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:**

North Idaho Correctional Institution
Wastewater Treatment Plant
NPDES Permit Number ID0025887

Public Comment Start Date: January 30, 2017
Public Comment Expiration Date: March 1, 2017

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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
The EPA is requesting that the Idaho Department of Environmental Quality (IDEQ) certify the NPDES permit for this facility, under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

IDEQ Lewiston Regional Office
1118 "F" St.
Lewiston, ID 83501
(208) 799-4370

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."

United States Environmental Protection Agency
Region 10
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:

Idaho Department of Environmental Quality
Lewiston Regional Office
1118 "F" St.
Lewiston, ID 83501

Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
30Q10	30 day, 10 year low flow
AML	Average Monthly Limit
AWL	Average Weekly Limit
AU	Assessment Unit
BOD_5	Biochemical oxygen demand, five-day
BMP	Best Management Practices
°C	Degrees Celsius
$CBOD_5$	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
gpd	Gallons per day
HUC	Hydrologic Unit Code
ICIS	Integrated Compliance Information System
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
lbs/day	Pounds per day
LTA	Long Term Average
mg/L	Milligrams per liter
Ml	Milliliters

ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
N	Nitrogen
NEPA	National Environmental Policy Act
NICI	North Idaho Correctional Institution
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OWW	Office of Water and Watersheds
O&M	Operations and maintenance
POTW	Publicly owned treatment works
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
SIC	Standard Industrial Classification
SS	Suspended Solids
s.u.	Standard Units
TMDL	Total Maximum Daily Load
TAS	Treatment as State
TP	Total Phosphorus
TRC	Total Residual Chlorine
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. Background Information

A. Permit History

The most recent NPDES permit for the North Idaho Correctional Institution (NICI) Wastewater Treatment Plant (WWTP) was issued on March 5, 2004 and became effective on May 1, 2004. The permit allowed the NICI WWTP to discharge during the months of May through November. On May 17, 2004 the facility requested to modify the permit and extend the discharge period to include March, April, and December. This request was made to manage wastewater levels between lagoon spillways and prevent overflows after heavy precipitation events, compromising treatability. The EPA modified the existing permit with an allowable discharge window of March 1st through December 31st and resubmitted the modified permit for public notice. No comments were submitted to the EPA, and the modified permit became effective on March 15, 2006.

A NPDES application for permit issuance was submitted by the permittee on July 31, 2008, which was at least 180 days before the expiration date of the current permit (April 30, 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. Facility Information

The State of Idaho owns the NICI and WWTP. Since issuance of the 2004 Permit, the NICI WWTP has completed upgrades to the chlorine disinfection system to meet the technology based chlorine effluent limits that are in the permit. General facility information is provided in Table 1.

The EPA reviewed the last five years of effluent monitoring data (2011-2016) from the discharge monitoring report (DMR). The data are presented in Appendix C.

Table 1: General Facility Information

NPDES Permit #:	ID0025887
Applicant:	North Idaho Correctional Institution North Idaho Correctional Institution Wastewater Treatment Plant
Type of Ownership:	State
Receiving Water:	Unnamed creek
Downstream Waterbodies:	Lawyer Creek (Nez Perce Reservation)
Physical and Mailing Address:	236 Radar Rd. Cottonwood, Idaho 83522
Facility Contact:	Ben Munger Building Maintenance Supervisor bmunger@idoc.idaho.gov 208-962-3276
Facility Outfall Location:	Latitude: 46.081487 Longitude: -116.434781

A. Treatment Plant Description

Service Area

The NICI operates the WWTP located in Cottonwood, Idaho. The collection system has no combined sewers and serves the facility population of approximately 425.

Treatment Process

The current design flow at the NICI WWTP is 0.03 mgd. The existing WWTP consists of five facultative lagoons followed by chlorination and dechlorination. The facility is currently treating at capacity with plans to upgrade the treatment system over the next few years. Plans for system improvements include increasing the depth of two of the existing facultative lagoons, adding lagoon aeration treatment and upgrades to system headworks.

A map showing the location of the treatment facility and discharge is included in Appendix A. The NICI WWTP is a minor facility.

Outfall Description

The treated effluent from the facility is discharged at outfall 001 from an 8-inch PVC pipe into an open culvert. From there, the effluent flow travels down-slope in a ditch for approximately 200 feet before discharging to an unnamed creek. Outfall 001 is located at the northeast corner of the lagoon and after the chlorine contact basin.

Compliance History

A review of the facility's DMR for the past five years indicates that the facility has had trouble meeting the effluent limits for five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), pH, and in some instances, *E. coli* and total residual chlorine (TRC).

A summary of effluent violations is provided in Table 2.

Table 2: Summary of Effluent Violations

Parameter	Limit	Units	Number of Instances
BOD5	Monthly Average	mg/L	20
BOD5	Monthly Average	lb/day	23
TSS	Monthly Average	mg/L	34
TSS	Monthly Average	lb/day	34
BOD5, Percent Removal	Monthly Geomean	Percent	11
TSS, Percent Removal	Monthly Average	Percent	21
E. coli bacteria	Monthly Geomean	Count/100 mL	1
E. coli bacteria	Instantaneous Max	Count/100 mL	3
Chlorine, Total Residual	Monthly Average	mg/L	0
Chlorine, Total Residual	Monthly Average	lb/day	1
Chlorine, Total Residual	Daily Max	mg/L	0
Chlorine, Total Residual	Daily Max	lb/day	1
pH	Instantaneous Max	SU	13
pH	Instantaneous Min	SU	0
Flow	Daily Max	MGD	0

The EPA addressed NPDES permit violations that occurred between January, 2007 and November, 2010, in a consent agreement with the NICI, which was issued on May 20, 2012. The NICI has since continued progress on treatment system upgrades, including plans for lagoon treatment upgrades and headworks modifications, as discussed above. The facility expects to complete the planned upgrades within 5 years.

The EPA conducted a site visit and inspection of the facility on April 17, 2007. The inspection encompassed the wastewater treatment process, records review, operation and maintenance, and permit compliance. Overall, the inspection resulted in recommendations for treatment system upgrades to remain in compliance with the conditions of the permit.

III. Receiving Water

A. Receiving Water

The WWTP discharges into a ditch which flows into an unnamed creek and then into Lawyer Creek. The outfall is located on the northwest corner of the facility at 46° 04’ 53” N latitude and 116° 26” 05" W longitude.

Lawyer Creek drains into the Clearwater River before reaching the Middle Fork Clearwater Subbasin. Approximate distances along the receiving waters between the WWTP and downstream waters are as follows:

Outfall extension ditch to unnamed creek: approx. 200 feet
Unnamed creek to Lawyer Creek: 4.5 miles
Lawyer Creek to Clearwater River: 33 miles
Clearwater River to Middle Fork Clearwater River Subbasin: 7.3 miles

B. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires that NPDES permits include any effluent limitations necessary to meet water quality standards (WQS). Federal regulations found at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the WQS, including narrative criteria for water quality for the receiving water and downstream waters of any affected State.

Designated Beneficial Uses

The ditch is considered an extension of the outfall. The ditch is to be protected for the uses for which it was developed, which is a man-made waterway without beneficial uses (IDAPA 58.01.02.101.02).

The unnamed creek is a tributary to Lawyer Creek within the Clearwater Subbasin assessment unit (AU) ID17060306CL024_02, with the following designated uses (IDAPA 58.01.02.120.08):

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

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

Downstream Waterbodies

In addition to protecting the immediate receiving water, the CWA requires the attainment and maintenance of downstream WQS (See 40 CFR 131.10(b)). Therefore, the permit conditions must protect any downstream waterbodies that are potentially impacted by the WWTP discharge.

Lawyer Creek is located approximately 4.5 miles downstream from the facility and in the Clearwater Subbasin (HUC 17060306). Lawyer Creek is listed as Water Body Unit C-24 and is designated from source to mouth for cold water aquatic life, primary contact recreation, and salmonid spawning (IDAPA 58.01.02.120.08). These are the same designated uses that apply to the receiving water, the unnamed creek.

Lawyer Creek is located in Lewis and Idaho counties and also partly within the 1863 Nez Perce Tribal Reservation boundary. Idaho WQS were used for setting permit limits in order to protect downstream waters of the State of Idaho, in compliance with federal regulations (40 CFR 122.4(d), 122.44(d)(4)).

Salmonid Spawning

Lawyer Creek is designated as a salmonid spawning (SS) water body for Summer Steelhead (Oncorhynchus mykiss) by the Idaho Department of Fish and Game between mile points 0.00 to 38.43 (Streamnet, 2016). Lawyer Creek provides spawning and rearing habitat for A-run steelhead trout, which are part of the Snake River Basin Steelhead Distinct Population. According to the report, *Geography and Timing of Salmonid Spawning in Idaho* (IDEQ, Anchor QEA, and BioAnalystics, Inc., 2014), the majority of information on spawning and incubation/emergence indicates a period from February to mid-July or mid-August depending on environmental conditions. An additional report, *Lawyer Creek and Tributaries, Idaho Water Quality Monitoring Project 2014* (Clark, 2015) details a spawning and incubation period for Summer steelhead in the Lawyer Creek watershed to be between February and May. EPA is proposing to apply the SS designated use for the latter period.

Surface Water Quality

The EPA reviews receiving water quality data when assessing the need for and developing water quality based effluent limits (WQBELs). In granting assimilative capacity of the receiving water, the EPA must account for the amount of the pollutant already present in the receiving water. In situations where some of the pollutant is present in the upstream waters, an assumption of "zero background" concentration overestimates the available assimilative capacity of the receiving water and could result in limits that are not protective of applicable WQS.

The existing permit required the Permittee to conduct water quality monitoring in the unnamed creek above the influence of the facility's discharge. The data are summarized in Table 3, *Receiving Water Quality Data*. These monitoring results were used to evaluate the

need for and development of WQBELs for total ammonia as N (ammonia) and TRC. The reasonable potential analysis for these pollutants is documented in Appendix D.

Table 3: Receiving Water Quality Data

Parameter	Units	Percentile	Value	Source
Temperature	°C	95th	21.7	NICI-established monitoring location on unnamed creek
pH	Standard units	5th – 95th	6.0 - 6.8	
Total Ammonia as N	mg/L	95th	0.09	
Dissolved Oxygen	mg/L	5th – 95th	3.0 - 7.4	
Total Phosphorus as P	mg/L	95th	0.39	
E. *Coli*	#/100ml	95th	3.6	

C. Water Quality Limited Waters

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

Section 303(d) of the CWA requires states to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited segments. A TMDL is a detailed analysis of the water body to determine its assimilative capacity. The assimilative capacity is the loading of a pollutant that a water body can assimilate without causing or contributing to a violation of WQS. Once the assimilative capacity of the water body has been determined, the TMDL will allocate that capacity among point and non-point pollutant sources, taking into account natural background levels and a margin of safety. Allocations for non-point sources are known as "load allocations" (LAs). The allocations for point sources, known as "waste load allocations" (WLAs), are implemented through effluent limitations in NPDES permits. Effluent limitations for point sources must be consistent with applicable TMDL allocations.

Lawyer Creek is listed as a Category 5 waterbody impaired for ammonia, fecal coliform, nutrient/eutrophication biological indicators, oil and grease, dissolved oxygen (DO), sedimentation/siltation, and temperature (IDEQ, 2014 and https://mapcase.deq.idaho.gov/wq2010/). The Category 5 designation indicates the waterbody does not meet applicable water quality standards for one or more beneficial uses due to one or more pollutants and is in need of a TMDL.

The receiving segment of the Clearwater River at the confluence of the South and Middle Fork Clearwater Rivers (WBID: ID17060306CL022) have not been accessed (IDEQ, 2014 and https://mapcase.deq.idaho.gov/wq2010/).

Since issuance of the May 2004 Permit, there are no EPA-approved TMDLs on the unnamed creek or Lawyer Creek.

D. Low Flow Conditions

The Technical Support Document for Water Quality-Based Toxics Control (hereafter referred to as the TSD) (EPA, 1991) and the Idaho WQS recommend the flow conditions for use in calculating WQBELs be generated using steady-state modeling. The TSD and the Idaho WQS state that WQBELs intended to protect aquatic life uses should be based on the lowest seven-day average flow rate expected to occur once every ten years (7Q10) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten

years (1Q10) for acute criteria. 30Q10 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 10 years.

There are no flow stations located along the unnamed creek therefore data for flow conditions is limited. The unnamed creek is ephemeral, with little to no flow in the peak summer. The critical flow level for the receiving water, unnamed creek, will be dry conditions or 0 cubic feet per second (cfs).

Table 4: Critical Flows in Unnamed Creek

Flows	Annual Flow (cfs)
1Q10	0
7Q10	0
30Q10	0

IV. Effluent Limitations and Monitoring

A. Proposed Effluent Limitations

The following summarizes the proposed effluent limits that are in the draft permit.

Narrative Limitations

1. The permittee must not discharge floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses.

Numeric Limitations

Table 5 below presents the proposed effluent limits for BOD_5, TSS, E. *coli*, pH, TRC, and ammonia.

Table 5: Proposed Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits							
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45	--	Influent and Effluent	1/month	24-hour composite
	lbs/day	8	11	--	Effluent		Calculation[1]
BOD_5 Percent Removal	%	85 (minimum)	--	--	--	1/month	Calculation[2]
Total Suspended Solids (TSS)	mg/L	30	45	--	Influent and Effluent	1/month	24-hour composite
	lbs/day	8	11	--	Effluent		Calculation[1]
TSS Percent Removal	%	85 (minimum)	--	--	--	1/month	Calculation[2]
E. coli	CFU/100 ml	126[3]	--	406 (instant. max)[4]	Effluent	5/month	Grab

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
pH	std units	Between 6.5 – 9.0			Effluent	1/week	Grab
TRC[5]	mg/L	0.009	--	0.019[4]	Effluent	1/week	Grab
	lbs/day	0.002	--	0.005			Calculation[1]
Total Ammonia (as N)	mg/L	3.4	--	14[4]	Effluent	1/week	Grab
Final Limit[6]	lbs/day	0.9	--	3.5			Calculation[1]
Total Ammonia (as N)	mg/L	12	--	38[4]	Effluent	1/week	Grab
Interim Limit[6]	lbs/day	3.0	--	9.5			Calculation[1]
Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.2 of the Permit				1/month	Visual Observation
Report Parameters							
Flow	mgd	Report	--	Report	Effluent	1/week	Meter
Temperature	°C	--	Report	Report	Effluent	5/week[7]	Meter
Dissolved Oxygen	mg/L	Report	--	Report	Effluent	1/month	Grab
Phosphorous	mg/L	Report	--	Report	Effluent	1/month	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 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 average monthly and maximum daily effluent limits for chlorine provided the total chlorine residual level is at or below the compliance evaluation level of 0.05 mg/L, with an average monthly and maximum daily loading at or below 0.01 lbs/day (See Appendix A of the Permit).
6. Total Ammonia (as N) concentration and mass limits are effective on ***insert date***. This date is at the end of a 4 year Compliance Schedule. See Section II.C for more information. Concentration and mass limits were derived from performance-based calculations (See Appendix D). Until final concentration and mass limits are effective on ***insert date***, an interim limit has been established. The interim limit is effective the first day of permit issuance.
7. Measurements must be taken on different days.

B. Changes in Limits from the Existing Permit

Year Round Discharge

The existing permit allows the permittee to discharge wastewater from outfall 001 from March 1st through December 31st . Historically, the facility has not been allowed to discharge during winter months because "no winter discharge" was reported by the facility on their 2001 permit application. At present, the facility has had difficulties retaining the flow volume during January and February due to precipitation events and has requested year-round discharge. This permit proposes to allow year-round discharge from outfall 001.

EPA anticipates that the additional two months of flow are expected to improve the quality of discharge by alleviating lagoon retention issues and avoiding untreated overflows.

Effluent Limits and Monitoring Frequencies

Effluent limits and monitoring frequencies for certain parameters have been changed, relative to the previous permit. Table 6, below, summarizes the changes to monitoring frequency and effluent limits from the existing permit.

Table 6: Changes in Permit Effluent Limits and Monitoring Frequencies

Parameter	Existing Permit		Draft Permit		Reason for Change
	Effluent Limits	Monitoring Frequency	Effluent Limits	Monitoring Frequency	
Temperature	Report	1/month	Report Monthly Instantaneous Maximum and Weekly Average	5/week	Increased to assess reasonable potential to exceed Idaho WQS for Salmonid Spawning.
Ammonia	Report	1/month	Interim Limits: AML = 12 mg/L MDL = 38 mg/L Final Limits: AML = 3.4 mg/L MDL = 14 mg/L	1/week	Added due to reasonable potential to exceed Idaho WQS for ammonia for Cold Water Aquatics classification.

Notes
AML = Average Monthly Limit
AWL = Average Weekly Limit
MDL = Maximum Daily Limit
WQS = Water Quality Standards
-- = No change

V. 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.

A. Pollutants of Concern

In order to determine pollutants of concern for further analysis, EPA evaluated the application form, nature of the discharge and discharge data. The wastewater treatment process for this facility includes both primary and secondary treatment, as well as disinfection with chlorination. Pollutants typical of a sewage treatment plant treating with chlorine disinfection include BOD_5, TSS, E. *coli* bacteria, TRC, pH, ammonia, temperature, and DO.

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

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

EPA assessed the need for water quality based effluent limits for these pollutants of concern.

B. 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.

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

Average Monthly Limit = 30 mg/L × 0.03 mgd × 8.34 = 8 lbs/day

Average Weekly Limit = 45 mg/L × 0.03 mgd × 8.34 = 11 lbs/day

Chlorine

The Numeric Criteria for Toxics Substances (IDAPA 58.01.02.210.01) establish an acute criterion of 0.019 mg/L, and a chronic criterion of 0.011 mg/L for the protection of aquatic life. Reasonable potential calculations show 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 in the unnamed creek. Therefore, EPA must include WQBELs in the permit to protect the water body. See Appendix D for reasonable potential and effluent limit calculations for TRC.

The calculated Average Monthly Limit (AML) and Maximum Daily limit (MDL) for the facility are below the Minimum Level (ML) for chlorine of 50 µg/L. When limits are below the ML, the Permittee is in compliance with the limit, provided the concentration of the parameter in the effluent is equal to or below the ML (See Appendix A of the Permit).

C. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Discharges to State or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. 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

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

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. 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

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.

Mixing Zones and Dilution

In some cases a dilution allowance or mixing zone is permitted. A mixing zone is an area where an effluent discharge undergoes initial dilution and is extended to cover the secondary mixing in the ambient water body. The federal regulations at 40 CFR 131.13 states that "States may, at their discretion, include in their State standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances."

The unnamed creek is periodically dry and therefore has no dilution capacity. As a result, EPA determined not to assign a mixing zone to the facility.

Reasonable Potential and Water Quality Based Effluent Limits

The reasonable potential and water quality based effluent limit for specific parameters are summarized below. Calculations are provided in Appendix B.

<u>Ammonia</u>

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 NICI collected quarterly, temperature and pH data upstream of the facility in the unnamed creek from November, 2004 to June, 2006. The EPA used the 95th percentile of the receiving water temperature and pH data for the calculations, which were calculated to be 21.7 °C and 6.8 SU, respectively. These data were used to calculate the ammonia criteria, shown below in Table 8.

Table 8: Water Quality Criteria for Ammonia

	Acute Criterion	Chronic Criterion
Equations:	$\frac{0.275}{1+10^{7.204-7.75}}+\frac{39}{1+10^{7.75-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-7.75}}+\frac{2.487}{1+10^{7.75-7.688}}\right)\times \mathrm{MIN}\left(2.85,1.45\times 10^{0.028\times(25-17.4)}\right)$
Results	28,046 µg/L	3,962 µg/L

A reasonable potential analysis indicated that NICI WWTP 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. In addition, the permittee is required to monitor the receiving water for ammonia, pH, and temperature. 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. Between 2011 and 2016, effluent pH data for the facility ranged from 6.8–10 standard units over a total of 43 sampling events. Thirteen of these samples were between 9 and 10 standard units and violated Idaho's water quality criterion of 6.5 – 9.0 standard units. EPA determined that no mixing zone is appropriate for this discharge.

Temperature

The unnamed creek is to be protected for cold water aquatic life and salmonid spawning. The Idaho water quality standards for cold water aquatic life require water temperatures of 22 degrees Celsius or less with a maximum daily average of no greater than 19 degrees Celsius (IDAPA 58.01.02.250.02.b). Since 2011, the facility has reported monthly grab samples above 22 degrees Celsius one time and above 19 degrees Celsius four times out of 43 sampling events (Appendix C). EPA determined that due to the low probability of exceedance and dry-nature of the receiving creek there is a low potential for the discharge to impact water quality standards for temperature at the point of discharge and downstream. This permit proposes to increase the frequency of temperature monitoring to gather additional information and assist in understanding ammonia sampling results.

Waters designated for salmonid spawning require temperature limits of 13 degrees Celsius or less with a maximum daily average no greater than 9 degrees Celsius during the time spawning and incubation occurs (IDAPA 250.02.f.). Between 2011 and 2016, the NICI WWTP exceeded 13 degrees twice while monitoring temperature monthly between the months of February and May (Appendix C). At this time, it is unclear whether the facility's discharge of heat to the unnamed creek has the reasonable potential to cause or contribute to excursions above water quality standards for temperature between the months of February and May. The permit proposes to increase the monitoring frequency of the effluent for temperature to facilitate future, reasonable potential calculations.

Dissolved Oxygen

Idaho water quality standards state a minimum level of 6 mg/L DO (IDAPA 58.01.02.250.02.a). Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far downstream of the outfall. The BOD_5 of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. Nutrients such as ammonia and phosphorus cause excessive plant and

algae growth and decay, which can also significantly affect the amount of dissolved oxygen available.

The salmonid spawning designation for unnamed creek and Lawyer Creek stipulates that water-column dissolved oxygen meets the following requirements: one-day minimum of not less than 6.0 mg/l or 90% of saturation, whichever is greater, during periods of spawning and incubation (IDAPA 205.02.f.i). Between 2011 and 2016, the NICI WWTP recorded DO measurements below 6 mg/L ten times while monitoring monthly between the months of February and May (Appendix C).

Technology-based effluent limits for BOD_5 will ensure compliance with Idaho's water quality criteria for DO. Historically, the facility has had trouble meeting BOD_5 effluent limits and percent removal rates. The facility is planning system upgrades in order to meet treatment limits. EPA is proposing that dissolved oxygen be monitored monthly and if BOD_5 limits continue to be exceeded, to assess the need for DO limits at that time.

Phosphorus

EPA evaluated whether total phosphorus limits were needed in the draft permit. Both the unnamed creek and Lawyer Creek are impaired for nutrients. Total phosphorus (TP) in the Lawyer Creek watershed was evaluated in a report by the Nez Perce Tribe, *Lawyer Creek and Tributaries, Idaho Water Quality Monitoring Project 2014* (Clark, 2015) (hereafter referenced as *Project*). The *Project* measured TP throughout the watershed, evaluated the contributions of TP and made recommendations to improve water quality. The *Project* found that TP loading is a persistent issue throughout the watershed. TP loads in the system are contributing to excessive macrophyte growth in many of the monitoring sites.

One sampling point (10301A) was located downstream of the NICI WWTP. A total of five samples were collected, where the mean concentration was 0.25 mg/L and the maximum concentration was 0.51 mg/L, exceeding the *Project's* target TP criterion of 0.1 mg/L.

The *Project* found stream erosion to be the primary source of the nutrient impairment. In particular, the majority of phosphorus in the portion to which the NICI discharges is associated with particulate matter. The *Project* concluded that instream concentrations of TP in this portion of the watershed are highly dependent upon flow and erosional processes. The *Project* recommended erosion control and strategic BMP installations to decrease TP levels. Recommended measures in the watershed included fencing cattle away from the creek, stream stabilization structures and revegetation of the streambank.

EPA compared the concentrations of TP in the *Project* with concentrations collected by the NICI. The sampling results were comparable, with upstream mean and maximum concentrations for TP collected by the NICI of 0.13 and 0.46 mg/L, respectively, in the 13 samples collected between 2004 and 2008.

At this time, the NICI does not have plans for expansion of the correctional facility beyond its current population of approximately 425 inmates. Therefore, pollutant contributions from the NICI are unlikely to change in the duration of this permit. In addition, planned treatment plant upgrades should moderately improve effluent TP concentrations. The facility will continue to sample for TP at the outfall and in the surface water of the unnamed creek to assess whether future TP limits are needed.

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 (IDAPA 58.01.02.251.01.a.). Therefore, the draft permit contains a monthly geometric mean effluent limit for *E. coli* of 126 organisms per 100 ml.

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

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. See Appendix D for the reasonable potential calculations.

The Numeric Criteria for Toxics Substances (IDAPA 58.01.02.210.01) establish an acute criterion of 0.019 mg/L, and a chronic criterion of 0.011 mg/L for the protection of aquatic life. The calculated Average Monthly Limit (AML) and Maximum Daily limit (MDL) for the facility are below the Minimum Level (ML) for chlorine of 50 µg/L. When limits are below the ML, the Permittee is in compliance with the limit, provided the concentration of the parameter in the effluent is equal to or below the ML (Appendix A of the Permit). Since the federal regulations at 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 and Weekly Average Limit (AML and AWL) = 0.05 mg/L x 0.03 mgd x 8.34 = 0.01 lbs/day

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 (IDAPA 58.01.02.200.05). The draft permit contains a narrative limitation prohibiting the discharge of such materials.

D. 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*. EPA decided that an anti-backsliding review was not necessary since all effluent limits in this proposed permit are either identical to or more stringent than those in the existing 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 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

Table 10 presents the proposed surface water monitoring requirements for the draft permit. The NICI should continue receiving water monitoring at the established, upstream location. Surface water monitoring results must be submitted to the EPA with the next NPDES permit renewal application, which is due 180 days prior to the expiration date of the permit. A copy of the results must also be submitted to IDEQ.

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 9: Surface Water Monitoring in Draft Permit

Parameter	Units	Sample Location	Sample Frequency	Sample Type
Flow	cfs	Upstream	Quarterly	grab
Dissolved Oxygen	mg/L	Upstream	Quarterly	grab
Temperature	ºC	Upstream	Quarterly	grab
pH	SU	Upstream	Quarterly	grab
Total Ammonia as N	mg/L	Upstream	Quarterly	grab
Total Phosphorus	mg/L	Upstream	Quarterly	grab
Footnote: 1. Quarterly monitoring frequency: Quarters are defined as follows: January 1 to Mach 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.

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.com. 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. The EPA has found that a four year compliance schedule is

appropriate for ammonia because the NICI cannot immediately comply with the new effluent limits on the effective date of the permit. Since the compliance schedule is longer than one year, interim dates for the submission of reports of progress have been established and are detailed in the permit.

B. Quality Assurance Plan

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

C. Operation and Maintenance Plan

The permit requires the NICI 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 (SSOs) 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.
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 facility is not located within or near a Census block group that is potentially overburdened. As a result, 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/articles/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the-permit-application-process#p-104). 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 http://www.epa.gov/compliance/ej/plan-ej/ and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

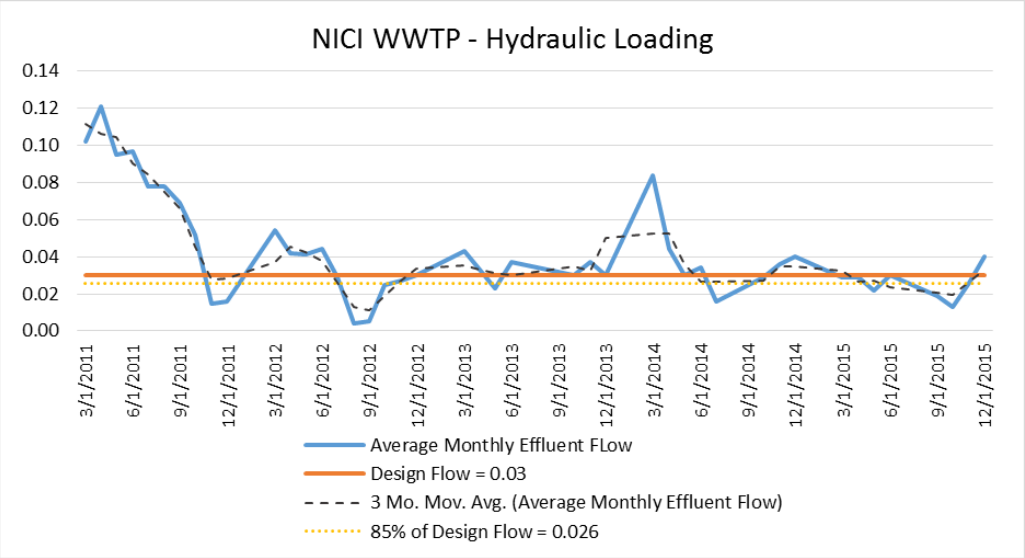
F. Design Criteria

This provision requires the permittee to compare measured 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 annual average flow or loading exceeds 85% of the design criteria values for a consecutive three months of data. For the NICI WWTP, the trigger for developing a facility plan is a 0.03 (rounded up from 0.026) mgd average monthly flow for three consecutive months.

Influent flow data were not available from the facility, therefore effluent flow was analyzed to approximate hydraulic loading. Figure 1 illustrates the hydraulic loading approximated by measurements taken at the effluent for the facility between 2011 and 2015. The figure illustrates that the facility consistently discharges above or near its design capacity. The permit's design criteria provision requires the permittee to prepare a facility plan for maintaining compliance with NPDES permit effluent limits when the annual average flow or loading exceeds 85% of the design criteria values for three consecutive months.

Figure 1: NICI WWTP Approximate Hydraulic Loading



As of the effective date of the permit, the NICI WWTP is not required to develop a facility plan. The facility should closely monitor influent hydraulic loading to ensure the facility is not operating beyond its design capacity.

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 NICI does not have any industrial users, the facility will manage its own compliance with the regulations set forth by pretreatment program per 40 CFR 403.8.

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. A review of the threatened and endangered species located in Idaho County, Idaho designated by the USFWS (as of 07/11/16), included the following species; Bull Trout (fish), Spalding's Catchfly (flowering plant), MacFarlane's four-o'clock (flowering plant), Water howellia (flowering plant), Canada Lynx (mammal), and Northern Idaho Ground Squirrel (mammal).

The revised Recovery Plan for the Coterminous United States Population of Bull Trout (USFWS, 2015) delisted the South Fork Clearwater River as a core area for bull trout rehabilitation. It was determined that there are no local populations of bull trout in the Lower-Middle Clearwater River (pg. 84). The Clearwater River is located approximately 37.5 miles downstream from the NICI discharge outfall. The NICI discharge which is unlikely to have a significant effect on water quality of the Clearwater River. Furthermore, the NICI WWTP is required to meet WQS for cold water aquatic life.

This review finds that this permitting action will have no effect on any threatened or endangered species located in the vicinity of the NICI WWTP. https://ecos.fws.gov/ipac/

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).

According to information obtained from the NOAA Fisheries website (as of 07/12/16), there are no designated EFHs in the vicinity of the NICI WWTP discharge.
http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html

The Clearwater River (HUC 17060306) is currently designated as EFH in Washington and Idaho for Chinook and Coho (Pacific Coast Salmon EFH 5-Year Review, 2011). EPA has determined that the issuance of this permit will have no effect on Chinook and Coho Salmon as they are not in the area of the discharge and because the draft permit contains effluent limitations based on criteria that are designed to be protective of aquatic life. Furthermore, the Clearwater River is located 37.5 miles downstream from the NICI discharge outfall. The NICI discharge is unlikely to have a significant effect on water quality of the Clearwater River.

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.

D. Interstate Waters

Under Section 401(a)(2) of the CWA, EPA must give notice of this permit action to any affected State. Notice has been given to IDEQ and a copy of the proposed permit action has been provided to the Nez Perce Tribe.

E. Permit Expiration

The permit will expire five years from the effective date.

X. References

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

Appendix A. Facility Information

Aerial Photograph: USDA-FSA Aerial Photography Field Office
Source: Idaho County Parcel Map. Idaho.gov. Accessed 07/03/16. <https://www.accessidaho.org/gis/data/map>.

Appendix B. Water Quality-Based Effluent Limit Formula

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.

Dilution Factor and Mixing Zone

The following formula is used to calculate a dilution factor based on the allowed mixing zone.

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

Where:

D	=	Dilution Factor
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, 30B3, etc)
%MZ	=	Percent Mixing Zone

A mixing zone was not used in permit calculations for the City of Genesee.

Dilution factors for the facility are calculated based on critical low flow conditions. With respect to the absence of flow during the critical summer months, a dilution factor of 1.0 has been generated for to the City of Genesee. The Idaho Water Quality Standards at IDAPA 58.01.02.060 provides Idaho's mixing zone policy for point source discharges.

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 C. Discharge Monitoring Report Summary and Effluent Data 2011-2016

Parameter Desc.	BOD, 5-day, 20 deg. C	INF BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, percent removal	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	E. coli	E. coli	Flow, in conduit or thru treatment plant	Flow, in conduit or thru treatment plant
	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MINIMUM	DAILY MX	DAILY MX	MO AVG	MO AVG	INST MAX	MO GEOMN	DPD MAX	MO AVG
Date	lb/d	mg/L	lb/d	mg/L	%	lb/d	mg/L	lb/d	mg/L	#/100mL	#/100mL	MGD	MGD
1/31/2011													
2/28/2011		27				0.020	0.040	0.010	0.020				
3/31/2011	48	66	48	66.1	87	0.007	0.01	0.001	0.002	170	8.8	0.16	0.10
4/30/2011	64	42	64	42.1	84	0.060	0.040	0.050	0.030	4.0	1.2	0.24	0.12
5/31/2011	19	31	19	31.4	95	0.020	0.040	0.006	0.010	23	1.9	0.17	0.10
6/30/2011	34	28	34	28.2	88	0.020	0.020	0.005	0.005	4.0	1.3	0.16	0.10
7/31/2011	8.7	11	8.7	11.3	96	0.020	0.030	0.020	0.020	49	3.8	0.12	0.08
8/31/2011	13	16	13.3	16.4	91	0.020	0.030	0.020	0.020	49	5.3	0.12	0.08
9/30/2011	11	26	11.4	25.8	92	0.000	0.000	0.000	0.000	170	23	0.11	0.07
10/31/2011	20	50	20	49.6	65	0.008	0.020	0.004	0.010	540	21	0.10	0.05
11/30/2011	6.3	28	6.3	27.9	92	0.002	0.010	0.001	0.005	4.5	1.8	0.05	0.02
12/31/2011	14	40	14	40.4	86	0.010	0.030	0.005	0.013	17	2.9	0.05	0.02
1/31/2012		71											
2/29/2012		36											
3/31/2012	17	27	17	70.7	78	0.010	0.060	0.009	0.040	13	1.8	0.12	0.05
4/30/2012	17	37	17	35.6	74	0.020	0.050	0.010	0.040	2.0	1.2	0.08	0.04
5/31/2012	7.5	41	7.5	26.5	96	0.010	0.050	0.004	0.010	13	3.2	0.10	0.04
6/30/2012	14	20	14	36.7	80	0.000	0.000	0.000	0.000	350	16	0.09	0.04
7/31/2012	21	11	21	41.2	94	0.005	0.020	0.002	0.008	49	11	0.06	0.03
8/31/2012	0.67	36	0.67	20	92	0.003	0.080	0.001	0.040	49	12	0.01	0.00
9/30/2012	0.56	36	0.56	11.1	97	0.002	0.040	0.002	0.040	79	43	0.01	0.01
10/31/2012	5.4	16	5.3	35.8	73	0.006	0.030	0.002	0.010	33	6.1	0.07	0.03
11/30/2012	9.9	63	9.9	36	88	0.007	0.030	0.005	0.020	6.8	1.5	0.06	0.03
12/31/2012	7.8	31	7.8	16.3	86	0.010	0.050	0.010	0.040	4.5	1.8	0.06	0.03
1/31/2013		28											
2/28/2013		40											
3/31/2013	25		25	63.4	75	0.020	0.060	0.010	0.030	1.0	1.0	0.06	0.04
4/30/2013	15		15	30.9	88	0.010	0.050	0.008	0.030	1.0	1.0	0.06	0.03
5/31/2013	6.6	17	6.6	28.3	85	0.002	0.010	0.002	0.010	7.8	1.5	0.06	0.02
6/30/2013	13	27	13	39.8	85	0.000	0.000	0.000	0.000	33	14	0.08	0.04
7/31/2013		29											
8/31/2013		53											
9/30/2013		20											
10/31/2013	6.6	32	6.6	17.3	96	0.008	0.03	0.002	0.008	13	4.9	0.058	0.03
11/30/2013	7.5	28	7.5	26.5	93	0.009	0.03	0.006	0.020	2.0	1.1	0.055	0.04
12/31/2013	12	15	12	28.7	90	0.003	0.01	0.001	0.003	4.5	1.4	0.117	0.03
1/31/2014													
2/28/2014													
3/31/2014	62	54	62	53	30	0.010	0.020	0.004	0.005	4.5	1.4	0.15	0.08
4/30/2014	7.4	44	7.4	20.1	86	0.020	0.050	0.007	0.020	1.0	1.0	0.08	0.04
5/31/2014	5.5	32	5.5	31.5	84	0.000	0.000	0.000	0.000	1.0	1.0	0.06	0.03
6/30/2014	0.47	18	0.47	28.3	89	0.000	0.000	0.000	0.000	49	11	0.09	0.03
7/31/2014	5.4	25	5.4	14.8	95	0.001	0.010	0.001	0.010	540	187	0.04	0.02
8/31/2014		64											
9/30/2014		19											
10/31/2014	15		15	54.2	52	0.000	0.000	0.000	0.000	1600	54	0.03	0.03
11/30/2014	15	25	15	43.8	88	0.003	0.010	0.003	0.010	1.0	1.0	0.08	0.04
12/31/2014	5.9	17	5.9	32.1	90	0.010	0.030	0.003	0.010	1.0	1.0	0.08	0.04
1/31/2015		21											
2/28/2015		21											
3/31/2015	2.3	351	2.3	18.4	95	0.020	0.100	0.010	0.040	1.0	1.0	0.07	0.03
4/30/2015	8.9	258	8.9	24.7	90	0.009	0.040	0.002	0.010	1.0	1.0	0.05	0.03
5/31/2015	10	304	10	63.7	79	0.000	0.000	0.000	0.000	33	2.3	0.05	0.02
6/30/2015	5.4	360	5.4	18.6	95	0.000	0.000	0.000	0.000	170	30	0.08	0.03
7/31/2015													
8/31/2015													
9/30/2015	5.2	161	5.2	24.7	85	0.0050	0.0300	0.002	0.013	70	45	0.04	0.02
10/31/2015	1.6	195	1.6	17.3	91	0.0050	0.0500	0.001	0.010	33	5.1	0.04	0.01
11/30/2015	4.9	303	4.9	21.1	93	0.0000	0.0000	0.000	0.000	1.8	1.8	0.05	0.03
12/31/2015	3.9	174	3.9	21.1	88	0.0100	0.0300	0.003	0.008	1.8	1.8	0.07	0.04
1/31/2016													
2/29/2016													
Average	14	68	14	32	85	0.009	0.028	0.005	0.014	98	12	0.08	0.04
Minimum	0.47	11.1	0.47	11.1	30	0.000	0.000	0.000	0.000	1.0	1.0	0.01	0.0
Maximum	64	360	64	71	97	0.060	0.100	0.050	0.040	1600	187	0.24	0.12
Count	43	52	43	43	43	44	44	44	44	43	43	43	43
Std Dev	14	90	14	15	12	0.011	0.023	0.008	0.013	266	30	0.0	0.0
CV	1.0	1.3	1.0	0.5	0.1	1.149	0.818	1.586	0.943	2.7	2.4	0.6	0.7
95th Percen	47	303	47	64	96	0.020	0.060	0.019	0.040	521	45	0.16	0.10
5th Percenti	0.8	16	0.8	15	66	0.000	0.000	0.000	0.000	1.0	1.0	0.0	0.0

Parameter Desc.	Nitrogen, ammonia total [as N]	Oxygen, dissolved [DO]	pH	pH	Phosphorus, total [as P]	Solids, suspended percent removal	Solids, total suspended	INF Solids, total suspended	Solids, total suspended	Solids, total suspended	Temperature °C
	DAILY MX	MINIMUM	INST MAX	INST MIN	DAILY MX	MINIMUM	MO AVG	MO AVG	WKLY AVG	WKLY AVG	DAILY MX
Date	mg/L	mg/L	SU	SU	mg/L	%	lb/d	mg/L	lb/d	mg/L	deg C
1/31/2011											
2/28/2011											
3/31/2011		22.1	7.9	7.4	5.07	82	27	204	27	37	3.1
4/30/2011		15	8.2	7.6	4.16	91	57	403	57	38	6.4
5/31/2011	18	21.5	9.3	8.3	5.03	95	26	875	26	44	8.7
6/30/2011	3.8	23.5	9.4	8.7	4.01	83	69	336	69	57	15
7/31/2011	0.78	10.5	8.9	8.0	1.45	96	14	428	14	18	19
8/31/2011	0.46	12.1	8.6	7.8	2.53	95	8.9	210	8.9	11	18
9/30/2011	4.4	5.4	8.1	7.5	5.5	94	11	406	11	24	16
10/31/2011	4.6	5.5	7.7	7.5	7.05	56	24	134	24	58	13
11/30/2011	9	11.5	8.3	7.3	5.42	74	8.8	152	8.8	39	6.1
12/31/2011		15.5	7.5	7.2	7.36	90	11	304	11	30	2.0
1/31/2012											
2/29/2012											
3/31/2012		12.5	7.3	6.8	6.7	86	8.9	264	8.9	38	2.5
4/30/2012		1.3	7.9	7	5.4	70	18	122	18	37	7.0
5/31/2012	16	8.02	8.8	7.9	5.4	92	12	500	12	42	15
6/30/2012	1.1	4.13	9.2	8.5	3.9	74	31	300	31	78	14
7/31/2012	1.2	1.29	8.6	7.8	3.0	96	12	590	12	24	20
8/31/2012	0.0	6.73	8.0	7.4	3.7	87	1.7	390	1.7	50	24
9/30/2012	1.8	2.01	8.0	7.4	486	85	1.1	142	1.1	22	14
10/31/2012	0.92	1.04	8.6	8.1	5.4	85	11	474	11	72	12
11/30/2012	1.5	3.73	8.8	8.5	4.0	84	15	352	15	55	10
12/31/2012		1.06	8.7	7.5	3.7	49	18	72	18	37	5.3
1/31/2013											
2/28/2013											
3/31/2013		0.69	7.5	7.1	6.7	95	7.8	396	7.8	20	2.4
4/30/2013		1.4	8.2	7.6	5.5	87	17	278	17	36	9.8
5/31/2013	25	1.12	8.5	7.5	5.4	79	8.2	166	8.2	35	9.3
6/30/2013	0.81	1.55	8.2	7.3	2.8	81	17	273	17	52	17
7/31/2013											
8/31/2013											
9/30/2013											
10/31/2013	0.72	1.75	7.2	7	4.8	61	32	214	32	84	11
11/30/2013	0.13	0.4	9.3	7	3.5	88	9.6	283	9.6	34	7.9
12/31/2013		0.14	9.2	7.9	4.9	89	13.3	284	13	32	7.5
1/31/2014											
2/28/2014											
3/31/2014		0.12	8.2	7.4	5.5	67	43	112	43	37	5.8
4/30/2014		0.26	9	8.4	3.5	87	12	247	12	33	7.0
5/31/2014		0.24	9.7	9	0.06	72	9.1	183	9.1	52	14
6/30/2014	0.76	1.82	9.9	8.9	2.4	93	0.5	410	0.5	30	18
7/31/2014		0.13	9.1	7.7	0.09	91	7.3	222	7.3	20	22
8/31/2014											
9/30/2014											
10/31/2014	0.98	0.19	9.3	8.8	4.6	46	21	144	21	78	7.6
11/30/2014	2.2	0.18	8.6	8.2	4.0	81	17	280	17	52	4.5
12/31/2014		0.03	8.5	8.1	5.4	87	6.6	270	6.6	36	6.0
1/31/2015											
2/28/2015											
3/31/2015		0.02	8.4	7.6	2.7	93	2.8	300	2.8	22	5.0
4/30/2015		0.14	9.7	8.9	5.3	79	19	250	19	53	8.1
5/31/2015	1.3	0.32	9.8	9.3	5.2	73	9.2	215	9.2	58	12
6/30/2015	1.3	0.4	9.6	8.9	3.5	81	17	300	17	58.3	17
7/31/2015											
8/31/2015											
9/30/2015		2.25	9.2	8.5	4.7	48	20	186	20	97	14
10/31/2015	0.51	0.2	8.5	8.2	4.0	80	5.3	290	5.3	58	12
11/30/2015	2.6	0.13	8.7	8.4	5.9	83	8.9	230	8.9	38	13
12/31/2015		0.1	7.9	7.5	8.6	95	2.4	240	2.4	13	5.4
1/31/2016											
2/29/2016											
Average	4.0	4.6	8.6	7.9	15.7	81	16	289	16	43	11
Minimum	0.0	0.02	7.2	6.8	0.06	46	0.5	72	0.5	11	2.0
Maximum	25	24	10	9.3	486	96	69.41	875	69.41	97	24
Count	25	43	43	43	43	43	43	43	43	43	43
Std Dev	6.3	6.6	0.7	0.6	73	13	14	144	14	19	5.6
CV	1.6	1.4	0.1	0.1	4.7	0.2	0.9	0.5	0.9	0.5	0.5
95th Percen	18	21	10	8.9	7.3	95	42	497	42	78	20
5th Percenti	0.2	0.1	7.5	7.0	1.5	50	1.7	123	1.7	18.2	2.6

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

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages present	CHLORINE (Total Residual)
Effluent Data	**Number of Samples in Data Set (n)**		63	81
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		1.2	0.7
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		14,000	40
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only			
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**		80	0
	Geometric Mean, µg/L, Human Health Criteria Only			
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	28,045.66	19.
	Aquatic Life Criteria, µg/L	Chronic	3,961.782	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 = **0%**	**Aquatic Life - Acute**	**1Q10**	0%	0%
	Aquatic Life - Chronic	7Q10 or 4B3	--	0%
	Ammonia	30B3 or 30Q10	0%	0%
	Human Health - Non-Carcinogen	30Q5	--	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
	Ammonia	30B3 or 30Q10	1.0	1.0
	Human Health - Non-Carcinogen	30Q5	--	1.0
	Human Health - carcinogen	Harmonic Mean	--	1.0

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.944	0.631
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	**99%**	0.930	0.945
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)-0.5\sigma^2]$, where	**99%**	2.2	1.6
Statistically projected critical discharge concentration (C_e)			31368.69	63.45
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	31368.69	63.45
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	31368.69	63.45
Reasonable Potential to exceed Aquatic Life Criteria			**YES**	**YES**

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)				
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			30	4
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		1.200	0.700
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		1.200	0.700
Acute WLA, ug/L	$C_d = (\text{Acute Criteria} \times MZ_a) - C_u \times (MZ_a\text{-}1)$	Acute	28,045.7	19.0
Chronic WLA, ug/L	$C_d = (\text{Chronic Criteria} \times MZ_c) - C_u \times (MZ_c\text{-}1)$	Chronic	3,961.8	11.0
Long Term Ave (LTA), ug/L	$WLAc \times \exp(0.5\sigma^2\text{-}z\sigma)$, Acute	**99%**	4,868.1	5.3
(99th % occurrence prob.)	$WLAa \times \exp(0.5\sigma^2\text{-}z\sigma)$; ammonia n=30, Chronic	**99%**	2,450.8	5.3
Limiting LTA, ug/L	used as basis for limits calculation		2,450.8	5.3
Applicable Metals Criteria Translator (metals limits as total recoverable)			--	--
Average Monthly Limit (AML), ug/L	, where % occurrence prob =	**95%**	**3,418**	**9**
Maximum Daily Limit (MDL), ug/L	, where % occurrence prob =	**99%**	**14,119**	**19**
Average Monthly Limit (AML), mg/L			**3.4**	**0.009**
Maximum Daily Limit (MDL), mg/L			**14.1**	**0.019**
Average Monthly Limit (AML), lb/day			**0.9**	**0.002**
Maximum Daily Limit (MDL), lb/day			**3.5**	**0.005**

References

Idaho Water Quality Standards http://adminrules.idaho.gov/rules/current/58/0102.pdf

Technical Support Document for Water Quality-based Toxics Control, US EPA, March 1991, EPA/505/2-90-001

Performance-based Calculations: Ammonia

Performance-based Effluent Limits

INPUT	
LogNormal Transformed Mean:	-6.1723
LogNormal Transformed Variance:	1.5492
Number of Samples per month for compliance monitoring:	4
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	0.0045
V(X) =	0.000
VARn	0.6559
MEANn=	-5.7257
VAR(Xn)=	0.000
Maximum Daily Effluent Limit (µg/L):	**0.04**
Average Monthly Effluent Limit (µg/L):	**0.01**
Maximum Daily Effluent Limit (mg/L):	**38**
Average Monthly Effluent Limit (mg/L):	**12**
0.012357737	0.011695602

Log Transformed Statistics - Ammonia

Column1	
Mean	-6.17234421
Standard Error	0.158070636
Median	-6.31456581
Mode	-6.29798971
Standard Deviation	1.244649433
Sample Variance	1.54915221
Kurtosis	-0.18812001
Skewness	-0.16223766
Range	5.509388337
Minimum	-9.21034037
Maximum	-3.70095204
Sum	-382.685341
Count	62

Date	Pollutant (µg/L)	ln(Pollutant conc)
	0.00217	-6.133
	0.00174	-6.354
	0.0009	-7.013
	0.00022	-8.422
	0.00702	-4.959
	0.0076	-4.880
	0.00839	-4.781
	0.0114	-4.474
	0.00215	-6.142
	0.00118	-6.742
	0.00043	-7.752
	0.00337	-5.693
	0.0048	-5.339
	0.00232	-6.066
	0.00754	-4.888
	0.00281	-5.875
	0.00157	-6.457
	0.0094	-4.667
	0.0138	-4.283
	0.00323	-5.735
	0.000861	-7.057
	0.000649	-7.340
	0.00184	-6.298
	0.00266	-5.929
	0.00482	-5.335
	0.00165	-6.407
	0.000148	-8.818
	0.00134	-6.615
	0.00127	-6.669
	0.00747	-4.897
	0.0129	-4.351
	0.0117	-4.448
	0.01105	-4.505
	0.000708	-7.253
	0.00117	-6.751
	0.0028	-5.878
	0.00184	-6.298
	0.00172	-6.365
	0.0183	-4.001
	0.00382	-5.568
	0.000778	-7.159
	0.000461	-7.682
	0.00437	-5.433
	0.00463	-5.375
	0.009	-4.711
	0.0159	-4.141
	0.00106	-6.849
	0.00117	-6.751
	0.0001	-9.210
	0.00178	-6.331
	0.000924	-6.987
	0.00145	-6.536
	0.0247	-3.701
	0.000806	-7.123
	0.000723	-7.232
	0.000133	-8.925
	0.00076	-7.182
	0.00098	-6.928
	0.00222	-6.110
	0.00132	-6.630
	0.00127	-6.669
	0.00051	-7.581

Appendix E. Antidegradation Review

Idaho Department of Environmental Quality

Draft §401 Water Quality Certification

January 9, 2017

NPDES Permit Number(s): North Idaho Correctional Institute Permit #ID0025887

Receiving Water Body: Unnamed tributary to Lawyer Creek

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 North Idaho Correctional Institute discharges the following pollutants of concern: BOD_5, TSS, *E. coli* bacteria, total residual chlorine (TRC), pH, temperature, ammonia, phosphorous, and dissolved oxygen (DO). Effluent limits have been developed for BOD_5, TSS, *E. coli* bacteria, TRC, pH, and ammonia. No effluent limits are proposed for temperature, phosphorous, or DO, although monitoring is required..

Table 1. Comparison of current and proposed permit limits for pollutants of concern.

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	8	11	—	8	11	—	
	% removal	—	—	—	85%	—	—	
Total Suspended Solids (TSS)	mg/L	30	45	—	30	45	—	NC
	lb/day	8	11	—	8	11	—	
	% removal	—	—	—	85%	—	—	
E. coli bacteria	#/100 mL	126	—	406	126	—	406	NC
pH	Standard units	Between 6.5 – 9.0			Between 6.5 – 9.0			NC
Total Residual Chlorine	mg/L	0.05	—	0.01	0.009	—	0.019	D
	lb/day	0.01	—	0.03	0.002	—	0.005	
Pollutants with new limits in the proposed permit								
Total Ammonia (as N)	mg/L	—	—	—	3.4	—	14	New
	lb/day	—	—	—	0.9	—	3.5	
Total Ammonia (as N) Interim Limit	mg/L	—	—	—	12	—	38	New
	lb/day	—	—	—	3.0	—	9.5	
Pollutants with no limits in both the current and proposed permit								
Temperature	°C	—	—	—	Report	—	Report	NC
Dissolved Oxygen	Mg/L	—	—	—	Report	—	Report	NC
Phosphorous	Mg/L	—	—	—	Report	—	Report	NC

[a] NC = no change; D = decrease

Receiving Water Body Level of Protection

The North Idaho Correctional Institute discharges via an open ditch to an unnamed tributary to Lawyer Creek within the Clearwater Subbasin assessment unit (AU) ID17060306CL024_02 (Lawyer Creek – source to mouth). This AU has the following designated beneficial uses: cold water aquatic life, salmonid spawning, and primary contact recreation. 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 2012 Integrated Report, this AU is in Category 5 and not fully supporting the cold water aquatic life, salmonid spawning, and contact recreation beneficial uses. Listed impairments are ammonia, nutrients, dissolved oxygen, sediment, temperature, and fecal bacteria. The receiving water body is a headwater tributary to Lawyer Creek. The headwater tributary is ephemeral and flows naturally only in direct response to precipitation in the immediate watershed and whose channel is at all times above the water table. In the Idaho water quality standards, Lawyer Creek is included in water body identification number ID17060306CL024 (Lawyer Creek – source to mouth). As such, DEQ will provide Tier I protection for the cold water aquatic life, salmonid spawning, and contact recreation uses (IDAPA 58.01.02.051.01).

Protection and Maintenance of Existing Uses (Tier I Protection)

As noted above, 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 designated and existing uses and the level of water quality necessary to protect designated and existing uses shall be maintained and protected. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters. The numeric and narrative criteria in the WQS are set at levels that ensure protection of designated and existing beneficial uses. The effluent limitations and associated requirements contained in the North Idaho Correctional Institute permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. This water body is in Category 5 of Idaho's 2012 Integrated Report and does not have a TMDL completed for it. Prior to the development of a TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses through compliance with narrative and numeric criteria. (IDAPA 58.01.02.055.04). The effluent limitations and associated requirements contained in the North Idaho Correctional Institute permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the unnamed tributary to Lawyer Creek in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

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

Compliance Schedule

Pursuant to IDAPA 58.01.02.400.03, DEQ may authorize compliance schedules for water quality–based effluent limits issued in a permit for the first time. The North Idaho Correctional Institute cannot immediately achieve compliance with the effluent limits for ammonia; therefore, DEQ authorizes a compliance schedule. This compliance schedule provides the permittee an

interim ammonia limit and a reasonable amount of time to achieve the final effluent limits as specified in the permit, while still ensuring compliance as soon as possible. The permittee must achieve compliance with the ammonia limitations of Part I.B, Table 1 in the permit, *Effluent Limitations and Monitoring Requirements*, within four years from the effective date of the permit.

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 Sujata.Connell@deq.idaho.gov.

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John Cardwell
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