STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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

June 7, 2018

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

RE: Final §401 Water Quality Certification for the Final NPDES Permit No. ID-0027693 for the City of Dover Wastewater Treatment Plant

Dear Ms. Poulsom:

The State of Idaho Department of Environmental Quality (DEQ) received a request for final certification on June 6, 2018 for the Dover 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: Loren Moore, DEQ Boise
John Drabek, EPA Region 10, Seattle
City of Dover P.O. Box 115 Dover, ID 83825

Idaho Department of Environmental Quality

Final §401 Water Quality Certification

June 7, 2018

NPDES Permit Number(s): ID0027693; City of Dover Wastewater Treatment Plant (Dover WWTP)

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

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

Antidegradation Review

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

- Tier I Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier III Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier I protection for that use, unless specific circumstances warranting Tier II protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

Change in Treatment Technology

In 2006, Dover WWTP increased their design flow from 0.06 million gallons per day (mgd) to 0.18 mgd. The facility upgraded their design from a sequence batch reactor to a membrane bioreactor (MBR).

Pollutants of Concern

The Dover WWTP discharges the following pollutants of concern: BOD_5, total suspended solids (TSS), *E. coli* bacteria, total residual chlorine, pH, ammonia, temperature and phosphorus. Effluent limits have been developed for BOD_5, TSS, *E. coli* bacteria, total residual chlorine, mercury and pH. No effluent limits are proposed for mercury, ammonia, temperature and phosphorus.

Receiving Water Body Level of Protection

The Dover WWTP 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, primary contact recreation, and domestic water supply. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

According to DEQ's 2014 Integrated Report, this AU is not fully supporting its aquatic life use. Causes of impairment include dissolved gas supersaturation (total dissolved nitrogen gas) and excess 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 primary 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; therefore, DEQ will provide Tier II protection in addition to Tier I, for the recreation beneficial use (IDAPA 58.01.02.051.01 and 58.01.02.051.02).

Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing and designated uses and the level of water quality necessary to protect existing and designated uses shall be maintained and protected. In order to protect and maintain existing and designated

beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters. The numeric and narrative criteria in the WQS are set at levels that ensure protection of existing and designated beneficial uses. The effluent limitations and associated requirements contained in the Dover WWTP 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 of 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 existing permit does not contain effluent limits for temperature. A reasonable potential analysis using effluent temperature collected by Dover and the 7Q10 low flow of the river indicates that the proposed discharge has no reasonable potential to exceed WQS (it also does not measurably increase temperature of the river see Fact Sheet section V.D. page 21). Dissolved nitrogen gas is not a pollutant found in municipal discharges. As such, the City of Dover's discharge does not violate Idaho WQS or impair beneficial uses in the Pend Oreille River and therefore complies with IDAPA 58.01.02.054.04.

The proposed permit for Dover WWTP includes new mass limits for chlorine and a higher percent removal for TSS (Table 1). The percent removal requirement for TSS was increased from 79% to 85% due to the ability of the facility to meet this technology based limit. A mass based limit was added to the technology based limit for chlorine to meet NDPES permit requirements for publically owned treatment works. The chlorine and TSS limits in the proposed permit reflect a maintenance or improvement in water quality from current conditions. 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 Dover WWTP permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the Pend Oreille River in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

High-Quality Waters (Tier II Protection)

The Pend Oreille River is considered high quality for primary contact recreation uses. As such, the water quality relevant to primary contact recreation 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 primary contact recreation uses of the Pend Oreille River (IDAPA 58.01.02.052.05). These include the following: mercury, *E. coli* and phosphorus. Effluent limits are set in the proposed and existing permit for *E. coli*. Mercury and phosphorus do not have limits in either the existing permit or the proposed permit (discussion below). The Dover WWTP current permit was issued in 2002. In 2006, Dover increased their design flow from 0.06 mgd to 0.18 mgd. At the same time, the permittee also improved their treatment system by replacing a sequence batch reactor with a membrane bioreactor (MBR).

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 occurs, DEQ must determine whether the degradation is significant. A Tier II 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 Dover WWTP 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. Given the new MBR technology in use at this facility, the concentration of *E. coli* in the effluent is greatly reduced from the previous treatment system in use at this facility. The membranes form a physical barrier that filters out most bacteria so it is highly effective in significantly reducing *E. coli* in the effluent. Therefore, even though the design flow has been increased by 0.12 mgd, due to the type of treatment, there has been no lowering of water quality.

Pollutants with No Limits

There are two pollutants of concern, phosphorus and mercury, relevant to Tier II 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). With respect to phosphorus, there was an increase in design flow by 0.12 mgd in 2006. This change was also accompanied by a significant upgrade in treatment process but there is no data on phosphorus concentrations to determine if the upgrade improved phosphorus removal. The amount of assimilative capacity for phosphorus in this AU of

the Pend Oreille River is limited, as discussed in Appendix A and the 2017 final certification for the City of Sandpoint's WWTP permit (Appendix B). A simple mixing calculation approach was selected to examine the effect of Dover's design flow increase and the effects of additional phosphorus. Results indicate no significant lowering of assimilative capacity. DEQ made total phosphorus monitoring a condition of this certification to better determine the effects of this discharge.

Mercury is a cause of impairment in Pend Oreille Lake and therefore a pollutant of concern in the Pend Oreille River. There is no monitoring data to determine if Dover's discharge contains mercury. The proposed permit requires Dover to develop and maintain a master list of industrial users that introduce certain pollutants to the publically owned treatment works (POTW). DEQ has added a requirement to the Industrial Waste Management section II.D of the permit to include all potential sources of mercury from nondomestic users of the POTW. This will provide information for the next permit cycle to determine if effluent monitoring for mercury might be appropriate. An internet search indicates that presently Dover does not have businesses or industries that are typically associated with the use or handling of mercury. Therefore, at this time there is no reason to believe that Dover is a significant discharger of mercury.

Because the proposed permit does not allow for any increased water quality impacts from these pollutants, DEQ has concluded that the proposed permit should not cause a lowering of water quality for pollutants with no limits. As such, the proposed permit should maintain the existing high water quality in Pend Oreille River.

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

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

Pollutant	Units	Current Permit			Proposed Permit			Change[a]
		Average Monthly Limit	Average Weekly Limit	Single Sample Limit	Average Monthly Limit	Average Weekly Limit	Single Sample Limit	
Pollutants with limits in both the current and proposed permit								
Five-Day BOD	mg/L	30	45	—	30	45	—	NC
	lb/day	15	23	—	15	23	—	
	% removal	85%	—	—	85%	—	—	
TSS	mg/L	30	45	—	30	45	—	NC
	lb/day	15	23	—	15	23	—	
	% removal	79%	—	—	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[c]
Total Residual Chlorine	mg/L	0.5	0.75	—	0.5	0.75	—	NC[d]
	lb/day	—	—	—	0.75	1.12	—	
Pollutants with no limits in both the current and proposed permit								
Total Phosphorus	lb/day (May–Sept)	—	—	Report	—	—	Report	NC[c]
Temperature	°C	—	—	Report	—	—	Report	NC[d]
	Btu (million)/day	—	—	—	—	—	—	
Total Ammonia	mg/L	—	—	Report	—	—	Report	NC[d]
Mercury	ng/L	—	—	—	—	—	—	NC

[a] NC = no change, I = increase, D = decrease.
[b] Table 1 is for comparative purposes only.
[c] Refer to High Quality Waters (Tier II) section for discussion
[d] Refer to Protection and Maintenance of Existing Uses (Tier I) section for discussion

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

Industrial Waste Management

List any nondomestic users that may be sources of mercury that contribute to discharge concentrations. Report this information as directed under permit section II.D (IDAPA 58.01.02.052.08.a.ii).

Phosphorus Monitoring

Monitor effluent for total phosphorus shall be done twice per month for twelve months beginning four (4) years from the effective date of the permit and every fourth year thereafter. Sampling shall use a grab sample technique and monitoring procedures described in section III.C of the final permit (IDAPA 58.01.02.052.08.a.ii).

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes a mixing zone that utilizes 5% of the 30Q10 critical flow volume (5,650 cfs) of Pend Oreille River for phosphorus, ammonia, and chlorine.

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

Dover Phosphorus Significance Test

Background

The Pend Oreille River is considered high quality for recreational uses and therefore, receives Tier 2 protection. Excess nutrients in a waterbody can create visible slime growths or other nuisance aquatic growths, impairing designated uses such as contact recreation. Pend Oreille River has a designated use for primary contact recreation. Phosphorus is likely the limiting nutrient for the growth of algae and other aquatic plants. To prevent the lowering of water quality with respect to total phosphorus (TP), DEQ must ensure that the design flow increase proposed by the Dover WWTP draft permit does not cumulatively (taking into account other dischargers) decrease the remaining assimilative capacity of the river by more than ten percent, without first examining alternatives and determining if the degradation is socioeconomically justified. To examine this design flow increase, DEQ looked at historical phosphorus data and the modeling work that was done for the City of Sandpoint's wastewater treatment plant discharge.

In the DEQ 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 (10 µg/L TP is the numeric interpretation of Idaho's narrative nutrient criterion for the Pend Oreille River as discussed in Appendix E of the 2016 Sandpoint NPDES Fact Sheet; 7.3 µg/L is the estimated upstream concentration from Pend Oreille Lake (*Montana and Idaho Border Nutrient Agreement Technical Guidance*, January 2001) which leaves 2.7µg/L of remaining assimilative capacity before considering any of the three municipal dischargers into the Pend Oreille River.). Ten percent of 2.7 µg/L is only a 0.27 µg/L of phosphorus that can be increased without an approved alternatives analysis and socioeconomic justification.

Very little phosphorus effluent data exists for the City of Sandpoint and there is no TP data for the City of Dover. Fortunately, a CE-QUAL-W2 model that examines far field effects of a proposed discharge or series of discharges was 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 2011 by Portland State University to investigate various phosphorus scenarios in the river. In 2015, it was used by EPA to investigate the consequences of a design flow increase for the City of Sandpoint.

The selected Sandpoint modeling scenario used a 5 mgd design flow and limited phosphorus discharge during the July-September timeframe to 61 lbs/day of phosphorus loading (1.46 average monthly concentrations). Results of this scenario were contrasted with baseline conditions determined by an intensive river monitoring campaign in 2009 and determined to be acceptable after an adjustment of the summer time period (June – September). The modeling

included a phosphorus load from Dover at their currently permitted design flow of 0.06 mgd and an average phosphorus concentration of 4.275 mg/L. Because Dover's design flow increase was not included in the Sandpoint modeling scenario, DEQ examined this increase in phosphorus by using a mass balance equation as described below. The mass balance equation is a more conservative estimate of the effects of the increased phosphorus from Dover because it does not take into account assimilation of the nutrient as it moves down the river as does the model. The CE-QUAL-W2 Sandpoint modeling scenario is recommended to be rerun in the future for the renewal of Priest River and Sandpoint NPDES permits to give an overall updated view of the river phosphorus contributions from municipal dischargers.

Formula used to calculate mixed concentrations in the attached spreadsheet:

$$Cr = \frac{Qs \times Cs + Qd \times Cd}{Qs + Qd} \times 100$$

Cr = Mixed Concentration downstream (ug/L)
Cs= Upstream concentration (mg/L)
Cd = Discharge concentration (mg/L)
Qs = Upstream flow (cfs)
Qd = Discharge flow (cfs)

The conclusion, as shown in Figure 1 is that the difference in phosphorus concentrations from the currently permitted design flow to the proposed design flow is not significant. The design flow increase does not significantly decrease assimilative capacity of the river for phosphorus.

Calculation of loss of assimilative capacity, due to increased discharge of phosphorus Dover WWTP

	Upstream Critical[a] Flow (cfs)	Upstream Pollutant Conc[b]	Water Quality Criterion		Remaining Assimilative Capacity[c]	10% of RAC	RAC= remaining assimilative capacity
			10		2.7	0.27	
Condition Upstream of Discharge #1-Sandpoint	6640	7.3		6,640 cfs is the 30Q10 river flow			
Discharge #1							
Permitted Design Discharge	7.74	1460	Effluent Limit in Current Permit				
Proposed Design Discharge	7.74	1460	Effluent Limit in Current Permit				

Downstream WQ	Downstream Pollutant Concentration	Change in WQ (lowering +) (improvement -)	Percent Degradation			
Permitted Design Discharge	9.0					
Proposed Design Discharge	9.0	0.0	0.0%	Insignificant		
Condition Upstream of Discharge #2[d]	6647.74	9.0			1.0	0.10
Discharge #2 Dover						
Permitted Design Discharge	0.093	2480	2480 is the average of Sandpoint's TP data because Dover has no TP data			
Proposed Increased Design Discharge	0.278	2480				

Downstream WQ	Mixed WQ	Change in WQ	% Loss of Assimilative Capacity	
Permitted Design Discharge	9.03			
Proposed Design Discharge	9.09	0.07	6.8%	Insignificant 10% or less is considered insignificant (IDAPA 58.01.02.052.08.a.i)
Cumulative change in potential downstream WQ with both proposed discharges		0.07	6.8%	Insignificant

Notes:

Input cells are shaded, output cells are not. Worksheet is protected, but there is no password

[a] Critical upstream flow should be appropriate to the parameter of interest. See Idaho WQS at IDAPA 58.01.02.210.03.b for toxic substances. For bacteria and nutrients it is recommended that a 30Q10 be used.

[b] Units on effluent quality, stream quality and criterion do not matter, AS LONG AS THEY ARE THE SAME

[c] Under the 2011 antidegradation implementation rule the existing or baseline water quality and thus remaining assimilative capacity are as of July 1, 2011. Input data should reflect this.

[d] For this simple calculation the pollutant is assumed to be 100% conservative, i.e. undergo no transformations or loss from the stream. This assumption means there is a conservative (i.e. high side) estimation of downstream quality, assuming no other sources of added load. If this is not a close approximation of reality then fate and transport modeling should be employed.

This example Worksheet was prepared by Don A. Essig, Idaho DEQ, 1410 N. Hilton, Boise Idaho 83706. Phone: 208-373-0119. E-mail: Don.Essig@DEQ.Idaho.gov

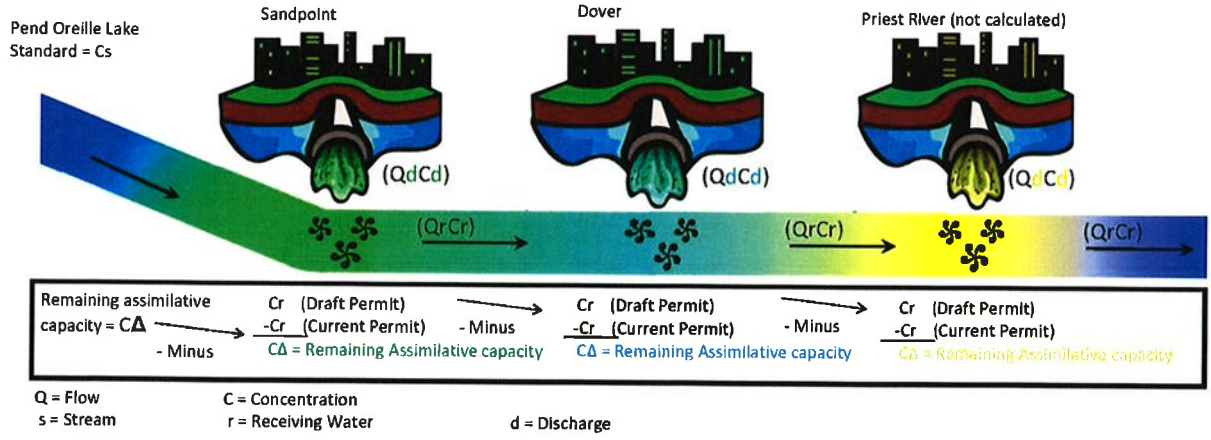

Figure 1

Excerpt from the February 3, 2017 Final Certification for the City of Sandpoint:

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.