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 Craigmont

Public Comment Start Date: December 6, 2019
Public Comment Expiration Date: January 6, 2020

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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

401 Water Quality Certification
Section 401 of the Clean Water Act (CWA) requires the State in which the discharge originates to certify that the discharge complies with the appropriate sections of the CWA, and with any appropriate requirements of State Law. This facility is located on the Nez Perce Reservation of the Nez Perce Tribe of Indians. Since this facility discharges to tribal waters and the Tribe does not have Treatment as a State (TAS) from the EPA for purposes of the Clean Water Act, the EPA is the certifying authority. The EPA is taking comment on the EPA's intent to certify this 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/idaho-npdes-permits

US EPA Region 10
1200 Sixth Avenue, Suite 155
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Idaho, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

Idaho Operations Office
950 West Bannock, Suite 900
Boise, ID 83702
(208) 378-5746

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
ASR	Alternative State Requirement
AWL	Average Weekly Limit
BA	Biological Assessment
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BE	Biological Evaluation
BO or BiOp	Biological Opinion
BOD_5	Biochemical oxygen demand, five-day
BOD_{5u}	Biochemical oxygen demand, ultimate
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
EA	Environmental Assessment
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
IC	Inhibition Concentration
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
LC_{50}	Concentration at which 50% of test organisms die in a specified time period
LD_{50}	Dose at which 50% of test organisms die in a specified time period
LOEC	Lowest Observed Effect Concentration
LTA	Long Term Average
LTCP	Long Term Control Plan
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
NOEC	No Observable Effect Concentration
NOI	Notice of Intent

NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
OWW	Water Division
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
TU_a	Toxic Units, Acute
TU_c	Toxic Units, Chronic
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet
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 #:	ID0021288
Applicant:	City of Craigmont Craigmont WWTP
Type of Ownership	Municipal
Physical Address:	Highway 95 South Craigmont, ID 83523
Mailing Address:	P.O. Box 250 Craigmont, ID 83523
Facility Contact:	Monte Thomason Operator COC@connectwireless.us (208) 924-5432
Operator Name:	Monte Thomason
Facility Location:	Latitude: 46.2308 Longitude: -116.4575
Receiving Water	John Dobb Creek to North Fork Lawyers Creek
Facility Outfall	Latitude: 46.1351 Longitude: -116.2727

B. Permit History

The most recent NPDES permit for the City of Craigmont was issued on February 14, 2005, became effective on April 1, 2005, and expired on March 31, 2010. An NPDES application for permit issuance was submitted by the permittee on September 13, 2009 and supplemental information on January 13, 2010. The EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively continued and remains fully effective and enforceable.

C. Tribal 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 Craigmont Wastewater Treatment Plant (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 Craigmont owns and operates the WWTP located in Craigmont, Idaho. The collection system has no combined sewers. The facility serves a resident population of approximately 550. There are no major industries discharging to the facility; and the City does not have an approved pretreatment program.

Treatment Process

The design flow of the facility is 0.12 mgd. The reported actual flows from the facility is 0.104 mgd (average daily flow). The treatment process consists of two lagoons (primary and secondary), disinfection using chlorine, followed by intermittent sand filtration and then dechlorination using sulfite tablets. A schematic of the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A. Because the design flow is less than 1 mgd, the facility is considered a minor facility.

Outfall Description

The Craigmont WWTP discharges effluent into John Dobb Creek which flows approximately three miles to Lawyer Creek and eventually flows to the Clearwater River, approximately 30 miles away. The distance from tribal waters at the Craigmont WWTP outall to the state waters is approximately 88 miles.

Effluent Characterization

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

Table 2. Effluent Characterization

Parameter	Maximum	Minimum	Notes
Biochemical Oxygen Demand (BOD_5, mg/L)	91	2	Monthly Average
Total Suspended Solids (TSS, mg/L)	70	0	Monthly Average
E. Coli bacteria (3/100mL)	2419	0	
Total Residual Chlorine (TRC, mg/L)	0.25	0.002	Monthly Average
pH (s.u.)	8.68	0.02	
Total Ammonia (as N, mg/L)	10.4	0.24	Daily Maximum
Flow Rate (mgd)	0.18	0.005	Monthly Average
Temperature ^0C	18.8	3.7	effluent

Source: City of Craigmont

Compliance History

The EPA reviewed the last three years of effluent monitoring data from the DMR.

A summary of effluent violations is provided in Table 3.

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=110039886291

Table 3. Summary of Effluent Violations (July 2015 – April 2018)

Parameter	Limit	Units	Number of Instances
BOD_5	Weekly Maximum	mg/L	1
BOD_5	Weekly Maximum	lb/day	1
BOD_5	Monthly Average	mg/L	2
BOD_5	Monthly Average	lb/day	2
pH	INST Max	SU	2
pH	INST Min	SU	2
Chlorine, total residual	Daily Maximum	mg/L	2
Chlorine, total residual	Daily Maximum	lb/day	3
E. Coli	INST Max	#/100mL	2
BOD_5, percent removal	Monthly 85%	%	18
TSS, percent removal	Monthly 65%	%	2

The EPA conducted an inspection of the facility on May 17, 2011. The compliance inspection encompassed the wastewater treatment process, records review, operation and maintenance, and the collection system. The inspection identified several violations of the City's NPDES permit, including quality assurance plan (QAP) development and implementation, failure to submit complete and accurate discharge monitoring reports (DMR), adherence to test procedures approved under the federal regulations at 40 CFR Part 136 and reports lacking the signature of the principal executive officer, ranking elected official or duly authorized representative.

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 John Dobb Creek in the City of Craigmont, Idaho. John Dobb Creek flows into Lawyers Creek approximately three miles away; Lawyers Creek is a tributary to the Clearwater River approximately 30 miles away. The distance from tribal waters at the Craigmont WWTP outall to the state waters is approximately 88 miles.

B. Water Quality Standards

Overview

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

The Nez Perce Tribe has not applied for the status as 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. Meanwhile, the Idaho WQS were used as reference for setting permit limits, and to protect downstream uses in the State of Idaho.

Designated Beneficial Uses

John Dobb Creek is located in the Clearwater Subbasin (HUC 17060306). At the point of the discharge, John Dobb Creek is protected for the following designated uses:

- cold water aquatic life
- primary contact recreation
- industrial and agricultural water supply

- wildlife habitats
- aesthetics

C. 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
Temperature	°C	95th	13.6	City of Craigmont
pH	Standard units	5th – 95th	7.2-8.3	City of Craigmont
Ammonia	mg/L	maximum	3.3	City of Craigmont
Source: Data collected by permittee 2005-2009				

D. Water Quality Limited Waters

The State of Idaho's 2016 Integrated Report (section 303(d)) does not include John Dobb Creek or Lawyers Creek as impaired. The 2016 Integrated Report was approved by the EPA on June 25, 2019. There is no 303(d) list for Tribal waters.

E. Low Flow Conditions

Low flows are defined in Appendix C, Part C.

According to StreamStats (3/26/2019), there is greater than 99% probability that there is zero flow in the receiving water at least once a year.

IV. Effluent Limitations and Monitoring

Table 5 below presents the existing effluent limits and monitoring requirements in the NPDES Permit. Table 6, below, presents the proposed effluent limits and monitoring requirements in the draft permit.

Table 5. Existing Permit - Effluent Limits and Monitoring Requirements

Parameter	Effluent Limitations				Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, mgd	---	---	---	---	Effluent	5/week	measure
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/month	8-hour composite
	30 lbs/day	45 lbs/day	---	---			
	45 mg/l	65 mg/l	---	---		1/month	

Total Suspended Solids (TSS)	45 lbs/day	65 lbs/day	---	---	Influent and Effluent		8-hour composite
E. coli Bacteria[1,]	126/100 ml	---	---	406/100 ml[2]	Effluent	5/month	grab
Total Residual Chlorine[,3,4]	0.007 mg/l	---	0.018 mg/l[2]	---	Effluent	1/week	grab
	0.007 lbs/day	---	0.018 lbs/day[2]	---			
Total Ammonia as N, mg/L[5]	---	---	---	---	Effluent	1/month	8-hour composite

1. The average monthly E. coli count must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3-5 days within a calendar month. See Part V for definition of geometric mean.
2. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation.
3. The average monthly and maximum daily concentration limits for chlorine are not quantifiable using EPA approved test methods. The permittee will be in compliance with the effluent limits for chlorine provided the average monthly and maximum daily total chlorine residual level is at or below the compliance evaluation level of 0.1 mg/L, with a average monthly and maximum daily loading is at or below 0.1 lbs/day.
4. Chlorine effluent limits shall become effective on April 1, 2008 in accordance with the conditions of the Compliance Schedule in Part I.B., below.
5. Monitoring shall be conducted once per month starting in January 2006 and lasting for one year.

Table 6. Draft Permit - Effluent Limits and Monitoring Requirements

Parameter	Effluent Limitations				Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, mgd	---	---	---	---	Effluent	5/week	measure
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/month	8-hour composite
	30 lbs/day	45 lbs/day	---	---			
Total Suspended Solids (TSS)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/month	8-hour composite
	30 lbs/day	45 lbs/day	---	---			
E. coli Bacteria[1,2]	126/100 ml	---	---	406/100 ml[2]	Effluent	5/month	grab
Total Residual Chlorine[2,3]	0.007 mg/l		0.018 mg/l[2]		Effluent	1/week	grab
	0.007 lbs/day		0.018 lbs/day[2]				
Total Ammonia as N, mg/L	0.98 mg/l		2.60 mg/l		Effluent	1/week	grab
	0.98 lbs/day		2.60 lbs/day				

1. The average monthly E. coli count must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3-5 days within a calendar month. See Part V for definition of geometric mean.
2. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation.
3. The average monthly and maximum daily concentration limits for chlorine are not quantifiable using EPA approved test methods. The permittee will be in compliance with the effluent limits for chlorine provided the average monthly and maximum daily total chlorine residual level is at or below the compliance evaluation level of 0.1 mg/L, with a average monthly and maximum daily loading is at or below 0.1 lbs/day.

The reissuance of the NPDES permit for the City of Craigmont includes new ammonia limits (average monthly and average weekly).

Table 7. 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	30	45	45	---	---
BOD_5 in (lbs/day[1])	30	30	45	45	---	---
BOD_5 Minimum Percent Removal	85	none	---	---	---	---
TSS (mg/L)	30	45	45	65	---	---
TSS in (lbs/day[1])	30	45	45	65	---	---
Total Residual Chlorine (mg/L)	0.007	0.007	---	---	0.018	0.018
Total Residual Chlorine (lbs/day)	0.007	0.007	---	---	0.018	0.018
Total Ammonia as N, mg/L	0.98	none	---	none	2.60	none
Total Ammonia as N, (lbs/day)	0.98	none	---	none	2.60	none

1. Mass-based loadings are based on a design flow of 0.12 mgd.
2. The existing permit limits were issued in 2005.

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 as disinfection with chlorination. 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, total residual chlorine (TRC), pH, and ammonia.

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

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

C. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as "secondary treatment," which POTWs were required to meet by July 1, 1977. 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 . For additional information and background refer to Part 5.1 *Technology Based Effluent Limits for POTWs* in the Permit Writers Manual.

Table 8. Secondary Treatment Effluent Limits

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

Equivalent to Secondary Treatment Effluent Limits

The EPA has additionally established effluent limitations (40 CFR 133.105) that are considered "equivalent to secondary treatment" which apply to facilities meeting certain conditions established under 40 CFR 133.101(g). Three criteria are used to determine if a facility is eligible for the equivalent limits. The federally promulgated equivalent to secondary treatment effluent limits are listed below in Table 9.

Table 9. Equivalent to Secondary Treatment Effluent Limits

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

The existing permit for the City has equivalent to secondary treatment effluent limits for TSS and TSS percent removal. Using DMR data, the EPA re-evaluated treatment limits for the City in reference to the 40 CFR 133.101(g) criteria below:

- 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). 40 CFR 133.101(f) defines "effluent concentrations consistently achievable through proper operation and maintenance" as
    - (f)(1): For a given pollutant parameter, the 95th 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 does not meet the three criteria for treatment equivalent to secondary for TSS and TSS percent removal (See Appendix E for the determination).

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 0.12 mgd, the technology based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 0.12 mgd × 8.34 = 30 lbs/day

Average Weekly Limit = 45 mg/L × 0.12 mgd × 8.34 = 45 lbs/day

Chlorine

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

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

Monthly average Limit= 0.5 mg/L x 0.12 mgd x 8.34 = 0.5 lbs/day

Weekly average Limit = 0.75 mg/L x 0.12 mgd x 8.34 = 0.75 lbs/day

[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. 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.

The City of Craigmont WWTP discharges to John Dobb Creek. A mixing zone is not applicable in this situation because there is likely a period of time of no flow in the receiving stream. Therefore, the water quality standards are applied at the end-of-pipe.

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

Reasonable Potential and Water Quality-Based Effluent Limits

The reasonable potential and water quality-based effluent limit for specific parameters are summarized below. The calculations are provided in Appendix A.

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 5 Ammonia Criteria

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

INPUT	
1. Receiving Water Temperature (deg C):	13.6
2. Receiving Water pH:	8.40
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)	**2.59**
Chronic Criterion (CCC)	**1.23**

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

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet MIN(2.85, 1.45 \cdot 10^{0.028 \cdot (25-T)})$$

Chronic Criteria: Cold Water, Early Life Stages Absent

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

A reasonable potential calculation showed that the City of Craigmont WWTP's discharge would have the reasonable potential to cause or contribute to a violation of the water quality criteria for ammonia. Therefore, the draft permit contains water quality-based effluent limits for ammonia. The limits for ammonia are as follows: 0.98 mg/l (average monthly limit) and 2.60 mg/l (maximum daily limit). See Appendices D and E for reasonable potential and effluent limit calculations for ammonia.

pH

The Idaho water quality standards at IDAPA 58.01.02.250.01.a, require pH values of the river to be within the range of 6.5 to 9.0. Mixing zones are generally not granted for pH, therefore the most stringent water quality criterion must be met before the effluent is discharged to the receiving water. Therefore, the draft permit contains water quality-based effluent limits for pH of 6.5 to 9.0 end of pipe.

E. coli

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

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

The goal of a water quality-based effluent limit is to ensure a low probability that water quality standards will be exceeded in the receiving water as a result of a discharge, while considering the variability of the pollutant in the effluent. Because a single sample value exceeding 406 organisms per 100 ml indicates a likely exceedance of the geometric mean criterion, 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. Therefore, the limits for *E.Coli* are as follows: 126/100 ml (average monthly) and 406/100 ml (instantaneous maximum).

Chlorine

The Idaho state water quality standards at IDAPA 58.01.02.210 establish an acute criterion of 19 µg /L, and a chronic criterion of 11 µg/L for the protection of aquatic life. A reasonable potential calculation showed that the discharge from the facility would have the reasonable potential to cause or contribute to a violation of the water quality criteria for chlorine.

Therefore, the draft permit contains a water quality-based effluent limit that is more stringent than the technology-based effluent limit for chlorine. The effluent limit calculations were found to be less stringent than current permit limits for TRC. However, due to anti-backsliding requirements, the current permit concentration and mass based limits remain in the draft permit. The limits for TRC are as follows: 0.007 mg/L (average monthly limit) and 0.018 mg/l (maximum daily limit). See Appendix C for reasonable potential and effluent limit calculations for TRC.

The minimum level (ML) for TRC in the current permit is 100 µg/L, however, the more recently approved ML is 50 µg/L. The compliance evaluation limit has been updated in the draft permit to reflect the current 50 µg/L ML.

Residues

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

E. Antibacksliding

Section 402(o) of the Clean Water Act and 40 CFR 122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. For explanation of the antibacksliding exceptions refer to Chapter 7 of the Permit Writers Manual *Final Effluent Limitations and Anti-backsliding*. This permit does not contain less stringent limits than the previous permit; therefore, an anti-backsliding analysis is not necessary.

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.

Monitoring Changes from the Previous Permit

Ammonia monitoring is increased from once per month to once per week to insure compliance with the weekly effluent limitations.

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. The facility has reasonable potential to exceed ammonia aquatic life criteria. Therefore, surface water monitoring will be required for ammonia, and its dependent parameters; temperature and pH. The Idaho water quality criteria for ammonia become more stringent as temperature and pH values increase. Table 6 presents the proposed surface water monitoring requirements for the draft permit. Surface water monitoring results must be submitted with the DMR.

Table 6. Surface Water Monitoring Requirements

Parameter	Unit	Sample Frequency	Sample Type	Sample Location
Total Ammonia as N	mg/L	1/quarter	Grab	Upstream
Temperature	°C	1/quarter	Recording	Upstream
pH	standard units	1/quarter	Grab	Upstream
For quarterly monitoring frequency, quarters are defined as: January 1 to March 31; April 1 to June 30; July 1 to September 30; and, October 1 to December 31.				

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.

Under NetDMR, all reports required under the permit are submitted to the EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it is no longer required to submit paper copies of DMRs or other reports to the EPA. However hard copies must continue to be sent to the Nez Perce Tribe.

Further information about NetDMR, including upcoming trainings and contacts, is provided on the following website: https://netdmr.zendesk.com.

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. Compliance Schedules

Compliance schedules are authorized by 40 CFR 122.47. Compliance schedules allow a discharger to phase in, over time, compliance with water quality-based effluent limitations when limitations are in the permit for the first time. The EPA has found that a compliance schedule is appropriate for ammonia because the City of Craigmont WWTP cannot immediately comply with the new effluent limit on the effective date of the permit.

Federal regulations (40 CFR 122.47) allow for compliance schedules in permits. The federal compliance schedule rule allows compliance schedules "when appropriate," requires compliance with effluent limits "as soon as possible," and requires "interim requirements and the dates for their achievement." The draft permit proposes a schedule of compliance for the new water quality-based ammonia limits. The schedule includes the following interim milestones:

Task No.	Due By	Task Activity
1	One year after the effective date	**Facility Planning** The permittee must develop a facility plan that evaluates alternatives to meet the final effluent limitations for ammonia and select a preferred alternative. Deliverable: The permittee must provide written notice to EPA that the facility plan has been completed and the preferred alternative has been selected. The permittee may submit the written notification as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ID0021288_Plan_43699, where YYYY_MM_DD is the date that the permittee submits the written notification.
2	Two years after the effective date	**Final Design** The permittee must complete design of the selected alternative for meeting the final ammonia effluent limitations. Deliverable: The permittee must provide written notice to EPA that the final design is complete. The permittee may submit the written notification as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ID0021288 _Plan_90408, where YYYY_MM_DD is the date that the permittee submits the written notification.
3	Three years after the effective date	**Award Bid for Construction** Deliverable: The permittee must provide written notice to EPA and the Nez Perce Tribe that the bid award is complete. The permittee may submit the written notification as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ID0021288 _bid_CS014, where YYYY_MM_DD is the date that the permittee submits the written notification.

Task No.	Due By	Task Activity
4	Four years and six months after the effective date	**Construction Complete** The permittee must complete construction to achieve the ammonia effluent limitations. Deliverable: The permittee must submit a construction completion report to the EPA and the Nez Perce Tribe. The permittee may submit the report as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ID0021288 _Construct_90408, where YYYY_MM_DD is the date that the permittee submits the report.
5	Four years and 11 months after the effective date	**Meet Effluent Limitation for Ammonia** Construction and optimization of process such that compliance with the ammonia effluent limitations are achieved. Deliverable: The permittee must provide written notice to the EPA and the Nez Perce Tribe that the ammonia effluent limitations are achieved. The permittee may submit the written notification as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ID0021288 _Limits_FELAC, where YYYY_MM_DD is the date that the permittee submits the written notification.

B. Quality Assurance Plan

The City of Craigmont 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 of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan must be retained on site and be made available to the EPA upon request.

C. Operation and Maintenance Plan

The permit requires the City of Craigmont 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 upon request.

D. 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.

E. 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 City of Craigmont 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 City of Craigmont WWTP 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.*

F. 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.

G. Pretreatment Requirements

The State of Idaho has an approved pretreatment program per 40 CFR 403.10, thus, IDEQ is the Approval Authority for Idaho POTWs. However, IDEQ does not have legal jurisdiction on tribal land and since the City of Craigmont does not have an approved pretreatment program per 40 CFR 403.8, the EPA is the Control Authority of industrial users that might introduce pollutants into the City of Craigmont WWTP.

The Permittee must not authorize discharges which may violate the national specific prohibitions (40 CFR 403.5(b)(1-8)) 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.

H. 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. A review of the threatened and endangered species located in the Nez Perce County, Idaho, designated by the USFWS (as 12/18/2017), included the following threatened and endangered species;

- Spalding's Catchfly
- Middle Columbia River Steelhead
- 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

Based on the USFWS website the Bull Trout is threatened.

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 Chinook salmon, Sockeye salmon and steelhead.

The City of Craigmont WWTP is a minor POTW that discharges to a small creek that does not flow year round and is located approximately 30 miles from the Clearwater River. A mixing zone has not been provided for the discharge. Given this, it is highly unlikely that the fish listed above would be located in the general area of the WWTP or be impacted negatively by its effluent.

The effluent limitations in the City of Craigmont permit ensure protection of the aquatic life standards for John Dobb Creek. The EPA has determined that the discharge will have no effect on threatened or endangered species located in the vicinity of John Dobb Creek in Craigmont, Idaho. https://ecos.fws.gov/ipac (See Appendix E).

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 City of Craigmont WWTP is a minor POTW that discharges to a small creek that does not flow year round and is located approximately 30 miles from the Clearwater River. It is highly unlikely that the listed fish listed above would be located in the general area of the WWTP or the EFH be impacted negatively by its effluent. For the same reasons that the EPA determines that there is no effect to listed species, the EPA determines 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 analysis which is shown in Appendix F

D. Permit Expiration

The permit will expire five years from the effective date.

E. CWA and 401 Certification

Section 401 of the CWA requires the State in which the discharge originates to certify that the discharge complies with the appropriate sections of the CWA, and with any appropriate requirements of State Law. Since this facility discharges to tribal waters and the Tribe does not have TAS from the EPA for purposes of the Clean Water Act, the EPA is the certifying authority. The EPA is taking comment on the EPA's intent to certify this permit.

IX. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

https://www3.epa.gov/npdes/pubs/owm0264.pdf

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

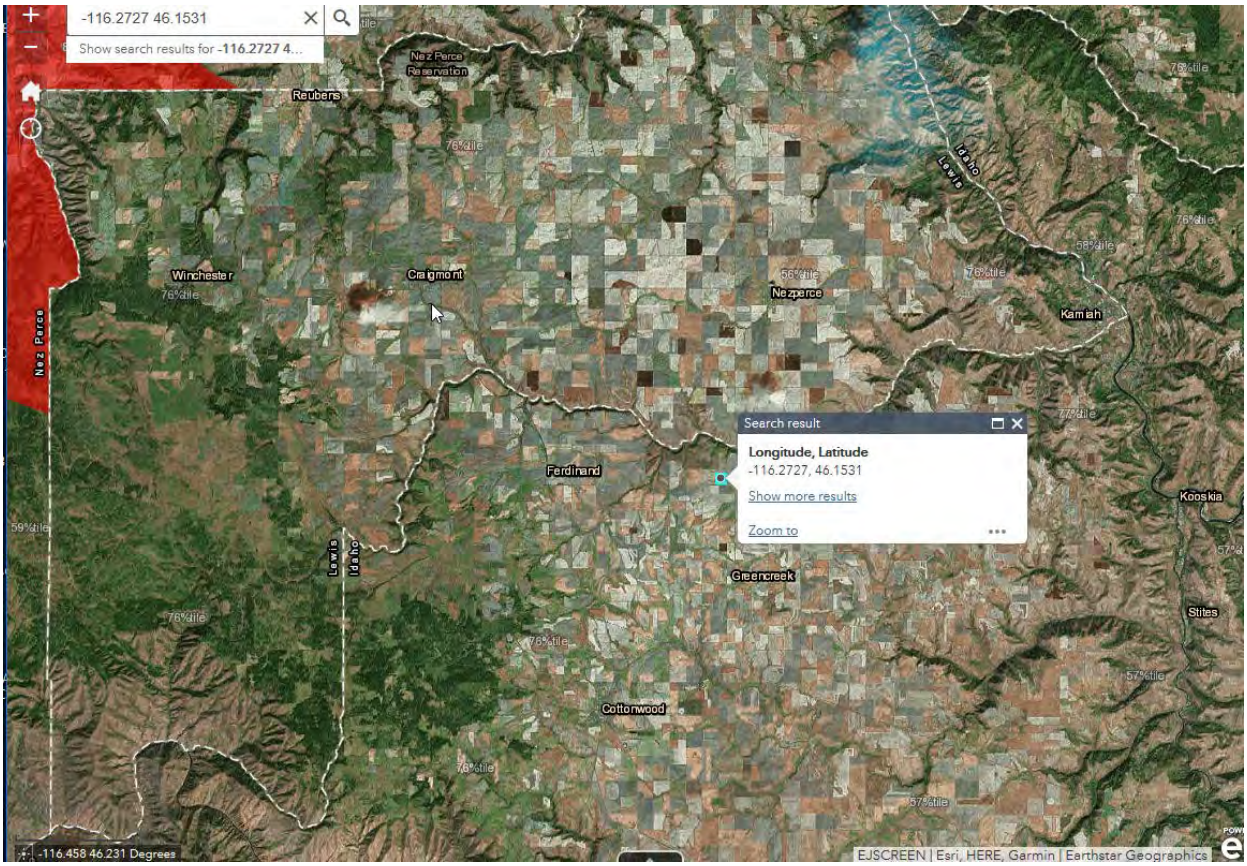
EPA. 2010. *NPDES Permit Writers' Manual.* Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001. September 2010. https://www3.epa.gov/npdes/pubs/pwm_2010.pdf

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

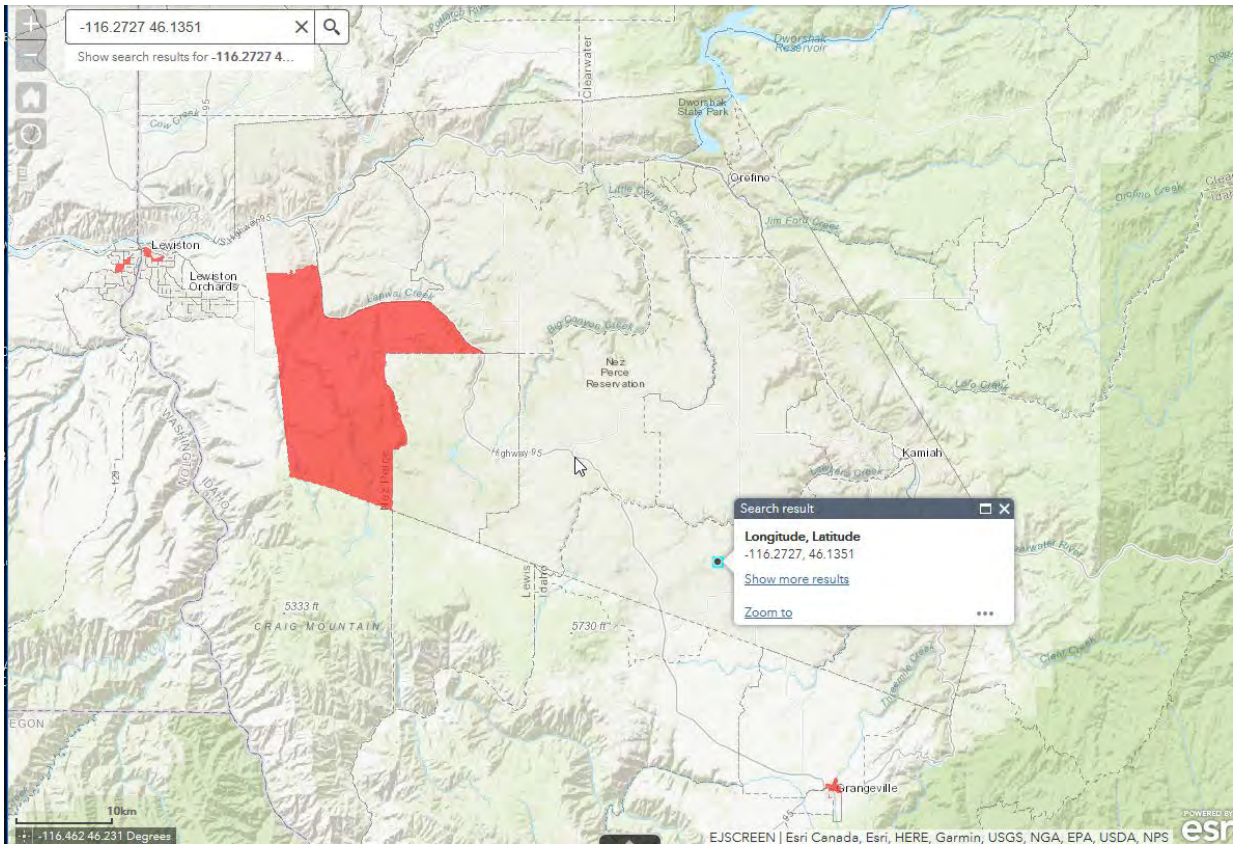
EPA, 2011. *Introduction to the National Pretreatment Program*, Office of Wastewater Management, EPA 833-B-11-011, June 2011.

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

Appendix A. Facility Information



Reference: This figure illustrate the permittee and its wastewater treatment plant outfall. The map is from the EPA GIS EJ screen.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Show search results for -116.2727 4...
Lewiston
Lewiston Orchards
Clearwater
Dworshak Reservoir
Dworshak State Park
Orofino
Jim Ford Creek
Lawyer Creek
Big Canyon Creek
Nez Perce Reservation
Highway 95
Kamiah
Lolo Creek
Lewis
Idaho
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Show more results
Zoom to
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EJSCREEN | Esri Canada, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

Appendix B. Water Quality Data

A. Treatment Plant Effluent Data

Source: City of Craigmont's DMR from 2005-2019

Pollutants	BOD, 5-day, 20 deg. C					BOD, 5-day, percent removal	Chlorine, total residual				
Monitoring Locations	Effluent Gross				Raw Sewage Influent	Percent Removal	Effluent Gross				
Statistical Base	MO AVG		WKLY AVG		MO AVG	MN % RMV	DAILY MX		MO AVG		WKLY AVG
Units	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Percent	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter
Current Limit	30	30	45	45			0.018	0.018	0.007	0.007	
Proposed Limit											
04/30/2005	21	10	21	10	179	88					
05/31/2005	3	1	3	1	130	98					
06/30/2005	7	2	7	2	111	94					
07/31/2005	23	5	23	5	144	84					
08/31/2005	15	1	15	1	148	90					
09/30/2005	8	2	8	2	142	95					
10/31/2005	8	3	8	3	60	87					
11/30/2005	4	1	4	1	102	97					
12/31/2005	8	2	8	2	101	92					
01/31/2006	15	7	15	7	101	85					
02/28/2006	15	5	15	5	105	86					
03/31/2006	14	7	14	7	96	86					
04/30/2006	13	9.7	13	9.7	190	93					
05/31/2006	11	3	11	3	70	84.2					
06/30/2006	9	2	9	2	138	93					
07/31/2006	5	4	5	4	223	98					
08/31/2006	6	0.69	6	0.69	153	96					
09/30/2006	11	1	11	1	50	78					
10/31/2006	10	1.5	10	1.5	137	93					
11/30/2006	11	5	11	5	101	89					
12/31/2006	11	4	11	4	58	81					
01/31/2007	8	3	8	3	144	94			0.18		0.23
02/28/2007	23.1	15	23.1	15	170	86			0.21		0.34
03/31/2007	19	9	19	9	126	85			0.21		0.48
04/30/2007	9.88	3	9.88	3	267	96			0.04		0.05
05/31/2007	91	26	91	26	160	43			0.03		0.05
06/30/2007	10.4	6	10.4	6	116	91			0.25		0.21
07/31/2007	8.11	1	8.11	1	355	98			0.04		0.04
08/31/2007	8.3	1	8.3	1	220	96			0.14		0.36
09/30/2007	8.88	1	8.88	1	125.83	93			0.2		0.2
10/31/2007	19.4	5	19.4	5	290	93			0.19		0.27
11/30/2007	3.69	1	3.69	1	227	98			0.08		0.09
12/31/2007	2.9	1	2.9	1	113	97			0.057		0.05
01/31/2008	31.3	6	31.3	6	310	90			0.1		0.1
02/29/2008	31.5		31.5		1140	97					
03/31/2008	9.3	5	9.3	5	180	95			0.22		0.26
04/30/2008	21.9	9	21.9	9	650	97	0.23	0.076	0.094	0.03	
05/31/2008	10.4	3	10.4	3	227	95					
06/30/2008	13.7	4.8	13.7	4.8	210	93.5	0.04	0.01	0.03	0.01	
07/31/2008	2	1	2	1	308	99	0.06	0.005	0.021	0.002	
08/31/2008	4.65	0.399	4.65	0.399	630	99	0.06	0.005	0.028	0.002	
09/30/2008	4.33	0.372	4.33	0.372	283	98	0.07	0.006	0.042	0.004	
10/31/2008	6.97	1.6	6.97	1.6	348	98	0.07	0.017	0.048	0.011	
11/30/2008	17.3	7.2	17.3	7.2	285	94	0.04	0.017	0.03	0.013	
12/31/2008	9.55	4.62	9.55	4.62	177	95	0.04	0.019	0.018	0.009	

Pollutants	BOD, 5-day, 20 deg. C					BOD, 5-day, percent removal	Chlorine, total residual				
Monitoring Locations	Effluent Gross				Raw Sewage Influent	Percent Removal	Effluent Gross				
Statistical Base	MO AVG		WKLY AVG		MO AVG	MN % RMV	DAILY MX		MO AVG		WKLY AVG
Units	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Percent	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter
Current Limit	30	0	45	45			0.018	0.018	0.007	0.007	
Proposed Limit											
01/31/2009	20.4	12	20.4	12	92.4	78	0.04	0.023	0.02	0.011	
02/28/2009	24.4	8.5	24.4	8.5	291	92	0.04	0.01	0.02	0	
03/31/2009	12.2	7	12.2	7	181	93	0.08	0.05	0.06	0.03	
04/30/2009	9.94	13	9.94	13	74.1	87	0.06	0.08	0.03	0.04	
05/31/2009	25	21	25	21	135	81.5	0.05	0.043	0.026	0.022	
06/30/2009	8.78	2.5	8.78	2.5	427	98	0.08	0.02	0.02	0.006	
07/31/2009	2.5	0.475	2.5	0.475	176	98	0.11	0.021	0.06	0.011	
08/31/2009	5.8	0.087	5.8	0.087	197	96	0.04	0.001	0.03	0	
09/30/2009	14.2	2	14.2	2	146	90	0.06	0.009	0.03	0.005	
10/31/2009	3.25	0.5	3.25	0.5	385	99	0.08	0.012	0.048	0.007	
11/30/2009	14.4	3.4	14.4	3.4	219	93	0.06	0.014	0.038	0.003	
12/31/2009	28.2	6.67	28.2	6.67	401	93	0.05	0.012	0.032	0.008	
01/31/2010	32.8	24.5	32.8	24.5	85.2	61.5	0.08	0.06	0.06	0.045	
02/28/2010	19.7	8	19.7	8	208	90	0.05	0.021	0.032	0.013	
03/31/2010	15	3.5	15	3.5	205	92	0.06	0.014	0.03	0.007	
04/30/2010	14.2	4	14.2	4	254	94	0.06	0.017	0.038	0.011	
05/31/2010	22.9	5.4	22.9	5.4	299	92	0.04	0.009	0.01	0.002	
06/30/2010	27.6	29.6	27.6	29.6	404	93	0.05	0.054	0.024	0.026	
07/31/2010	52.4	22	52.4	22	281	81	0.06	0.025	0.043	0.018	
08/31/2010	2	0.12	2	0.12	333	99	0.06	0.004	0.022	0.001	
09/30/2010	22.7	7	22.7	7	438	95	0.04	0.012	0.022	0.006	
10/31/2010	4.43	1	4.43	1	298	98	0.04	0.008	0.008	0.002	
11/30/2010	4.76	1	4.76	1	204	97	0.04	0.009	0.02	0.005	
12/31/2010	6.42	1.5	6.42	1.5	613	99	0.05	0.012	0.038	0.009	
01/31/2011	10.2	2.4	10.2	2.4	289	96	0.03	0.007	0.016	0.003	
02/28/2011	20.3	9.8	20.3	9.8	186	89	0.02	0.009	0.006	0.002	
03/31/2011	21.7	18.45	21.7	18.45	143	85	0.05	0.04	0.03	0.02	
04/30/2011	11.6	12	11.6	12	392	97	0.06	0.006	0.03	0.03	
05/31/2011	8.87	11.9	8.87	11.9	127	93	0.05	0.06	0.02	0.02	
06/30/2011	12	13	12	13	46	74	0.05	0.053	0.028	0.028	
07/31/2011	12.1	2.8	12.1	2.8	155	92	0.05	0.017	0.037	0.012	
08/31/2011	21.6	5	21.6	5	205	89	0.07	0.034	0.05	0.017	
09/30/2011	22.2	5.1	22.2	5.1	380	94.1	0.05	0.011	0.034	0.008	
10/31/2011	21.4	18	21.4	18	225	90.4	0.08	0.018	0.057	0.009	
11/30/2011	19.4	4.5	19.4	4.5	287	93	0.07	0.01	0.05	0.01	
12/31/2011	15.4	3.6	15.4	3.6	240	93	0.06	0.014	0.048	0.043	
01/31/2012	2	0.5	2	0.5	472	99	0.07	0.016	0.048	0.018	
02/29/2012	23	5	23	5	390	94	0.07	0.039	0.045	0.017	
03/31/2012	13.7	8	13.7	8	0.347	96	0.08	0.059	0.065	0.041	
04/30/2012	26.7	12.9	26.7	12.9	237	88.7	0.05	0.024	0.045	0.044	
05/31/2012	7.29	2.1	7.29	2.1	195	96	0.06	0.02	0.046	0.021	
06/30/2012	20.3	20.3	20.3	20.3	239	91.5	0.05	0.02	0.04	0.029	
07/31/2012	20.3	4.8	20.3	4.8	312	93	0.06	0.05	0.05	0.016	
08/31/2012	14	6	14	6	224	93	0.07	0.029	0.058	0.025	
09/30/2012	4	2	4	2	260	98	0.06	0.002	0.047	0.04	
10/31/2012	8.21	1.93	8.21	1.93	223	96	0.07	0.02	0.05	0.017	
11/30/2012	11.6	13.3	11.6	13.3	166	93	0.04	0.019	0.032	0.011	
12/31/2012	8.37	2.9	8.37	2.9	209	95	0.07	0.02	0.05	0.01	
01/31/2013	13.6	4	13.6	4	186	92	0.08	0.018	0.05	0.012	
02/28/2013	20.8	10	20.8	10	121	82.8	0.09	0.05	0.067	0.037	
03/31/2013	28.2	13.7	28.2	13.7	220	87	0.06	0.033	0.047	0.023	
04/30/2013	17	5.9	17	5.9	291	94	0.04	0.016	0.03	0.009	
05/31/2013	4.68	0.7	4.68	0.7	254	98	0.05	0.011	0.045	0.008	
06/30/2013	6.54	0.5	6.54	0.5	251	97.3	0.05	0.002	0.035	0.004	
07/31/2013	4.45	0.18	4.45	0.18	313	98	0.06	0.002	0.044	0.002	
08/31/2013	4.43	0.184	4.43	0.184	375	98	0.04	0.001	0.032	0.001	
09/30/2013	9.97	2.3	9.97	2.3	228	95	0.5	0.042	0.036	0.01	
10/31/2013	9.97	1.8	9.97	1.8	228	95	0.05	0.007	0.035	0.005	
11/30/2013	9.55	2.2	9.55	2.2	219	96	0.04	0.009	0.007	0.003	
12/31/2013	10.27	2.3	10.27	2.3	119	91	0.04	0.009	0.015	0.003	

Pollutants	BOD, 5-day, 20 deg. C					BOD, 5-day, percent removal	Chlorine, total residual				
Monitoring Locations	Effluent Gross				Raw Sewage Influent	Percent Removal	Effluent Gross				
Statistical Base	MO AVG		WKLY AVG		MO AVG	MN % RMV	DAILY MX		MO AVG		WKLY AVG
Units	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Percent	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter
Current Limit	30	0	45	45			0.018	0.018	0.007	0.007	
Proposed Limit											
01/31/2014	5.55	2.2	5.55	2.2	167	96	0.05	0.011	0.02	0.006	
02/28/2014	15.7	28.2	15.7	28.2	2	-68.5	0.02	0.013	0.01	0.004	
03/31/2014	25.6	21.5	25.6	21.5	78.1	67	0.02	0.019	0.007	0.008	
04/30/2014	5.62	2.2	5.62	2.2	172	96	0.05	0.024	0.024	0.012	
05/31/2014	27.6	7.8	27.6	7.8	398	96	0.01	0.003	0.01	0.001	
06/30/2014	19.8	4.6	19.8	4.6	251	92	0.06	0.009	0.042	0.009	
07/31/2014	4	0.33	4	0.33	243	98	0.03	0.001	0.014	0.0006	
08/31/2014	2	10.36	2	0.36	246	99	0.04	0.009	0.02	0.004	
09/30/2014	18.1	1.9	18.1	1.9	502	96	0.04	0.018	0.02	0.003	
10/31/2014	29.2	6.8	29.2	6.8	275	89.3	0.02	0.003	0.007	0.001	
11/30/2014	5.82	1.3	5.82	1.3	212	97	0.09	0.03	0.057	0.028	
12/31/2014	4.46	1.8	4.46	1.8	197	97	0.09	0.036	0.075	0.039	
01/31/2015	7.04	6.7	7.04	6.7	214	96	0.09	0.058	0.08	0.044	
02/28/2015	14.7	9.5	14.7	9.5	87.2	83	0.07	0.045	0.05	0.03	
03/31/2015	17.4	8.4	17.4	8.4	47.6	63.4	0.05	0.032	0.046	0.021	
04/30/2015	9.45	3.8	9.45	3.8	8.36	98	0.08	0.038	0.06	0.024	
05/31/2015	20.1	13	20.1	13	326	93	0.08	0.038	0.067	0.035	
06/30/2015	3.01	0.45	3.01	0.45	164	98	0.048	0.057	0.035	0.019	
07/31/2015	34.4	1.4	34.4	1.4	72	52.2	0.04	0.007	0.024	0.002	
08/31/2015	4.34	0.18	4.34	0.18	169	97	0.04	0.002	0.037	0.001	
09/30/2015	3.95	0.3	3.95	0.3	288	98	0.05	0.004	0.035	0.002	
10/31/2015	3.46	0.14	3.46	0.14	250	98	0.07	0.01	0.05	0.006	
11/30/2015	14.1	6.8	14.1	6.8	123	88	0.05	0.009	0.04	0.012	
12/31/2015	17.1	14.4	17.1	14.4	58.5	70.7	0.07	0.033	0.05	0.025	
01/31/2016	7.78	3.7	7.78	3.7	75.2	89.6	0.06	0.029	0.05	0.019	
02/29/2016	21.4	10.3	21.4	10.3	95.8	77.6	0.05	0.024	0.038	0.019	
03/31/2016	14.2	9.2	14.2	9.2	148	90	0.08	0.052	0.027	0.019	
04/30/2016	13.6	8.8	13.6	8.8	79.7	82.9	0.05	0.032	0.037	0.02	
05/31/2016	24.4	11.8	24.4	11.8	234	89.5	0.05	0.042	0.036	0.023	
06/30/2016	8.6	1.2	8.6	1.2	171	94	0.04	0.006	0.03	0.007	
07/31/2016							0.05	0.042	0.015	0.011	
08/31/2016	4.97	0.2	4.97	0.2	95.2	94	0.01	0.001	0.002	0	
09/30/2016	14.8	3.4	14.8	3.4	101	85.3	0.02	0.004	0.01	0.001	
10/31/2016	2	0.16	2	0.16	87.7	97.7	0.05	0.027	0.03	0.009	
11/30/2016	4	1.3	4	1.3	88.5	95	0.08	0.014	0.063	0.017	
12/31/2016	7.09	1.6	7.09	1.6	304	97	0.05	0.01	0.04	0.013	
01/31/2017	15.9	3.7	15.9	3.7	295	94	0.06	0.017	0.04	0.01	
02/28/2017	65	48	65	48	101	35	0.19	0.04	0.04	0.05	
03/31/2017	12.9	10.81	12.9	10.8	120	0.89	0.19	0.04	0.04	0.05	
04/30/2017	28.5	24	28.5	24	133	78	0.07	0.06	0.06	0.06	
05/31/2017	22.7	30.4	22.7	30.4	30.2	24	0.09	0.12	0.05	0.04	
06/30/2017	2.88	1.39	2.88	1.39	75	96	0.08	0.03	0.05	0.02	
07/31/2017	17.8	1.48	17.8	1.48	61.1	70	0.05	0.004	0.03	0.002	
08/31/2017	6.19	0.51	6.19	0.51	108	94	0.05	0.004	0.03	0.002	
09/30/2017	4.05	0.33	4.05	0.33	2.8	-0.44	0.06	0.01	0.02	0.003	
10/31/2017	16.4	3	16.4	3	80.4	80	0.1	0.03	0.05	0.01	
11/30/2017	11.1	3.1	11.1	3.1	144	92	0.07	0.03	0.05	0.02	
12/31/2017	5.75	1.34	5.75	1.34	209	97	0.08	0.03	0.05	0.01	
01/31/2018	22.7	27.26	22.7	27.26	95.2	76	0.04	0.03	0.02	0.01	
02/28/2018	19.6	26.3	19.6	26.3	47.5	59	0.07	0.06	0.05	0.04	
03/31/2018	5.01	2.84	5.01	2.84	184	97	0.09	0.12	0.05	0.06	
04/30/2018	5.27	4.43	5.27	4.43	59.5	91	0.08	0.17	0.06	0.1	
05/31/2018	9.83	10.57	9.83	10.57	59.8	84	0.07	0.07	0.06	0.05	
06/30/2018	6.58	3.67	6.58	3.67	162	95	0.06	0.1	0.04	0.03	
07/31/2018	2	0.3	2	0.3	133	98	0.08	0.01	0.05	0.009	
08/31/2018	4.5	0.26	4.5	0.026	180	97	0.06	0.05	0.03	0.01	
09/30/2018	6.36	0.53	6.36	0.53	160	96	0.09	0.01	0.04	0.006	
10/31/2018	2.53	0.59	2.53	0.59	341	99	0.09	0.01	0.05	0.02	
11/30/2018	8.86	4.95	8.86	4.95	156	94	0.08	0.01	0.05	0.01	
12/31/2018	14.7	3.4	14.7	3.4	536	97	0.08	0.02	0.07	0.01	
01/31/2019	5.8	1.3	5.8	1.3	250	97	0.07	0.01	0.01	0.01	
02/28/2019											
Average	13.84125749	6.185885542	14.0208982	6.666343373	206.7226485	88.26454545	0.064229008	0.025992366	0.046937931	0.016241221	0.195
Min	2	0	2	0.026	0.347	-68.5	0.01	0.001	0.002	0	0.04
Max	91	48	91	48	1140	99	0.5	0.17	0.25	0.1	0.48
Count	167	166	167	166	165	165	131	131	145	131	14
CV=std/average	0.80799758	1.210900422	0.824361664	1.288571445	0.681129987	0.219012594	0.752186869	0.995793123	0.889382937	0.970872861	0.708232364
5th Percentile	2.886	0.188	2.886	0.225	51.6	61.88	0.02	0.002	0.0084	0.001	0.0465
90th Percentile	25.24	14.05	25.24	16.5	367	98	0.09	0.057	0.067	0.04	0.354
95th Percentile	29.76	23.5	30.67	25.625	422.4	98	0.09	0.065	0.132	0.0445	0.402
Standard Deviation	11.18370255	7.490491413	11.55829097	8.590059714	140.8049949	19.33104704	0.048312216	0.02588302	0.041745795	0.015768161	0.138105311

Pollutants	E. coli		Flow, in conduit or thru treatment plant		Nitrogen, ammonia total [as N]	pH		Solids, suspended percent removal	Solids, total suspended				
Monitoring Locations	Effluent Gross		Effluent Gross		Effluent Gross	Effluent Gross		Percent Removal	Effluent Gross				Raw Sewage Influent
Statistical Base	INST MAX	MO GEOMN	DAILY MX	MO AVG	DAILY MX	INST MAX	INST MIN	MN % RMV	MO AVG		WKLY AVG		MO AVG
Units	Number per 100 Milliliters	Number per 100 Milliliters	Million Gallons per Day	Million Gallons per Day	Milligrams per Liter	Standard Units	Standard Units	Percent	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter
Current Limit	406	126	0.12	0.12					45	45	65	65	
Proposed Limit													
04/30/2005	14.2	2	0.16128	0.0709		7.8	7.1	95	13	6	13	6	240
05/31/2005	19.2	1.8	0.1019	0.077		8.4	7.1	100	0	0	0	0	117
06/30/2005	13	3	0.1019	0.0488		7.8	7.1	93	7	2.4	7	2.4	103
07/31/2005	93	35.79	0.0583	0.0258	1.53	7.5	7.2	86	18	3.4	18	3.4	126
08/31/2005	2400	60	0.0496	0.029		7.8	7.4	94	10	1.1	10	1.1	160
09/30/2005	2400	186	0.0417	0.027		8.1	7.3	97	4	1	4	1	114
10/31/2005	93	37	0.049	0.03		8.4	7.4	95	3	1	3	1	59
11/30/2005	13	0	0.129	0.04	0.42	7.6	7.3	100					71
12/31/2005	19	0	0.1294	0.0284		7.6	7.1	97	5	1	5	1	163
01/31/2006	44	0	0.0783	0.0564	5.94	7.6	7.3	89	8	4	8	4	70
02/28/2006	15	0	0.0496	0.0391	9.09	7.3	7	95	6	2	6	2	120
03/31/2006	14	0	0.1019	0.0408	10.4	7.2	7.1	94	7	3	7	3	117
04/30/2006	3	1	0.1958	0.0571		8.4	7.2	79	12	8.9	12	8.9	56
05/31/2006	8.5	0	0.0679	0.0321	8.79	7.4	6.9	92	5	1	5	1	61
06/30/2006	15	8	0.2289	0.0583	2.03	7.4	6.9	100		0		0	125
07/31/2006	43	0	0.018	0.0144	0.24	7.1	6.8	97	5	4	5	4	154
08/31/2006	265	0	0.0283	0.0152	0.55	7.4	7.2	100		0		0	134
09/30/2006	9	8	0.1612	0.0354	0.4	7.7	7.5	92	11	1	11	1	130
10/31/2006	19	0	0.0583	0.0299	0.62	7.5	6.9	97	6	1	6	1	194
11/30/2006	3	0	0.1019	0.0441	2.32	7.6	7.2	97	9	4	9	4	296
12/31/2006	58	0	0.1612	0.0571	3.99	7.6	7.3	91	7	2	7	2	78
01/31/2007	48	8	0.0583	0.0372		7.7	7.5	100	0	0	0	0	364
02/28/2007	10	5.9	0.0783	0.0471		8.1	7.6	96	32	21	32	21	718
03/31/2007	3	0	0.1019	0.0598	9.46	7.8	7.7	84	26	13	26	13	164
04/30/2007	3	0	0.0679	0.0396		8.4	7.8	97	7	2	7	2	266
05/31/2007	7	5	0.0496	0.03		7.9	7.6	97	7	2	7	2	225
06/30/2007	7	0	0.0897	0.03	0.802	8	7.6	100		0		0	142
07/31/2007	460	50	0.0502	0.02		7.8	7.4	95	25	4	25	4	525
08/31/2007	7	4.6	0.0783	0.02		9.3	8.1	98	6	1	6	1	296
09/30/2007	3	3	0.0228	0.02		8	8	97	12	1	12	1	395
10/31/2007	52	0	0.0417	0.03		8.6	7.7	89	35	8	35	8	320
11/30/2007	99	0	0.0897	0.0343		9	7.7	100		0		0	412
12/31/2007	2	0	0.144	0.046		8	7.7	100		0		0	180
01/31/2008	222	0	0.0583	0.025		8.2	7.8	88	53	10	53	10	444
02/29/2008	500							99	19		19		8212
03/31/2008	2	0	0.0783	0.071		8.4	7.4	98	7	4	7	4	300
04/30/2008	2	0	0.0583	0.049		8.8	8.2	97	22	9	22	9	816
05/31/2008	9	0	0.144	0.039	1.99	8.7	7.7	98	7	2	7	2	432
06/30/2008	26	0	0.161	0.059		8.5	7.4	100		0		0	236
07/31/2008	7	0	0.0228	0.009		8	7.8	99		0		0	568
08/31/2008	36.4	9	0.0583	0.018		8.2	7.8	100		0		0	992
09/30/2008	9	4.72	0.0347	0.019		7.6	7.1	100		0		0	396
10/31/2008	9	0	0.0417	0.021		8.19	7.21	97	14	3.3	14	3.3	408
11/30/2008	12.1	4.3	0.0583	0.039		8.25	8.07	98	20	8.3	20	8.3	1010
12/31/2008	7	0	0.0679	0.044		7.73	7.26	98	8	3.87	8	3.87	384

Pollutants	E. coli		Flow, in conduit or thru treatment plant		Nitrogen, ammonia total [as N]	pH		Solids, suspended percent removal	Solids, total suspended				
Monitoring Locations	Effluent Gross		Effluent Gross		Effluent Gross	Effluent Gross		Percent Removal	Effluent Gross				Raw Sewage Influent
Statistical Base	INST MAX	MO GEOMN	DAILY MX	MO AVG	DAILY MX	INST MAX	INST MIN	MN % RMV	MO AVG		WKLY AVG		MO AVG
Units	Number per 100 Milliliters	Number per 100 Milliliters	Million Gallons per Day	Million Gallons per Day	Milligrams per Liter	Standard Units	Standard Units	Percent	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter
Current Limit	406	126	0.12	0.12					45	45	65	65	
Proposed Limit													
01/31/2009	0	0	0.1958	0.088		7.6	7.2	98	4	2	4	2	192
02/28/2009	83	27	0.129	0.063		7.7	7.1	99	6	2	6	2	580
03/31/2009	25	9.5	0.2361	0.144		8.2	7.2	98	3	2	3	2	262
04/30/2009	17	0	0.236	0.115		7.9	7.2	92	16	22	16	22	208
05/31/2009	266	3.5	0.101	0.063	1.39	8.1	7.6	95	19	16	19	16	384
06/30/2009	30	13	0.0417	0.025	1.09	7.39	7.52	99	5	1.4	5	1.4	1060
07/31/2009	23	0	0.0283	0.015	1.17	7.62	7.47	100		0		0	415
08/31/2009	16	6.3	0.058	0.018		8.07	7.41	98	9	0.135	9	0.135	590
09/30/2009	6	0	0.028	0.011	0.256	8.01	7.38	96	12	2	12	2	312
10/31/2009	22	0	0.0583	0.025		7.9	7.68	99	1	0.15	1	0.15	495
11/30/2009	33	0	0.0496	0.033		8.18	7.36	96	14	3.3	14	3.3	364
12/31/2009	8	0	0.0783	0.037		8.59	7.98	94	44	10.4	44	10.4	700
01/31/2010	2	0	0.144	0.059		8.53	8.07	95.5	6	4.4	6	4.4	134
02/28/2010	8	0	0.0496	0.045		8.07	7.8	99	6	2.48	6	2.48	696
03/31/2010	1	0	0.0679	0.033		8.29	7.75	98	4	1	4	1	338
04/30/2010	14	0	0.0897	0.05		8.3	7.5	98	8	2	8	2	740
05/31/2010	1	0	0.1019	0.063		8.32	8.09	96	14	3.3	14	3.3	360
06/30/2010	114	25.6	0.257	0.099		7.89	7.6	96	44	47.3	44	47.3	1070
07/31/2010	34	6	0.049	0.017		8.12	7.8	92	44	18	44	18	584
08/31/2010	16	0	0.05	0.025		8.2	7.37	100		0		0	745
09/30/2010	80	0	0.078	0.031		7.7	7.3	98	20	6	20	6	1390
10/31/2010	2	0	0.0783	0.031		8.01	7.8	99	3	1	3	1	524
11/30/2010	59	5	0.089	0.047		8.01	7.63	99	1	1	1	1	890
12/31/2010	653	0	0.161	0.067		7.62	7.28	99	8	2	8	2	1880
01/31/2011	59	0	0.129	0.066		7.38	7.28	99	2	0.4	2	0.4	612
02/28/2011	14	0	0.195	0.085		8.11	7.35	96	14	6.8	14	6.8	392
03/31/2011	96	55	0.305	0.157		8.01	7.8	97	13	11	13	11	434
04/30/2011	2	0	0.236	0.112		8.12	7.67	97	16	17	16	17	570
05/31/2011	62	0	0.384	0.136		8.58	7.9	98	6	8	6	8	536
06/30/2011	18	0	0.28	0.138		8.2	7.9	94	7	8	7	8	128
07/31/2011	365	0	0.058	0.039		7.88	7.6	98	4	1	4	1	210
08/31/2011	172	0	0.058	0.043		8.2	7.84	94	28	6.6	28	6.6	510
09/30/2011	214.2	55.9	0.138	0.037		8.04	7.8	98.1	16	3.7	16	3.7	860
10/31/2011	186	65	0.101	0.03		8.31	7.67	96.3	20	16.8	20	16.8	548
11/30/2011	10	0	0.058	0.031		7.9	7.61	97	27	6.3	27	6.3	1060
12/31/2011	2	0	0.0897	0.035		7.81	7.38	98	14	3.3	14	3.3	945
01/31/2012	2	0	0.089	0.047		7.83	7.21	97	33	8	33	8	1610
02/29/2012	1	0	0.1612	0.06		8.01	7.61	97	23	5	23	5	960
03/31/2012	2	0	0.571	0.128		8.43	7.63	98	15	8	15	8	1040
04/30/2012	7.2	30	0.1958	0.111		8.51	8.34	96.5	24	11.6	24	11.6	695
05/31/2012	12	0	0.1019	0.06		8.15	7.58	99	3	1	3	1	486
06/30/2012	8.6	0	0.129	0.083		8.31	7.88	98	13	13	13	13	704
07/31/2012	28	15.3	0.101	0.03		8.41	8.15	98	17	4	17	4	864
08/31/2012	132	39	0.0739	0.049		8.31	8.04	99	3	1	3	1	404
09/30/2012	8	0	0.0103	0.006		7.72	7.61	99	5	2	5	2	662
10/31/2012	365	0	0.058	0.032		8.31	7.9	98	7	1.65	7	1.65	588
11/30/2012	56.5	0	0.058	0.037		7.92	7.77	98	3	0.7	3	0.7	266
12/31/2012	1	0	0.069	0.035		8.21	7.81	96	9	3.1	9	3.1	288
01/31/2013	17	0	0.067	0.036		7.85	7.43	94	23	6.6	23	6.6	404
02/28/2013	49	0	0.089	0.066		7.49	7.36	95.8	13	6.3	13	6.3	316
03/31/2013	4	0	0.0679	0.058		8.21	7.91	90	26	12.6	26	12.6	272
04/30/2013	99	0	0.049	0.04		8.31	7.94	95	18	6.2	18	6.2	356
05/31/2013	21	0	0.049	0.024		8.61	8.09	98	5	0.75	5	0.75	368
06/30/2013	12	0	0.1294	0.039		8.11	7.41	99	1	0.08	1	0.08	183
07/31/2013	4	0	0.022	0.005		7.83	7.43	82	5	0.2	5	0.2	28
08/31/2013	5	0	0.0228	0.007		8.21	8.03	99	5	0.208	5	0.208	512
09/30/2013	4	0	0.1019	0.028		8.37	7.88	96	10	2.3	10	2.3	306
10/31/2013	7	0	0.058	0.023		8.04	7.8	96	10	1.9	10	1.9	306
11/30/2013	17	0	0.058	0.029		7.47	7	97	7	1.6	7	1.6	313
12/31/2013	2	0	0.161	0.048		7.48	7.19	91	13	3	13	3	158

Pollutants	E. coli		Flow, in conduit or thru treatment plant		Nitrogen, ammonia total [as N]	pH		Solids, suspended percent removal	Solids, total suspended				
Monitoring Locations	Effluent Gross		Effluent Gross		Effluent Gross	Effluent Gross		Percent Removal	Effluent Gross				Raw Sewage Influent
Statistical Base	INST MAX	MO GEOMN	DAILY MX	MO AVG	DAILY MX	INST MAX	INST MIN	MN % RMV	MO AVG		WKLY AVG		MO AVG
Units	Number per 100 Milliliters	Number per 100 Milliliters	Million Gallons per Day	Million Gallons per Day	Milligrams per Liter	Standard Units	Standard Units	Percent	Milligrams per Liter	Pounds per Day	Milligrams per Liter	Pounds per Day	Milligrams per Liter
Current Limit	406	126	0.12	0.12					45	45	65	65	
Proposed Limit													
01/31/2014	6	2.8	0.101	0.045		7.4	7	97	3	1.2	3	1.2	106
02/28/2014	2419	0	0.216	0.095		7.51	7.39	79.3	13	23.4	13	23.4	62.9
03/31/2014	15	0	0.236	0.125		7.58	7.29	86	32	26.9	32	26.9	234
04/30/2014	18	0	0.161	0.068		8.63	8.21	97	7	2.8	7	2.8	346
05/31/2014	8	0	0.129	0.052		8.43	7.03	92	30	8.5	30	8.5	705
06/30/2014	5	0	0.078	0.034		8.14	7.88	95	15	3.5	15	3.5	333
07/31/2014	8	0	0.028	0.01		8.07	7.83	99	3	0.25	3	0.25	805
08/31/2014	5	0	0.078	0.027		8.13	8.05	99	2	0.36	2	0.36	465
09/30/2014	29	0	0.028	0.012		8.31	7.84	97	17	1.8	17	1.8	735
10/31/2014	2	0	0.028	0.019		8.68	8.05	93.1	24	5.6	24	5.6	350
11/30/2014	12	0	0.195	0.06		7.8	7.07	100	0	0	0	0	210
12/31/2014	8	0	0.089	0.056		8.36	7.45	99	3	1.2	3	1.2	347
01/31/2015	30	0	0.129	0.068		8.21	7.7	88	19	18.2	19	18.2	170
02/28/2015		0	0.078	0.062		8.27	7.92	90	17	11	17	11	184
03/31/2015	4	0	0.089	0.056		7.91	7.7	95.3	17	8.2	17	8.2	364
04/30/2015	18	3	0.089	0.05		8.96	7.92	99	6	2.4	6	2.4	2140
05/31/2015	4	0	0.078	0.044		8.21	7.84	94	17	11	17	11	322
06/30/2015	7	0	0.281	0.07		8.21	7.67	99	3	0.45	3	0.45	378
07/31/2015	11	0	0.022	0.007		8.31	7.84	79.5	70	2.9	70	2.9	342
08/31/2015	8	0	0.018	0.008		8.12	7.88	98	6	0.25	6	0.25	322
09/30/2015	12	0	0.058	0.017		8.13	7.84	99	1	0.08	1	0.08	460
10/31/2015	14	4.7	0.049	0.017		8.25	8.17	99	1	0.04	1	0.04	385
11/30/2015	34.1	0	0.058	0.041		8.62	8.44	95	15	7.2	15	7.2	327
12/31/2015	2	0	0.101	0.056		8.61	8.39	94.2	18	15.1	18	15.1	314
01/31/2016	143.9	46.2	0.101	0.046		8.53	8.38	96.2	8	3.8	8	3.8	215
02/29/2016	45	17	0.101	0.062		8.63	8.21	94.8	12	5.8	12	5.8	232
03/31/2016	18	2.4	0.195	0.085		8.85	8.03	85	40	26	40	26	274
04/30/2016	3	0	0.101	0.065		8.12	8.01	94.3	16	10.4	16	10.4	282
05/31/2016	32	6.4	0.101	0.072		8.21	8	95.9	10	4.8	10	4.8	244
06/30/2016	1	0	0.129	0.043		8.4	7.9	81	32	4.8	32	4.8	169
07/31/2016	27	0	0.102	0.028		8.4	7.9						
08/31/2016	1	0	0.023	0.008		7.81	7.48	98	5	0.2	5	0.2	264
09/30/2016	8.5	1.7	0.028	0.016		8.13	7.85	88	32	7.4	32	7.4	268
10/31/2016	4	0	0.089	0.023		8.13	7.74	99	1	0.08	1	0.08	627
11/30/2016	8	0	0.041	0.03		8.11	8	98	3	1	3	1	190
12/31/2016	57	19.8	0.067	0.034		7.91	7.77	99	1	23	1	0.23	658
01/31/2017	4	0	0.034	0.028		8.4	7.7	97	6.86	1.6	6.86	1.6	328
02/28/2017	2419.6	0	0.216	0.118		7.48	7.34	94	8.1	6	8.1	6	150
03/31/2017	396	48	0.305	0.18		8.1	7.49	0.98	4.69	3.9	4.69	3.9	445
04/30/2017	4	0	0.216	0.122		9.61	7.22	94	23	19	23	19	442
05/31/2017	1	0	0.161	0.1		8.58	8.1	82	15.5	20.8	15.5	20.8	88.9
06/30/2017	23	0	0.089	0.05		0.08	0.02	99	3.43	1.65	3.43	1.65	365
07/31/2017	14	0	0.018	0.01		0.05	0.02	96	18.6	1.55	18.6	1.55	
08/31/2017	131	0	0.018	0.009		8.83	7.73	98	5.21	0.43	5.21	0.43	489
09/30/2017	9	0	0.041	0.018		8.55	7.98	0.98	2.93	0.24	2.93	0.24	228
10/31/2017	3	0	0.041	0.023		8.77	8.26	97	14.5	2.6	14.5	2.6	522
11/30/2017	161	0	0.129	0.052		8.96	8.48	96	13.5	3.8	13.5	3.8	334
12/31/2017	1	0	0.144	0.046		8.5	8.24	98	8	1.86	8	1.86	476
01/31/2018	83	27.78	0.144	0.107		8.67	8	80	36	43.23	36	43.23	178
02/28/2018	1	0	0.195	0.104		8.75	8.01	99	1	1.3	1	1.3	151
03/31/2018	272	7.44	0.216	0.135		8.54	8.01	98	5	2.83	5	2.83	320
04/30/2018	272	0	0.176	0.176		8.92	8.12	96	6	5.05	6	5.05	158
05/31/2018	3	0	0.161	0.097		8.58	8.32	96	6	6.45	6	6.45	166
06/30/2018	8	2.49	0.216	0.069		9.08	8.42	96	9	5.02	9	5.02	250
07/31/2018	42	0	0.041	0.02		8.31	8.04	98	4	0.6	4	0.6	250
08/31/2018	17	0	0.101	0.019		8.84	8.32	99	1	0.05	1	0.05	384
09/30/2018	15	0	0.028	0.014		8.86	8.68	96	8	0.66	8	0.66	228
10/31/2018	17	0	0.101	0.031		8.84	8.56	99	3	0.7	3	0.7	988
11/30/2018	3	0	0.089	0.045		8.19	7.69	97	8	4.47	8	4.47	280
12/31/2018	1	0	0.058	0.037		8.1	7.5	98	10	2.3	10	2.3	788
01/31/2019	260	10.3	0.058	0.038		8.34	7.89	98	6	1.4	6	1.4	344
02/28/2019													
Average	111.8622754	7.456407186	0.10443521	0.050040719	3.1239	8.044484848	7.576606061	94.56218182	12.91174194	5.732866667	13.16980645	5.837290909	468.797561
Min	0	0	0.0103	0.005	0.24	0.05	0.02	0.98	0	0	0	0	28
Max	2419.6	186	0.571	0.18	10.4	9.61	8.68	100	70	47.3	70	65	8212
Count	167	167	167	167	20	165	165	165	155	165	155	165	164
CV=std/average	3.36441555	3.073226537	0.738741906	0.702835896	1.127365866	0.122768131	0.121995895	0.1198799	0.918475145	1.479213461	0.967745583	1.663592608	1.472378691
5th Percentile	1	0	0.0228	0.01	0.2552	7.4	7.006	82.4	1	0	1	0	91.015
90th Percentile	237.2	22.12	0.20388	0.1052	9.127	8.676	8.138	99	29.2	15.64	29.2	14.26	846.8
95th Percentile	403	47.46	0.236	0.1241	9.507	8.848	8.32	100	37.2	21.8	37.2	20.96	1035.5
Standard Deviation	376.351179	22.91522844	0.077150666	0.035170413	3.521778228	0.987606373	0.92431484	11.33610485	11.85911404	8.480133546	12.74502202	9.710874009	690.2475394

B. Receiving Water Data

	A	B	C	D
1		Receiving Water	temp C	pH
2	Date	Value		
3	7/6/2005	0.08		
4	11/9/2005	3.73		
5	2/1/2006	0.22		
6	5/8/2006	0.1	5.1	7.6
7	10/11/2006	1.42	1.2	6.9
8	3/5/2007	1.38	0.89	7.8
9	6/12/2007	9.44	10.6	8.0
10	9/13/2007	0.73	9.3	7.8
11	5/5/2008	0.56	8.0	8.3
12	5/11/2009	0.277	11.0	8.1
13	6/8/2009	0.108	13.6	8.3
14	7/6/2009	0.14	13.6	8.4
15	9/8/2009	0.067	9.0	8.37
16	Average	1.404	8.229	7.957
17	Min	0.067	0.89	6.9
18	Max	9.44	13.6	8.4
19	Count	13	10	10
20	CV=std/ave	1.87	0.55	0.06
21	5th Percent	0.0748	1.0295	7.215
22	90th Percen	3.268	13.6	8.373
23	95th Percen	6.014	13.6	8.3865
24	Standard De	2.619562209	4.544199	0.461689

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:

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

where MRC = Maximum Reported Concentration

Maximum Projected Effluent Concentration at the Edge of the Mixing Zone

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

Reasonable Potential

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

B. WQBEL Calculations

Calculate the Wasteload Allocations (WLAs)

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

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

Idaho's water quality criteria for some metals are expressed as the dissolved fraction, but the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, 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. As discussed in Appendix ___, the criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge.

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

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

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

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

where,

σ^2 = $\ln(CV^2 + 1)$

Z_{99} = 2.326 (z-score for the 99th percentile probability basis)
CV = coefficient of variation (standard deviation ÷ mean)
σ_4^2 = $\ln(CV^2/4 + 1)$

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

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

where,

σ_{30}^2 = $\ln(CV^2/30 + 1)$

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

Derive the maximum daily and average monthly effluent limits

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

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

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

where σ, and σ^2 are defined as they are for the LTA equations above, and,

σ_n^2 = $\ln(CV^2/n + 1$
z_a = 1.645 (z-score for the 95th percentile probability basis)
z_m = 2.326 (z-score for the 99th percentile probability basis)
n = number of sampling events required per month. With the exception of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 4. For ammonia, In the case of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 30.

C. Critical Low Flow Conditions

The low flow conditions of a water body are used to determine water quality-based effluent limits. In general, Idaho's water quality standards require criteria be evaluated at the following low flow receiving water conditions (See IDAPA 58.01.02.210.03) as defined below:

Acute aquatic life	1Q10 or 1B3
Chronic aquatic life	7Q10 or 4B3
Non-carcinogenic human health criteria	30Q5
Carcinogenic human health criteria	harmonic mean flow
Ammonia	30B3 or 30Q10

1. The 1Q10 represents the lowest one day flow with an average recurrence frequency of once in 10 years.
2. The 1B3 is biologically based and indicates an allowable 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	
Facility Flow (mgd)	0.12
Facility Flow (cfs)	0.19

Critical River Flows (CFS)	(IDAPA 58.01.02 03. b)	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	**1Q10**	0	--	--
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	**7Q10 or 4B3**	0	--	--
Ammonia	**30B3/30Q10** (seasonal)		--	--
Human Health - Non-Carcinogen	**30Q5**		--	--
Human Health - carcinogen	**Harmonic Mean Flow**		--	--

DF at defined percent of river flow allow	25%	1.0
DF at defined percent of river flow allow	25%	1.0

Receiving Water Data		Notes:	Annual Crit. Flows
Hardness, as mg/L $CaCO_3$	= 100 mg/L	5th % at critical flows	
Temperature, °C	Temperature, °C	95th percentile	13.6
pH, S.U.	pH, S.U.	95th percentile	8.4

Pollutants of Concern			**AMMONIA,** default: cold water, fish early life stages	**CHLORINE (Total Residual)**	
Effluent Data	**Number of Samples in Data Set (n)**		20	131	
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		1.13	0.75	
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		9,507.00	90	
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only				
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**		3268	0	
	Geometric Mean, µg/L, Human Health Criteria Only				
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	2,593	19.	--
	Aquatic Life Criteria, µg/L	Chronic	1,290	11.	--
	Human Health Water and Organism, µg/L		--	--	--
	Human Health, Organism Only, µg/L		--	--	--
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute		--	--
		Chronic		--	--
	Carcinogen (Y/N), Human Health Criteria Only		--	--	--
Percent River Flow Default Value = **25%**	**Aquatic Life - Acute**	**1Q10**	0%	0%	--
	Aquatic Life - Chronic	7Q10 or 4B3		0%	--
		30B3 or 30Q10		0%	--
	Human Health - Non-Carcinogen and Chronic Ammonia	30Q5	0%	0%	--
	Human Health - Carcinogen	Harmonic Mean		0%	--
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.0	1.0	--
	Aquatic Life - Chronic	7Q10 or 4B3		1.0	--
		30B3 or 30Q10		1.0	--
	Human Health - Non-Carcinogen and Chronic Ammonia	30Q5	1.0	1.0	--
	Human Health - Carcinogen	Harmonic Mean		1.0	--

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.905	0.668	--
P_n	=(1-confidence level)$^{1/n}$, where confidence level =	**99%**	0.794	0.965	--
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	**99%**	3.9	1.4	--
Statistically projected critical discharge concentration (C_e)			37135	126.41	--
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute		126.41	--
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	37,135	126.41	--
Reasonable Potential to exceed Aquatic Life Criteria			**YES**	**YES**	--

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			4	4	
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			4	4	--
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		1.127	0.750	--
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		1.127	0.750	--
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	2,593	19.0	--
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	1,290	11.0	--
Long Term Ave (LTA), ug/L	WLAa x $\exp(0.5\sigma^2-z\sigma)$, Acute	**99%**	475	5.0	--
(99th % occurrence prob.)	WLAc x $\exp(0.5\sigma^2-z\sigma)$; ammonia n=30, Chronic	**99%**	820	5.1	--
Limiting LTA, ug/L	used as basis for limits calculation		475	5.0	--
Applicable Metals Criteria Translator (metals limits as total recoverable)				--	--
Average Monthly Limit (AML), ug/L , where % occurrence prob =		**95%**	**982.52**	**8.5**	--
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		**99%**	**2,593**	**19.0**	--
Average Monthly Limit (AML), mg/L			**0.98**	**0.0085**	--
Maximum Daily Limit (MDL), mg/L			**2.59**	**0.0190**	--
Average Monthly Limit (AML), lb/day			**0.98**	**0.0085**	--
Maximum Daily Limit (MDL), lb/day			**2.60**	**0.0190**	--

Appendix E. Equivalent to Secondary Treatment Limits

City of Craigmont Data Evaluation for Treatment Equivalent to Secondary Limits:

The EPA conducted a DMR review of BOD_5 and TSS effluent concentrations and percent removal. As discussed in Part IV.C of this Fact Sheet, the facility must meet all three criteria to be eligible for equivalent to secondary treatment limits.

- 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 §133.102(a) and (b). The regulations at §133.101(f) define "effluent concentrations consistently achievable through proper operation and maintenance" as
    - (f)(1): For a given pollutant parameter, the 95th 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)

The average monthly effluent concentrations reported by the City of Craigmont were reviewed for a 5 year period (2014-2019) in accordance with Criterion #1, shown below.

	Effluent *95th Percentile of 30-day Average*	**Secondary Treatment Standard** *30-day Average*	**Exceeds Secondary Treatment Standard?**
BOD_5 (mg/L)	28.5	30	No
TSS (mg/L)	32.2	30	Yes
	1.5 x Average 95th Percentile	*7-day Average*	Exceeds Limit?
BOD_5 (mg/L)	42.7	45	No
TSS (mg/L)	48.3	45	Yes

The data above show that the WWTP consistently exceeds the secondary treatment standards for TSS set forth in 40 CFR 133.102(a) and (b) and therefore meets Criterion #1. The WWTP, however, does consistently meet the secondary treatment standards for BOD_5. Therefore, the City will be required to meet BOD_5 secondary treatment limits and does not meet the equivalent to secondary criteria.

- 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).

The City complies with Criterion #2 as the treatment lagoon is the primary treatment process. A lagoon system qualifies as a 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. The regulations at §133.101(k) define 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.

With respect to Criterion #3, DMR values for 30-day average BOD_5 and TSS removal rates were considered for the 2014-2019, 5-yr period. The Craigmont WWTP was calculated to have a consistent (5^{th} percentile) 30-day average removal rate of 48.8% for BOD_5 and 80.9% for TSS. The facility treatment works include a facultative lagoon which utilizes biological treatments to consistently achieve a 30-day average of at least 65 percent removal of BOD_5. However, the facility does not meet Criterion #3 for BOD_5.

	Criterion #1	**Criterion #2**	**Criterion #3**	**Receives Treatment Equivalent to Secondary Limits**
BOD_5	Fail	Pass	Fail	No
TSS	Pass	Pass	Pass	Yes

The City of Craigmont does not satisfy the requirements of Criteria 3 for BOD, and therefore is not eligible for equivalent to secondary treatment standards for BOD or TSS.

Appendix F: 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 Craigmont permit, this means determining the permit's effect on water quality based upon the limits for BOD_5, TSS, temperature, ammonia and total residual chlorine in the current and proposed permits. Table 7 provides a summary of the current permit limits and the proposed reissued permit limits.

Table 7. 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	30	45	45	---	---
BOD_5 in (lbs/day[1])	30	30	45	45	---	---
BOD_5 Minimum Percent Removal	85	none	---	---	---	---
TSS (mg/L)	30	45	45	65	---	---
TSS in (lbs/day[1])	30	45	45	65	---	---
Total Residual Chlorine (mg/L)	0.007	0.007	---	---	0.018	0.018
Total Residual Chlorine (lbs/day)	0.007	0.007	---	---	0.018	0.018
Total Ammonia as N, mg/L	0.98	none	---	none	2.60	none
Total Ammonia as N, (lbs/day)	0.98	none	---	none	2.60	none

1. Mass-based loadings are based on a design flow of 0.12 mgd.
2.The existing permit limits were issued in 2005.

The proposed permit limits in Table 7 of *E. coli* bacteria and pH are the same as those in the previous permit. 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 ammonia maximum daily limits are equal to the 95th percentile concentrations of the maximum ammonia 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).