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 Harrison
Wastewater Treatment Plant

Public Comment Start Date: May 11, 2018
Public Comment Expiration Date: June 11, 2018

Technical Contact: Jennifer Wu
206-553-6328
800-424-4372, ext. 6328 (within Alaska, Idaho, Oregon and Washington)
Wu.Jennifer@epa.gov

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
Boise Regional Office
1445 North Orchard Street
Boise, Idaho 83706
208-373-0550

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 155
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 West Bannock Street, Suite 900
Boise, Idaho 83702

Idaho DEQ Boise Regional Office
1445 North Orchard Street
Boise, Idaho 83706

Idaho DEQ Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene, Idaho 83814

List of Tables

Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
30Q10	30 day, 10 year low flow
ACR	Acute-to-Chronic Ratio
AML	Average Monthly Limit
ASR	Alternative State Requirement
AWL	Average Weekly Limit
BA	Biological Assessment
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BE	Biological Evaluation
BO or BiOp	Biological Opinion
BOD_5	Biochemical oxygen demand, five-day
BOD_{5u}	Biochemical oxygen demand, ultimate
BMP	Best Management Practices
BPT	Best Practicable
°C	Degrees Celsius
C BOD_5	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat

EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FDF	Fundamentally Different Factor
FR	Federal Register
Gpd	Gallons per day
HUC	Hydrologic Unit Code
IC	Inhibition Concentration
ICIS	Integrated Compliance Information System
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
LC	Lethal Concentration
LC_{50}	Concentration at which 50% of test organisms die in a specified time period
LD_{50}	Dose at which 50% of test organisms die in a specified time period
LOEC	Lowest Observed Effect Concentration
LTA	Long Term Average
LTCP	Long Term Control Plan
mg/L	Milligrams per liter
Ml	Milliliters
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observable Effect Concentration
NOI	Notice of Intent

NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
OWW	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
TU_a	Toxic Units, Acute
TU_c	Toxic Units, Chronic
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet
WET	Whole Effluent Toxicity
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit

WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. Background Information

A. General Information

This fact sheet provides information on the draft NPDES permit for the following entity:

Table 1. General Facility Information

NPDES Permit #:	ID0021997
Applicant:	City of Harrison Wastewater Treatment Plant
Type of Ownership:	Publicly Owned Treatment Works (POTW)
Physical Address:	2144 East Park Avenue Harrison, Idaho 83833
Mailing Address:	P.O. Box 73 Harrison, Idaho 83833
Facility Contact:	Mr. Robert Poole Public Works Supervisor (208) 689-3212
Facility Location:	Latitude 47º 27’ 31” N Longitude 116º 46’ 08” N
Receiving Water	Anderson Slough
Facility Outfall	Latitude 47º 27’ 31” N Longitude: 116º 46’ 06” W

B. Permit History

The most recent NPDES permit for the City of Harrison (Harrison) was issued on June 29, 2005, became effective on September 1, 2005, and expired on August 31, 2010. An NPDES application for permit issuance was submitted by the permittee on February 24, 2010. The EPA determined that the application was incomplete. Harrison submitted additional material on April 23, 2010 addressing the omissions. The EPA determined that the revised application was complete and timely on May 17, 2010. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively extended and remains fully effective and enforceable.

C. Tribal Consultation

The Coeur d’Alene Tribe Reservation is located approximately 1.5 miles south of the City of Harrison. The EPA communicated with the Coeur d’Alene Tribe during the development of the permit and sent a tribal consultation letter to the Coeur d’Alene Tribe in May 2018. The Coeur d’Alene Tribe has water quality standards that have been approved under 303(c) of the Clean Water Act.

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 EPA and any decision under the permit stated to be made by EPA or jointly between 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

Harrison owns and operates the Harrison Wastewater Treatment Plant (WWTP) located in Harrison, Idaho. The collection system has no combined sewers. The facility serves a resident population of 284. There are no major industries discharging to the facility.

Treatment Process

The influent to Harrison WWTP comes from septic tanks from homes in Harrison that the City services by pumping the influent into a collection system, which then enters the facility through a Parshall flume. The treatment process consists of three aerated lagoons, disinfection using chlorine, filtration through a sand filter, and dechlorination through a tablet feeder. The facility collects wastewater in a primary lagoon with three aerators. Water then flows to the second (settling) lagoon with two aerators, and then to a third (finishing) pond with two aerators. A hypochlorite solution is added near the pump for disinfection, then the effluent is filtrated through a sand filter. The sand filter has an automatic backwash cycle which drains to the second lagoon and is hand cleaned monthly. The effluent is then dechlorinated through a tablet feeder before being discharged at the outfall. A map showing the location of the treatment facility and discharge are included in Appendix A.

The design flow of the facility is 0.03 mgd. The reported average monthly flows from the facility range from 0.01 mgd to 0.02 mgd. The reported maximum daily flows from the facility range from 0.03 mgd to 0.04 mgd. The permit application form states the design flow is 0.04 mgd compared to the previous permit application form when the design flow was 0.03 mgd. The EPA and IDEQ have not received engineering reports or information indicating that the design flow in the previous permit application of 0.03 mgd was incorrect. The EPA and IDEQ are also not aware of any engineering changes that would allow for an expanded design capacity. Therefore, the permit limits are written for a design flow of 0.03 mgd. Because the design flow is less than 1 mgd, the facility is considered a minor facility.

Outfall Description

The outfall enters Anderson Slough in Harrison, Idaho in the Coeur d'Alene Lake Watershed in the hydrological unit code (HUC) 17010303. The permit application form indicates that discharges are batched and intermittent, occurring in March, April, June to September, and November. Based on DMR reporting forms, effluent also appears to be discharged other months. The pipe is submerged 7 feet and extends 60 feet from the shoreline of Anderson Slough.

Effluent Characterization

To characterize the effluent, the EPA evaluated the facility's application form and discharge monitoring report (DMR) data. The effluent quality is summarized in Table 2 from DMR data collected from September 2005 to July 2017. Data are provided in Appendix B.

Table 2. Effluent Characterization

Parameter	Maximum	Minimum	Notes
BOD5, monthly average	73 mg/L	2 mg/L	Permit Limit is 30 mg/L. Maximum BOD5 concentration was in 2007. There were three violations from 2008-2017.
BOD5, weekly average	73 mg/L	2 mg/L	Permit limit is 45 mg/L. Six violations occurred from 2005-2007. There was one violation in August 2013.
TSS, monthly average	143 mg/L	0.2 mg/L	Permit limit is 45 mg/L. There were 7 violations, 5 in 2007.
TSS, weekly average	143 mg/L	0.2 mg/L	Permit limit is 65 mg/L. There were 5 violations, all in 2007.
E. coli, average monthly	1531/100mL	1.3/100mL	Permit limit is 126/100mL. There was one violation in September 2005.
E. coli, instantaneous maximum	2400/100mL	1.1/100mL	Permit limit is 406/100mL. There were 7 violations:1 in September 2005 and 6 in 2007.
Total residual chlorine, monthly average	0.01 mg/L	0 mg/L	Permit limit is 0.007 mg/L. One violation occurred in July 2015.
Total residual chlorine, daily maximum	0.02 mg/L	0 mg/L	Permit limit is 0.018 mg/L. There were 8 times that values were measured at 0.02 mg/L.
pH, instantaneous maximum	8.8 Standard Units (S.U.)	6.7 S.U.	Permit limit is pH must not exceed 9.0. There were no violations.
pH, instantaneous minimum	7.6 S.U.	4.7 S.U.	Permit limit is that pH must not be below 6.5. One violation occurred in May 2006.

Source: DMR Reports, September 2005 – July 2017

Compliance History

A summary of effluent violations is provided in Table 3. Numerous violations occurred in 2007 for BOD_5, TSS, and E.coli. On February 5, 2008, Harrison submitted a list of actions they planned to take to address a Notice of Violation from EPA including improving wastewater treatment plant operations, purchasing equipment and training. Since 2008, violations of the permit effluent limitations have been rare.

The IDEQ conducted an inspection of the facility in September 2013. The inspection encompassed the wastewater treatment process, records review, operation and maintenance, and the collection system. Overall, the significant area of concern was that one of the lagoons was close to or had overflowed and that the plant may be running close to or over design capacity. The facility is currently operating at its design flow of 0.03 mgd. The permit application form indicates a maximum reported flow of 0.04 mgd in 2009.

Additional compliance information for this facility, including compliance with other environmental statutes, is available on Enforcement and Compliance History Online (ECHO). The ECHO web address for this facility is: https://iaspub.epa.gov/enviro/fii_query_dtl.disp_program_facility?pgm_sys_id_in=ID0021997&pgm_sys_acrnm_in=NPDES

Table 3. Summary of Effluent Violations (Accessed on December 15, 2017)

Parameter	Limit	Units	Number of Instances
BOD_5	Monthly Average	mg/L	3
E. coli	Daily Maximum	Cfu/100mL	7
Total residual chlorine	Daily Maximum	mg/L	8
pH	Instantaneous minimum	S.U.	1
TSS	Monthly Average	mg/L	7
E. coli	Monthly Average	cfu/100mL	1
Total residual chlorine	Monthly Average	mg/L	1
BOD_5	Weekly Average	mg/L	7
TSS	Weekly Average	mg/L	5

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

The Harrison WWTP discharges to Anderson Slough in Harrison, Idaho. Anderson Slough is immediately adjacent to Anderson Lake and separated by Highway 97. Immediately northwest of Anderson Slough are wetlands that likely affect Lake Coeur d'Alene. Highway 97 also separates Anderson Slough from the wetlands. Coeur d'Alene River runs north of the wetlands and Anderson Lake. There is no information on culverts from Anderson Slough to Coeur d'Alene River or to wetlands next to Lake Coeur d'Alene. IDEQ's preliminary 401 certification indicates that there are two culverts under the Trail of Coeur d'Alenes near Harrison that connect it to the lake during high periods of flow. Anderson Slough is not listed as impaired on Idaho's 303(d) Integrated Report, but the adjacent waterbodies are impaired for the following pollutants: Anderson Lake, lead; Lake Coeur d'Alene, cadmium, zinc, and lead; Coeur d'Alene River, cadmium, lead, sedimentation, temperature, and zinc.

Downstream Waters

The Coeur d'Alene Tribe reservation boundary is approximately 1.5 miles from the Harrison WWTP. The Tribe has jurisdiction over the southern third of Lake Coeur d'Alene and certain rivers that enter Lake Coeur d'Alene. Waters from the reservation run primarily into Lake Coeur d'Alene. There are no known impacts from Anderson Slough on waters under Coeur d'Alene Tribe's jurisdiction. The water quality standards of Coeur d'Alene Tribe are more stringent than Idaho's water quality standards for dissolved oxygen, pH, and the upper criteria for bacteria.

Harrison's discharge is small, and the permit requires the facility to meet Idaho's water quality standards. The EPA determined that the Harrison WWTP will not affect the quality waters under the jurisdiction of Coeur d'Alene Tribe, given the permit requirements to meet Idaho's water quality standards, the size of Harrison's discharge, the lack of information on the impact of Anderson Slough on Lake Coeur d'Alene, and the attenuation that would occur between Anderson Slough and Lake Coeur d'Alene if there were impacts.

B. Designated Beneficial Uses

This facility discharges to Anderson Slough in the Coeur d'Alene Lake subbasin (HUC 17010303). Anderson Slough does not have specific use designations in the Idaho Water Quality Standards (IDAPA 58.01.02.110 through 160). The Water Quality Standards state that such "undesignated waterways" are to be protected for the uses of cold water aquatic life and primary and secondary contact recreation (IDAPA 58.01.02.101.01).

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 4.

Table 4. Receiving Water Quality Data

Parameter	Units	Percentile	Value	Source
Temperature	°C	95^{th}	23	Surface Water Monitoring Report (2007-2009)
pH	Standard units	5^{th} – 95^{th}	6.5-6.9	Surface Water Monitoring Report (2007-2009)
Ammonia as Nitrogen	mg/L	maximum	0.97	Surface Water Monitoring Report (2007-2009)
Total Phosphorus	mg/L	maximum	0.84	Surface Water Monitoring Report (2007-2009)
Source: Data collected by permittee 2007-2009				

D. Low Flow Conditions

No flow data are available for Anderson Slough. Anderson Slough is not a flowing river, and the size of the slough is relatively small. Therefore, no mixing is expected to occur, and the EPA used a low flow of zero cubic feet per second.

V. Effluent Limitations and Monitoring

Table 5 below presents the existing effluent limits and monitoring requirements in the 2005 Permit. Table 6, below, presents the proposed effluent limits and monitoring requirements in the draft permit.

Table 5. Existing Permit Effluent Limits and Monitoring Requirements

Table 1: Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations				Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow, mgd	---	---	---	---	Effluent	1/week	measure
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	---	---	Influent and Effluent	1/month	grab
	8 lbs/day	12 lbs/day	---	---			
Total Suspended Solids (TSS)	45 mg/l	65 mg/l	---	---	Influent and Effluent	1/month	grab
	12 lbs/day	18 lbs/day	---	---			
E. coli Bacteria[1,2]	126/100 ml	---	---	406/100 ml	Effluent	5/month	grab
Total Residual Chlorine[2,3,4]	0.007 mg/l	---	0.018 mg/l	---	Effluent	1/week	grab
	0.002 lbs/day	---	0. 005 lbs/day	---			
Total Ammonia as N, mg/L[5]	---	---	---	---	Effluent	1/month	grab
Total Phosphorus as P, mg/L[5]	---	---	---	---	Effluent	1/month	grab

1. The average monthly E. coli count must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3-5 days within a calendar month. See Part I.V for definition of geometric mean.
2. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See Part II.G.
3. The average monthly and maximum daily concentration limits for chlorine are not quantifiable using EPA approved test methods. The permittee will be in compliance with the effluent limits for chlorine provided the average monthly and maximum daily total chlorine residual level is at or below the compliance evaluation level of 0.1 mg/L, with a average monthly and maximum daily loading is at or below 0.03 lbs/day.
4. Chlorine effluent limits shall become effective by September 1, 2009 in accordance with the conditions of the Compliance Schedule in Part I.B., below.
5. Monitoring shall be conducted once per month starting in January 2006 and lasting for one year.

Table 6. Draft Permit Effluent Limits and Monitoring Requirements

Parameter	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	Grab
	lbs/day	8	11	--			
BOD_5 Percent Removal	%	85 (minimum)	--	--	--	1/month	Calculation[2]
Total Suspended Solids (TSS)	mg/L	45	65	--	Influent and Effluent	1/month	Grab
	lbs/day	11	16	--			
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	0.009[5]	--	0.017[4,5]	Effluent	1/week	Grab
	lbs/day	0.002[5]	--	0.0045[4,5]			Calculation[1]
Total Ammonia as N	mg/L	3	--	9[4]	Effluent	1/week	Grab
	lbs/day	0.8		2[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 this permit				1/month	Visual Observation
		Report Parameters					
Flow	mgd	Report	--	Report	Effluent	1/week	Measurement
Total phosphorus	mg/L	Report		Report	Effluent	2/month	Measurement

Notes
1. Loading (in lbs/day) is calculated by multiplying the concentration (in mg/L) by the design flow (in mgd) 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 this 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 this 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 0.013 lbs/day. For purposes of calculating the monthly averages, see Paragraph I.B.7 of this permit.

The changes from the draft permit to the current permit are shaded/highlighted in yellow in Table 6. All effluent limits from the previous permit were maintained, except for new effluent limits for ammonia, BOD_5 percent removal, TSS percent removal, and recalculated loads for BOD_5, TSS and recalculated limits and loads for total residual chlorine. The EPA reviewed past

DMR data from 2007-2016 to assess whether the facility would meet the new requirements if effluent were similar in the future. If operations are similar, the facility should be able to meet new limits for BOD_5, TSS and total residual chlorine. Generally, the facility has removed greater than 85% of BOD_5 and TSS from their influent, though there have been instances where less than 85% removal has occurred. The facility will not be able to meet ammonia limits immediately. Section V.D describes the compliance schedule for ammonia and the performance-based interim limits that apply while Harrison WWTP adjusts or upgrades their operations to meet final ammonia limits.

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, 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

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.

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 (lbs/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 = 7.5 lbs/day

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

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The Harrison WWTP uses chlorine disinfection. A 0.5 mg/L average monthly limit for chlorine is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. Therefore, a wastewater treatment plant that provides adequate

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

chlorine contact time can meet a 0.5 mg/L total residual chlorine limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. For technology-based effluent limits, the AWL is calculated to be 1.5 times the AML, consistent with the "secondary treatment" limits for BOD_5 and TSS. This results in an AWL for chlorine of 0.75 mg/L.

Since 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:

Average Monthly Limit= 0.5 mg/L x 0.03 mgd x 8.34 = 0.13 lbs/day

Average Weekly Limit = 0.75 mg/L x 0.03 mgd x 8.34 = 0.19 lbs/day

D. Water Quality-Based Effluent Limits

Statutory and Regulatory Basis

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

Anderson Slough does not provide a mixing zone. There are no flow data available, and the low flow is presumed to be zero cfs. Therefore, there is no dilution, and the dilution factor is set at one.

Table 8. Mixing zones

Criteria Type	Critical Low Flow (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor
Acute Aquatic Life	0	0	1
Chronic Aquatic Life (except ammonia)	0	0	1
Chronic Aquatic Life (ammonia)	0	0	1
Human Health Noncarcinogen	NA	NA	NA
Human Health Carcinogen	NA	NA	NA

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.

<u>Ammonia</u>

Ammonia criteria are based on formulas, 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 EPA used the 95th percentile of pH and temperature data from Anderson Slough in the ammonia criteria equations. Table 9 shows the equations used to determine water quality criteria for ammonia. The acute criterion for ammonia is 26 mg/L, and the chronic criterion is 3.6 mg/L.

Table 9. Ammonia Criteria

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

INPUT	
1. Receiving Water Temperature (deg C):	22.7
2. Receiving Water pH:	6.93
3. Is the receiving water a cold water designated use?	Yes
4. Are non-salmonid early life stages present or absent?	Present
OUTPUT	
Total ammonia nitrogen criteria (mg N/L):	
Acute Criterion (CMC)	25.65
Chronic Criterion (CCC)	3.59

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 Harrison 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. 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.

The Harrison WWTP collected ammonia data in 2006 shown in Table 10. Comparing the ammonia data to the final effluent limits, the EPA recognizes that the Harrison WWTP cannot comply with the new ammonia limits immediately upon the effective date of the Final Permit. Ammonia values in effluent were high in all months, except for July and September. In addition, though there have been operational improvements, the EPA has no information on whether reduced effluent ammonia concentrations, since no monitoring data were collected.

The EPA and Idaho DEQ developed a 2-part compliance schedule for meeting the final effluent ammonia limits. Compliance Schedule Part A requires the facility to monitor ammonia in effluent, optimize plant operations if necessary, and evaluate whether it can meet final limits within two years of the effective date of the permit. The EPA believes this time is necessary to evaluate whether past operational improvements have reduced ammonia in effluent sufficiently to meet final limits and if necessary, further optimize operations, to meet final ammonia limits. If the Harrison WWTP still cannot meet final ammonia limits within two years of the effective date of the final permit, the facility must meet final ammonia limits within ten years of the effective date of the permit and complete tasks in Compliance Schedule Part B. The EPA believes that if Harrison WWTP is unable to meet final ammonia limits under current operations and minimal optimizations, an additional eight years is necessary to do facility planning, secure funding, and complete construction upgrades as necessary to achieve final ammonia limits. Tasks under Compliance Schedules Parts A and B in the permit require the facility to monitor ammonia levels and submit reports and written notifications on progress towards meeting the final limits.

Table 10. Ammonia as Nitrogen in Harrison WWTP effluent, Daily Maximum mg/L

Date	Ammonia as N (mg/L)
2/28/2006	15
3/31/2006	14.8
4/30/2006	15.1
5/31/2006	10.8
6/30/2006	11.2
7/31/2006	0.14
8/31/2006	8.8
9/30/2006	0.18
11/30/2006	4.97

The interim ammonia limits are performance-based numbers derived from the 2006 dataset and are calculated to be high enough to accommodate reasonably anticipated variability within control of the facility. The EPA calculated the 95th percentile of the data shown in Table 10 to derive the average monthly limit. The EPA then used a statistical permit limit derivation approach described in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001, March 1991, hereafter referred to as the TSD) to derive the interim maximum daily limit from the interim average monthly limit.

Multiplier to Calculate Average Weekly Limit (AWL) from Average Monthly Limit

Number of Samples per Month Set (n)			4
Number of Samples per Week Set (n/4)			1
Coefficient of Variation (CV) = Std. Dev./Mean			0.6
σ = std deviation	$\sigma^2=\ln(CV^2+1)$		0.555
Average Monthly Limit (AML)	$\exp(z\sigma_n-0.5z\sigma_n^2)$; where % probability basis =	95%	1.55
Average Weekly Limit (AWL)	$\exp(z\sigma_{n/4}-0.5z\sigma_{n/4}^2)$; where % probability basis =	99%	3.12
Ratio AWL/AML			**2.01**

Adapted from TSD Page 106, where n=
(default AWL/AML Multiplier = 1.5)

Calculation:	**AML**	**x**	**Multiplier**	**= AWL**
AWL = AML x Multiplier	15	x	2.01	= 30.1

The interim limits are as follows:

Interim Limit for Ammonia, Average Monthly Limit (mg/L): 15 mg/L

Interim Limit for Ammonia, Maximum Daily Limit (mg/L): 30 mg/L

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. In 2006, there was one pH value below 6.5 at 4.7. All other pH values between 2006 and 2017 were between 6.5 to 9.0.

Dissolved Oxygen (DO) and BOD_5

The Idaho state water quality standards at IDAPA 58.01.02.250.02.a require DO in Anderson Slough to be at least 6 mg/L at all times to protect aquatic life uses. The permit includes limits for BOD_5. 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. Compliance with BOD_5 will be protective of DO in the receiving water.

Phosphorus

Idaho water quality standards do not include numeric criteria for phosphorus. However, Idaho water quality standards at IDAPA 58.01.02.200.06. contain narrative criteria for excess nutrients that can cause nuisance algae. The Coeur d'Alene Tribe's water quality standards includes narrative criteria for nutrients and other anthropogenic causes that may cause objectionable algal densities or nuisance aquatic vegetation. Anderson Slough is not on the 303(d) Impaired Waters list for phosphorus or nuisance algae. However, Anderson Slough is next to Coeur d'Alene Lake, which has a Lake Nutrient Management Plan with a "goal of limiting basin-wide nutrient inputs that impair lake water quality conditions" (Coeur d'Alene Lake Management Plan, 2009).

Harrison collected monthly total phosphorus samples in its effluent in 2006, and concentrations ranged from 6.3 mg/L to 8.8 mg/L. Harrison also collected total phosphorus in Anderson Slough from 2007-2009. Concentrations ranged from 0.019 mg/L to 0.97 mg/L.

Given the proximity of Anderson Slough to adjacent waterbodies and the low slope of lands in between, the permit requires additional phosphorus monitoring in Anderson Slough and wetlands north of the slough adjacent to the Coeur d'Alene River to understand the effects of phosphorus on receiving waters and whether phosphorus in Harrison's effluent contributes to nutrients in Coeur d'Alene Lake. In addition, the permit requires Harrison to complete a Phosphorus Reduction Study, which must look at existing infrastructure and other cost-effective methods to reduce nutrient loads. Based on information from the phosphorus monitoring and the effectiveness of reducing loads, it will be determined in the next permit whether phosphorus limits are needed.

E. coli

The Idaho water quality standards state that waters of the State of Idaho 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.

<u>Chlorine</u>

The Idaho state water quality standards at IDAPA 58.01.02.210 establish an acute criterion of 19 µg /L, and a chronic criterion of 11 µg/L for the protection of aquatic life. A reasonable potential calculation showed that the discharge from the facility would have the reasonable potential to cause or contribute to a violation of the water quality criteria for chlorine. Therefore, the draft permit contains a water quality-based effluent limit. See Appendices C and D for reasonable potential and effluent limit calculations for chlorine.

<u>Residues</u>

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*.

An antibacksliding analysis was done for the Harrison WWTP. The analysis for each parameter is detailed below:

Ammonia – There was no limit in the previous permit; the proposed permit includes ammonia limits because reasonable potential was demonstrated. Therefore, antibacksliding does not apply.

BOD_5 – The proposed loads are slightly lower than the previous permit; therefore, antibacksliding does not apply.

Chlorine – The proposed effluent limits are higher for the average monthly limit in the proposed permit. This is because the previous permit used a higher number of compliance samples per month than were required. The proposed permit uses the correct number of samples per month which results in a slightly higher average monthly limit. Section 303(d)(4)(B) provides an exception against the prohibition on backsliding from a water quality-based effluent limitation. Specifically, when water quality meets or exceeds applicable water quality standards, a permit can contain less stringent effluent limits than the previous permit if the revision is consistent with the State's approved antidegradation policy. The antibacksliding for chlorine meets these exceptions because the water quality meets water quality standards for chlorine, and because IDEQ found the draft permit conditions met the state of Idaho's antidegradation policy (see Appendix E); therefore, antibacksliding does not apply.

E. Coli – No change; therefore, antibacksliding does not apply.

pH – No change; therefore, antibacksliding does not apply.

TSS – No change to concentration limits. The average monthly mass limit is more stringent than the previous permit, thus, antibacksliding does not apply.

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

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 11 presents the proposed surface water monitoring requirements for the draft permit. Surface water monitoring results must be submitted with the DMR. Additional surface water monitoring is included in this permit for nutrients because of the phosphorus reduction study (see V.E) and the possible impacts from discharges into Anderson Slough on adjacent waters.

Table 11. Surface Water Monitoring Requirements

Parameter	Units	Frequency	Sample Type	Location
Dissolved Oxygen	mg/L	1/quarter	Grab	Anderson Slough
Total Phosphorus	mg/L	1/month	Grab	Anderson Slough
	mg/L	1/month (May – September)	Grab	Wetlands northwest of Anderson Slough
Temperature	°C	1/month	Grab	Anderson Slough
pH	standard units	1/quarter	Grab	Anderson Slough
Notes: 1. For quarterly monitoring frequency, quarters are defined as: January 1 to March 31; April 1 to June 30; July 1 to September 30; and, October 1 to December 31.				

D. Electronic Submission of Discharge Monitoring Reports

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

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. The EPA has found that a compliance schedule is appropriate for ammonia as nitrogen because Harrison cannot immediately comply with the new effluent on the effective date of the permit. Refer to Section 9.1.3 Compliance Schedules in the Permit Writers Manual.

B. Quality Assurance Plan

The Harrison WWTP 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 Harrison WWTP 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 Harrison WWTP is not located within or near a Census block group that is potentially overburdened by discharges into Anderson Slough. There is an overburdened community across Lake Coeur d'Alene in the vicinity of the discharge. However, given that the impact from Anderson Slough on Lake Coeur d'Alene is uncertain and that the discharge from the Harrison WWTP is small, the draft permit does not include any additional conditions to address environmental justice.

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

Special Condition II.E 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.

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 found bull trout as a threatened species in the vicinity of Harrison's WWTP discharge. The EPA finds a no effect determination, because the Harrison WWTP discharge is insignificant and because it discharges into a small slough that is not likely to have bull trout populations. See Appendix F.

B. Essential Fish Habitat

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires the EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH).

The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. The EPA has prepared an EFH assessment which appears in Appendix G.

The EPA has made a no effect determination, because there are no EFH in the vicinity of the discharge. The EPA has provided NOAA Fisheries with copies of the draft permit and fact sheet during the public notice period. Any comments received from NOAA Fisheries regarding EFH will be considered prior to reissuance of this permit.

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 E.

D. Antidegradation

The IDEQ has completed an antidegradation review which is included in the draft 401 certification for this permit. (*See* Appendix E) The EPA has reviewed this 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

Coeur d'Alene Tribe and IDEQ. 2009. Coeur d'Alene Lake Management Plan. March 2009.

Coeur d'Alene Tribe and IDEQ. 2016. Coeur d'Alene Lake Management Program: Summary of Lake Status and Trends, 2008-2014. February 2016.

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 Agenc*y. Office of Water. EPA 820-B-14-004. September 2014. https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter5.pdf

EPA. 2017. *Water Quality Standards for Approved Surface Waters of the Coeur d'Alene* Tribe effective June 12, 2014. February 2017.

IDEQ. *Idaho Administrative Code IDAPA 58.01.02, Water Quality Standards*.

Appendix A. Facility Information

Figure 1. Harrison WWTP and Anderson Slough, Harrison, Idaho (Google Earth Pro, 6/20/17)

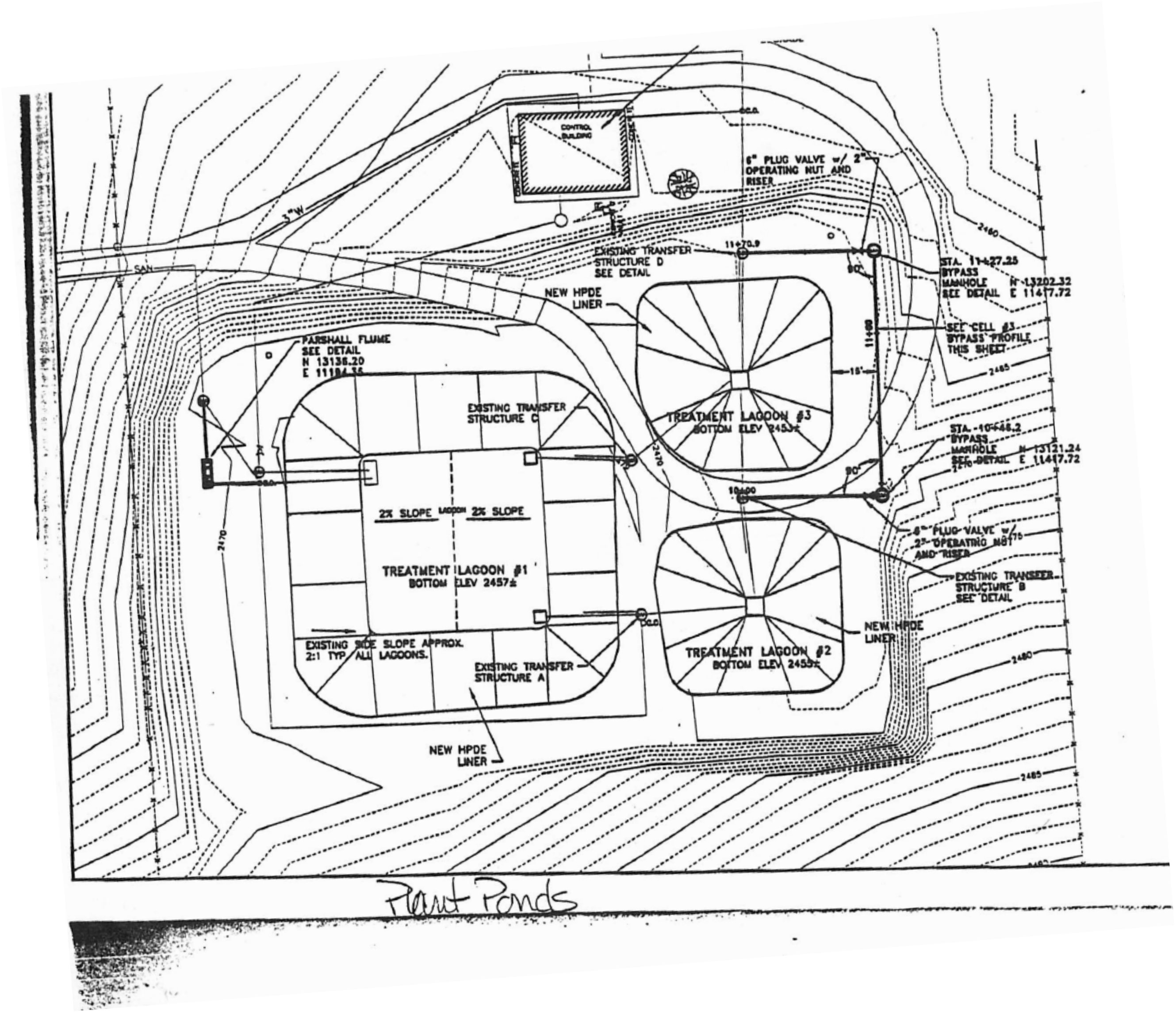

Figure 2. Schematic of Harrison WWTP

Appendix B. Water Quality Data

A. Treatment Plant Effluent Data

Table A-1. Harrison WWTP Effluent Data for BOD5 and Chlorine (September 2005-July 2017)

	BOD5, monthly average (lbs/day)	BOD5, monthly average (mg/L)	BOD5, wkly average (lbs/day)	BOD5, wkly average (mg/L)	Chlorine, daily max (lbs/day)	Chlorine, daily max (mg/L)	Chlorine, monthly average (lbs/day)	Chlorine, monthly average (mg/L)	Chlorine, weekly average (mg/L)
9/30/2005	1.51	25.90	1.84	31.60					
10/31/2005	2.42	32.18	3.27	43.60					
11/30/2005	1.58	24.00	1.99	30.20					
12/31/2005	0.79	18.30	1.99	46.00					
1/31/2006	3.39	20.85	4.31	26.50					
2/28/2006	0.48	6.80	0.72	10.20					
3/31/2006	3.49	25.30	3.49	25.30					
4/30/2006	2.33	30.53	3.27	42.90					
5/31/2006	3.51	30.10	5.16	44.20				0.72	0.64
6/30/2006	6.77	39.00	10.37	59.80				0.31	0.55
7/31/2006	6.36	69.50	6.36	69.50				0.55	0.51
8/31/2006	3.45	43.20	3.45	43.20				0.53	1.02
9/30/2006	2.81	28.70	2.81	28.70				0.39	0.56
10/31/2006	0.84	11.70	0.89	12.40				0.60	0.99
11/30/2006	2.17	26.40	2.17	26.40				74.25	57.60
12/31/2006								0.45	0.80
1/31/2007	2.19	13.30	2.19	13.30				0.78	0.85
2/28/2007	0.68	4.60	0.68	4.60				0.35	0.48
3/31/2007	0.13	14.80	0.13	14.80				0.32	0.36
4/30/2007	1.01	14.90	1.01	14.90				0.23	0.36
5/31/2007	2.53	44.00	2.53	44.00				0.32	0.21

6/30/2007	5.60	61.10	5.60	61.10				0.31	0.24
8/31/2007	3.50	38.00	3.50	38.00				0.35	0.41
9/30/2007	4.20	50.30	4.36	52.30				0.5	0.53
10/31/2007	1.80	26.60	1.80	26.60				0.5	0.74
11/30/2007	6.60	72.60	6.60	72.60				0.47	0.57
12/31/2007	0.84	10.00	0.84	10.00				0.42	0.39
1/31/2008	1.46	15.90	1.46	15.90				0.46	0.49
2/29/2008	1.44	11.00	1.44	11.00				0.42	0.55
3/31/2008	1.51	7.80	1.51	7.80				0.36	0.43
4/30/2008	2.30	12.00	2.30	12.00				0.41	0.43
5/31/2008	1.41	15.00	2.89	15.00				0.36	0.43
6/30/2008	2.19	23.30	3.62	23.30				0.31	0.34
7/31/2008	3.07	21.80	3.99	21.80				0.32	0.36
8/31/2008	4.62	25.80	5.80	25.80				0.29	0.32
9/30/2008	2.25	14.20	2.96	14.20				0.31	0.35
10/31/2008	1.40	9.40	1.80	9.40				0.35	0.42
11/30/2008	2.43	14.80	3.91	14.80				0.36	0.37
12/31/2008									
1/31/2009	1.24	6.40	1.49	6.40				0.41	0.46
2/28/2009									
3/31/2009	2.18	12.50	2.39	12.50				0.42	0.45
4/30/2009	2.16	14.60	2.25	14.60				0.09	0.26
5/31/2009									
6/30/2009	1.64	11.00	1.74	11.00				0.02	0.04
7/31/2009	3.87	28.50	5.20	28.50				0.01	0.014
8/31/2009	4.02	26.80	5.15	26.80				0.006	0.015
9/30/2009	2.44	16.80	3.03	16.80	0	0	0	0	
10/31/2009									
11/30/2009	1.58	10.00	1.65	10.00	0.002	0.01	0.003	0.004	
12/31/2009									
1/31/2010	2.22	13.30	2.66	13.30	0.005	0.02	0.001	0.003	
2/28/2010	2.94	24.00	3.26	24.00	0.003	0.02	0.001	0.006	
3/31/2010									

4/30/2010	3.42	21.05	3.75	21.70	0.005	0.02	0.001	0.003	
5/31/2010									
6/30/2010	1.59	8.30	1.80	8.30	0.003	0.01	0.0002	0.001	
7/31/2010	2.91	18.10	3.93	18.10	0.002	0.01	0.0002	0.001	
8/31/2010	3.69	24.20	4.32	24.20	0.002	0.01	0.0002	0.001	
9/30/2010	2.66	16.00	4.28	23.60	0.002	0.01	0.00016	0.001	
10/31/2010									
11/30/2010	0.37	2.00	0.40	2.00	0	0	0	0	
12/31/2010									
1/31/2011	1.67	6.30	2.00	6.30	0.002	0.01	0.0002	0.001	
2/28/2011									
3/31/2011	0.96	5.30	1.00	5.30	0	0	0	0	
4/30/2011	3.12	16.90	3.99	16.90	0.002	0.01	0.001	0.003	
5/31/2011	3.18	17.50	3.27	17.50	0	0	0	0	
6/30/2011	3.46	25.00	4.19	25.00	0.002	0.01	0.0004	0.003	
7/31/2011	1.79	14.00	3.04	14.00	0.002	0.01	0.0004	0.003	
8/31/2011	3.65	18.80	4.33	18.80	0.002	0.01	0.0004	0.002	
9/30/2011	2.11	13.70	2.55	13.70	0.002	0.01	0.0002	0.001	
10/31/2011									
11/30/2011	3.52	20.00	4.14	20.60	0.001	0.01	0.0002	0.001	
12/31/2011									
1/31/2012	2.76	20.30	4.55	20.30	0.004	0.02	0.0005	0.004	
2/29/2012									
3/31/2012	1.07	7.10	1.42	7.10	0.0018	0.01	0.003	0.002	
4/30/2012									
5/31/2012	3.21	18.60	3.70	18.60	0.002	0.01	0.0001	0.0006	
6/30/2012	3.27	17.50	3.68	17.50	0.02	0.01	0.0007	0.004	
7/31/2012	2.63	16.20	2.89	16.20	0.002	0.01	0.0003	0.0018	
8/31/2012	1.82	12.50	2.29	12.50	0.0024	0.02	0.00043	0.0029	
9/30/2012	2.29	13.90	2.60	13.90	0.0022	0.01	0.0003	0.0018	
10/31/2012	1.71	10.70	1.99	10.70	0.0009	0.01	0.0001	0.0006	
11/30/2012	1.56	7.60	1.56	7.60	0	0	0	0	
12/31/2012	2.71	14.90	2.98	14.90	0.0031	0.02	0.0009	0.005	
1/31/2013									

2/28/2013	2.81	16.70	3.26	16.70	0.0023	0.01	0.0005	0.002	
3/31/2013									
4/30/2013	2.43	18.50	3.69	18.50	0.002	0.01	0.0003	0.002	
5/31/2013									
6/30/2013	4.10	26.00	5.85	26.00	0.0021	0.01	0.00027	0.00125	
7/31/2013	4.45	31.40	5.13	31.40	0.002	0.01	0.0001	0.001	
8/31/2013	6.92	39.35	10.54	52.90	0.002	0.01	0.00035	0.002	
9/30/2013	1.99	11.80	2.56	11.80	0.0021	0.01	0.0003	0.002	
10/31/2013									
11/30/2013									
12/31/2013									
1/31/2014	1.28	8.60	1.65	8.60	0.0019	0.01	0.0003	0.0019	
2/28/2014									
3/31/2014	1.66	8.50	1.88	8.50	0.0043	0.02	0.0028	0.0035	
4/30/2014									
5/31/2014	1.06	6.80	1.28	6.80	0.0029	0.02	0.0033	0.002	
6/30/2014	0.61	3.70	0.73	3.70	0.0019	0.01	0.0002	0.0015	
7/31/2014	0.94	6.20	1.07	6.20	0.0017	0.01	0.0002	0.0015	
8/31/2014	2.24	13.00	2.42	13.00					
9/30/2014	1.01	5.80	1.17	5.80	0.0019	0.01	0.0001	0.00063	
10/31/2014									
11/30/2014	3.40	18.20	3.70	18.20	0.002	0.01	0.0006	0.003	
12/31/2014									
1/31/2015	0.81	4.50	0.90	4.50	0.0021	0.01	0.0003	0.0019	
2/28/2015									
3/31/2015	4.04	24.70	5.84	24.70	0.0018	0.01	0.00027	0.0017	
4/30/2015									
5/31/2015	1.99	12.20	2.42	12.20	0.0016	0.01	0.0001	0.0009	
6/30/2015	1.11	9.40	1.55	9.40	0	0	0	0	
7/31/2015	1.75	13.30	2.34	13.30	0.001	0.01	0.00013	0.01	
8/31/2015	1.54	10.40	1.82	10.40	0.0016	0.01	0.0001	0.0001	
9/30/2015									
10/31/2015	3.99	23.00	4.28	23.00	0.002	0.01	0.00002	0.0009	
11/30/2015									

12/31/2015	1.86	11.60	2.02	11.60	0.001	0.01	0.00014	0.0009	
1/31/2016									
2/29/2016	1.10	6.50	1.28	6.50	0.0014	0.01	0.0007	0.00043	
3/31/2016	1.07	8.80	1.23	8.80	0.001	0.01	0.0002	0.0018	
4/30/2016									
5/31/2016	1.68	10.80	1.83	10.80	0	0	0	0	
6/30/2016	4.35	27.30	4.58	27.30	0.00002	0.01	0.0001	0.00096	
7/31/2016	4.34	25.90	5.25	25.90	0.002	0.01	0.0001	0.0006	
8/31/2016	4.39	25.70	5.30	25.70	0	0	0	0	
9/30/2016									
10/31/2016	2.89	16.10	3.09	16.10	0	0	0	0	
11/30/2016	0.83	6.40	0.91	6.40	0.0018	0.01	0.00007	0.0005	
12/31/2016	4.90	33.60	6.00	33.60	0.0015	0.01	0.0007	0.0005	
1/31/2017									
2/28/2017	2.53	19.05	5.17	32.80	0.0014	0.01	0.0007	0.0006	
3/31/2017	0.38	2.60	0.43	2.60	0.0013	0.01	0.00006	0.0004	
4/30/2017	0.89	7.50	1.13	7.50	0.0014	0.01	0.0007	0.0006	
5/31/2017									
6/30/2017	0.83	6.40	0.91	6.40	0.0018	0.01	0.00007	0.0005	
7/31/2017									
average	2.47	18.91	3.00	20.27	0.002051	0.00984	0.000471	0.00166	2.00
min	0.13	2.00	0.13	2.00	0	0	0	0	0.014
max	6.92	72.60	10.54	72.60	0.02	0.02	0.0033	0.01	57.6
count	108.00	108.00	108.00	108.00	63	63	63	63	37
stdev	1.43	12.91	1.85	14.44	0.00255	0.00523	0.000728	0.0017	9.39723
cv									
95th %	4.80	41.85	5.85	50.09	0.00427	0.02	0.00262	0.5309	0.996
5th%	0.72	5.48	0.77	5.48	0	0	0	0	0.035

Table A-2. Harrison WWTP Effluent Data for Flow, Ammonia, pH, Total Phosphorus, and TSS (September 2005-July 2017)

	Flow, daily max (mgd)	Flow, monthly average (mgd)	Nitrogen, ammonia total [as N], daily max (mg/L)	pH, inst max (S.U.)	pH, inst min (S.U.)	Total Phosphorus, daily max (mg/L)	TSS, monthly average (lbs/day)	TSS, monthly average (mg/L)	TSS, wkly average (lbs/day)	TSS, wkly average (mg/L)
9/30/2005	0.027	0.007		6.88	6.47		1.48	25.40	1.78	30.50
10/31/2005	0.018	0.009		7.08	6.76		2.50	33.30	1.40	18.70
11/30/2005	0.003	0.008		7.01	6.74		0.55	8.37	0.61	9.20
12/31/2005	0.031	0.005		7.66	6.8		0.25	5.80	0.26	6.00
1/31/2006	0.032	0.020		7.73	7.11		0.81	5.00	0.81	5.00
2/28/2006	0.008	0.009	15	7.06	6.99	6.89	0.35	5.00	0.35	5.00
3/31/2006	0.016	0.017	14.8	7.05	6.87	6.38	3.86	7.00	3.86	7.00
4/30/2006	0.032	0.009	15.1	6.91	6.65	6.44	2.01	26.33	2.59	34.00
5/31/2006	0.033	0.014	10.8	6.92	4.68	6.22	2.33	20.00	2.68	23.00
6/30/2006	0.030	0.021	11.2	8.31	7.37	7.71	3.06	17.67	3.64	21.00
7/31/2006	0.024	0.011	0.14	7.88	7.22	6.32	1.99	22.00	1.99	22.00
8/31/2006	0.032	0.010	8.8	7.64	6.95	8.75	0.72	9.00	0.72	9.00
9/30/2006	0.035	0.012	0.18	7.42	6.68	6.66	3.92	40.00	3.92	40.00
10/31/2006	0.031	0.009		7.87	6.81		0.86	12.00	0.93	13.00
11/30/2006	0.031	0.010	4.97	7.48	6.56	6.48	0.41	5.00	0.41	5.00
12/31/2006	0.026	0.014		7.38	6.78					
1/31/2007	0.028	0.020		7	6.82		0.82	5.00	0.82	5.00
2/28/2007	0.025	0.018		6.83	7.11		0.74	5.00	0.74	5.00
3/31/2007	0.027	0.009		7.04	6.93		0.60	8.00	0.60	8.00
4/30/2007	0.030	0.008		6.67	6.58		1.53	23.00	1.53	23.00
5/31/2007	0.030	0.007		7	6.51		4.88	85.00	4.88	85.00
6/30/2007	0.029	0.011		7.53	6.57		6.56	71.60	6.56	71.60
7/31/2007	0.030	0.013		7.79	7.06		15.50	143.00	15.50	143.00
8/31/2007	0.030	0.011		7.65	6.56		13.00	143.00	13.00	143.00
9/30/2007	0.034	0.010		7.13	6.86		5.05	60.60	6.94	83.20
10/31/2007	0.020	0.008		7.47	7.19		0.68	10.20	0.68	10.20

11/30/2007	0.013	0.011		7.71	7.38		4.05	45.00	4.05	45.00
12/31/2007	0.016	0.010		7.8	6.8		1.08	13.00	1.08	13.00
1/31/2008	0.011	0.007		7.8	7.1		0.46	5.00	0.46	5.00
2/29/2008	0.035	0.016		7.6	6.9		0.97	7.40	0.97	7.40
3/31/2008	0.035	0.011		7.7	7		1.28	6.60	1.28	6.60
4/30/2008	0.340	0.023		7.4	6.9		1.22	6.40	1.22	6.40
5/31/2008	0.023	0.011		7.6	6.9		3.23	34.40	6.64	34.40
6/30/2008	0.033	0.011		7.32	6.97		4.30	45.80	7.11	45.80
7/31/2008	0.031	0.016		7.26	6.96		5.91	42.00	7.70	42.00
8/31/2008	0.031	0.022		7.49	6.91		5.37	32.00	7.21	32.00
9/30/2008	0.032	0.019		7.21	6.84		3.23	20.40	4.25	20.40
10/31/2008	0.031	0.019		7.32	6.9		1.42	9.00	1.72	9.00
11/30/2008	0.031	0.020		7.39	6.96		1.01	6.20	1.63	6.20
12/31/2008										
1/31/2009	0.032	0.024		7.53	7.18		1.20	6.20	1.43	6.20
2/28/2009										
3/31/2009	0.033	0.021		7.69	7.07		1.43	8.20	1.57	8.20
4/30/2009	0.032	0.018		7.62	7.16		3.13	21.20	3.27	21.20
5/31/2009										
6/30/2009	0.024	0.018		7.4	6.9		2.96	19.80	3.14	19.80
7/31/2009	0.028	0.016		7.5	6.9		6.57	48.40	8.86	48.40
8/31/2009	0.027	0.018		7.2	6.8		1.20	8.00	1.53	8.00
9/30/2009	0.024	0.017		7.3	6.9		0.72	5.00	0.90	5.00
10/31/2009										
11/30/2009	0.027	0.019		7.3	6.9		1.27	8.00	1.32	8.80
12/31/2009										
1/31/2010	0.027	0.020		7.3	7		0.83	5.00	1.00	5.00
2/28/2010	0.027	0.015		7.5	7.1		0.61	5.00	0.68	5.00
3/31/2010										
4/30/2010	0.027	0.020		8.4	7.3		4.72	29.00	6.39	37.00
5/31/2010										
6/30/2010	0.031	0.023		7.4	6.8		0.96	5.00	1.08	5.00
7/31/2010	0.028	0.019		7.4	6.8		1.61	10.00	2.17	10.00
8/31/2010	0.029	0.018		7.4	6.8		0.76	5.00	0.89	5.00

9/30/2010	0.032	0.020		7.3	6.8		1.58	9.50	1.81	10.00
10/31/2010										
11/30/2010	0.029	0.022		7.38	6.85		0.93	5.00	1.00	5.00
12/31/2010										
1/31/2011	0.029	0.020		7.4	6.91		1.67	10.00	2.00	10.00
2/28/2011										
3/31/2011	0.029	0.022		7.5	6.99		0.90	5.00	0.94	5.00
4/30/2011	0.029	0.022		7.96	7.23		1.30	7.00	1.65	7.00
5/31/2011	0.026	0.022		7.69	6.91		3.09	17.00	3.18	17.00
6/30/2011	0.025	0.017		8.26	6.91		1.11	8.00	1.34	8.00
7/31/2011	0.026	0.015		7.55	6.84		0.64	5.00	1.08	5.00
8/31/2011	0.029	0.023		7.26	6.74		0.10	5.00	1.15	5.00
9/30/2011	0.027	0.019		7.24	6.89		1.54	10.00	1.86	10.00
10/31/2011										
11/30/2011	0.024	0.021		7.03	6.84		2.20	12.50	4.02	20.00
12/31/2011										
1/31/2012	0.028	0.016		7.18	6.9		1.09	8.00	1.80	8.00
2/29/2012										
3/31/2012	0.027	0.018		7.84	6.9		0.75	5.00	1.00	5.00
4/30/2012										
5/31/2012	0.030	0.021		8.01	6.98		3.45	20.00	3.99	20.00
6/30/2012	0.026	0.022		7.61	6.73		1.31	7.00	1.47	7.00
7/31/2012	0.025	0.020		7.78	6.88		0.81	5.00	0.89	5.00
8/31/2012	0.027	0.018		7.64	7		0.73	5.00	0.92	5.00
9/30/2012	0.027	0.020		7.43	7.06		0.99	6.00	1.12	6.00
10/31/2012	0.029	0.019		7.37	6.91		1.92	12.00	2.23	12.00
11/30/2012	0.025	0.025		7.17	7.04		1.00	5.00	1.00	5.00
12/31/2012	0.027	0.022		7.34	6.89		2.73	15.00	3.00	15.00
1/31/2013										
2/28/2013	0.028	0.020		7.38	6.98		0.84	5.00	0.98	5.00
3/31/2013										
4/30/2013	0.026	0.016		8.1	6.8		4.98	38.00	7.54	38.00
5/31/2013										
6/30/2013	0.025	0.019		8.4	6.93		1.42	9.00	1.63	9.00

7/31/2013	0.028	0.017		7.34	6.93		2.69	19.00	3.10	19.00
8/31/2013	0.027	0.021		7.47	6.83		3.69	21.00	5.58	28.00
9/30/2013	0.027	0.020		7.24	6.86		1.51	9.00	1.95	9.00
10/31/2013										
11/30/2013										
12/31/2013										
1/31/2014	0.024	0.017		7.22	6.94		0.75	5.00	0.96	5.00
2/28/2014										
3/31/2014	0.029	0.023		7.81	6.95		0.98	5.00	1.11	5.00
4/30/2014										
5/31/2014	0.027	0.020		8.51	6.73		0.81	5.00	0.94	5.00
6/30/2014	0.026	0.020		8.03	6.87		0.99	6.00	1.18	6.00
7/31/2014	0.028	0.018		8.22	7.29		0.75	5.00	0.86	5.00
8/31/2014	0.026	0.021		7.78	6.85		2.59	15.00	2.80	15.00
9/30/2014	0.027	0.021		7.32	6.85		0.87	5.00	1.01	5.00
10/31/2014										
11/30/2014	0.027	0.022		7.38	6.89			5.00		5.00
12/31/2014										
1/31/2015	0.029	0.022		7.41	6.84		0.90	5.00	1.00	5.00
2/28/2015										
3/31/2015	0.030	0.020		7.87	7.03		2.13	13.00	2.81	13.00
4/30/2015										
5/31/2015	0.027	0.020		8.81	7.01		0.98	6.00	1.19	6.00
6/30/2015	0.023	0.014		7.71	6.98		0.71	6.00	0.99	6.00
7/31/2015	0.028	0.021		8.27	6.92		0.66	5.00	0.88	5.00
8/31/2015	0.026	0.018		7.55	6.99		0.74	5.00	0.88	5.00
9/30/2015										
10/31/2015	0.025	0.021		7.44	7.04		1.91	11.00	2.05	11.00
11/30/2015										
12/31/2015	0.026	0.019		7.39	7.03		0.80	5.00	0.87	5.00
1/31/2016										
2/29/2016	0.026	0.020		7.62	7.07		0.84	5.00	0.98	5.00
3/31/2016	0.021	0.015		7.92	7.32		0.61	5.00	0.70	5.00
4/30/2016										

5/31/2016	0.020	0.019		8.54	7.06		1.40	9.00	1.71	9.00
6/30/2016	0.026	0.019		8.38	7.18		0.80	5.00	0.84	5.00
7/31/2016	0.027	0.020		8.39	7.39		3.52	21.00	4.26	21.00
8/31/2016	0.026	0.021		8.14	7.01		6.50	38.00	7.83	38.00
9/30/2016										
10/31/2016	0.026	0.022		7.48	6.75		3.59	0.20	3.84	0.20
11/30/2016	0.023	0.017		8.62	7.27		0.65	5.00	0.71	5.00
12/31/2016	0.025	0.018		7.28	6.84		3.06	21.00	3.75	21.00
1/31/2017										
2/28/2017	0.023	0.016		7.58	7.3		0.73	5.50	0.95	6.00
3/31/2017	0.023	0.018		7.6	7.36		0.74	5.00	0.83	5.00
4/30/2017	0.019	0.014		8.38	7.58		0.60	5.00	0.75	5.00
5/31/2017										
6/30/2017	0.023	0.016		8.62	7.27		0.65	5.00	0.71	5.00
7/31/2017										
average	0.030	0.017	9.00	7.58	6.93	6.87	2.07	16.42	2.45	16.91
min	0.003	0.005	0.14	6.67	4.68	6.22	0.10	0.20	0.26	0.20
max	0.340	0.025	15.1	8.81	7.58	8.75	15.50	143.00	15.50	143.00
count	109.000	109.000	9	109	109	9	107.00	108.00	107.00	108.00
stdev	0.030	0.005	5.994819523	0.435432	0.294176	0.8356551	2.28	22.79	2.57	23.38
cv										
95th %	0.033	0.023	15.06	8.4	7.312	8.334	5.75	47.49	7.44	47.49
5th%	0.017	0.008	0.156	7	6.574	6.26	0.56	5.00	0.63	5.00

B. Receiving Water Data

Date	pH, s.u.	Temp, oC	Ammonia as N, mg/L	Total Phosphorus, mg/L	Notes
6/30/2007			0.044		No information on incomplete testing in 2007
11/30/2007			0.968		

1/31/2008					No testing - snow and ice cover
2/31/2008					No testing - snow and ice cover
3/31/2008	6.81	5.2	0.0187		
4/30/2008					Did not test
5/31/2008	6.72	14.9	0.3	0.05	
6/30/2008	6.83	15.3	0.03	0.06	
7/31/2008	6.91	18.2	0.09	0.11	
8/31/2008	6.96	18.2	0.03	0.15	
9/30/2008	6.84	18.8	0.051	0.84	
10/31/2008	6.58	17.6	0.043	0.58	
11/30/2008	6.74	4	0.195	0.09	
12/31/2008					No testing - did not discharge
1/31/2009					No testing - snow and ice cover
2/31/2009					No testing - did not discharge
3/31/2009	6.56	7.8	0.03	0.08	
4/30/2009	6.77	11.2	0.03	0.08	
5/31/2009					No testing - did not discharge
6/30/2009	6.88	22.2	0.054	0.12	
7/31/2009	6.8	23.8	0.087	0.51	
8/31/2009	6.7	19.9	0.119	0.15	
9/30/2009	6.4	16.5	0.074	0.1	
10/31/2009					No testing - did not discharge
11/30/2009	6.6	4	0.195	0.09	
12/31/2009					No testing - did not discharge
average	6.74	14.50667	0.138747059	0.215	
min	6.4	4	0.0187	0.05	
max	6.96	23.8	0.968	0.84	
count	15	15	17	14	
stdev	0.15109	6.535558	0.226986922	0.243618554	
cv					
95th %	6.925	22.68	0.4336	0.671	
5th%	6.512	4	0.02774	0.0565	

Appendix C. Reasonable Potential, 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:

$$C_dQ_d = C_eQ_e + C_uQ_u \qquad \text{Equation 1}$$

where,

- C_d = Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
- C_e = Maximum projected effluent concentration
- C_u = 95th percentile measured receiving water upstream concentration
- Q_d = Receiving water flow rate downstream of the effluent discharge = Q_e+Q_u
- Q_e = Effluent flow rate (set equal to the design flow of the WWTP)
- Q_u = Receiving water low flow rate upstream of the discharge (1Q10, 7Q10 or 30B3)

When the mass balance equation is solved for C_d, it becomes:

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

The above form of the equation is based on the assumption that the discharge is rapidly and completely mixed with 100% of the receiving stream.

If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

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

Where:

% MZ = the percentage of the receiving water flow available for mixing.

If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

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

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

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

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

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

If the criterion is expressed as dissolved metal, the effluent concentrations are measured in total recoverable metal and must be converted to dissolved metal as follows:

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

Where C_e is expressed as total recoverable metal, C_u and C_d are expressed as dissolved metal, and CF is a conversion factor used to convert between dissolved and total recoverable metal.

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate wasteload allocations.

Maximum Projected Effluent Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, the EPA's Technical Support Document for Water Quality-based Toxics Controls (TSD, 1991) recommends using the maximum projected effluent concentration (Ce) in the mass balance calculation (see equation 3, page C-5). To determine the maximum projected effluent concentration (Ce) the EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV for each pollutant parameter has been calculated, the reasonable potential multiplier (RPM) used to derive the maximum projected effluent concentration (Ce) can be calculated using the following equations:

First, the percentile represented by the highest reported concentration is calculated.

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

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

and

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

Where,

σ^2 = $\ln(CV^2 + 1)$

Z_{99} = 2.326 (z-score for the 99th percentile)
Z_{Pn} = z-score for the P_n percentile (inverse of the normal cumulative distribution function at a given percentile)
CV = coefficient of variation (standard deviation ÷ mean)

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

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

where MRC = Maximum Reported Concentration

Maximum Projected Effluent Concentration at the Edge of the Mixing Zone

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

Reasonable Potential

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

B. WQBEL Calculations

Calculate the Wasteload Allocations (WLAs)

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

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

Idaho's water quality criteria for some metals are expressed as the dissolved fraction, but the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, the EPA must calculate a wasteload allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator, as shown in equation __. As discussed in Appendix ___, the criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge.

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

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

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

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

where,

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

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

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

where,

σ_{30}^2 = $\ln(CV^2/30 + 1)$

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

Derive the maximum daily and average monthly effluent limits

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

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

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

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

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, Water Quality-Based Effluent Limit Calculations

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

Facility Name	Harrison WWTP
Facility Flow (mgd)	0.03
Facility Flow (cfs)	0.05

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

Receiving Water Data			Notes:	Annual Crit. Flows
Hardness, as mg/L $CaCO_3$	= 100 mg/L		5^{th} % at critical flows	
Temperature, °C		Temperature, °C	95^{th} percentile	22.68
pH, S.U.		pH, S.U.	95^{th} percentile	6.925

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages present	CHLORINE (Total Residual)
Effluent Data	Number of Samples in Data Set (n)		9	63
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.6	0.53
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		15,100	10
	Calculated 50^{th} % Effluent Conc. (when n>10), Human Health Only			
Receiving Water Data	90^{th} Percentile Conc., µg/L - (C_u)		434	
	Geometric Mean, µg/L, Human Health Criteria Only			
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	25652	19.
	Aquatic Life Criteria, µg/L	Chronic	3586	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%
		30B3 or 30Q10		0%
	Human Health - Non-Carcinogen and Chronic Ammonia	30Q5	0%	0%
	Human Health - Carcinogen	Harmonic Mean		0%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.0	1.0
	Aquatic Life - Chronic	7Q10 or 4B3		1.0
		30B3 or 30Q10		1.0
	Human Health - Non-Carcinogen and Chronic Ammonia	30Q5	1.0	1.0
	Human Health - Carcinogen	Harmonic Mean		1.0

Aquatic Life Reasonable Potential Analysis

σ	σ^2=ln(CV^2+1)		0.555	0.499
P_n	=(1-confidence level)$^{1/n}$, where confidence level =	99%	0.599	0.930
Multiplier (TSD p. 57)	=exp(zσ-0.5σ^2)/exp[normsinv(P_n)σ-0.5σ^2], where	99%	3.2	1.5
Statistically projected critical discharge concentration (C_e)			47700	15.3
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	47700	15.3
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	47700	15.3
Reasonable Potential to exceed Aquatic Life Criteria			**YES**	**YES**

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			4	4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			30	4
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		0.600	0.532
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		0.600	0.532
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	25,652	19.0
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	3,586	11.0
Long Term Ave (LTA), ug/L	WLAc x exp(0.5σ^2-zσ), Acute	99%	8,235	6.7
(99^{th} % occurrence prob.)	WLAa x exp(0.5σ^2-zσ); ammonia n=30, Chronic	99%	2,798	6.2
Limiting LTA, ug/L	used as basis for limits calculation		2,798	6.2
Applicable Metals Criteria Translator (metals limits as total recoverable)				--
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	**3,329**	**9**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	**8,716**	**17**
Average Monthly Limit (AML), mg/L			**3.3**	**0.009**
Maximum Daily Limit (MDL), mg/L			**8.7**	**0.017**
Average Monthly Limit (AML), lb/day			**0.83**	**0.002**
Maximum Daily Limit (MDL), lb/day			**2.2**	**0.004**

Appendix E. CWA 401 State Certification

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

2110 Ironwood Parkway • Coeur d'Alene, Idaho 83814 • (208) 769-1422
www.deq.idaho.gov

C.L. "Butch" Otter, Governor
John H. Tippets, Director

May 4, 2018

Susan Poulsom
US Environmental Protection Agency, Region 10
1200 6th Avenue, OWW-191
Seattle, WA 98101-3140

RE: Draft §401 Water Quality Certification for the Draft NPDES Permit No. ID-0021997 for the City of Harrison Wastewater Treatment Plant

Dear Ms. Poulsom,

The State of Idaho Department of Environmental Quality (DEQ) received a preliminary draft NPDES permit for Harrison dated February 15, 2018. After review of the draft permit and fact sheet, DEQ submits the enclosed draft §401 water quality certification which includes a narrative description of our antidegradation review for this permit and conditions necessary to meet these rules. After the public comment period ends, DEQ will address any comments, review the proposed final permit and issue a final certification decision.

Please direct any questions to June Bergquist at 208.666.4605 or june.bergquist@deq.idaho.gov .

Sincerely,

FOR:

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

Enclosure

C: Loren Moore, DEQ State Office
Jennifer Wu, EPA Region 10, Seattle
Mayor Kayleen Walker, City of Harrison P.O. Box 73 Harrison, ID 83833

Idaho Department of Environmental Quality

Draft §401 Water Quality Certification

May 4, 2018

NPDES Permit Number(s): Harrison Wastewater Treatment Plant ID0021997

Receiving Water Body: Anderson Slough

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 our 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

Harrison WWTP discharges the following pollutants of concern: ammonia, phosphorus, chlorine, BOD_5, TSS, pH, and *E. coli* bacteria. Effluent limits have been developed for BOD_5, TSS, *E. coli*, chlorine, ammonia, and pH. No effluent limits are proposed for phosphorus.

Receiving Water Body Level of Protection

The Harrison WWTP discharges to Anderson Slough, an unassessed waterbody with no assessment unit. Anderson Slough is undesignated. DEQ presumes undesignated waters in the state will support cold water aquatic life and primary and secondary contact recreation beneficial uses; therefore, undesignated waters are protected for these uses (IDAPA 58.01.02.101.01.a). 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).

This waterbody is not included in Category 3 (Unassessed Waters) of the 2014 Integrated Report. However for unassessed waters, DEQ must provide an appropriate level of protection on a case-by-case basis using information available at this time (IDAPA 58.01.02.052.05.b).

The contact recreation and cold water aquatic life beneficial uses are unassessed, however *E. coli* data collected by DEQ for this certification indicate that recreational uses are fully supporting. Because the collection of data necessary to determine the support status of cold water aquatic life would need to occur in summer months, the applicant has agreed to consider Anderson Slough high quality waters for cold water aquatic life for the purposes of this, and only this, antidegradation review. Therefore, DEQ will provide Tier I in addition to Tier II protection for these uses (IDAPA 58.01.02.051.01 and 58.01.02.051.02).

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 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 existing and designated beneficial uses. The effluent limitations and associated requirements contained in the Harrison WWTP permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

Although, Anderson Slough has no outlet or visible culverts in banks that surround the slough, water levels in the slough rises and falls with water level changes in the river and lake. There are two culverts under the Trail of the Coeur d'Alenes near the City of Harrison that connect it to the lake during periods of high flows. Due to the lack of hydrologic information and flow, no mixing was allowed for the effluent. WQS must be met at end of pipe. The design flow for Harrison remains at 0.03 mgd.

In summary, the effluent limitations and associated requirements contained in the Harrison WWTP 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 Anderson Slough in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

High-Quality Waters (Tier II Protection)

Anderson Slough is considered high quality for cold water aquatic life and recreation uses. As such, the water quality relevant to cold water aquatic life and recreation uses of the Anderson Slough 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 and recreation uses of the Anderson Slough (IDAPA 58.01.02.052.05). These include the following: *E. coli* bacteria, phosphorus, chlorine, and ammonia. Effluent limits are set in the proposed and existing permit for *E. coli*, chlorine and ammonia.

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). For a new permit or license, the effect on water quality is determined by reviewing the difference between the existing receiving water quality and the water quality that would result from the activity or discharge as proposed in the new permit or license (IDAPA 58.01.02.052.06.a).

Pollutants with Limits in the Current and Proposed Permit: *E. coli*, Chlorine

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 Harrison WWTP permit, this means determining the permit's effect on water quality based upon the limits for *E. coli* and chlorine in the current and proposed permits. Table 1 provides a summary of the current permit limits and the proposed or reissued permit limits and shows that there will be no change in load or concentration for either of these pollutants (other than slight changes up and down for ammonia due to mathematical corrections).

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	Max Daily Limit	Average Monthly Limit	Average Weekly Limit	Max Daily Limit	
Pollutants with limits in both the current and proposed permit								
Five-Day BOD	mg/L	30	45	—	30	45	—	D
	lb/day	8	12	—	8	11	—	
	% removal	none	—	—	85%	—	—	
TSS	mg/L	45	65	—	45	65	—	D
	lb/day	12	18	—	11	16	—	
	% removal	none	—	—	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	0.007	—	0.018	0.009	—	0.017	NC
	lb/day	0.002	—	0.005	0.002	—	0.0045	
Pollutants with new limits in the proposed permit								
Total Ammonia	mg/L	—	—	—	3	—	9	D
	lb/day	—	—	—	0.8	—	2	
Pollutants with no limits in both the current and proposed permit								
Total Phosphorus	mg/L	—	—	Report	—	—	Report	NC

[a] NC = no change, I = increase, D = decrease.

The proposed permit limits for other pollutants of concern that have limits in Table 1, 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.

New Permit Limits for Pollutants Currently Discharged

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

The proposed permit for Harrison WWTP includes new limits for ammonia (Table 1). The ammonia limits in the proposed permit reflect an improvement in water quality from current conditions. Therefore, no adverse change in water quality and no degradation will occur with respect to this pollutant.

Pollutants with No Limits: phosphorus

There is one pollutant of concern, phosphorus, relevant to Tier II protection of recreation that currently is not limited and for which the proposed permit also contains no limit (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 phosphorus, there is no reason to believe this pollutant 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 permitted design flow, influent quality, or treatment processes that would likely result in an increased discharge of this pollutant. Because the proposed permit does not allow for any increased water quality impact from this pollutant, DEQ has concluded that the proposed permit should not cause a lowering of water quality for the pollutant with no limit. As such, the proposed permit should maintain the existing water quality in Anderson Slough. Phosphorus monitoring of effluent is proposed for the new permit.

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

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. Harrison WWTP cannot immediately achieve compliance with the effluent limits for ammonia; therefore, DEQ authorizes a compliance schedule and interim requirements, including interim limits in Table 1, as set forth below. This compliance schedule provides the permittee a reasonable amount of time to achieve the final effluent limits as specified in the permit. At the same time, the schedule ensures that compliance with the final effluent limits is accomplished as soon as possible.

Harrison WWTP relies on a lagoon treatment system which is approaching full design capacity. There is also substantial demand for additional treatment capacity. Reduction of ammonia in a lagoon system is dependent in part on hold time and dissolved oxygen levels in the water. As flows increase, the facility may be less able to hold water for the length of time needed to achieve satisfactory ammonia reduction. Higher summertime temperatures lower the amount of dissolved oxygen in the water (a physical property of water) which reduces the ability of a lagoon system to convert ammonia to less harmful substances (nitrification process). Lagoon aeration can be used to increase oxygen but this method may not be sufficient in a heavily loaded system to achieve ammonia limits. Due to these limitations of the current facility, DEQ has allowed the permittee enough time to construct a new type of treatment system. Ultimately, it will be up to the City of Harrison through their facility planning effort to determine how to meet their new limits if efforts in the Compliance Schedule Part A fail to do so.

The ammonia effluent limit was based on data collected in 2006. At this time, the facility was experiencing compliance issues. Upgrades to the facility were implemented in 2008 which greatly improved compliance. This upgrade and operational changes may have improved ammonia treatment so that new effluent limits might be met without any changes or can be achieved through optimization of the current process. To ensure that compliance with final limits is achieved as soon as possible, DEQ authorizes a two part compliance schedule. Part A focuses on a short monitoring and optimization schedule to meet final limits. If these efforts fail, Part B begins a longer more comprehensive facility planning, design, and construction effort to meet ammonia limits.

Interim Requirements for Compliance Schedule Part A

1. Immediately following the effective date of the final permit, the permittee must begin monitoring ammonia concentrations as directed by the final permit and if final ammonia limits are not being met, initiate optimization of treatment to meet final effluent limits.
2. By one (1) year from the date of the final permit, the permittee must provide EPA and DEQ with a written progress report including results of ammonia monitoring and progress made towards meeting final ammonia limits. The report shall also summarize results and indicate that (1) further monitoring and optimization are worthwhile in efforts to meet final effluent limits or (2) further monitoring and optimization are unlikely to result in meeting final limits. If the conclusion is (2) then begin Part B of this compliance schedule.
3. By two (2) years from the date of the final permit, the permittee must provide EPA and DEQ final results of monitoring and optimization and must reliably meet final ammonia limits. If ammonia limits still cannot be met, begin Part B of this compliance schedule.

Interim Requirements for Compliance Schedule Part B

1. By three (3) years after the effective date of the final permit a facility plan shall be submitted to DEQ for review and approval. The facility plan shall include outlining estimated costs and schedules for construction of a new or upgraded wastewater treatment plant and implementation of technologies to achieve final effluent limitations. This schedule must include a timeline for pilot testing. If the new or upgraded plant includes an increase in design capacity, be aware that new additions of phosphorus in Coeur d'Alene Lake may be limited in future permits (*Coeur d'Alene Lake Management Plan*, 2009).

2. By four (4) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a progress report on funding for the new or upgraded facility. Copy of notice of bond approval or notice of judicial confirmation is acceptable.

3. By five (5) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that design has been completed and approved by DEQ.

4. By six (6) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a notice that bids for construction have been awarded to achieve final effluent limitations.

5. By seven (7) and eight (8) years after the effective date of the final permit, the permittee must provide EPA and DEQ with brief progress reports of construction as they relate to meeting the compliance schedule timeline and final effluent limits.

6. By nine (9) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that construction on the portions of the facility required to achieve final effluent limits has reached substantial completion.

7. By ten (10) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a written report providing details of a completed start up and optimization phase of the new or upgraded treatment system and must achieve compliance with the final effluent limitations of Part I.B.

Table 1. Interim Limits			
Parameter	Units	Average Monthly Limit	Maximum Daily Limit
Ammonia	mg/L	15	30

The permittee must comply with all other effluent limitations beginning on the effective date of the final 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 June Bergquist, Coeur d'Alene Regional Office at 208-666-4605 or via email at june.bergquist@deq.idaho.gov .

DRAFT

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

Appendix F. Endangered Species Act

A. Overview

As discussed in Section VIII of this fact sheet, Section 7 of the Endangered Species Act requires federal agencies to consult with the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) if there are potential affects a federal action may have on threatened and endangered species. EPA has determined that the discharge will have no effect.

B. Species Lists

USFWS Species and Critical Habitat

On January 23, 2018, the EPA obtained an official species list from the U.S. Fish and Wildlife Service, using its ECOS-IPaC website. According to the official species list, bull trout is a threatened species under USFWS jurisdiction occurring in the vicinity of the Harrison WWTP.

NOAA NMFS Species and Critical Habitat

On January 22, 2018, the EPA evaluated the threatened and endangered species under the jurisdiction of NOAA, using its NOAA Habitat Conservation website. There were no threatened or endangered species in the vicinity of the Harrison WWTP.

The following sections present general and chemical specific impacts to the listed aquatic species.

General Discussion

There is no information that bull trout reside in Anderson Slough. According to the USFWS Species Profile for bull trout (*Salvenius confluentis)* on the ECOS website, bull trout "*need cold water to survive, so they are seldom found in waters where temperatures exceed 59-64^{o}F. They also require stable stream channels, clean spawning and rearing gravel, complex and diverse cover, and unblocked migratory corridors.*"

Part IV.A of the Fact Sheet describes Anderson Slough, the discharge point for the Harrison WWTP. Anderson Slough is approximately 200 acres in size and blocked off by a road and Highway 97. Harrison WWTP collected pH, temperature, ammonia and phosphorus data in Anderson Slough from 2007-2009, summarized in Table 4 of Part IV.C. Temperatures ranged from 4^{o}C (39^{o}F) in the winter months to 24^{o}C (75^{o}F) in summer months. The average temperature was 15^{o}C (59^{o}F).

Temperatures in Anderson Slough are within the general range of the temperature needs for bull trout. However, the slough is small and lacks the physical qualities that bull trout seek. The discharge of Harrison WWTP of 0.03 mgd is small, and the permit requires Idaho water quality standards to be met. Therefore, EPA expects there to be no effect from the Harrison WWTP discharge on bull trout.

Chemical-specific Effects

The following subsections describe the characteristics of the permitted discharge from the Harrison WWT and their potential effects on listed species. In the vicinity of the discharge, Anderson Lake, Coeur d'Alene River and Coeur d'Alene Lake are listed for toxic pollutants.

However, the EPA is not aware of any influent sources of other toxic pollutants (e.g., metals and organic pollutants) to the treatment plant. Since reissuance of the permit will not change the current discharge, it is generally unlikely to cause degradation in water quality and associated impacts on listed species.

Total Suspended Solids (TSS)

The Idaho Administrative Procedures Act (IDAPA) Section 58.01.02.200.08 provides a narrative water quality standard for sediment. Sediment shall not exceed quantities specified in Section 250, or in the absence of specific sediment criteria, quantities that impair designated beneficial uses. Other sources provide appropriate numeric limits and targets for suspended sediment. Suggested limits for suspended sediment have been developed by the European Inland Fisheries Advisory Commission and the National Academy of Sciences, and have been adopted by the State of Idaho in TMDLs. A limit of 25 mg/L of suspended sediment provides a high level of protection of aquatic organisms; 80 mg/L moderate protection; 400 mg/L low protection; and over 400 mg/L very low protection (USDA FS 1990, Thurston et al. 1979).

Suspended solids from Harrison's wastewater discharges are highly unlikely to pose any risk or harm to aquatic life, including bull trout. With the effluent limits of 30 mg/L (monthly average) and 45 mg/L (maximum weekly average) and the slough itself likely having no bull trout present, this concentration of TSS will be harmless to aquatic life.

Chlorine

Chlorine has been shown to cause avoidance responses in fish (Heath 1995). In freshwater, residual chlorine is composed of both "free" chlorine (made up of hypochlorous acid and hypochlorite ions) and combined chlorine (primarily made up of monochloramine). Free chlorine is more toxic than the combined form, and fish avoid it at lower concentrations (Cherry et al., 1979). Both marine and freshwater fish species have been shown to avoid chlorine at concentrations well below the lethal level (but it is important to understand that temperature, body size, and time of exposure can influence the organism's response). Wastewater treatment plants effluents may contain chlorine and also have waste heat. This combination of a contaminant that is avoided by fish (at sub-lethal levels) and elevated water temperature, would elicit an avoidance response in the salmonid species of concern considered in this Biological Evaluation.

To minimize the potential effects on desirable species of aquatic life from chlorine discharge into receiving waters, EPA (1986) established criteria for chlorine at 11 ug/L as a 4-day average and 19 ug/L as a 1-hour average. Idaho applies its water quality standard, equivalent to that established by EPA (1986), for residual chlorine to all waters throughout the state for the protection of aquatic life. The permit includes total residual chlorine limits based on application of the above water quality standards. This will ensure protection of downstream water quality. In addition:

1. Chlorine dissipates very quickly (within minutes) and does not bioaccumulate or cause chronic toxicity problems.
2. Potential acute effects of chlorine are extremely low because of the dilution that occurs when effluents are discharged to relatively large receiving waterbodies. With the very quick dissipation of chlorine and the dilution in the receiving waterbody, only a very

small area near the discharge point would have even marginally toxic concentrations of chlorine at any given time.

3. Fish such as salmonids are adept at sensing and avoiding very low (subacute) concentrations of chlorine. Thus, even if there was a small area of relatively higher chlorine concentration near the discharge point on the culvert into Anderson Lake, fish would easily avoid the area.

Ammonia

Ammonia concentrations in the City's discharge are very unlikely to cause any harm, directly or indirectly, to threatened or endangered aquatic species for the following reasons:

1. Ammonia toxicity is related to the unionized fraction, which is greater as pH and temperature increase. Ammonia limits are based on critical conditions for both pH and temperature, in addition to stream flow. Thus, in general, the unionized fraction of ammonia would be relatively low (i.e., most of the ammonia is in an ionized or non-toxic state), relative to the critical conditions used to derive the limits. Therefore, ammonia is not likely to cause toxicity; ammonia speciation and toxicity will be driven by the stream pH rather than the effluent pH because stream flow is so much greater.
2. Fish, such as the listed species, are adept at sensing and avoiding very low concentrations of ammonia. Thus, even if there was a small area of higher ammonia concentration, fish could easily avoid it. In addition, fish have been reported to have the ability to enter waters that contain acutely toxic concentrations of ammonia without suffering any obvious long-term effects, as long as the trips are followed by periods in which the fish are in waters that contain ammonia concentrations below acute toxicity levels (Thurston et al. 1981). The low ammonia concentrations in the effluent vicinity and the extremely small affected area, if any, would not impact these fish populations because critical habitat would not be affected in any measurable way.

Bacteria

Effluent limitations for E. coli will ensure that bacterial levels will be extremely low in the discharge and receiving water. Furthermore, bacteria from domestic waste that might be present in the effluent is unlikely to cause harm to aquatic life because these are not aquatic pathogens.

pH

In 1969, the European Inland fisheries Advisory Commission (EIFAC) concluded that pH values ranging from 5.0 to 6.0 are unlikely to harm any species unless either the concentration of free carbon dioxide exceeds 20 parts per million (ppm) or the water contains iron salts precipitated as ferric hydroxide, a compound of unknown toxicity. pH values ranging from 6.0 to 6.5 are unlikely to harm fish unless free carbon dioxide is present in excess of 100 ppm, while pH values ranging from 6.5 to 9.0 are harmless to fish, although the toxicity of other compounds may be affected by changes within this range. These and other studies evaluating the effects of pH on various fish species and macroinvertebrates led EPA (1986) to conclude that a pH range of 6.5 to 9.0 appears to provide adequate protection for the life of freshwater fish and bottom dwelling invertebrates. The permit requires compliance with a pH limit of 6.5-9.0 at the point of discharge, which is Idaho's water quality standard for aquatic life. Therefore, issuance of the NPDES permit will not cause pH-related effects on listed species.

BOD/Dissolved Oxygen

The BOD limits of 30 mg/L (monthly average) and 45 mg/L (maximum weekly average) should be fully protective of listed species, given that the stream is not impaired for dissolved oxygen and the dilution available. The dilution would result in little, if any, area where BOD may be slightly higher than background. The slight, if any, increase in BOD at the discharge point would not have a measurable on dissolved oxygen levels and fish populations. furthermore, the relatively cool water temperature of these streams typically results in high oxygen saturation and therefore, adequate oxygen for fish and other aquatic life.

Temperature

Anderson Slough and adjacent waterbodies such as Anderson Lake, Coeur d'Alene River, and Lake Coeur d'Alene are not listed as impaired for temperature. Much like for ammonia and other parameters discussed above, bull trout are not believed to be present in Anderson Slough.

Critical Habitat

Anderson Slough is designated critical habitat for bull trout. The discharge is not expected to have any effect, because of the physical nature of the slough and the low discharge of 0.03 mgd.

C. Conclusion

The evaluation concludes that the action of permit issuance for the Harrison WWTP in the Coeur d'Alene Basin will have no effect on any of the listed threatened and endangered species.

D. References

Cherry, D.S., S.R. Larrick, J.D. Giattina, K.L Dickson and J. Cairns. 1979. Avoidance and toxicity response of fish to intermittent chlorination. Environ. Intern. 2:1. http://www.sciencedirect.com/science/article/pii/0160412079900461

Idaho Department of Fish and Game (IDFG). Idaho Fish Planner, Anderson Lake, Coeur d'Alene Lake Basin. https://idfg.idaho.gov/ifwis/fishingplanner/water/?id=11654

Heath, A.G. 1995. Water Pollution and fish Physiology: Second Edition. Lewis Publishers, Boca Raton, FL.

Thurston R.V., R.C. Russo, C.M. Fefteroif, T.A. Edsall, Y.M. Barber Jr., editors. 1979. Review of the EPA Red Book: Quality Criteria for Water. Bethesda, MD. Water Quality Section, American Fisheries.

Thurston, R.V., C. Chakoumakos, and R.C. Russo. 1981. Effect of fluctuating exposures on the acute toxicity of ammonia to rainbow trout (Salmo gairdneri) and cutthroat trout (S. clarid). Water Research 15:911-917. http://www.sciencedirect.com/science/article/pii/0043135481901470

U.S. Department of Agriculture Forest Service (USDA FS). 1990. Salmonid-habitat Relationships in the Western United States: A Review and Indexed Bibliography. USDA forest Service. General Technical Report RM-188. Fort Collins, CO. Rocky Mountain Forest and Range Experiment Station, USDA FS.

U.S. Environmental Protection Agency (EPA). 1986. Quality Criteria for Water. EPA 440/5-86-001. USEPA, Office of Water, Regulations and Standards, Washington, DC. https://nepis.epa.gov/Exe/ZyPDF.cgi/00001MGA.PDF?Dockey=00001MGA.PDF

U.S. Fish and Wildlife Service (USFWS). Species Profile for Bull Trout (*Salvenius confluentus*). https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E065

Appendix G. Essential Fish Habitat Assessment

Pursuant to the requirements for Essential Fish Habitat (EFH) assessments, this appendix contains the following information:

- Listing of EFH Species in the Facility Area
- Description of the Facility and Discharge Location
- The EPA's Evaluation of Potential Effects to EFH

A. Listing of EFH Species in the Facility Area

All waterbodies used by anadromous salmon throughout Idaho must be considered for EFH identification. According to NOAA Fisheries, there are no EFH for threatened and endangered species under NOAA's jurisdiction. USFWS identified Anderson Slough as an area of critical bull trout habitat.

B. Description of the Facility and Discharge Location

The activities and sources of wastewater at the Harrison WWTP are described in detail in Part II and Appendix A of this fact sheet. The location of the outfall is described in Part III ("Receiving Water").

C. The EPA's Evaluation of Potential Effects to EFH

Water quality is an important component of aquatic life habitat. NPDES permits are developed to protect water quality in accordance with state water quality standards. The standards protect the beneficial uses of the waterbody, including all life stages of aquatic life. The development of permit limits for an NPDES discharger includes the basic elements of ecological risk analysis. The underlying technical process leading to NPDES permit requirements incorporates the following elements of risk analysis:

Effluent Characterization

Characterization of Harrison WWTP's effluent was accomplished using a variety of sources, including:

- Permit application monitoring
- Permit compliance monitoring
- Statistical evaluation of effluent variability

Identification of Pollutants of Concern and Threshold Concentrations

The pollutants of concern include pollutants with aquatic life criteria in the Idaho Water Quality Standards. Threshold concentrations are equal to the numeric water quality criteria for the protection of aquatic life. No other pollutants of concern were identified by NMFS.

Exposure and Wasteload Allocation

Analysis of the transport of pollutants near the discharge point with respect to the following:

- Exposure considerations (e.g., prevention of lethality to passing organisms)
- Consideration of multiple sources and background concentrations

Statistical Evaluation for Permit Limit Development

Calculation of permit limits using statistical procedures addressing the following:

- Effluent variability and non-continuous sampling
- Fate/transport variability
- Duration and frequency thresholds identified in the water quality criteria

Monitoring Programs

Development of monitoring requirements, including:

- Compliance monitoring of the effluent
- Ambient monitoring

Protection of Aquatic Life in NPDES Permitting

The EPA's approach to aquatic life protection is outlined in detail in the *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001, March 1991). The EPA and states evaluate toxicological information from a wide range of species and life stages in establishing water quality criteria for the protection of aquatic life.

The NPDES program evaluates a wide range of chemical constituents (as well as whole effluent toxicity testing results) to identify pollutants of concern with respect to the criteria values. When a facility discharges a pollutant at a level that has a "reasonable potential" to exceed, or to contribute to an exceedance of, the water quality criteria, permit limits are established to prevent exceedances of the criteria in the receiving water (outside any authorized mixing zone).

Effects Determination

Since the proposed permit has been developed to protect aquatic life species in the receiving water in accordance with the Idaho water quality standards and there are no EFH in the vicinity, the EPA has determined that issuance of this permit will have no effect on any EFH in the vicinity of the discharge. The EPA will provide NMFS with copies of the draft permit and fact sheet during the public notice period. Any recommendations received from NMFS regarding EFH will be considered prior to reissuance of this permit.