Fact Sheet for Re-Proposal of Total Phosphorus Limits

The U.S. Environmental Protection Agency (EPA)
Proposes to Reissue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:

City of Sandpoint
Wastewater Treatment Plant

Public Comment Start Date: February 23, 2018
Public Comment Expiration Date: March 26, 2018

Technical Contact: Brian Nickel
206-553-6251
800-424-4372, ext. 36251 (within Alaska, Idaho, Oregon and Washington)
Nickel.Brian@epa.gov

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

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

State Certification
Upon the EPA's request, the Idaho Department of Environmental Quality (IDEQ) has provided a final certification of the permit for this facility under Section 401 of the Clean Water Act. IDEQ is not accepting comments on the final certification.

Public Comment

This fact sheet supports a new draft permit which addresses the effluent limits for total phosphorus (TP). The EPA withdrew those limits from the final permit for this facility, which was issued by the EPA in September 2017 and became effective on December 1, 2017. All other portions of that permit continue to apply. In this draft permit, the EPA is re-proposing only the limits for TP, and therefore is only accepting comments on the effluent limits for TP at this time. See 40 CFR 124.19(j).

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 permit, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at:
https://www.epa.gov/npdes-permits/about-region-10s-npdes-permit-program

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

The fact sheet and draft permit are also available at:

US EPA Region 10
Idaho Operations Office
950 West Bannock, Suite 900
Boise, ID 83702
(208) 378-5746

Table of Contents

Acronyms

30Q10	30-day, 10-year low flow
AML	Average Monthly Limit
AWL	Average Weekly Limit
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CWA	Clean Water Act
DO	Dissolved oxygen
EAB	Environmental Appeals Board
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ICL	Idaho Conservation League
IDEQ	Idaho Department of Environmental Quality
lbs/day	Pounds per day
NPDES	National Pollutant Discharge Elimination System
OWW	Office of Water and Watersheds
POTW	Publicly owned treatment works
USFWS	U.S. Fish and Wildlife Service
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. Background Information

A. General Information

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

Table 1. General Facility Information

NPDES Permit #:	ID0020842
Applicant:	City of Sandpoint Wastewater Treatment Plant (WWTP)
Type of Ownership	Municipal publicly owned treatment works
Physical Address:	723 South Ella Avenue Sandpoint, Idaho 83864
Mailing Address:	1123 Lake Street Sandpoint, Idaho 83864
Facility Contact:	Ryan Luttman, Public Works Director
Receiving Water	Pend Oreille River
Facility Outfall	48.26125, -116.558611

B. Permit History

The most recent NPDES permit for the City of Sandpoint WWTP was issued on September 5, 2017, became effective on December 1, 2017, and will expire on November 30, 2022.

On October 6, 2017, the Idaho Conservation League (ICL) filed a petition for review of the permit with the EPA's Environmental Appeals Board (EAB).[1]

On January 9, 2018, the EPA provided notice to the EAB and ICL that it was withdrawing the permit's interim and final effluent limits for total phosphorus as P (TP) because the EPA had failed to address ICL's comment concerning the use of the State of Idaho's 2015 Mixing Zone Policy. The notice stated that the EPA would prepare a new draft permit addressing the withdrawn portions of the permit. The remaining uncontested portions of the permit remain in effect. See 40 CFR 124.19(j).

This fact sheet supports the new draft permit, which addresses the withdrawn TP limits in light of ICL's comments regarding the use of the 2015 Mixing Zone Policy.

II. Idaho NPDES Authorization

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

[1] The petition for review and related documents are available on the EPA's website, here: https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/8e895d3fac2a8174852581b500478db6

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

III. Facility Information and Receiving Water

Facility information is provided and the receiving water is described in the fact sheets dated April 19, 2016 and October 31, 2014.

IV. Effluent Limitations and Monitoring

As stated above, this fact sheet addresses effluent limits for TP which were withdrawn from the final NPDES permit for this facility so that the EPA could consider comments regarding the basis for the mixing zones used to derive such limits. The EPA's consideration of such comments is described below.

Because the EPA did not reconsider other aspects of the TP effluent limits for this facility, the basis for such limits remains as described in the record supporting the previously issued permit. *See* Appendix E to the fact sheet dated April 19, 2016 and the *Response to Comments on the Draft NPDES Permits for the City of Sandpoint*, (Permit Response to Comments) (EPA 2017) at responses 1-8, 1-12, 1-13, 1-17, 1-19, 1-20, 1-22 through 1-28, 2-3, 2-5, 2-13, 2-14, 2-16, 2-18, 2-19, 2-24, 2-26, and 2-28.

A. Mixing Zones for TP

In its final Clean Water Act Section 401 certification dated February 3, 2017, IDEQ authorized the following mixing zones for TP: 47% of the 30-day, 10-year low flow of the river (30Q10) from June – September, and 60% of the 30Q10 from October – May. As explained in Appendix C to the Fact Sheet dated April 19, 2016, these mixing zones provide dilution factors of 404.4:1 and 641.6:1, respectively.

On Page 1 of its comments on the June 2016 draft permit, ICL referenced the State of Idaho's mixing zone policy that was adopted by the State on April 11, 2015 (2015 Mixing Zone Policy). In a footnote on Page 1 of these comments, ICL stated that, "It is not clear to us that these rules have been approved by the EPA. As such, it is not appropriate for the DEQ to be utilizing them for the development of mixing zones in Idaho. Nor is it appropriate for the EPA to be incorporating these rules into an EPA NPDES permit."

In the Permit Response to Comments, the EPA reproduced this footnote in comment #2-16, however, the EPA did not respond to the issues raised in this footnote, i.e., whether the 2015 Mixing Zone Policy had been approved by the EPA and whether it was appropriate for this policy to be used by the State to authorize mixing zones and for the EPA to incorporate such mixing zones into an EPA-issued NPDES permit. The following discussion addresses these issues.

Approval Status of Idaho's 2015 Mixing Zone Policy

The State of Idaho adopted a revised mixing zone policy on April 11, 2015 ("2015 Mixing Zone Policy") and submitted the revised policy to the EPA for approval on December 22, 2016. The 2015 Mixing Zone Policy appears in Section 060 of the Idaho Water Quality Standards (IDAPA 58.01.02), in the current version of the Idaho Administrative Code, which is available at: https://adminrules.idaho.gov/rules/current/58/0102.pdf

The EPA has not yet acted upon the 2015 Mixing Zone Policy. However, EPA approved the State's prior mixing zone policy ("prior Mixing Zone Policy"), as part of the State's applicable water quality standards. Therefore, per 40 CFR 131.21, the prior Mixing Zone Policy remains in effect for Clean Water Act purposes. Most of the provisions in the prior Mixing Zone Policy were adopted in 1993, except for IDAPA 58.01.02.060.01.g, which was adopted in 1998. The prior Mixing Zone Policy appears in Section 060 of the Idaho Water Quality Standards, in the archived version of the Idaho Administrative Code from 2014, which is available at: https://adminrules.idaho.gov/rules/2014/58/0102.pdf.

Idaho Mixing Zone Policy Provisions

Authority to Authorize Mixing Zones

Under both the 2015 Mixing Zone Policy and the prior Mixing Zone Policy, only the State (i.e., IDEQ) has the authority to authorize mixing zones and determine their size. See the 2014 and current versions of the Idaho Water Quality Standards at Section 060.01. The State authorized the mixing zones for TP in its CWA Section 401 certification (see the Certification at Table 4, on Page 10).

Legal Basis for Incorporating State-Certified Mixing Zone

As explained below, the EPA incorporated the State-authorized mixing zones into the permit, based on its finding that the mixing zones were authorized under the State's EPA-approved prior Mixing Zone Policy. The State's prior Mixing Zone Policy, approved by EPA as part of the State's approved water quality standards, constitutes the applicable mixing zone policy for Clean Water Act purposes, as provided in 40 CFR 131.21.

Further, as explained below, the State-certified mixing zones were also authorized under the 2015 Mixing Zone Policy. Although the 2015 Policy has not yet been approved by EPA, and thus is not part of the State's applicable water quality standards for Clean Water Act purposes, it is incorporated into State law. Accordingly, the State included mixing zones based on the 2015 Policy in its CWA Section 401 certification, as a condition necessary to meet "any other requirement of State law." In the preamble to 40 CFR 131.12, EPA specifically noted that where States include any more stringent conditions in their Section 401(d) certifications as necessary to meet State law, EPA would include such supplemental conditions in a permit – even where the conditions were based on not-yet-approved State water quality standards. 65 Fed. Reg. 24641, 24644 (Apr. 27, 2000). Here, where the not-yet-approved 2015 Mixing Zone Policy would authorize the same mixing zones authorized under the approved Prior Mixing Zone Policy, and thus is not less stringent than the prior policy, EPA appropriately calculated TP limits based on the mixing zones provided in the State's 401 Certification.

Mixing Zone Size

As noted by ICL in its petition for review, the Permit Response to Comments explained that, under the 2015 Mixing Zone Policy, IDEQ may authorize mixing zones larger than 25% of the stream flow volume (Section 060.01.i). See the Permit Response to Comments at response #1-8. However, the Permit Response to Comments did not address the question of whether a mixing zone larger than 25% of the stream flow volume could be authorized under the prior Mixing Zone Policy. The prior Mixing Zone Policy states, in relevant part, that:

> Section 060.01: *After a biological, chemical, and physical appraisal of the receiving water and the proposed discharge and after consultation with the person(s) responsible for the wastewater discharge, the Department will determine the applicability of a mixing zone and, if applicable, its size, configuration, and location. In defining a mixing zone, the Department* ***will consider*** *the following principles:*
>
> …
>
> *e. Mixing zones in flowing receiving waters are to be limited to the following:*
>
> …
>
> *iv. The mixing zone is not to include more than twenty-five percent (25%) of the volume of the stream flow.*
>
> (emphasis added).

This language requires IDEQ to "consider" limiting the mixing zone to 25% of the volume of the stream flow, while still allowing for discretion to exceed this size in certain circumstances . *See* IDEQ's draft *Mixing Zone Technical Procedures Manual*, August 2008, at Section 2.5: "DEQ's mixing zone policy lists specific principles that should be considered when evaluating the size and location of a mixing zone. However, it is important to note that these principles are not regulatory requirements, and DEQ has discretion to depart from these principles."

As part of its submittal to the EPA, IDEQ also prepared a "Mixing Zone Rule Crosswalk" comparing its 2015 Mixing Zone Policy to the prior Mixing Zone Policy (IDEQ 2016). On Page 3, the Mixing Zone Rule Crosswalk states that the 2015 Mixing Zone Policy makes it "more clear" that the mixing zone size restrictions "can be varied from (as described in new section 060.01.i)."

IDEQ's response to comments on its 401 certification of this permit (401 Certification Response to Comments) further supports the interpretation that the Prior Mixing Zone Policy authorizes mixing zones greater than 25%[2]:

> ***DEQ's interpretation of the prior provisions also allowed the agency to vary from the 25% limit on mixing zones****, but only if the mixing zone still ensured protection of uses. The new provisions provide further explanation for what constitutes an unreasonable*

[2] The EPA did not receive IDEQ's final response to comments document until after issuance of the final permit.

> *interference and confirm the agency practice of allowing larger or requiring smaller mixing zones* (emphasis added).

Thus, under both the 2015 Mixing Zone Policy and the prior Mixing Zone Policy, IDEQ may authorize mixing zones larger than 25% of the stream flow volume.

Unreasonable Interference with Uses

Regardless of a mixing zone's size, both the 2015 Mixing Zone Policy and the prior Mixing Zone Policy state that mixing zones are not to cause unreasonable interference with or danger to beneficial uses. See the 2015 Mixing Zone Policy at Section 060.01.d and the prior Mixing Zone Policy at Section 060.01.b. The 2015 Mixing Zone Policy provides detail on what constitutes unreasonable interference, which is not present in the prior Mixing Zone Policy (IDEQ 2016).

As explained in the 2016 Fact Sheet at Page E-8, the EPA used the CE-QUAL-W2 two dimensional water quality model to evaluate the effects of Sandpoint's discharge of TP (as well as BOD and nitrogen) in combination with discharges from the Cities of Priest River and Dover and found that these discharges would not cause violations of Idaho's water quality criteria for DO or pH and that periphyton accumulations would be below nuisance thresholds (Cope 2015). See also the Permit Response to Comments at responses 1-12, 1-13, 1-22, 1-23, 1-26, 2-13, 2-14, and 2-19.

The results of the CE-QUAL-W2 modeling show that the mixing zones for TP which were authorized by IDEQ will not cause unreasonable interference with the beneficial uses of the Pend Oreille River.

The 401 Certification Response to Comments of this permit states that:

> *It should also be emphasized that phosphorus is not a toxic pollutant and mixing zones for non-toxic substances should be treated differently. In most situations, the time for nuisance aquatic growth to respond to an increase in nutrients will be longer than the time to reach full mixing. Therefore, in general, nuisance aquatic growth basically responds to fully mixed conditions. This allows DEQ to provide a 100% mixing zone for nutrients without, in most instances, an adverse impact on uses. DEQ did, however, limit the mixing zone to 47% for the Sandpoint discharge due to the difficult discharge point that demonstrated poor mixing during critical flows. DEQ used field data collected by DEQ and modeling completed by EPA in determining this mixing zone.*

Summary

As explained above, the mixing zones authorized by IDEQ in its certification of the City of Sandpoint permit are consistent with the State's prior Mixing Zone Policy, which remains in effect for Clean Water Act purposes and which allows IDEQ authorize mixing zones larger than 25% of the stream flow volume. The mixing zones authorized by IDEQ for TP do not cause unreasonable interference with beneficial uses.

B. Re-Proposal of TP Effluent Limits

The EPA is re-proposing the TP effluent limits which were withdrawn from the permit. The Final TP effluent limits were based in part on the mixing zones described above. The basis for the final TP effluent limits is provided in Appendix E to the fact sheet dated April 19,

2016. The interim TP effluent limits were specified by IDEQ in their Clean Water Act Section 401 certification of the permit. These limits are listed in Table 2, below.

Table 2: Re-Proposed Effluent Limits for TP

Parameter	Units	Effluent Limitations	
		Average Monthly Limit	Average Weekly Limit
Phosphorus, Total as P June – September (Interim)	µg/L	Report	Report
	lb/day	96	125
Phosphorus, Total as P June – September[1] (Final)	µg/L	Report	Report
	lb/day	61	79
Phosphorus, Total as P October – May	µg/L	Report	Report
	lb/day	96	125

Notes:
1. These effluent limits are subject to a compliance schedule. See the permit at Part II.F.

C. Compliance Schedules

The permit's schedule of compliance for the June – September TP limits was not stayed or withdrawn and remains in effect. See the permit at Part II.F.

V. Other Legal Requirements

A. Endangered Species Act

On August 4, 2017, the U.S. Fish and Wildlife Service concurred with the EPA's finding that the discharge from the City of Sandpoint WWTP may affect, but is not likely to adversely affect bull trout. The EPA is not proposing any changes to the permit requirements, therefore, re-initiation of consultation is not required.

B. Essential Fish Habitat

As stated in the Fact Sheet dated April 19, 2016, the Pend Oreille River is not designated essential fish habitat.

C. State Certification

Section 401 of the CWA requires the EPA to seek State certification before issuing a final permit. Idaho DEQ certified the permit on February 3, 2017 and sent a letter correcting an error in the certification on February 21, 2017. The certification and correction are provided for reference in Appendix A, however, the certification is final and IDEQ is not requesting comments on the certification.

D. Permit Expiration

This action does not affect the permit's expiration date, which is November 30, 2022.

VI. References

Cope, Ben. 2015. "Pend Oreille River Model Simulation of Point Source Impacts." Memorandum from Ben Cope, U.S. EPA Region 10 Office of Environmental Assessment to Brian Nickel, U.S. EPA Region 10 Office of Water and Watersheds. October 15, 2015.

EPA. 2014. *Fact Sheet: City of Sandpoint Wastewater Treatment Plant*. EPA Region 10. October 31, 2014. https://www.epa.gov/sites/production/files/2017-09/documents/r10-npdes-sandpoint-id0020842-fact-sheet-2014.pdf

EPA. 2016. Revised Fact Sheet: City of Sandpoint Wastewater Treatment Plant. EPA Region 10. April 19, 2016. https://www.epa.gov/sites/production/files/2017-09/documents/r10-npdes-sandpoint-id0020842-fact-sheet-2016.pdf

EPA. 2017. Response to Comments on the Draft NPDES Permits for the City of Sandpoint: NPDES Permit Number ID0020842. September 2017. https://www.epa.gov/sites/production/files/2017-09/documents/r10-npdes-sandpoint-id0020842-rtc-2017.pdf

IDEQ. 2008. Mixing Zone Technical Procedures Manual. Draft. August 2008. Idaho Department of Environmental Quality.

IDEQ. 2016. Mixing Zone Rule Crosswalk. March 22, 2016. Idaho Department of Environmental Quality. http://www.deq.idaho.gov/media/60179469/58-0102-1401-mixing-zone-rule-crosswalk.pdf

IDEQ. 2017. Response to Comments: City of Sandpoint Wastewater Treatment Plant NPDES Permit #ID0020842 §401 Water Quality Certification. February 2017.

Appendix A. Final CWA Section 401 State Certification and Correction Letter

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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

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

February 3, 2017

Mr. Michael Lidgard
US Environmental Protection Agency, Region 10
1200 6th Avenue, OW-130
Seattle, WA 98101

RE: Final §401 Water Quality Certification for the Final NPDES Permit No. ID-0020842 for the City of Sandpoint Wastewater Treatment Plant

Dear Mr. Lidgard:

The State of Idaho Department of Environmental Quality (DEQ) received a request for final certification on January 19, 2017 for the Sandpoint Wastewater Treatment Plant to discharge from their existing facility. After review of the proposed final permit, DEQ submits the enclosed final §401 water quality certification.

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

Sincerely,

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

Enclosure

C: Nicole Deinarowicz, DEQ Boise
Brian Nickel, EPA Region 10, Seattle
Ryan Luttmann, Public Works Director, City of Sandpoint

Idaho Department of Environmental Quality

Final §401 Water Quality Certification

February 3, 2017

NPDES Permit Number(s): ID0020842 City of Sandpoint Wastewater Treatment Plant

Receiving Water Body: Pend Oreille River

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 Sandpoint Wastewater Treatment Plant discharges the following pollutants of concern: BOD_5, TSS, *E. coli*, chlorine, mercury, temperature, pH, phosphorus, ammonia, nitrate + nitrite, Kjeldahl nitrogen, arsenic, cadmium, total chromium, chromium VI, copper, cyanide, lead, nickel, silver, zinc and whole effluent toxicity (WET). Effluent limits have been developed for BOD_5, TSS, pH, *E. coli*, chlorine, mercury and phosphorus. No effluent limits are proposed for temperature, ammonia[1], nitrate + nitrite, Kjeldahl nitrogen, arsenic, cadmium, total chromium, chromium VI, copper, cyanide, lead, silver, zinc and WET. Although these pollutants are present in detectable amounts, none of the pollutants have a reasonable potential to exceed WQS. The Sandpoint Wastewater Treatment Plant intends to increase their design flow. Limits for their current permit were calculated using a 3.0 mgd (million gallons per day) design flow and the draft permit uses a 5.0 mgd design flow.

Receiving Water Body Level of Protection

The Sandpoint Wastewater Treatment Plant discharges to the Pend Oreille River within the Pend Oreille Lake Subbasin assessment unit (AU) 17010214PN002_08 (Pend Oreille Lake to Priest River). This AU has the following designated beneficial uses: cold water aquatic life, domestic water supply, and primary contact recreation. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

According to DEQ's 2012 Integrated Report, this AU is not fully supporting one or more of its assessed uses. The cold water aquatic life use is not fully supported. Causes of impairment include total dissolved nitrogen gas (gas supersaturation) and temperature. As such, DEQ will provide Tier 1 protection (IDAPA 58.01.02.051.01) for the aquatic life use. The contact recreation beneficial use is unassessed. DEQ must provide an appropriate level of protection for the contact recreation use using information available at this time (IDAPA 58.01.02.052.05.c). Fecal coliform and *E. coli* monitoring from a USGS monitoring station near Newport, WA and the Sandpoint Water Treatment Plant indicate this use is fully supported (see Appendix A of this certification); therefore, DEQ will provide Tier 2 protection in addition to Tier 1, for the recreation beneficial use (IDAPA 58.01.02.051.01; 58.01.02.051.02).

[1] After the collection of additional monitoring data, it was determined that the effluent limits for ammonia shown in the draft permit were not necessary. Analysis by EPA using the new data indicated that there was no reasonable potential for ammonia to exceed criteria and therefore, unnecessary to require effluent limits.

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 Sandpoint Wastewater Treatment Plant permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. 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. The Pend Oreille River does not yet have an approved TMDL for temperature or total dissolved nitrogen gas.

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). As previously stated, the cold water aquatic life use in this Pend Oreille River AU is not fully supported due to excess total dissolved nitrogen gas and temperature. The City's discharge was found to have no reasonable potential to exceed WQS for total dissolved nitrogen gas and temperature (2012 Fact Sheet page 11). Because of the low temperature of the effluent and the fact that total dissolved gas is not a pollutant found in municipal discharges, the City's discharge complies with IDAPA 58.01.02.054.04. The other pollutants of concern either have effluent limits that ensure compliance with WQS or there is no reasonable potential to exceed WQS.

In summary, the effluent limitations and associated requirements contained in the Sandpoint Wastewater Treatment Plant permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the Pend Oreille River in compliance with the Tier 1 provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

High-Quality Waters (Tier 2 Protection)

The Pend Oreille River is considered high quality for recreational uses. As such, the water quality relevant to recreational uses of the Pend Oreille River must be maintained and protected, unless a lowering of water quality is deemed necessary to accommodate important social or economic development.

To determine whether degradation will occur, DEQ must evaluate how the permit issuance will affect water quality for each pollutant that is relevant to recreational uses of the Pend Oreille River (IDAPA 58.01.02.052.05). These include the following: mercury, *E. coli*, zinc, nickel, cyanide, arsenic and nutrients. Effluent limits are set in the proposed and existing permit for E.coli; new limits are set in the proposed permit for mercury and phosphorus (discussion below).

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

If degradation will occur, DEQ must then determine whether the degradation is significant. A Tier 2 analysis is not required for insignificant degradation. If the discharge will cause a cumulative decrease in assimilative capacity that is equal to or less than 10% from conditions in the Pend Oreille River as of July 1, 2011, then DEQ may determine the degradation is insignificant, taking into consideration the size and character of the discharge and the magnitude of its effect on the receiving water (IDAPA 58.01.02.052.08.a).

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

For pollutants that are currently limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the current permit or license (IDAPA 58.01.02.052.06.a.i), and the future discharge quality is based on the proposed permit limits (IDAPA 58.01.02.052.06.a.ii). For the Sandpoint Wastewater Treatment Plant permit, this means determining the permit's effect on water quality based upon the limits for *E. coli* in the current and proposed permits. Table 1 provides a summary of the current permit limits and the proposed or reissued permit limits.

Effluent limits for *E. coli* in the proposed permit are the same as the previous permit and are protective of beneficial uses. However, the proposed increased design flow (3.0 mgd to 5.0 mgd) will theoretically increase the concentration of *E. coli* bacteria at the edge of a mixing zone. A Tier 2 analysis, however, is only required if the degradation is determined to be significant and significant degradation occurs when the discharge of the pollutant will cumulatively decrease the remaining assimilative capacity by more than 10% percent or, if less than 10%, when determined by the Department to be significant (IDAPA 58.01.02.052.08.a). Sandpoint's new design flow will reduce the assimilative capacity of *E. coli* by <1%. Since this value is less than 10% of the remaining assimilative capacity and determined by the Department to be an insignificant increase, no alternatives analysis or socioeconomic justification are required for the increase of *E. coli* in the Pend Oreille River (see Appendix A of this certification for the analysis).

New Permit Limits for Pollutants Currently Discharged: Mercury, Phosphorus

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

The proposed permit for Sandpoint Wastewater Treatment Plant includes new limits for mercury and phosphorus (Table 1). Since the current permit does not contain effluent limits for mercury or phosphorus, the proposed limits are based on discharge monitoring report (DMR) data, the WQS and the existing ambient water quality in the Pend Oreille River. The new limits will

maintain the existing water quality for mercury and phosphorus. To ensure that there is no loss of assimilative capacity in the Pend Oreille River for mercury, the loading effluent limits in the new permit are based on the currently permitted design flow of 3mgd and the maximum daily mercury limit is equal to the maximum measured concentration of mercury, which is 1.1µg/L. These limits will also ensure that the numeric water column criteria for mercury[2] will be met at the edges of the chronic and acute mixing zones (Table 4).

Due to the limited amount of phosphorus data and its variability, the entire data record to date was used to develop the new effluent limits. (Details of how the effluent limits were calculated can be found in Appendices E and F of the Revised Fact Sheet.) New permit limits for phosphorus during the summer recreation season are what is currently discharged to ensure no degradation during the time of year when the effects of phosphorus are relevant to recreational uses. Modeling was also done to ensure that this amount of phosphorus would not cause degradation from current conditions in the river as a whole (see Appendix B). Modeling reports are available upon request by calling the contact shown at the end of this certification.

In conclusion, by limiting phosphorus loads with new effluent limits and modeling to verify effects of these new limits; restricting mercury discharges to those currently discharged; and requiring the execution of a mercury minimization plan (permit part I.E.); there should be no degradation of water quality with respect to these pollutants as it relates to recreational beneficial uses.

Pollutants with No Limits: Arsenic, Zinc, Cyanide and Nickel

There are several pollutants of concern (arsenic, zinc, cyanide and nickel) relevant to Tier 2 protection of recreation that currently are not limited and for which the proposed permit also contains no limit (Table 1). For such pollutants, a change in water quality is determined by reviewing whether changes in production, treatment, or operation that will increase the discharge of these pollutants are likely (IDAPA 58.01.02.052.06.a.ii). The Sandpoint Wastewater Treatment Plant has proposed a design flow increase of 2.0 mgd. There have been no changes in the industrial sector of Sandpoint that might increase their discharge concentration of these pollutants. However, the proposed increased design flow (3.0 mgd to 5.0 mgd) will theoretically increase the concentration of these pollutants at the edge of a mixing zone. A Tier 2 analysis, however, is only required if the degradation is determined to be significant and significant degradation occurs when the discharge of the pollutant will cumulatively decrease the remaining assimilative capacity by more than 10% percent or, if less than 10%, when determined by the Department to be significant (IDAPA 58.01.02.052.08.a). As shown in Appendix C of this certification, the increase in the design flow will not decrease the remaining assimilative capacity for these pollutants by more than 10%. Therefore, DEQ has determined there will be no significant degradation. Continued monitoring of new or increased discharges to the treatment system and their pollutants is required by part III. J. of the new permit to detect any changes as future flow increases. As such, the proposed permit should maintain the existing high water quality in the Pend Oreille River.

In summary, DEQ concludes that this discharge permit complies with the Tier 2 provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).

---

[2] The water column criteria for mercury remain in effect for Clean Water Act purposes even though it is not listed in Idaho's WQS. See EPA letter to DEQ dated December 12, 2008 at this link: http://www.deq.idaho.gov/epa-actions-on-proposed-standards for details.

Table 1. Comparison of current and proposed permit limits for pollutants of concern relevant to uses receiving Tier 2 protection.

Pollutant	Units	Current Permit			Proposed Permit			Change[a]
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Average Monthly Limit	Average Weekly Limit	Max Daily Limit	
Pollutants with limits in both the current and proposed permit								
Five-Day BOD	mg/L	30	45	—	30	45	—	I[b]
	lb/day	750	1100	—	1251	1877	—	
	% removal	85%	—	—	85%	—	—	
TSS	mg/L	30	45	—	30	45	—	I[b]
	lb/day	750	1100	—	1251	1877	—	
	% removal	85%	—	—	85%	—	—	
pH	standard units	6.5–9.0 all times			6.5–9.0 all times			NC
E. coli	no./100 mL	126	—	406	126	—	406	NC
Total Residual Chlorine	mg/L	0.45	1.1	—	0.348	—	0.912	D
	lb/day	—	—	—	14.5	—	38.0	
Pollutants with new limits in the proposed permit								
Total Phosphorus (June-Sept)	µg/L	1/qtr	—	Report	2/wk	—	—	
	lb/day	—	—	—	61	79	—	NC
Total Phosphorus (Oct-May)	µg/L	—	—	—	—	—	—	
	lb/day	—	—	—	96	125	—	I[c]
Mercury	µg/L	2/yr	—	Report	0.56	—	1.1	NC
	lb/day	—	—	—	0.014	—	0.028	
Ammonia	mg/L	—	—	—		—		NC
	lb/day	—	—	—		—		NC
Pollutants with no limits in both the current and proposed permit								
Temperature	°C	1/day	—	Report	—	continuous		NC
Total Ammonia	mg/L	1/mo	—	Report	—	1/mo	Report	NC
Nitrate + Nitrite	mg/L	1/qtr	—	Report	—	1/qtr	Report	NC
Kjeldahl Nitrogen	mg/L	1/qtr	—	Report	—	1/qtr	Report	NC
Arsenic	µg/L	2/yr	—	Report	—	2/yr	Report	NC
Cadmium	µg/L	"	—	Report	—	"	Report	NC
Total Chromium	µg/L	"	—	Report	—	"	Report	NC
Chromium VI	µg/L	"	—	Report	—	"	Report	NC
Copper	µg/L	"	—	Report	—	"	Report	NC
Cyanide	µg/L	"	—	Report	—	"	Report	NC
Lead	µg/L	"	—	Report	—	"	Report	NC
Nickel	µg/L	"	—	Report	—	"	Report	NC
Silver	µg/L	"	—	Report	—	"	Report	NC
Zinc	µg/L	"	—	Report	—	"	Report	NC

[a] NC = no change in effluent limit from current permit; I = increase of pollutants from current permit; D = decrease of pollutants from current permit.

[b] EPA determined that the current water quality based effluent limits for TSS and BOD were unnecessary and that technology based effluent limits for these pollutants would not violate the dissolved oxygen WQS (Revised Fact Sheet Appendix D). Since the Pend Oreille River only receives Tier 1 protection for cold water aquatic life, pollutants significant to this use can be increased up to the WQS criteria (IDAPA58.01.02.052.07).

[c] Increase is during the year when effects of phosphorus are not significant to beneficial uses.

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. Sandpoint Wastewater Treatment Plant cannot reliably achieve compliance with effluent limits for phosphorus for the season of June - September; therefore, DEQ authorizes a compliance schedule and interim requirements as set forth below. This compliance schedule provides the permittee a reasonable amount of time to achieve the final effluent limits as specified in the permit. At the same time, the schedule ensures that compliance with the final effluent limits is accomplished as soon as possible. At the request of the City of Sandpoint, this schedule includes two options, one that utilizes their existing treatment plant and the other which allows time for the construction of a new treatment plant.

Requirements for Compliance Schedules Option 1 and 2

1. The permittee must comply with all effluent limitations and monitoring requirements in Part I.B., I.C. and I.D. of their permit beginning on the effective date of the permit, except those for which a compliance schedule is specified in Part II.F of the final permit.

2. The permittee must achieve compliance with the phosphorus final effluent limitations as set forth in Part I.B. (Table 1) of the permit no later than:

    a. Five (5) years after the effective date of the final permit for Option 1, or
    b. Ten (10) years after the effective date of the final permit for Option 2.

3. While the schedules of compliance specified in Part II.F of the permit are in effect, the permittee must complete interim requirements and meet interim effluent limits and monitoring requirements as specified in Parts I.B, I.C, I.D and I.E of the permit.

4. By two (2) years after the effective date of the final permit, the permittee must notify EPA and DEQ in writing that a preferred compliance schedule option has been selected and demonstrate that funding for the preferred option is secured for Option 1 or has a City of Sandpoint approved strategy for obtaining funding for Option 2.

Option 1 Existing Plant Upgrade – 5 Year Schedule

This option applies if the City of Sandpoint decides to upgrade their existing treatment plant to meet final effluent limits.

1. By three (3) years after the effective date of the final permit, the permittee must provide for DEQ approval, a preliminary engineering report (PER) that examines how to improve

effluent quality and meet effluent limits associated with phosphorus. This report must include details on how the proposed improvements will meet final effluent limits. The report shall include materials, costs, and a schedule for completion of the work.

2. By four (4) years after the effective date of the final permit, final plans and specifications for the modifications proposed in the PER shall be submitted to DEQ for approval.

3. By five (5) years after the effective date of the final permit, the permittee must have completed the plant upgrade and achieved compliance with final effluent limits and WQS as shown in Table 3.

Option 2 New Treatment Plant – 10 Year Schedule

This option applies if the City of Sandpoint decides to construct a new treatment plant that will meet final effluent limits.

1. By three (3) years after the effective date of the final permit a facility plan shall be submitted to DEQ for review and approval. The facility plan shall include outlining estimated costs and schedules for construction of a new wastewater treatment plant and implementation of technologies to achieve final effluent limitations. This schedule must include a timeline for pilot testing.

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

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

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

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

6. By nine (9) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that construction has been substantively completed on the facilities to achieve final effluent limitations.

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

Table 2. Interim Limits for Both Options			
Parameter	Units	Average Monthly Limit	Average Weekly Limit
Phosphorus (June-September)	lb/day	96	125

Table 3. Final Limits for Both Options				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Percent Mixing Zone
Phosphorus (June-September)	lb/day	61	79	47% of the 30Q10 flow (6,640 cfs)
Phosphorus (October-May)	lb/day	96	125	60% of the 30Q10 flow (8,260 cfs)

Mixing Zones

Due to Sandpoint's desire for a design flow increase, EPA modeled various scenarios related to downstream conditions for the phosphorus in the Pend Oreille River. EPA did additional modeling to examine the mixing zones for pollutants of concern which have acute and chronic aquatic life criteria, including ammonia, chlorine and mercury. These modeling efforts resulted in more stringent limits for phosphorus and chlorine. The mixing zones for these pollutants and the rationale behind their use are described in detail in the modeling documentation and reports available from DEQ upon request. Pursuant to IDAPA 58.01.02.060, DEQ authorizes the mixing zones summarized in Table 4 for the current outfall location.

Table 4: Mixing Zones

Pollutant	Mixing Zone (% of critical flow volumes of the Pend Oreille River)
arsenic	acute 15.1 chronic and human health 25
chlorine	acute 15.1 chronic 25
chromium III	acute 15.1 chronic 25
chromium IV	acute 15.1 chronic 25
copper	acute 15.1 chronic 25
cyanide	acute 15.1 chronic 25
lead	acute 15.1 chronic 25
mercury	acute 15.1 chronic 25
nickel	acute 15.1 chronic 25
nitrate + nitrite	25
zinc	acute 15.1 chronic 25
Phosphorus, June-September final limit	47
Phosphorus, October-May	60

Other Conditions

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

Right to Appeal Final Certification

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

Questions or comments regarding the actions taken in this certification should be directed to June Bergquist, Coeur d'Alene Regional Office at 208.666.4605 or via email at june.bergquist@deq.idaho.gov.

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

Appendix A

E. coli Significance Test

Background

The Pend Oreille River is considered high quality for recreational uses. To prevent the lowering of water quality with respect to *E. coli*, DEQ must ensure that the design flow increase proposed by the Sandpoint WWTP draft permit does not cumulatively decrease the remaining assimilative capacity of the river by more than ten percent taking into account the size and character of the discharge and the magnitude of its effect on the receiving water (IDAPA 58.01.02.052.08.a).

Assimilative capacity is determined by comparing the background (ambient) concentration of a pollutant with the Water Quality Standard (WQS). The difference between these two numbers is the remaining assimilative capacity.

Only two data sets were found to use for the establishment of a background level of *E. coli* concentration in the river above the WWTP discharge. There were 18 fecal coliform samples collected by the USGS at their monitoring station near Newport, WA from 1990 through 1995. The maximum value was 17 cfu/100ml and the average was 4 cfu/100ml. The other data set were 26 samples taken by the Sandpoint Water Treatment Plant in 2008-2009; however, those samples were drawn from a 14-25 foot depth depending on season, and may not be representative of bacteria levels closer to the surface where most recreational use occurs. The maximum value of this data set was 3 cfu/100ml. A background value of 4 cfu/100ml was selected for this analysis.

Analysis

- Background concentration upstream of Sandpoint discharge: 4 cfu/100ml
- *E. coli* effluent limit that must be met at the "end of the pipe" i.e. no mixing zone authorized: 126 cfu/100ml
- Remaining assimilative capacity: 126 – 4 = 122 cfu/100ml
- Ten percent of 122 cfu/100ml is: 12.2 ≈ 12 cfu/100ml. This is the amount of *E. coli* that can be added to the river before the amount becomes significant.
- Sandpoint proposes to increase their current design flow from 3.0 mgd (4.64 cfs) to 5.0 mgd (7.7 cfs).
- Effluent concentration (from draft permit average monthly limit): 126 cfu/100ml
- In-river 30Q5 flow (critical low flow for non-carcinogenic human health criteria; see Revised Fact Sheet Appendix C) = 7,360 cfs

Results
Current Mixed Concentration = 4.08 cfu/100ml
Proposed Mixed Concentration = 4.13 cfu/100ml

4.13 – 4.08 = 0.05 cfu/100ml (or 0.05/122 = 0.04%) is the reduction in assimilative capacity from the current design flow to the proposed design flow. This proposed increase of *E. coli* does not exceed 10% of the remaining assimilative capacity and considering the character of the discharge and magnitude of its effect on the Pend Oreille River, the Department has determined that this decrease is not a significant degradation of river water quality.

Formula used to calculate mixed concentrations:

Mixed Concentration = Cm = [(Ce * Qe) +(Cu * Qu)] / (Qe+Qu)

Where:

Cm = Mixed Concentration (µg/L)
Ce = Effluent Concentration (µg/L)
Qe = Effluent Volume (liters, calculated as flow rate in cfs * constant 28.316)
Cu = Upstream concentration (µg/L)
Qu = Upstream Volume (liters, calculated as flow rate in cfs * constant 28.316)

Appendix B

CE-QUAL-W2 Phosphorus Modeling for Sandpoint WWTP

Background

In the 2008 Integrated Report, total phosphorus was added as a cause of impairment to the Pend Oreille River (the 31.8 mile long segment from Pend Oreille Lake to Priest River). After collection of data throughout this river length in 2009, DEQ concluded that the river was not impaired due to this nutrient and phosphorus was removed as a pollutant in the 2010 Integrated Report. DEQ also concluded at that time that the Pend Oreille River has little or no remaining assimilative capacity for phosphorus (2.7µg/L before considering any of the three municipal discharges into the Pend Oreille River.). Ten percent of 2.7ug/L is only a 0.027ug/L of phosphorus that can be increased without an approved alternatives analysis and socioeconomic justification.

DEQ also recognizes that effluent limits for phosphorus in the proposed permit are based on very little effluent data. The current permit only requires quarterly monitoring. The quarters are based on the calendar year and the phosphorus monitoring data is reported on the last day of each quarter. The discharge monitoring reports (DMRs) do not indicate the day the actual samples were collected or the effluent flow associated with that timeframe. These factors can create a wide margin of error.

Additional examination of the phosphorus monitoring data show that it is widely distributed (effluent flow 1 to 6.7mgd and concentrations from 0.8 to 5.33mg/L). Reasons for this spread are not clear since there are not enough data to determine correlations. Determining exactly what amount of phosphorus is currently being discharged to ensure no further loss of assimilative capacity is problematic given this data. For this and the above reasons, DEQ and EPA have approached the new effluent limits for phosphorus cautiously using the CE-QUAL-WE modeling scenarios to look at effects downriver of the proposed phosphorus effluent limits. Although the DMR data is limited, there were some seasonal differences which allowed development of seasonal limits that reflect discharge amounts as reported on DMRs. These seasonal limits were used for the CE-QUAL-W-2 modeling scenarios.

Modeling Approach

Fortunately, a CE-QUAL-W-2 model that examines far field effects of a proposed discharge had been developed by the Army Corps of Engineers to examine temperature changes due to the Albeni Falls dam on the Pend Oreille River. This model was revised in 2011by Portland State University to investigate various phosphorus scenarios in the river. In 2015 it was used by EPA to investigate the consequences of the proposed phosphorus permit limits for Sandpoint.

The initial modeling scenario examined the consequence of a 5mgd phosphorus discharge during the July-September timeframe of 61 lbs/day (1.46 average monthly concentrations) contrasted with baseline conditions determined in 2009. Results of the model run were largely satisfactory except for periphyton biomass during the month of June. During this timeframe, periphyton biomass significantly departed from the existing condition. To improve the outcome of this timeframe, the month of June was included in the summertime seasonal timeframe with a limit of

61 lbs/day. This reduced the load of phosphorus in June from 96 lbs/day to 61 lbs/day. The model was re-run and the outcome was satisfactory and the effluent limits revised to reflect this change.

Conclusion

The amount of phosphorus coming from Sandpoint's discharge is approximately 25% of the phosphorus load upstream of this discharge. Thus Sandpoint's discharge can have significant water quality effects for the entire river. As we have stated, current amounts of phosphorus discharged from the facility are an approximation due to lack of a robust dataset. The proposed permit requires the collection of an adequate number of phosphorus samples to correct this problem. To compensate for the lack of data, modeling was completed and compared to a baseline of river water quality data collected in 2009. As a result of the modeling, effluent limits and critical flows were adjusted to provide an acceptable outcome.

Appendix C

Arsenic, Zinc, Cyanide, Nickel Significance Test

Background

The Pend Oreille River is considered high quality for recreational uses. To prevent the lowering of water quality with respect to arsenic, zinc, cyanide and nickel, DEQ must ensure that the design flow increase proposed by the Sandpoint WWTP draft permit does not decrease the remaining assimilative capacity of the river for each of these pollutants by more than ten percent, taking into account the size and character of the discharge and the magnitude of its effect on the receiving water (IDAPA 58.01.02.052.08.a).

Assimilative capacity is determined by comparing the background (ambient) concentration of a pollutant with the Water Quality Standard (WQS or criteria). The difference between these two numbers is the remaining assimilative capacity. Arsenic, zinc, cyanide and nickel have criteria related to human health (IDAPA 58.01.02.210.01) and thus are considered significant to recreational uses. However, zinc cyanide and nickel also have cold water aquatic life criteria that are much lower values than their human health criteria. Because cold water aquatic life in this waterbody receives Tier 1 protection, the more restrictive criteria must be used for this analysis. Arsenic's most restrictive criteria are for the protection of human health.

Upstream data for these pollutants was extremely limited to absent. Therefore, several conservative assumptions had to be made to complete this analysis. Upstream monitoring of these pollutants has been included in the draft permit.

Analysis

- Background concentrations upstream of the Sandpoint discharge for cyanide and nickel is assumed to be zero due to lack of data. Arsenic and zinc were measured in the Clark Fork River below the Cabinet Gorge dam. Results were arsenic $\leq$ 1 µg/L and zinc ranged from no detection to 80µg/L with an average of 4µg/L. For this analysis zinc will be assumed to be the average value of the Clark Fork data due to the distance from the discharge and arsenic will be one half the detection limit or 0.5µg/L. To summarize background concentrations are:

  Zinc 4µg/L Arsenic 0.5µg/L Cyanide 0µg/L Nickel 0µg/L

- Remaining assimilative capacity and 10% of remaining assimilative capacity:

  Zinc 72µg/L- 4µg/L = 68µg/L X .10 = 6.8µg/L

  Arsenic 10µg/L – 0.5µg/L = 9.5µg/L X .10 = 0.95µg/L

  Cyanide 5.2µg/L – 0 = 5.2µg/L X .10 = 0.5µg/L

  Nickel 52µg/L – 0 = 52µg/L X .10 = 5µg/L

  These values are the amount of each pollutant that can be added to the river before the amount becomes significant.

- Sandpoint proposes to increase their current design flow from 3 mgd (4.64 cfs) to 5.0 mgd (7.7 cfs).

- Effluent concentration 92nd percentile (from DMR data):
  Zinc 141µg/L
  Arsenic 7µg/L
  Cyanide 0.6µg/L
  Nickel 0µg/L (no detection in DMR data 2001-2011)
- In-river 7Q10 flow (critical low flow for chronic aquatic life criteria; see Revised Fact Sheet Appendix C) = 3,880 cfs

Results

Zinc Current Mixed Concentration = 4.16µg/L	Proposed Concentration=4.27µg/L
Arsenic Current Mixed Concentration = 0.508 µg/L	Proposed Concentration=0.512µg/L
Cyanide Current Mixed Concentration = 0.0007µg/L	Proposed Concentration=0.0012µg/L
Nickel Current Mixed Concentration = 0µg/L	Proposed Concentration = 0µg/L

The additional load of zinc will decrease the remaining assimilative capacity by 0.11µg/L or 0.16% of the remaining assimilative capacity of 68µg/L.

The additional load of arsenic will decrease the remaining assimilative capacity by 0.004µg/L or 0.042% or 0.04% of the remaining assimilative capacity of 9.5µg/L.

The additional load of cyanide will decrease the remaining assimilative capacity by 0.0005µg/L or 0.001% of the remaining assimilative capacity of 5.2µg/L.

There will be no additional load of nickel.

The additional load of zinc, arsenic, cyanide and nickel resulting from the design flow increase, will not exceed 10% of the remaining assimilative capacity for any of these pollutants, and considering the size and character of the discharge and the magnitude of its effect, these increases of pollutants are not a significant degradation of river water quality.

Formula used to calculate mixed concentrations:

Mixed Concentration = Cm = [(Ce * Qe) +(Cu * Qu)] / (Qe+Qu)

Where:

Cm = Mixed Concentration (µg/L)
Ce = Effluent Concentration (µg/L)
Qe = Effluent Volume (liters, calculated as flow rate in cfs * constant 28.316)
Cu = Upstream concentration (µg/L)
Qu = Upstream Volume (liters, calculated as flow rate in cfs * constant 28.316)

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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

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

February 21, 2017

Mr. Michael Lidgard
US Environmental Protection Agency, Region 10
1200 6th Avenue, OW-130
Seattle, WA 98101

RE: Correction of Error in Final §401 Water Quality Certification for the Final NPDES Permit No. ID-0020842 for the City of Sandpoint Wastewater Treatment Plant

Dear Mr. Lidgard:

The State of Idaho Department of Environmental Quality (DEQ) inadvertently deleted the mixing zone for ammonia in the above referenced final certification. The mixing zone for ammonia should be the same as shown in the draft certification which is: acute 15.1% and chronic 12.1% of the critical flow volumes of the Pend Oreille River.

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

Sincerely,

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

Enclosure

C: Brian Nickel, EPA Region 10, Seattle