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BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF RIVERSIDE'S PETITION FOR DECLARATORY RULING REGARDING NEED FOR A WATER RIGHT UNDER REUSE PERMIT NO. M-255-01	Docket No. P-DR-2020-01 **REUSE PROPONENTS' SUBMISSION OF SUBMISSION OF EXHIBIT I**

Pursuant to *Reuse Proponents' Stipulation of Facts*, the Association of Idaho Cities ("AIC"), the Cities of Boise, Caldwell, Idaho Falls, Jerome, Meridian, Nampa, Pocatello, Post Falls, and Rupert, and the Hayden Area Regional Sewer Board ("HARSB") (collectively, "Municipal Intervenors") and Pioneer Irrigation District ("Pioneer") hereby submit true and correct copy of the documents identified below. Municipal Intervenors and Pioneer are referred to collectively as "Reuse Proponents."

Exhibit I EPA Fact sheet: Nampa's NPDES Permit (2015) 9

Respectfully submitted this 30th day of June, 2020.

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I HEREBY CERTIFY that on this 30th day of June, 2020, the foregoing was filed, served, and copied as shown below.

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Christopher H. Meyer

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:

Nampa Wastewater Treatment Facility
340 West Railroad Street
Nampa, ID 83687

Public Comment Start Date: July 23, 2015
Public Comment Expiration Date: September 21, 2015

Technical Contact: Brian Nickel
206-553-6251
800-424-4372, ext. 6251 (within Alaska, Idaho, Oregon and Washington)
Nickel.Brian@epa.gov

The EPA Proposes to Reissue an NPDES Permit
The EPA proposes to reissue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

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

Regional Administrator
Idaho Department of Environmental Quality
1445 North Orchard
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."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-191
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101
(206) 553-0523 or
1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permit are also available at:

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950 W Bannock
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Cherry Lane Library
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Meridian, ID 83642
(208) 888-4451

Silverstone Branch Library
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Meridian, ID 83642
(208) 884-2616

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Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
30Q10	30 day, 10 year low flow
ACR	Acute-to-Chronic Ratio
AML	Average Monthly Limit
AWL	Average Weekly Limit
BOD_5	Biochemical oxygen demand, five-day
BMP	Best Management Practices
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
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
LTA	Long Term Average
mg/L	Milligrams per liter
ml	milliliters

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
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observable Effect Concentration
NPDES	National Pollutant Discharge Elimination System
OWW	Office of Water and Watersheds
O&M	Operations and maintenance
POTW	Publicly owned treatment works
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
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
WWTF	Wastewater treatment facility
WWTP	Wastewater treatment plant

I. Applicant

A. General Information

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

Nampa Wastewater Treatment Facility (WWTF)
NPDES Permit # ID0022063

Physical Address:
340 West Railroad Street
Nampa, ID 83687-1741

Mailing Address:
411 3rd Street South
Nampa, ID 83651

Contact:
Michael Fuss, Public Works Director, City of Nampa

B. Permit History

The most recent NPDES permit for the Nampa WWTF was issued on December 29, 1998, became effective on February 1, 1999, and expired on February 2, 2004. An NPDES application for permit issuance was submitted by the permittee in July 2003. The EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively extended and remains fully effective and enforceable. The City submitted updates to the NPDES permit application in 2005, 2008 and 2011. The first NPDES permit was issued to this facility in December 1974.

II. Facility Information

A. Treatment Plant Description

General

The City of Nampa (City) owns and operates the Nampa WWTF. The facility treats wastewater from both domestic and industrial sources. The collection system has no combined sewers. The facility serves a resident population of about 80,000. The design flow of the facility is 18.0 mgd as a maximum monthly average flow. The average actual effluent flow between 2008 and 2013 is 10.1 mgd, and the maximum monthly average effluent flow was 11.8 mgd.

Treatment Process

The Nampa facility consists of grit removal and screening, three primary clarifiers, three trickling filters, two secondary clarifiers, a nitrification activated sludge process, three final clarifiers, chlorination, dechlorination and post-aeration. Sludge (biosolids) from the wastewater treatment facility is anaerobically digested in a two-stage process. The facility

produces Class B biosolids which are usually applied to land in southeastern Canyon County. The outfall for this facility goes to Indian Creek, and it does not have a diffuser.

Details about the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A.

B. Compliance History

In the past five years, the permittee has generally been in compliance with the effluent limits in the 1999 permit with the following exceptions listed in Table 1 below.

Table 1: City of Nampa Effluent Limit Violations 2008 – 2013

Parameter	Statistic	Units	Number of Instances
Total Residual Chlorine	Maximum Daily	µg/L	3
Total Ammonia as N	Maximum Daily	mg/L	5
Total Ammonia as N	Maximum Daily	lb/day	5

III. Receiving Water

This facility discharges to Indian Creek in Nampa, Idaho. The outfall is located downstream (west) of Nampa Boulevard (State Highway 55). Indian Creek is a tributary to the Boise River, which, in turn, is a tributary to the Snake River, which is an interstate waterbody.

A. Low Flow Conditions

The low flow conditions of a water body are used to assess the need for and develop water quality based effluent limits (see Appendix C of this fact sheet for additional information on flows). The EPA used ambient flow data collected at USGS Station #13211309, Indian Creek above Waste Water Plant near Nampa, Idaho (1981 – 1996), and receiving water flow data measured by the permittee (2003 – 2011) to calculate the low flow conditions for Indian Creek upstream of the outfall.

Because there are significant seasonal variations in the flow rate of Indian Creek, the EPA has elected to calculate the critical low flows on a seasonal basis. Due to seasonal variations in hardness, the seasons used for analysis of metals with water quality criteria that are dependent upon hardness are different than those used for other parameters. Because there is relatively little dilution at all times, the seasonal changes in hardness have a greater influence upon effluent limits for metals with hardness-dependent criteria than the seasonal changes in flow.

Table 2: Seasonal Low Flows in Indian Creek Upstream of the Point of Discharge

Season	1Q10 (CFS)	7Q10 (CFS)	30Q10 (CFS)
March – November	7.88	12.9	17.0
December – February	18.0	18.5	19.5
April – October (hardness-dependent metals)	11.6	14.6	N/A
November – March (hardness-dependent metals)	15.2	17.2	N/A

B. Water Quality Standards

Overview

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limitations in permits necessary to meet water quality standards. Federal regulations at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. A State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy.

The use classification system designates the beneficial uses that each water body is expected to achieve, such as water supply, contact recreation, and aquatic life. The numeric and narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

Designated Beneficial Uses

This facility discharges to Indian Creek in the Lower Boise watershed (HUC 17050114), Water Body Unit SW-2. At the point of discharge, Indian Creek is protected for the following designated uses (IDAPA 58.01.02.140.12):

- cold water aquatic life
- secondary contact recreation

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).

Surface Water Quality Criteria

The criteria are found in the following sections of the Idaho Water Quality Standards:

- The narrative criteria applicable to all surface waters of the State are found at IDAPA 58.01.02.200 (General Surface Water Quality Criteria).
- The numeric criteria for toxic substances for the protection of aquatic life and secondary contact recreation are found at IDAPA 58.01.02.210 (Numeric Criteria for Toxic Substances for Waters Designated for Aquatic Life, Recreation, or Domestic Water Supply Use).
- Additional numeric criteria necessary for the protection of aquatic life can be found at IDAPA 58.01.02.250 (Surface Water Quality Criteria for Aquatic Life Use Designations).
- Numeric criteria necessary for the protection of recreation uses can be found at IDAPA 58.01.02.251 (Surface Water Quality Criteria for Recreation Use Designations).
- Water quality criteria for agricultural water supply can be found in the EPA's Water Quality Criteria 1972, also referred to as the "Blue Book" (EPA R3-73-033) (See IDAPA 58.01.02.252.02).

The numeric and narrative water quality criteria applicable to Indian Creek at the point of discharge are provided in Appendix B of this fact sheet.

Antidegradation

The IDEQ has completed an antidegradation review which is included in the draft 401 certification for this permit. See Appendix H for the State's draft 401 water quality certification. The EPA has reviewed this antidegradation review and finds that it is consistent with the State's 401 certification requirements 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).

C. Water Quality Limited Waters

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

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

In January 2000, the EPA approved the *Lower Boise River TMDL: Subbasin Assessment, Total Maximum Daily Loads* ("Lower Boise River TMDL"). The Lower Boise River TMDL included wasteload allocations for TSS and bacteria for City of Nampa facility (IDEQ 1999).

On April 15, 2014, IDEQ granted a portion of the Lower Boise River TMDL's reserve for growth allocation to the City of Nampa. IDEQ revised Table 15 of the *Sediment and Bacteria Allocation Addendum to the Lower Boise River TMDL* (IDEQ 2008) to allow Meridian an average monthly allocation of 4,503 lb/day and an average weekly allocation of 6,755 lb/day.

The permit includes water quality-based effluent limits for TSS and bacteria that are consistent with the wasteload allocations in the TMDL.

The State of Idaho's 2012 Integrated Report Section 5 (the "303(d) list") lists the segment of Indian Creek to which the City of Nampa discharges (assessment unit ID17050114SW002_04) as impaired due to temperature, E. coli, sedimentation and siltation, and an unknown cause (with nutrients suspected).

Although the *Lower Boise River TMDL* established load and wasteload allocations for sediment and bacteria for the City of Nampa, these allocations were developed to protect water quality in the Boise River as opposed to Indian Creek.

In April 2015, IDEQ issued the draft *Lower Boise River TMDL: 2015 Addendum*, addressing sediment and bacteria in tributaries to the Boise River, including Indian Creek. This draft TMDL proposed wasteload allocations for sediment and bacteria for the City of Nampa's

discharge to Indian Creek. The proposed WLAs for the City of Nampa are in Table 26, on Page 47 of the draft *Lower Boise River TMDL: 2015 Addendum.* In addition, the State of Idaho's draft CWA §401 certification, states that IDEQ expects that the WLAs will be incorporated into the draft NPDES permit. The draft permit proposes effluent limits for TSS and E. coli that are consistent with the assumptions and requirements of the WLAs in the draft *Lower Boise River TMDL: 2015 Addendum*.

The State of Idaho's 2012 Integrated Report Section 5 (the 303(d) list) lists the segments of the Boise River from Middleton to Indian Creek and from Indian Creek to the mouth as impaired for temperature and total phosphorus (TP). IDEQ has completed a draft TMDL for TP, and the draft permit proposes effluent limits consistent with the assumptions and requirements of the WLAs in the draft TP TMDL. The EPA believes these effluent limits will also protect water quality in Indian Creek. See Appendix F for more details about the proposed TP limits.

Regarding the impairment with an unknown cause, with nutrients suspected, the EPA believes the proposed TP effluent limits, which are consistent with the assumptions and requirements of the WLAs in the draft TP TMDL, will protect water quality in Fivemile Creek as well as the Boise River. See Appendix F for more details about the proposed TP limits.

The EPA has determined that the City of Nampa's discharge has the reasonable potential to cause or contribute to excursions above water quality standards for temperature from July – September, therefore, the permit proposes water quality-based effluent limits for temperature during this season.

IV. Effluent Limitations

A. Basis for Effluent Limitations

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. The basis for the effluent limits proposed in the draft permit is provided in Appendices D, E, F, and G.

B. Proposed Effluent Limitations

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

1. The permittee must not discharge floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses.
2. Removal Requirements for BOD_5 and TSS: The monthly average effluent concentration must not exceed 15 percent of the monthly average influent concentration. Percent removal of BOD_5 and TSS must be reported on the Discharge Monitoring Reports (DMRs). For each parameter, 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. Influent and effluent samples must be taken over approximately the same time period.

3. pH must be within the range of 6.5 – 9.0 standard units.

Table 3, below, presents the proposed effluent limits.

Table 3: Proposed Effluent Limits

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
BOD_5	mg/L	30	45	—
	lb/day	4504	6755	—
TSS	mg/L	30	45	—
	mg/L	4-month rolling average: 17.5		
	lb/day	4503	6755	—
	lb/day	4-month rolling average: 2,629		
Removal Rates for BOD_5 and TSS	%	85% minimum	—	—
E. coli Bacteria	#/100 ml	126 (geometric mean)	—	576 (instantaneous maximum)
Ammonia March – November	mg/L	1.31	—	4.92
	lb/day	197	—	739
Ammonia December – February	mg/L	1.41	—	5.31
	lb/day	212	—	797
Chlorine March – November	µg/L	9.2	—	18
	lb/day	1.4	—	2.7
Chlorine December – February	µg/L	9.6	—	19
	lb/day	1.4	—	2.9
Total Phosphorus May – September	lb/day	15	26	—
Total Phosphorus October – April	lb/day	52.6	90.5	—
Copper, Total Recoverable April – October	µg/L	10.7	—	23.1
	lb/day	1.61	—	3.47
Copper, Total Recoverable November – March	µg/L	17.8	—	38.5
	lb/day	2.67	—	5.78
Cyanide, Weak Acid Dissociable March – November	µg/L	4.75	—	9.53
	lb/day	0.713	—	1.43
Cyanide, Weak Acid Dissociable December – February	µg/L	4.96	—	9.96
	lb/day	0.745	—	1.50
Dissolved Oxygen	mg/L	6.0 minimum		
	% saturation	90% minimum	80% minimum	—
Mercury, Total March – November	µg/L	0.011	—	0.022
	lb/day	0.0017	—	0.0033
Mercury, Total December – February	µg/L	0.011	—	0.023
	lb/day	0.0017	—	0.0035

Table 3: Proposed Effluent Limits for Temperature			
Season	**Units**	**Maximum Daily Limit**	**Instantaneous Maximum Limit**
July	°C	19.0	—
August	°C	19.0	22.8
September	°C	19.7	—

Effluent Limits Less than Analytical Quantification Limits

The effluent limits for total residual chlorine and weak acid dissociable cyanide are less than the concentrations that can be reliably quantified using EPA-approved analytical methods. Consistent with EPA Region 10's "Guidance on Water Quality Based Effluent Limits Set Below Analytical Detection/Quantification Limits," (EPA 2005) the EPA will use the lowest minimum levels (MLs) that are achievable with EPA-approved analytical methods as the compliance evaluation levels for chlorine and cyanide. The permittee will be compliant with the total residual chlorine and cyanide limitations if the average monthly and maximum daily concentrations are less than the MLs. The ML for chlorine is 50 µg/L, and the ML for cyanide is 10 µg/L.

C. Schedules of Compliance

Schedules of compliance are authorized by federal NPDES regulations at 40 CFR 122.47 and by Section 400.03 of the Idaho Water Quality Standards. The Idaho water quality standards allow for compliance schedules "when new limitations are in the permit for the first time." The federal regulation allows schedules of compliance "when appropriate," and requires that such schedules require compliance as soon as possible. When the compliance schedule is longer than 1 year, federal regulations require that the schedule shall set forth interim requirements and the dates for their achievement. The time between the interim dates shall generally not exceed 1 year, and when the time necessary to complete any interim requirement is more than one year, the schedule shall require reports on progress toward completion of these interim requirements. Federal regulations also generally require that interim effluent limits are at least as stringent as the final limits in the previous permit (40 CFR 122.44(l)(1)).

EPA policy states that, in order to grant a compliance schedule, a permitting authority must make a reasonable finding that the permittee cannot comply with the effluent limit immediately upon the effective date of the final permit (see the *US EPA NPDES Permit Writers' Manual* at Section 9.1.3). Some of the proposed effluent limits for copper, cyanide, dissolved oxygen, mercury, phosphorus, and temperature are new limits that are in the permit for the first time. The EPA has evaluated the City of Nampa's effluent data to determine whether the City could consistently comply with the new water quality-based effluent limits in the draft permit. Table 4, below, summarizes this evaluation.

Table 4: Immediate Achievability of New Water Quality-based Effluent Limits

Parameter	Season	Achievable Immediately?
Copper	April – October	No
	November – March	No
Cyanide	March – November	Yes[1]
	December – February	Yes[1]
Dissolved Oxygen (mg/L)	Year-round	Yes
Mercury	March – November	No
	December – February	No
Phosphorus	May – September	No
Phosphorus	October – April	No
Temperature	July	No
	August	No
	September	No

Notes:
1. When determining if the City could comply immediately with the proposed water quality-based effluent limits for weak acid dissociable cyanide, the EPA compared the existing effluent concentrations against the compliance evaluation level of 10 µg/L (see discussion above, under "Effluent Limits Less than Analytical Quantification Limits").

In its draft Clean Water Act Section 401 certification, the State of Idaho proposed to authorize compliance schedules for all of the effluent limits listed in Table 4, above, that the City could not comply with immediately. Consistent with federal regulations (40 CFR 122.47(a)(3)), the schedules of compliance include interim milestones and reports of progress. The State of Idaho also specified interim limits for phosphorus and mercury, which apply during the terms of the compliance schedules.

D. Basis for Less-Stringent BOD_5, Ammonia and Chlorine Limits

Statutory Prohibitions on Backsliding

Section 402(o) of the Clean Water Act (CWA) and 40 CFR 122.44(l) generally prohibit the establishment of effluent limits in a reissued NPDES permit that are less stringent than the corresponding limits in the previous permit (i.e. "backsliding") but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards) except in compliance with Section 303(d)(4). Section 402(o)(1) also prohibits backsliding on technology-based effluent limits established using best professional judgment (i.e. based on Section 402(a)(1)(B)). The anti-backsliding regulations in 40 CFR 122.44(l) address backsliding for other permit conditions.

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy.

Additionally, Section 402(o)(2) contains exceptions to the general prohibition on backsliding in 402(o)(1). According to the *U.S. EPA NPDES Permit Writers' Manual* (2010) the 402(o)(2) exceptions are applicable to WQBELs (except for 402(o)(2)(B)(ii) and 402(o)(2)(D)) and are independent of the requirements of 303(d)(4). Therefore, WQBELs may be relaxed as long as either the 402(o)(2) exceptions or the requirements of 303(d)(4) are satisfied.

Even if the requirements of Sections 303(d)(4) or 402(o)(2) are satisfied, Section 402(o)(3) prohibits backsliding which would result in violations of WQS or effluent limit guidelines.

BOD_5

The BOD_5 effluent limits in the 1999 permit were the technology-based effluent limits in 40 CFR 133.102. Because these effluent limits were not based on state standards, the applicable anti-backsliding provisions are those in 40 CFR 122.44(l) (see the US EPA Permit Writers' Manual at Section 7.2.2). This regulation states that effluent limitations, standards or conditions in reissued permits must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit, unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR 122.62.

At the time the 1999 permit was issued, the design flow of the Nampa WWTF was 11.76 mgd. The design flow of the WWTP has since been increased to 18 mgd. The increased design flow is a material and substantial alteration, and would therefore constitute cause for a permit modification under 40 CFR 122.62. The loading (i.e., lb/day) limits for BOD_5 have been re-calculated using the current design flow of the POTW, consistent with 40 CFR 122.45(b)(1) and (f).

The EPA has determined that the revised effluent limits for BOD_5, in combination with the effluent limits for dissolved oxygen, will ensure compliance with water quality criteria for DO in Indian Creek. The State of Idaho has determined that the revised effluent limits for BOD_5 are consistent with its antidegradation policy. Because the revised limits ensure compliance with water quality criteria and with the State's antidegradation policy, the revised limits ensure compliance with Idaho's water quality standards and therefore with Section 402(o)(3) of the CWA. The revised effluent limits for BOD_5 ensure compliance with all applicable water quality standards, including antidegradation requirements. Therefore, the loading effluent limits for BOD_5 may be revised.

Total Residual Chlorine

Under some conditions, the draft permit proposes less-stringent effluent limits for total residual chlorine relative to the prior permit. As shown in Table 1, above, the City has at times violated the chlorine effluent limits in the prior permit. When the EPA re-calculated effluent limits for chlorine based on current water quality criteria and recent effluent variability, the resulting limits were less stringent than those in the prior permit, if the flow in Indian Creek is less than 37 CFS.

One of the exceptions to the general prohibition on less-stringent effluent limits is that water quality-based effluent limits may be revised if the revised effluent limits are subject to and consistent with the State's antidegradation policy (CWA Section 303(d)(4)(B)). The State of

Idaho has determined that the revised effluent limits for chlorine are consistent with its antidegradation policy. Because the revised limits ensure compliance with water quality criteria and with the State's antidegradation policy, the revised limits ensure compliance with Idaho's water quality standards and therefore with Section 402(o)(3) of the CWA.

All of the effluent limits for chlorine in both the 1999 permit and the draft permit are less than the concentration that can be reliably quantified using EPA-approved analytical methods. Thus, as explained above, under "Effluent Limits Less than Analytical Quantification Limits," compliance evaluation levels were set for chlorine in both the 1999 permit and the draft permit. The draft permit specifies a lower compliance evaluation level (50 µg/L) than the 1999 permit (100 µg/L). Thus, as a practical matter, the City will need to achieve lower concentrations of chlorine in its effluent under the draft permit than it did under the 1999 permit.

Total Ammonia as N

The draft permit proposes less-stringent effluent limits for total ammonia as N relative to the prior permit. As shown in Table 1, above, the City has at times violated the ammonia effluent limits in the prior permit. When the EPA re-calculated effluent limits for ammonia based on current water quality criteria and recent effluent variability, the resulting limits were less stringent than those in the prior permit.

One of the exceptions to the general prohibition on less-stringent effluent limits is that water quality-based effluent limits may be revised if the revised effluent limits are subject to and consistent with the State's antidegradation policy (CWA Section 303(d)(4)(B)). The State of Idaho has determined that the revised effluent limits for ammonia are consistent with its antidegradation policy. Because the revised limits ensure compliance with water quality criteria and with the State's antidegradation policy, the revised limits ensure compliance with Idaho's water quality standards and therefore with Section 402(o)(3) of the CWA.

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

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

The permit also requires the permittee to perform effluent monitoring required by parts B.6 and D of the NPDES Form 2A application, so that these data will be available when the permittee applies for a renewal of its NPDES permit.

The permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to the EPA.

B. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required

under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (40 CFR Part 136) and if the Method Detection Limits for the test methods are less than the effluent limits.

Monitoring Changes from the Previous Permit

The draft permit proposes more-frequent effluent monitoring for total phosphorus from May – October to determine compliance with the new water quality-based effluent limits in effect during that season. The draft permit also proposes more-frequent monitoring for copper, cyanide, mercury, and temperature in order to determine compliance with the new water quality-based effluent limits for those parameters. The draft permit proposes more-frequent monitoring for ammonia because the permittee has had difficulty complying with the effluent limits for ammonia in the prior permit. The draft permit proposes more-frequent monitoring for TSS because the loading (i.e., lb/day) effluent limits for TSS are now water quality-based (i.e., they are consistent with the City's WLA in the *Lower Boise River TMDL*) rather than technology-based. The draft permit requires monitoring for chromium VI in addition to total chromium in order to better characterize the City's discharge of chromium and evaluate it against water quality criteria for both chromium III and chromium VI. The permit requires more-frequent influent monitoring for mercury to determine if the City's mercury minimization plan is effective.

Table 5: Influent, Effluent and Sludge Monitoring Requirements

Parameter	Units	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Effluent	Continuous	recording
Temperature	°C	Effluent	Continuous	recording
BOD_5	mg/L	Influent & Effluent	1/week	24-hour composite
	lb/day	Influent & Effluent		calculation[1]
	% Removal	% Removal	1/month	calculation[2]
TSS	mg/L	Influent & Effluent	2/week	24-hour composite
	lb/day	Influent & Effluent		calculation[1]
	% Removal	% Removal	1/month	calculation[2]
pH	standard units	Effluent	5/week	grab
E. Coli	#/100 ml	Effluent	10/month	grab
Total Residual Chlorine	µg/L	Effluent	5/week	grab
	lb/day	Effluent		calculation[1]
Total Phosphorus as P	µg/L	Effluent	2/week	24-hour composite
	lb/day	Effluent		calculation[1]
Total Phosphorus as P	mg/L	Influent	1/month	24-hour composite
Total Ammonia as N	mg/L	Effluent	2/week	24-hour composite
	lb/day	Effluent		calculation[1]
Copper, total recoverable	µg/L	Effluent	1/month	24-hour composite
	lb/day	Effluent		calculation[1]
	µg/L	Influent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	24-hour composite
Cyanide, weak acid dissociable	µg/L	Effluent	1/month	24-hour composite
	lb/day	Effluent		calculation[1]
	µg/L	Influent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	24-hour composite
Mercury, Total	µg/L	Influent & effluent	1/month	24-hour composite
	lb/day	Effluent		calculation[1]

Table 5: Influent, Effluent and Sludge Monitoring Requirements

Parameter	Units	Sample Location	Sample Frequency	Sample Type
	mg/kg	Sludge	2/year[4]	24-hour composite
Whole Effluent Toxicity	TU_c	Effluent	2/year[5]	24-hour composite
Nitrate + Nitrite	mg/L	Effluent	1/month	24-hour composite
Total Kjeldahl Nitrogen	mg/L	Effluent	1/month	24-hour composite
Soluble Reactive Phosphorus	mg/L	Effluent	1/month	24-hour composite
Arsenic, Total	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Cadmium, Total Recoverable	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Chromium, Total	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Chromium VI, Dissolved	µg/L	Influent & effluent	2/year[3]	24-hour composite
Conductivity	µmhos/cm	Effluent	1/month	24-hour composite
Dissolved Organic Carbon (DOC)	mg/L	Effluent	1/month	24-hour composite
Hardness	mg/L as $CaCO_3$	Effluent	1/month	24-hour composite
Lead, Total Recoverable	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Molybdenum	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Nickel, Total Recoverable	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Selenium	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Silver, Total Recoverable	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
Zinc, Total Recoverable	µg/L	Influent & effluent	2/year[3]	24-hour composite
	mg/kg	Sludge	2/year[4]	
NPDES Application Form 2A Expanded Effluent Testing	—	Effluent	3x/5 years	—

Notes:
1. Loading is calculated by multiplying the concentration in mg/L by the flow in mgd and a conversion factor of 8.34. If the concentration is measured in µg/L, the conversion factor is 0.00834.
2. Percent removal is calculated using the following equation:
   (average monthly influent – average monthly effluent) ÷ average monthly influent.
3. Each twice yearly sampling event for these parameters must consist of three 24-hour composite samples taken within a calendar week.
4. Sludge sampling must be conducted once during the same time period that influent and effluent samples are being taken.
5. Sampling must take place at least once during each of the following seasons: December – February and March – November.

The regulations at 40 CFR 122.62(a)(2) allow modification of permit conditions if new information was received that was not available at the time of permit issuance. The purpose of the monitoring requirements in the 1999 permit was to ensure appropriate data was available for the next permit reissuance. The EPA considers the monitoring data gathered during the term of the 1999 permit new information that was not available at the time of issuance of the 1999 permit, therefore, the monitoring requirements may be modified, if appropriate.

The EPA reviewed the monitoring results and has determined that orthophosphate and fecal coliform bacteria do not need to be monitored.

For arsenic, cadmium, chromium, lead, nickel, sliver, and zinc, the EPA has determined that, in general, the sampling that had been required as part of the pretreatment requirements in the 1999 permit (see the 1999 permit at Page 13) is adequate to characterize the discharge of these pollutants. Therefore, the pretreatment monitoring requirements for these pollutants have been included in Table 1 of the draft permit. Although more frequent effluent monitoring is required for copper, cyanide, and mercury in order to determine compliance with the new water quality-based effluent limits for those parameters, the influent and sludge monitoring requirements for those parameters are the same as those in the 1999 permit.

The prior permit had required monitoring of fecal coliform five times per week. The fecal coliform limits and monitoring requirements in the prior permit have been replaced with effluent limits and monitoring requirements for E. coli.

The Idaho WQS state that "waters designated for primary or secondary contact recreation are not to contain E. coli bacteria in concentrations exceeding a geometric mean of one hundred twenty-six (126) E. coli organisms per one hundred (100) ml based on a minimum of five (5) samples taken every three (3) to seven (7) days over a thirty (30) day period" (IDAPA 58.01.02.251.01.a). Sampling E. coli at a frequency of five times per week would require samples to be taken more frequently than once every three days. Therefore, the EPA has changed the E. coli sampling frequency to 10 times per month, which allows sampling at a frequency consistent with the WQS.

Monitoring for conductivity and dissolved organic carbon is required so that, if the State of Idaho were to adopt water quality criteria for copper based on the biotic ligand model consistent with EPA recommendations, water quality criteria for copper can be evaluated.

C. Surface Water Monitoring

The previous permit required receiving water monitoring for a variety of parameters. As stated previously, the purpose of the monitoring was to assure that appropriate data was available for the next permit cycle. As discussed above, the EPA's anti-backsliding regulations at 40 CFR 122.44(l)(1) generally prohibit the backsliding of any conditions (including monitoring requirements) unless there is cause for change consistent with the federal regulations at 40 CFR 122.62. The regulations at 40 CFR 122.62 allow modification of permit conditions if new information was received that was not available at the time of permit issuance. The purpose of the monitoring requirements in the 1999 permit was to ensure appropriate data was available for the next permit reissuance. The EPA considers the monitoring data gathered during the term of the 1999 permit new information that was not available at the time of issuance of the 1999 permit, therefore, the monitoring requirements may be modified. The EPA reviewed the monitoring results and has determined that some receiving water parameters are no longer necessary (e.g., ortho-phosphorus, oil and grease, fecal coliform bacteria). The table below presents the proposed receiving monitoring requirements for the facility.

Table 6: Surface Water Monitoring Requirements		
Parameter	**Upstream Sampling Frequency**	**Downstream Sampling Frequency**
Flow, CFS	1/week	—
BOD_5, mg/L	1/month	—
Dissolved Oxygen, mg/L	Continuous[1]	Continuous[1]
Dissolved Oxygen, % of saturation	Continuous[1]	Continuous[1]
Total Phosphorus, mg/L	1/month	1/month
Total Nitrogen, mg/L	1/month	1/month
Chlorophyll a	1/month	1/month
Temperature, °C	Continuous	Continuous
pH, standard units	Continuous[1]	Continuous[1]
Turbidity, NTU	1/week	1/week
Hardness as $CaCO_3$, mg/L	—	1/month
Arsenic, µg/L	1/quarter	—
Cadmium, dissolved µg/L	1/quarter	—
Chromium, total dissolved	1/quarter	—
Chromium VI, dissolved	1/quarter	—
Conductivity, µmhos/cm	—	1/quarter
Copper, dissolved µg/L	1/quarter	—
Dissolved organic carbon, mg/L	—	1/quarter
Lead, dissolved µg/L	1/quarter	—
Mercury, total µg/L	1/quarter	1/quarter
Nickel, dissolved µg/L	1/quarter	—
Silver, dissolved µg/L	1/quarter	—
Zinc, dissolved µg/L	1/quarter	—
Notes: 1. Continuous monitoring for dissolved oxygen and pH is required during the final 12 months of the permit term.		

The EPA proposes receiving water monitoring for total nitrogen, total phosphorus and chlorophyll a and continuous monitoring for dissolved oxygen and pH to determine if the proposed effluent limits for nutrients are adequate to protect water quality in Indian Creek. Continuous monitoring for temperature is required in order to better determine the discharge's effect on water the temperature of Indian Creek and to allow for the calculation of dissolved oxygen saturation.

Monitoring for conductivity and dissolved organic carbon is required so that, if the State of Idaho were to adopt water quality criteria for copper based on the biotic ligand model consistent with EPA recommendations, water quality criteria for copper can be evaluated.

VI. Sludge (Biosolids) Requirements

The EPA Region 10 separates wastewater and sludge permitting. The EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. The EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. The Part 503 regulations are self-

implementing, which means that facilities must comply with them whether or not a permit has been issued.

VII. Other Permit Conditions

A. Mercury Minimization Plan

As explained in Appendix E, the City's discharge has the reasonable potential to cause or contribute to excursions above aquatic life water quality criteria for mercury in the water column. The proposed numeric water quality-based effluent limits for mercury in the draft permit are derived from and ensure compliance with the aquatic life criteria.

In addition to the numeric effluent limits for mercury based upon the aquatic life criteria for mercury in the water column, the draft permit proposes to require the City to develop and implement a mercury minimization plan (MMP). The objective of the plan is to identify potential sources of mercury loading to the POTW, and, in turn, the receiving water, in an effort to attain compliance with the State of Idaho's human health criterion for mercury in fish tissue (0.3 mg/kg).

On July 2, 2012, the Idaho Department of Health and Welfare issued a fish advisory for catfish caught from the lower Boise River, due to levels of mercury that could be dangerous to developing babies, children, and the general public, if eaten too often. In addition, the Snake River, in the Middle Snake-Payette watershed, downstream from the Boise River, is 303(d) listed in the State of Oregon's 2010 integrated report as being impaired for mercury due to high concentrations of mercury in fish tissue.

Quantifiable concentrations of mercury have been measured in the City's discharge. The EPA's *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion* ("EPA Methylmercury Guidance") recommends that, when there is a quantifiable discharge of mercury from a point source, and the concentration of methylmercury in fish tissue from the receiving water exceeds or is close to the criterion, the permitting authority should find that the discharge has the reasonable potential to cause or contribute to excursions above the fish tissue criterion. If there is no TMDL for mercury for the receiving water and it is not feasible to translate the fish tissue criterion to a water column concentration, the EPA Methylmercury Guidance recommends a permit requirement to develop and implement an MMP, as well as effluent monitoring using a sufficiently sensitive analytical method to determine if the MMP is effective and a reopener clause to modify the permit conditions if the MMP is found to be ineffective or if a water column translation of the fish tissue criterion is developed.

The State of Idaho has also published guidance for the implementation of its methylmercury fish tissue criterion, the *Implementation Guidance for the Idaho Mercury Water Quality Criteria* ("Idaho Mercury Guidance"). According to the Idaho Mercury Guidance, a source that has the reasonable potential to cause or contribute to an excursion above the fish tissue criterion or that has been assigned a mercury WLA in a TMDL is a "significant source." As explained above, the City's discharge has the reasonable potential to cause or contribute to an excursion above the fish tissue criterion, according to the EPA Methylmercury Guidance. Furthermore, the Idaho Mercury Guidance states that, prior to the development of a TMDL for mercury, "permit conditions for major and minor NPDES dischargers can parallel 'significant' or 'de minimis' requirements, respectively" (see Table 6-1, Page 92). That is to

say, major NPDES discharges that discharge mercury are generally considered "significant" and have the reasonable potential to cause or contribute to excursions above WQS. The recommended permit conditions for significant municipal sources include mandatory best management practices (BMPs) and both effluent and fish tissue monitoring requirements.

The Idaho Mercury Guidance also recommends a no net increase requirement for mercury, for sources that have reasonable potential to cause or contribute to excursions above the fish tissue criterion (Section 6.3.1). However, in this case, the EPA believes that the numeric effluent limits for mercury, which are based on the aquatic life water quality criteria that are in effect for Clean Water Act purposes in Idaho, will ensure that there is no increase in mercury discharges from the facility. Therefore, the draft permit does not propose a no net increase provision.

The Idaho Mercury Guidance recommends an effluent monitoring frequency of quarterly until 12 samples are collected, and then semi-annually thereafter. However, in this case, numeric water quality-based effluent limits for mercury are necessary in order to ensure compliance with the aquatic life water quality criteria that are in effect for Clean Water Act purposes in Idaho, and more frequent (i.e., monthly) monitoring is necessary to determine compliance with these limits. Consistent with the recommendations in the EPA Methylmercury Guidance and the Idaho Mercury Guidance, the EPA has proposed to require that effluent monitoring for mercury use sufficiently sensitive analytical methods.

B. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The City of Nampa is required to update the Quality Assurance Plan for the wastewater treatment facility within 90 days of the effective date of the final permit. The Quality Assurance Plan must include standard operating procedures the permittee will 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 City of Nampa 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 90 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

Untreated or partially treated discharges from separate sanitary sewer systems are referred to as sanitary sewer overflows (SSOs). SSOs may present serious risks of human exposure when released to certain areas, such as streets, private property, basements, and receiving waters used for drinking water, fishing and shellfishing, or contact recreation. Untreated sewage contains pathogens and other pollutants, which are toxic. SSOs are not authorized

under this permit. Pursuant to the NPDES regulations, discharges from separate sanitary sewer systems authorized by NPDES permits must meet effluent limitations that are based upon secondary treatment. Further, discharges must meet any more stringent effluent limitations that are established to meet the EPA-approved state water quality standards.

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. Design Criteria

The 1999 NPDES permit for the facility contained flow, BOD_5 and TSS influent design loadings for the facility, and required the facility to develop a plan when the loading exceeded 85% of the design loads. The purpose of this requirement was to ensure that the permittee took the necessary steps to upgrade the facility to ensure that the facility was able to properly treat the flows into the facility and maintain compliance with the permit.

In general, federal regulations at 40 CFR 122.44(l) 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) unless the circumstances upon which the previous permit was based have materially and substantially changed since the last permit was issued and which would constitute a cause for permit modification pursuant to 40 CFR 122.62. In addition, 40 CFR 122.44(l)(1) and CWA Section 402(o) allows for the imposition of less stringent effluent limitations if one of the anti-backsliding exceptions set forth in 40 CFR 122.44(l)(2) is applicable.

The regulations at 40 CFR 122.62(a)(2) allow modification of permit conditions if new information was received that was not available at the time of permit issuance. In this case, the City of Nampa has been working over the last several years to identify options to upgrade its facility. The City has found four options that are viable. The four options are:

Option #1 and #2: Infiltration - Treated wastewater would be applied to an area of land rather than discharged into Indian Creek. Highly treated water from the City's wastewater treatment plant would be pumped offsite and released into a system of basins and/or ponds, then slowly infiltrated back into the aquifer south of Lake Lowell. Two methods of infiltration are being considered:

> Infiltration Sub-Option #1: Direct infiltration would increase the level of treatment to a very high level at the plant. The treated water would pumped away from the plant and applied to constructed ponds where it would infiltrate back into the groundwater.
>
> Infiltration Sub-Option #2: Rapid infiltration would increase the level of treatment to a high level at the plant. The treated water would be pumped away from the plant and applied to a series of basins. The basins would be designed to further cleanse the water by using the soil ecosystem to absorb pollutants and organic compounds. After being thoroughly cleansed through the soil, the treated water would infiltrate back into the groundwater.

Option #3: Treat and offset –Upgrades would be made at the plant to treat wastewater to certain levels and water would continue to be discharged into Indian Creek. To meet stricter regulations, Nampa would remove pollutants from Indian Creek at an alternate enhanced wetlands location.

Option #4: Upgrade the treatment plant –Substantial upgrades would be made at the plant and water would continue to be discharged into Indian Creek. To meet stricter regulations, upgrades to the plant would include adding chemical and biological processes to remove pollutants that are harmful to waterways.

The City has engaged in numerous public meetings to discuss the upgrade options and gather input from the public. The final option has not yet been chosen.

The EPA considers the extensive work that the City has engaged in regarding upgrading their treatment plant to be new information that was not available at the time of issuance of the 1999 permit, therefore, the EPA believes that the design criteria requirements may be removed from the permit.

F. Pretreatment Requirements

In February 1982, the City of Nampa submitted a formal pretreatment program application that met the requirements of 40 CFR §403. The program was approved by the EPA on July 1, 1982, and the city's NPDES permit was modified with pretreatment implementation conditions. The facility developed local limits as part of the pretreatment program in 1987.

According to the City's 2011 Pretreatment Annual Report the following are Significant Industrial Users to the wastewater treatment system:

- ABC Sanitation Company
- Boise Packaging and Newsprint, LLC
- Cintas Corporation
- Great American Appetizer Inc.
- Pepsi Bottling Venture
- Plexus Corporation
- Silicon Mountain
- Simplot Food Group
- The Amalgamated Sugar Company
- Transform Manufacturing, LLC

The following are Categorical Industrial Users to the wastewater treatment system:

- Advanced Electrochemical Technology
- BHS Marketing
- Micron Technology, Inc
- Microsil Silicon Services, LLC
- Selkirk, LLC
- Steelhead Metal Corporation

The total flow from the significant industrial users is approximately 3.2 mgd.

The proposed permit includes requirements to continue implementation of the approved pretreatment program. In particular, it continues the pretreatment sampling requirements from the previous permit and adds requirements to monitor for ammonia, molybdenum and selenium, as recommended in the EPA's *Local Limits Development Guidance* (EPA 833-R-04-002A, July 2004).

G. Standard Permit Provisions

Sections III, IV and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because these requirements are based directly on NPDES regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

H. Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." EPA strives to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for EPA-issued permits, including NPDES permits. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, EPA Region 10 will consider prioritizing enhanced public involvement opportunities for EPA-issued permits that may involve activities with significant public health or environmental impacts on already overburdened communities.[1]

As part of the permit development process, EPA Region 10 conducted a screening analysis to determine whether this permit action could affect overburdened communities using 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 WWTF is located within or near a Census block group that is potentially overburdened because of high particulate matter (PM) 2.5, diesel PM, and ozone levels in the air, high traffic proximity and volume, a high lead paint indicator score, major direct dischargers to water, hazardous waste treatment, storage, and disposal facilities (TSDFs), risk management plan (RMP) facilities, and a high air toxics neurological hazard index (HI). In order to ensure that individuals who live near the facility are able to participate meaningfully in the permit process, EPA is conducting enhanced outreach activities. Specifically, the EPA has notified Spanish-language newspapers and radio stations of the availability of this draft permit and made EPA staff available for interviews.

To address environmental justice, the permit requires the City to post the same effluent data that it reports on its DMRs on its website, so that the public may easily access these data. This serves the additional purpose of discouraging noncompliance, as discussed under the "next generation compliance" section below.

In addition, 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."[2] Examples of promising practices include: thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, etc.

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[1] For more information, please visit www.epa.gov/compliance/ej/plan-ej/.
[2] For more information, please visit https://www.federalregister.gov/articles/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the-permit-application-process#p-104.

I. Next Generation Compliance

This City's permit is part of a pilot project to update the way that the EPA monitors compliance with NPDES permits, as part of the EPA's "next generation compliance" effort.[3]

The EPA requires all major dischargers to report effluent data to the EPA electronically using NetDMR. Under NetDMR, all reports required under the permit are submitted to the EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it is no longer required to submit paper copies of DMRs or most other reports to the EPA and IDEQ. However, because of their due dates, some reports must be submitted separately from the electronic DMRs. Further information about NetDMR, including upcoming trainings and contacts, is provided on the following website: http://www.EPA.gov/netdmr.

However, the effluent data reported directly in NetDMR is only a summary of the effluent data. The City's permit also requires the City to submit its complete effluent data for selected pollutants as attachments to its electronic discharge monitoring reports (DMRs). This will allow the EPA to identify any errors in the summary DMR data and will also provide the EPA with data necessary to reissue the permit.

The permit also requires the City to report the summary effluent data that is reported in NetDMR on its own website. Instances of noncompliance that are required to be reported to the EPA within 24 hours must also be posted the City's website within 24 hours. This requirement serves the additional purpose of furthering the EPA's environmental justice efforts, as discussed above.

VIII. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. A review of the threatened and endangered species located in Idaho finds that there are no threatened or endangered species located in vicinity of the discharge, therefore ESA consultation is not required.

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

[3] For more information, please visit: www2.epa.gov/compliance/next-generation-compliance.

(e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The EPA has determined that issuance of this permit is not likely to adversely affect EFH in the vicinity of the discharge. Neither Indian Creek nor the Boise River nor the Snake River within the Middle Snake-Payette (HUC 17050115) and Brownlee Reservoir (HUC 17050201) watersheds downstream from the Boise River are designated as EFH. The permit is conditioned to meet water quality standards in Indian Creek. Thus, the discharge will not affect the distant downstream reaches of the Snake River that are designated as EFH.

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.

D. Permit Expiration

The permit will expire five years from the effective date.

IX. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001. http://www.epa.gov/npdes/pubs/owm0264.pdf

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EPA. 2005. "Guidance on Water Quality Based Effluent Limits Set Below Analytical Detection/Quantification Limits." April 25, 2005. http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/Permits+Homepage/$FILE/ML-MDL-Policy-4-25-05.pdf

EPA. 2010a. Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion. Environmental Protection Agency. Office of Science and Technology. EPA-823-R-10-001. April 2010. http://water.epa.gov/scitech/swguidance/standards/criteria/health/upload/mercury2010.pdf

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IDEQ. 2008. *Sediment and Bacteria Allocations Addendum to the Lower Boise River TMDL*. Idaho Department of Environmental Quality. Boise. April 2008. Revised June 12, 2012 and April 15, 2014. http://www.deq.idaho.gov/media/1117232/sediment-bacteria-allocations-addendum-lbr-tmdl.pdf

Appendix A: Facility Information

General Information

NPDES ID Number:	ID0022063
Physical Location:	340 West Railroad Street Nampa, ID 83687-1741
Mailing Address:	411 3rd Street South Nampa, ID 83651
Facility Background:	The most recent NPDES for the Nampa WWTF was issued on December 29, 1998, became effective on February 1, 1999, and expired on February 2, 2004. An NPDES application for permit issuance was submitted by the permittee in July 2003. The EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively extended and remains fully effective and enforceable. The City submitted updates to the NPDES permit application in 2005, 2008 and 2011. The first NPDES permit was issued to this facility in December 1974.

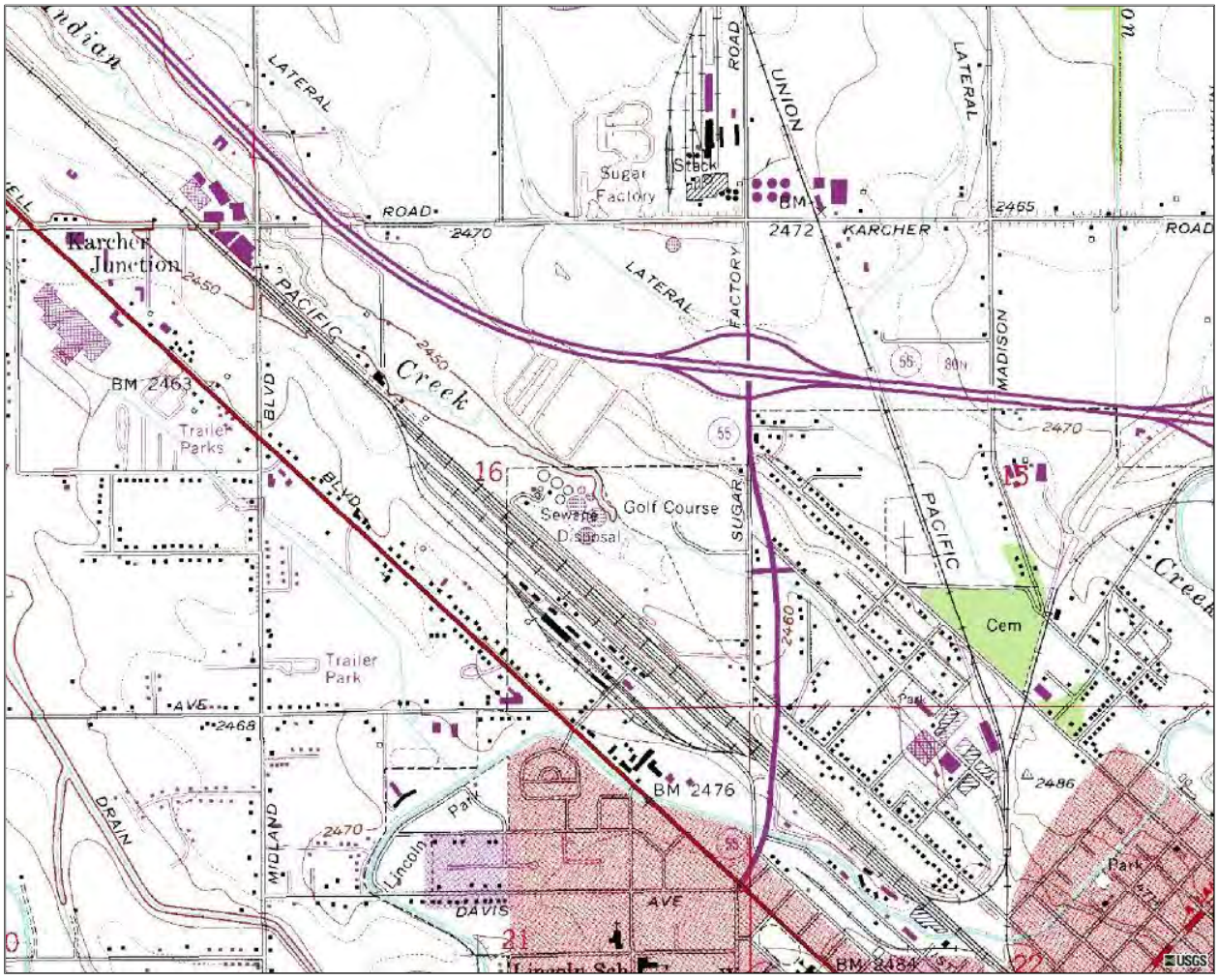
Facility Information

Type of Facility:	Publicly Owned Treatment Works (POTW)
Treatment Train:	The Nampa facility consists of grit removal and screening, three primary clarifiers, three trickling filters, two secondary clarifiers, nitrification activated sludge process, three final clarifiers, chlorination, dechlorination and post-aeration. Sludge (biosolids) from the wastewater treatment facility is anaerobically digested in a two-stage process. The facility produces Class B biosolids which are usually applied to land in southeastern Canyon County. The outfall for this facility goes to Indian Creek, and it does not have a diffuser.
Flow:	The design flow of the facility is 18.0 mgd as a maximum monthly average flow. The average actual effluent flow between 2008 and 2013 is 10.1 mgd, and the maximum monthly average effluent flow was 11.8 mgd.
Outfall Location:	latitude 43° 35’ 50” north, longitude 116° 34’ 52” west

Receiving Water Information

Receiving Water:	Indian Creek
Watershed:	Lower Boise (HUC 17050114)
Beneficial Uses:	Cold water aquatic life, secondary contact recreation, agricultural and industrial water supply, wildlife habitat, and aesthetics.

Figure A-1: Map



Appendix B: Water Quality Criteria Summary

This appendix provides a summary of water quality criteria applicable to Indian Creek.

Idaho water quality standards include criteria necessary to protect designated beneficial uses. The standards are divided into three sections: General Water Quality Criteria, Surface Water Quality Criteria for Use Classifications and Site-Specific Surface Water Quality Criteria. The EPA has determined that the criteria listed below are applicable to Indian Creek. This determination was based on (1) the applicable beneficial uses of the creek (i.e., cold water aquatic life, secondary contact recreation, agricultural water supply, industrial water supply, wildlife habitats and aesthetics), (2) the type of facility, (3) a review of the application materials submitted by the City and (4) the quality of the water in Indian Creek.

A. General Criteria (IDAPA 58.01.02.200)

Surface waters of the state shall be free from:

- hazardous materials,
- toxic substances in concentrations that impair designated beneficial uses,
- deleterious materials,
- radioactive materials,
- floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses,
- excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses,
- oxygen demanding materials in concentrations that would result in an anaerobic water condition

Surface water level shall not exceed allowable level for:

- radioactive materials, or
- sediments

B. Numeric Criteria for Toxics (IDAPA 58.01.02.210)

This section of the Idaho Water Quality Standards provides the numeric criteria for toxic substances for waters designated for aquatic life, recreation, or domestic water supply use. Monitoring of the effluent has shown that the following toxic pollutants have been present at detectable levels in the effluent.

- Ammonia
- Arsenic (total)
- Cadmium (total recoverable)
- Chlorine (total residual)
- Chromium (total)
- Copper (total recoverable)
- Cyanide
- Lead (total recoverable)
- Mercury (total)
- Nickel (total)

- Nitrate + Nitrite
- Silver (total recoverable)
- Zinc (total recoverable)

Hardness-Dependent Metals

The toxicities of some metals vary with the hardness of the water. Therefore, the water quality criteria for these metals also vary with hardness. EPA uses the hardness of the receiving water when mixed with the effluent to determine the water quality criteria for such metals.

The City of Nampa collected hardness data in Indian Creek upstream and downstream of the facility between 2003 and 2011. Since toxicity decreases (and numeric water quality criteria increase) as hardness increases, EPA has used the 5th percentile hardness measured by the City downstream from the outfall as a worst-case assumption for hardness. The hardness is generally lower from April – October than from November – March, thus, the EPA has calculated the 5th percentile hardness on a seasonal basis. The 5th percentile hardness from is 120 mg/L as CaCO3 from April – October and 200 mg/L as $CaCO_3$ from November – March.

Table B-1: Hardness-Dependent Metals Criteria Values

Parameter	Season	Acute Conversion Factor	Chronic Conversion Factor	Acute Criterion (µg/L)[1]	Chronic Criterion (µg/L)[1]
Cadmium	April – October	0.936	0.901	1.56	0.633
	November – March	0.915	0.880	2.39	0.850
Chromium III	April – October	0.316	0.860	662	86.1
	November – March	0.316	0.860	1005	131
Copper	April – October	0.960	0.960	20.2	13.3
	November – March	0.960	0.960	32.7	20.5
Lead	April – October	0.764	0.764	78.7	3.07
	November – March	0.690	0.690	136	5.31
Nickel	April – October	0.998	0.997	546	60.7
	November – March	0.998	0.997	842	93.5
Silver	April – October	0.850	—	4.72	—
	November – March	0.850	—	11.4	—
Zinc	April – October	0.978	0.986	137	138
	November – March	0.978	0.986	211	213

1. All metals criteria in this table are expressed as dissolved metal.

The hardness-dependent water quality criteria for the metals of concern are expressed as dissolved metal. The dissolved fraction of the metal is the fraction that will pass through a 0.45-micron filter. However, the federal regulation at 40 CFR 122.45(c) requires that NPDES permit effluent limits must be expressed as total recoverable metal. Total recoverable metal is the concentration of the metal in an unfiltered sample. To develop effluent limits for total recoverable metals which are protective of the dissolved metals criteria, "translators" are used in the equations to determine reasonable potential and derive effluent limits. Translators can either be site specific numbers or default numbers. EPA has published guidance related to the use of translators in NPDES permits in *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (EPA 823-B-96-007, June 1996). In the absence of site specific translators, this guidance recommends the use of water quality criteria conversion factors as the default translators. Because site-specific translators were not available, the EPA has used the conversion factors in the Idaho WQS (IDAPA 58.01.02.210.02) in the

reasonable potential and effluent limit calculations for the Nampa WWTF discharge. Table B-1, above, shows the results of the calculations for water quality criteria for hardness-dependent metals in Indian Creek.

C. Surface Water Criteria To Protect Aquatic Life Uses (IDAPA 58.01.02.250)

1. pH: Within the range of 6.5 to 9.0

2. Total Dissolved Gas: <110% saturation at atm. pressure.

3. Dissolved Oxygen: Exceed 6 mg/L at all times.

4. Temperature: Water temperatures of 22°C or less with a maximum daily average of no greater than 19°C. See Appendix G for more information on water quality criteria for temperature.

5. Ammonia:

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

The City of Nampa has collected pH and temperature data in Indian Creek upstream of the facility from 2003 – 2011. These data were used to determine the appropriate pH and temperature values to calculate the ammonia criteria.

As with any natural water body the pH and temperature of the water will vary over time. Therefore, to protect water quality, it is important to calculate the criteria based on pH and temperature values that will be protective of aquatic life at all times. The EPA used the 95th percentile pH and temperature for the calculations. The 95th percentile upstream pH is 8.1 standard units. The 95th percentile upstream temperatures are 12.75 °C from December – February and 20.5 °C from March – November.

Table B-1: Water Quality Criteria for Ammonia

	Acute Criterion[1]	Chronic Criterion[2]
Equations:	$\frac{0.275}{1+10^{7.204-pH}}+\frac{39}{1+10^{pH-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-pH}}+\frac{2.487}{1+10^{pH-7.688}}\right)\times MIN\left(2.85,1.45\times10^{0.028\times(25-T)}\right)$
Results Dec. – Feb.	4.63	2.10
Results July – March	4.63	1.43

1. No seasonal variation was assumed for pH, therefore, there is no seasonal variation in the acute criterion (which is a function of pH only).

6. Turbidity: Turbidity below any applicable mixing zone set by the Department shall not exceed background turbidity by more than 50 NTU instantaneously or more than 25 NTU for more than ten (10) consecutive days.

D. Surface Water Quality Criteria For Recreational Use Designation (IDAPA 58.01.02.251)

a. Geometric Mean Criterion. Waters designated for primary or secondary contact recreation are not to contain *E. coli* in concentrations exceeding a geometric mean of 126 *E. coli* organisms per 100 ml based on a minimum of 5 samples taken every 3 to 7 days over a 30 day period.

b. Use of Single Sample Values: This section states that 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 secondary contact recreation, the "single sample maximum" value is 576 organisms per 100 ml (IDAPA 58.01.02.251.01.b.i.).

E. Surface Water Quality Criteria for Agricultural Water Supply

The Idaho WQS state that "water quality criteria for agricultural water supplies will generally be satisfied by the water quality criteria set forth in Section 200. Should specificity be desirable or necessary to protect a specific use, *Water Quality Criteria 1972* (Blue Book), Section V, Agricultural Uses of Water, EPA, March, 1973 will be used for determining criteria" (IDAPA 58.01.02.252.02). *Water Quality Criteria 1972* recommends a criterion of 100 mg/L for nitrate.

Appendix C: Low Flow Conditions and Dilution

A. 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, 30Q10 or 30Q5

1. The 1Q10 represents the lowest one day flow with an average recurrence frequency of once in 10 years.
2. The 1B3 is biologically based and indicates an allowable exceedence of once every 3 years.
3. The 7Q10 represents lowest average 7 consecutive day flow with an average recurrence frequency of once in 10 years.
4. The 4B3 is biologically based and indicates an allowable exceedance for 4 consecutive days once every 3 years.
5. The 30Q5 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 5 years.
6. The 30Q10 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 10 years.
7. The harmonic mean is a long-term mean flow value calculated by dividing the number of daily flow measurements by the sum of the reciprocals of the flows.

Idaho's water quality standards do not specify a low flow to use for acute and chronic ammonia criteria, however, the EPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia; Notice* (64 FR 71976, December 22, 1999) identifies the appropriate flows to be used.

The EPA used ambient flow data collected at USGS Station #13211309, Indian Creek Above Waste Water Plant near Nampa, Idaho (1981 – 1996), and receiving water flow data measured by the permitte (2003 – 2011) to calculate the low flow conditions for Indian Creek upstream of the outfall. The low flows for the station are presented in Table C-2.

Table C-2: Seasonal Low Flows in Indian Creek at the Point of Discharge in CFS

Season	1Q10	7Q10	30Q10	30Q5	Harmonic Mean
March – November	7.88	12.9	17.0	19.8	N/A
December – February	18.0	18.5	19.5	21.4	N/A
April – October (hardness-dependent metals)	11.6	14.6	N/A	N/A	N/A
November – March (hardness-dependent metals)	15.2	17.2	N/A	N/A	N/A
Year Round	N/A	N/A	N/A	N/A	35.8

B. Mixing Zones and Dilution

In some cases a dilution allowance or mixing zone is permitted. A mixing zone is an area where an effluent discharge undergoes initial dilution and is extended to cover the secondary mixing in the ambient water body. A mixing zone is an allocated impact zone where the water quality standards may be exceeded as long as acutely toxic conditions are prevented (EPA 1994). The federal regulations at 40 CFR 131.13 states that "States may, at their discretion, include in their

State standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances."

The Idaho Water Quality Standards at IDAPA 58.01.02.060 provides Idaho's mixing zone policy for point source discharges. The policy allows the IDEQ to authorize a mixing zone for a point source discharge after a biological, chemical, and physical appraisal of the receiving water and the proposed discharge.

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

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

Where:

D = Dilution Factor
Q_e = Effluent flow rate (set equal to the design flow of the WWTF)
Q_u = Receiving water low flow rate upstream of the discharge (1Q10, 7Q10, 30B3, etc)
%MZ = Percent Mixing Zone

The IDEQ proposes to authorize 25% mixing zones for ammonia, arsenic, cadmium, chlorine, chromium III, chromium VI, copper, cyanide, lead, mercury, nickel, nitrate + nitrite, silver, zinc and whole effluent toxicity (WET). The EPA calculated dilution factors for seasonal critical low flow conditions. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 18 mgd (27.9 CFS). The dilution factors are listed in Table C-3.

Table C-3: Dilution Factors

Season	Acute	Chronic	Chronic Ammonia	Human Health Non-Carcinogen	Human Health Carcinogen
March – November	1.07	1.12	1.15	1.18	N/A
December – February	1.16	1.17	1.18	1.19	N/A
April – October (hardness-dependent metals)	1.10	1.13	N/A	N/A	N/A
Nov. – March (hardness-dependent metals)	1.14	1.15	N/A	N/A	N/A
Year Round	N/A	N/A	N/A	N/A	1.32

C. References

EPA. 1994. *Water Quality Standards Handbook: Second Edition*. EPA 823-B-94-005a. Office of Water. August 1994.
http://water.epa.gov/scitech/swguidance/standards/handbook/

Appendix D: Basis for Effluent Limits

The following discussion explains the derivation of technology and water quality based effluent limits proposed in the draft permit. Part A discusses technology-based effluent limits; Part B discusses water quality-based effluent limits.

A. 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 all 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 all municipal wastewater treatment plants 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 C-1.

Table D-1: Secondary Treatment Effluent Limits (40 CFR 133.102)

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.	

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L[1]) × design flow (mgd) × 8.34[2]

Since the design flow for this facility is 18 mgd, the technology based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 18 mgd × 8.34 = 4,504 lbs/day

Average Weekly Limit = 45 mg/L × 18 mgd × 8.34 = 6,755 lbs/day

[1] mg/L is equivalent to parts per million.
[2] 8.34 is a conversion factor equal to the density of water in lb/gallon.

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The City of Nampa uses chlorine disinfection.

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

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

Monthly average Limit= 0.5 mg/L x 18 mgd x 8.34 = 75.1 lbs/day

Weekly average Limit = 0.75 mg/L x 18 mgd x 8.34 = 113 lbs/day

The EPA has determined that the above technology-based effluent limits would not ensure compliance with water quality standards for chlorine. Therefore, more-stringent water quality based effluent limits are proposed for chlorine.

B. 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. Federal regulations at 40 CFR 122.4(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected States.

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, and that the level of water quality to be achieved by limits on point sources is derived from and complies with all applicable water quality standards.

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.

Reasonable Potential Analysis

When evaluating the effluent to determine if the pollutant parameters in the effluent 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/Tribal water quality criterion, the EPA projects the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. The EPA uses the concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, to project the receiving water concentration. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific pollutant, then the discharge has the reasonable potential to cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it may be appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loadings of the pollutant to the water body and will decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and the concentration of the pollutant in the receiving water is less than the criterion necessary to protect the designated uses of the water body. Mixing zones must be authorized by the State.

The reasonable potential analysis for ammonia, arsenic, cadmium, chlorine, chromium III, chromium VI, copper, cyanide, lead, mercury, nickel, nitrate + nitrite, silver, zinc, and whole effluent toxicity (WET) was based on a mixing zone of 25%, which was proposed in the IDEQ's draft certification. If IDEQ revises the allowable mixing zone in its final certification of this permit, the reasonable potential analysis will be revised accordingly.

Procedure for Deriving Water Quality-based Effluent Limits

The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) for the pollutant. A wasteload allocation is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water. Wasteload allocations are determined in one of the following ways:

<u>TMDL-Based Wasteload Allocation</u>

Where the receiving water quality does not meet water quality standards, the wasteload allocation is generally based on a TMDL developed by the State. A TMDL is a determination of the amount of a pollutant from point, non-point, and natural background sources that may be discharged to a water body without causing the water body to exceed the criterion for that pollutant. Any loading above this capacity risks violating water quality standards.

To ensure that these waters will come into compliance with water quality standards, Section 303(d) of the CWA requires States to develop TMDLs for those water bodies that will not meet water quality standards even after the imposition of technology-based effluent limitations. The first step in establishing a TMDL is to determine the assimilative capacity (the loading of pollutant that a water body can assimilate without exceeding water quality standards). The next step is to divide the assimilative capacity into allocations for non-point sources (load allocations), point sources (wasteload allocations), natural background loadings, and a margin of safety to account for any uncertainties. Permit limitations are then developed for point sources that are consistent with the wasteload allocation for the point source.

In January 2000, the EPA approved a TMDL for the lower Boise River. The TMDL included wasteload allocations for TSS and bacteria for the Nampa WWTF. The original wasteload allocations for TSS for the City of Nampa are 3,000 lb/day average monthly and 4,500 lb/day average weekly (see the TMDL at Table 15, on Page 62).

On April 15, 2014, IDEQ granted a portion of the Lower Boise River TMDL's reserve for growth allocation to the City of Nampa. IDEQ revised Table 15 of the *Sediment and Bacteria Allocation Addendum to the Lower Boise River TMDL* (IDEQ 2008) to allow Nampa an average monthly allocation of 4,503 lb/day and an average weekly allocation of 6,755 lb/day. In the draft permit, the EPA has proposed effluent limits for TSS which are identical to these revised wasteload allocations.

The Lower Boise River TMDL included monthly, weekly, and daily wasteload allocations for bacteria for the City of Nampa facility. The WLAs were based on fecal coliform concentrations because, at the time the TMDL was developed, the Idaho water quality standards used fecal coliform as the indicator organism for bacteria for the protection of contact recreation. However, the TMDL also stated that if Idaho's bacteria criteria were revised to require E. coli as the indicator organism rather than fecal coliform then "…compliance with the load allocations in this TMDL could be demonstrated using E. Coli samples, rather than fecal coliform," and that "…[i]f E. Coli are used as the new Idaho criteria for contact recreation when the permits are re-issued, the new E. Coli criteria should be incorporated into the permits in place of fecal coliform requirements." (see Lower Boise River TMDL; Page 74).

The effluent limits apply the current Idaho water quality criteria for E. coli at the end-of-pipe, as explained below in the summary of water quality-based effluent limits, under "E. coli."

Mixing zone based WLA

When the State authorizes a mixing zone for the discharge, the WLA is calculated by using a simple mass balance equation. The equation takes into account the available dilution provided by the mixing zone and the background concentrations of the pollutants. The WLAs for ammonia, chlorine, copper, cyanide and mercury were derived using a mixing zone.

Criterion as the Wasteload Allocation

In some cases a mixing zone cannot be authorized, either because the receiving water is already at, or exceeds, the criterion, the receiving water flow is too low to provide dilution, or the facility can achieve the effluent limit without a mixing zone. In such cases, the criterion becomes the wasteload allocation. Establishing the criterion as the wasteload allocation ensures that the effluent discharge will not contribute to an exceedance of the criteria.

Calculation of Effluent Limits from the Wasteload Allocation

Once the wasteload allocation has been developed, the EPA generally applies the statistical permit limit derivation approach described in Chapter 5 of the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, March 1991, hereafter referred to as the TSD) to obtain monthly average, and weekly average or daily maximum permit limits. This approach takes into account effluent variability, sampling frequency, and water quality standards.

Summary - Water Quality-based Effluent Limits

The water quality based effluent limits in the draft permit are summarized below.

Total Phosphorus

As described in Appendix F, EPA has proposed water quality-based effluent limits for total phosphorus in the draft permit, which are consistent with the assumptions and requirements of the draft *Lower Boise River TMDL: 2015 Total Phosphorus Addendum*.

Ammonia

The City's 1999 permit included water quality-based effluent limits for ammonia. When the EPA re-calculated ammonia effluent limits based on current water quality criteria and recent effluent variability, the resulting limits were less stringent than those in the 1999 permit. Because the less-stringent re-calculated ammonia limits are subject to and consistent with the State of Idaho's antidegradation policy, the re-calculated ammonia limits are allowed under the anti-backsliding provisions of the Clean Water Act (Section 303(d)(4)(B)).

Therefore, the draft permit proposes revised water quality-based effluent limits for ammonia. See Appendix E for reasonable potential and effluent limit calculations for ammonia.

pH

The upper bound of Idaho's pH criterion is identical to the upper bound of the technology-based effluent pH limit for pH (9.0). Thus, the upper bound pH water quality criterion must be met at the point of discharge.

The acute dilution factor provided by a 25% mixing zone is 1.16:1 from December – February and 1.07:1 from March – November. Thus, the receiving water has very little capacity to dilute effluent discharges with a pH of less than 6.5 standard units. Therefore, no mixing zone is proposed for pH, and the pH criteria must be met before the effluent is discharged to the receiving water.

Dissolved Oxygen

The draft permit proposes to carry forward the dissolved oxygen limits in the 1999 permit, consistent with the anti-backsliding provisions of the Clean Water Act and federal regulations. These limits were a minimum monthly average of 90% of saturation and a minimum weekly average of 80% of saturation.

The applicable water quality criterion for DO in Indian Creek is a minimum of 6.0 mg/L at all times. Because the DO limits in the prior permit were expressed as averages and as percentages of saturation, they may not always ensure compliance with the water quality criterion, which is expressed as a DO concentration to be exceeded at all times. Therefore, the draft permit also proposes a minimum DO effluent limit of 6.0 mg/L, which is identical to the water quality criterion.

BOD_5

The EPA has determined that the technology-based effluent limits for BOD_5, in combination with the effluent limits for dissolved oxygen, discussed above, are adequately stringent to ensure compliance with water quality standards for dissolved oxygen in Indian Creek.

E. coli

The Idaho water quality standards state that waters of the State of Idaho, that are designated for recreation, are not to contain *E. coli* bacteria in concentrations exceeding 126 organisms per 100

ml based on a minimum of five samples taken every three to seven days over a thirty day period. 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 secondary contact recreation, the "single sample maximum" value is 576 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 576 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 576 organisms per 100 ml, in addition to a monthly geometric mean limit of 126 organisms per 100 ml, which directly implements the water quality criterion for *E. coli*. This will ensure that the discharge will have a low probability of exceeding water quality standards for *E. coli*.

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

Chlorine

The EPA has determined that the technology-based effluent limits for chlorine are not stringent enough to ensure compliance with Idaho's water quality criteria for chlorine. Therefore, the EPA has calculated water quality-based effluent limits for chlorine. The proposed water quality-based effluent limits for chlorine have been re-calculated based on recent effluent variability.

Residues

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

Temperature

As explained in Appendix G, the EPA has determined that the discharge from the City of Nampa WWTF has the reasonable potential to cause or contribute to excursions above water quality standards for temperature from July – September. Therefore, water quality-based effluent limits for temperature are proposed for this season.

Cyanide

The EPA has determined that the discharge from the City of Nampa WWTF has the reasonable potential to cause or contribute to excursions above water quality standards for weak acid dissociable cyanide. Therefore, the draft permit proposes revised water quality-based effluent limits for cyanide. See Appendix E for reasonable potential and effluent limit calculations for cyanide.

Copper

The EPA has determined that the discharge from the City of Nampa WWTF has the reasonable potential to cause or contribute to excursions above water quality standards for copper. Therefore, the draft permit proposes revised water quality-based effluent limits for copper. See Appendix E for reasonable potential and effluent limit calculations for copper.

Summary of Effluent Limit Bases

The following table summarizes the general statutory and regulatory bases for the limits in the draft permit.

Table D-4: Summary of Effluent Limit Bases

Limited Parameter	Basis for Limit
BOD_5	Clean Water Act (CWA) Section 301(b)(1)(B), 40 CFR 122.45(f), 40 CFR 133 (technology-based, mass limits)
TSS Monthly Average and Weekly Average Concentration and Removal Rate	CWA Section 301(b)(1)(B), 40 CFR 122.45(f), 40 CFR 133 (technology-based)
TSS Load	CWA Section 301(b)(1)(C), 40 CFR 122.44(d)(1)(vii)(B) (water quality-based, TMDL[1])
Floating, Suspended or Submerged Matter	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.200.05 (water quality-based)
pH	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.250.01.a (water quality-based)
E. Coli	CWA Section 301(b)(1)(C), 40 CFR 122.44(d)(1)(vii)(B), IDAPA 58.01.02.251.01 (water quality-based, TMDL)
Ammonia	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.060, IDAPA 58.01.02.250.02.d (water quality-based, with mixing zone)
Total Phosphorus	CWA Section 301(b)(1)(C), 40 CFR 122.44(d)(1)(vii)(B) (water quality-based, TMDL[2])
Temperature	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.060, IDAPA 58.01.02.250.02.b (water quality-based, with mixing zone)
Chlorine, copper and cyanide	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.060, IDAPA 58.01.02.210.01 (water quality-based, with mixing zone)
Dissolved oxygen (% saturation)	40 CFR 122.44(l) (anti-backsliding)
Dissolved oxygen (mg/L)	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.250.02.a (water quality-based)
Mercury Effluent Limits	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), 40 CFR 131.21, IDAPA 58.01.02.060 (water quality-based, previously approved State water quality standards, with mixing zone)
Mercury Minimization Plan	40 CFR 122.44(k)(3 – 4), IDAPA 58.01.02.210.01 (best management practices)

Notes:
1. The proposed TSS 4-month average loading and concentration limits are based on the draft *Lower Boise River TMDL: 2015 Addendum*. Limits in the final permit will be based on the WLAs in the final, EPA-approved TMDL.
2. The proposed TP limits in the draft permit are based on the draft *Lower Boise River TMDL: 2015 Total Phosphorus Addendum*. Limits in the final permit will be based on the WLAs in the final, EPA-approved TMDL.

C. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. US Environmental Protection Agency. Office of Water. EPA/505/2-90-001. March 1991. http://www.epa.gov/npdes/pubs/owm0264.pdf

IDEQ. 1999. *Lower Boise River TMDL: Subbasin Assessment, Total Maximum Daily Loads*. Revised September 29, 1999. http://www.deq.idaho.gov/media/451243-_water_data_reports_surface_water_tmdls_boise_river_lower_boise_river_lower_entire.pdf

IDEQ. 2008. *Sediment and Bacteria Allocations Addendum to the Lower Boise River TMDL*. Idaho Department of Environmental Quality. Boise. April 2008. Revised June 12, 2012 and

April 15, 2014.
http://www.deq.idaho.gov/media/1117232/sediment-bacteria-allocations-addendum-lbr-tmdl.pdf

Appendix E: Reasonable Potential and Water Quality-Based Effluent Limit Calculations

Part A of this appendix explains the process the EPA has used to determine if the discharge authorized in the draft permit has the reasonable potential to cause or contribute to a violation of Idaho's federally approved water quality standards. Part B demonstrates how the water quality-based effluent limits (WQBELs) in the draft permit were calculated.

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. This following section discusses how the maximum projected receiving water concentration is determined.

Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_d Q_d = C_e Q_e + C_u Q_u \qquad \text{Equation 1}$$

where,

- C_d = Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
- C_e = Maximum projected effluent concentration
- C_u = 95th percentile measured receiving water upstream concentration
- Q_d = Receiving water flow rate downstream of the effluent discharge = Q_e+Q_u
- Q_e = Effluent flow rate (set equal to the design flow of the WWTF)
- 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 Control* (TSD) (EPA 1991) recommends using the maximum projected effluent concentration (C_e) in the mass balance calculation. To determine the maximum projected effluent concentration (C_e) 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 (C_e) 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

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

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:

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

where MRC = Maximum Reported Concentration

Chromium VI and Human Health Criterion for Arsenic

For chromium VI and for the human health criterion for arsenic, the EPA has used the 95th percentile effluent concentration to determine if the discharge has the reasonable potential to cause or contribute to excursions above the State of Idaho's water quality criteria, instead of the more conservative 99th percentile, which was used for other parameters and criteria. The EPA believes this is appropriate because the available effluent data for arsenic were reported as total recoverable arsenic, whereas the criterion is expressed as the inorganic form only, and the effluent data for chromium were reported as total chromium, whereas the criterion for chromium VI is expressed as hexavalent chromium only.

In Section 3.3.2, the TSD states that, "although (the 99th percentile) does represent a measure of the upper bound of an effluent distribution, other percentiles could be selected by a regulatory agency." The TSD provides a table of reasonable potential multipliers for both the 95th and 99th percentiles (Tables 3-1 and 3-2). The EPA believes it is appropriate to use a lower (i.e., less conservative) effluent percentile value in the reasonable potential analysis for chromium VI and the human health criterion for arsenic, because there is conservatism inherent in using the "total" effluent data in the reasonable potential analysis, when the criteria are applicable to only a fraction of the total arsenic and chromium. Therefore, the EPA believes, in this case, it is appropriate to use the 95th percentile effluent concentration as the maximum projected effluent concentration for chromium VI and the human health criterion for arsenic, instead of the 99th percentile.

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.

Results of Reasonable Potential Calculations

It was determined that ammonia, chlorine, copper (from April – October), cyanide, mercury and whole effluent toxicity have the reasonable potential to cause or contribute to an exceedance of water quality criteria at the edge of the mixing zone. The results of the calculations are presented in Tables E-1 and E-2 of this appendix.

B. WQBEL Calculations

The following calculations demonstrate how the water quality-based effluent limits (WQBELs) in the draft permit were calculated. The WQBELs for ammonia, copper, cyanide, lead, and mercury are derived from aquatic life water quality criteria. The following discussion presents the general equations used to calculate the water quality-based effluent limits. The calculations for all WQBELs based on aquatic life criteria are summarized in Table E-3.

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 (Equations 6 and 7). To calculate the wasteload allocations, C_d is set equal to the acute or chronic criterion and the equation is solved for C_e. The calculated C_e is the acute or chronic WLA. Equation 6 is rearranged to solve for the WLA, becoming:

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

Idaho's water quality criteria for some metals are expressed as the dissolved fraction, but the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, the EPA must calculate a wasteload allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator, as shown in equation 12, below. As discussed in Appendix B, the criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge.

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

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

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

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

where,

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

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

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

where,

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

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

Derive the maximum daily and average monthly effluent limits

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

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

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

where σ, and 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.

Table E-3, below, details the calculations for water quality-based effluent limits.

Table E-1: Reasonable Potential Calculations

Effluent Percentile value	99%																
				State Water Quality Standard		Max concentration at edge of...											
Parameter	Metal Criteria Translator as decimal Acute	Metal Criteria Translator as decimal Chronic	Ambient Concentration (metals as dissolved) ug/L	Acute ug/L	Chronic ug/L	Acute Mixing Zone ug/L	Chronic Mixing Zone ug/L	LIMIT REQ'D?	Pn	Max effluent conc. measured (metals as total recoverable) ug/L	Coeff Variation CV	s	# of samples n	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	COMMENTS
Ammonia Dec - Feb (mg/L)	1.000	1.000	0.439	4.63	2.10	2.47	2.45	YES	N/A	2.8	N/A	N/A	N/A	1.00	1.16	1.18	Previous Max Daily Limit
Ammonia March - Nov (mg/L)	1.000	1.000	0.439	4.63	1.43	2.64	2.487	YES	N/A	2.8	N/A	N/A	N/A	1.00	1.07	1.15	Previous Max Daily Limit
Arsenic (Aquatic Life) Dec - Feb	1.000	1.000	7.9	340	150	10.72	10.71	NO	0.877	9	0.19	0.19	35	1.24	1.16	1.17	
Arsenic (Aquatic Life) March - Nov	1.000	1.000	7.9	340	150	10.96	10.84	NO	0.877	9	0.19	0.19	35	1.24	1.07	1.12	
Cadmium April - Oct	0.936	0.901		1.562	0.633	0.27	0.25	NO	0.877	0.09	1.49	1.08	35	3.53	1.10	1.13	
Cadmium Nov - March	0.915	0.880		2.394	0.850	0.26	0.24	NO	0.877	0.09	1.49	1.08	35	3.53	1.14	1.15	
Chlorine Dec - Feb	1.000	1.000		11	19	646	643	YES	N/A	750	N/A	N/A	N/A	1.00	1.16	1.17	TBEL
Chlorine March - Nov	1.000	1.000		11	19	700	672	YES	N/A	750	N/A	N/A	N/A	1.00	1.07	1.12	TBEL
Chromium III April - Oct	0.316	0.860	4.0	662	86.1	4.56	11.6	NO	0.877	7.0	0.70	0.63	35	2.09	1.10	1.13	
Chromium III Nov - March	0.316	0.860	4.0	1005	131	4.54	11.42	NO	0.877	7.0	0.70	0.63	35	2.09	1.14	1.15	
Copper April - Oct	0.960	0.960	1.6	20.2	13.3	264.50	258.25	YES	0.918	106.0	1.61	1.13	54	2.87	1.10	1.13	
Copper Nov - March	0.960	0.960	1.6	32.7	20.5	257.03	253.06	YES	0.918	106.0	1.61	1.13	54	2.87	1.14	1.15	
Cyanide Dec - Feb	1.000	1.000		22.00	5.20	11.69	11.65	YES	0.599	4.3	0.60	0.55	9	3.16	1.16	1.17	
Cyanide March - Nov	1.000	1.000		22.00	5.20	12.69	12.17	YES	0.599	4.3	0.60	0.55	9	3.16	1.07	1.12	
Lead April - Oct	0.764	0.764	1.0	78.7	3.07	1.31	1.30	NO	0.877	1.00	0.51	0.48	35	1.75	1.10	1.13	
Lead Nov - March	0.690	0.690	1.0	136	5.31	1.18	1.18	NO	0.877	1.00	0.51	0.48	35	1.75	1.14	1.15	
Mercury Dec - Feb	1.000	1.000	0.0027	2.100	0.012	0.0601	0.0599	YES	0.658	0.02	0.63	0.58	11.00	3.04	1.16	1.17	
Mercury March - Nov	1.000	1.000	0.0027	2.100	0.012	0.0650	0.0625	YES	0.658	0.02	0.63	0.58	11.00	3.04	1.07	1.12	
Nickel April - Oct	0.998	0.997	23.0	546	60.7	40.3	39.6	NO	0.877	20.00	0.70	0.63	35	2.08	1.07	1.12	
Nickel Nov - March	0.998	0.997	23.0	842	93.5	39.0	38.9	NO	0.877	20.00	0.70	0.63	35	2.08	1.16	1.17	
Nitrate + Nitrite (mg/L)	1.000	1.000	12.4		100		48.86	NO	0.825	37.2	0.29	0.29	24	1.49		1.18	
Silver April - Oct	0.850			4.72		0.09		NO	0.877	0.06	0.54	0.50	35	1.80	1.07		
Silver Nov - March	0.850			11.4		0.08		NO	0.877	0.06	0.54	0.50	35	1.80	1.16		
WET Dec - Feb	1.000	1.000		3.00	1.00	0.86	0.86	NO	0.866	1.00			32	1.00	1.16	1.17	
WET March - Nov	1.000	1.000		3.00	1.00	0.93	0.90	NO	0.866	1.00			32	1.00	1.07	1.12	
Zinc April - Oct	0.978	0.986	14.0	137	138	56.1	54.8	NO	0.877	49	0.18	0.18	35	1.23	1.07	1.12	
Zinc Nov - March	0.978	0.986	14.0	211	213	52.8	53.1	NO	0.877	49	0.18	0.18	35	1.23	1.16	1.17	

Table E-2: Reasonable Potential Calculations for Chromium VI and Human Health Criteria for Arsenic

Effluent Percentile value	95%																
				State Water Quality Standard		Max concentration at edge of...											
Parameter	Metal Criteria Translator as decimal Acute	Metal Criteria Translator as decimal Chronic	Ambient Concentration (metals as dissolved) ug/L	Acute ug/L	Chronic ug/L	Acute Mixing Zone ug/L	Chronic Mixing Zone ug/L	LIMIT REQ'D?	Pn	Max effluent conc. measured (metals as total recoverable) ug/L	Coeff Variation CV	s	# of samples n	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	COMMENTS
Arsenic (Human Health) Mar - Nov	1.00	1.00	7.9		10		9.20	NO	0.918	9	0.19	0.19	35	1.05		1.18	
Arsenic (Human Health) Dec-Feb	1.00	1.00	7.9		10		9.19	NO	0.918	9	0.19	0.19	35	1.05		1.19	
Chromium VI March - Nov	0.98	0.96	4.0	15.7	10.6	7.8	7.5	NO	0.918	7.0	0.70	0.63	35	1.17	1.07	1.12	
Chromium VI Dec - Feb	0.96	0.96	4.0	15.7	10.6	7.34	7.33	NO	0.918	7.0	0.70	0.63	35	1.17	1.16	1.17	

Table E-3: Water Quality-based Effluent Limit Calculations

Statistical variables for permit limit calculation		Dilution (Dil'n) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.																
LTA Probability Basis	99%																	
MDL Probability Basis	99%																	
AML Probability Basis	95%																	
		Permit Limit Calculation Summary									**Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations**							
	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator	Metal Criteria Translator	Ambient Concentration	Water Quality Standard Acute	Water Quality Standard Chronic	Average Monthly Limit (AML)	Maximum Daily Limit (MDL)	Comments	WLA Acute	WLA Chronic	LTA Acute	LTA Chronic	Limiting LTA	Coeff. Var. (CV)	# of Samples per Month
PARAMETER			Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	ug/L	ug/L		*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*decimal*	*n*
Ammonia Dec - Feb	1.16	1.18	1.00	1.00	0.439	4.63	2.10	**1.41**	**5.31**		5.31	2.39	0.51	0.87	0.51	2.80	8
Ammonia March - Nov	1.07	1.15	1.00	1.00	0.439	4.63	1.43	**1.31**	**4.92**		4.92	1.58	0.47	0.58	0.47	2.80	8
Chlorine Dec - Feb	1.16	1.17	1.00	1.00		19	11	**9.6**	**18.6**		22.1	12.8	9.94	8.37	8.37	0.39	20
Chlorine March - Nov	1.07	1.12	1.00	1.00		19	11	**9.2**	**17.8**		20.3	12.3	9.16	8.01	8.01	0.39	20
Copper April - Oct	1.10	1.13	0.96	0.96	1.600	20.21	13.26	**10.7**	**23.1**		23.1	15.4	3.15	3.83	3.15	1.61	1
Copper Nov - Mar	1.14	1.15	0.96	0.96	1.600	32.70	20.52	**17.8**	**38.5**		38.5	24.4	5.26	6.07	5.26	1.61	1
Cyanide Dec - Feb	1.16	1.17	1.00	1.00		22.00	5.20	**4.96**	**9.96**		25.6	6.06	8.2	3.20	3.20	0.60	4
Cyanide March - Nov	1.07	1.12	1.00	1.00		22.00	5.20	**4.75**	**9.53**		23.6	5.80	7.6	3.06	3.06	0.60	4
Mercury Dec - Feb	1.16	1.17	1.00	1.00	0.0027	2.10	0.012	**0.011**	**0.023**		2.44	0.014	0.75	0.0069	0.0069	0.63	4
Mercury March - Nov	1.07	1.12	1.00	1.00	0.0027	2.10	0.012	**0.011**	**0.022**		2.25	0.013	0.69	0.0067	0.0067	0.63	4

C. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. US Environmental Protection Agency. Office of Water. EPA/505/2-90-001. March 1991.
http://www.epa.gov/npdes/pubs/owm0264.pdf

Appendix F: Total Phosphorus Reasonable Potential and Limits

A. Limits Consistent with the draft Lower Boise River TMDL 2015 Total Phosphorus Addendum

Federal regulations state that NPDES permits must include effluent limits consistent with the assumptions and requirements of any available wasteload allocation (WLA) in a total maximum daily load (TMDL) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR 130.7 (40 CFR 122.44(d)(1)(vii)(A)).

At this time, there is no approved TMDL for total phosphorus in the Indian Creek or the Lower Boise River. However, the Idaho Department of Environmental Quality has prepared the draft *Lower Boise River TMDL: 2015 Total Phosphorus Addendum*, ("2015 Draft TP TMDL") which was issued for public review and comment on June 5th, 2015. The 2015 Draft TP TMDL includes WLAs for the City of Nampa. The EPA anticipates that IDEQ will finalize the 2015 Draft TP TMDL in the near future, and that the final TMDL will subsequently be approved by the EPA. Thus, in the draft permit, the EPA is proposing effluent limits for TP that are consistent with the proposed WLAs in the 2015 Draft TP TMDL.

The EPA intends to issue a final NPDES permit to the City of Nampa after the 2015 Draft TP TMDL is finalized by IDEQ and approved by the EPA. The WLAs in the final, approved TMDL may be different from those in the 2015 Draft TP TMDL. The EPA intends to establish TP limits in the final permit that are consistent with the assumptions and requirements of the WLAs in the final, approved TMDL.

The WLAs are 15 lb/day from May 1 – September 30 (see Table 28, Page 94) and 52.6 lb/day from October 1 – April 30 (see Table 35, Page 110). Federal regulations state that effluent limits for publicly owned treatment works (POTWs) that discharge continuously shall be stated as average weekly and average monthly discharge limitations, unless impracticable (40 CFR 122.45(d)(2)). For both the May – September and October – April WLAs, the 2015 Draft TP TMDL states that "DEQ intends that wasteload allocations are to be expressed as average monthly limits, with higher weekly average limits based on the coefficient of variation, in NPDES permits." Thus, the proposed average monthly limits for TP are identical to the WLAs.

Average weekly limits for TP were calculated by adapting the ratio shown in Table 5-3 of the EPA's *Technical Support Document for Water Quality-based Toxics Control* or "TSD" (EPA 1991) to calculate an average weekly limit instead of a maximum daily limit, using the required sampling frequency of twice per week, the 95th percentile probability basis for the average monthly limit, the 99th percentile probability basis for the average weekly limit. Attainment of the proposed average monthly effluent limits for TP will require upgrades to the POTW. Therefore, the historic effluent variability for TP may not be representative of future effluent variability. Therefore, the EPA has assumed that the CV is equal to 0.6, consistent with the recommendation of the TSD when effluent data are not available (see TSD at Page E-3). This results in a ratio between the average monthly and average weekly limit of 1.72:1. Thus, the proposed average weekly limits are:

May – September: 15 lb/day × 1.72 = 26 lb/day

October – April: 52.6 lb/day × 1.72 = 90.5 lb/day

B. Potential Alternative Limits based on Idaho's Narrative Water Quality Criterion for Nutrients

As explained above, IDEQ has completed the 2015 Draft TP TMDL, which includes wasteload allocations for the City of Nampa facility. However, unless and until the TMDL is finalized by IDEQ and approved by the EPA, the regulation requiring that the EPA establish effluent limits that are "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State *and approved by EPA pursuant to 40 CFR 130.7"* (emphasis added) is inapplicable to the City of Nampa's permit.

If the TMDL is not finalized by IDEQ and approved by the EPA, effluent limits for nutrients would need to be derived directly from Idaho's narrative criterion for excess nutrients (IDAPA 58.01.02.200.06). Such limits would also need to comply with applicable federal regulations, notably 40 CFR 122.44(d)(1)(vi – vii).

Since modeling shows that nuisance levels of periphyton (> 150 mg/m^2 chlorophyll a) can occur under existing phosphorus loading conditions in at least one Boise River segment in every month of the year except May, June and July (see the 2015 Draft TP TMDL at Figure 32, Page 120), when reductions in TP in the Boise River are necessary to meet the 70 µg/L load allocation in the Snake River Hells Canyon TMDL (IDEQ and ODEQ 2004), TP limits would need to be established for all times of the year.

In addition, such limits would likely be more stringent than the limits consistent with the WLA in the 2015 Draft TP TMDL (described above). The 2015 Draft TP TMDL establishes load and wasteload allocations for numerous point and nonpoint sources in the Lower Boise watershed. Unless and until the TMDL is finalized by IDEQ and approved by the EPA, there is no assurance that the other point and nonpoint sources of TP in the Lower Boise watershed will reduce their TP loading, as planned by the TMDL. If the other sources of TP in the watershed do not reduce TP loading, effluent limits more stringent than limits consistent with the WLA in the 2015 Draft TP TMDL (described above) would likely for be necessary for any specific NPDES permit, in order to ensure a level of water quality that is derived from and complies with all applicable water quality standards, as required by 40 CFR 122.44(d)(1)(vii)(A).

The EPA is not proposing specific effluent limits for TP derived directly from Idaho's narrative criterion for excess nutrients at this time. Should the EPA decide to do so in the future, the EPA will reopen the public comment period for this draft permit to propose and take comments on such limits.

C. References

EPA. 1986. *Quality Criteria for Water 1986*. Environmental Protection Agency. Office of Water. Regulations and Standards. Washington, DC. May 1, 1986. EPA-440-5-86-001. http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009_01_13_criteria_goldbook.pdf

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. US Environmental Protection Agency. Office of Water. EPA/505/2-90-001. March 1991. http://www.epa.gov/npdes/pubs/owm0264.pdf

IDEQ and ODEQ. 2004. *Snake River – Hells Canyon Total Maximum Daily Load (TMDL)*. Idaho Department of Environmental Quality and Oregon Department of Environmental Quality.

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http://www.deq.state.or.us/wq/tmdls/docs/snakeriverbasin/tmdlrev.pdf

IDEQ. 2015. *Lower Boise River TMDL: 2015 Total Phosphorus Addendum.* Idaho Department of Environmental Quality. Boise, ID. Draft. June 2015.
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Appendix G: Reasonable Potential and Effluent Limit Calculations for Temperature

A. Overview

As explained below, the EPA has determined that the discharge of heat from the City of Nampa wastewater treatment facility has the reasonable potential to cause or contribute to violations of Idaho's water quality criteria for temperature from July – September. Therefore, water quality-based effluent limits for temperature are proposed for this season.

B. Applicable Water Quality Standards

The City of Nampa discharges to Indian Creek in the Lower Boise watershed (HUC 17050114), Water Body Unit SW-2. At the point of discharge, Indian Creek is protected for cold water aquatic life, among other uses.

Idaho's water quality criteria for temperature, for waters designated for cold water aquatic life, are water temperatures of 22 °C or less at all times (i.e., an instantaneous maximum temperature of 22 °C) with a maximum daily average (mean) of no greater than 19 °C (IDAPA 58.01.02.250.02.b). The Idaho Water Quality Standards define the "daily mean" as "the average of at least two (2) appropriately spaced measurements…calculated over a period of one (1) day," and further explain that, for temperature, "the daily mean should be calculated from equally spaced measurements, at intervals such that the difference between any two (2) consecutive measurements does not exceed one point zero (1.0) degree C" (IDAPA 58.01.02.010.18).

An EPA-approved site-specific water quality criterion states that, "with regard to the limitations set forth in Section 401 relating to point source wastewater discharges, only the limitations of Subsections 401.01.a. and 401.01.b. and the temperature limitation relating to natural background conditions shall apply to discharges to any water body within the Lower Boise River Subbasin" (IDAPA 58.01.02.278.05). Subsections 401.01.a and 401.01.b state that wastewater must not affect the receiving water outside the mixing zone so that the temperature of the receiving water or of downstream waters will interfere with designated beneficial uses or that daily and seasonal temperature cycles characteristic of the water body are not maintained. Regarding natural background conditions, subsection 401.01.c states that, "if temperature criteria for the designated aquatic life use are exceeded in the receiving waters upstream of the discharge due to natural background conditions, then wastewater must not raise the receiving water temperatures by more than three tenths (0.3) degrees C." The EPA has no information to demonstrate that temperature criteria are exceeded in Indian Creek due to natural background conditions, nor does the EPA have the information necessary to determine whether existing temperatures are higher or lower than the natural background conditions.[1]

[1] The Idaho WQS define "natural background conditions" as "The physical, chemical, biological, or radiological conditions existing in a water body without human sources of pollution within the watershed. Natural disturbances including, but not limited to, wildfire, geologic disturbance, diseased vegetation, or flow extremes that affect the physical, chemical, and biological integrity of the water are part of natural background conditions. Natural background conditions should be described and evaluated taking into account this inherent variability with time and place."

C. Basis for Temperature Effluent Limits

Reasonable Potential

Federal regulations require that effluent limitations in NPDES permits "must control all pollutants or pollutant 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 water quality standard… (40 CFR 122.44(d)(1)(i))." As explained below, the City of Nampa's discharge of heat has the reasonable potential to cause or contribute to excursions above Idaho's water quality criteria for temperature from July – September.

The EPA has reviewed temperature data submitted by the City of Nampa to determine the temperature of Indian Creek in the immediate vicinity of the outfall. The City provided hourly temperature data for one day per month each month since January 2001, for the effluent as well as Indian Creek upstream and downstream of the outfall (a total of about 3,600 hourly results for each location).

The data show that excursions above Idaho's 19 °C daily average temperature criterion have occurred downstream of the outfall in July, August and September, and excursions above the instantaneous maximum criterion of 22 °C have occurred in August. Furthermore, the temperatures measured downstream of the outfall are warmer than the temperatures measured upstream. During July, August, and September, the average downstream temperatures are warmer than the average upstream temperatures by 1.09 °C, 1.60 °C and 1.61 °C, respectively. In addition, the maximum effluent temperatures measured during July, August, and September are greater than the criteria (22.7, 23.8, and 23.2 °C, respectively). Finally, the downstream temperatures are higher than the upstream temperatures at all hours of the day and night. Thus, the higher downstream temperatures are likely to have been caused by the effluent, which is consistently warm, and are unlikely to have been caused by the downstream monitoring location receiving more daytime solar radiation than the upstream monitoring location.

Because excursions above Idaho's temperature criteria have occurred downstream of the discharge in July, August and September, upstream and downstream data show that the discharge increases the average temperature of Indian Creek by at least 1.09 °C during those months, and the effluent temperature is higher than the criteria, the discharge has the reasonable potential to cause or contribute to excursions above water quality standards for temperature during July, August and September.[2]

Since excursions above the 19 °C daily average temperature criterion have been observed downstream of the discharge during July, August, and September, maximum daily average temperature limits are proposed for each of those months. Excursions above the instantaneous maximum criterion of 22 °C have been observed only in August, thus, an instantaneous maximum limit is proposed only for August.

During the rest of the year (October – June) the hourly temperature data show no excursions above Idaho's numeric temperature criteria downstream of the discharge. Therefore, although

[2] Even if the natural background temperature of Indian Creek is higher than the applicable criteria, the discharge induces a temperature increase greater than the allowable 0.3 °C. Thus, effluent limits for temperature would likely be necessary even if the natural background temperature of Indian Creek were greater than the numeric criteria.

the discharge does increase the temperature of Indian Creek during October – June, the available data indicate that upstream and effluent temperatures are cool enough such that the discharge does not cause or contribute to excursions above temperature criteria from October – June.

Effluent Limits

The EPA has calculated effluent limits for temperature using a mixing zone encompassing 100% of the monthly 1Q10 flow rates of Indian Creek. The EPA estimates that complete mixing will occur within about 441 feet downstream of the discharge, under critical low flow conditions.

To calculate the effluent limits, the EPA used Equation 1, below. In Equation 2, T_d was set equal to the criteria. The EPA has calculated effluent limits based on both the maximum daily average criterion of 19 °C and the instantaneous maximum temperature criterion of 22 °C.

$$T_e = D \times (T_d - T_u) + T_u \qquad \text{(Equation 1)}$$

In July and August, the maximum daily average upstream temperature (T_u) is greater than the criterion of 19 °C. Therefore, dilution may not be considered in the calculation of maximum daily average effluent limits for July and August, and the City must meet the 19 °C maximum daily average criterion at the point of discharge.

The temperature limit calculations are summarized in Tables 1 and 2, below.

Table 1: Effluent Limit Calculations for Temperature: Maximum Daily Average

Month	Dilution Factor	Max. Daily Avg. Upstream Temp (°C)	Criterion (°C)	T Limit (°C)
July	1.45	19.94	19.00	**19.0**
August	1.78	19.84	19.00	**19.0**
September	1.79	18.11	19.00	**19.7**

Table 2: Effluent Limit Calculations for Temperature: Instantaneous Maximum

Month	Dilution Factor	Max. Upstream Temp (°C)	Criterion (°C)	T Limit (°C)
August	1.78	21.01	22.00	**22.8**

Appendix H: Draft Clean Water Act Section 401 Certification

Idaho Department of Environmental Quality

Draft §401 Water Quality Certification

June 5, 2015

NPDES Permit Number(s): ID-002206-3, City of Nampa WWTF

Receiving Water Body: Indian Creek

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

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

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

Antidegradation Review

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

- Tier 1 Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier 1 review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier 2 Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier 3 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 1 protection for that use, unless specific circumstances warranting Tier 2 protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

Pollutants of Concern

The City of Nampa WWTF discharges the following pollutants of concern: temperature, five day biochemical oxygen demand (BOD_5), total suspended solids (TSS), pH, *E. coli*, total phosphorus (TP), ammonia, total residual chlorine (chlorine), copper, cyanide, dissolved oxygen, mercury, nitrate, nitrite, Total Kjeldahl nitrogen (TKN), arsenic, cadmium, chromium, lead, molybdenum, nickel, selenium, silver, whole effluent toxicity (WET) and zinc. Effluent limits have been developed for temperature, BOD_5, TSS, pH, *E. coli*, TP, ammonia, chlorine, copper, cyanide, dissolved oxygen, and mercury. No effluent limits are proposed for nitrate, nitrite, TKN, arsenic, cadmium, chromium, lead, molybdenum, nickel, selenium, silver, whole effluent toxicity (WET) and zinc, however monitoring requirements are included in the permit to determine WQS compliance and future permit limits, where needed.

Receiving Water Body Level of Protection

The City of Nampa WWTF discharges to Indian Creek within the Lower Boise Subbasin assessment unit (AU) 17050114SW002_04 (Indian Creek – 4th order below Sugar Avenue in Nampa). This AU has the following designated beneficial uses: cold water aquatic life and secondary contact recreation. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

The cold water aquatic life use in the Indian Creek is not fully supported due to excess sedimentation/siltation, water temperature and for cause unknown (nutrients suspected) (2012 Integrated Report). The secondary contact recreation beneficial use is not fully supported due to excess *E. coli* bacteria. As such, DEQ will provide Tier 1 protection only for the aquatic life use and recreation beneficial uses (IDAPA 58.01.02.051.02; 58.01.02.051.01).

Protection and Maintenance of Existing Uses (Tier 1 Protection)

As noted above, a Tier 1 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 uses and the level of water quality necessary to protect existing uses shall be maintained and protected. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters. The numeric and narrative criteria in the WQS are set at levels that ensure protection of designated beneficial uses. The effluent limitations and associated requirements contained in the City of Nampa WWTF permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

Chlorine and Ammonia

While both the current and proposed water quality effluent limits for ammonia and chlorine were developed to protect cold water aquatic life from acute and chronic exposure, the proposed limits are less stringent than the 1999 permit. Two factors contributed to the change in the permit limits for ammonia: 1) The methodology for calculating ammonia criteria in Idaho's WQS was revised in 2002; and, 2) current receiving water temperature and pH data used to calculate ammonia limits varied substantially from data available in 1999.

Two factors contributed to the change in the permit limits for chlorine: 1) An increase in facility design flow; and, 2) new, more comprehensive flow data for Indian Creek determined seasonal high and low flow conditions criteria were more appropriate than the previous permit's flow tier based limits.

The proposed limits for ammonia and chlorine will protect and maintain existing and designated beneficial uses in Indian Creek. These limits do not exceed narrative or numeric criteria in the Idaho WQS and meet the requirements for Tier 1 protection (IDAPA 58.01.02.051.01.).

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish wasteload allocations for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limitations that are consistent with wasteload allocations in the approved TMDL.

Temperature

The City of Nampa WWTF discharges to Indian Creek (AU 17050114SW002_04), which is impaired for temperature; however a TMDL has not yet been completed. Prior to the development of the TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04), which as described above, means ensuring compliance with the numeric and narrative criteria in the WQS. The discharge has the potential to cause or contribute to excursions above water quality standards for temperature; therefore, the permit proposes water quality based effluent limits for temperature that will ensure compliance with temperature criteria. In addition, continuous temperature monitoring of the effluent and receiving water are permit requirements; this data will be used to assess whether the discharge affects the temperature of Indian Creek.

Total Phosphorus

Indian Creek is also listed for cause unknown, nutrients suspected. The water body was first listed for nutrients on the 1994 §303(d) list which was promulgated by EPA as part of the first TMDL lawsuit. However, when DEQ migrated to the 2002 cycle the nutrients listing was erroneously deleted. DEQ has an obligation to relist this segment for nutrients (cause unknown) since no rationale was provided that demonstrated nutrients were no longer impairing beneficial uses. Therefore, for the 2012 Integrated Report DEQ is relisting cause unknown (nutrients suspected) in Category 5 until such time that either: 1) water quality data demonstrates that beneficial uses are no longer impaired by nutrients; 2) a TMDL is developed; or 3) readily available data and information shows the original listing was made in error. The draft permit

includes a TP effluent limit to meet the Boise River load allocation from the *Snake River Hells Canyon* (SR-HC) *TMDL* (DEQ 2003). In addition, the *Lower Boise River TMDL 2015 Total Phosphorus TMDL Addendum* is under development for the Boise River which provides a wasteload allocation (WLA) to the City of Nampa WWTF.

The Boise River AU 17050114SW001_06 (Boise River - Indian Creek to mouth), approximately 15 miles downstream from the Boise River outfall, is impaired for TP. Water quality monitoring and modeling completed since 2012 have determined the extent of impairment as well as WLAs expected to restore beneficial uses in the Boise River. The WLAs developed in the draft *Lower Boise River TMDL 2015 Total Phosphorus TMDL Addendum* for the City of Nampa WWTP are proposed as effluent limits in this NPDES permit. The effluent limitations in the permit will result in a decrease of TP in Indian Creek and the Boise River.

The Hells Canyon segment of the Snake River is also impaired because of excess nutrients. The *Snake River Hells Canyon* (SR-HC) *TMDL* (DEQ 2003) established a load allocation for the Boise River based upon a TP concentration of 0.07 mg/L at the mouth of the Boise River. The draft TMDL for TP under development for the Boise River ensures that the load allocation for the SR-HC TMDL will be achieved. DEQ believes the permit will ensure compliance with the TMDL and the applicable narrative criteria.

Sediment and *E. coli* Bacteria

Indian Creek is also impaired for sediment and bacteria. The City of Nampa WWTF discharge meets technology-based limits for sediment (TSS) and water quality-based bacteria limits in its current NPDES permit and has similar requirements in the new draft permit. The *Lower Boise River TMDL 2015 Sediment and Bacteria Addendum* is under development to address sediment and bacteria impairment in Indian Creek. This TMDL is expected to be submitted for approval by EPA in June 2015. DEQ expects the TMDL WLAs for the City of Nampa WWTP will be incorporated into the proposed NPDES permit.

The *Lower Boise River TMDL 2015 Sediment and Bacteria Addendum E. coli* wasteload allocations are based on a bacteria concentration of 126 cfu/100 mL, collected as a 5-sample geometric mean over 30 days; which is consistent with current permit limits. Sediment wasteload allocations are based on 20 mg/L, less 2.5 mg/L for natural background (TMDL section 5.4.6), and are expressed as 4-month averages. This TMDL is concentration based, so the WLAs are based on the design flow:

E. coli WLA (in 10^9 cfu/day) = $Q \times 4.76$

Sediment WLA (in kg/day) = $Q \times 66.2$

Where Q is the design flow of the facility in million gallons per day (mgd).

The coefficients are simply a collection of conversion constants:

E. coli: $126\ cfu/100\ mL \times \frac{3.785\ L/gal \times 10^6\ gal/million\ gal}{0.1L/100mL \times 10^9} = \mathbf{4.76} \times 10^9 cfu/day/mgd$

Sediment: $\frac{(20-2.5)mg}{L} \times \frac{3.785\ L/gal \times 10^6\ gal/million\ gal}{10^6\ mg/kg} = \mathbf{66.2}\ kg/day/mgd$

If the design flow were to increase in the future, then the WLAs would correspondingly increase. The present design flows and WLA are shown in the *Lower Boise River TMDL 2015 Sediment and Bacteria Addendum* Table 27. To ensure consistency with this TMDL, DEQ expects this and future permits to contain a 4-month average effluent limit of 17.5 mg/l TSS with an associated load based on the permitted design flow of the facility and *E. coli* average monthly effluent limits of 126 cfu/100ml and maximum daily limits of 576 cfu/100 ml.

At the confluence of Indian Creek, the Boise River (AU 17050114SW001_06 (Boise River – Indian Creek to mouth) is impaired for sediment and bacteria. The EPA-approved *Lower Boise River TMDL* (DEQ 1999) and TMDL Addendum (2008) establishes load allocations for sediment and bacteria at the mouth of Indian Creek and also wasteload allocations for sediment and bacteria for the City of Nampa WWTF. In accordance with the procedure outlined in the sediment TMDL, the City of Nampa requested an increase in their wasteload allocation from the sediment TMDL reserve for growth. Their design flow has increased from 11.76 million gallons per day (MGD) at the time of TMDL development to 18.0 MGD. DEQ has approved the requested sediment wasteload allocation increase and has adjusted the remaining reserve for growth accordingly. These sediment and bacteria allocations are designed to ensure the Boise River will achieve the water quality necessary to support its existing and designated aquatic life beneficial uses and comply with the applicable numeric and narrative criteria. The effluent limitations and associated requirements contained in the City of Nampa WWTF permit are set at levels that comply with these wasteload allocations.

In sum, the effluent limitations and associated requirements contained in the City of Nampa WWTF permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS and the wasteload allocations established in the draft *Lower Boise River TMDL 2015 Total Phosphorus TMDL Addendum,* draft *Lower Boise River TMDL 2015 Sediment and Bacteria Addendum,* and EPA-approved *Lower Boise River TMDL.* Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses of Indian Creek in compliance with the Tier 1 provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

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

Compliance Schedules

Pursuant to IDAPA 58.01.02.400.03, DEQ may authorize compliance schedules for water quality–based effluent limits issued in a permit for the first time. The City of Nampa WWTF cannot immediately achieve compliance with the effluent limits for TP, temperature, mercury and copper; therefore, DEQ authorizes compliance schedules and interim requirements as set forth below. These compliance schedules provide the permittee a reasonable amount of time to achieve the final effluent limits as specified in the permit. At the same time, the schedules ensure that compliance with the final effluent limits is accomplished as soon as possible.

A nine (9) year and 11 month (two-permit-cycle) compliance schedule is authorized for new TP, mercury and copper effluent limits that cannot be immediately achieved. No conventional treatment options exist to meet some of these effluent limits (mercury and copper). Further, the compliance schedule and annual reporting requirements will allow for site specific data to fill data gaps (i.e. for copper and temperature) and allow a more accurate assessment of treatment performance for all constituents. It is anticipated that the addition of biological nutrient removal and improved tertiary filtration implemented for phosphorus removal will provide some level of enhanced removal for metals as general effluent quality is improved. Improvements to enhance removals of phosphorus and nitrogen through process enhancements, such as longer solids retention time in the biological treatment process, effluent filtration improvements to reduce effluent solids, solids side stream controls to reduce loadings, recycling back to the liquid stream and sustained and stable operational performance will all contribute to improved effluent quality.

A fourteen (14) year and eleven (11) month compliance schedule is authorized for new temperature effluent limits. Treatment improvements to meet the final TP, mercury and copper effluent limits may result in changes to effluent temperature. Continuous effluent and receiving water temperature monitoring and evaluation throughout the compliance schedule will help the facility assess the temperature reduction necessary and the best approach to achieve the final effluent limit.

While the schedules of compliance are in effect, the City of Nampa WWTF must comply with the following interim requirements:

1) The Permittee must submit an annual progress report outlining overall progress made toward reaching the final compliance dates for TP, temperature, mercury, and copper. The annual report of progress must be submitted to DEQ and EPA by December 31st of each year. The first report is due December 31, 2015, and annually thereafter until compliance with the final effluent limits is achieved.

2) At a minimum, the written notice must include:
   a) An assessment of the previous year's TP, temperature, mercury and copper data and comparison to the final effluent limitations in the Permit.
   b) A description of progress made towards meeting the final effluent limitations, including the applicable deliverables required under the tasks in Table 2 or interim requirement 3, below. Include any exceedances of interim Permit limits or anticipated challenges for compliance within the next year. This may include a technological explanation and/or a request to modify the Permit.
   c) Further actions and milestones targeted for the upcoming year.

3) The permittee must comply with the Interim Effluent Limits, Compliance Tasks and Compliance Dates in Table 1 and Table 2:

Table 1: Interim Effluent Limits and Compliance Dates.[1]

Pollutant	Effluent Limit	Compliance Dates
Total Phosphorus (TP)	Not to exceed 6.4 mg/L (seasonal average)	May 1, 2015 through September 30, 2019
	Not to exceed 500 µg/L (monthly average)	May 1, 2020 through September 30, 2020 and every May 1 through September 30 every year thereafter until the final limit is achieved.
	Not to exceed 1500 µg/L (seasonal average)	October 1, 2020 through April 30, 2021 and every October 1 through April 30 every year thereafter until the final limit is achieved.
Mercury, total	0.024 µg/l	1st and 2nd permit cycle

[1] For temperature and copper there is no effluent limit in effect until the end of the compliance schedule.

Table 2. Tasks Required Under the Schedules of Compliance for TP, Temperature, Mercury and Copper.

Task No.	Completion Date	Task Activity
1	December 31, 2015	Report of Progress: The Permittee must submit an annual progress report outlining overall progress made toward reaching the final compliance dates for TP, temperature, mercury, and copper. Deliverable: The annual report of progress must be submitted to DEQ and EPA by December 31st of each year. The first report is due December 31, 2015, and annually thereafter until compliance with the final effluent limits is achieved.
2	December 31, 2019	Wastewater Facility Upgrades: Phase I Upgrades include the following: • Modifications and additions to the existing secondary treatment system such that it is capable of biological phosphorus removal • Installation of a new Primary Effluent Pump Station • New Primary Anaerobic Digester • New Solids Handling Facility with rotary drum thickeners and dewatering centrifuges Deliverable: The permittee must submit by December 31, 2019 a written notice to DEQ and EPA stating that the applicable modifications are constructed and operational.
3	May 1, 2020	Achieve May-September TP interim limit not to exceed 500 µg/L (monthly average).
4	October 1, 2020	Achieve October-April TP interim limit not to exceed 1500 µg/L (seasonal average).
5	December 31, 2020	Evaluate options available to achieve final effluent limitations including, but not limited to, treatment plant upgrades, effluent trading projects, seasonal re-use, and infiltration. Deliverables: • No later than December 31, 2020, the permittee must decide on the final option that will be used to achieve the final effluent limits for TP, mercury and copper. • No later than December 31 2020, the permittee must provide, to DEQ and EPA, a preliminary schedule of design upgrades and a preliminary construction schedule that will be used to achieve compliance with the final limits.
6	Nine (9) years and eleven (11) months from the Effective Date of the Permit (EDP)	Implement selected option(s) to achieve final effluent limitations for TP, mercury and copper. Dependent on the option(s) selected, tasks will include: • Securing funds for treatment facility upgrades • Submission of a final schedule of design upgrades • Submission and approval of final engineering plan • Completion of construction • Commissioning of facility upgrades • Submission and approval of an alternative mitigation plan • Implementation of alternative mitigation plan.
7	Nine (9) years and eleven (11) months from the EDP	No later than 9 years and 11 months from the effective date of the permit, the permittee must be in compliance with the final TP, mercury and copper effluent limits. The permittee must notify DEQ and EPA in writing when the final effluent limit is achieved.
8	Fourteen (14) years and eleven (11) months from EDP	No later than 14 years and 11 months from the effective date of the permit, the permittee must be in compliance with the final temperature effluent limits. The permittee must notify DEQ and EPA in writing when the final effluent limit is achieved.

4) In addition to the tasks above the permittee must comply with the following compliance schedule tasks:

a. **Temperature:** The permittee must comply with the following Compliance Schedule requirements for temperature and complete the tasks and reports described below:

i) Within fifteen (15) months of the EDP, complete collection of at least one year of continuous temperature monitoring data and submit an evaluation of current monthly temperature variations to DEQ and EPA.

ii) No later than December 31, 2017 permanently take out of service one of the existing trickling filters at the Nampa WWTP.

iii) Within fifteen months of the completion of the Phase I Upgrades, complete collection of one year of continuous temperature monitoring data and submit a report to DEQ and EPA including an evaluation of the effect of removal of one trickling filter and Phase 1 upgrades on effluent temperature.

iv) No later than December 31, 2022 complete an evaluation of alternatives that the City may use to achieve the final temperature effluent limits. The evaluation should at a minimum consider: facility improvements, removal of trickling filters, alternative discharge locations, re-use of effluent and possible trading mechanisms such as offsite mitigation, including wetland and habitat restoration.

v) Starting in 2023, and continuing until final effluent limits are achieved, the permittee must submit a Report of Progress to EPA and DEQ detailing the evaluation of each available option, progress made toward achieving the final effluent limitation, and the series of actions that will be taken in the coming year. The Reports must be submitted by December 31st of each year.

vi) No later than June 30, 2024, the City must provide DEQ and EPA with a preliminary schedule of design upgrades and preliminary construction schedules for any additional treatment that will be used to achieve compliance with the final temperature effluent limits.

vii) No later than June 30, 2025 the City must complete the preliminary design of any planned facility upgrades and/or a preliminary plan and schedule for an alternative temperature mitigation approach, which will address the City's effluent temperature limit. The preliminary design and/or plan will select the specific technology/technologies/activities to be used to meet the effluent temperature limits based on the previously completed alternatives evaluation.

viii) No later than December 31, 2026, the City must complete and receive DEQ approval of the final design of any facility upgrades and/or alternative temperature mitigation plan to address the effluent temperature limits.

ix) No later than December 31, 2028, the City must complete construction of the facility upgrades at the Nampa WWTP and/or implement an alternative temperature mitigation plan.

x) No later than fourteen (14) years and eleven (11) months from the effective date of the permit, the permittee must be compliance with the final effluent limits for temperature. The permittee must notify DEQ and EPA in writing when the final effluent limit is achieved.

b. **Copper**: The permittee must comply with the following compliance Schedule requirements for copper and complete the tasks and reports described below:

i) No later than December 31, 2018 complete a wastewater characterization to determine sources of copper within the City's service area. This wastewater characterization will be completed in annual phases focused on different contributors within the City's wastewater system. The phases will continue until a likely source of copper has been determined in the system. The planned annual focus areas are noted below.

ii) Significant industrial users

iii) Significant (categorical) industrial users

iv) Minor industrial users, insignificant wet (ISW) and insignificant dry (ISD)

v) Other commercial and residential customers

vi) No later than June 30, 2019, the City must submit a letter to DEQ if the City determines that no facility improvements or operational changes are necessary to meet the final effluent limits based on the results of the wastewater characterization. .

vii) No later than December 30, 2020 complete an evaluation of alternatives methods the City may use to achieve the final copper effluent limits, if necessary. The evaluation should consider facility improvements and pretreatment controls. The evaluation will be integrated in the City's TP alternatives evaluation as several of the proposed discharge options may impact the effluent copper concentrations.

viii) No later than December 31, 2021, the City must provide a preliminary schedule of design upgrades and preliminary construction schedules for the approach that will be used to achieve compliance with the final limits if facility improvements are necessary.

ix) If design upgrades are necessary to meet final copper effluent limitations, then by December 31, 2022 and of each year thereafter the permittee must provide a Report of Progress to DEQ and EPA which details the progress made toward achieving the final effluent limitation, and the series of actions that will be taken in the coming year.

x) No later than nine (9) years and eleven (11) months from the effective date of the permit, the permittee must be compliance with the final effluent limits for copper. The permittee must notify DEQ and EPA in writing when the final effluent limit is achieved.

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes a mixing zone that utilizes 25% of the critical flow volumes of Indian Creek for ammonia, chlorine, copper, cyanide, and mercury.

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 Lance Holloway, DEQ Boise Regional Office at 208.373.0564 or Lance.Holloway@deq.idaho.gov.

DRAFT

Aaron Scheff
Regional Administrator
Boise Regional Office