diagram

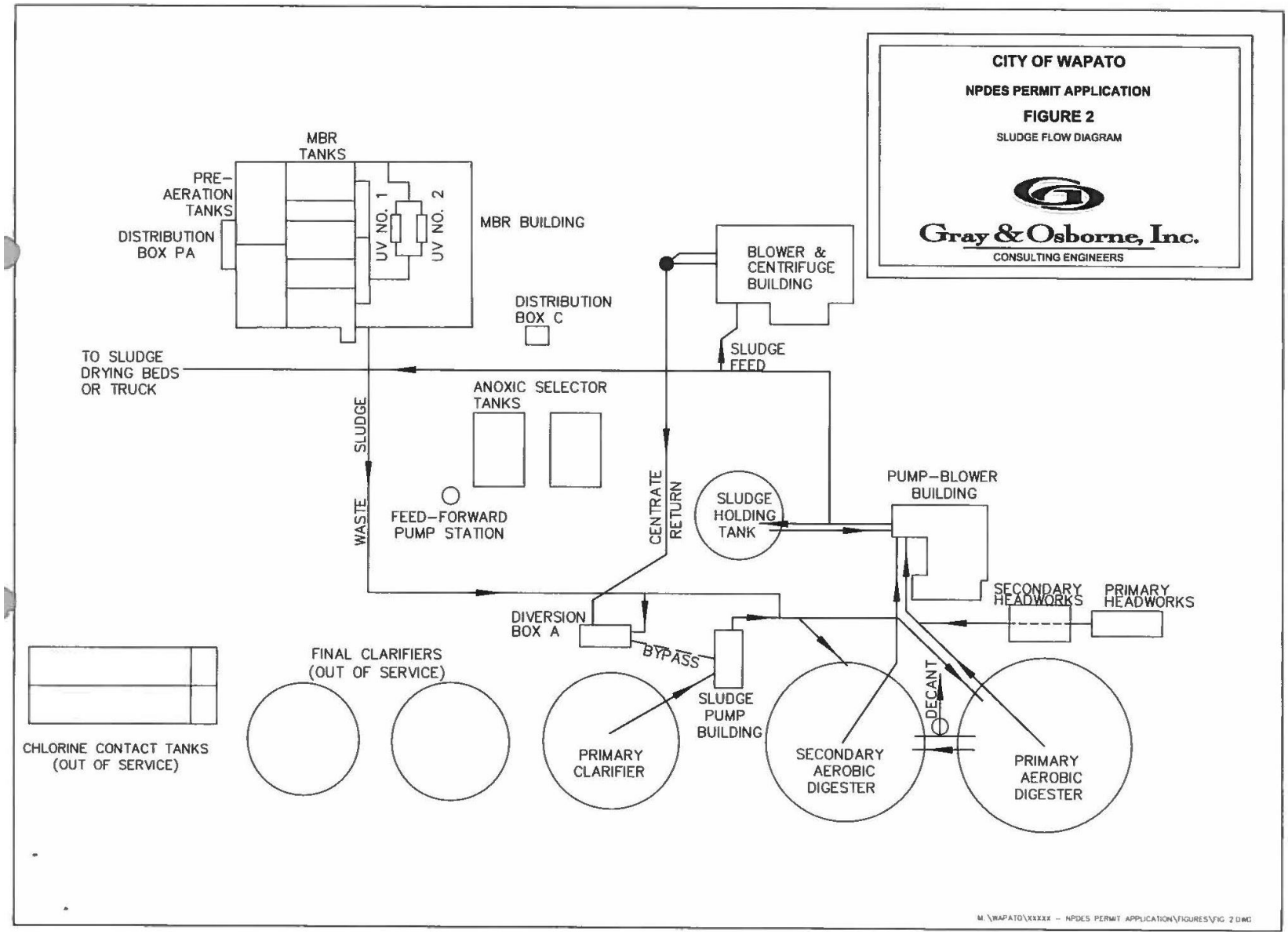

Figure 5 Sludge Flow Diagram

Appendix B. **Water Quality Data**

Treatment Plant Effluent Data

	BOD, 5-day, 20 deg. C					BOD, 5-day, percent removal	Cadmium, total recoverable	Copper, total recoverable			
	Effluent Gross		Raw Sewage Influent			Percent Removal	Effluent Gross	Effluent Gross			
	MO AVG		MO AVG	WKLY AVG		MO AV MN	MO MAX	DAILY MX		MO AVG	
Date	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Milligrams per Liter	Pounds per Day	Percent	Micrograms per Liter	Micrograms per Liter	Pounds per Day	Micrograms per Liter	Pounds per Day
4/1/2017	0.73	3.1	242	0.9	4.2	99.6	0.3	4.4	0.02	3.33	0.01
5/1/2017	0.73	3.3	248	1.2	5	98	0.3	4.3	0.02	3.2	0.01
6/1/2017	0.52	2.8	206	0.8	4	98	0.3	2.8	0.02	2.56	0.01
7/1/2017											
8/1/2017	0.24	1.2	160	0.4	2	99	0.3	2.3	0.01	2.13	0.01
9/1/2017	0.78	5	187	1.6	11	99	0.3	2.7	0.02	2.54	0.02
10/1/2017	0.93	4.8	229	1.6	8	98.8	0.3	3.3	0.02	2.74	0.01
11/1/2017	0.1	0.4	215	0.1	0.5	99.9	0.3	3.7	0.02	2.77	0.01
12/1/2017	0.1	0.4	233	0.1	0.4	99.9	0.3	2.6	0.01	2.45	0.01
1/1/2018											
2/1/2018	1.4	6.5	261	3.5	16	98.7	0.3	2	0.01	2	0.01
3/1/2018	1.08	4.7	253	3.3	14	98.7	0.3	3.4	0.02	3.35	0.01
4/1/2018	1.05	4.9	246	1.2	5.7	99	0.3	2	0.01	2	0.01
5/1/2018	2.2	9.3	226	4.3	18	98	0.3	2	0.01	2	0.0009
6/1/2018	0.94	4.6	230	1	5	99	0.3	2	0.01	2	0.01
7/1/2018	0.64	3	199	1.2	5.8	96.6	0.3	2	0.01	2	0.01
8/1/2018	2.16	10.8	244	5	29	98	0.3	2.4	0.02	2.3	0.013
9/1/2018	1	5.9	219	1.5	7.6	99	0.3	2	0.01	2	0.01
10/1/2018	1.3	6.5	230	2.1	9	99		10.2	0.04	6.43	0.025
11/1/2018	3.29	15.1	208	7.35	35	96.9	0.3	4.8	0.02	4.75	0.02
12/1/2018	0.8	2.6	217	1.7	7.5	99	0.3	2.9	0.008	2.2	0.008
1/1/2019	0.82	3.4	209	2	8.34	99	0.3	5.3	0.02	3.44	0.014
2/1/2019	3.97	18.6	229	5.9	28	98.3	0.3	4.6	0.02	3.08	0.01
3/1/2019	1.33	6.6	251	2.1	10.5	99	0.3	2	0.01	2	0.01
4/1/2019	1.51	7.3	236	2.3	11.2	99	0.3	2	0.01	2	0.01
5/1/2019	1.86	8.4	230	3	14	98.8	0.3	6.6	0.03	2.9	0.01
6/1/2019	1.13	5.6	188	1.6	7.9	99		2	0.01	2	0.01
7/1/2019	2.37	10.1	203	4.5	23	98	0.3	2.9	0.002	2.52	0.00125
8/1/2019	1.73	9.5	208	4.2	22	98	0.3	2	0.012	2	0.0106
9/1/2019	3.15	19.8	218	4.35	24.4	98	0.3	3	0.02	2.33	0.013
10/1/2019	2.34	13.3	219	3.09	22	98.6	0.3	2.1	0.014	2.04	0.01

11/1/2019	0.9	3.6	215	1.8	6.67	99	0.3	2.3	0.001	2.09	0.001
12/1/2019	2.45	9.2	219	3.21	11.97	98.6	0.3	2	0.007	2	0.0065
1/1/2020	3.41	14.8	222	5.1	24	97.8	0.3	2	0.01	2	0.01
2/1/2020	2.65	13.4	214	3.7	19	98	0.3	2	0.01	2	0.01
3/1/2020	0.93	3.5	231	1.2	6	99	0.3	2	0.01	2	0.01
4/1/2020	1.25	6.8	241	2.61	13	98.8	0.3	2	0.01	2	0.0097
5/1/2020	2.31	11.9	249	3.9	19.5	98	0.3	2	0.01	2	0.01
6/1/2020	1.44	8.4	231	1.8	11.26	99.2	0.3	2	0.01	2	0.01
7/1/2020	4.48	28.5	230	5.16	33.4	98	0.3	2	0.01	2	0.01
8/1/2020	1.37	10.4	230	1.5	12.2	99.3	0.3	2	0.016	2	0.014
9/1/2020	1.1	8.7	141	1.98	15	98.6	0.3	2	0.02	2	0.02
10/1/2020	0.74	4.1	174	2.13	10.4	98.9	0.3	2	0.02	2	0.0125
11/1/2020	0.263	1.2	214	0.45	2.14	99.9	0.03	2	0.01	2	0.01
12/1/2020	1.5	5.9	244	2.55	10.6	98.9	0.3	2	0.01	2	0.008
1/1/2021	1.3	5.5	237	1.8	6.8	99.1	0.3	2	0.01	2	0.01
2/1/2021	1.77	8.2	223	2.9	12.5	98.6	0.3	2	0.01	2	0.01
3/1/2021	3.36	16.1	242	4.5	21	98.2	0.3	2	0.01	2	0.01
4/1/2021	2.45	11.7	231	4.17	18.4	98	0.3	2	0.01	2	0.0097
5/1/2021	1.76	8.4	238	2.7	13.4	98.9	0.3	2	0.01	2	0.01
6/1/2021	3.87	20.2	233	4.56	23	98	0.3	2	0.01	2	0.01
7/1/2021	3.5	17.9	224	7.3	35.4	97	0.9	2.4	0.01	2.13	0.01
8/1/2021	4.16	23.8	207	5.88	32.9	97.1	0.03	2	0.013	2	0.0115
9/1/2021	1.21	5.6	208	1.7	7.8	99	0.4	2	0.01	2	0.0092
10/1/2021	0.9	4.7	242	1.8	8.7	99	0.3	2	0.012	2	0.01
11/1/2021	1.05	4.8	257	1.71	8.24	99.3	0.4	2	0.01	2	0.01
12/1/2021	2.36	11.5	214	3.3	15.7	98.6	0.03	0.9	0.004	0.9	0.004
1/1/2022	1.62	7.2	225	2.28	10.4	99	0.3	2	0.01	1.5	0.008
2/1/2022	2.36	11	236	3.3	14.9	98	0.3	4	0.02	2.31	0.01
3/1/2022											
Average	**1.696**	**8.500**	**223.088**	**2.752**	**13.742**	**98.589**	**0.300**	**2.665**	**0.013**	**2.316**	**0.010**
Minimum	**0.1**	**0.4**	**141**	**0.1**	**0.4**	**96.6**	**0.03**	**0.9**	**0.001**	**0.9**	**0.0009**
Maximum	**4.48**	**28.5**	**261**	**7.35**	**35.4**	**99.9**	**0.9**	**10.2**	**0.04**	**6.43**	**0.025**
Count	**57**	**57**	**57**	**57**	**57**	**57**	**55**	**57**	**57**	**57**	**57**
Std Dev	**1.07262576**	**5.87513344**	**22.31063054**	**1.68678456**	**8.79597142**	**0.699544767**	**0.104333223**	**1.427240157**	**0.006537766**	**0.779653584**	**0.003925602**
CV	**0.63250332**	**0.69119217**	**0.100008331**	**0.61286793**	**0.64005818**	**0.007095532**	**0.347988313**	**0.535567406**	**0.490978463**	**0.3366941**	**0.379349479**
95th	**3.989**	**20.56**	**253.4**	**6.04**	**33.56**	**99.9**	**0.4**	**5.43**	**0.021**	**3.571**	**0.02**
5th	**0.226**	**1.12**	**172.6**	**0.37**	**1.85**	**96.99**	**0.03**	**2**	**0.0038**	**1.95**	**0.001225**
90th	**3.428**	**18.04**	**248.2**	**5.112**	**28.2**	**99.3**	**0.3**	**4.44**	**0.02**	**3.226**	**0.014**
50th	**1.37**	**6.8**	**229**	**2.28**	**11.26**	**98.8**	**0.3**	**2.00**	**0.01**	**2**	**0.01**

	E. coli, MTEC-MF		Flow, in conduit or thru treatment plant		Mercury, total recoverable	Nitrogen, ammonia total [as N]			
	Effluent Gross		Effluent Gross		Effluent Gross	Effluent Gross			
	DAILY MX	MO AVG	DAILY MX	MO AVG	MO MAX	DAILY MX		MO AVG	
Date	Number per 100 Milliliters	Number per 100 Milliliters	Million Gallons per Day	Million Gallons per Day	Micrograms per Liter	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day
4/1/2017	1	1	0.546	0.495		1.05	4.9	0.6	2.7
5/1/2017	1	1	0.587	0.492	0.0011	0.886	3.7	0.62	2.7
6/1/2017	1	1	0.714	0.612		1.02	5.4	0.7	3.4
7/1/2017									
8/1/2017	1	1	0.889	0.715		1.2	6.9	0.65	3.8
9/1/2017	1	1	0.838	0.73		0.862	5.7	0.26	1.8
10/1/2017	1	1	0.643	0.55	0.0018	0.461	2.3	0.16	0.8
11/1/2017	1	1	0.584	0.495		0.921	3.7	0.24	1
12/1/2017	1	1	0.709	0.512		0.107	0.4	0.07	0.3
1/1/2018									
2/1/2018	1	1	0.575	0.518		0.192	0.9	0.12	0.6
3/1/2018	1	1	0.577	0.51		0.675	3.1	0.21	0.9
4/1/2018	1	1	0.601	0.507	0.018	0.172	0.4	0.08	0.34
5/1/2018	2	1.15	0.577	0.47		0.08	0.3	0.03	0.1
6/1/2018	2	1.15	0.798	0.594	0.0018	0.04	0.2	0.03	0.12
7/1/2018	2	1.15	0.699	0.597	0.0069	0.08	0.4	0.06	0.3
8/1/2018	2	1.15	0.854	0.656		0.15	0.8	0.1	0.56
9/1/2018	2	1.15	0.883	0.705		0.79	5.3	0.34	2.2
10/1/2018	2	1.15	0.621	0.535		0.181	0.8	0.09	0.4
11/1/2018	1	1	0.593	0.508		0.07	0.32	0.05	0.21
12/1/2018	2	1.15	0.576	0.449	0.00014	0.77	0.3	0.46	0.22
1/1/2019	2	1.15	0.56	0.489		0.05	0.195	0.04	0.162
2/1/2019	3	1.43	0.736	0.502		0.984	5.2	0.41	2.03
3/1/2019	2	1.32	0.613	0.514	0.011	0.477	2.4	0.19	0.9
4/1/2019	2	1.32	0.62	0.545		0.421	2	0.33	1.55
5/1/2019	2	1.52	0.608	0.524		0.1	0.1	0.07	0.3
6/1/2019	2	1.68	0.686	0.573	0.0019	0.128	0.5	0.08	0.325
7/1/2019	2	1.74	0.716	0.613		0.067	0.3	0.06	0.275
8/1/2019	1	1	0.787	0.682	0.0056	0.08	0.4	0.05	0.26
9/1/2019	2	1.32	0.919	0.769		0.072	0.5	0.05	0.3
10/1/2019	1	1	0.933	0.644		0.05	0.28	0.04	0.23

11/1/2019	2	1.32	0.769	0.484	0.00098	0.044	0.181	0.03	0.147
12/1/2019	2	1.41	0.505	0.436		0.044	0.171	0.04	0.146
1/1/2020	2	1.32	0.635	0.561		0.057	0.28	0.04	0.168
2/1/2020	1	1	0.624	0.553	0.001	0.033	0.17	0.02	0.09
3/1/2020	2	1.322	0.623	0.556		0.152	0.188	0.06	0.123
4/1/2020	2	1.32	0.662	0.573		0.443	2.2	0.32	0.15
5/1/2020	2	1.52	0.665	0.59	0.0011	0.09	0.4	0.06	0.3
6/1/2020	2	1.32	0.754	0.659		0.045	0.28	0.04	0.23
7/1/2020	2	1.52	0.788	0.729		0.044	0.28	0.03	0.21
8/1/2020	2	1.41	1.02	0.867	0.0011	0.4	2.8	0.11	0.78
9/1/2020	2	1.41	1.02	0.922		0.044	0.4	0.04	0.3
10/1/2020	2	1.74	0.914	0.698		0.093	0.65	0.04	0.264
11/1/2020	2	1.68	0.602	0.536	0.0011	0.061	0.28	0.04	0.19
12/1/2020	2	1.52	0.695	0.513		0.113	0.5	0.09	0.37
1/1/2021	3	1.89	0.562	0.503		0.049	0.2	0.04	0.15
2/1/2021	2	1.41	0.63	0.522		0.042	0.2	0.02	0.11
3/1/2021	2	1.15	0.636	0.541	0.0013	0.861	4.1	0.7	3.3
4/1/2021	2	1.52	0.792	0.562		0.063	0.3	0.06	0.3
5/1/2021	2	1.41	0.613	0.532		0.06	0.3	0.04	0.19
6/1/2021	1	1	0.663	0.594		0.512	2.7	0.34	1.7
7/1/2021	2	1.52	0.7	0.604	0.0011	0.081	0.4	0.06	0.3
8/1/2021	2	1.41	0.767	0.652		0.046	0.26	0.04	0.23
9/1/2021	2	1.15	0.924	0.732	0.0015	0.061	0.3	0.04	0.19
10/1/2021	2	1.15	0.731	0.609		0.047	0.2	0.04	0.2
11/1/2021	2	1.41	0.629	0.519	0.0011	0.048	0.2	0.04	0.185
12/1/2021	2	1.32	0.569	0.475		0.089	0.4	0.06	0.27
1/1/2022	2	1.32	0.658	0.529		0.082	0.4	0.06	0.3
2/1/2022	1	1	0.624	0.538		0.067	0.3	0.05	0.225
3/1/2022									
Average	**1.737**	**1.263**	**0.699**	**0.581**	**0.003**	**0.279**	**1.346**	**0.153**	**0.700**
Minimum	**1**	**1**	**0.505**	**0.436**	**0.00014**	**0.033**	**0.1**	**0.02**	**0.09**
Maximum	**3**	**1.89**	**1.02**	**0.922**	**0.018**	**1.2**	**6.9**	**0.700**	**3.8**
Count	**57**	**57**	**57**	**57**	**18**	**57**	**57**	**57**	**57**
Std Dev	**0.513888369**	**0.233976415**	**0.124276729**	**0.099000418**	**0.004453369**	**0.33654701**	**1.77796434**	**0.187357743**	**0.916897113**
CV	**0.295875122**	**0.185226183**	**0.177912738**	**0.170515013**	**1.369799192**	**1.205958355**	**1.320700689**	**1.221898326**	**1.309853019**
95th	**2.1**	**1.74**	**0.9417**	**0.7788**	**#NUM!**	**1.023**	**5.43**	**0.6550**	**3.31**
5th	**1**	**1**	**0.5586**	**0.4679**	**#NUM!**	**0.0418**	**0.1709**	**0.029**	**0.109**
90th	**2**	**1.552**	**0.915**	**0.7292**	**0.0117**	**0.893**	**4.96**	**0.488**	**2.3**
50th	**2**	**1.32**	**0.662**	**0.55**	**0.0012**	**0.089**	**0.4**	**0.060**	**0.3**

	Nitrogen, total [as N]	Oxygen, dissolved [DO]	pH		Phosphorus, total [as P]	Solids, suspended percent removal	Solids, total suspended			
	Effluent Gross	Effluent Gross	Effluent Gross		Effluent Gross	Percent Removal	Effluent Gross		Raw Sewage Influent	
	MO MAX	MO MIN	INST MAX	INST MIN	MO MAX	MO AV MN	MO AVG		MO AVG	WKLY AVG
Date	Milligrams per Liter	Milligrams per Liter	Standard Units	Standard Units	Milligrams per Liter	Percent	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Milligrams per Liter
4/1/2017	3.85	7.9	7.6	6.9	5.13	99	1.75	8.25	223.5	2
5/1/2017	3.26	6.2	7.5	7.0	5.25	99	1.5	7	258.3	2
6/1/2017	2.42	6.1	7.5	6.7	3.19	99	2.2	11.4	223.8	3
7/1/2017										
8/1/2017	0.3	5.8	7.8	7.0	3.71	99	1	7	226.6	1
9/1/2017	10.1	6.2	7.5	7.2	3.9	97	3	18.3	220.5	8
10/1/2017	10.3	6.6	7.7	7.2	3.88	98.6	1.5	7.5	227	3
11/1/2017	10.2	7.7	7.7	6.9		98.7	2.2	9.4	211.2	3
12/1/2017	4.9	7.9	7.5	7.0	3.52	99	1.25	5.75	226.5	2
1/1/2018										
2/1/2018	3.4	7.9	7.5	7.0	5.36	98	1.75	8.25	265.5	3
3/1/2018	2.28	7.8	7.7	7.1	3.87	99	1.6	7.4	283.6	2
4/1/2018	0.9	7.1	7.3	6.9	3.07	98	3.3	14.4	377	5
5/1/2018	1.28	7.2	7.4	7.0	2.53	96.2	4.4	19.8	289	19.8
6/1/2018	2.1	7.1	7.4	7.1	7.1	98.4	1.8	9.6	247	4
7/1/2018	2.3	6.1	7.7	7.0	1.32	99.3	1.3	7	278	2
8/1/2018	2.9	6.8	7.8	6.9	3.17	99	1.9	10.3	271	2.7
9/1/2018	7.48	7.2	7.4	6.8	2.71	98	3.9	24	413	6.8
10/1/2018		7	7.6	7.0		99.2	1.5	7.08	235	2.8
11/1/2018	21.5	7.3	7.4	6.9	3.97	99.2	2.08	9.48	439.6	3.45
12/1/2018	10.6	7.4	7.4	7.0	7.59	99	1.49	6.28	283	2.6
1/1/2019	4.04	8.3	7.5	7.0	3.3	94.7	1.59	6.71	365.8	2.13
2/1/2019	2.88	7.2	7.8	7.0	2.43	98.8	2.77	12.6	316	3.5
3/1/2019	2.44	7.4	7.4	7.0	3.68	98	4.5	21.7	271.5	7
4/1/2019	2.96	6.8	7.9	7.0	0.76	98.8	2.2	10.58	291	3.3
5/1/2019	3.3	7.4	7.4	7.0	0.28	98.6	3.14	14	375	5
6/1/2019		8	7.4	7.0		98	2.6	12.7	375	5
7/1/2019	8.62	6.6	7.8	7.0	21.1	98	1.45	7.54	313	2.6
8/1/2019	5.29	8	7.9	7.0	3.67	98	3.16	18.9	384	8.8
9/1/2019	5.78	6.8	7.7	7.1	2.85	99.5	1.49	9.83	354.5	2.2
10/1/2019	5.42	7.1	7.4	7.0	3.22	98.6	1.6	9.56	485.6	2.22

11/1/2019	5.4	8	7.8	6.7	3.2	97.8	2.97	12.99	273.5	5
12/1/2019	3.4	6.1	7.4	7.1	2.36	99.4	1.76	6.7	464	2.5
1/1/2020	2.95	7.1	7.5	7.0	1.43	99.1	1.5	7.26	429.8	2.22
2/1/2020	2.99	7.3	7.4	6.9	0.66	99	1.36	6.73	308.5	2.2
3/1/2020	2.91	7.5	7.3	7.0	0.62	98	2.31	11.26	329.3	4.08
4/1/2020	2.48	6.6	7.3	7.0	2.06	98.6	1.94	9.69	428.1	2.5
5/1/2020	1.9	7.1	7.4	7.0	0.35	98	1.69	8.77	235	2.4
6/1/2020	1.81	6.9	7.2	6.9	0.32	99.4	1.85	10.52	505.3	2.5
7/1/2020	1.91	8	7.2	7.0	1.19	99.3	1.85	11.86	380.6	2.66
8/1/2020	2.37	7.6	7.4	7.0	1.35	98.8	2.3	18.05	310	4.2
9/1/2020	3.48	7	7.4	7.0	0.28	99	2.1	17.4	291.3	2.5
10/1/2020	4.81	7.2	7.4	7.0	4.27	97.9	2.6	16.01	204.6	4
11/1/2020	3.8	8	7.4	7.0	3.28	99.3	2.32	10.92	357.1	3.33
12/1/2020	0.5	7.7	7.2	7.0	2.68	98	3.04	11.9	243	5
1/1/2021	3.6	8.8	7.3	7.0	2.18	98.8	2.25	9.25	382.5	3.6
2/1/2021	1.84	7.9	7.4	7.0	2.16	98	3.15	14.9	259	4.3
3/1/2021	1.45	7.6	7.6	7.1	0.42	99.4	1.75	8.49	499.3	3.33
4/1/2021	2.7	7	7.6	7.0	2.73	99.2	1.75	8.64	342.2	2.35
5/1/2021	2.72	6.8	8.1	6.8	0.99	97.5	3.9	18.7	340	8
6/1/2021	3.82	7.1	7.6	7.0	2.63	92.5	10.3	53.65	361.4	30
7/1/2021	2.4	7.9	7.6	7.0	0.36	99	2.8	14.5	424	5
8/1/2021	3.36	8.1	7.7	6.9	0.76	98.2	2.4	14.05	307	3.53
9/1/2021	1.02	7.8	7.6	7.1	0.12	99	1.86	8.68	254	3.2
10/1/2021	0.58	7.9	7.2	6.8	0.36	99	1.8	8.5	282.3	3
11/1/2021	2.88	8.1	7.4	6.8	2.15	98.7	2.12	9.57	316	2.5
12/1/2021	2.1	8.1	7.2	6.9	1.28	98.7	1.86	9.08	330.4	3
1/1/2022	6.24	7.9	7.2	7.0	2.15	98.8	7.2	8.68	371	3.3
2/1/2022	5.06	8	7.2	7.0	0.67	99	2.1	9.6	281.8	3.2
3/1/2022										
Average	**4.023**	**7.333**	**7.502**	**6.977**	**2.844**	**98.439**	**2.434**	**11.906**	**320.026**	**4.268**
Minimum	**0.3**	**5.8**	**7.2**	**6.7**	**0.12**	**92.5**	**1**	**5.75**	**204.6**	**1**
Maximum	**21.5**	**8.8**	**8.1**	**7.2**	**21.1**	**99.5**	**10.3**	**53.65**	**505.3**	**30**
Count	**55**	**57**	**57**	**57**	**54**	**57**	**57**	**57**	**57**	**57**
Std Dev	**3.418979143**	**0.646266832**	**0.20561523**	**0.09736447**	**3.024926333**	**1.13751875**	**1.45742256**	**6.989**	**77.330**	**4.354**
CV	**0.849800492**	**0.088127295**	**0.02740895**	**0.01395468**	**1.06365841**	**0.011555617**	**0.598724943**	**0.587**	**0.242**	**1.020**
95th	**10.36**	**8.12**	**7.9**	**7.11**	**7.2225**	**99.4**	**4.77**	**21.93**	**486.97**	**9.9**
5th	**0.564**	**6.1**	**7.2**	**6.79**	**0.28**	**96.05**	**1.295**	**6.658**	**219.57**	**2**
90th	**9.212**	**8.02**	**7.8**	**7.1**	**5.19**	**99.3**	**3.9**	**18.74**	**431.76**	**7.2**
50th	**2.96**	**7.3**	**7.4**	**7**	**2.58**	**98.8**	**2.08**	**9.6**	**308.5**	**3**

		Temperature, water deg. centigrade	Toxicity [acute], Ceriodaphnia dubia		Pimephales promelas [Fathead Minnow]		Zinc, total recoverable			
		Effluent Gross	See Comments		Toxicity [acute],		Effluent Gross			
		DAILY MX	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX		MO AVG	
Date	Pounds per Day	Degrees Centigrade	Toxicity Units	Toxicity Units	Toxicity Units	Toxicity Units	Micrograms per Liter	Pounds per Day	Micrograms per Liter	Pounds per Day
4/1/2017	10	18	1	1	1	1	126	0.6	94.25	0.4
5/1/2017	11	22					77.5	0.3	69.88	0.3
6/1/2017	18	23	1	1	1	1	94.5	0.6	69.2	0.4
7/1/2017										
8/1/2017	9	25					94	0.5	67.9	0.4
9/1/2017	48	23					58	0.4	57.7	0.4
10/1/2017	15	20	1	1	1	1	65.5	0.3	61.63	0.3
11/1/2017	14	18					78.5	0.4	71.9	0.3
12/1/2017	9	15	1	1	1	1	74.5	0.4	65	0.3
1/1/2018										
2/1/2018	14	15					76.5	0.4	63.75	0.3
3/1/2018	10	16	1	1	1	1	114	0.5	72.1	0.3
4/1/2018	21	20					73	0.4	62.4	0.325
5/1/2018	53	20					148	0.7	117.6	0.5
6/1/2018	22	22			1	1	126	0.6	67.4	0.3
7/1/2018	12	25	1	1			58	0.3	56	0.27
8/1/2018	15.7	26					63.5	0.3	53.2	0.3
9/1/2018	42	22					53	0.3	45.1	0.25
10/1/2018	13	20	1	1	1	1	61.5	0.3	57	0.25
11/1/2018	15.8	20					189	0.8	136.5	0.6
12/1/2018	11.6	16					105	3.9	74	2.88
1/1/2019	9.3	14					91.5	3.96	63.16	2.6
2/1/2019	15.4	14					154	0.6	100.5	0.44
3/1/2019	34	15					97	4.8	77.3	3.8
4/1/2019	15.6	19					168	0.8	88.4	0.42
5/1/2019	24	21					75	3.2	63	2.8
6/1/2019	24	21					62	0.33	60.6	0.31
7/1/2019	13.7	23					68	0.03	51.75	0.0225
8/1/2019	56	25					51	0.3	43.9	0.026
9/1/2019	15	23					42.4	0.3	39.53	0.26
10/1/2019	16.27	20					63.5	0.305	45.76	0.256

11/1/2019	24.5	18					62.5	0.03	55.25	0.225
12/1/2019	10.4	15					87	0.3	70.7	0.24
1/1/2020	11.39	15					106	0.5	61.9	0.3
2/1/2020	10.7	16					49.4	0.2	45.8	0.2
3/1/2020	20	17					51.1	0.245	48.96	0.235
4/1/2020	12.62	18					53.5	0.25	41.64	0.2
5/1/2020	12.3	17					54.5	0.3	49.4	0.25
6/1/2020	13	22					62.5	0.39	49.3	0.27
7/1/2020	16.8	23					54	0.33	48.16	0.29
8/1/2020	34.7	24					58.5	0.48	42.1	0.33
9/1/2020	20	21					31.6	0.26	30.7	0.25
10/1/2020	26.9	21.8					51.5	0.36	45.8	0.3
11/1/2020	15.42	18					120	0.57	74.1	0.3
12/1/2020	17	18.1					124	0.5	90.1	0.36
1/1/2021	13.5	15.1					94.5	0.4	82.6	0.325
2/1/2021	21	14.5					74	0.36	61.25	0.29
3/1/2021	16.2	17					64	0.33	56.7	0.275
4/1/2021	12	16.5					128	0.6	96	0.47
5/1/2021	39.6	21.9					81	0.4	67	0.35
6/1/2021	156.6	24.7					56.5	0.3	49.6	0.25
7/1/2021	26	24.8					62	0.3	52.6	0.3
8/1/2021	19.93	27					48.8	0.27	34	0.195
9/1/2021	14.7	22					62.5	0.3	44.34	0.22
10/1/2021	16	19					75.5	0.36	56.5	0.29
11/1/2021	11.07	18	1	1	1	1	69	0.3	55	0.25
12/1/2021	15	16.8					50	0.2	45.06	0.2
1/1/2022	15.3	17.1					51	0.2	50	0.2
2/1/2022	14	14.4					60	0.3	50.25	0.23
3/1/2022										
Average	**21.474**	**19.539**	**1.000**	**1.000**	**1.000**	**1.000**	**79.847**	**0.631**	**62.302**	**0.484**
Minimum	**9**	**14**	**1**	**1**	**1**	**1**	**31.6**	**0.03**	**30.7**	**0.0225**
Maximum	**156.6**	**27**	**1**	**1**	**1**	**1**	**189**	**4.8**	**136.5**	**3.8**
Count	**57**	**57**	**8**	**8**	**8**	**8**	**57**	**57**	**57**	**57**
Std Dev	**20.937**	**3.509**	**0.000**	**0.000**	**0.000**	**0.000**	**32.912**	**0.941**	**19.622**	**0.713**
CV	**0.975**	**0.180**	**0.000**	**0.000**	**0.000**	**0.000**	**0.412**	**1.491**	**0.315**	**1.473**
95th	**53.3**	**25.1**	**1**	**1**	**1**	**1**	**155.4**	**3.906**	**102.21**	**2.808**
5th	**9.27**	**14.36**	**1**	**1**	**1**	**1**	**48.16**	**0.183**	**38.977**	**0.1781**
90th	**40.08**	**24.84**	**1**	**1**	**1**	**1**	**126.4**	**0.8**	**90.93**	**0.52**
50th	**15.42**	**20**	**1**	**1**	**1**	**1**	**68**	**0.36**	**57.7**	**0.3**

Receiving Water Data

Upstream

	Receiving water (cfs)	BOD (mg/L)	TSS (mg/L)	DO (mg/L)	Phosphorus (mg/L)	Nitrogen (mg/L)	Temp (°C)	PH (S.U)	Hardness (mg/L)
Average	121.5	2.0	9.3	9.2	0.07	0.57	18.1	7.9	45.5
Minimum	20.0	0.1	1.0	8.0	0.05	0.10	9.1	7.0	24.0
5th percentile	29.0	0.5	1.0	8.1	0.07	0.15	12.5	7.2	24.0
95th percentile	205.0	5.7	21.0	10.6	0.09	1.43	23.1	9.1	77.8
Count	660	130	53	132	35	35	659	69	34

Downstream

	Receiving water (cfs)	BOD (mg/L)	TSS (mg/L)	DO (mg/L)	Phosphorus (mg/L)	Nitrogen (mg/L)	Temp (°C)	PH (S.U)	Hardness (mg/L)
Average	121.5	1.8	8.4	9.3	0.11	0.57	18.0	7.7	45.8
Minimum	20.0	0.1	1.0	8.0	0.07	0.16	9.1	6.4	28.0
5th percentile	28.5	0.2	1.0	8.2	0.07	0.17	12.7	7.2	29.4
95th percentile	205.0	5.4	22.8	10.8	0.44	1.26	22.8	8.8	77.3
Count	659	130	44	138	34	35	660	64	33

Appendix C. **Reasonable Potential and WQBEL Formulae**

A. Reasonable Potential Analysis

EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a WQBEL must be included in the permit.

1. Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_d Q_d = C_e Q_e + C_u Q_u \qquad \textit{Equation 1}$$

where,

C_d	=	Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
C_e	=	Maximum projected effluent concentration
C_u	=	95th percentile measured receiving water upstream concentration
Q_d	=	Receiving water flow rate downstream of the effluent discharge = Q_e+Q_u
Q_e	=	Effluent flow rate (set equal to the design flow of the WWTP)
Q_u	=	Receiving water low flow rate upstream of the discharge (1Q10, 7Q10 or 30B3)

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times Q_u}{Q_e + Q_u} \qquad \textit{Equation 2}$$

The above form of the equation assumes that the discharge is rapidly and completely mixed with 100% of the receiving stream.

If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times (Q_u \times \%MZ)}{Q_e + (Q_u \times \%MZ)} \qquad \textit{Equation 3}$$

Where:

% MZ = the percentage of the receiving water flow available for mixing.

If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \qquad \textit{Equation 4}$$

A dilution factor (D) can be introduced to describe the allowable mixing. Where the dilution factor is expressed as:

$$D = \frac{Q_e + Q_u \times \%MZ}{Q_e} \qquad \textit{Equation 5}$$

After the dilution factor simplification, the mass balance equation becomes:

$$C_d = \frac{C_e - C_u}{D} + C_u \qquad \textit{Equation 6}$$

If the criterion is expressed as dissolved metal, the effluent concentrations are measured in total recoverable metal and must be converted to dissolved metal as follows:

$$C_d = \frac{CF \times C_e - C_u}{D} + C_u \qquad \textit{Equation 7}$$

Where C_e is expressed as total recoverable metal, C_u and C_d are expressed as dissolved metal, and CF is a conversion factor used to convert between dissolved and total recoverable metal.

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate wasteload allocations.

2. Maximum Projected Effluent Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, EPA's Technical Support Document for Water Quality-based Toxics Controls (TSD, 1991) recommends using the maximum projected effluent concentration (Ce) in the mass balance calculation (see equation 3, page C-5). To determine the maximum projected effluent concentration (Ce) EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV for each pollutant parameter has been calculated, the reasonable potential multiplier (RPM) used to derive the maximum projected effluent concentration (Ce) can be calculated using the following equations:

First, the percentile represented by the highest reported concentration is calculated.

$$p_n = (1 - \text{confidence level})^{1/n} \qquad \textit{Equation 8}$$

where,

p_n = the percentile represented by the highest reported concentration

n = the number of samples

confidence level = 99% = 0.99

and

$$RPM = \frac{C_{99}}{C_{P_n}} = \frac{e^{Z_{99} \times \sigma - 0.5 \times \sigma^2}}{e^{Z_{P_n} \times \sigma - 0.5 \times \sigma^2}} \quad \textit{Equation 9}$$

Where,

σ^2	=	$\ln(CV^2 + 1)$
Z_{99}	=	2.326 (z-score for the 99th percentile)
Z_{Pn}	=	z-score for the P_n percentile (inverse of the normal cumulative distribution function at a given percentile)
CV	=	coefficient of variation (standard deviation ÷ mean)

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

$$C_e = (RPM)(MRC) \quad \textit{Equation 10}$$

where MRC = Maximum Reported Concentration

3. Maximum Projected Effluent Concentration at the Edge of the Mixing Zone

   Once the maximum projected effluent concentration is calculated, the maximum projected effluent concentration at the edge of the acute and chronic mixing zones is calculated using the mass balance equations presented previously.

4. Reasonable Potential

   The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the most stringent criterion for that pollutant.

B. WQBEL Calculations

1. Calculate the Wasteload Allocations (WLAs)

   Wasteload allocations (WLAs) are calculated using the same mass balance equations used to calculate the concentration of the pollutant at the edge of the mixing zone in the reasonable potential analysis. To calculate the wasteload allocations, C_d is set equal to the acute or chronic criterion and the equation is solved for C_e. The calculated C_e is the acute or chronic WLA. Equation 6 is rearranged to solve for the WLA, becoming:

$$C_e = WLA = D \times (C_d - C_u) + C_u \quad \textit{Equation 11}$$

   Some quality criteria for some metals are expressed as the dissolved fraction, but the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, EPA must calculate a wasteload allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the

criteria translator, as shown in equation __. As discussed in Appendix ___, the criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge.

$$C_e=WLA=\frac{D\times(C_d-C_u)+C_u}{CT}$$ *Equation 12*

The next step is to compute the "long term average" concentrations which will be protective of the WLAs. This is done using the following equations from EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD):

$$LTA_a=WLA_a\times e^{(0.5\sigma^2-z\,\sigma)}$$ *Equation 13*

$$LTA_c=WLA_c\times e^{(0.5\sigma_4^2-z\sigma_4)}$$ *Equation 14*

where,

σ^2 = $\ln(CV^2+1)$

Z_{99} = 2.326 (z-score for the 99th percentile probability basis)

CV = coefficient of variation (standard deviation ÷ mean)

σ_4^2 = $\ln(CV^2/4+1)$

For ammonia, because the chronic criterion is based on a 30-day averaging period, the Chronic Long Term Average (LTAc) is calculated as follows:

$$LTA_c=WLA_c\times e^{(0.5\sigma_{30}^2-z\sigma_{30})}$$ *Equation 15*

where,

σ_{30}^2 = $\ln(CV^2/30+1)$

The LTAs are compared and the more stringent is used to develop the daily maximum and monthly average permit limits as shown below.

2. Derive the maximum daily and average monthly effluent limits

Using the TSD equations, the MDL and AML effluent limits are calculated as follows:

$$\mathrm{MDL}=\mathrm{LTA}\times e^{(z_m\sigma-0.5\sigma^2)}$$ *Equation 16*

$$\mathrm{AML}=\mathrm{LTA}\times e^{(z_a\sigma_n-0.5\sigma_n^2}$$ *Equation 17*

where σ, and σ² are defined as they are for the LTA equations above, and,

σ_n^2 = $\ln(CV^2/n+1$

z_a = 1.645 (z-score for the 95th percentile probability basis)

z_m = 2.326 (z-score for the 99th percentile probability basis)

n = number of sampling events required per month. With the exception of ammonia, if the AML is based on the

LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ‘‘n’’ should is set at a minimum of 4. For ammonia, In the case of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ‘‘n’’ should is set at a minimum of 30.

C. Critical Low Flow Conditions

The low flow conditions of a water body are used to determine WQBELs. In general, Washington's WQS require criteria be evaluated at the following low flow receiving water conditions (See Table 12. Applicable Criteria/Design Conditions for Determining the Acute and Chronic Dilution Factors for Aquatic Life, Department of Ecology Water Quality Program Permit Writer's Manual page 190 at https://apps.ecology.wa.gov/publications/summarypages/92109.html) as defined below:

Acute aquatic life	1Q10 or 1B3
Chronic aquatic life	7Q10 or 4B3
Non-carcinogenic human health criteria	30Q5
Carcinogenic human health criteria	Harmonic Mean Flow
Ammonia	30B3 or 30Q10

1. The 7Q10 represents lowest average 7 consecutive day flow with an average recurrence frequency of once in 10 years.
2. The 30Q5 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 5 years.
3. The harmonic mean is a long-term mean flow value calculated by dividing the number of daily flow measurements by the sum of the reciprocals of the flows.

Appendix D. **Reasonable Potential and WQBEL Calculations**

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages	AMMONIA, default: cold water, fish early life stages	AMMONIA, default: cold water, fish early life stages	ZINC - SEE Toxic BiOp	COPPER - SEE Toxic BiOp	MERCURY - SEE Toxic BiOp	CADMIUM	LEAD - SEE Toxic BiOp	BIS(2-ETHYLHEXYL) PHTHALATE	TOLUENE	CHLOROFORM
				Non Irrigation	Irrigation	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round
Effluent Data	Number of Samples in Data Set (n)			22	36	58	58	19	56	1	2	2	2
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)			1.937	0.962	0.329	0.3668	1.466	0	0.6	0.6	0.6	0.6
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)			892.500	627.500	107.005	4.6225	0.0117	0.3	0.068	1.98	0.43	1.48
	Calculated 60th % Effluent Conc. (when n>10), Human Health Only			0.135	0.105	63.455	2.065	0.0013	0.3		1.036	0.29	1.48
Receiving Water Data	90th Percentile Conc., µg/L - (C_u)						0	0	0	0	0	0	0
	Geometric Mean, µg/L, Human Health Criteria Only						0	0	0	0	0	0	0
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute		8,107	885	40.564	5.37	2.1	.981	16.658			
	Aquatic Life Criteria, µg/L	Chronic		1,353	105	37.041	3.988	.012	.4165	6491			
	Human Health Water and Organism, µg/L		--	--	--	2,300	1,300	.14	-	Narrative	23	180	260
	Human Health, Organism Only, µg/L		--	--	--		--	15	-	Narrative	25	410	1,200
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute				.87	.789	.85	.943	.466			.97
		Chronic				.87	.789	--	.943	.466			.97
	Carcinogen (Y/N), Human Health Criteria Only		--	--	--	N	N	N	N	N	Y	N	Y
Percent River Flow Default Value = 25%	Aquatic Life - Acute	1Q10	0%	0%	25%	25%	0%	25%	25%	25%	25%	25%	25%
	Aquatic Life - Chronic	7Q10 or 4B3				25%	0%	25%	25%	25%	25%	25%	25%
		30B3 or 30Q10/30Q5				25%	0%	25%	25%	25%	25%	25%	25%
	Human Health - Non-Carcinogen	Harmonic Mean	--	0%	25%	25%	0%	25%	25%	25%	25%	25%	25%
	Human Health - Carcinogen	Harmonic Mean				25%	0%	25%	25%	25%	25%	25%	25%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	--	1.0	3.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Aquatic Life - Chronic	7Q10 or 4B3				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	--	1.0	7.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Human Health - Non-Carcinogen	Harmonic Mean				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Human Health - Carcinogen	Harmonic Mean				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Aquatic Life Reasonable Potential Analysis													
σ	$\sigma^2=\ln(CV^2+1)$		--	1.248	0.809	0.321	0.355	1.071	--	0.555	0.555	0.555	0.555
P_n	=(1-confidence level)$^{1/n}$, where confidence level =	99%	--	0.811	0.880	0.924	0.924	0.785	0.921	0.010	0.100	0.100	0.100
Multiplier (TSD p. 57)	=exp(zσ-0.5σ^2)/exp[normsinv(P_n)σ-0.5σ^2], where	99%	--	6.1	2.5	1.33	1.37	5.19	1.00	13.2	7.4	7.4	7.4
Statistically projected critical discharge concentration (C_e)			--	5416	1594	142.62	6.36	0.061	0.30	0.90	14.64	3.18	10.94
Predicted max. conc (ug/L) at Edge-of-Mixing Zone		Acute	--	5416	421	124.04	5.02	0.052	0.28	0.42	14.64	3.18	10.61
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	--	5416	207	124.04	5.02	0.061	0.28	0.42	14.64	3.18	10.61
Reasonable Potential to exceed Aquatic Life Criteria			n/a	YES	YES	YES	YES	YES	NO	NO	NA	NA	NA
Aquatic Life Effluent Limit Calculations													
Number of Compliance Samples Expected per month (n)				4	4	4	4	1		4	1	4	4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			--	30	30	4	4	4	--	--	--	--	--
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		--	1.937	0.962	0.329	0.367	1.466	--	--	--	--	--
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		--	1.937	0.962	0.329	0.367	1.466	--	--	--	--	--
Acute WLA, ug/L	C_e = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	--	8,107	3,351	40.6	5.4	2.1	--	--	--	--	--
Chronic WLA, ug/L	C_e = (Chronic Criteria x MZ_c) - C_u x(MZ_c-1)	Chronic	--	1,353	807	37.0	4.0	0.012	--	--	--	--	--
Long Term Ave (LTA), ug/L	WLAa x exp(0.5σ^2-zσ), Acute	99%	--	968	707	20.3	2.5	0.308	--	--	--	--	--
(99th % occurrence prob.)	WLAc x exp(0.5σ^2-zσ); ammonia n=30, Chronic	99%	--	646	546	25.7	2.7	0.0032	--	--	--	--	--
Limiting LTA, ug/L	used as basis for limits calculation		--	646	546	20.3	2.5	0.0032	--	--	--	--	--
Applicable Metals Criteria Translator (metals limits as total recoverable)			1.0	1.0	1.0	0.8697	0.79	-	--	--	--	--	0.97
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	--	1,071	717	30	4.2	0.0077	--	--	--	--	--
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	--	5,407	2,588	47	6.8	0.0220	--	--	--	--	--
Average Monthly Limit (AML), mg/L			--	1.1	0.7	0.030	0.004	0.000008	--	--	--	--	--
Maximum Daily Limit (MDL), mg/L			--	5.4	2.6	0.047	0.007	0.000022	--	--	--	--	--
Average Monthly Limit (AML), lb/day			--	10.4	6.9	0.291	0.04070	0.00007	--	--	--	--	--
Maximum Daily Limit (MDL), lb/day			--	52.3	25.0	0.451	0.06583	0.00021	--	--	--	--	--
Human Health Reasonable Potential Analysis													
σ	$\sigma^2=\ln(CV^2+1)$					0.321	0.355	1.071	--	0.555	0.555	0.555	0.555
P_n	=(1-confidence level)$^{1/n}$ where confidence level =	95%				0.950	0.950	0.854	0.948	0.050	0.224	0.224	0.224
Multiplier	=exp(2.326σ-0.5σ^2)/exp[invnorm(P_N)σ-0.5σ^2], prob. =	50%				0.591	0.558	0.323	1.000	2.490	1.524	1.524	1.524
Dilution Factor (for Human Health Criteria)						1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Max Conc. at edge of Chronic Zone, ug/L (C_d)						63.455	2.065	0.001	0.300	0.169	1.036	0.290	1.480
Reasonable Potential to exceed HH Water & Organism						NO	NO	NO	NO	NO	YES	NO	NO
Reasonable Potential to exceed HH Organism Only						NO	NO	NO	NO	NO	YES	NO	NO

Pollutants of Concern			THALLIUM	SILVER	SELENIUM	NICKEL	CHROMIUM	BERYLLIUM	ARSENIC	ANTIMONY
			Year-round	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round
Effluent Data	**Number of Samples in Data Set (n)**		1	2	2	1	1	1	1	1
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		0.13	0.16	0.44	1.78	0.54	0.011	0.95	0.36
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only		0.13	0.08	0.318	1.78	0.54	0.011	0.95	0.36
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**		0	0	0	0	0	0	0	0
	Geometric Mean, µg/L, Human Health Criteria Only		0	0	0	0	0	0	0	0
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute		.42	20.	502.46	15.		360.	–
	Aquatic Life Criteria, µg/L	Chronic			5.	55.802	10.		190.	–
	Human Health Water and Organism, µg/L		.24	--	120.	150.	--	–	10.	12.
	Human Health, Organism Only, µg/L		.27	--	480	190.	--	–	10.	180.
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute				.998			1.	
		Chronic				.997			1.	
	Carcinogen (Y/N), Human Health Criteria Only		N	N	--	--	--	Y	–	–
	Aquatic Life - Acute	**1Q10**	25%	25%	25%	25%	25%	25%	25%	25%
Percent River Flow	Aquatic Life - Chronic	7Q10 or 4B3	25%	25%	25%	25%	25%	25%	25%	25%
Default Value =		30B3 or 30Q10/30Q5	25%	25%	25%	25%	25%	25%	25%	25%
25%	Human Health - Non-Carcinogen	Harmonic Mean	25%	25%	25%	25%	25%	25%	25%	25%
	Human Health - Carcinogen	Harmonic Mean	25%	25%	25%	25%	25%	25%	25%	25%
	Aquatic Life - Acute	1Q10	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Calculated	Aquatic Life - Chronic	7Q10 or 4B3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Dilution Factors (DF)	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
(or enter Modeled DFs)	Human Health - Non-Carcinogen	Harmonic Mean	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Human Health - Carcinogen	Harmonic Mean	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Aquatic Life Reasonable Potential Analysis										
σ	$\sigma^2=\ln(CV^2+1)$		0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555
P_n	=(1-confidence level)$^{1/n}$ where confidence level =	**99%**	0.010	0.100	0.100	0.010	0.010	0.010	0.010	0.010
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{norm.sinv}(P_n)\sigma-0.5\sigma^2]$, where	**99%**	13.2	7.4	7.4	13.2	13.2	13.2	13.2	13.2
Statistically projected critical discharge concentration (C_e)			1.72	1.18	3.25	23.49	7.13	0.15	12.54	4.75
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	1.72	1.18	3.25	23.44	7.13	0.15	12.54	4.75
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	1.72	1.18	3.25	23.42	7.13	0.15	12.54	4.75
Reasonable Potential to exceed Aquatic Life Criteria			**NA**	**YES**	**NO**	**NO**	**NO**	**NA**	**NO**	–
Aquatic Life Effluent Limit Calculations										
Number of Compliance Samples Expected per month (n)			4	1	1	4	4	4	4	4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			–	1	--	--	--	–	–	–
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		–	0.600	--	--	--	–	–	0.600
Permit Limit Coeff. Var. (CV), decimal (Use CV from data set or default = 0.6)			–	0.600	--	--	--	–	–	0.600
Acute WLA, ug/L	C_d= (Acute Criteria x MZ_a) - C_ux(MZ_a-1)	Acute	–	0.4	--	--	--	–	–	–
Chronic WLA, ug/L	C_d= (Chronic Criteria x MZ_c) - C_ux(MZ_c-1)	Chronic	–	--	--	--	--	–	–	–
Long Term Ave (LTA), ug/L	WLAa x exp(0.5σ^2-zσ), Acute	**99%**	–	0.1	--	--	--	–	–	–
(99th % occurrence prob.)	WLAc x exp(0.5σ^2-zσ); ammonia n=30, Chronic	**99%**	–	--	--	--	--	–	–	–
Limiting LTA, ug/L	used as basis for limits calculation		–	0.1	--	--	--	–	–	–
Applicable Metals Criteria Translator (metals limits as total recoverable)			–	--	--	--	--	–	–	–
Average Monthly Limit (AML), ug/L , where % occurrence prob =		**95%**	–	**0.29**	--	--	--	–	–	–
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		**99%**	–	**0.42**	--	--	--	–	–	–
Average Monthly Limit (AML), mg/L			–	**0.00029**	--	--	--	–	–	–
Maximum Daily Limit (MDL), mg/L			–	**0.00042**	--	--	--	–	–	–
Average Monthly Limit (AML), lb/day			–	**0.003**	--	--	--	–	–	–
Maximum Daily Limit (MDL), lb/day			–	**0.004**	--	--	--	–	–	–
Human Health Reasonable Potential Analysis										
σ	$\sigma^2=\ln(CV^2+1)$		0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555
P_n	=(1-confidence level)$^{1/n}$ where confidence level =	**95%**	0.050	0.224	0.224	0.050	0.050	0.050	0.050	0.050
Multiplier	$=\exp(2.326\sigma-0.5\sigma^2)/\exp[\text{invnorm}(P_n)\sigma-0.5\sigma^2]$, prob. =	**50%**	2.490	1.524	1.524	2.490	2.490	2.490	2.490	2.490
Dilution Factor (for Human Health Criteria)			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Max Conc. at edge of Chronic Zone, ug/L (C_d)			0.130	0.080	0.318	1.780	0.540	0.011	0.950	0.360
Reasonable Potential to exceed HH Water & Organism			**NO**	**NO**	**NO**	**NO**	--	–	**NO**	**NO**
Reasonable Potential to exceed HH Organism Only			**NO**	**NO**	**NO**	**NO**	--	–	**NO**	**NO**
Human Health, Water + Organism, Effluent Limit Calculations										
Number of Compliance Samples Expected per month (n)										
Average Monthly Effluent Limit, ug/L		equals wasteload allocation	–	--	--	--	--	–	–	–
Maximum Daily Effluent Limit, ug/L	TSD Multiplier, Table 5-3, using 99th and 95th %		–	--	--	--	--	–	–	–
Average Monthly Limit (AML), lb/day			–	--	--	--	--	–	–	–
Maximum Daily Limit (MDL), lb/day			–	--	--	--	--	–	–	–
Human Health, Organism Only, Effluent Limit Calculations										
Number of Compliance Samples Expected per month (n)										
Average Monthly Effluent Limit, ug/L		equals wasteload allocation	–	--	--	--	--	–	–	–
Maximum Daily Effluent Limit, ug/L	TSD Multiplier, Table 5-3, using 99th and 95th %		–	--	--	--	--	–	–	–
Average Monthly Limit (AML), lb/day			–	--	--	--	--	–	–	–
Maximum Daily Limit (MDL), lb/day			–	--	--	--	--	–	–	–

Appendix E. **Essential Fish Habitat Assessment**

Pursuant to the requirements for Essential Fish Habitat (EFH) assessments, this appendix contains the following information:

- Listing of EFH Species in the Facility Area
- Description of the Facility and Discharge Location
- EPA's Evaluation of Potential Effects to EFH

Listing of EFH Species in the Facility Area

Essential Fish Habitat in the Lower Yakima consists of all life stages of Chinook and Coho Salmon according to NOAA Fisheries (https://www.habitat.noaa.gov/application/efhmapper/index.html - accessed October 26, 2021)

Description of the Facility and Discharge Location

The activities and sources of wastewater at the Wapato wastewater treatment facility are described in detail in Part II and Appendix A of this fact sheet. The location of the outfall is described in Part III ("Receiving Water").

EPA's Evaluation of Potential Effects to EFH

Water quality is an important component of aquatic life habitat. NPDES permits are developed to protect water quality in accordance with WQSs. The standards protect the beneficial uses of the waterbody, including all life stages of aquatic life. The development of permit limits for an NPDES discharger includes the basic elements of ecological risk analysis. The underlying technical process leading to NPDES permit requirements incorporates the following elements of risk analysis:

Effluent Characterization

Characterization of the effluent was accomplished using a variety of sources, including:

- Permit application monitoring
- Permit compliance monitoring
- Statistical evaluation of effluent variability
- Quality assurance plans and evaluations

Identification of Pollutants of Concern and Threshold Concentrations

The pollutants of concern include pollutants with aquatic life criteria in the Washington WQSs. Threshold concentrations are equal to the numeric water quality criteria for the protection of aquatic life. No other pollutants of concern were identified by NMFS.

Exposure and Wasteload Allocation

Analysis of the transport of pollutants near the discharge point with respect to the following:

- Mixing zone policies in the Washington WQS

- Dilution modeling and analysis
- Exposure considerations (e.g., prevention of lethality to passing organisms)

Statistical Evaluation for Permit Limit Development

Calculation of permit limits using statistical procedures addressing the following:

- Effluent variability and non-continuous sampling
- Fate/transport variability
- Duration and frequency thresholds identified in the water quality criteria

Monitoring Programs

Development of monitoring requirements, including:

- Compliance monitoring of the effluent
- Ambient monitoring

Protection of Aquatic Life in NPDES Permitting

EPA's approach to aquatic life protection is outlined in detail in the Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, March 1991). EPA and states evaluate toxicological information from a wide range of species and life stages in establishing water quality criteria for the protection of aquatic life.

The NPDES program evaluates a wide range of chemical constituents (as well as whole effluent toxicity testing results) to identify pollutants of concern with respect to the criteria values. When a facility discharges a pollutant at a level that has a "reasonable potential" to exceed, or to contribute to an exceedance of, the water quality criteria, permit limits are established to prevent exceedances of the criteria in the receiving water (outside any authorized mixing zone).

Effects Determination

Since the proposed permit has been developed to protect aquatic life species in the receiving water in accordance with the Washington WQSs, EPA has determined that issuance of this permit is not likely to adversely affect any EFH in the vicinity of the discharge. EPA will provide NMFS with copies of the proposed permit and fact sheet during the public notice period. Any recommendations received from NMFS regarding EFH will be considered prior to reissuance of this permit.

Appendix F. **CWA § 401 Certification**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3188

WATER DIVISION

Clean Water Act (CWA) Section 401 Certification for Discharger Located within Tribal Boundaries

Facility:	Wapato WWTP
NPDES Permit Number:	WA0050229
Location:	Yakama Nation
Receiving Water:	WIP Drainage Way No. 2
Facility Location:	69172 Highway 97 Wapato, WA 98951

EPA hereby certifies that the conditions in the National Pollutant Discharge Elimination System (NPDES) permit for the Wapato wastewater treatment plant, are necessary to assure compliance with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA. See CWA Section 401(a)(1), 33 U.S.C. 1341(a)(1); 40 CFR 124.53(e).

The State in which the discharge originates is responsible for issuing the CWA Section 401 certification pursuant to CWA Section 401(a)(1). When a NPDES permit is issued on Tribal Land, the Tribe is the certifying authority where the Tribe has been approved by EPA for Treatment as a State (TAS) pursuant to CWA Section 518(e) and 40 CFR § 131.8. Where a Tribe does not have TAS, EPA is the certifying authority. The Yakama Nation does not have TAS for the Wapato WWTP discharging into WIP Drainage Way No. 2. Therefore, EPA is responsible for issuing the CWA Section 401 Certification for this permit.

D R A F T

Mathew J. Martinson
Capt, USPHS
Branch Chief
Permits, Drinking Water, and Infrastructure