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 Elk River Wastewater Treatment Facility
Landing Road
Elk River, Idaho 83827

Public Comment Start Date: March 15, 2018
Public Comment Expiration Date: April 16, 2018

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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

State Certification
Upon the EPA's request, the Idaho Department of Environmental Quality (IDEQ) has provided a draft certification of the permit for this facility under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

Idaho Department of Environmental Quality
Lewiston Regional Office
1118 "F" St.
Lewiston, ID 83501
(208) 799-4370
toll-free: (877) 541-3304

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 Office of Water and Watersheds 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 "http://EPA.gov/r10earth/waterpermits.htm."

US EPA Region 10
Suite 900
1200 Sixth Avenue, OWW-191
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

EPA Idaho Operations Office
950 W 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.
30Q5	30 day, 5 year low flow
ACR	Acute-to-Chronic Ratio
AML	Average Monthly Limit
AWL	Average Weekly Limit
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BOD_5	Biochemical oxygen demand, five-day
BOD_{5u}	Biochemical oxygen demand, ultimate
BMP	Best Management Practices
°C	Degrees Celsius
C BOD_5	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
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
ICIS	Integrated Compliance Information System
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
mg/L	Milligrams per liter
Ml	Milliliters
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
OWW	Office of Water and Watersheds
O&M	Operations and maintenance
POTW	Publicly owned treatment works
PSES	Pretreatment Standards for Existing Sources
PSNS	Pretreatment Standards for New Sources
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
SIC	Standard Industrial Classification
SPCC	Spill Prevention and Control and Countermeasure
SS	Suspended Solids
SSO	Sanitary Sewer Overflow

s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
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 #:	ID0020362
Applicant:	City of Elk River Wastewater Treatment Facility
Type of Ownership	Municipal
Physical Address:	Landing Road Elk River, Idaho 83827
Mailing Address:	P.O. Box H Elk River, Idaho 83827
Facility Contact:	Becky Patterson Clerk/Treasurer City of Elk River **cityer@turbonet.com** (208) 826-3209
Operator Name:	Danny Haskell (208) 553-5507
Receiving Water	Elk Creek
Facility Outfall	Latitude: 46.785 N Longitude 116.1725 W

B. Permit History

The most recent NPDES permit for the City of Elk River Wastewater Treatment Facility (facility) was issued on March 5, 2004, became effective on May 1, 2004, and expired on April 30, 2009. An NPDES application for permit issuance was submitted on April 1, 2009. The EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively extended and remains fully effective and enforceable.

II. Idaho NPDES Authorization

In 2014, the Idaho Legislature revised the Idaho Code to direct the Idaho Department of Environmental Quality (IDEQ) to seek authorization from the EPA to administer the NPDES permit program for the State of Idaho. On August 31, 2016, IDEQ submitted a program package pursuant to CWA Section 402(b) and 40 CFR 123.21.

IDEQ is seeking authorization for a phased NPDES permit program that would begin July 1, 2018. Assuming that IDEQ's request for authorization is approved, IDEQ would obtain permitting for POTWs on July 1, 2018. At that point in time, all documentation required by the permit would be sent to IDEQ rather than to the EPA and any decision under the permit stated to be made by the EPA or jointly between the EPA and IDEQ will be made solely by IDEQ. Permittees will be notified by IDEQ when this transition occurs.

III. Facility Information

A. Treatment Plant Description

Service Area

The City of Elk River owns and operates the facility located in Elk River, Idaho. The collection system has no combined sewers. The facility serves a resident population of approximately 150. There are no major industries discharging to the facility.

Treatment Process

The design flow of the facility is 0.08 mgd. According to Discharge Monitoring Reports (DMRs), the reported actual flows from the facility (when discharge occurs) range from 0.023 mgd to 0.127 mgd (average monthly flow). The facility intermittently discharges seasonally from November 1 to July 31. The treatment process occurs in lagoons with aerators, and disinfection using chlorine followed by dechlorination. A schematic of the wastewater treatment process and a map showing the location of the facility and discharge are included in Appendix A. Because the design flow is less than 1 mgd, the facility is considered a minor facility.

The facility underwent operational upgrades in 2012 which included:

- Repair and replacement of chlorine feed pumps.
- Installation of dechlorination system.
- Installation of lagoon aeration in Cell No. 1, for improved removal efficiency of Biochemical Oxygen Demand (BOD_5), total suspended solids (TSS), and nutrients.

Outfall Description

According to the permit application, the discharge pipe is not equipped with a diffuser.

Effluent Characterization

To characterize the effluent, the EPA evaluated the facility's application form, and DMR data. The effluent quality is summarized in Table 2. Data are provided in Appendix B.

Table 2 Effluent Characterization

Parameter	Maximum	Minimum
Flow	0.127 mgd	0.023 mgd
BOD5 (Monthly Average)	82 mg/l	2 mg/l
TSS (Monthly Average)	80 mg/l	0.01 mg/l
Total Residual Chlorine (Daily Max.)	2 mg/l	0.02 mg/l
Total Residual Chlorine (Monthly Average)	1.39 mg/l	0.02 mg/l
E.coli bacteria (Instantaneous Max, Geometric Mean)	2419	1
Total Phosphorus as P	3.35 mg/l	1.67 mg/l
Total Ammonia as N	9.48 mg/l	1.38 mg/l
pH	10.5 S.U.	6.6 S.U.
Temperature	19 °C	0.8 °C

Source: DMRs from May, 2004 to June, 2017.

Compliance History

On August 25, 2016, the facility and the EPA entered into a Consent Agreement and Final Order ("Final Order") (Docket No. CWA-10-2016-0126) that addressed alleged permit limit violations. A complete description of the alleged violations can be found in the 2016 Final Order.

The IDEQ conducted an inspection of the facility in August 2015. The inspection encompassed the wastewater treatment process, a records review, an operation and maintenance, and an overview the collection system. The 2015 Inspection Report identified several concerns including:

- The adequate maintenance of the structure of the sewage lagoons;
- The poor housekeeping in the disinfection building;
- The adherence to the Quality Assurance Plan (QAP) and adequate maintenance of monitoring equipment;
- The proper reporting of loading information on the DMRs;
- The July 2015 DMR was not submitted.

These concerns were not part of the 2016 Final Order.

IV. 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 Elk Creek in Idaho.

B. Designated Beneficial Uses

This facility discharges to Elk Creek in the Lower North Fork Clearwater River Subbasin (HUC #17060308), Water Body Unit, C-30, ID17060308CL030_03. At the point of discharge, this segment of Elk Creek is protected for the following designated uses (IDAPA 58.01.02.130.10):

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

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

C. Water Quality

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

Table 3. Receiving Water Quality Data

Parameter	Units	Percentile	Value
Temperature	°C	95th	13
pH	Standard Units	5th – 95th	7.0 - 7.5
Ammonia	mg/L	maximum	0.189
Total Phosphorus	mg/l	range	0.005 to 0.06
Source: Ammonia and Total Phosphorus data: Facility records from January 2007 to April 2010. Temperature and pH data: Daily facility records from January 2011 to December 2014 during the authorized discharge months from November to June.			

D. Water Quality Limited Waters

Elk Creek is not listed as impaired on the State of Idaho's 2014 Integrated Report. (Appendix F, Category 2: Full Support; page 8: ID17060308CL030_03 Elk Creek - source to Elk Creek Reservoir)

E. Low Flow Conditions

There are no gauges that measure flow in this segment of the assessment unit of Elk Creek. Because this segment of Elk Creek is a relatively small waterbody with no flow data, low flows were estimated to be zero for the existing permit (see Footnote 2, Table C-1, Fact Sheet for 2004 permit).

The EPA used a recently developed USGS StreamStats Version 3.0 to estimate low flows based on watershed analysis of Elk Creek near the outfall coordinates. USGS StreamStats is a web-based Geographic Information System (GIS) that accesses an assortment of analytical

tools whose purpose is to provide results that can be useful for water-resources planning. The critical low flow estimates are shown on Table 4 below.

Table 4. Critical Flows in Receiving Water

Flows	Annual Flow (cfs)
1Q10	5.03
7Q10	6.34
30B3	Not Available
30Q5	8.77
Harmonic Mean	Not Available
Source: e.g. USGS StreamStats Flow Statistics, Version 3.0: https://water.usgs.gov/osw/streamstats/ssonline.html	

Low flows are defined in Appendix D, Part C.

V. Effluent Limitations and Monitoring

Table 5 below presents the existing effluent limits and monitoring requirements in the 2004 Permit. Table 6, below, presents the proposed effluent limits and monitoring requirements in the draft permit.

The following conditions were in the existing permit:

1. The authorized discharge period is from November 1 to June 30.
2. The pH range shall be between 6.5 – 9.0 standard units. The Permittee shall monitor for pH once per week. Sample analysis shall be conducted on a grab sample from the effluent
3. There shall be no discharge of floating solids, visible foam in other than trace amounts, oily wastes that produce a sheen on the surface of the receiving water.
4. 85% Removal Requirements for BOD_5 and TSS: For each month, the monthly average effluent concentration shall not exceed 15 percent of the monthly average influent concentration.
5. Chlorine Schedule of Compliance: The permittee must achieve compliance with the chlorine limitations of Table 6, below by May 1, 2007. Between the effective date of the 2004 permit and April 30, 2007, the permittee meet interim limits of:
   Average Monthly Limit: 0.5 mg/l
   Maximum Daily Limit: 0.75 mg/l

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[1]	Sample Type
Flow, mgd	---	---	---	---	Effluent	1/week	measured
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/week	grab
	20 lbs/day	30 lbs/day	---	---			
Total Suspended Solids (TSS)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/week	grab
	20 lbs/day	30 lbs/day	---	---			
E. Coli Bacteria[2,3]	126/100 ml	---	---	406/100 ml	Effluent	5/month	grab
Total Residual Chlorine [3,4,5]	0.01 mg/L	---	0.02 mg/L	---	Effluent	1/week	grab
	0.01 lbs/day	---	0.01 lbs/day				
Temperature, °C	---	---	---	---	Effluent	1/week	grab
Total Phosphorus as P, mg/L[6]	---	---	---	---	Effluent	1/week	grab
Total Ammonia as N, mg/L[6]	---	---	---	---	Effluent	1/week	grab

1. The facility must monitor once per week whenever there is a discharge from the facility.
2. The average monthly E. coli counts 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 I.G. for definition of geometric mean. If the facility does not discharge a sufficient number of days in a given month to obtain five samples, the average monthly limit does not apply for that month.
3. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See Part II.G.
4. 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 levels are at or below the compliance evaluation level of 0.1 mg/L, with a loading at or below 0.067 lbs/day.
5. Chlorine effluent limits shall become effective May 1, 2007, in accordance with the conditions of the Compliance Schedule in Part I.B., below.
6. Monitoring shall be conducted once per week whenever there is a discharge from the facility until a minimum of 10 samples has been collected during the permit cycle.

Table 6. Draft Permit - Effluent Limits and Monitoring Requirements

For discharge from November 1 to June 30.

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits							
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45	--	Influent and Effluent	1/week	Grab
	lbs/day	20	30	--			Calculation[1]
BOD_5 Percent Removal	%	85 (minimum)	--	--	--	1/month	Calculation[2]
	mg/L	30	45	--		1/week	Grab

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Total Suspended Solids (TSS)	lbs/day	20	30	--	Influent and Effluent		Calculation[1]
TSS Percent Removal	%	85 (minimum)	--	--	--	1/month	Calculation[2]
E. coli [3]	CFU/ 100 ml	126	--	406 (instant. max) [4]	Effluent	5/month	Grab
Total Residual Chlorine	mg /L	0.09	--	0.21[4,5]	Effluent	1/week	Grab
	lbs/day	0.06	--	0.14[4]			Calculation[1]
pH	std units	Between 6.5 – 9.0			Effluent	1/week	Grab
Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.2 of the permit				1/month	Visual Observation
		Report Parameters					
Flow	mgd	Report	--	Report	Effluent	continuous	Meter
Temperature	ºC	--	Report	Report	Effluent	1/week	Grab
Total Phosphorus as P	mg/L	Report	--	Report	Effluent	1/week	Grab
Total Ammonia as N	mg/L	Report	--	Report	Effluent	1/week	Grab

Notes

1. Loading (in lbs/day) is calculated by multiplying the concentration (in mg/L) by the corresponding flow (in mgd) for the day of sampling and a conversion factor of 8.34. For more information on calculating, averaging, and reporting loads and concentrations see the *NPDES Self-Monitoring System User Guide* (EPA 833-B-85-100, March 1985).
2. Percent Removal. The monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month using the following equation: (average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration x 100. Influent and effluent samples must be taken over approximately the same time period.
3. The average monthly *E. coli* bacteria counts must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3 - 7 days within a calendar month. See Part VI of the permit for a definition of geometric mean.
4. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See Paragraph I.B.3 and Part III.G of the permit.
5. The limits for chlorine are not quantifiable using EPA-approved analytical methods. The minimum level (ML) for chlorine is 50 µg/L for this parameter. The EPA will use 50 µg/L as the compliance evaluation level for this parameter. The permittee will be compliance with the total residual chlorine limitations if the average monthly and maximum daily concentrations are less than 50 µg/L and the average monthly and maximum daily mass loadings are less than 0.033 lbs/day. For purposes of calculating the monthly averages, see Paragraph I.B.7 of this permit.

Differences between Existing Permit and Draft Permit: Effluent Limits and Monitoring Requirements

1. Effluent Flow is measured by continuous meter instead of 1/week, because a continuous meter has been installed.
2. Total Residual Chlorine effluent limits have been revised to: AML = 0.09 mg/l, and 0.06 lbs/day; and, MDL = 0.21 mg/l, and 0.14 lbs/day.

3. Floating, Suspended or Submerged Matter: must be monitored 1/month by visual observation.

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, ammonia, temperature, phosphorus, and dissolved oxygen (DO).

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

- BOD_5
- DO
- TSS
- *E. coli* bacteria
- TRC
- pH
- Ammonia
- Phosphorus
- Residues

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 7. For additional information and background refer to Part 5.1 *Technology Based Effluent Limits for POTWs* in the Permit Writers Manual.

The BOD_5 and TSS limits in the draft permit are the technology-based effluent limits. These are the same as in the existng permit.

Table 7. 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		

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, except under certain conditions. The regulation at 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 0.08 mgd, the technology based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 0.08 mgd × 8.34 = 20 lbs/day

Average Weekly Limit = 45 mg/L × 0.08 mgd × 8.34 = 30 lbs/day

D. Water Quality-Based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Discharges to State or Tribal waters must also

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

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

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

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

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 Idaho Water Quality Standards at IDAPA 58.01.02.060 provides Idaho's mixing zone policy for point source discharges. IDEQ's mixing zone policy is intended for mixing zones to be no larger than necessary. In the State 401 Certification, the IDEQ proposes to authorize mixing zones. The proposed mixing zones are summarized in Table 8. The EPA also calculated dilution factors for year round critical low flow conditions. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 0.08 mgd.

Table 8. Mixing Zones

Criteria Type	Critical Low Flow (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor
Acute Aquatic Life	5.03	25%	11.2
Chronic Aquatic Life (except ammonia)	6.34	25%	13.8
Chronic Aquatic Life (ammonia)	8.77	6%	5.3
Human Health Noncarcinogen	8.77	25%	18.7
Human Health Carcinogen	Not Available	--	--
Note: The Critical Low Flow used for the Chronic Aquatic Life (ammonia) is the 30Q5 value. The 30Q5 flow is a close estimate of the 30B3 flow, which is used as a substitution since the 30B3 value is unavailable from StreamStats. Typically, EPA uses the 30B3 value when available.			

The reasonable potential analysis and water quality-based effluent limit calculations were based on mixing zones shown in Table 8. If IDEQ revises the allowable mixing zone in its final certification of this permit, reasonable potential analysis and water quality-based effluent limit calculations will be revised accordingly.

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

Reasonable Potential and Water Quality-Based Effluent Limits

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

Ammonia

Ammonia criteria are based on a formula which relies on the pH and temperature of the receiving water, because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase. The table below details the equations used to determine water quality criteria for ammonia.

Table 9 Ammonia Criteria

Based on IDAPA 58.01.02

INPUT	
1. Receiving Water Temperature (deg C):	13.0
2. Receiving Water pH:	7.50
3. Is the receiving water a cold water designated us	Yes
4. Are non-salmonid early life stages present or abse	Present
OUTPUT	
Total ammonia nitrogen criteria (mg N/L):	
Acute Criterion (CMC)	**13.28**
Chronic Criterion (CCC)	**4.36**

Acute Criteria Equation: Cold Water

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

Acute Criteria Equation: Warm Water

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

Chronic Criteria: Cold Water, Early Life Stages Present

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

Chronic Criteria: Cold Water, Early Life Stages Absent

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

A reasonable potential calculation showed that the facility discharge would NOT have the reasonable potential to cause or contribute to a violation of the water quality criteria for ammonia from November to June. Therefore, the draft permit does not contain water quality-based effluent limits for ammonia. The draft permit requires that the permittee monitor the receiving water for ammonia, pH and temperature in order to determine the applicable ammonia criteria for the next permit reissuance. See Appendix D 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. Effluent pH data were compared to the water quality criteria. Generally, the facility has been able to achieve the current pH effluent limit and the EPA is proposing to retain that limit.

Dissolved Oxygen (DO) and BOD_5

Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The BOD_5 of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water.

The reasonable potential to cause or contribute to violations of the dissolved oxygen criteria is 6 mg/L. The TBEL for BOD ensures that the DO criteria will be met.

Phosphorus

The segment of the receiving water is not impaired for nutrients. In addition, the discharge is small and seasonal. Therefore, no effluent limits for phosphorus is required.

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*.

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

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. The existing permit has the following water quality based effluent limits and compliance evaluation level for chlorine:

AML = 0.01 mg/l, and 0.01 lbs/day; and

MDL = 0.02 mg/l, and 0.01 lbs/day.

Compliance evaluation level: 0.1 mg/l, with a loading at or below 0.067 lbs/day.

For the reissuance of this permit, 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 water quality-based effluent limits.

Based on USGS StreamStats Version 3.0 program, estimates of low flows are now available for the EPA to calculate effluent limits that account for dilution factors that would meet Idaho WQS. The results of this calculation are as follows:

AML = 0.09 mg/l and 0.06 lbs/day; and

MDL = 0.21 mg/l and 0.14 lbs/day.

The compliance evaluation level for chlorine has been reduced to 0.05 mg/l (from 0.1 mg/l) due to improvements in laboratory procedures. These effluent limits are less stringent than the effluent limits in the existing permit. For the reasons set forth below in the Antibacksliding Section, the EPA has determined that it can impose these less stringent effluent limits in the permit.

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 federal regulations at 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*.

For water quality based effluent limits, the EPA can allow an effluent limit to become less stringent in a permit reissuance when the waterbody is in attainment of standards and an adequate antidegradation analysis has been provided.

For chlorine, the draft limits are less stringent than in the existing permit. The limits are less stringent because the EPA relied upon USGS StreamStats Version 3.0 to determine low flows in the waterbody. This program was not available at the time of the previous permit issuance. As a result, the EPA determined that low flows are more than zero, which was the flow that was assumed in the previous permit.

The facility discharges into Elk Creek which is currently achieving the relevant water quality standards. IDEQ has provided the EPA with an antidegradation analysis that is consistent with the state's antidegradation policy. Therefore, the chlorine limits in the draft permit can be less stringent than the previous permit.

VI. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

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

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

The 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.

C. Surface Water Monitoring

In general, surface water monitoring may be required for pollutants of concern to assess the assimilative capacity of the receiving water for the pollutant. In addition, surface water monitoring may be required for pollutants for which the water quality criteria are dependent and to collect data for TMDL development if the facility discharges to an impaired water body. Table 10 presents the proposed surface water monitoring requirements for the draft permit. Surface water monitoring results must be submitted with the DMR and submitted as an annual report.

Table 10. Surface Water Monitoring in Draft Permit

Parameter	Units	Frequency[1,2]	Sample Type
Temperature	°C	1/month	Measure
pH	standard units	1/month	Grab
Total Phosphorus	mg/l	1/month	Grab
Total Ammonia	mg/l	1/month	Grab

Notes:

1. Monitoring frequency of 1/month whenever there is a discharge.
2. A minimum monitoring frequency of once per year in June if the facility has not discharged beginning November 1st of the previous calendar year.

Changes between the Surface Water Monitoring in the Draft Permit with the Existing Permit

There are no changes in parameters, monitoring frequencies, or sample types, except for an addition of a minimum monitoring frequency of once per year in June if there is no discharge during the year.

D. Electronic Submission of Discharge Monitoring Reports

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

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

VII. 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.

VIII. Other Permit Conditions

A. Compliance Schedules

Compliance schedules are authorized by federal NPDES regulations at 400 CFR 122.47 and Idaho WQS at IDAPA 58.01.02.400.03. 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. For the draft permit, there are no limits that are more stringent than the existing permit, nor are there any new limits for parameters that did not already have a limit. Therefore, there are no compliance schedules proposed in the draft permit.

B. Quality Assurance Plan

The facility 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 and the IDEQ upon request.

C. Operation and Maintenance Plan

The permit requires the facility to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to develop and implement an operation and maintenance plan for their facility within 180 days of the effective date of the final permit. The plan must be retained on site and made available to the EPA and the IDEQ 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 analysis showed that the facility is NOT located within or near a Census block group that is potentially overburdened. The draft permit does not include any additional conditions to address environmental justice.

Regardless of whether a facility is located near a potentially overburdened community, the EPA encourages permittees to review (and to consider adopting, where appropriate) Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways To Engage Neighboring Communities (see https://www.federalregister.gov/d/2013-10945). Examples of promising practices include: thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing

progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, etc.

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

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

Idaho does not have an approved state pretreatment program per 40 CFR 403.10, thus, EPA is the Approval Authority for Idaho POTWs. Since the facility does not have an approved POTW pretreatment program per 40 CFR 403.8, the EPA is also the Control Authority of industrial users that might introduce pollutants into the City of Elk River WWTP.

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

Although, not a permit requirement, the Permittee may wish to consider developing the legal authority enforceable in Federal, State or local courts which authorizes or enables the POTW to apply and to enforce the requirement of sections 307 (b) and (c) and 402(b)(8) of the Clean Water Act, as described in 40 CFR 403.8(f)(1). Where the POTW is a municipality, legal authority is typically through a sewer use ordinance, which is usually part of the city or county code. 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.

Should a new industrial source discharge to this facility, or if there are significant changes to the nature of discharge to the POTW, it may be necessary for the Permittee to develop 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). The legal authority must be adopted and enforced by the POTW. 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).

Background on the pretreatment program may be found at Introduction to the National Pretreatment Program (EPA, 2011).

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.

IX. 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. The EPA believes that compliance with the draft permit would have no known measurable affect to threatened and endangered species located in the vicinity of the discharge. Therefore, the EPA determined that there is No Effect to threatened or endangered species. (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 EPA believes that compliance with the draft permit would have no known measurable affect to Essential Fish Habitat. Therefore, the EPA determined that there is No Effect to Essential Fish Habitat. (See Appendix E)

C. State Certification

Section 401 of the CWA requires the EPA to seek State certification before issuing a final permit. As a result of the certification, the State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards, or treatment standards established pursuant to any State law or regulation. A copy of the draft 401 certification is provided in Appendix F.

D. Antidegradation

The IDEQ has completed an antidegradation review which is included in the draft 401 certification for this permit. (*See* Appendix G) The EPA has reviewed this antidegradation antidegradation analysis and finds that it is consistent with the State's water quality standards and the State's antidegradation implementation procedures. Comments on the 401 certification including the antidegradation review can be submitted to the IDEQ as set forth above (see State Certification on Page 1 of this Fact Sheet).

E. Permit Expiration

The permit will expire five years from the effective date.

X. 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.

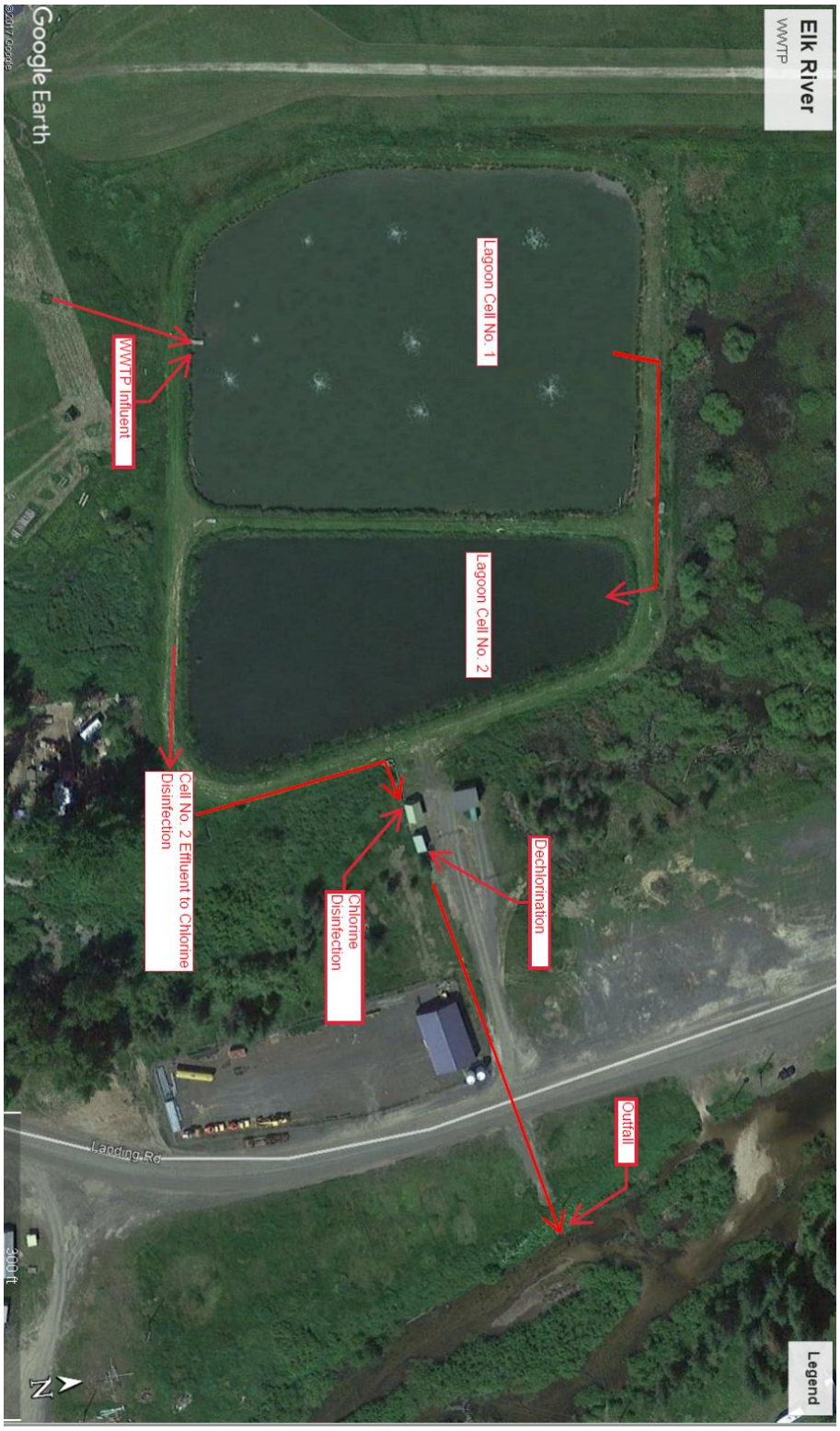
EPA. 2010. *NPDES Permit Writers' Manual.* Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001. September 2010. https://www3.epa.gov/npdes/pubs/pwm_2010.pdf

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



Appendix B. Water Quality Data

A. Treatment Plant Effluent Data

Total Residual Chlorine

Chlorine, total residual	DAILY MX	1.21	mg/L	05/31/2007
Chlorine, total residual	DAILY MX	.33	mg/L	01/31/2008
Chlorine, total residual	DAILY MX	.33	mg/L	01/31/2008
Chlorine, total residual	DAILY MX	.33	mg/L	02/29/2008
Chlorine, total residual	DAILY MX	.25	mg/L	03/31/2008
Chlorine, total residual	DAILY MX	.3	mg/L	04/30/2008
Chlorine, total residual	DAILY MX	.3	mg/L	04/30/2008
Chlorine, total residual	DAILY MX	.17	mg/L	06/30/2008
Chlorine, total residual	DAILY MX	.28	mg/L	05/31/2008
Chlorine, total residual	DAILY MX	.28	mg/L	05/31/2008
Chlorine, total residual	DAILY MX	.44	mg/L	12/31/2008
Chlorine, total residual	DAILY MX	.53	mg/L	01/31/2009
Chlorine, total residual	DAILY MX	.53	mg/L	01/31/2009
Chlorine, total residual	DAILY MX	.25	mg/L	02/28/2009
Chlorine, total residual	DAILY MX	.62	mg/L	03/31/2009
Chlorine, total residual	DAILY MX	.55	mg/L	04/30/2009
Chlorine, total residual	DAILY MX	.71	mg/L	05/31/2009
Chlorine, total residual	DAILY MX	.28	mg/L	01/31/2010
Chlorine, total residual	DAILY MX	.39	mg/L	02/28/2010
Chlorine, total residual	DAILY MX	.46	mg/L	03/31/2010
Chlorine, total residual	DAILY MX	.98	mg/L	04/30/2010
Chlorine, total residual	DAILY MX	1.08	mg/L	05/31/2010
Chlorine, total residual	DAILY MX	1.06	mg/L	06/30/2010
Chlorine, total residual	DAILY MX	.63	mg/L	12/31/2010
Chlorine, total residual	DAILY MX	.38	mg/L	01/31/2011
Chlorine, total residual	DAILY MX	.17	mg/L	02/28/2011
Chlorine, total residual	DAILY MX	.19	mg/L	03/31/2011
Chlorine, total residual	DAILY MX	.46	mg/L	04/30/2011
Chlorine, total residual	DAILY MX	.4	mg/L	05/31/2011
Chlorine, total residual	DAILY MX	.2	mg/L	06/30/2011
Chlorine, total residual	DAILY MX	.59	mg/L	01/31/2012
Chlorine, total residual	DAILY MX	.5	mg/L	02/29/2012
Chlorine, total residual	DAILY MX	.38	mg/L	03/31/2012
Chlorine, total residual	DAILY MX	.52	mg/L	04/30/2012
Chlorine, total residual	DAILY MX	.57	mg/L	05/31/2012
Chlorine, total residual	DAILY MX	.5	mg/L	11/30/2012
Chlorine, total residual	DAILY MX	.35	mg/L	12/31/2012
Chlorine, total residual	DAILY MX	.39	mg/L	01/31/2013
Chlorine, total residual	DAILY MX	1.07	mg/L	02/28/2013
Chlorine, total residual	DAILY MX	.87	mg/L	03/31/2013
Chlorine, total residual	DAILY MX	2.	mg/L	04/30/2013

Chlorine, total residual	DAILY MX	1.34	mg/L	05/31/2013
Chlorine, total residual	DAILY MX	.73	mg/L	12/31/2013
Chlorine, total residual	DAILY MX	1.08	mg/L	01/31/2014
Chlorine, total residual	DAILY MX	.32	mg/L	02/28/2014
Chlorine, total residual	DAILY MX	.33	mg/L	03/31/2014
Chlorine, total residual	DAILY MX	1.37	mg/L	04/30/2014
Chlorine, total residual	DAILY MX	.39	mg/L	05/31/2014
Chlorine, total residual	DAILY MX	.14	mg/L	12/31/2014
Chlorine, total residual	DAILY MX	.18	mg/L	01/31/2015
Chlorine, total residual	DAILY MX	.17	mg/L	02/28/2015
Chlorine, total residual	DAILY MX	.62	mg/L	03/31/2015
Chlorine, total residual	DAILY MX	.3	mg/L	04/30/2015
Chlorine, total residual	DAILY MX	.1	mg/L	02/29/2016
Chlorine, total residual	DAILY MX	.1	mg/L	03/31/2016
Chlorine, total residual	DAILY MX	.1	mg/L	01/31/2017
Chlorine, total residual	DAILY MX	.1	mg/L	02/28/2017
Chlorine, total residual	DAILY MX	.02	mg/L	03/31/2017
Chlorine, total residual	DAILY MX	.1	mg/L	04/30/2016
Chlorine, total residual	DAILY MX	.1	mg/L	04/30/2017
Chlorine, total residual	DAILY MX	.1	mg/L	05/31/2016
Chlorine, total residual	DAILY MX	.1	mg/L	05/31/2017
Chlorine, total residual	DAILY MX	.1	mg/L	06/30/2017
	Maximum	**2.**	**mg/L**	
	Minimum	**.02**	**mg/L**	
	Std Dev	**0.3823**		
	Mean	**0.4717**	**mg/l**	
	CV	**0.8105**		
	N	**63**		

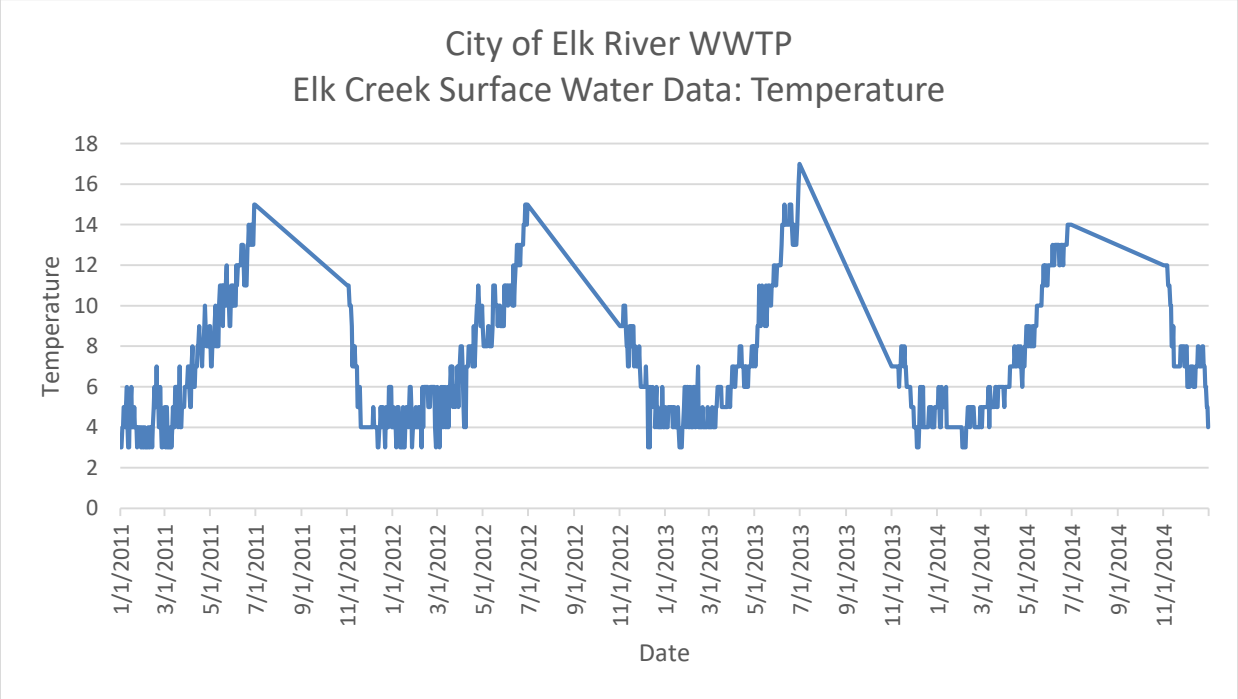
Total Ammonia

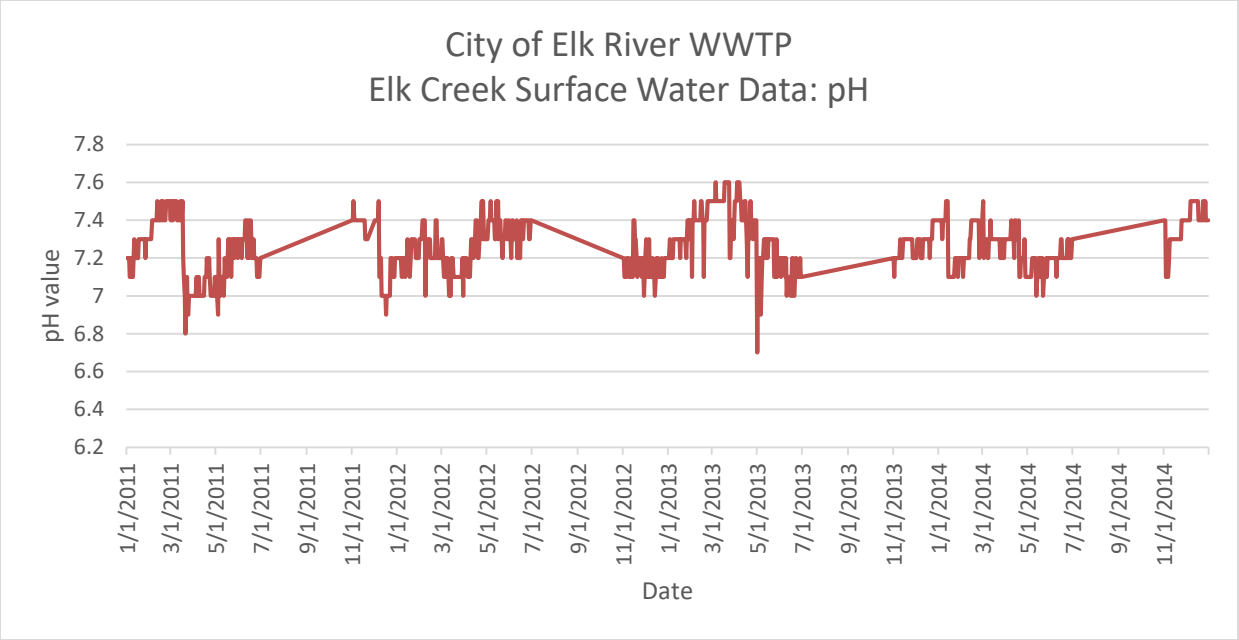
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	4.81	mg/L	05/31/2004
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	7.15	mg/L	06/30/2004
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	5.53	mg/L	12/31/2004
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	5.65	mg/L	01/31/2005
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	3.95	mg/L	02/28/2005
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	3.56	mg/L	03/31/2005
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	8.83	mg/L	12/31/2005
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	9.48	mg/L	01/31/2006
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	7.93	mg/L	02/28/2006
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	5.85	mg/L	03/31/2006
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	1.38	mg/L	04/30/2006
Nitrogen, ammonia total [as N]	Effluent Gross	DAILY MX	2.12	mg/L	05/31/2006
		N	**12**		
		95th Percentile	**9.1225**	**mg/L**	
		Std. Dev.	**2.5359**		
		Mean	**5.52**		
		CV	**0.4594**		

B. Receiving Water Data

Surface Water Monitoring Results (mg/l)
City of Elk River

DATE	Total Phosphorus, mg/l		Total Ammonia, mg/l	
Jan-07		0.04	ND, Adj. from <0.05	0.025
Feb-07		0.06	ND, Adj. from <0.05	0.025
Apr-07		0.0529		0.189
May-07		0.029	ND, Adj. from <0.05	0.025
Apr-08		0.0373		0.113
May-08		0.0192		0.144
Mar-09	ND, Adj from <0.01	0.005		0.173
May-09		0.0277		0.148
Apr-10		0.0168		0.1764
	Max	**0.06**	**Max**	**0.189**
	Min	**0.005**	**Min**	**0.025**
	Ave	**0.032**	**Ave**	**0.1132**
	95th percentile	**0.0572**	**90th percentile**	**0.1789**





Data Summary for Surface Water Results forTemperature and pH in Elk Creek		
	Temperature	**pH**
	Degrees C	**Standard Units**
Hi	17	7.6
Low	3	6.7
95th Percentile	**13**	**7.5**
Note: Data for seasonal discharge period from November to June (2011 to 2014)		

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:

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

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

$$C_d = \frac{C_e - C_u}{D} + C_u$$ 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:

$$C_d = \frac{CF \times C_e - C_u}{D} + C_u$$ 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.

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

where,

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

and

$$RPM = \frac{C_{99}}{C_{P_n}} = \frac{e^{Z_{99} \times \sigma - 0.5 \times \sigma^2}}{e^{Z_{P_n} \times \sigma - 0.5 \times \sigma^2}}$$ 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:

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

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):

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z\,\sigma)} \qquad \text{Equation 12}$$

$$LTA_c = WLA_c \times e^{(0.5\sigma_4^2 - z\sigma_4)} \qquad \text{Equation 13}$$

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:

$$LTA_c = WLA_c \times e^{(0.5\sigma_{30}^2 - z\sigma_{30})} \qquad \text{Equation 14}$$

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:

$$MDL = LTA \times e^{(z_m\sigma - 0.5\sigma^2)} \quad \text{Equation 15}$$

$$AML = LTA \times e^{(z_a\sigma_n - 0.5\sigma_n^2)} \quad \text{Equation 16}$$

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

σ_n^2 = $\ln(CV^2/n + 1)$

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

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

n = number of sampling events required per month. With the exception of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 4. For ammonia, In the case of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 30.

C. Critical Low Flow Conditions

The low flow conditions of a water body are used to determine 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 or 30Q5
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	City of Elk River WWTP, Idaho
Facility Flow (mgd)	0.08
Facility Flow (cfs)	0.12

Critical River Flows	(IDAPA 58.01.02 03. b)	Annual Crit. Flows	Annual Crit. Flows
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	1Q10	5.03	5.03
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	7Q10 or 4B3	6.34	6.34
Ammonia	30Q5	8.77	8.77
Human Health - Non-Carcinogen	30Q5	8.77	8.77
Human Health - carcinogen	Harmonic Mean Flow		--

Receiving Water Data		Notes:	Dis period Crit. Flows
Hardness, as mg/L $CaCO_3$	= 100 mg/L	5th % at critical flows	
Temperature, °C		Temperature, °C 95th percentile	13
pH, S.U.		pH, S.U. 95th percentile	7.5

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages	CHLORINE (Total Residual)
Effluent Data	Number of Samples in Data Set (n)		12	63
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.4594	0.8105
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		9,122.5	2000
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only			
Receiving Water Data	90th Percentile Conc., µg/L - (C_u)		179	0
	Geometric Mean, µg/L, Human Health Criteria Only			
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	13,283.194	19.
	Aquatic Life Criteria, µg/L	Chronic	4,363.984	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 25% or minimum	Aquatic Life - Acute	1Q10	6%	25%
	Aquatic Life - Chronic	7Q10 or 4B3	--	25%
	Ammonia	30B3 or 30Q10	6%	25%
	Human Health - Non-Carcinogen	30Q5	--	25%
	Human Health - carcinogen	Harmonic Mean	--	25%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	3.4	11.2
	Aquatic Life - Chronic	7Q10 or 4B3	--	13.8
	Ammonia	30B3 or 30Q10	5.3	18.7
	Human Health - Non-Carcinogen	30Q5	--	18.7
	Human Health - carcinogen	Harmonic Mean	--	1.0

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.438	0.711
P_n	=(1-confidence level)$^{1/n}$, where confidence level	99%	0.681	0.930
Multiplier (TSD p. 57)	=exp(zσ-0.5σ²)/exp[normsinv(P_n)-0.5σ²], where	99%	2.3	1.8
Statistically projected critical discharge concentration (C_e)			20542.39	3669.82
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	5974.20	328.81
(note:for metals, concentration as dissolved using conversion factor as translator)		Chronic	3911.66	265.79
Reasonable Potential to exceed Aquatic Life Criteria			NO	YES

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)				4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			--	4
LTA Coeff. Var. (CV), decimal (Use CV of data set or default = 0.6)			--	0.811
Permit Limit Coeff. Var. (CV), decimal (Use CV from data set or default = 0.6)			--	0.811
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	--	212.1
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	--	151.9
Long Term Ave (LTA), ug/L	WLAc x exp(0.5σ²-zσ), Acute	99%	--	52.3
(99th % occurrence prob.)	WLAa x exp(0.5σ²-zσ); ammonia n=30, Chronic	99%	--	66.2
Limiting LTA, ug/L	used as basis for limits calculation		--	52.3
Applicable Metals Criteria Translator (metals limits as total recoverable)			--	--
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	--	**92**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	--	**212**
Average Monthly Limit (AML), mg/L			--	**0.09**
Maximum Daily Limit (MDL), mg/L			--	**0.21**
Average Monthly Limit (AML), lb/day			--	**0.06**
Maximum Daily Limit (MDL), lb/day			--	**0.14**

Appendix E. Endangered Species And Essential Fish Habitat Assessment

A. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding potential effects an action may have on listed endangered species.

On November 30, 2017, the EPA researched the website for NMFS and concluded that there are four NOAA listed species in the vicinity of the discharge. This website is found at: http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html The species lists available are: ESA-Listed Marine Mammals; ESA-Listed Other Marine Fishes; and, ESA-Listed Marine Turtles. EPA located 4 species that may be impacted are:

Snake River Fall-run Steelhead: Threatened

Snake River Spring/Summer-run Chinook Salmon: Threatened

Snake River Sockeye Salmon: Endangered

Snake River Steelhead: Threatened

On November 30, 2017, the EPA researched the "IPac" website by USFWS at http://ecos.fws.gov For Clearwater County, Idaho, there is 1 species that have the potential to be present near the vicinity of the discharge:

Bull Trout: Threatened

Based on the small and seasonal discharge of the facility, together with protective secondary treatment standards and compliance with the Idaho WQS, the EPA believes that compliance with the draft permit would have no known measurable affect, therefore, there is NO EFFECT to the above Threatened and Endangered Species.

B. Esssential Fish Habitat

Since the draft permit has been developed to protect aquatic life species in the receiving water in accordance with the Idaho water quality standards. The EPA believes that there is no known measurable effect from the discharge, therefore, the EPA has determined that issuance of this permit has NO Effect to EFH in the vicinity of the discharge.

Appendix F: CWA 401 State Certification

Idaho Department of Environmental Quality

Draft §401 Water Quality Certification

February 12, 2018

NPDES Permit Number(s): City of Elk River Wastewater Treatment Facility, Permit #ID0020362

Receiving Water Body: Elk Creek – source to Elk Creek Reservoir

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended; 33 U.S.C. Section 1341(a)(1); and Idaho Code §§ 39-101 et seq. and 39-3601 et seq., the Idaho Department of Environmental Quality (DEQ) has authority to review National Pollutant Discharge Elimination System (NPDES) permits and issue water quality certification decisions.

Based upon its review of the above-referenced permit and associated fact sheet, DEQ certifies that if the permittee complies with the terms and conditions imposed by the permit along with the conditions set forth in this water quality certification, then there is reasonable assurance the discharge will comply with the applicable requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02), and other appropriate water quality requirements of state law.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations, or permits.

Antidegradation Review

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier I 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 I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier III Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. 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 I protection for that use, unless specific circumstances warranting Tier II protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

Pollutants of Concern

The City of Elk River Wastewater Treatment Facility (WWTF) discharges the following pollutants of concern: five-day biochemical oxygen demand (BOD_5), dissolved oxygen (DO), total suspended solids (TSS), *E. coli* bacteria, total residual chlorine (TRC), pH, ammonia, phosphorus, and floating, suspended, or submerged matter (residues). Effluent limits have been developed for BOD_5, TSS, *E. coli*, TRC, pH, and residues. No effluent limits are proposed for DO, ammonia, and phosphorus.

Receiving Water Body Level of Protection

The City of Elk River WWTF discharges to Elk Creek within the Lower North Fork Clearwater Subbasin assessment unit (AU) ID17060308CL030_03 (source to Elk Creek Reservoir). This AU has the following designated beneficial uses: cold water aquatic life, salmonid spawning, primary contact recreation, and domestic water supply. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

According to DEQ's 2014 Integrated Report, this receiving water body AU is fully supporting its assessed uses (IDAPA 58.01.02.052.05.a). As such, DEQ will provide Tier II protection in addition to Tier I for this water body (IDAPA 58.01.02.051.02; 58.01.02.051.01).

Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing and designated uses and the level of water quality necessary to protect existing and designated uses shall be maintained and protected. In order to protect and maintain existing and designated beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS. The numeric and narrative criteria in the WQS are set at levels that ensure protection of existing and designated beneficial uses. The effluent limitations and associated requirements contained in the City of Elk River WWTF permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

High-Quality Waters (Tier II Protection)

Elk Creek is considered high quality for cold water aquatic life, salmonid spawning, and primary contact recreation. There is no public water supply intake relevant to the domestic water supply beneficial use near the point of discharge (IDAPA 58.01.02.252.b.i). As such, the water quality

relevant to cold water aquatic life, salmonid spawning, and primary contact recreation uses of Elk Creek must be maintained and protected, unless a lowering of water quality is deemed necessary to accommodate important social or economic development.

To determine whether degradation will occur, DEQ must evaluate how the permit issuance will affect water quality for each pollutant that is relevant to cold water aquatic life, salmonid spawning, and primary contact recreation uses of Elk Creek (IDAPA 58.01.02.052.05). These include the following: five-day biochemical oxygen demand (BOD_5), dissolved oxygen (DO), total suspended solids (TSS), *E. coli* bacteria, total residual chlorine (TRC), pH, ammonia, phosphorus, temperature, and floating, suspended, or submerged matter (residues). Effluent limits are set in the proposed and existing permit for all these pollutants except DO, ammonia, temperature, and phosphorus.

For a reissued permit or license, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the current permit and the water quality that would result from the activity or discharge as proposed in the reissued permit or license (IDAPA 58.01.02.052.06.a).

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 Elk River WWTF permit, this means determining the permit's effect on water quality based upon the limits for BOD_5, TSS, *E. coli*, TRC, pH, and residues in the current and proposed permits. Table 1 provides a summary of the current permit limits and the proposed or reissued permit limits.

Table 1. Comparison of current and proposed permit limits for pollutants of concern relevant to uses receiving Tier II protection.

Pollutant	Units	Current Permit			Proposed Permit			Change[a]
		Average Monthly Limit	Average Weekly Limit	Single Sample Limit	Average Monthly Limit	Average Weekly Limit	Single Sample Limit	
Pollutants with limits in both the current and proposed permit								
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45	—	30	45	—	NC
	lb/day	20	30	—	20	30	—	
	% removal	85%	—	—	85%	—	—	
TSS	mg/L	30	45	—	30	45	—	NC
	lb/day	20	30	—	20	30	—	
	% removal	85%	—	—	85%	—	—	
pH	standard units	6.5–9.0 all times			6.5–9.0 all times			NC
E. coli	no./100 mL	126	—	406	126	—	406	NC
Total Residual Chlorine (final)	mg/L	0.01	—	0.02	0.09	—	0.21	I
	lb/day	0.01	—	0.01	0.06	—	0.14	
Pollutants with no limits in both the current and proposed permit								
Total Ammonia as N	mg/L	—	—	Report	—	—	Report	NC
Total Phosphorus as P	mg/L	—	—	Report	—	—	Report	NC
Temperature	°C	—	—	Report	—	—	Report	NC

[a] NC = no change, I = increase

The proposed permit limits for pollutants of concern that have limits in Table 1, BOD_5, TSS, *E. coli*, and pH, are the same as, or more stringent than, those in the current permit ("NC" or "D" in change column). Therefore, no adverse change in water quality and no degradation will result from the discharge of these pollutants.

TRC has been given a higher limit than in the current permit ("I" in the change column). At the time that the current permit was issued, EPA did not have information to determine low flows in the waterbody and assumed zero flow when calculating the TRC effluent limit. For this draft permit, EPA relied on USGS Stream Stats Version 3.0 to determine that low flows are more than zero and used the updated low flow values to calculate the TRC effluent limit, resulting in an increase. Because the proposed increase in the TRC effluent limit reflects improved flow assumptions, it should not result in a change to the baseline water quality after allowing for mixing under critical conditions. Therefore, no degradation of water quality is expected as a result of this change.

Pollutants with No Limits

The pollutants of concern with no limits relevant to Tier II protection of recreation and cold water aquatic life uses that currently are not limited and for which the proposed permit also contains no limits are DO, ammonia, and phosphorus (Table 1). For such pollutants, a change in water quality is determined by reviewing whether changes in production, treatment, or operation that will increase the discharge of these pollutants are likely (IDAPA 58.01.02.052.06.a.ii). With respect to DO, ammonia, and phosphorus, there is no reason to believe these pollutants will be discharged in quantities greater than those discharged under the current permit. This conclusion is based upon the fact that there have been no changes in the design flow, influent quality, or treatment processes that would likely result in an increased discharge of these pollutants. Additionally, the technology based effluent limit for BOD_5 ensures that the DO criteria will be met. A reasonable potential calculation showed that the facility discharge would not have a reasonable potential to cause a violation of the water quality criteria for ammonia from November to June. There are also weekly monitoring requirements for ammonia and phosphorous. Because the proposed permit does not allow for any increased water quality impact from these pollutants, DEQ has concluded that the proposed permit should not cause a lowering of water quality for these pollutants with no limit. As such, the proposed permit should maintain the existing high water quality in Elk Creek.

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

Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes a mixing zone that utilizes 25% of the critical flow volumes of Elk Creek for total residual chlorine and a mixing zone that utilizes 6% of the

critical flow volumes of Elk Creek for ammonia. For further information about the mixing zones, critical low flow volume, and dilution factors see *Appendix D. Reasonable Potential and Water Quality-Based Effluent Limit Calculations* in the EPA fact sheet.

Other Conditions

This certification is conditioned upon the requirement that any material modification of the permit or the permitted activities—including without limitation, any modifications of the permit to reflect new or modified TMDLs, wasteload allocations, site-specific criteria, variances, or other new information—shall first be provided to DEQ for review to determine compliance with Idaho WQS and to provide additional certification pursuant to Section 401.

Right to Appeal Final Certification

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5) and the "Rules of Administrative Procedure before the Board of Environmental Quality" (IDAPA 58.01.23), within 35 days of the date of the final certification.

Questions or comments regarding the actions taken in this certification should be directed to Sujata Connell, Lewiston Regional Office at 208-799-4370 or via email at Sujata.Connell@deq.idaho.gov..

DRAFT

John Cardwell
Regional Administrator
Lewiston Regional Office