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:

Riverside Water and Sewer District

Public Comment Start Date: March 10, 2021
Public Comment Expiration Date: April 9, 2021

Technical Contact: Bilin Basu
206-553-0029 (within Alaska, Idaho, Oregon and Washington)
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EPA Proposes To Reissue NPDES Permit
EPA proposes to reissue the NPDES permit for the facility referenced above. The draft 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 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

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

Public Comment
Because of the COVID-19 virus, access to the Region 10 EPA building is limited. Therefore, we request that all comments on EPA's draft permit or requests for a public hearing be submitted via email to Bilin Basu (basu.bilin@epa.gov). If you are unable to submit comments via email, please call 206-553-0029.

Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so 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 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, the 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 draft permit will become final, and the permit will become effective upon issuance. If substantive comments are received, the 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 draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at: http://EPA.gov/r10earth/waterpermits.htm and at https://www.epa.gov/npdes-permits/idaho-npdes-permits. Because of the COVID-19 virus and limited building access, EPA cannot make hard copies available for viewing at EPA offices.

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
AWL	Average Weekly Limit
BOD_5	Biochemical oxygen demand, five-day
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
ECHO	Enforcement and Compliance History Online
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
HUC	Hydrologic Unit Code
lbs/day	Pounds per day
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
MF	Membrane Filtration
N	Nitrogen
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
POTW	Publicly owned treatment works
RPM	Reasonable Potential Multiplier

SR/AL	Solids Recycling / Aerated Lagoon
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TAS	Treatment as a State
TES	Treatment Equivalent to Secondary
TMDL	Total Maximum Daily Load
TRC	Total Residual Chlorine
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
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 draft NPDES permit for the following entity:

Table 1. General Facility Information

NPDES Permit #:	**ID0024503**
Applicant:	Riverside Water and Sewer District
Type of Ownership	Publicly Owned Treatment Works
Physical Address:	10460 Highway 12 Orofino, ID 83544
Mailing Address:	10460 Highway 12 Orofino, ID 83544
Facility Contact:	Emmett Bonner (208) 476-3613
Facility Location:	46.503 -116.339
Receiving Water	Clearwater River
Facility Outfall	46.503056 -116.337222

B. Permit History

The most recent NPDES permit for Riverside Water and Sewer District (Riverside) became effective on November 1, 2011 and expired on October 30, 2016. An NPDES application for permit issuance was submitted by the permittee on August 17, 2016. EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively continued and remains fully effective and enforceable.

C. Tribal Coordination and Consultation

EPA consults on a government-to-government basis with federally recognized tribal governments when EPA actions and decisions may affect tribal interests. Meaningful tribal consultation is an integral component of the federal government's general trust relationship with federally recognized tribes. The federal government recognizes the right of each tribe to self-government, with sovereign powers over their members and their territory. Executive Order 13175 (November 2000) entitled "Consultation and Coordination with Indian Tribal Governments" requires federal agencies to have an accountable process to assure meaningful and timely input by tribal officials in the development of regulatory policies on matters that have tribal implications and to strengthen the government-to-government relationship with Indian tribes. In May 2011, EPA issued the "EPA Policy on Consultation and Coordination with Indian Tribes" which established national guidelines and institutional controls for consultation.

The Riverside WWTP is located on the Nez Perce Reservation of the Nez Perce Tribe of Indians (Nez Perce). Consistent with the Executive Order and the EPA tribal consultation policies, EPA coordinated with the Nez Perce during development of the draft permit and is inviting the Tribe to engage in formal tribal consultation.

II. Facility Information

A. Treatment Plant Description

Service Area

Riverside owns and operates the Riverside Wastewater Treatment Plant (WWTP) located in Orofino, Idaho. The collection system has no combined sewers. The facility serves a resident population of 207. This includes domestic wastewater from the Dworshak Fisheries, Dworshak Dam and Clearwater Fish Hatchery. There are no major industries discharging to the facility.

Treatment Process

The design flow of the facility is 0.88 million gallons per day (mgd). The reported actual flows from the facility range from 0.11 mgd to 0.42 mgd.

The WWTP provides treatment using facultative waste stabilization ponds. It is a four-cell lagoon.

Gravity flow through the four lagoon cells ends at a chlorine disinfection station prior to discharge to the Clearwater River. Wastewater is discharged at an average daily flow rate of 0.14 mgd.

The average inflow and infiltration are estimated at 80,000 gallons per day. To address this, the District is lining sewer mains that have been identified as the greatest points of infiltration.

Outfall Description

The discharge is continuous through a subsurface open pipe that discharges to the Clearwater River within the Tribal reservation. Beginning in 2014, the facility began shutting off the effluent discharge from July through September, due to low flow.

Effluent Characterization

To characterize the effluent, EPA evaluated the facility's application form, discharge monitoring report (DMR) data, and additional data provided by Riverside**.** The effluent quality is summarized in Table 2. Data are provided in Appendix B.

Table 2 Effluent Characterization

Parameter	Minimum	Maximum	Notes
BOD, 5-day, 20 deg. C	2.0 mg/L	27.5 mg/L	Monthly Average
BOD, 5-day, percent removal	12.1 %	99.7 %	Monthly Min
Solids, total suspended	1.0 mg/L	52 mg/L	Monthly Average
Solids, suspended percent removal	15.0 %	99.9 %	Monthly Min
E. coli, MTEC-MF	1.0 #/100mL	2420 #/100mL	Inst Max
Chlorine, total residual	0.05 mg/L	0.39 mg/L	Monthly Average
pH	6.50 SU	9.00 SU	Daily Max / Min
Nitrogen, ammonia total [as N]	0.05 mg/L	13.3 mg/L	Monthly Max

Source: Data submitted by Riverside 2015 -2020

Compliance History

A summary of effluent violations is provided in Table 3 Summary of Effluent Violations from June 2013 to January 2018. The facility had 67 exceedances combined of the average monthly and minimum percent removal of total suspended solids and 5 exceedances of the minimum percent removal effluent limit of BOD_5. Additionally, the facility had 3 exceedances of the *E. coli* effluent limit. Riverside also received a notice of violation on March 6, 2019 following a 2018 on-site inspection and administrative review. The inspection listed the facility's failure to calibrate analytical equipment used for measuring and reporting compliance of chlorine. Review of administrative files also listed DMR effluent limitation exceedances and failure of the permittee to report within 24 hours to EPA any violation of the maximum daily limits for *E. coli*.

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=ID0024503&sys=ICP.

Table 3 Summary of Effluent Violations from June 2013 to January 2018

Parameter	Limit	Units	Number of Instances
BOD, 5-day	Min Percent Removal	%	5
Solids, total suspended	Monthly Average[1]	mg/L	60
Solids, total suspended	Min % Removal	%	7
E. coli, MTEC-MF	INST Max	#/100mL	3

1. Monthly average violations are counted as 30 violations

III. 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 later in this Fact Sheet. This section summarizes characteristics of the receiving water that impact that analysis.

A. Receiving Water

This facility discharges to the Clearwater River at river mile 0.26, just downstream of the confluence with the North Fork of the Clearwater River, which is within the Clearwater Basin, Clearwater subbasin of Idaho's *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02.120.08.). The outfall is located at latitude 46° 30' 11" N and longitude 116° 20' 14" W.

B. Water Quality Standards

Overview

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limitations in permits necessary to meet water quality standards. 40 CFR 122.4(d) requires that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. A State's water quality standards 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 Nez Perce has not applied for the status of TAS from EPA for purposes of the CWA. When the Nez Perce is granted TAS, and when it has Water Quality Standards (WQS) approved by EPA, those tribal WQS will be used for determining effluent limitations. In the meantime, the Idaho WQS were used as reference for setting permit limits, and to protect downstream uses in the State of Idaho, 40 miles downstream.

Designated Beneficial Uses

This facility discharges to the Clearwater River in Subbasin (HUC 17060306), Water Body Unit C-13, North Fork of the Clearwater River. At the point of discharge, the Clearwater River is protected for the following designated uses:

- cold water aquatic life
- primary contact recreation
- domestic water supply
- salmonid spawning

In addition, Water Quality Standards state that all waters of the State of Idaho are protected for industrial and agricultural water supply, wildlife habitats and aesthetics (IDAPA 58.01.02.100.03.b and c, 100.04 and 100.05).

C. Water Quality

The water quality for the upstream receiving water is summarized in Table 4. The temperature and pH water quality data are used in calculating reasonable potential for ammonia.

Table 4. Receiving Water Quality Data

Parameter	Units	Percentile	Value
Temperature	°C	95th	21.5
pH	Standard units	95th	7.89

Source: Data collected USGS Gauge Station 13340000, 1973-2018

D. Water Quality Limited Waters

The Clearwater River is fully supporting aquatic life according to the State of Idaho's 2016 Integrated Report.

E. Low Flow Conditions

Critical low flows for the receiving water are summarized in Table 5. Critical Flows in Receiving Water

Table 5. Critical Flows in Receiving Water

Flows	Annual Flow (cfs)
1Q10	665
7Q10	834
30B3	1,149
30Q5	1,086
Harmonic Mean	3,116

Critical flows were estimated based on USGS gage data (USGS 13340000) from 1989 through 2020 with USGS Surface Water Toolbox. Low flows are defined in Appendix C, Part C.

IV. Effluent Limitations and Monitoring

Table 6 below presents the existing effluent limits and monitoring requirements in the current permit. Table 7, below, presents the proposed effluent limits and monitoring requirements in the draft permit.

Table 6. Existing Permit - Effluent Limits and Monitoring Requirements

Parameter	Effluent Limitations			Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow mgd	---	---	---	Effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5)	30 mg/L	45 mg/L	---	Effluent	1/month	8-hour composite
	≥85% removal	---	---	Influent and Effluent	---	Calculation
	220 lbs/day	330 lbs/day	---	Effluent	1/month	Calculation
Total Suspended Solids (TSS)	45 mg/L	65 mg/L	---	Effluent	1/month	8-hour composite
	≥85% removal	---	---	Influent and Effluent	---	Calculation
	330 lbs/day	477 lbs/day	---	Effluent	1/month	Calculation

Parameter	Effluent Limitations			Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
E. coli Bacteria	126 colonies/ 100 mL	---	406 colonies/ 100 mL	Effluent	5/month	Grab
pH	6.5 – 9.0 s. u.			Effluent	5/week	Grab
Total Residual Chlorine	0.50 mg/L	0.75 mg/L	---	Effluent	5/week	Grab
	3.7 lbs/day	5.5 lbs/day				
Total Ammonia as Nitrogen, mg/L	---	---	---	Effluent	1/month	8-hour composite

Table 7. Draft Permit - Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Parameters with Effluent Limits							
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45	--	Influent and Effluent	1/month	8-hour composite
	lbs/day	220	330	--			Calculation
BOD_5 Percent Removal	%	≥85	--	--		---	Calculation
Total Suspended Solids (TSS)	mg/L	45	65	--	Influent and Effluent	1/month	8-hour composite
	lbs/day	330	477	--			Calculation
TSS Percent Removal	%	≥85	--	--		---	Calculation
E. coli	CFU/ 100 ml	126	--	406 (instant. max)	Effluent	5/month	Grab
Total Residual Chlorine	mg/L	0.50	0.75	---	Effluent	5/week	Grab
	lbs/day	3.7	5.5	---			Grab
pH	std units	Between 6.5 – 9.0			Effluent	5/week	Grab
Report Parameters							
Flow	mgd	Report	---	Report	Effluent	Continuous	Recording
Temperature	°C	--	--	Report	Effluent	1/month	Grab

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Ammonia	mg/L	Report	---	Report	Effluent	1/month	8-hour composite
Floating, Suspended, or Submerged Matter	--	Prohibition of discharge of floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses				1/month	Visual Observation

There are no changes in the effluent limitations from the existing permit to the proposed reissued permit.

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 limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

B. Pollutants of Concern

Pollutants of concern are those that either have technology-based limits or may need water quality-based limits. EPA identifies pollutants of concern for the discharge based on those which:

- Have a technology-based limit
- Have an assigned wasteload allocation (WLA) from a total maximum daily load (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 disinfection with chlorination. Pollutants expected in the discharge from a facility with this type of treatment, include but are not limited to: BOD_5, TSS, *E. coli* bacteria, total residual chlorine (TRC), pH and ammonia.

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

- BOD_5
- TSS
- *E. coli* bacteria
- TRC
- pH

- ammonia

C. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA 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 technology-based effluent limits 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 8. For additional information and background refer to Part 5.1 *Technology Based Effluent Limits for POTWs* in the Permit Writers Manual.

Table 8. 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

Equivalent to Secondary Treatment Effluent Limits

The EPA has additionally established effluent limitations (40 CFR 133.105) that are considered "equivalent to secondary treatment" which apply to facilities meeting certain conditions established under 40 CFR 133.101(g). The federally promulgated equivalent to secondary treatment effluent limits are listed below in Table 9. Equivalent to Secondary Treatment Effluent Limits.

Table 9. Equivalent to Secondary Treatment Effluent Limits

Parameter	30-day average	7-day average
BOD_5	45 mg/L	65 mg/L
TSS	45 mg/L	65 mg/L
Removal for BOD_5 and TSS (concentration)	65% (minimum)	---
Source: 40 CFR 133.105		

The existing permit has equivalent to secondary treatment effluent limits for TSS.

Using DMR data from 2015 to 2020, the EPA evaluated the facility's eligibility for effluent limits based on equivalent to secondary treatment standards. To be eligible, a POTW must meet all three of the following criteria:

- Criterion #1 – Consistently Exceeds Secondary Treatment Standards: The first criterion that must be satisfied to qualify for the equivalent to secondary standards is demonstrating that the BOD_5 and TSS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the secondary treatment standards set forth in 40 CFR 133.102(a) and (b). The regulations at 40 CFR 133.101(f) define "effluent concentrations consistently achievable through proper operation and maintenance" as
    - (f)(1): For a given pollutant parameter, the 95^{th} percentile value for the 30-day average effluent quality achieved by a treatment works in a period of at least 2 years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions, and
    - (f)(2): A 7-day average value equal to 1.5 times the value derived under paragraph (f)(1)
- Criterion #2 – Principal Treatment Process: The second criterion that a facility must meet to be eligible for equivalent to secondary standards is that its principal treatment process must be a trickling filter or waste stabilization pond (i.e., the largest percentage of BOD_5 and TSS removal is from a trickling filter or waste stabilization pond system).
- Criterion #3 – Provide Significant Biological Treatment: The third criterion for applying equivalent to secondary standards is that the treatment works provides significant biological treatment of municipal wastewater. 40 CFR 133.101(k) defines significant biological treatment as using an aerobic or anaerobic biological treatment process in a treatment works to consistently achieve a 30-day average of at least 65 percent removal of BOD_5.

The EPA determined that the City continues to meet all three criteria for treatment equivalent to secondary for TSS. The City does not however meet all three criteria for treatment equivalent to secondary for BOD_5. See Table 10 for the Treatment Equivalent to Secondary Treatment determinations for BOD_5 and TSS.

Table 10. Treatment Equivalent to Secondary Treatment Determination for BOD_5 and TSS

Criteria 1 - Consistently Exceeds Secondary Treatment Standards

BOD_5			
	95th Percentile	**Secondary Treatment Standard**	**Exceed Secondary Standard**
Average Monthly	23.06 mg/L	30 mg/L	No
Weekly Average	23.06 mg/L × 1.5 = 34.59 mg/L	45 mg/L	No
TSS			
	95th Percentile	**Secondary Treatment Standard**	**Exceed Secondary Standard**
Average Monthly	43.2 mg/L	30 mg/L	Yes
Weekly Average	43.2 mg/L × 1.5 = 64.8 mg/L	45 mg/L	Yes

Criteria 2: Principal Treatment Process

Waste stabilization ponds are the primary treatment method; Yes, meets Criterion 2.

Criteria 3: Provide Significant Biological Treatment

BOD_5 30-day Average Percent Removal	5th Percentile	Secondary Treatment Standard	Exceed Secondary Standard
	69.34%	65%	Yes

The facility meets the treatment equivalent to secondary standards for TSS. The permit applies the treatment equivalent to secondary treatment effluent limits for TSS and applies the technology-based effluent secondary limits for BOD_5. Table 11 lists the basis and proposed effluent limits for BOD_5 and TSS. The draft permit keeps the same TSS percent removal effluent limits established by the previous permit. The anti-backsliding regulations generally prohibit the reissuance of a permit with less stringent limits. Further, the facility meets the 85% TSS removal requirement with the exception of a few isolated exceedances.

Table 11. Treatment Equivalent to Secondary Determination for BOD_5 and TSS

	Monthly Average	Weekly Average	Percent Removal	Basis
BOD_5	30 mg/L	45 mg/L	85%	Technology-based effluent limits for secondary treatment (40 CFR 133.102(a)-(b))
TSS	45 mg/L	65 mg/L	85%	Meets criteria for treatment equivalent to secondary treatment (40 CFR 133.105(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 (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34[1]

Since the design flow for this facility is 0.88 mgd, the technology-based mass limits for BOD_5 are calculated as follows:

Average Monthly Limit = 30 mg/L × 0.88 mgd × 8.34 = 220 lbs/day

Average Weekly Limit = 45 mg/L × 0.88 mgd × 8.34 = 330 lbs/day

The technology-based mass limits for TSS are calculated as follows:

Average Monthly Limit = 45 mg/L × 0.88 mgd × 8.34 = 330 lbs/day

Average Weekly Limit = 65 mg/L × 0.88 mgd × 8.34 = 477 lbs/day

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

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. Riverside uses chlorine disinfection. A 0.5 mg/L average monthly limit for chlorine is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. Therefore, a wastewater treatment plant that provides adequate chlorine contact time can meet a 0.5 mg/L total residual chlorine limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. For technology-based effluent limits, the AWL is calculated to be 1.5 times the AML, consistent with the "secondary treatment" limits for BOD_5 and TSS. This results in an AWL for chlorine of 0.75 mg/L.

Since 40 CFR 122.45 (b) and (f) require limitations for POTWs to be expressed as mass-based limits using the design flow of the facility, mass-based limits for chlorine are calculated as follows:

Monthly average Limit= 0.5 mg/L x 0.88 mgd x 8.34 = 3.7 lbs/day

Weekly average Limit = 0.75 mg/L x 0.88 mgd x 8.34 = 5.5 lbs/day

D. Water Quality-Based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Discharges to State or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. 40 CFR 122.44(d)(1), implementing Section 301(b)(1)(C) of the CWA, 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 water quality standard, 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 Section 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 water quality standards are met and must be consistent with any available wasteload allocation for the discharge in an approved TMDL. If there are no approved TMDLs that specify wasteload allocations for this discharge; all of the water quality-based effluent limits are calculated directly from the applicable water quality standards.

Reasonable Potential Analysis and Need for Water Quality-Based Effluent Limits

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 water quality-based effluent limit 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 Idaho Water Quality Standards at IDAPA 58.01.02.060 provides Idaho's mixing zone policy for point source discharges. The proposed mixing zones are summarized in Table 12. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 0.88 mgd**.**

Table 12. Mixing zones

Criteria Type	Critical Low Flow (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor
Acute Aquatic Life	665	25	123.1
Chronic Aquatic Life (except ammonia)	834	25	154.2
Chronic Human Health (ammonia)	1149	25	212

The reasonable potential analysis and water quality-based effluent limit calculations were based on mixing zones shown in Table 12.

The equations used to conduct the reasonable potential analysis and calculate the water quality-based effluent limits are provided in Appendix C.

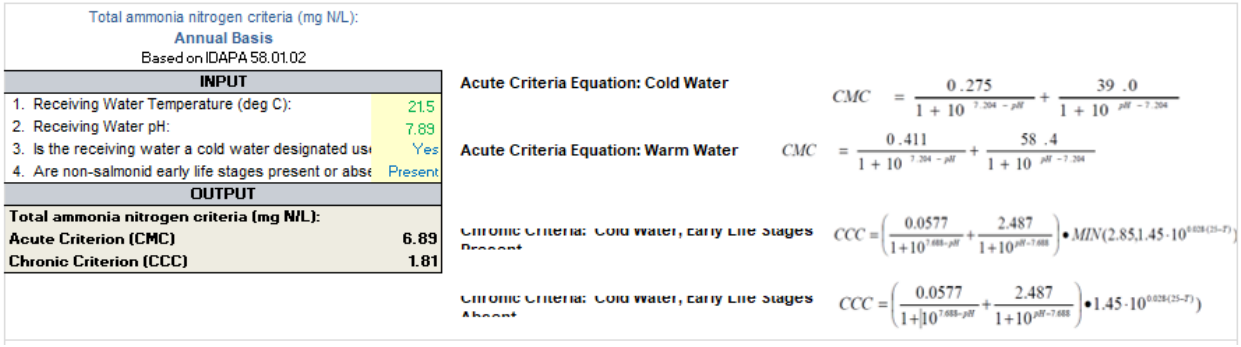
Reasonable Potential and Water Quality-Based Effluent Limits

The reasonable potential and water quality-based effluent limit 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. The table below details the equations used to determine water quality criteria for ammonia.

Table 13 Ammonia Criteria



Total ammonia nitrogen criteria (mg N/L):
Annual Basis
Based on IDAPA 58.01.02

INPUT	
1. Receiving Water Temperature (deg C):	21.5
2. Receiving Water pH:	7.89
3. Is the receiving water a cold water designated us	Yes
4. Are non-salmonid early life stages present or abse	Present
OUTPUT	
Total ammonia nitrogen criteria (mg N/L):	
Acute Criterion (CMC)	**6.89**
Chronic Criterion (CCC)	**1.81**

Acute Criteria Equation: Cold Water $CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$

Acute Criteria Equation: Warm Water $CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$

Chronic Criteria: Cold Water, Early Life Stages Present $CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet MIN(2.85,1.45 \cdot 10^{0.028(25-T)})$

Chronic Criteria: Cold Water, Early Life Stages Absent $CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet 1.45 \cdot 10^{0.028(25-T)})$

Utilizing the ammonia criteria found in EPA's 1999 *Update of Ambient Water Quality Criteria for Ammonia*, EPA determined that the Riverside discharge would not have the reasonable potential to cause or contribute to a violation of the water quality criteria for ammonia**.** Therefore, the draft permit does not contain water quality-based effluent limits for ammonia. See Appendix C and Appendix D for reasonable potential calculations**.**

pH

The Idaho water quality standards at IDAPA 58.01.02.250.01.a, require pH values of the river to be within the range of 6.5 to 9.0. 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. Effluent pH data were compared to the water quality criteria. Over the last five years the pH ranged from 6.5 to 9.0, therefore there is no reasonable potential for the discharge to cause or contribute to a violation of the water quality criteria for pH.

E. coli

The Idaho water quality standards state that waters of the State of Idaho, that are designated for recreation, are not to contain *E. coli* bacteria in concentrations exceeding 126 organisms per 100 ml based on a minimum of five samples taken every three to seven days over a thirty-day period. A mixing zone is not appropriate for bacteria for waters designated for contact recreation. Therefore, the draft permit contains a monthly geometric mean effluent limit for *E. coli* of 126 organisms per 100 ml (IDAPA 58.01.02.251.01.a.).

The Idaho water quality standards also state that a water sample that exceeds certain "single sample maximum" values indicates a likely exceedance of the geometric mean criterion, although it is not, in and of itself, a violation of water quality standards. For waters designated for primary contact recreation, the "single sample maximum" value is 406 organisms per 100 ml (IDAPA 58.01.02.251.01.b.ii.).

The goal of a water quality-based effluent limit is to ensure a low probability that water quality standards will be exceeded in the receiving water as a result of a discharge, while considering the variability of the pollutant in the effluent. Because a single sample value exceeding 406 organisms per 100 ml indicates a likely exceedance of the geometric mean criterion, EPA has imposed an instantaneous (single grab sample) maximum effluent limit for *E. coli* of 406 organisms per 100 ml, in addition to a monthly geometric mean limit of 126 organisms per 100 ml, which directly implements the water quality criterion for *E. coli*. This will ensure that the discharge will have a low probability of exceeding water quality standards for *E. coli*.

40 CFR 122.45(d)(2) requires 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.

Chlorine

The Idaho water quality standards at IDAPA 58.01.02.210 establish an acute criterion of 19 µg /L, and a chronic criterion of 11 µg/L for the protection of aquatic life. There is no background receiving water data for chlorine. A reasonable potential calculation showed that the discharge from the facility would not have the reasonable potential to cause or contribute to a violation of the water quality criteria for chlorine. Therefore, the draft permit is retaining its technology-based effluent limit. See Appendix D.

Temperature

The Idaho water quality standards at IDAPA 58.01.02.250.02(f) establish criterion for the protection of salmonid spawning. As the facility currently does not collect effluent temperature monitoring data, EPA could not conduct a reasonable potential analysis for temperature. In order to calculate reasonable potential in future permits, EPA will require effluent temperature monitoring via grab sampling.

Residues

The Idaho water quality standards require that surface waters of the State be free from floating, suspended or submerged matter of any kind in concentrations impairing designated beneficial uses. The draft permit contains a narrative limitation prohibiting the discharge of such materials.

E. Anti-backsliding

Section 402(o) of the CWA 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.

TSS Percent Removal

Less stringent effluent limitations may be allowed in a reissued permit if one of the conditions found at 40 CFR(l)(2)(i) are met. For TSS percent removal, the facility does not meet any of the listed conditions that would allow for a less stringent effluent limitation. Therefore, EPA is retaining the existing effluent limits for TSS percent removal.

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and 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 permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to EPA.

B. 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 Part 136) or as specified in the permit.

Monitoring Changes from the Previous Permit

As is listed in Table 7. Draft Permit - Effluent Limits and Monitoring Requirements effluent temperature monitoring will be required.

C. 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. Due to the large available dilution in the Clearwater River, however, surface water monitoring is not required.

D. Electronic Submission of Discharge Monitoring Reports

The draft 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.

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

VI. 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.

VII. Other Permit Conditions

A. Quality Assurance Plan

The permittee is required to update the Quality Assurance Plan within 180 days of the effective date of the final permit. The Quality Assurance Plan must include standard operating procedures the permittee will follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan must be retained on site and be made available to EPA and the Nez Perce upon request.

B. Operation and Maintenance Plan

The permit requires Riverside to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is 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 180 days of the effective date of the final permit. The plan must be retained on site and made available to EPA and the Nez Perce upon request.

C. 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.

D. 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 Riverside WWTP is not located within or near a Census block group that is potentially overburdened. The draft permit does not include any additional conditions to address environmental justice.

Regardless of whether a WWTP 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*.

E. 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.

F. Pretreatment Requirements

The Nez Perce does not have an approved state pretreatment program per 40 CFR 403.10, thus, EPA is the Approval Authority for POTWs on Nez Perce tribal land. Since Riverside does not have an approved POTW pretreatment program per 40 CFR 403.8, EPA is also the Control Authority of industrial users that might introduce pollutants into Riverside.

Special Condition II.D. of the permit reminds the Permittee that it cannot authorize discharges which may violate the national specific prohibitions of the General Pretreatment Program.

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 sections 307 (b) and (c) and 402(b)(8) of the Clean Water Act, 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.

G. Standard Permit Provisions

Sections III, IV and V of the draft permit 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.

VIII. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA) 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 Idaho finds that bull trout, Chinook Salmon (Snake River fall run) and steelhead are threatened.

Based on the following considerations, EPA concludes that this permit has no effect on endangered or threatened species under the jurisdiction of NOAA or USFWS.

<u>Bull Trout</u>

1. The U.S. Fish and Wildlife Service *Recovery Plan for the Coterminous United States*

Population of Bull Trout 2014 identified causes of the Bull Trout listing. They are isolation and habitat fragmentation, poaching, non-native species, residential development, mining, transportation networks and agricultural practices. Neither Riverside nor any sewage treatment plant is identified as a contributing factor to the decline in Bull Trout.

2. High dilution ratios of more than 1,000 to 1.
3. The design flow is low at 0.88 mgd and the actual flow is only between 0.11 and 0.42 mgd.
4. Chlorine dissipates very quickly (within minutes), does not bioaccumulate or cause chronic toxicity problems and does not have a reasonable potential to violate the water quality standards for the Clearwater River.
5. There is no reasonable potential to violate the water quality standard for pH and ammonia.
6. Compliance with water quality standards for pH and bacteria at the point of discharge.
7. This permit requires compliance with the State of Idaho Surface Water Quality Standards that protect aquatic organisms including threatened and endangered species.
8. The U.S. Fish and Wildlife Service *Recovery Plan for the Coterminous United States Population of Bull Trout – Chapter 16 Clearwater River* (USFWS 2014) identified causes of the bull trout listing. They are operation and maintenance of dams and other diversion structures, forest management practices, livestock grazing, agriculture, agricultural diversions, road construction and maintenance, mining, and introduction of nonnative species. No sewage treatment plant is identified as a contributing factor to the decline in bull trout.

   A similar conclusion was reached by the Biological Evaluation of the Reissuance of a National Pollutant Discharge Elimination System Permit for the Twin Falls, Idaho, Wastewater Treatment Plant (May 2009, LimnoTech) (BE). It cited the factors of decline throughout the state for Bull Trout are hydroelectric development and operation; increase in concentration of nutrients, sediment and other pollutants reaching the river and competition with nonnative species. In general, this part of the Snake River basin and its tributaries are impacted by runoff from irrigated crop production, rangeland, pastureland, animal holding areas, feedlots, dredging, hydro-modification and urban runoff. Similar factors have likely caused the decline of Bull Trout in the area of discharge.

Steelhead and Chinook Salmon (Snake River fall run)

Similar factors have likely caused the decline of steelhead and Chinook Salmon. Based on the same reasons listed for Bull Trout. EPA determines this permit has no effect on the threatened species under the jurisdiction of NOAA or the USFWS.

A biological evaluation (BE) analyzing the effects of the discharge from the treatment facilities on listed endangered and threatened species in the vicinity of the facilities were prepared for the reissuance of the 2004 permit. The BE determined that issuance of this

permit will have no effect on any of the threatened or endangered species in the vicinity of the discharge.

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 when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH). A review of the EFH documents shows that the area of discharge is EFH for Bull Trout, Chinook Salmon (Snake River fall run) and steelhead. For the same reasons provided that show that issuance of this permit will have no effect on listed species, EPA concludes that the issuance of this permit will have no effect on EFH.

C. State Certification

Section 401 of the Clean Water Act (CWA) requires the State in which the discharge originates to certify that the discharge complies with the appropriate sections of the CWA, as well as any appropriate requirements of State Law. See 33 USC § 1341(d). This includes water quality standards that have been approved for Tribes with TAS. Since this facility discharges to tribal waters and the Tribe has not been approved for TAS for the Clearwater River from EPA for purposes of the Clean Water Act, EPA is the certifying authority. EPA is taking comment on EPA's intent to certify this permit.

D. Antidegradation

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

E. Permit Expiration

The permit will expire five years from the effective date.

IX. References

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

EPA. 1999. *Update of Ambient Water Quality Criteria for Ammonia*. EPA-822-R-99-014. December 1999.

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. 2009. Biological Evaluation of the Reissuance of a National Pollutant Discharge Elimination System Permit for the Twin Falls, Idaho, Wastewater Treatment Plant. Limno Tech.

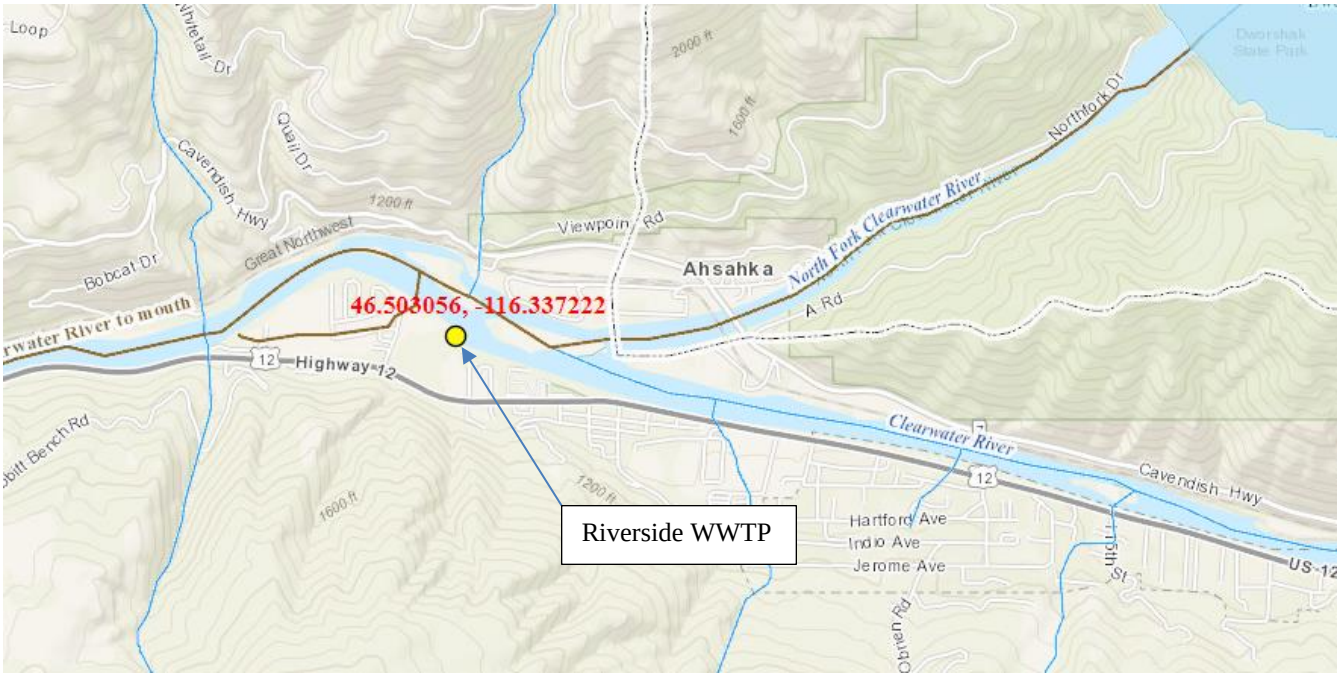
EPA. 2011. *Introduction to the National Pretreatment Program*, Office of Wastewater Management, EPA 833-B-11-011, June 2011.

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

US Fish and Wildlife Service. 2014. *Recovery Plan for the Coterminous United States Population of Bull Trout*

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

Appendix A. Facility Information



Appendix B. Water Quality Data

A. Treatment Plant Effluent Data

Parameter	Flow, in conduit or thru treatment plant	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	Nitrogen, ammonia total [as N]	pH	pH	E. coli	E. coli	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual
Monitoring Location	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Percent Removal	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Percent Removal	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross
Statistical Base	MO MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO MAX	INST MAX	INST MIN	MO GEOMN	INST MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG
Limit Units	MGD	mg/L	lb/d	mg/L	lb/d	%	mg/L	lb/d	mg/L	lb/d	%	mg/L	SU	SU	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Current Limit	Report	30	220	45	330	85	45	330	65	477	85	Report	9	6.5	126	406	0.5	3.7	0.75	5.5
08/31/2015																				
09/30/2015																				
10/31/2015	0.4	10.4	29.5	10.4	29.5	98.6	32	90.7	32	90.7	92.5	0.33	8.9	8.2	1.53	8.4	0.1	0.11	0.12	0.18
11/30/2015	0.16	7.5	6.9	7.5	6.9	98.2	27	24.8	27	24.8	96.7	0.37	8.8	7.1	1.33	4.1	0.14	0.13	0.19	0.17
12/31/2015	0.24	2.84	3.8	2.84	3.8	99.6	13	17.3	13	17.3	99.6	1.22	7.8	6.7	2.89	7.4	0.13	0.16	0.21	0.23
01/31/2016	0.42	4.2	7	4.2	7	98.6	10	16.7	10	16.7	97	3.53	8.1	7.3	2.62	6.3	0.085	0.16	0.11	0.22
02/29/2016	0.42	4.1	14.4	4.1	14.4	99.3	21	73.6	21	73.6	98.7	8.63	8.6	6.7	6.03	13.5	0.08	0.23	0.09	0.3
03/31/2016	0.42	15.9	45.1	15.9	45.1	96.9	36	102.1	36	102.1	99.7	7.63	8.9	7.9	2	5.2	0.07	0.2	0.09	0.27
04/30/2016	0.42	4.69	13.3	4.69	13.3	99.7	10	28.4	10	28.4	99.9	8.31	8.7	7.2	1.25	3.1	0.05	0.16	0.09	0.32
05/31/2016	0.24	4.76	6.4	6.63	8.9	97.4	19.5	26.02	29	38.7	89.7	2.74	8.9	7.6	1	1	0.08	0.09	0.11	0.15
06/30/2016	0.11	2.31	1.2	2.31	1.2	99.2	7	3.5	7	3.5	99.6	3.96	7.8	6.6	5.9	1730	0.15	0.11	0.32	0.28
07/31/2016																				
08/31/2016																				
09/30/2016																				
10/31/2016	0.2	5.6	9.3	5.6	9.3	99.3	20	33.4	20	33.4	99.1	0.6	7.7	6.5	1	1	0.06	0.07	0.07	0.12
11/30/2016	0.16	6.65	6	6.65	6	98.4	21	19.3	21	19.3	96.5	3.53	7.6	6.8	1	1	0.09	0.09	0.12	0.13
12/31/2016	0.24	22.1	44	22.1	44	97.2	24	48	24	48	99.7	0.0542	7.5	6.8	24.29	24.6	0.1	0.13	0.13	0.17
01/31/2017	0.24	8.9	8.3	8.9	8.3	98.8	18.3	16.8	18.3	16.8	99.6	0.74	8	6.5	1.5	2	0.07	0.1	0.08	0.1
02/28/2017	0.42	23.3	46.6	23.3	46.6	99.6	11.3	22.6	11.3	22.6	99.8	13.3	7.3	6.7	13.6	2419.6	0.1	0.28	0.16	0.49
03/31/2017	0.42	7.04	24.7	7.04	24.7	99.1	12.7	44.5	12.7	44.5	99.8	13	7.4	6.9	1	1	0.18	0.56	0.23	0.77
04/30/2017	0.42	7.63	26.7	7.63	26.7	98.6	18.9	66.2	18.9	66.2	99.8	6.64	8.6	7.4	1	1	0.08	0.21	0.15	0.53
05/31/2017	0.42	4.21	11.9	4.21	11.9	98.8	4.24	12	4.24	12	99.9	4.5	8.6	7	1	1	0.06	0.16	0.09	0.21
06/30/2017	0.24	2	2.7	2	2.7	99.6	13.2	17.6	13.2	17.6	99.5	2.22	8.8	7.2	1	1	0.08	0.11	0.1	0.17
07/31/2017																				
08/31/2017																				
09/30/2017																				
10/31/2017	0.24	5.37	7.2	5.37	7.2	98.2	24.1	32.2	24.1	32.2	99.9	1	7.7	6.5	1	1	0.25	0.28	0.33	0.3
11/30/2017	0.2	3.28	2.1	3.28	2.1	99.5	15	9.38	15	9.38	99.6	0.7	7.6	6.59	1.87	22.8	0.3	0.31	0.34	0.47
12/31/2017	0.34	4.43	5.9	4.43	5.9	96.3	12	16	12	16	90.6	2.45	8.3	6.7	8.7	78.4	0.27	0.47	0.31	0.58
01/31/2018	0.42	7.6	21.6	7.6	21.6	98.5	18	51	18	51	99.9	9.74	7.7	7.2	49.1	260.3	0.34	1.13	0.42	1.46
02/28/2018	0.42	4.8	16.8	4.8	16.8	92.2	5	17.51	5	17.51	95.8	9.3	8.8	7	16.36	88.4	0.31	1.08	0.4	1.31
03/31/2018	0.42	15.1	52.9	15.1	52.9	68.5	27	94.6	27	94.6	74.3	6	9	7.6	24.2	45	0.32	1.1	0.38	1.3
04/30/2018	0.42	9.31	26.4	9.31	26.4	92.6	13	36.9	13	36.9	97.6	5.93	7.9	7.5	12.18	83.9	0.26	0.77	0.29	0.87
05/31/2018	0.34	5.2	10.4	5.2	10.4	99.6	8	16	8	16	99.9	8.2	8.3	7.1	4.6	11	0.33	0.73	0.38	1.1
06/30/2018	0.24	4.53	9.1	4.53	9.1	99.3	36	72.1	36	72.1	98.5	8.28	8.7	7	1.84	5.2	0.25	0.29	0.31	0.61
07/31/2018																				
08/31/2018																				
09/30/2018																				
10/31/2018	0.42	5.22	7	5.22	7	95.6	52	69.4	52	69.4	54.4	0.15	8.9	7.5	13	26.2	0.19	0.24	0.23	0.33
11/30/2018	0.16	2	2.66	2	2.66	98.7	14	18.7	14	18.7	97.2	1.04	7.9	6.9	1.6	5.2	0.22	0.24	0.27	0.35
12/31/2018	0.16	2	1.83	2	1.83	98.1	1	0.92	1	0.92	99.2	3	7.5	6.6	3.8	131.7	0.21	0.24	0.24	0.29
01/31/2019	0.24	2.15	2.9	2.15	2.9	95.9	8	10.1	8	10.1	87.9	4.63	7.5	6.6	67.8	107.1	0.33	0.56	0.38	0.72

Parameter	Flow, in conduit or thru treatment plant	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	Nitrogen, ammonia total [as N]	pH	pH	E. coli	E. coli	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual
Monitoring Location	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Percent Removal	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Percent Removal	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross	Effluent Gross
Statistical Base	MO MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO MAX	INST MAX	INST MIN	MO GEOMN	INST MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG
Limit Units	MGD	mg/L	lb/d	mg/L	lb/d	%	mg/L	lb/d	mg/L	lb/d	%	mg/L	SU	SU	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Current Limit	Report	30	220	45	330	85	45	330	65	477	85	Report	9	6.5	126	406	0.5	3.7	0.75	5.5
02/28/2019	0.34	10.9	21.8	10.9	21.8	72.7	20	40	20	40	44.4	6.91	8.5	7.1	107.8	249.5	0.39	0.92	0.4	1.1
03/31/2019	0.24	24.7	49.4	24.7	49.4	88	40	80.1	40	80.1	85	8.99	8.5	6.9	18.8	90.9	0.34	0.66	0.4	0.8
04/30/2019	0.42	13.3	37.7	13.3	37.7	35.8	29	82.2	29	82.2	15	7.54	7.2	6.5	7.7	21.6	0.36	1.15	0.41	1.43
05/31/2019	0.42	27.5	87.2	27.5	87.2	12.1	29	91.9	29	91.9	54.7	0.145	7	6.5	3.1	22.8	0.3	0.8	0.35	0.98
06/30/2019	0.24	3.65	8.5	3.65	8.5	92.5	5	11.7	5	11.7	96.7	5.3	7.1	6.5	1.2	2	0.31	0.41	0.37	0.65
07/31/2019																				
08/31/2019																				
09/30/2019																				
10/31/2019	0.42	5.75	18.7	5.75	18.7	99	21	68.3	21	68.3	98.6	0.93	6.9	6.5	2.6	62.9	0.29	0.3	0.43	0.59
11/30/2019	0.11	2.4	1.8	2.4	1.8	98.8	17	12.7	17	12.7	99	1.79	7.1	6.5	1	1	0.33	0.24	0.37	0.3
12/31/2019	0.16	4.11	3.77	4.11	3.77	95.5	6	5.5	6	5.5	95.5	2.64	7.6	6.7	1	1	0.33	0.33	0.36	0.41
01/31/2020	0.24	2	2.7	2	2.7	95.4	7	9.3	7	9.3	92.2	5.82	7.2	6.7	3.15	59.8	0.32	0.58	0.37	0.71
02/29/2020	0.42	9.62	32.2	9.62	32.2	96.7	15	52.5	15	52.5	97.7	12.5	7.1	6.6	95.1	461.1	0.26	0.86	0.31	1.09
03/31/2020	0.42	10.9	21.8	10.9	21.8	82.2	44	88	44	88	57.3	5.93	8.4	6.5	2.65	5.2	0.31	0.66	0.39	0.78
04/30/2020	0.24	3.62	4.8	3.62	4.8	97.6	6	8	6	8	98.1	6.65	7.9	6.5	1.76	4.1	0.27	0.37	0.32	0.46
05/31/2020	0.24	7.1	6.51	7.1	6.51	93.9	5	4.6	5	4.6	98.4	7.87	8.5	6.7	6.28	26.2	0.26	0.31	0.28	0.41
06/30/2020	0.24	12.1	24.2	12.1	24.2	87.3	48	96.1	48	96.1	82.1	2.5	8.7	7.5	12.7	56.5	0.22	0.43	0.25	0.51
Average	0.305778	8.321087	22.07978	8.6878261	24.52543	92.22609	19.3313	45.41804	19.97261	48.88935	90.46957	4.827538	8.054348	6.915	14.4963	142.7826	0.219022	0.483043	0.271739	0.656957
Minimum	0.11	2	1.2	2	1.2	12.1	1	0.92	1	0.92	15	0.0542	6.9	6.5	1	1	0.05	0.07	0.07	0.1
Maximum	0.42	30	220	45	330	99.7	52	330	65	477	99.9	13.3	9	8.2	126	2419.6	0.5	3.7	0.75	5.5
Count	45	46	46	46	46	46	46	46	46	46	46	45	46	46	46	46	46	46	46	46
Std Dev	0.107988	7.053371	34.74721	8.2974039	49.35737	16.34737	12.72197	52.8333	13.97178	71.49231	17.69958	3.718974	0.650711	0.423891	28.561	434.4082	0.113674	0.577985	0.137765	0.821448
CV	0.353157	0.84765	1.573712	0.955061	2.012497	0.177253	0.658102	1.163267	0.699547	1.462329	0.195641	0.770367	0.08079	0.0613	1.970226	3.042445	0.519008	1.196548	0.506974	1.250384
95th Percentile	0.42	24.35	52.025	24.35	52.025	99.6	44.75	95.725	47	95.725	99.9	11.948	8.9	7.6	88.275	447.325	0.355	1.1225	0.4175	1.4
5th Percentile	0.16	2	1.8975	2	1.8975	69.55	5	4.825	5	4.825	54.475	0.186	7.1	6.5	1	1	0.0625	0.0925	0.09	0.135
90th Percentile	0.42	19	45.85	19	45.85	99.55	38	91.3	38	91.3	99.85	9.176	8.9	7.5	36.695	254.9	0.335	1	0.4	1.2

Appendix C. Reasonable Potential and Water Quality-Based Effluent Limit 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 water quality-based effluent limit must be included in the permit.

Mass Balance

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

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

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:

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

The above form of the equation is based on the assumption 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:

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

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,

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

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

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

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

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

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:

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

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.

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.

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

where,

p_n = the percentile represented by the highest reported concentration
n = the number of samples
confidence level = 99% = 0.99

and

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

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:

$$C_e = (RPM)(MRC) \qquad \text{Equation 10}$$

where MRC = Maximum Reported Concentration

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.

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

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:

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

Idaho's water 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.

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

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):

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

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

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:

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

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.

Derive the maximum daily and average monthly effluent limits

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

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

$$AML = LTA \times e^{(z_a\sigma_n - 0.5\sigma_n^2)} \quad \text{Equation 17}$$

where σ, and σ^2 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 water quality-based effluent limits. In general, Idaho’s water quality standards require criteria be evaluated at the following low flow receiving water conditions (See IDAPA 58.01.02.210.03) 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 1Q10 represents the lowest one day flow with an average recurrence frequency of once in 10 years. 2. The 1B3 is biologically based and indicates an allowable exceedance of once every 3 years. 3. The 7Q10 represents lowest average 7 consecutive day flow with an average recurrence frequency of once in 10 years. 4. The 4B3 is biologically based and indicates an allowable exceedance for 4 consecutive days once every 3 years. 5. The 30Q5 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 5 years.	

6. The 30Q10 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 10 years.
7. 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 Water Quality-Based Effluent Limit Calculations

Reasonable Potential Analysis (RPA) and Water Quality Effluent Limit (WQBEL) Calculations

Facility Name	Riverside
Facility Flow (mgd)	0.88
Facility Flow (cfs)	1.36

Critical River Flows (CFS) (IDAPA 58.01.02 03. b)

		Annual Crit. Flows	Annual Crit. Flows
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	**1Q10**	665	665.0
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	**7Q10 or 4B3**	834	834.0
Ammonia	**30B3 or 30Q10/30Q5** (seasc	1149	1,149.0
Human Health - Non-Carcinogen	**Harmonic Mean Flow**	3116	3,116.0
Human Health - carcinogen	**Harmonic Mean Flow**	3116	3,116.0

DF at defined percent of river flow allow	25%	**123.1**
DF at defined percent of river flow allow	25%	**154.2**

Receiving Water Data

Notes:

			Annual Crit. Flows
Hardness, as mg/L $CaCO_3$	= 100 mg/L	5^{th} % at critical flows	
Temperature, °C	Temperature, °C	95^{th} percentile	21.5
pH, S.U.	pH, S.U.	95^{th} percentile	7.89

Pollutants of Concern			AMMONIA , default: cold water, fish early life stages present	CHLORINE (Total Residual)
Effluent Data	**Number of Samples in Data Set (n)**		45	45
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.77	0.5
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		11,948	340
	Calculated 50^{th} % Effluent Conc. (when n>10), Human Health Only			
Receiving Water Data	**90^{th} Percentile Conc., µg/L - (C_u)**			
	Geometric Mean, µg/L, Human Health Criteria Only			
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	6,891	19.
	Aquatic Life Criteria, µg/L	Chronic	1,808	11.
	Human Health Water and Organism, µg/L		--	--
	Human Health, Organism Only, µg/L		--	--
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute		--
		Chronic		--
	Carcinogen (Y/N), Human Health Criteria Only		--	--
Percent River Flow Default Value = 25%	**Aquatic Life - Acute**	**1Q10**	25%	25%
	Aquatic Life - Chronic	7Q10 or 4B3		25%
		30B3 or 30Q10/30Q5		25%
	Human Health - Non-Carcinogen	Harmonic Mean	25%	25%
	Human Health - Carcinogen	Harmonic Mean		25%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	123.1	123.1
	Aquatic Life - Chronic	7Q10 or 4B3		154.2
	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	212.0	212.0
	Human Health - Non-Carcinogen	Harmonic Mean		573.2
	Human Health - Carcinogen	Harmonic Mean		573.2

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2 = \ln(CV^2+1)$		0.682	0.472
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	**99%**	0.903	0.903
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	**99%**	2.0	1.6
Statistically projected critical discharge concentration (C_e)			24113	552.85
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	196	4.49
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	114	3.59
Reasonable Potential to exceed Aquatic Life Criteria			**NO**	**NO**

Appendix E. 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:	Riverside Water and Sewer District
NPDES Permit Number:	ID0024503
Location:	Nez Perce Tribe
Receiving Water:	Clearwater River
Facility Location:	10460 Highway 12 Riverside, ID 83544

EPA hereby certifies that the conditions in the National Pollutant Discharge Elimination System (NPDES) permit for the Riverside Water and Sewer District 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 Nez Perce Tribe does not have TAS for the Riverside Water and Sewer District discharging into the Clearwater River. Therefore, EPA is responsible for issuing the CWA Section 401 Certification for this permit.

Daniel D. Opalski
Director

Appendix F. Antidegradation Analysis

The WQS contain an antidegradation policy providing Tier 1, Tier 2 and Tier 3 levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier 1 Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier 1 review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier 2 Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier 3 Protection. The third level of protection applies to those water bodies where an outstanding resource water has been designated by the legislature, that water quality shall be maintained and protected from the impacts of point and nonpoint source activities (IDAPA 58.01.02.051.03).

EPA is employing a water body by water body approach in conducting the antidegradation analysis. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier 1 protection for that use, unless specific circumstances warranting Tier 2 protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data was used to determine support status and the Tier protection. (IDAPA 58.01.02.052.05).

According to the 2016 Integrated Report the Clearwater River in the vicinity of the discharge is fully supporting beneficial uses. Therefore, EPA will provide a Tier 2 antidegradation analysis.

Pollutants with Limits in the Current and Proposed Permit

For pollutants that are currently limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the current permit or license (IDAPA 58.01.02.052.06.a.i), and the future discharge quality is based on the proposed permit limits (IDAPA 58.01.02.052.06.a.ii). For this permit, this means determining the permit's effect on water quality based upon the limits for BOD_5, TSS, *E. coli*, total ammonia as nitrogen, total residual chlorine and pH in the current and proposed permits.

The proposed permit limits in Table 7 for these pollutants are the same as those in the existing permit shown in Table 6. Therefore, EPA concludes that the permit complies with the Tier 2 provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).