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 Kooskia Wastewater Treatment Plant

Public Comment Start Date: September 10, 2019
Public Comment Expiration Date: October 11, 2019

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The EPA Proposes To Reissue NPDES Permit
The 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

Public Comment
Persons wishing to comment on or request a Public Hearing for the draft 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, 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 NPDES permit and related documents can be reviewed or obtained by visiting or contacting the EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at:
https://www.epa.gov/npdes-permits/about-region-10s-npdes-permit-program

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The fact sheet and draft permits are also available at:

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Acronyms **5**

I. Background Information **8**

A. General Information 8
B. Permit History 8
C. Tribal Coordination and Consultation 8

II. Facility Information **9**

A. Treatment Plant Description 9

III. Receiving Water **11**

A. Receiving Water 11
B. Water Quality Standards 11
C. Designated Beneficial Uses 11
D. Water Quality 12
E. Water Quality Limited Waters 12
F. Low Flow Conditions 13

IV. Effluent Limitations and Monitoring **13**

A. Basis for Effluent Limits 16
B. Pollutants of Concern 16
C. Technology-Based Effluent Limits 16
D. Water Quality-Based Effluent Limits 20

V. Monitoring Requirements **23**

A. Basis for Effluent and Surface Water Monitoring 23
B. Effluent Monitoring 24
C. Surface Water Monitoring 24
D. Electronic Submission of Discharge Monitoring Reports 25

VI. Sludge (Biosolids) Requirements **25**

VII. Other Permit Conditions **25**

A. Quality Assurance Plan 25
B. Operation and Maintenance Plan 26
C. Sanitary Sewer Overflows and Proper Operation and Maintenance of the Collection System 26
D. Environmental Justice 27
E. Design Criteria 27
F. Pretreatment Requirements 27
G. Standard Permit Provisions 28

VIII. Other Legal Requirements **28**

A. Endangered Species Act 28
B. Essential Fish Habitat 29
C. Antidegradation 30
D. Permit Expiration 30

IX. References 30

Appendix A. Facility Information 31

Appendix B. Water Quality Data 36

A. Treatment Plant Effluent Data 36

Appendix C. Reasonable Potential and Water Quality-Based Effluent Limit Formulae. 40

A. Reasonable Potential Analysis 40
B. WQBEL Calculations 42
C. Critical Low Flow Conditions 43

Appendix D. Reasonable Potential and Water Quality-Based Effluent Limit Calculations 45

Appendix E. Anti-Degradation Analysis 46

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
ACR	Acute-to-Chronic Ratio
AML	Average Monthly Limit
AWL	Average Weekly Limit
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BOD_5	Biochemical oxygen demand, five-day
BMP	Best Management Practices
BPT	Best Practicable
°C	Degrees Celsius
C BOD_5	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FDF	Fundamentally Different Factor
FR	Federal Register
Gpd	Gallons per day
HUC	Hydrologic Unit Code

ICIS	Integrated Compliance Information System
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
LC	Lethal Concentration
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
MPN	Most Probable Number
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
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
SIC	Standard Industrial Classification
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
TOC	Total Organic Carbon
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
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet
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 draft NPDES permit for the following entity:

Table 1. General Facility Information

NPDES Permit #:	ID0021814
Applicant:	City of Kooskia Wastewater Treatment Facility
Type of Ownership	Municipal – Publicly Owned Treatment Works (POTW)
Physical Address:	004 Airport Road Kooskia, ID 83539
Mailing Address:	P.O. Box 126 Kooskia, Idaho 83539
Facility Contact:	Mr. Carlos Martinez Public Works Superintendent kooskiapw@gmail.com (208) 935-8260
Facility Location:	Latitude: 46.132 Longitude: 115.981
Receiving Water	South Fork Clearwater River, Nez Perce Tribe
Facility Outfall	Latitude: 46.132 Longitude: 115.981

B. Permit History

The most recent NPDES permit for the City of Kooskia Wastewater Treatment Plant (WWTP) was issued on August 15, 2002, became effective on October 1, 2002, and expired on September 30, 2007. An NPDES application for permit issuance was submitted by the permittee on April 26, 2007. The EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively extended and remains fully effective and enforceable.

C. Tribal Coordination and Consultation

The 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, the EPA issued the "EPA Policy on Consultation and Coordination with Indian Tribes" which established national guidelines and institutional controls for consultation.

The Kooskia WWTP is located on the Nez Perce Reservation of the Nez Perce Tribe of Indians. Consistent with the Executive Order and the EPA tribal consultation policies, the 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

The City of Kooskia owns and operates the City of Kooskia WWTP located in Kooskia, Idaho. The collection system has no combined sewers. The facility serves a resident population of 663. There are no major industries discharging to the facility. The facility is on the Nez Perce Reservation and discharges to Nez Perce Tribal waters.

Treatment Process

The design flow of the facility is 0.198 mgd. The reported actual flows from the facility range from 0.031 to 0.682 (average monthly flow). The City of Kooskia WWTP receives, treats and discharges domestic wastewater from the city and some nearby incorporated areas. The WWTP provides treatment using a two-cell aerated lagoon system, followed by a settling contact chamber. Wastewater is then disinfected by ultraviolet radiation prior to a polishing ditch and subsequent flow into the South Fork Clearwater River. A schematic of the wastewater treatment process and a map showing the location of the WWTP and discharge are included in Appendix A. Because the design flow is less than 1 mgd, the facility is considered a minor facility.

Outfall Description

The City of Kooskia WWTP discharges continuously to the South Fork Clearwater River through an open pipe adjacent to the facility at approximately river mile 0.5.

Effluent Characterization

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

Table 2 Effluent Characterization (monthly average)

Parameter	Units	Maximum	Minimum
Biochemical Oxygen Demand (BOD_5)	mg/L	36	1.75
Total Suspended Solids (TSS)	mg/L	80	0
Total Ammonia (as N)	mg/L	30	0.16
Dissolved Oxygen (DO)	mg/L	33	0.8
pH	S.U.	9.95	7
Temperature	deg. C	30	1
E. coli bacteria	#/100 mL	14000	0
Total Residual Chlorine	mg/L	2.73	0.24

Source: DMR data 10/31/2002 to 1/31/2019

Compliance History

A summary of effluent violations is provided in Table 3. *Summary of Effluent Violations (2003-2018)*. The City has had some difficulty meeting pH limits and in particular *E. coli* and total residual chlorine limits.

The EPA entered into a consent agreement and final order with the City to resolve the alleged NPDES permit violations that occurred between January 2003 and October 2005. The City has continued progress on treatment system upgrades, including transitioning from chlorine disinfection to ultraviolet irradiation. In addition, the facility has minimized inflow and infiltration by repairing spot leaks, replacing sections of lines and manholes and set up a maintenance and replacement program.

In January 2009 and again in February 2012 following inspections, the EPA sent the City notices of violation for deficiencies noted during inspections. The 2009 notice was for a failure to calculate the 12-month average for flow and the 2012 notice contained four alleged violations on failing to list the *E. coli* analysis, failing to submit true and accurate DMRs, failing to properly cool temperature samples via the EPA guidelines and failing to provide a corresponding notice of noncompliance with the January 2011 DMR.

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=ID0021814&sys=ICP.

Table 3. Summary of Effluent Violations (2003-2018)

Parameter	Limit	Units	Number of Instances
BOD, 5-day, 20 deg. C	Weekly Average	lb/day	1
Solids, total suspended	Monthly Average	mg/L	1
Solids, total suspended	Weekly Average	mg/L	2
Solids, suspended percent removal	Percent Removal	Min Percent Removal	1
Chlorine, total residual	Daily Max	lb/day	18
Chlorine, total residual	Monthly Average	lb/day	32
Chlorine, total residual	Daily Max	mg/L	39
Chlorine, total residual	Monthly Average	mg/L	39
E. coli bacteria	Instantaneous Max	Count/100 mL	10

E. coli bacteria	Monthly Geomean	Count/100 mL	9
pH	Instantaneous Max	SU	8

The EPA conducted an inspection of the facility in April 2016. The inspection encompassed the wastewater treatment process, records review, operation and maintenance, and the collection system. No areas of concern were observed during the inspection.

III. Receiving Water

In drafting permit conditions, the 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 South Fork Clearwater River in the City of Kooskia, Idaho. The outfall is located at approximately river mile 0.5.

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. Federal regulations at 40 CFR 122.4(d) require 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 Tribe has not applied for the status of Treatment as a State (TAS) from the EPA for purposes of the Clean Water Act. When the Nez Perce Tribe is granted TAS, and when it has Water Quality Standards (WQS) approved by the 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 to protect tribal waters and the downstream waters in the State of Idaho.

C. Designated Beneficial Uses

This facility discharges to the South Fork Clearwater River in the South Fork Clearwater Basin (HUC 17060305), Water Body Unit C-1. At the point of discharge, the South Fork Clearwater River is protected for the following designated uses:

- cold water communities
- salmonid spawning
- primary contact recreation

In addition, all waters are protected for industrial and agricultural water supply, wildlife habitats and aesthetics.

D. Water Quality

The water quality for the receiving water is summarized in Table 4.

Table 4. Receiving Water Quality Data

Parameter	Units	Percentile	Value	Source	Number of Samples
Temperature	°C	95th	22.1	USGS	222
pH	Standard units	5th – 95th	6.7-8.8	USGS	66
Source: USGS 13338500: United States Geological Survey, SF Clearwater River at Stites, ID Data collected by permittee 1972-2018					

E. Water Quality Limited Waters

Any waterbody for which the water quality does not, and/or is not expected to meet applicable water quality standards is designated as a "water quality limited segment".

Section 303(d) of the Clean Water Act (CWA) requires states to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited segments. A TMDL is a detailed analysis of the water body to determine its assimilative capacity. The assimilative capacity is the loading of a pollutant that a water body can assimilate while maintaining compliance with water quality standards. Once the assimilative capacity of the water body has been determined, the TMDL will allocate that capacity among point and non-point pollutant sources, taking into account natural background levels and a margin of safety. Allocations for non-point sources are known as "load allocations" (LAs). The allocations for point sources, known as "wasteload allocations" (WLAs), are implemented through effluent limitations in NPDES permits. Effluent limitations for point sources must be consistent with applicable TMDL allocations (40 CFR 122.44(d)(vii)).

The State of Idaho's 2016 Integrated Report Section 5 (section 303(d)) lists the South Fork Clearwater River, from Butcher Creek to the mouth, as impaired for temperature and sediment. The 2016 Integrated Report was approved by the EPA on June 25, 2019.

In March 2004, IDEQ published the *South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Loads (2004 TMDL)*. The Nez Perce Tribe worked with IDEQ in the development of the *2004 TMDL*. Since the Tribe does not have TAS, on July 22, 2004, the EPA approved the TMDL for State waters and issued the TMDL for tribal waters. As the approval letter states:

> "As explained the enclosed co-issuance document, EPA is also issuing TMDLs for those waters in the South Fork Clearwater subbasin which are within Indian country."

The 2004 TMDL includes WLAs for temperature and sediment for the facility. As explained in more detail below, the draft permit proposes effluent limits consistent with the assumptions and requirements of the WLA.

F. Low Flow Conditions

The Technical Support Document for Water Quality Based Toxics Control (EPA, 1991) recommends the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling.

Critical low flows for the receiving water are summarized in Table 5. Critical Flows in Receiving Water. Flows were determined using USGS SW Toolbox and stream data from 1987 – 2019. Stream data were collected from USGS 13338500 SF Clearwater River at Stites, ID gauge.

Table 5. Critical Flows in Receiving Water

Flows	Annual Flow (cfs)
1Q10	61
7Q10	87
1B3	70
4B3	101
30B3	124
30Q5	121
Harmonic Mean	327
Source: e.g. USGS station 13338500 located upstream of the City of Kooskia.	

Low flows are defined in Appendix D, Part C.

IV. Effluent Limitations and Monitoring

Table 6 below presents the existing effluent limits and monitoring requirements in the existing 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	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Report	---	Report	Effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5)	mg/L	45	65	---	Influent and Effluent	1/week	24-Hour Composite
	lbs/day	75	107	---			

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
BOD_5 Percent Removal	%	85 (minimum)	---	---	Influent and Effluent	1/month	Calculation
Total Suspended Solids (TSS)	mg/L	70	105	---	Influent and Effluent	1/week	24 hr comp
	lbs/day	115	174	---			
TSS Percent Removal	%	85 (minimum)	---	---	Influent and Effluent	1/month	Calculation
E. coli Bacteria	CFU/100 mL	126	---	406 (instantaneous max)	Effluent	1/week	Grab
Total Residual Chlorine	mg/L	0.22	---	0.83	Effluent	5/week	Grab
	lbs/day	0.37	---	1.37			
pH	std units	Between 6.5 – 9.0			Effluent	5/week	Grab
Temperature	°C	---	---	Report	Effluent	5/week	Grab
Total Ammonia as N	mg/L	---	---	Report	Effluent	1/ month	24-Hour Composite
Dissolved Oxygen	mg/L	---	---	Report	Effluent	1/month	Grab

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
Flow	mgd	Report	---	Report	Effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45	---	Influent and Effluent	1/week	24-Hour Composite
	lbs/day	50	74	---			
BOD_5 Percent Removal	%	85 (minimum)	---	---	Influent and Effluent	1/month	Calculation
Total Suspended Solids (TSS)	mg/L	45	65	---	Influent and Effluent	1/week	24-Hour Composite
	lbs/day	74	107	---			

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
TSS Percent Removal	%	65 (minimum)	---	---	Influent and Effluent	1/month	Calculation
E. coli Bacteria	CFU/100 mL	126	---	406 (instantaneous max)	Effluent	1/week	Grab
pH	std units	Between 6.5 – 9.0			Effluent	5/week	Grab
Temperature from July 15 – Aug 31 and from Oct 1-15	°C	---	---	26	Effluent	Continuous	Recording
Total Ammonia as N	mg/L	---	---	Report	Effluent	1/quarter	24 hr comp

The proposed effluent limits and monitoring requirements in the draft permit include the following changes:

Table 8. Draft Permit - Changes Effluent Limits Comparison

Parameters	Average Monthly Limit		Average Weekly Limit		Maximum Daily Limit	
	Draft Permit (2019)	Existing Permit[2]	Draft Permit (2019)	Existing Permit[2]	Draft Permit (2019)	Existing Permit[2]
BOD_5 (mg/L)	30	45	45	65	---	---
BOD_5 in (lbs/day[1])	50	75	74	107	---	---
BOD_5 Minimum Percent Removal	85	65	---	---	---	---
TSS (mg/L)	45	70	65	105	---	---
TSS in (lbs/day[1])	74	115	107	174	---	---
Dissolved Oxygen	Removed	Report	---	---	---	---
Temperature (°C)	---	---	---	---	26	Report
Total Residual Chlorine (mg/L)	Removed	0.22	---	---	Removed	0.83
Total Residual Chlorine (lbs/day)	Removed	0.37	---	---	Removed	1.37

1. The existing permit limits were issued in 2002.

Explanations of these changes are discussed below.

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. The 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 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 ultraviolet radiation 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), total suspended solids (TSS), E. coli bacteria, pH, ammonia and temperature.

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

- BOD_5
- TSS
- *E. coli* bacteria
- pH
- Temperature
- 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. The 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 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		

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 10.

Table 10. 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 BOD_5 and BOD_5 percent removal. The TSS limits were based on state-specific adjusted TSS requirements.

Using DMR data from 2002 to 2019, 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 11 for the Treatment Equivalent to Secondary Treatment determinations for BOD_5 and TSS.

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	24.9 mg/L	30 mg/L	No
Weekly Average	24.9 mg/L × 1.5 = 37.3 mg/L	45 mg/L	No
TSS	**95th Percentile**	**Secondary Treatment Standard**	**Exceed Secondary Standard**
Average Monthly	50.6 mg/L	30 mg/L	Yes
Weekly Average	50.6 mg/L × 1.5 = 75.9 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**
	83.6%	65%	Yes

Therefore, 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.

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	65%	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 0.198 mgd, the technology based mass limits for BOD_5 are calculated as follows:

Average Monthly Limit = 30 mg/L × 0.198 mgd × 8.34 = 49.5 lbs/day

Average Weekly Limit = 45 mg/L × 0.198 mgd × 8.34 = 74.3 lbs/day

The mass limits for TSS are calculated as follows:

Average Monthly Limit = 45 mg/L × 0.198 mgd × 8.34 = 74.3 lbs/day

Average Weekly Limit = 65 mg/L × 0.198 mgd × 8.34 = 107 lbs/day

Chlorine

Chlorination is cited in the existing permit as a form of disinfection to the City's municipal wastewater prior to discharge. Following a number of chlorine effluent violations in 2004 - 2006, the City dismantled the chlorination system and installed an ultraviolet radiation system. The City also confirmed that chlorine is not used anywhere else within the facility. As chlorine is no longer used in any form within the facility, the EPA proposes to remove the chlorine effluent limits.

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

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) 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

The 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, the 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.

As discussed previously, Idaho's water quality standards were used as reference for this permit. Idaho's water quality standards provide for mixing zones for point source discharges in certain circumstances. The proposed mixing zones are summarized in Table 12. The EPA also calculated dilution factors for year round critical low flow conditions. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 0.198 mgd.

Table 12. Mixing zones

Criteria Type	Critical Low Flow (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor
Acute Aquatic Life	61	25	50.9
Chronic Aquatic Life (except ammonia)	87	25	--
Chronic Aquatic Life (ammonia)	124	25	--
Human Health Noncarcinogen	121	25	99.8
Human Health Carcinogen	327	25	--

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 D.

Reasonable Potential and Water Quality-Based Effluent Limits

The reasonable potential and water quality-based effluent limit for specific parameters are summarized below. As previously discussed, Idaho's water quality standards were used as reference for this permit. The effluent limit 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):	0.0
2. Receiving Water pH:	0.00
3. Is the receiving water a cold water designated use?	Yes
4. Are non-salmonid early life stages present or absent?	Present
OUTPUT	
Total ammonia nitrogen criteria (mg N/L):	
Acute Criterion (CMC)	**39.00**
Chronic Criterion (CCC)	**7.09**

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

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet 1.45 \cdot 10^{0.028(25-T)})$$

A reasonable potential calculation showed that the Kooskia facility discharge would not have the reasonable potential to cause or contribute to a violation of the water quality criteria for ammonia. The draft permit requires that the permittee continue to monitor the receiving water for ammonia, pH and temperature in order to determine the applicable ammonia

criteria for the next permit reissuance. See Appendices D and F for reasonable potential and effluent limit calculations for ammonia.

pH

The Idaho water quality standards 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. Therefore, the existing effluent limitations are continued in the proposed permit.

Dissolved Oxygen (DO) and BOD_5

The Idaho water quality standards establish a minimum level of 6 mg/L 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 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. Nutrients such as ammonia and phosphorus cause excessive plant and algae growth and decay which can also significantly affect the amount of dissolved oxygen available.

The technology-based limits for BOD_5 will ensure that the discharge does not cause or contribute to a violation of dissolved oxygen criteria in the receiving water. The City will continue to sample for DO in the effluent and surface water of the South Fork Clearwater River to assess DO impacts on water quality.

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.

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.

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, the 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.

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.

TSS

The *2004 TMDL* assigns a WLA for the Kooskia facility for TSS at 45 mg/L monthly average and 65 mg/L weekly average (*See* Page 217 of the 2004 TMDL). The TMDL was approved by the EPA on July 22, 2004. The NPDES regulations state that effluent limits must be consistent with the assumptions and requirements of any of the EPA-approved WLA in a TMDL. (*See* 40 CFR 122.44(d)(1)(vii)(A)). Therefore, the permit includes monthly and weekly average TSS limits consistent with the WLA in the *2004 TMDL*. The 2002 existing permit had limits based on adjusted TSS requirements for the State of Idaho also had technology based standards for facilities that treat domestic sewage using stabilization ponds/lagoons of 70 and 105 mg/L as monthly and weekly averages, respectively. These limits have been discontinued and were never approved by the EPA, and therefore the federal requirements specified above apply.

Temperature

The *2004 TMDL* assigns a WLA for the Kooskia facility for temperature of 26 °C. This WLA was based on effluent monitoring effluent conducted by the City in 2003. Peak temperatures were reached during July 2003, with a maximum daily temperature of 26 °C (78.8 °F) recorded on July 31. Based on these data, the TMDL established a WLA of 26 °C (78.8 °F) expressed as a maximum daily limit. The WLA applies from July 15 – August 31, and from October 1 – 15, when temperature criteria in the Southfork Clearwater River are expected to be exceeded. (*See* Page 185 of the 2004 TMDL). In the draft permit, the is establishing a maximum daily limit of 26 °C (78.8 °F) from July 15 – August 31 and from October 1 – 15 consistent with the assumptions and requirements of the TMDL.

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 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 permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to the 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 the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

Table 14. Effluent Monitoring in Draft Permit

Parameter	Sample Location	Sample Frequency	Sample Type
Flow, mgd	Effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5), mg/L	Influent and Effluent	1/week	24 hr comp
Total Suspended Solids, mg/L	Influent and Effluent	1/week	24 hr comp
pH, standard units	Effluent	5/week	Grab
E. coli bacteria, colonies / 100mL	Effluent	5/week	Grab
Temperature, degrees C	Effluent	Continuous	Recording
Ammonia (as N), mg/L	Effluent	1/quarter	24 hr comp

Monitoring Changes from the Previous Permit

Total residual chlorine monitoring is being removed as the facility no longer uses chlorine as a form of disinfectant in the treatment process. Ammonia monitoring is being proposed at lesser frequencies and monitoring for DO is being removed.

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. Table 15 presents the proposed surface water monitoring requirements for the draft permit. Surface water monitoring results must be submitted with the DMR.

Table 15. Surface Water Monitoring in Draft Permit

Parameter	Units	Sample Frequency	Sample Location
Flow	mgd	1/quarter	Upstream of outfall
pH	Standard units	1/quarter	Upstream of outfall
Temperature	°C	1/quarter	Upstream of outfall
Ammonia (as N)	mg/L	1/quarter	Upstream of outfall

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.

The 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.

VI. Sludge (Biosolids) Requirements

The EPA Region 10 separates wastewater and sludge permitting. The EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. The 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 City of Kooskia 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 must 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 the EPA and the Nez Perce Tribe upon request.

B. Operation and Maintenance Plan

The permit requires the City of Kooskia 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 the EPA and the Nez Perce Tribe 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 the 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 the 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 the 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 the 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, the 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. The 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 Kooskia 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 facility is located near a potentially overburdened community, the 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 three consecutive months.

F. Pretreatment Requirements

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

Special Condition Section 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. The 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 Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species.

NOAA Fisheries lists the following species:

- Middle Columbia River Steelhead
- Snake River Fall-run Chinook Salmon
- Snake River Spring/Summer-run Chinook Salmon
- Snake River Sockeye Salmon
- Snake River Steelhead
- Upper Columbia River Spring-run Chinook Salmon
- Upper Columbia River Steelhead

USFWS lists the following species:

- Canada Lynx
- North American Wolverine
- Bull Trout

- Spalding's Catchfly

The EPA has determined that the reissuance of an NPDES permit to the Kooskia WWTP will have no effect on Middle Columbia River steelhead, Snake River fall-run chinook salmon, Snake River spring/summer run chinook salmon, Snake River sockeye salmon, Snake River steelhead, Upper Columbia River spring-run chinook salmon, Upper Columbia River steelhead, Canada lynx, North American wolverine, bull trout, and Spalding's Catchfly.

For the North American wolverine, Canada lynx and Spalding's Catchfly, no critical habitat has been designated for these species. As the only direct threats to the North American wolverine and the Canada lynx from the Kooskia WWTP would be through direct drinking water exposure, there should be no impact on them from the discharge. The facility discharges only domestic waste, and the facility's current discharge shows no metals or other toxics. Therefore, it is not expected that reissuance of the wastewater discharge permit to the Kooskia WWTP will affect any of these species

The U.S. Fish and Wildlife Service Draft Bull Trout Recovery Plan (USFWS 2002) 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. Similar factors have likely caused the decline of other salmonid species such as the Middle Columbia River steelhead, Snake River fall-run chinook salmon, Snake River spring/summer run chinook salmon, Snake River sockeye salmon, Snake River steelhead, Upper Columbia River spring-run chinook salmon, and the Upper Columbia River steelhead.

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.

The majority of sediment input to the streams in the Middle Snake River basin comes from nonpoint sources. The BE cited a study by the University of Idaho that stated that over a 13 month period from 1990 to 1991, irrigated agriculture contributed more than 21,000 tons of sediment to the river. During this same period major tributaries with irrigated agriculture contributed more than 452,000 tons of sediment to the Middle Snake River. The Kooskia permit prohibits sediment discharges above 107 lbs/day of sediment. Sediment discharges will have no effect on listed species.

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 the 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).

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.

The EPA has determined that issuance of this permit will have no effect on any EFH in the vicinity of the discharge.

C. Antidegradation

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

D. Permit Expiration

The permit will expire five years from the effective date.

IX. References

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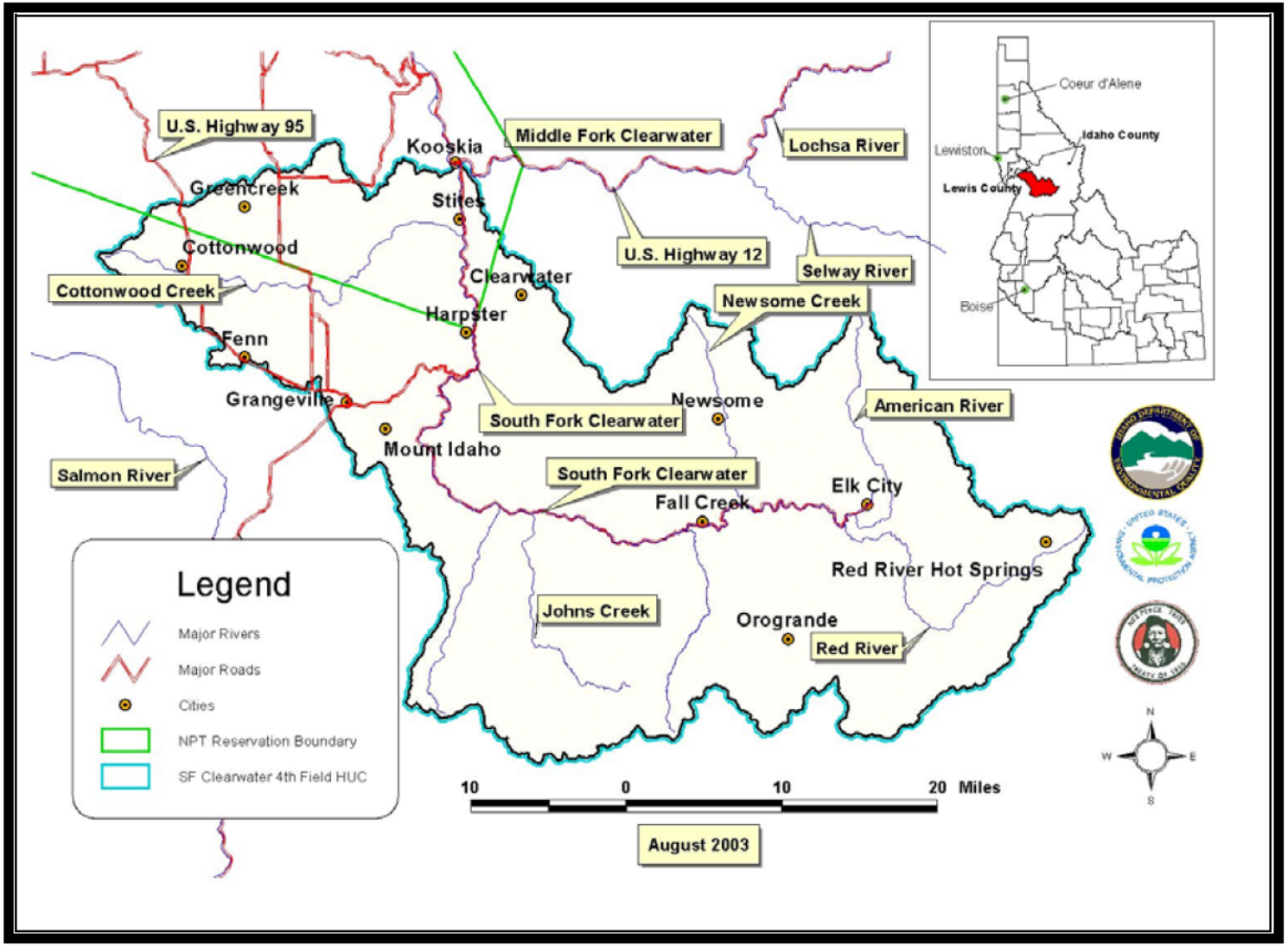
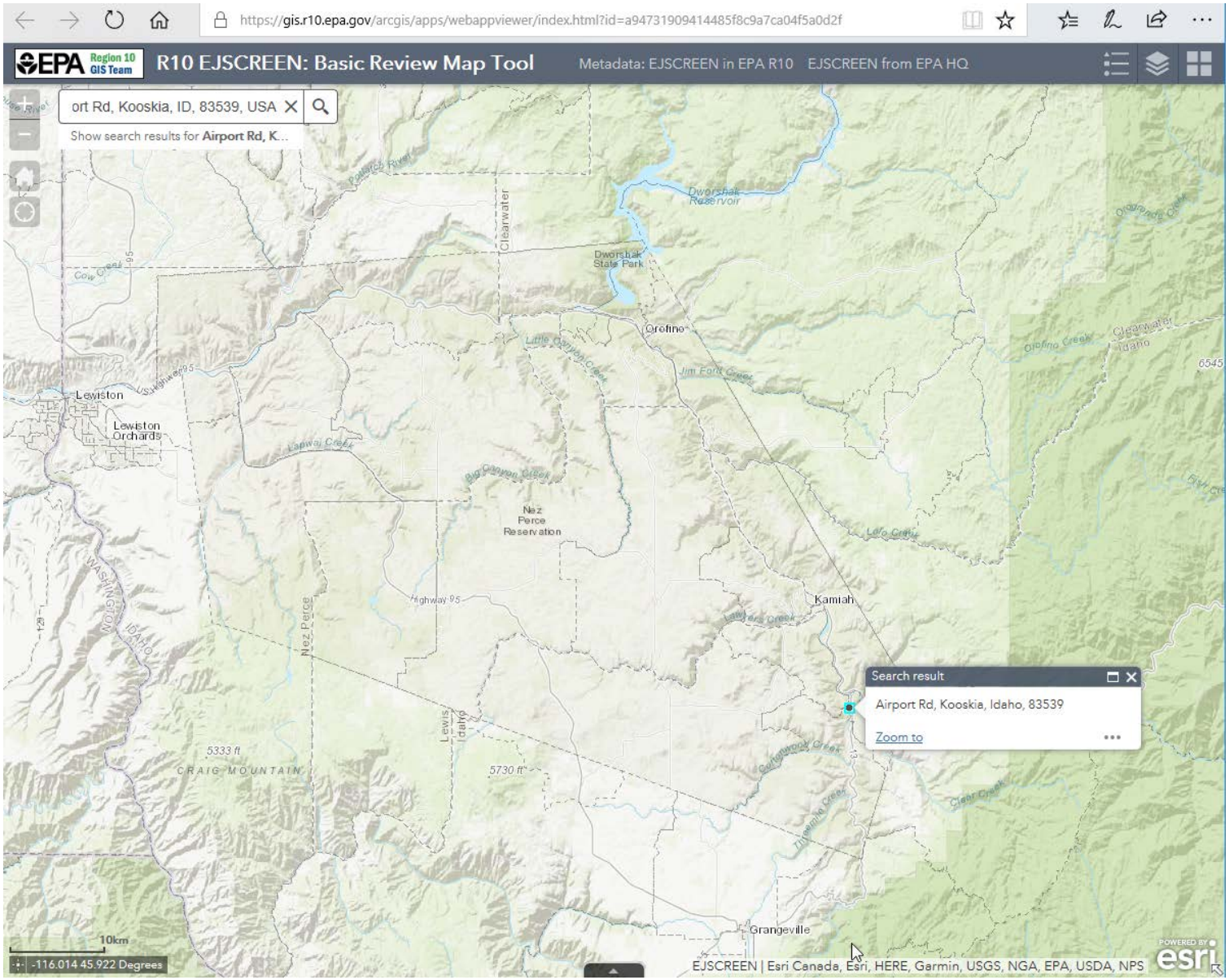
Appendix A. Facility Information

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EPA Region 10 GIS Team
R10 EJSCREEN: Basic Review Map Tool
Metadata: EJSCREEN in EPA R10
EJSCREEN from EPA HQ
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Show search results for Airport Rd, K...
Dworshak Reservoir
Dworshak State Park
Orofino
Lewiston
Lewiston Orchards
Nez Perce Reservation
Kamiah
Grangeville
Search result
Airport Rd, Kooskia, Idaho, 83539
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CRAIG MOUNTAIN
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10km
-116.014 45.922 Degrees
EJSCREEN | Esri Canada, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS
esri


NF-16
Middle Fork Clearwater River
Clearwater River
Riley Park
Mill St
West St
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Business Highway 12
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B Ave
Mount
Stewart
A Ave
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Hill St
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Front St
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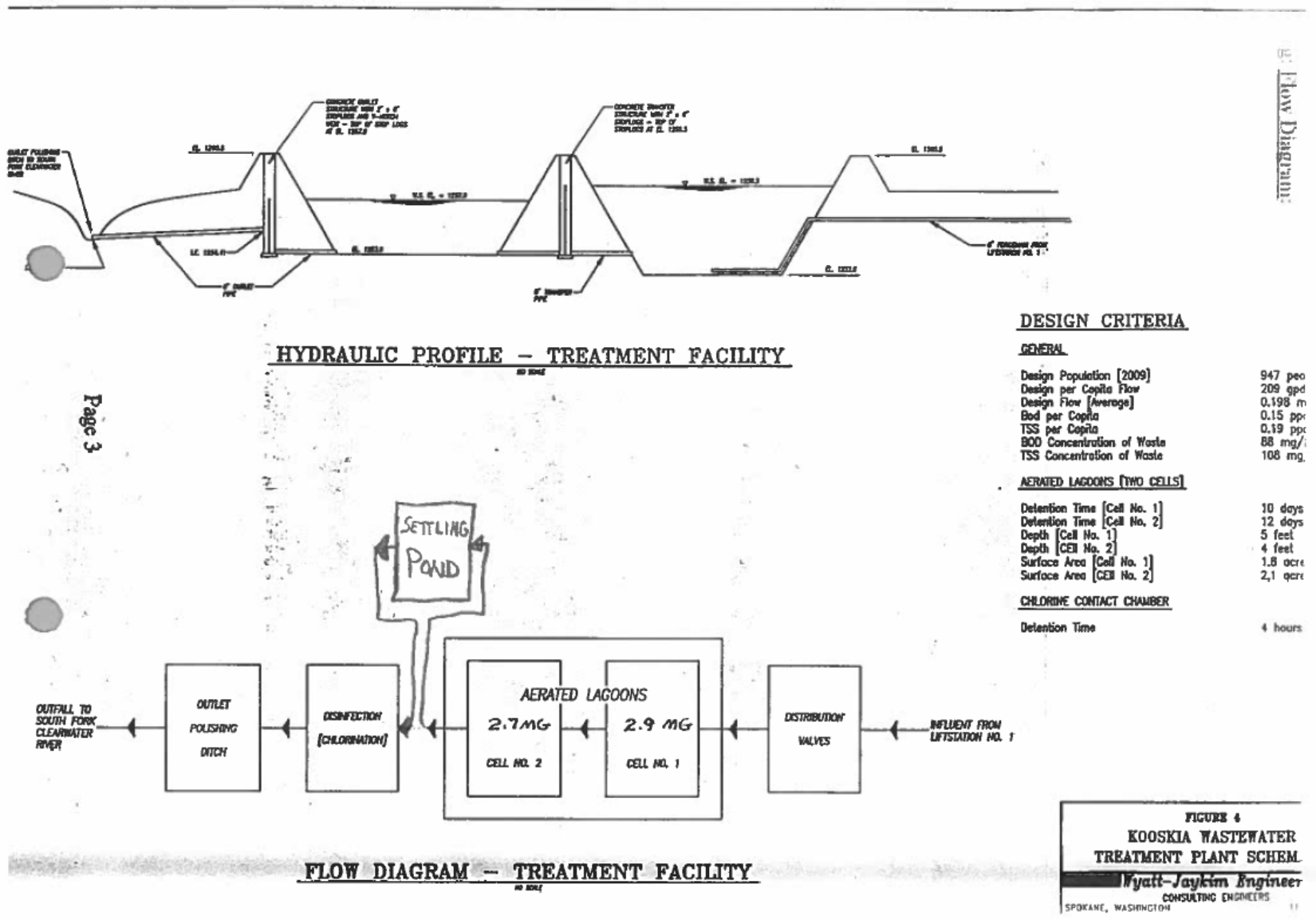
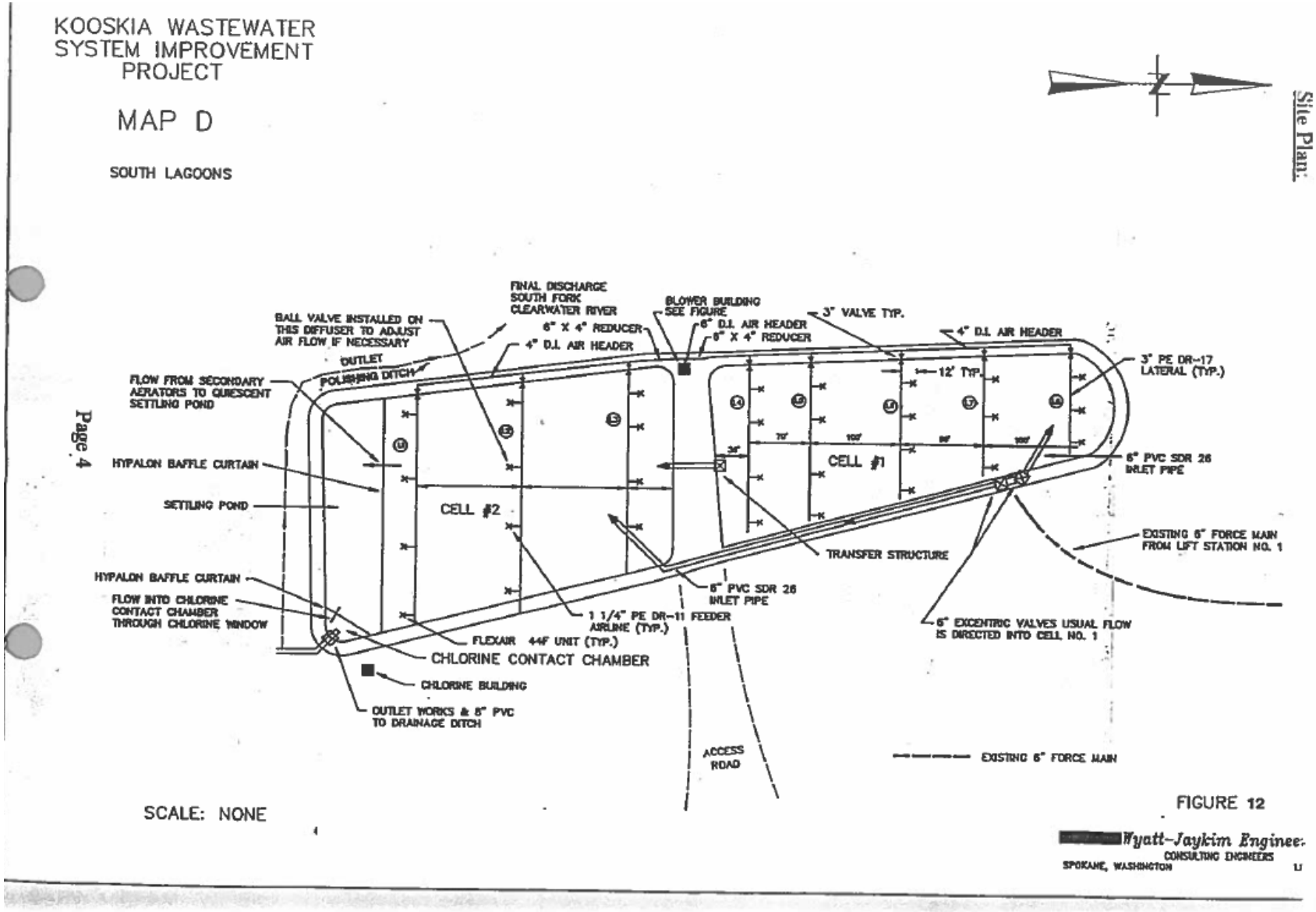
WWTP
Airport Rd
Esther Spur
Pine Grove Dr
Winona Grade
Orchard Ln



Note: Chlorination has been replaced with ultraviolet radiation as the primary disinfection method.


KOOSKIA WASTEWATER
SYSTEM IMPROVEMENT
PROJECT
MAP D
SOUTH LAGOONS
Site Plan
Page 4
FINAL DISCHARGE
SOUTH FORK
CLEARWATER RIVER
BALL VALVE INSTALLED ON
THIS DIFFUSER TO ADJUST
AIR FLOW IF NECESSARY
OUTLET
POLISHING DITCH
6" X 4" REDUCER
4" D.I. AIR HEADER
BLOWER BUILDING
SEE FIGURE
6" D.I. AIR HEADER
6" X 4" REDUCER
3" VALVE TYP.
4" D.I. AIR HEADER
3" PE DR-17
LATERAL (TYP.)
12' TYP.
FLOW FROM SECONDARY
AERATORS TO QUIESCENT
SETTLING POND
HYPALON BAFFLE CURTAIN
SETTLING POND
CELL #2
CELL #1
6" PVC SDR 26
INLET PIPE
TRANSFER STRUCTURE
EXISTING 6" FORCE MAIN
FROM LIFT STATION NO. 1
HYPALON BAFFLE CURTAIN
FLOW INTO CHLORINE
CONTACT CHAMBER
THROUGH CHLORINE WINDOW
6" PVC SDR 26
INLET PIPE
1 1/4" PE DR-11 FEEDER
AIRLINE (TYP.)
6" EXCENTRIC VALVES USUAL FLOW
IS DIRECTED INTO CELL NO. 1
FLEXAIR 44F UNIT (TYP.)
CHLORINE CONTACT CHAMBER
CHLORINE BUILDING
OUTLET WORKS & 8" PVC
TO DRAINAGE DITCH
ACCESS
ROAD
EXISTING 6" FORCE MAIN
SCALE: NONE
FIGURE 12
Hyatt-Jaykim Engineers
CONSULTING ENGINEERS
SPOKANE, WASHINGTON

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	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	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]	Oxygen, dissolved [DO]	pH	pH	Temperature, water deg. centigrade	E. coli	E. coli	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual
Monitoring Location	Effluent Gross	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	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	Effluent Gross	Effluent Gross
Statistical Base	MO MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	DAILY MX	MO AV MN	INST MAX	INST MIN	DAILY MX	INST MAX	MO GEOMN	DAILY MX	DAILY MX	MO AVG	MO AVG
Limit Units	MGD	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	%	mg/L	lb/d	mg/L	lb/d	%	mg/L	mg/L	SU	SU	deg C	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Current Limit	Report	Report	Report	Report	Report	Report	Report	Report	Report	45	75	65	107	65	70	115	105	174	65	Report Quarterly Max	Report Monthly Max	9	6.5	Report Daily Max	406	126	0.83	1.37	0.22	0.37
10/31/2002																														
11/30/2002		195	80			900				36	15	36	15	81	33		33		99			8	8				0.6			
12/31/2002		61	25			51				27	11	27	11	66	12		12		76				8		1	1	0.7			
01/31/2003		204	128			637				10	6	10	6	95	7		7		99	23.8	6.5	8.5	7.5	6.8	300	235	1			
02/28/2003		715.5	973			748				2.25	3.1	6	8.2	99.7	0		0		100	23.8		8	7.5	6.1	170	88	1		0.75	
03/31/2003		230.8	315.7			1333				6	4.9	15	20.5	97.4	3.6		8		99.7	23.8	7.8	8.5	7.75	15.3	110	40	2		1.1	
04/30/2003	0.206	243	279.7	660	759.6	625	719.3	1770	2037	22.8	26.2	27	31.1	90.6	25.4	29.2	41	47.2	95.9	5.37	10.2	8.75	8	19.7	80	19.8	1.2	1.38	0.8	0.92
05/31/2003	0.114	174.3	139.6	278	222.6	255.3	204.4	723	578.9	14.25	18.3	24	21.6	91.8	23.5	18.8	40	32	90.8	5.37	9.1	8.5	6.75	23	20	9.75	1.2	0.96	0.73	0.58
06/30/2003	0.083	628	288	2100	963	834	383	2980	136	3	1.38	4	1.83	99.5	5	2.3	6	2.8	98.7	5.37	1.2	7.75	7.25	25	110	34	1	0.46	0.63	0.29
07/31/2003	0.036	629.2	189	1910	573	232.8	70	1130	339	3.2	1	6	1.8	99.5	5.8	1.7	16	4.8	97.5	11.5	6	7.5	7.25	26	80	23.2	1.5	0.45	0.5	0.15
08/31/2003	0.056	172	55.7	187	60.5	143.8	46.5	163	52.7	29.8	9.6	54	17.5	82.7	23.8	7.7	34	11	83.4	11.5	1	7.5	7.2	24	850	402.5	1	0.32	0.24	0.08
09/30/2003	0.046	229	74.3	420	136.3	377	122.3	1030	334.2	21.5	7	41	13.3	90.6	17.3	5.6	26	8.4	95.4	11.5	33	7.5	7	22	1100	282	1.5	0.49	0.84	0.27
10/31/2003	0.049	211.6	74.1	256	89.7	199.2	69.8	242	84.8	13	4.6	24	8.4	93.9	13	4.6	22	7.7	93.5	0.16	1.47	7.5	7	15	160	39.4	0.8	0.28	0.28	0.13
11/30/2003	0.058	276.8	108.5	335	131.3	347	136	675	264.6	20.5	8	35	13.7	92.6	28	11	40	15.7	91.9	0.16	9.12	8	7.5	6	800	392	1.2	0.47	0.57	0.22
12/31/2003	0.09	441	228	1340	692.7	1119.6	578.9	4450	2301	7.4	3.8	9	4.7	98.3	24.8	12.8	32	16.5	97.8	0.16	11.13	8	7.5	6	150	86	1.5	0.78	0.94	0.49
01/31/2004	0.218	442.5	339.5	1130	867	889	682.3	2210	1695.7	7.25	5.56	9	6.9	98.4	17	13	20	15.3	98.1	18.8	8	8	7.5	3	200	92	1.75	1.34	0.5	1.06
02/29/2004	0.217	77	100.2	86	111.9	92	119.7	156	203	11.5	15	13	16.9	85	22.5	29.3	25	32.5	75.5	18.8	12.5	8	7.5	8	110	55	1	1.3	0.81	1.05
03/31/2004	0.141	195	169.1	385	333.9	257.6	223.4	686	595	16.4	14.2	26	22.6	91.6	27	23.8	46	39.9	89.4	18.8	15	9	8	13	10	9.2	1.3	1.13	0.94	0.61
04/30/2004	0.077	153.5	87.1	186	105.5	132	74.9	189	107.2	9.75	5.5	14	7.9	93.6	14	7.9	18	10.2	89.4	4.43	13	8.5	7	17	10	9.6	1	0.57	0.8	0.45
05/31/2004	0.295	225.8	297.5	435	573.2	274.3	361.5	547	720.8	4.25	5.6	6	7.9	98.1	8.25	10.9	11	14.5	97	4.43	3.5	7.5	7	21	10	10	1.3	1.7	0.75	0.95
06/30/2004	0.287	204.6	310.6	580	880.4	350.6	532.2	1230	1867	2.6	4	4	6.1	98.7	5.4	8.2	10	15.2	98.5	4.43	3.5	7.5	7	24	9	9	1	1.52	0.76	1.15
07/31/2004	0.093	206	84.2	445	181.9	209.8	85.7	483	197.4	4.3	1.74	6	2.45	97.9	7.5	3.1	10	4.1	96.4	6.68	3	7.5	7	25	20	11.8	1	0.4	0.48	0.2
08/31/2004	0.087	223.6	91.5	480	196.1	218	89.1	472	192.8	5.4	2.2	10	4.08	97.7	11	4	21	8.6	96.4	6.68	1.5	7.5	7	24	120	31.2	1.5	0.6	0.49	0.29
09/30/2004	0.069	147	63.8	240	104.1	188.25	81.1	369	160.2	24	1	53	23	83.7	17.5	7.6	26	11.27	90.7	6.68	1.3	7.5	7	19	850	227	1.2	0.56	0.45	0.2
10/31/2004	0.065	171.7	68.7	215	86.1	127	50.8	254	101.7	3	1.2	5	2	98.2	14.3	5.7	18	7.2	86.4	7.42	3.5	7.5	7	15	9	9	1.5	0.6	0.7	0.28
11/30/2004	0.083	274	128	678	316.6	275.6	128.7	883	412.4	9.25	4.3	21	9.8	96.6	14.6	6.8	20	9.3	94.7	7.42	7.5	7.5	7.5	8	30	19.8	1.3	0.61	0.65	0.3
12/31/2004	0.088	312	171.7	570	313.8	297.5	163.8	655	360.5	3.3	1.8	4	2.2	98.9	5	2.8	8	4.4	98.3	7.42	8	7.5	7.5	6	90	37	1.2	0.66	0.9	0.5
01/31/2005	0.088	217	121.3	279	155.9	189.8	106	210	117.3	4.2	2.35	6	3.35	98.1	8.6	4.81	10	5.59	95.5	22.2	8	7.5	7.5	0	10	9.6	1.2	0.67	1.05	0.59
02/28/2005	0.083	295	159.9	620	336.1	267.8	145.1	623	337.7	5.5	2.98	7	3.79	98.1	8.75	4.74	17	9.2	96.7	22.2	8.5	8	7.5	6	40	23	1.3	0.7	0.77	0.42
03/31/2005	0.106	387	196.8	490	249.2	458	233	1020	518.9	10.3	5.2	13	6.6	97.3	13.5	6.9	20	10.2	97.1	22.2	12	8.5	7.5	11	100	34	1.7	0.86	1.2	0.61
04/30/2005	0.2	273	330.1	435	526	309	373.7	622	752.2	10.3	12.5	17	20.6	96.2	12.8	15.4	18	21.8	95.9	11.5	4	8	7.25	19	10	9.25	2.4	2	1.35	1.12
05/31/2005	0.326	139.8	283.3	318	644.5	113	229	305	618.1	3.4	6.9	5	10.1	97.6	7.4	15	15	30.4	93.5	11.5	3.5	7.5	7.25	22	2	17.4	2	4.05	0.96	1.95
06/30/2005	0.245	150.8	192.4	284	362.4	127.3	162.4	199	253.9	6	7.6	12	15.2	96	11.5	14.7	18	23	91	6.82	3	7.25	7	22	900	430	1.5	1.9	0.81	1
07/31/2005	0.108	213.5	108.6	388	197.4	209.5	106.6	456	232	20.3	10.3	34	17.3	90.5	29.3	14.9	50	25.4	86	6.82	1	7.5	7	23	14000	3772.5	1.5	0.76	0.41	0.21
08/31/2005	0.05	213.5	108.6	388	197.4	209.5	106.6	456	232	20.3	10.3	34	17.3	93.5	29.3	14.9	50	25.4	83.2	10.3	2	7.5	7	22	290	89.6	1.7	0.62	1.33	0.49
09/30/2005	0.47	337	129.3	392	150.4	407.5	156.3	735	282	12	4.6	18	6.9	96.4	27.8	10.6	37	14.2	93.2	10.3	2	7.25	7	18	2000	699.8	2	0.77	1.6	0.61
10/31/2005	0.087	232.5	120.2	284	146.9	215.3	111.3	247	127.7	12	4.6	18	6.9	94.8	25	12.9	47	24.3	88.4	21.4	4	7.5	7.25	12	130	39.3	3	1.55	2	1.03
11/30/2005	0.106	247.2	156.7	402	254.8	248.4	157.4	417	264.3	10.8	6.8	19	12	95.6	32.2	20.4	41	26	87	21.4	8	8	7.5	10	70	21.2	2.5	1.6	1.9	1.2
12/31/2005	0.134	386	276.9	800	573.8	341.5	244.9	572	410.3	11.7	8.4	15	10.8	97	35	21.5	48	34.4	89.8	21.4	8.5	7.5	7.5	3	10	6.7	3	2.1	2.6	1.9
01/31/2006	0.152	199.8	205	272	279	211.4	216.9	290	297.5	9.2	9.4	16	16.4	95.4	25.8	26.5	57	58.5	87.8	17.8	10	7.5	7.5	4	10	9	2.8	2.9	2.3	2.4
02/28/2006	0.111	294	230.5	380	297.7	383	300.3	753	590.3	8.8	6.9	15	11.8	97	34	26.7	44	34.5	91	17.8	11	7.75	7.5	5	10	9	3.2	2.5	2.73	2.14
03/31/2006	0.161	523.8	546.1	975	1016.4	744.5	776.1	1510	1574.2	25.8	26.9	33	34.4	95.1	50.5	52.6	60	62.6	93.2	17.8	13	8	7.5	11	80	32	3	3.1	1.4	1.46
04/30/2006	0.3	317	539.3	528	898.3	551.75	938.73	1240	2109.7	15.75	26.8	24	40.1	95	27.25	46.36	49	83.4	95.1	17.8	10	8	7.5	16	90	29.25	1.8	1.8	1.5	1.51
05/31/2006	0.148	195.6	172.9	360	318.3	179.6	158.8	262	231.6	11.8	10.4	17	15	94	43.6	38.5	56	49.5	75.7	17.8	4	8	7	24	1300	275.4	2.5	2.21	1.2	1.06
06/30/2006	0.129	174.3	151.2	308	267.1	143	128	184	159.6	7.8	6.7	11	9.5	95.5	25	21.7	46	39.9	82.5	17.8	3	7.5	7	24	60	21.8	3	2.6	1.17	1.01
07/31/2006	0.08	530.6	216.8	875	357.6	602.6	246.2	1410	576.2	13.2	5.4	34	13.9	97.5	24.4	9.9	38	15.5	95.9	2.75	2	7.5	7	26	760	237.6	2	0.82	0.935	0.38
08/31/2006	0.56	255	95.7	305	114.4	209.5	78.6	352	132.1	3.25	1.2	4	1.5	98.7	26	9.75	34	12.7	87.5	2.75	2	7.5	7	23	10	7.75	3.5	1.31	2.397	0.89
09/30/2006	0.101	235	111.7	334	158.7	169.5	80.6	270	128.3	14.5	6.9	22	10.5	93.8	26.8	12.7	33	15.7	84.2	2.75	2	7	7	18	10	9	1.75	0.83	1.358	0.65
10/31/2006	0.068	191.6	86.3	221	99.5	228.4	102.9	352	158.5	15.4	6.9	25	11.3	92	29.8	13.42	38	17.1	87	11.5	4	7.25	7	14	600	127.2	3.5	2.6	1.5	0.68
11/30/2006	0.103	205.75	111.5	277	150.1	167.75	90.9	276	149.6	10.25	5.5	15	8.1	95	28.5	15.44	37	20	83	11.5	5	7.5	7	9	350	94.25	3	1.6	1.7	0.92
12/31/2006	0.247	163.8	133.8	225	183.9	154	125.9	203	165.9	10	8.17	14	11.4	93.9	24.8	20.2	35	28.6	83.9	11.5	7	7.5	7	4	650	179.8	3.5	2.86	2.04	1.67
01/31/2007	0.082	149.2	91.8	194	119.4	167.4	103	205	126.2	8.6	5.3	12	7.4	94.2	16.6	10.2	31	19.1	90	11.5	7	7.5	7.25	3	12	15.1	3.5	2.15	0.99	0.61
02/28/2007	0.173	160.75	158.2	240	236.2	151.5	149.1	229	225.4	13.75	13.75	16	15.7	91.4	38.75	38.1	44	43.3	74.4	11.5	11	8	7.5	6	20	10.98				
03/31/2007	0.237	159.75	206.5	193	249.4	163.5	211.3	199	257.2	21.75	28.1	31	40.1	86.3	34.75	45.2	67	87	78.7	12.3	6	8.2	7.5	12	20	0				
04/30/2007	0.219	157.5	264	224	376.5	139.5	234	206	345.3	12.5	21.5	31	32.5	92.1	21	35.2	38	63.7	72.4	11.1	4	7.8	7.25	18	19.9	0				
05/31/2007	0.119	170	126.1	217	161	105.2	78.1	206	153	11.4	8.5	22	16.3	93.3	22.4	16.6	38	28.2	78.7	11.1	4	7.5	7.25	22	35.5	7.97				

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	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	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]	Oxygen, dissolved [DO]	pH	pH	Temperature, water deg. centigrade	E. coli	E. coli	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual
Monitoring Location	Effluent Gross	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	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	Effluent Gross	Effluent Gross
Statistical Base	MO MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	DAILY MX	MO AV MN	INST MAX	INST MIN	DAILY MX	INST MAX	MO GEOMN	DAILY MX	DAILY MX	MO AVG	MO AVG
Limit Units	MGD	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	%	mg/L	lb/d	mg/L	lb/d	%	mg/L	mg/L	SU	SU	deg C	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Current Limit	Report	Report	Report	Report	Report	Report	Report	Report	Report	45	75	65	107	65	70	115	105	174	65	Report Quarterly Max	Report Monthly Max	9	6.5	Report Daily Max	406	126	0.83	1.37	0.22	0.37
06/30/2007	0.16	230.5	173	422	316.7	232.8	174.7	468	351.3	6.5	4.9	8	6	97	13.5	10.1	18	13.5	94	11.1	3	7.5	7.5	23	23.1	0				
07/31/2007	0.072	370	191.3	712	368.2	401	207.3	1020	527.4	8.2	4.2	12	6.2	97.7	27.2	14.1	38	19.6	93.2	11.1	3	7.5	7.5	26	3.1	0				
08/31/2007	0.061	227.75	83.6	259	95	210.3	77.2	276	101.2	12.25	4.5	15	5.5	95	80	29.3	195	71.5	66	11.1	4	8.3	7.5	24	2	0				
09/30/2007	0.087	554.3	240.4	1240	537.7	673	291.9	1714	743.3	10.8	4.7	16	6.9	98	35	15.2	41	17.8	97	11.1	5	8	7.5	21	18.5	0				
10/31/2007	0.08	387.6	200.4	575	297.3	367.8	190.1	780	403.3	13.2	6.8	29	15	96.6	18.2	9.4	42	21.7	95.1	3.3	4	7.5	7.25	13	1	0				
11/30/2007	0.118	286.5	176.8	430	265.4	222.3	137.2	315	194.4	7.8	4.8	12	7.4	97.3	19.5	12	56	34.6	91.2	3.3	9	7.5	7.5	8	5.2	0				
12/31/2007	0.105	600.1	385.4	1020	655	210.8	135.3	265	170.2	11.75	7.5	13	8.3	98	27.5	17.7	35	22.5	86.6	3.3	12	8	7.5	5	4.1	0				
01/31/2008	0.097	255.8	173.9	438	297.7	160	109.4	236	161.4	16.2	11	19	12.9	93.7	31	21.2	51	34.9	80.6	28.6	10	8.34	8.1	2	13.5	0				
02/29/2008	0.103	326	253.1	678	526.4	220.1	171.4	356	276.4	13	10.1	15	11.6	96	26	20.2	44	34.2	88.2	28.6	12	8.35	7.7	8	3.1	1.58				
03/31/2008	0.166	223	240.1	379	408.1	143.2	154.2	191	205.6	16.3	17.6	27	29.1	92.7	36.8	39.6	64	68.9	74.3	28.6	12	8.76	7.79	8	1	0				
04/30/2008	0.146	177.8	192	217	234.4	151.2	163.3	214	231.1	24.4	26.4	45	48.6	86	66.2	71.5	75	81	56	5.1	14	9	8.14	16	0	0				
05/31/2008	0.14	598.5	525.1	1500	1579.3	508.75	446.4	1330	1166.9	24.8	21.8	41	36	95.9	52.8	46.3	109	95.6	93	5.1	12	9.5	7.42	23	30	0				
06/30/2008	0.171	349.6	317.8	1050	954.5	465	422.7	1650	1499.9	2.2	2	5	4.5	99.4	5.8	5.3	9	8.2	98.8	5.1	6	7.63	7.43	24	1	0				
07/31/2008	0.063	412	168.4	710	290	587.5	240.1	1220	498.6	1.75	0.72	7	2.86	99.6	5	2.04	6	2.45	99.1	20	3	7.67	7.33	26	0	0				
08/31/2008	0.117	316.75	137.4	665	288.4	365.3	154.5	1120	485.7	6.25	2.71	9	3.9	98	10	4.3	17	7.4	97.3		4	7.7	7.3	25	2	0				
09/30/2008	0.072	228.4	95.2	408	170.3	207.4	86.5	371	154.7	13	5.42	36	15	94.3	18.2	7.6	36	15	91.2		4	7.67	7.45	19.9	5.2	0				
10/31/2008	0.069	234	103.4	298	131.7	203.3	89.8	300	132.6	5.25	2.32	8	3.54	97.8	10.8	4.8	16	7.07	94.7	4.9	4	7.65	7.47	16	0	0				
11/30/2008	0.097	569	336.9	1200	710.6	623.3	369	1430	846.8	5.8	3.4	7	4.1	99	11.8	7	16	9.5	98.1		4	7.75	7.48	8	0	0				
12/31/2008	0.117	276	184.1	322	214.8	213.8	142.6	338	225.5	6.7	4.5	13	8.7	97.6	12.6	8.4	22	14.7	94.1		8	7.95	7.53	6	10.8	0				
01/31/2009	0.235	10.35	146.7	146	206.9	139.25	197.4	177	250.9	9.25	13.1	13	18.43	91.1	16.5	23.4	25	35.1	88.2	16	8	7.63	7.25	2	69.1	21.6				
02/28/2009	0.122	372.3	350.8	490	461.8	505	475.9	802	755.8	6.75	6.4	7	6.6	98.2	13	12.3	23	21.7	97.4		9	7.6	7.42	7	2	1.68				
03/31/2009	0.222	405.6	473.6	675	788.1	796.4	929.9	1190	1389.4	9.6	11.2	17	19.8	97.6	10	11.7	19	22.2	98.7		8	7.89	7.54	8	142.1	0				
04/30/2009	0.268	192.5	290.6	280	422.7	215.5	325.3	299	451.4	12.5	18.9	19	28.7	93.5	12.5	18.9	22	33.2	94.2	14	5	8.05	7.41	17	21.6	3.6				
05/31/2009	0.198	228.3	257	280	315.3	267.8	301.5	512	576.5	9	10.1	12	13.5	96.1	14.8	16.6	18	20.3	94.5		4	7.92	7.76	22	73.3	21.8				
06/30/2009	0.176	203	199.8	252	248	214	210.6	294	289.3	3	3	6	5.9	98.5	6.4	6.3	10	9.8	97		3	7.98	7.59	25	9.1	0				
07/31/2009	0.078	335	176	520	273.2	298.3	156.7	456	239.6	5.5	2.9	7	3.7	98.4	14.3	7.5	18	9.5	95.2	4.7	2	7.9	6.96	24	0	0				
08/31/2009	0.111	361.5	211	480	280.2	243.5	142.2	306	178.6	7.8	4.5	9	5.3	97.9	20.3	11.9	24	14	91.7		3	7.43	6.88	23	0	0				
09/30/2009	0.068	318	156.5	368	181.1	266	130.9	360	177.1	6.8	3.3	8	3.9	97.9	11.4	5.6	15	7.4	95.7		5	7.51	7.28	20	0	0				
10/31/2009	0.088	393	222.8	640	363	444	524.6	925	251.8	9.3	5.2	17	9.6	97.6	22.6	12.8	31	17.6	94.9	9.5	5	7.73	7.49	11	0	0				
11/30/2009	0.098	414.7	269.8	630	409.8	465.3	302.7	920	598.5	8.7	5.7	9	5.9	97.9	29.5	19.2	36	23.4	93.7		9	8.13	7.59	7	0	0				
12/31/2009	0.138	464.8	372.1	730	584.4	570.6	456.8	1020	816.7	14.4	11.5	27	21.6	96.9	25.2	20.2	37	29.6	95.6		9	8.12	7.58	4	960.6	72				
01/31/2010	0.173	448	460	565	580	483.8	496.2	730	748.8	11.8	12.1	14	14.2	96	23.3	23.9	27	27.7	95.2		11	8.04	7.87	3	25.3	0				
02/28/2010	0.132	323.5	288.7	540	481.9	351	313.2	680	606.8	15.3	13.7	22	19.6	95.3	40	35.7	49	43.7	88.6	19.3	9	8.75	8.3	7	62.4	15.7				
03/31/2010	0.144	324	272.9	354	298.2	372	313.4	648	545.8	25.6	21.6	35	29.5	92.1	63.4	53.4	83	69.9	83		18	8.84	7.56	10	313	0				
04/30/2010	0.18	212	235.2	294	326.1	237	262.9	327	362.7	18.3	20.3	34	37.7	91.4	36	39.9	53	58.8	84.8	8.9	10	8.44	7.49	18	30	0				
05/31/2010	0.21	185.5	256.8	228	315.7	214.3	296.6	280	387.6	10.8	15	19	26.3	94.2	18.8	26	21	29.1	91.2		4	7.9	7.6	21	4.1	0				
06/30/2010	0.577	393	222.8	640	363	444	251.8	925	524.6	9.3	5.2	17	9.6	96.8	22.6	12.8	31	17.6	94.4		4	7.86	7.63	24	12.2	0				
07/31/2010	0.178	267.8	241.2	460	414.3	240	216.2	544	490	4.3	3.8	5	4.5	98.4	10.5	9.4	17	15.3	95.6	8	4	8.04	7.79	26	2	0				
08/31/2010	0.087	369	206.2	422	235.8	380.6	212.4	464	259.3	9.4	5.3	13	7.3	97.5	31.2	17.4	44	24.6	91.8		4	8	7.2	25	0	0				
09/30/2010	0.1	285.5	161.9	352	239.3	255.5	144.9	404	229.1	14	7.9	16	9.1	95.1	51	28.9	54	30.6	80		6	7.52	7.05	20	1	0				
10/31/2010	0.116	275	169.7	410	253	286.5	176.8	554	341.9	10.3	6.4	15	9.3	96.3	41.8	25.8	47	29	85.4	0.6	6	7.71	7.07	17	1	0				
11/30/2010	0.117	359.2	269.6	585	439.1	522.6	392.3	815	611.7	20.4	15.3	28	21	94.3	50.2	37.7	58	43.5	90.4		10	8.07	7.13	9	2	0				
12/31/2010	0.246	244.5	330.3	440	594.5	325	475.6	594	802.5	11.5	15.5	15	20.3	95.3	26.8	36.2	34	45.9	91.8		10	8.06	7.63	3	9.6	5.9				
01/31/2011	0.332	199.8	368.3	420	774.1	244.8	451.1	492	906.8	6	11.1	6	11.1	97	9.8	18	15	27.6	96	13.9	9	7.59	7.34	4	7.1	3.4				
02/28/2011	0.226	134	173.6	108.4	214.6	159.4	255.2	218	349	5.8	9.3	10	16	94.6	23.6	37.8	67	107.3	85.2		12	7.81	7.25	6	3.1	0				
03/31/2011	0.211	95.3	167.7	118	207.6	135.5	238.4	174	306.2	13.3	23.4	16	28.2	86	19.8	34.8	26	45.8	85.4		10	8.31	7.45	11	8.5	2.03				
04/30/2011	0.378	84.8	201.6	124	294.7	171.5	407.6	252	599	9.3	22.1	16	38	89	14	33.3	23	54.7	91.8	8.95	8	7.77	7.18	14	74.8	0				
05/31/2011	0.429	83.4	188.2	105	258.7	103	224.9	156	268	12.2	26.3	30	62	85.4	18.2	39.5	35	72.4	82.3		6	7.69	7.04	19	2	0				
06/30/2011	0.45	180	413.7	334	741	230	565	317	869.8	4.5	9.1	6	14.2	97.5	7.8	17.9	10	21.3	96.6		6	7.9	7.3	22	1	0				
07/31/2011	0.148	188.5	158.4	273	202.2	253.8	223.9	276	281.6	8.8	6.5	23	16.7	95.3	33.5	30	62	65	86.8	1.2	4	9.19	7.43	26	1	0				
08/31/2011	0.109	310.5	167.8	381	183.1	343.2	188.5	400	235.1	12.4	4.5	24.2	7.2	96	38.2	21.9	50	34.2	88.9	3.26	6	8.8	7.4	26	2	0				
09/30/2011	0.058	323	134.3	400	176.8	265	111.4	364	157.9	6.6	2.9	11	4.9	98	25.8	11.1	42	18.2	90.3	7.4	4	7.54	7.3	22	0	0				
10/31/2011	0.229	233.7	172.9	268	247.1	285	211.6	299	296.7	9	6.8	11.6	9.9	96.1	37.3	27.7	39	38.7	86.9	9.35	5	7.49	7.34	17	0	0				
11/30/2011	0.088	347	214.2	399	226.3	329.4	198.7	524	301.5	13.7	8.4	20.7	14	96.1	25.4	15.7	34	20.8	92.3	18	8	7.86	7.39	10	1	0				
12/31/2011	0.095	293.5	176	340	215.5	344	209.2	584	370.2	12.3	7.3	14	8.1	95.8	19.3	11.4	30	17.3	94.4	30	12	7.94	7.71	4	8.5	0				
01/31/2012	0.117	270	202.6	348	325.1	239	157.7	284	205.5	10.9	13.4	24.8	26.6	95	24.5	16.5	44	27.2	89.7	21.75	11	8.03	7.8	2	27.2	0				

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	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	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]	Oxygen, dissolved [DO]	pH	pH	Temperature, water deg. centigrade	E. coli	E. coli	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual
Monitoring Location	Effluent Gross	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	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	Effluent Gross	Effluent Gross
Statistical Base	MO MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	DAILY MX	MO AV MN	INST MAX	INST MIN	DAILY MX	INST MAX	MO GEOMN	DAILY MX	DAILY MX	MO AVG	MO AVG
Limit Units	MGD	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	%	mg/L	lb/d	mg/L	lb/d	%	mg/L	mg/L	SU	SU	deg C	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Current Limit	Report	Report	Report	Report	Report	Report	Report	Report	Report	45	75	65	107	65	70	115	105	174	65	Report Quarterly Max	Report Monthly Max	9	6.5	Report Daily Max	406	126	0.83	1.37	0.22	0.37
06/30/2012	0.315	231.3	373.9	344	558.4	234	379.3	344	558.4	3.6	7	7.8	15.3	98.4	18.3	31.5	21	44	92.2	9	5	7.5	7.15	20	3.1	0				
07/31/2012	0.113	216.3	141.9	299	204.5	525.3	355	1372	938.3	11.8	8.1	13.8	12.1	94.5	55.3	39.2	82	63.1	89.5	1.7	6	8.1	7.3	27	0	0				
08/31/2012	0.062	326.4	150.6	310	175.9	308	142	380	158.8	13.5	6.6	26.5	15	95.9	50.8	24.4	75	42.5	83.5		6	7.5	7.3	25	0	0				
09/30/2012	0.064	360.7	126.6	408.8	176.9	577	196	1020	340.3	16.3	5.6	27	8.6	95.5	45.5	15.4	56	17.7	92.1		5	7.35	7.15	20	0	0				
10/31/2012	0.068	305.5	147.1	339.2	169.6	215.2	125.5	324	156.7	16.2	7.9	26.1	11.3	94.7	52	25.1	76	33.6	75.8	2.05	6	7.42	7	12	3.1	0				
11/30/2012	0.082	291.4	153.4	351	175.6	481	242	1068	498.8	7.2	4	13.5	8.3	97.4	16.8	9.1	24	14.8	96.5		12	7.71	7.22	10	4.1	1.42				
12/31/2012	0.113	175.6	117.9	188	147.9	189	124.3	252	140.8	15.1	9.7	19.2	11.6	91.4	20.3	13.7	26	18.8	89.3		12	8.3	7.4	5	14.5	0				
01/31/2013	0.187	187	141.2	220	190.8	232.8	206.9	316	455.9	19.3	16.2	23.6	34	89.7	23.4	18.9	25	36.1	89.9		10	8.47	7.78	2	36.4	0				
02/28/2013	0.186	242.9	236.9	399.5	506.4	315.5	329.7	688	872.2	23.4	20.4	41	40.3	90.4	26.2	23.1	31	39.3	89.9		11	9	7.91	6	20.9	7.5				
03/31/2013	0.102	111.3	162.8	118.4	173.2	241	163.8	356	237.5	16.9	11.6	19.7	13.5	89.6	42.8	29.3	46	32.6	82.2		16	9.62	8.95	11	8.6	0				
04/30/2013	0.119	211.5	135.8	239	154.4	213	139.7	352	211.4	14	7.8	20	13.8	93.4	27.3	17.3	44	30.4	87.2	4.74	9	9.77	7.45	15	1	0				
05/31/2013	0.089	174.2	94.6	231	115.6	300	165.9	400	235.2	4.1	2.4	9	5	97.6	18	9.9	35	19.3	94		4	7.8	7.43	23	3	0				
06/30/2013	0.088	231.8	98.3	266	164.2	280	125	392	248.5	3	1.1	6	2	98.7	9.3	6.1	17	14.7	96.7		4	7.85	7.66	22	0	0				
07/31/2013	0.169	211.8	120.2	403	233.8	256.2	125.2	756	219.4	13.2	12.1	29.7	21.7	93.8	36.6	20.7	56	48.6	85.7		3	8.69	7.85	26	4.1	0				
08/31/2013	0.031	253	73.6	363	111.8	926	228.2	2808	632.3	7.6	2.16	11	3.2	97	48.8	13.3	75	21.9	94.7	11.5	4	8.42	7.6	25	0	0				
09/30/2013	0.068	129.6	342.8	199.1	373	352	139.8	500	266.9	9.3	3.4	10	4.3	97.3	29.3	10.6	34	16	91.7		4	7.74	7.5	24	0	0				
10/31/2013	0.057	276.6	88.1	338	100.9	312	97.8	468	124.9	6	2.1	12.5	5	97.8	23.4	7.8	56	22	92.5	6.9	8	7.81	7.6	14	2	0				
11/30/2013	0.072	331.4	144.8	395	177.9	545	226.1	728	302.6	3.6	1.6	7	2.7	98.9	19.5	8.6	32	12.6	96.4		8	8.12	7.63	7	1	0				
12/31/2013	0.093	161	80.4	215	114.8	255	128	412	219.9	19.2	7.7	14.6	14.6	90.9	20.8	10.5	29	15.5	91.8		12	8.1	7.62	2	72.8	14				
01/31/2014	0.113	204.4	126.7	392	255	248	156.3	536	348.7	19.1	12.1	26	16.9	90.7	25	15.4	29	17.9	89.9	23.3	11	7.89	7.65	1	8.5	0				
02/28/2014	0.111	105.3	89.6	166	109.4	95	60.1	156	102.7	23.5	21.4	26	28.9	77.7	33	30.9	38	44.9	65.3		13	8.15	7.7	5	93.3	25.3				
03/31/2014	0.304	157.8	157.8	286	286	129	233.6	188	446.2	17.7	27.4	23.5	40.6	85.1	20.5	34.3	30	58.3	84.1		11	7.86	7.61	10	1	0				
04/30/2014	0.249	160.6	175.2	235	225.4	137.1	148.8	230.2	240	17.8	18.7	31	28	88.9	32.6	32.1	89	77.9	77.1		5	8.3	7.3	16	3	0				
05/31/2014	0.147	216.5	178.3	256	205	200	165.6	276	221	10.5	8.5	16	11.2	95.2	8.5	7.2	11	9.4	95.8		5	7.54	7.19	20	1	0				
06/30/2014	0.124	289	171	332	244.2	210	116.9	356	163.3	3.2	1.8	6	2.8	98.9	1.8	0.93	4	1.83	99.1		4	7.59	7.47	23	8.4	0				
07/31/2014	0.166	287.2	251.4	397	312.9	236	210.4	284	254.7	5.5	5.2	9.5	10.1	98.1	16.6	16.9	33	35.2	93	0.44	4	8.2	7.37	26	4.1	2.19				
08/31/2014	0.121	360.3	117.2	413	165.7	401	134.8	536	232.4	8.2	3	14	4.1	97.7	24.5	7.6	32	9.3	93.9		3	8.29	7.25	26	1	0				
09/30/2014	0.042	425	109.8	508	152.5	524.8	138.9	823	240.2	4.9	1.3	7.2	2.1	98.9	31.8	8.4	44	13.2	93.9		5	7.49	7.28	21	1	0				
10/31/2014	0.088	286.4	99.04	333	194.41	338.4	114.8	568	196.16	4.3	1.3	6.7	1.9	98.5	12.8	3.94	17	4.67	96.2	2.84	12	7.37	7	18	7.3	0				
11/30/2014	0.186	393.5	312.5	416	365.4	766	578	1148	889.9	10	8.2	19	16	97.5	14	11.1	32	27	98.2		12	7.58	7.31	11	4.1	0				
12/31/2014	0.161	397.6	396.1	456	505.8	259.3	264	319.6	292	13	13.6	29.4	35.1	96.7	15.4	15.4	19	21.1	94.2		19	7.68	7.4	5	6.1	2.05				
01/31/2015	0.228	254.6	400.4	323.5	466.8	188	291.9	332	479	24.5	38.9	33	56.4	90.4	13.3	21.2	18	27.9	92.9	17.1	11	7.57	7.13	6		0				
02/28/2015	0.2	263.8	407	331	497	189	29	248	384.7	10.1	15.8	8	41.9	96.2	14	21.7	25	40.7	92.6		20	7.52	7.3	9	5.2	1.8				
03/31/2015	0.229	228.3	307.9	322	418.9	166	221.6	230	316.9	9.6	13.8	14.2	18.5	95.8	27.5	40.9	38	72.6	83.4		13	8.1	7.36	15	5.2	3				
04/30/2015	0.224	148.8	217.4	255	302	227.2	331.4	296	380.2	15	22.4	29	37.2	89.9	33.4	51.2	48	66	85.3	10.05	18	8.6	7.34	18	3.1	0				
05/31/2015	0.151	237	234.9	259	257	177	176.3	224	216.7	2.3	2.2	4	3.9	99	5.5	5.6	11	11.8	96.9		13	7.59	7.37	22	0	0				
06/30/2015	0.118	299	185	377	266	407	254	516	377.9	5.9	3.5	8	3.9	98	18.5	11.1	27	13.9	95.4	14.4	15	8.44	7.51	30	1	0				
07/31/2015	0.087	361.4	165.3	392	247.2	407.2	183.5	688	292	8.9	4	27	11.5	97.5	44.4	20.5	55	35.3	89.1	0.9	8	8.86	7.62	29	60.5	0				
08/31/2015	0.109	283.8	153.2	333	232.6	425	217.9	560	280.2	6.9	3.3	15	6.6	97.6	30	15.8	36	20.3	92.9		9	7.55	7.3	25	4.1	0				
09/30/2015	0.104	240.6	162.8	280	189.1	321.6	218.3	408	302.8	8.3	5.7	21.6	16	96.6	36	24.8	64	41.1	88.8		8	7.49	7.11	19	3.1	0				
10/31/2015	0.117	285.3	184.7	338	248.1	540	343.3	740	531.4	6.8	4.6	10	6.8	97.6	24	16.7	41	33.2	95.6	5.55	9	7.41	7.02	16	1	0				
11/30/2015	0.184	211.3	201.6	336	297	296	288	480	424.3	9.1	8.5	15	13.1	95.7	35.5	35.9	38	47.1	88		6	7.88	7.28	12	2	0				
12/31/2015	0.202	174.2	215.2	269	268.7	254.4	288.5	564	423.3	8.3	11.1	13.4	19.9	95.2	15	18.9	25	37.1	94.1		8	7.79	7.41	6	14.3	2.3				
01/31/2016	0.167	185.8	232.5	254	349.5	158	195.1	200	275.2	10.4	12.6	21	27.5	94.4	6.2	7.5	10	12.4	96.1	14.9	10	7.75	7.34	5	4.1	0				
02/29/2016	0.211	175.3	235.7	254	326.2	469	595	1176	1392.7	12.6	17.2	15.5	22.4	92.8	8.3	11.1	12	14.2	98.2		9	7.81	7.35	9	90.8	15.9				
03/31/2016	0.349	114.2	246.5	166	303.2	102.4	220.8	264	482.2	9.8	22.5	14	36.1	91.4	13.2	27.1	24	42.2	87.1		10	7.96	7.19	13	6.3	0				
04/30/2016	0.272	117	180	150	269	216	328.7	248	370.3	5	7.8	7.5	13.4	95.7	12.3	18.5	30	46.3	94.3	9.45	9	7.55	7.38	20	3	0				
05/31/2016	0.243	154.3	187.8	192	248.2	308	371.5	328	403.3	12.6	15.8	27	34.9	91.8	30.3	36.7	37	47.8	90.2		11	7.7	7	21	2	0				
06/30/2016	0.16	196.8	184	317	285.5	224.8	220.4	380	342.2	9.9	9.4	11	10.7	95	32.2	30.3	43	40.5	85.7		10	7.34	7	26	3.1	0				
07/31/2016	0.175	244.8	183.9	340	243.9	287.7	352	387	428	7.8	6.3	14	10.6	96.8	56.5	48	63	76.2	83.9	2.25	7	7.1	6.75	25	1	0				
08/31/2016	0.082	302.2	166.5	435	217.7	474.4	256.4	1040	520.4	12.14	7	17	11.5	96	50.2	28.5	59	35.8	89.4		8	7.16	6.62	25	1	0				
09/30/2016	0.08	284	171.7	306	197.8	349	207.9	488	284.9	8.8	5.3	11.3	6.5	96.9	35.3	21.1	42	26.6	89.9		3	7.19	6.82	21	1	0				
10/31/2016	0.167	173.8	153.9	262	264.4	312.5	284.7	608	613.6	8	6.8	15	14.5	95.4	27	21.5	42	27	91.4	4.49	6	7.1	6.88	16	1	0				
11/30/2016	0.161	173.8	153.9	262	264.4	312.5	284.7	608	613.6	8	6.8	15	14.5	95.4	27	21.5	42	27	91.4		5	7.69	7	12	1	0				
12/31/2016	0.152	198.5	212	234	259.6	216	281.4	448	474.5	7.5	8	12.1	12.8	96.2	15	16	21	23.3	97.7		9	7.82	7.61	6	8.6	3.5				
01/31/2017	0.183	162.5	202.7	200	215.5	171	215.3	200	265.7	11.6	14.9	15	20	92.9	10.5	13.3	12	16	93.9	20.4	4	7.84	7.73	1	81.6	0				

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	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	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]	Oxygen, dissolved [DO]	pH	pH	Temperature, water deg. centigrade	E. coli	E. coli	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual
Monitoring Location	Effluent Gross	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	Raw Sewage Influent	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	Effluent Gross	Effluent Gross
Statistical Base	MO MAX	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MIN % RMV	DAILY MX	MO AV MN	INST MAX	INST MIN	DAILY MX	INST MAX	MO GEOMN	DAILY MX	DAILY MX	MO AVG	MO AVG
Limit Units	MGD	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	%	mg/L	lb/d	mg/L	lb/d	%	mg/L	mg/L	SU	SU	deg C	#/100mL	#/100mL	mg/L	lb/d	mg/L	lb/d
Current Limit	Report	Report	Report	Report	Report	Report	Report	Report	Report	45	75	65	107	65	70	115	105	174	65	Report Quarterly Max	Report Monthly Max	9	6.5	Report Daily Max	406	126	0.83	1.37	0.22	0.37
06/30/2017	0.177	174.5	185.9	233	243.6	234	256	320	397.7	11.8	13.7	24	29.8	93.2	4.8	5.3	7	8.7	97.7		1.2	7.61	7.42	27	0	0				
07/31/2017	0.092	261.3	153.2	340	221.9	259.5	152.1	336	224	3.2	2.1	8.7	6.2	98.8	7.8	4.6	12	8.5	97	3.82	1.2	7.62	7.49	30	1	0				
08/31/2017	0.066	260.2	133.7	350	183.9	324.8	168.7	644	338.4	3.9	2	8	4.2	98.5	8.4	4.1	20	9.3	97.4		0.8	7.58	7.5	27	1	0				
09/30/2017	0.114	238.8	157.4	270	210.1	218	142.4	420	276.7	4.6	6.5	8	16	98.1	12	8.1	18	14.3	94.5		0.8	7.75	7.51	23	9.7	0				
10/31/2017	0.143	142	116.6	199	164.3	218	179.5	304	251	6.6	5.3	9	7.4	95.4	29.8	24.2	37	30.2	86.3	14.89	1.8	7.75	7.43	15	1	0				
11/30/2017	0.224	250	195	369.6	249	253.6	267.2	316	366.9	7.9	9.2	13	19.3	95.9	30	31.2	37	42.3	88.2		6	8.17	7.56	8	0	0				
12/31/2017	0.403	182.5	222.7	210	282	244.8	199.5	3082	248	25.3	31.1	32	39.8	86.1	20.8	17	29.5	22	91.5		7	8.15	7.8	6	35.9	10.9				
01/31/2018	0.428	72	228.1	106	341.2	84	253.5	172	441.8	21.3	68.3	32	114.2	70.4	8	25.2	10	32.2	85.7	4.69	5	7.87	7.61	5	19.1	4.5				
02/28/2018	0.357	144	345	200	444	101	243.8	124	285.8	26.5	63.9	30.8	74.9	81.6	4.5	10.8	8	17.9	95.5		6	7.8	7.67	7	8.6	0				
03/31/2018	0.262	258.3	119.5	326.2	154	171.2	8	313.5	152	30.8	68.5	32	91.8	74.2	26.3	11.5	38.5	18	86.1		7	8.85	7.65	11	1	0				
04/30/2018	0.36	150.3	427.4	213	565.9	152	410.8	288	521.2	24.8	72.8	29	99.4	83.5	33.5	92.9	52	131.4	78	0.98	7	9.95	7.78	18	45	0				
05/31/2018	0.351	191.2	404.2	253	565.5	148	312.1	236	527.5	25.2	53.8	28	65.7	86.8	12.2	24.4	26	49	91.8		1.4	8.22	7.33	24	2	0				
06/30/2018	0.243	357.3	487.2	429	558.1	306	415.7	352	516.7	21.3	29.3	25	39	94	28.5	36.4	54	60.8	84.7		3	8.38	7.38	23	8.6	2.4				
07/31/2018	0.117	242.8	175.4	344	263.9	199	134.1	328	251.7	10.3	7	14.2	11.5	95.8	35	24.9	45	35	82.4	1.66	1.4	7.72	6.87	26	2	0				
08/31/2018	0.136	269.6	158.9	319	246.1	309.6	182.1	452	287.2	16.5	9	23	12.3	93.9	27.8	17.5	42	36.8	91		1.6	7.32	6.77	25	1	0				
09/30/2018	0.123	334	161.8	382	219.9	247	123.2	288	202.2	6.2	3.2	13	4.4	98.1	28	15.8	38	32	88.7		1.4	7.59	6.87	20.3	1	0				
10/31/2018	0.17	361.4	237.4	423	317.4	360	232.2	516	327.1	11.1	7	14	9.8	96.9	39.4	24.1	56	28.5	89	0.52	3	7.79	7.01	16.2	1	0				
11/30/2018	0.18	218	230	313	315.5	198	211.5	348	301.8	7.2	7.4	12	10.7	96.7	18.3	19.7	23	30.6	90.8		8	8.16	7.54	12.8	3.1	0				
12/31/2018	0.131	225	241.8	241	253.3	152.8	163.7	183	190.8	6.5	7.1	11	12.2	97.1	15.3	16.2	22	22.9	90		4	8.01	7.64	7.6	3.1	0				
01/31/2019	0.17	186.8	222.4	204	259	114.6	130.9	208	232.5	5.7	6.8	9	11.7	96.9	22	25.5	42	46.9	80.8	16.95	3	8.02	7.72	2	35	10.7				
02/28/2019																														
Average	0.167637	257.5846	208.7187	401.6668	327.2253	309.2356	246.0386	588.1174	461.0308	11.63149	11.52646	17.81282	18.0581	94.15744	23.79564	20.74279	35.27692	32.45568	90.22718	10.91388	7.124583	7.930773	7.393436	15.58912	156.6088	44.82912	1.805882	1.335652	1.100208	0.797391
Minimum	0.031	10.35	25	86	60.5	51	8	124	52.7	1.75	0.72	4	1.5	66	0	0.93	0	1.83	56	0.16	0.8	7	6.62	1	0	0	0.6	0.28	0.24	0.08
Maximum	0.682	715.5	973	2100	1579.3	1333	938.73	4450	2862.3	36	72.8	54	114.2	99.7	80	94.1	195	157.8	100	30	33	9.95	8.95	30	14000	3772.5	3.5	4.05	2.73	2.4
Count	190	195	195	190	190	195	190	190	190	195	195	195	195	195	195	190	195	190	195	116	192	194	195	193	193	194	51	46	48	46
Std Dev	0.109745	115.131	112.0946	279.9877	213.5438	191.58	167.3659	553.1393	458.3726	6.639263	12.05959	9.896427	17.58108	5.339464	13.7627	15.4091	21.90955	25.0137	7.040957	7.584127	4.417073	0.535504	0.321956	8.390467	1031.096	281.2598	0.846206	0.890555	0.608727	0.567225
CV	0.65466	0.446964	0.537061	0.697065	0.652589	0.619528	0.680243	0.940525	0.994234	0.570801	1.046252	0.555579	0.973584	0.056708	0.57837	0.742866	0.621073	0.770703	0.078036	0.694907	0.619976	0.067522	0.043546	0.538226	6.583897	6.274042	0.468583	0.666756	0.553284	0.711351
95th Percentile	0.39175	453.04	405.04	930	767.575	694.45	578.495	1421	1451.66	24.92	30.47	34.3	50.46	98.9	50.59	47.262	69.4	79.605	98.36	23.8	13.45	9	7.903	26	694	196.32	3.5	2.89	2.36305	1.9375
5th Percentile	0.05935	102.3	84.02	147.8	111.845	114.12	78.325	183.45	127.97	3.2	1.698	6	2.77	83.64	5.71	4.435	9.7	7.29	75.94	0.825	1.4	7.3465	6.988	3	0	0	0.9	0.4125	0.424	0.1625

Reference

Discharge Monitoring Reports 10/31/2002 – 2/28/2019

Appendix C. Reasonable Potential and Water Quality-Based Effluent Limit Formulae

A. Reasonable Potential Analysis

The 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, the 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, the 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) the 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:

$C_e = (RPM)(MRC)$ 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:

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

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, the 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 12.

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

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 the EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD):

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

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

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,

$$\sigma_{30}^2 = \ln(CV^2/30 + 1)$$

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 exceedence 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	Kooskia POTW
Facility Flow (mgd)	0.20
Facility Flow (cfs)	0.31

Critical River Flows (CFS)	(IDAPA 58.01.02 03. b)	**Annual Crit. Flows**	**Seasonal Low Flow**
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	**1Q10**	61	
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	**7Q10 or 4B3**	87	
Ammonia	**30B3/30Q10** (seasonal)	124	
Human Health - Non-Carcinogen	**30Q5**	121	
Human Health - carcinogen	**Harmonic Mean Flow**	327	

DF at defined percent of river flow allow	25%	**50.9**	Note: Acute an
DF at defined percent of river flow allow	25%	**72.1**	

Receiving Water Data		Notes:	**Annual Crit. Flows**	**Seasonal Low Flow**
Hardness, as mg/L $CaCO_3$	= 100 mg/L	5th % at critical flows		
Temperature, °C	Temperature, °C	95th percentile	22	
pH, S.U.	pH, S.U.	95th percentile	8.8	

Pollutants of Concern			**AMMONIA,** default: cold water, fish early life stages present	**AMMONIA,** default: cold water, fish early life stages present
Effluent Data	**Number of Samples in Data Set (n)**		116	
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.69	
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		23,800	
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only			
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**			
	Geometric Mean, µg/L, Human Health Criteria Only			
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	1,232	--
	Aquatic Life Criteria, µg/L	Chronic	408	--
	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%	--
	Aquatic Life - Chronic	7Q10 or 4B3		
		30B3 or 30Q10		
	Human Health - Non-Carcinogen and Chronic Ammonia	30Q5	25%	--
	Human Health - Carcinogen	Harmonic Mean		
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	50.9	--
	Aquatic Life - Chronic	7Q10 or 4B3		
		30B3 or 30Q10		
	Human Health - Non-Carcinogen and Chronic Ammonia	30Q5	99.8	--
	Human Health - Carcinogen	Harmonic Mean		

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.624	--
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	**99%**	0.961	--
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	**99%**	1.4	--
Statistically projected critical discharge concentration (C_e)			33819	--
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	665	--
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	339	--
Reasonable Potential to exceed Aquatic Life Criteria			**NO**	**--**

Appendix E. Antidegradation Analysis

The WQS contain an antidegradation policy providing Tier 1 and Tier 2 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).

The 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 2014 Integrated Report South Fork Clearwater River in the vicinity of the discharge is fully supporting beneficial uses. Therefore, the 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 the City of Kooskia permit, this means determining the permit's effect on water quality based upon the limits for BOD_5, TSS, dissolved oxygen, temperature and total residual chlorine in the current and proposed permits. Table E-1 provides a summary of the current permit limits and the proposed reissued permit limits.

Table E-1. Comparison of Proposed and Current Permit Limits

Parameters	Average Monthly Limit		Average Weekly Limit		Maximum Daily Limit	
	Proposed Permit (2019)	Current Permit[2]	Proposed Permit (2019)	Current Permit[2]	Proposed Permit (2019)	Current Permit[2]
BOD_5 (mg/L)	30	45	45	65	---	---
BOD_5 in (lbs/day[1])	50	75	74	107	---	---
BOD_5 Minimum Percent Removal	85	65	85	65	---	---
TSS (mg/L)	45	70	65	105	---	---
TSS in (lbs/day[1])	74	115	107	174	---	---
Dissolved Oxygen	Removed	Report	---	---	---	---
Temperature (°C)	---	---	---	---	26	Report
Total Residual Chlorine (mg/L)	Removed	0.22	---	---	Removed	0.83
Total Residual Chlorine (lbs/day)	Removed	0.37	---	---	Removed	1.37

1. Mass-based loadings are based on a design flow of 0.198 mgd.
2. The existing permit limits were issued in 2002.

The proposed permit limits in Table E-1 of *E. coli* bacteria and pH are the same as those in the previous permit except for the addition of mass loadings limits for TSS and BOD_5. The addition of these mass loadings makes the permit more stringent. The BOD_5, TSS and temperature limits are more stringent. Therefore, no adverse change in water quality and no degradation will result from the discharge of these pollutants in the reissued permit and the quality of the receiving water is maintained and protected.

New Permit Limits for Pollutants Currently Discharged

When new limits are proposed in a reissued permit for pollutants in the existing discharge, the effect on water quality is based upon the current discharge quality and the proposed discharge quality resulting from the new limits. Current discharge quality for pollutants that are not currently limited is based upon available discharge quality data (IDAPA 58.01.02.052.06.a.i). Future discharge quality is based upon proposed permit limits (IDAPA 58.01.02.052.06.a.ii).

The reissued permit for Kooskia includes new limits for temperature (Table 8). The maximum daily limits are equal to the 95th percentile concentrations of the maximum daily discharge quality and are just as stringent. Therefore, no adverse change in water quality and no degradation will result from the discharge of these pollutants in the reissued permit.

In sum, the EPA concludes that this discharge permit complies with the Tier 2 provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).